

Digital measuring and display devices

48x24	48x48	72x24	72x36	72x72	96x24	96x48	96x96	144x72
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Panel meters

- Current loop
- Direct current / direct voltage
- Direct current / direct voltage, high voltage
- Shunt
- Potentiometer
- Resistance
- Pt100
- Pt1000
- Thermocouple
- Frequency
- AC current/voltage
- AC current/voltage, high voltage
- Pressure
- Strain gauges melt pressure
- Strain gauges weighing technology

✓			✓		✓	✓		
✓			✓		✓	✓		
					✓	✓		
✓			✓		✓	✓		✓
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					✓	✓		
	✓							
						✓		
						✓		

Multi-function unit

✓						✓	✓	
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Two-channel meter

						✓		
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Setpoint generator

	✓					✓	✓	
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Counter

		✓	✓		✓	✓		
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Bargraph indicators

- Direct current / direct voltage
- Direct current / direct voltage, high voltages
- Frequency

✓		✓			✓		✓	
					✓			
							✓	

Interface indicators

- Serial RS232, RS485 or BCD
- Profibus DP

		✓	✓		✓	✓		
						✓		

Large-size indicators, single-line

- Standard signals, Pt100, Frequency, Counter
- Interfaces RS232/RS485, BCD, Profibus DP

Built-on enclosures / Desktop housings

- Made of plastics
- Incl. digital panel meter
- Made of metal
- Desktop housing (on demand)

Top hat rail mounting

- multifunction measuring inputs
- Pressure transducer strain gauge

LCD/TFT displays

- standard signals
- multifunction measuring inputs

Sensor systems

- Pt100
- Melt pressure sensors
- Gauge head selector switch

Hazardous area

- current loop indicators

Accessories

- Adapter
- Blind covers
- Gauge head selector switch

Current loop

Measuring input: 4-20 mA

48x24 mm

M1-7S – Current loop indicator, 4-digit

72x36 mm

M1-6S – Current loop indicator, 4-digit

- 2 switching points (PhotoMos)

96x24 mm

M1-3S – Current loop indicator, 4-digit

- 2 switching points (PhotoMos)

96x48 mm

M1 – Current loop indicator, 4-digit

- 2 switching points (PhotoMos)

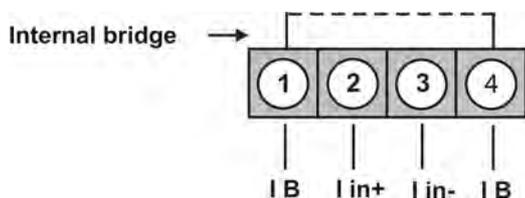
M1– 4-digit digital panel meter in 48x24 mm (BxH) Current loop 4-20 mA

- red display of -1999...9999 digits
- minimal installation depth: 27 mm without plug-in terminal
- min/max-value recording
- adjustment via factory default or directly on the sensor signal
- 10 adjustable support points
- display flashing at threshold value exceedance / undercut
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- navigation keys for the triggering of min/max-values or for threshold value corrections during operation
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or of -40°C...80°C



ORDER NUMBER **EUR**
(without options)

• Direct current 4-20 mA



M1-7SR4A.0001.K70DD **120,00**

• Product key options

M	1-	7	S	R	4	A.	0	0	0	1.	K	7	0	D	D	EUR
													1	without keypad, operation on the back	10,00	

Please state physical unit on demand, e.g. A.

• Parameterisation software

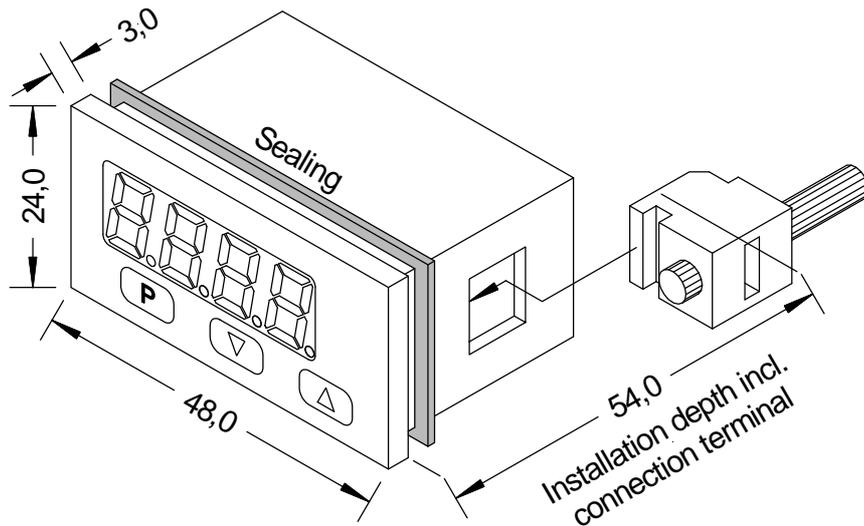
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B48 x H24 x D27 mm, (incl. plug-in terminal D=54 mm)
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm
	Fixing	screw elements for wall thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	front IP65 standard, rear side IP00
	Weight	approx. 50 g
	Connection	plug terminal; line cross section up to 2.5 mm ²
Display	Digit height	10 mm
	Segment colour	red
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display/measuring time	0.1 to 10.0 seconds
Measuring input	Input	min. 3.5...max. 21 mA
	Measuring range	4-20 mA
	Measuring fault	0.3% of measuring range, ± 1 digit Measuring fault at measuring time = 1 second
	Fail of voltage	approx. 5.1 V
	Temperature drift	100 ppm/K
	Measuring principle	successive approximation
	Resolution	12 bit-converter 14 bit (noiseless by oversampling at 1 s measuring time)
Memory	Flash-memory (independent of supply)	
	Data life	≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-80% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Ordering code

	M	1-	7	S	R	4	A.	0	0	0	1.	K	7	0	D	D	
Basic type M-Line																	
Installation depth 54 mm incl. plug-in terminal																	Dimension D physical unit on demand
Housing size 48 x 24 x 27 mm																	Version D D
Display type Current loop																	Setpoints 0 without
Display colour Red																	Protection 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 4-digit																	Supply voltage K via current loop
Digit height 10 mm																	Measuring input 1 Direct current 4-20 mA
Interface without																	Analog output 0 without
																	Sensor supply 0 without

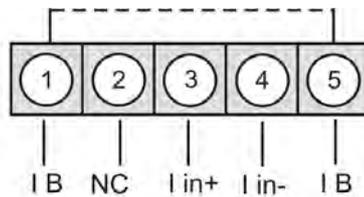
M1– 4-digit digital panel meter in 72x36 mm (BxH) Current loop 4-20 mA

- red display of -1999...9999 digits
- minimal installation depth: 26 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable setpoints
- display flashing at threshold exceedance / undershooting
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- navigation keys for the triggering of min/max values or for threshold value corrections during operation
- optional: 2 PhotoMos switching outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or of -40°C...80°C

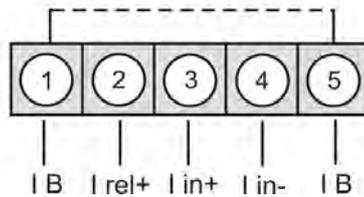
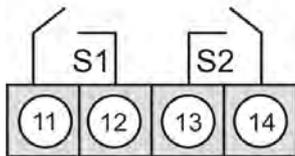


ORDER NUMBER **EUR**
(without options)

• Direct current 4-20 mA



M1-6SR4B.0001.K70BD **150,00**



M1-6SR4B.0001.K72BD **170,00**

• Product key options

M	1-	6	S	R	4	B.	0	0	0	1.	K	7	0	B	D
M	1-	6	S	R	4	B.	0	0	0	1.	K	7	2	B	D

EUR

1	Without keypad, operation on the back	10,00
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Please state physical unit on demand, e.g. A.

• Parameterisation software

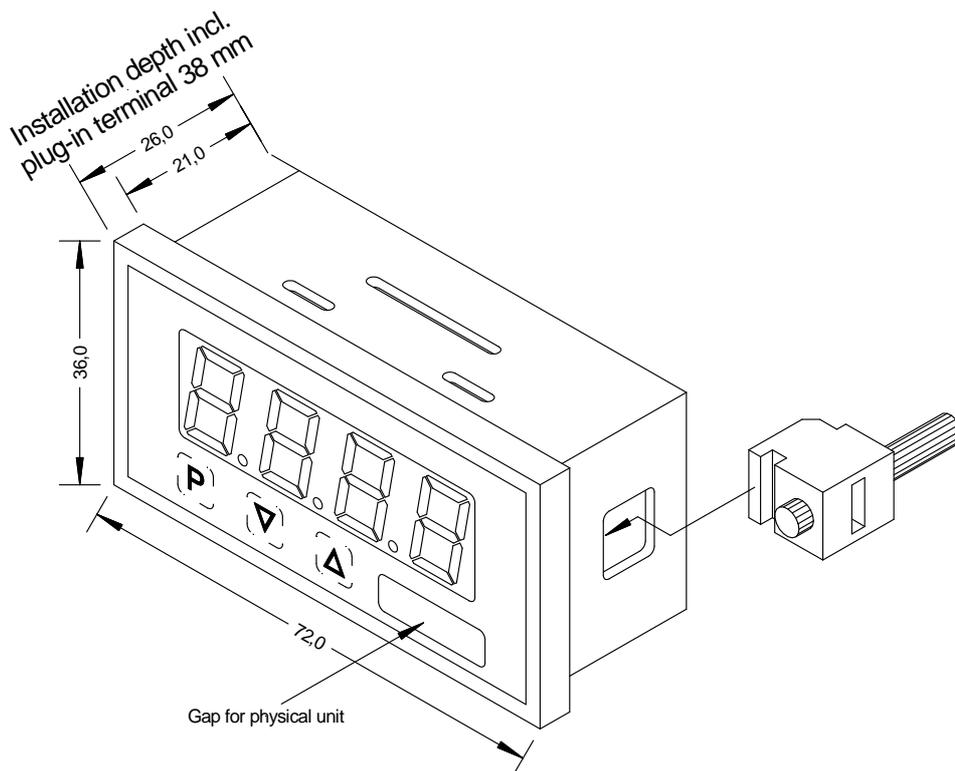
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D 26 mm, (incl. plug-in terminal D= 38 mm)
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	front IP65 standard, rear side IP00
	Weight	approx. 100 g
Display	Connection	plug-in terminal; line cross section up to 2.5 mm ²
	Digit height	14 mm
	Segment colour	red
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Measuring input	Display time	0.1 to 10.0 seconds
	Input	min. 3.5...max. 21 mA
	Measuring range	4-20 mA
	Measuring fault	0.3% of measuring range, ± 1 digit
	Fail of voltage	Measuring fault at measuring time = 1 second approx. 5.1 V without switching outputs approx. 8.0 V with switching outputs
	Temperature drift	100 ppm/K
	Measuring time	0.1...10.0 seconds
Output	Measuring principle	successive approximation
	Resolution	12 Bit-converter 14 Bit (noiseless by oversampling at 1 s measuring time)
	Setpoints	potential-free PhotoMOS-outputs max. switching voltage 30 VDC/AC max. steady current 0,4 A Electric strength AC: 400 V permanent, 1800 V for 1 minute
	Memory	Flash-memory (independent of supply) Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-80% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Ordering code

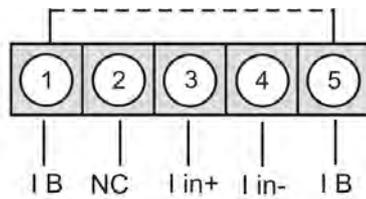
	M	1-	6	S	R	4	B.	0	0	0	1.	K	7	0	B	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (free choice)
Installation depth 38 mm, incl. plug-in terminal																	Version
																	<input type="checkbox"/> B B
Housing size 72 x 36 x 26 mm																	Switching points
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> 2 PhotoMOS-outputs
Display type Current loop																	Protection
																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Display colour Red																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Number of digits 4-digit																	Supply voltage
																	<input type="checkbox"/> K via current loop
Digit height 14 mm																	Measuring input
																	<input type="checkbox"/> 1 Direct current 4-20 mA
Interface without																	Analog output
																	<input type="checkbox"/> 0 without
																	Sensor supply
																	<input type="checkbox"/> 0 without

M1– 4-digit digital panel meter in 96x24 mm (BxH) Current loop 4-20 mA

- red display of -1999...9999 digits
- minimal installation depth: 40 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min-/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: two PhotoMos switching outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or of -40°C...80°C

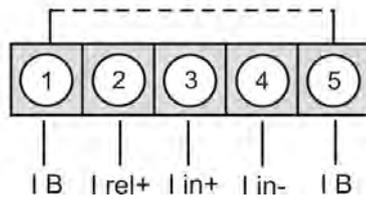
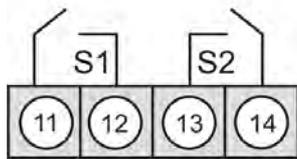


• Current loop device, direct current 4-20 mA



ORDER NUMBER **EUR**
(without options)

M1-3SR4B.0001.K70BD **135,00**



M1-3SR4B.0001.K72BD **155,00**

• Product key options

M	1-	3	S	R	4	B.	0	0	0	1.	K	7	0	B	D
M	1-	3	S	R	4	B.	0	0	0	1.	K	7	2	B	D

EUR

1 Without keypad, operation on the back 10,00

Please state physical unit on demand, e.g. °C.

• Parameterisation software

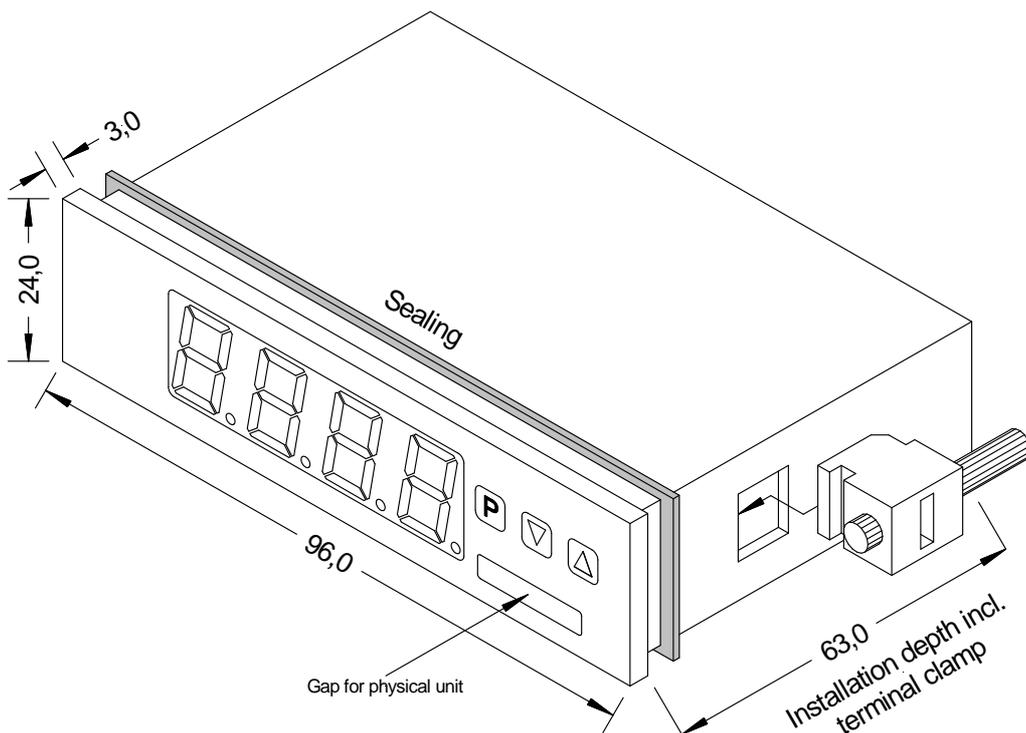
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimensions	Housing	B96 x H24 x D 40 mm, (incl. plug-in terminal D= 63 mm)	
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	front IP65 standard, rear side IP00	
	Weight	approx. 100 g	
	Connection	plug-in terminal; line cross section up to 2.5 mm ²	
Display	Digit height	14 mm	
	Segment colour	red	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Input	min. 3.5...max. 21 mA	
	Measuring range	4-20 mA	
	Measuring fault	0.3% of measuring range, ± 1 digit Measuring fault at measuring time = 1 second	
	Fail of voltage	approx. 5.1 V without switching outputs approx. 8.0 V with switching outputs	
	Temperature drift	100 ppm/K	
	Measuring time	0.1...10.0 seconds	
	Measuring principle	successive approximation	
	Resolution	12 bit-converter 14 bit (noiseless by oversampling at 1 s measuring time)	
	Output	Setpoints	potentialfree PhotoMOS-outputs max. switching voltage 30 VDC/AC max. steady current 0,4 A Electric strength AC: 400 V permanent, 1800 V for 1 minute
		Flash-memory (independent of supply)	
Data life		≥ 100 years at 25°C	
Ambient conditions		Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-80% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



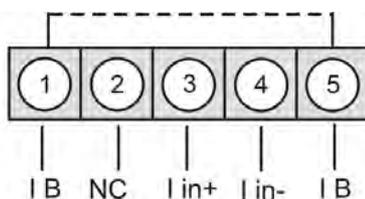
M1– 4-digit digital panel meter in 96x48 mm (BxH) Current loop 4-20 mA

- red display of -1999...9999 digits
- minimal installation depth: 25 mm without pluggable screw terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- navigation keys for the triggering of min/max-values or for threshold value corrections during operation
- optional two PhotoMos switching inputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or of -40°C...80°C

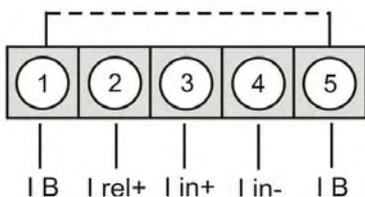
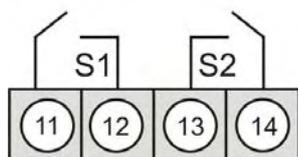


ORDER NUMBER **EUR**
(without options)

• Direct current 4-20 mA



M1-1SR4B.0001.K70BD **120,00**



M1-1SR4B.0001.K72BD **140,00**

• Product key options

M	1-	1	S	R	4	B.	0	0	0	1.	K	7	0	B	D
M	1-	1	S	R	4	B.	0	0	0	1.	K	7	2	B	D

EUR

1 without keypad, operation on the back

10,00

Please state physical unit on demand, e.g. U/min.

• Parameterisation software

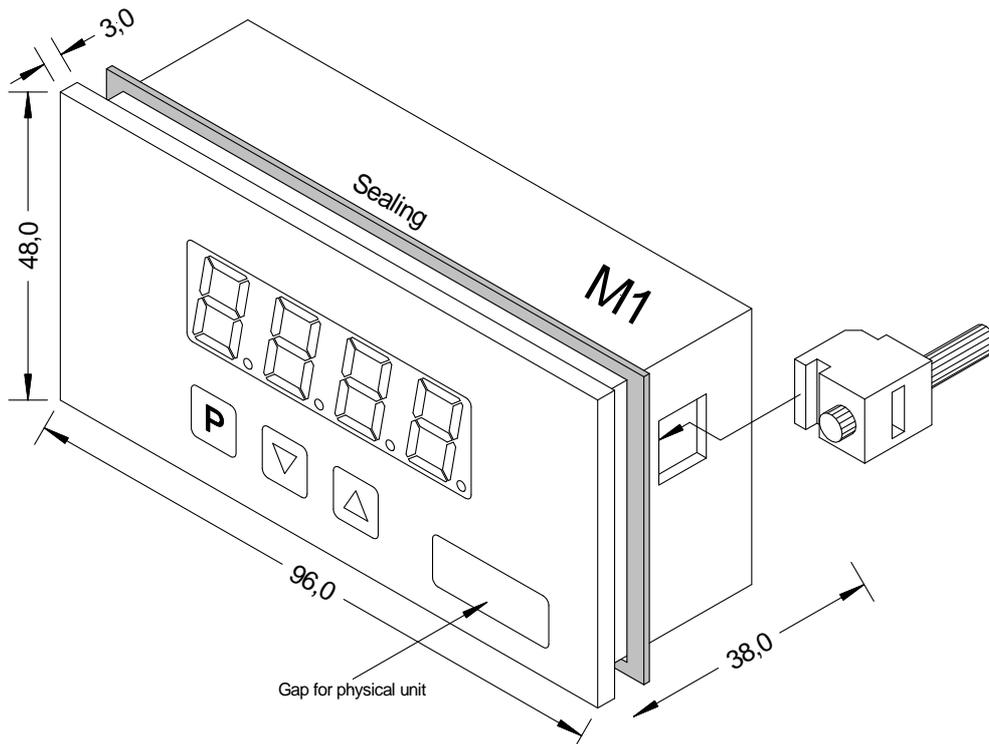
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimensions	Housing	B96 x H48 x D25 mm, (incl. plug-in terminal D= 38 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	front IP65 standard, rear side IP00	
	Weight	approx. 100 g	
	Connection	plug-in terminal; line cross section up to 2.5 mm ²	
Display	Digit height	14 mm	
	Segment colour	red	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Input	min. 3.5...max. 21 mA	
	Measuring range	4-20 mA	
	Measuring fault	0.3% of measuring range, ± 1 digit Measuring fault at measuring time = 1 second	
	Fail of voltage	approx. 5.1 V without switching outputs approx. 8.0 V with switching outputs	
	Temperature drift	100 ppm/K	
	Measuring time	0.1...10.0 seconds	
	Measuring principle	successive approximation	
	Resolution	12 bit-converter 14 bit (noiseless by oversampling at 1 s measuring time)	
	Output	Setpoints	potentialfree PhotoMOS-outputs max. switching voltage 30 VDC/AC max. steady current 0.4 A Electric strength AC: 400 V permanent, 1800 V for 1 minute
		Flash-memory (independent of supply)	
Data life		≥ 100 years at 25°C	
Ambient conditions		Working temperature	0°C to +60°C
	Storing temperature	-20°C to +80°C	
	Climatic density	relative humidity 0-80% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



Direct current / direct voltage

Measuring input: 0-20 mA, 4-20 mA, 0-10 VDC

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - sensor supply
 - digital input
 - analog output
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M1-1 – Digital panel meter, 4-digit, tricolour**
 - 2 switching points (Relay)
- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - sensor supply
 - digital output
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - sensor supply
 - digital output
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x96mm

- **M2-2VR4C – Digital panel meter, 4-digit**
 - 20 mm digit height
 - 2 switching points (relay)
 - sensor supply

M1 – 4-digit digital panel meter in 48x24 mm (BxH)

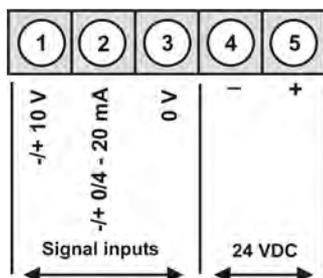
Standard signals 0/4-20 mA, 0-10 VDC; optional 50 VDC, 100 VDC

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable supporting points
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max values or for limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDERING NUMBER **EUR**
(without options)

• Direct voltage, direct current



Supply 24 VDC

M1-7VR4A.0001.770CD **125,00**

• Product key options

M	1	7	V	R	4	A.	0	0	0	1.	7	7	0	C	D	EUR	
																S100 up to 100 VDC, measuring fault 0.5% of final value	45,00
																S260 up to 50 VDC, measuring fault 0.5% of final value	15,00
													1			Without keypad, operation on the back	10,00
															B	Blue	33,00
															G	Green	9,50
															Y	Orange	3,00

State physical unit in order, e.g. °F.

• Parameterisation software

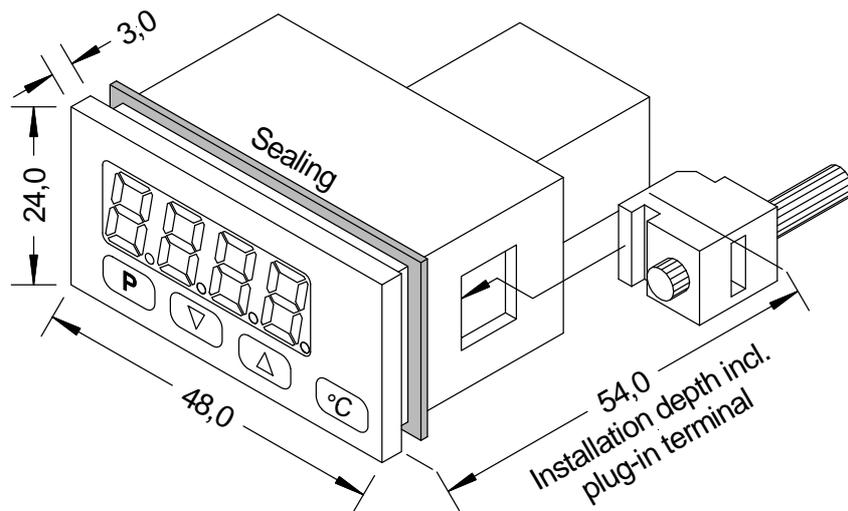
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB12 **89,00**

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)	
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
Display	Display	4-digit	
	Digit height	10 mm	
	Segment colour	red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
Measuring input	Display time/ Measuring time	0.1 to 10.0 seconds	
	Span	-12...12 V	/ -22...24 mA
	Measuring range	0-10 V	/ 0/4-20 mA
	Input resistance	Ri at ~200 kΩ	/ Ri at ~100 Ω
	Measuring fault	0.1% of measuring range, ± 1 Digit / 0.1% of measuring range, ± 1 Digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
Power pack	Measuring principle	U/F-conversion	
	Resolution	approx. 18 Bit at 1s measuring time	
	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:

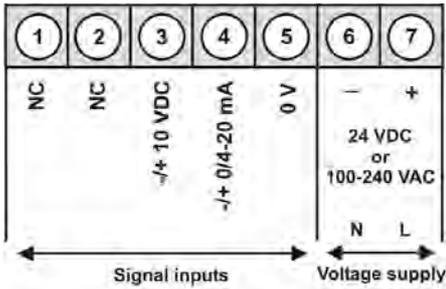




M3 – 5-digit digital panel meter in 48x24 mm (BxH) Standard signal 0/4-20 mA, 0-10 VDC

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold exceedance / threshold undershooting
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measuring (totaliser)
- mathematical functions like reciprocal value, square root, square, rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• Direct current, direct voltage



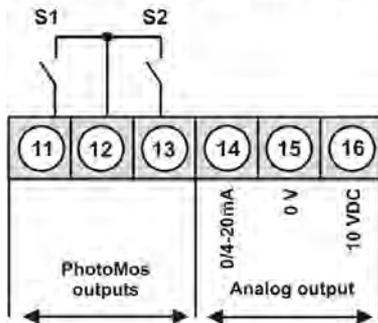
Supply 24 VDC

M3-7VR5A.0001.770BD 190,00

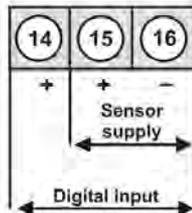
Supply 100-240 VAC, DC ± 10%

M3-7VR5A.0001.S70BD 200,00

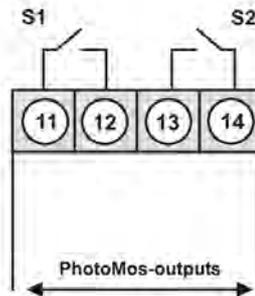
Options: device with a supply of 24 VDC



alternative for analog output



Options: device with a supply of 100-240 VAC



• Product key options: devices with a supply of 24 VDC

M	3-	7	V	R	5	A.	0	0	0	1.	7	7	0	B	D	EUR		
																S260 up to 50 VDC, measuring fault 0.5% of final value	15,00	
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galvanic isolated	110,00
																2	Sensor supply 10 VDC / 20 mA incl. digital input	45,00
																3	Sensor supply 24 VDC / 50 mA incl. digital input	45,00
																I	Digital input galvanic isolated	20,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

• Product key options: devices with a supply of 100-240 VAC

M	3-	7	V	R	5	A.	0	0	0	1.	S	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

Please state physical unit on demand in your order, e.g. bar.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

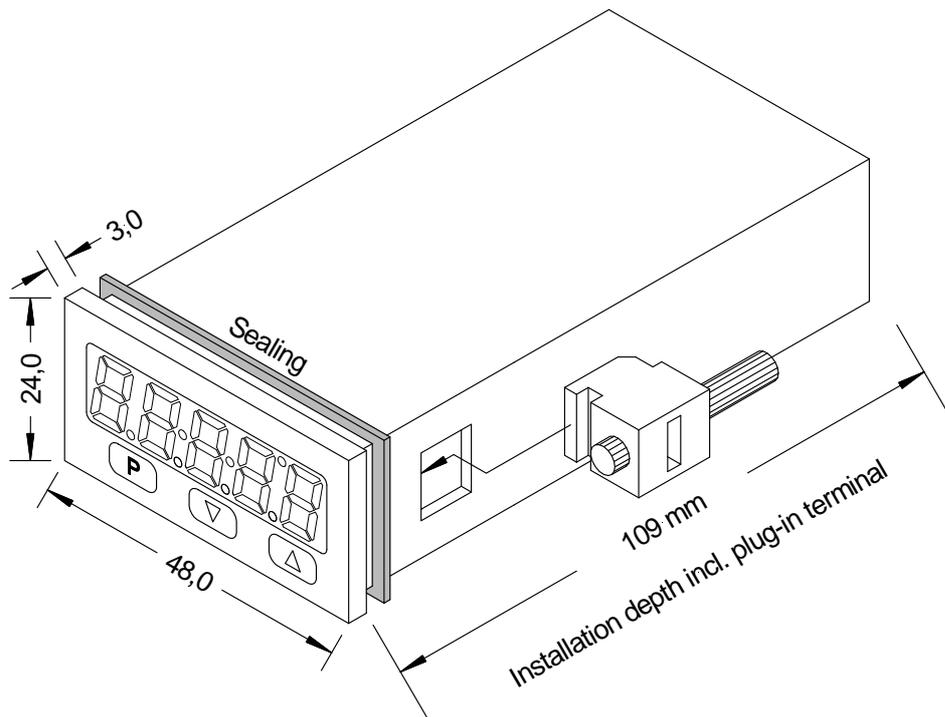
PM-TOOL-MUSB4

89,00

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)	
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for wall thicknesses up to 5 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, at the back IP00	
	Weight	approx. 200 g	
Display	Connection	plug-in terminal; wire cross section up to 2.5 mm ²	
	Display	5-digit	
	Digit height	10 mm	
	Segment colour	red (Standard), optional available in green, orange and blue	
	Display range	-19999 to 99999	
	Limit values	optical display flashing	
	Overflow	horizontal bars at the top	
Measuring input	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
	Span	-12...12 V	/ -22...24 mA
	Measuring range	0-10 VDC	/ 0/4-20 mA
	Input resistance	Ri at ~200 kΩ	/ Ri at ~100 Ω
	Measuring fault	0.1% of measuring range, ± 1 digit / 0.1% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K	
Output	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
	Resolution	approx. 18 bit at 1second measuring time	
	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A	
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit	
	Sensor supply	24 VDC / 50 mA, 10 VDC / 20 mA	
	Digital input	Input galv. isolated	<2.4 V OFF; 10 V ON; max. 30 VDC, Ri ~ 5 kΩ
Supply		100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)	
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +50°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



M1 – 4-digit digital panel meters in 72x36 mm (BxH)

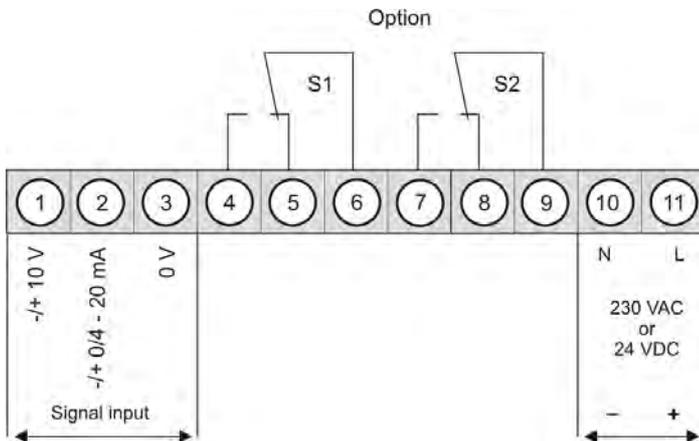
Standard signals 0/4-20 mA, 0-10 VDC; optional 50 VDC, 100 VDC

- red display with -1999...9999 digits (optional green, orange or blue displays)
- installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Direct current, direct voltage



Supply 230 VAC

M1-6VR4B.0001.570BD **165,00**

Supply 24 VDC

M1-6VR4B.0001.770BD **175,00**

For further voltage inputs see options!

• Product key options

M	1-	6	V	R	4	B.	0	0	0	1.	5	7	0	B	D	EUR	
M	1-	6	V	R	4	B.	0	0	0	1.	7	7	0	B	D		
																S100 to 100 VDC, measuring error 0.5% of final value	45,00
																S260 to 50 VDC, measuring error 0.5% of final value	15,00
											2					2 relay outputs	20,00
											1					without keypad, operation on the back	10,00
											X					Other voltage supplies on demand!	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

State physical unit by order, e.g. m/min!

• Parameterisation software

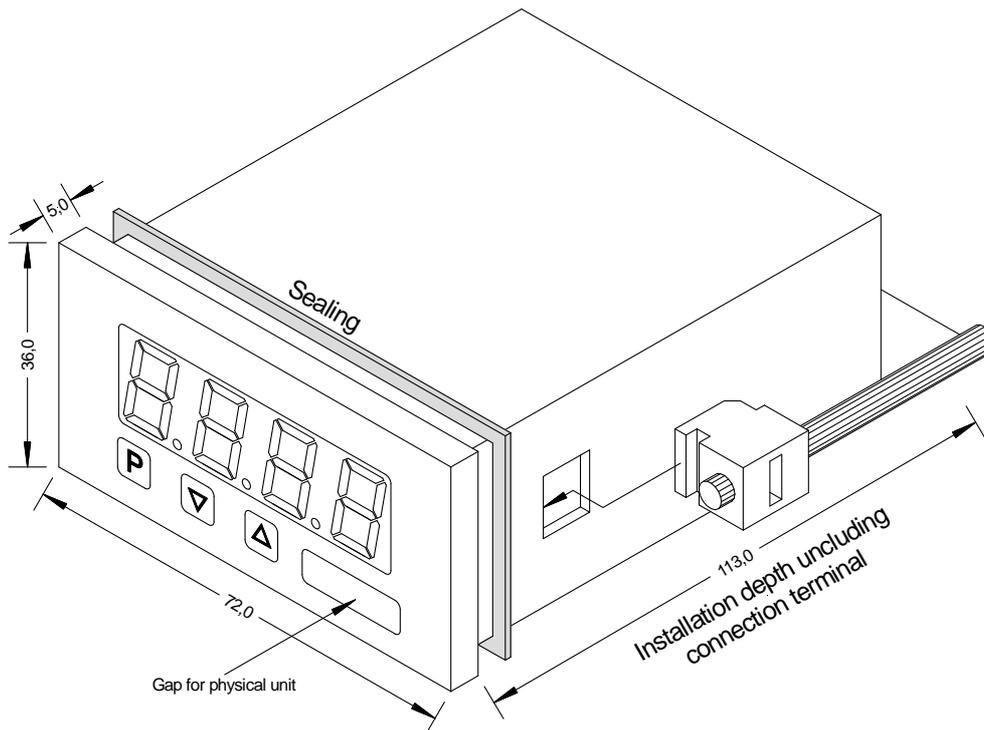
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)		
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm		
	Fixing	screw elements for wall thickness up to 3 mm		
	Housing material	PC Polycarbonate, black		
	Sealing material	EPDM, 65 Shore, black		
	Protection class	at the front IP65 standard, at the back IP00		
	Weight	approx. 200 g		
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²		
Display	Display	4-digit		
	Digit height	14 mm		
	Segment colour	red (Standard), optional available in green, blue and orange		
	Range of display	-1999 to 9999		
	Threshold values	optical display flashing		
	Overflow	horizontal bars at the top		
	Underflow	horizontal bars at the bottom		
	Display time/Meas. time	0.1 to 10.0 seconds		
Measuring input	Measuring span	-12...12 V	/ -22...24 mA	
	Measuring range	0-10 VDC	/ 0/4-20 mA	
	Input resistance	Ri with ~200 kΩ	/ Ri with ~100 Ω	
	Measuring error	0.1% of measuring range, ± 1 digit	/ 0.1% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K		
	Measuring time	0.1 ... 10.0 seconds		
	Measuring principle	U/F-conversion		
	Resolution	approx. 18 bit at 1s measuring time		
	Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC	
		Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load	
		10 * 10 ⁶ mechanically		
		Diversity according to DIN EN50178 / Characteristics according to DIN EN60255		
Power pack	Supply	230 VAC ±10 % (max. 3 VA)		
		24 VDC ±10 %, galvanic isolated (max. 1 VA)		
Memory	EEPROM	Data life ≥ 100 years at 25°C		
Ambient conditions	Working temperature	0 to +60°C		
	Storing temperature	-20 to +80°C		
	Climatic density	relative humidity 0-85% on years average without dew		
CE-sign	Conformity to directive 2014/30/EU			
EMV	EN 61326, EN 55011			
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1			

Housing:



• Product key

	M	1-	6	V	R	4	B.	0	0	0	1.	7	7	0	B	D	
Basic type M-line																	
Installation depth 113 mm incl. plug-in terminal																	Dimension D physical unit (free selectable)
Housing size 72x36x97 mm (BxHxD)																	Version B B
Display type V, A																	Switching points 0 no switching points 2 2 relay outputs
Display colours Blue Green Red Orange																	Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 4-digit																	Supply voltage 5 230 VAC 7 24 VDC galv. isolated
Digit height 14 mm																	Measuring input 1 Direct current, direct voltage
Digital input none																	Analog output 0 none
																	Sensor supply 0 none

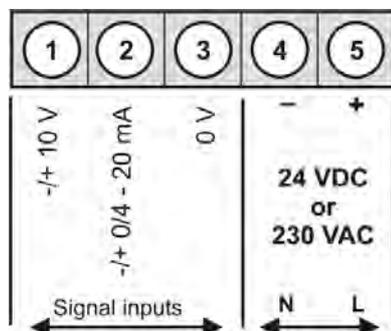
M1 – 4 digit digital panel meter in 96x24 mm (BxH)

Standard signals 0/4-20 mA, 0-10 VDC, optional 50 VDC, 100 VDC

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Direct current, direct voltage



Supply 230 VAC

ORDER NUMBER **EUR**
(without options)

M1-3VR4B.0001.570DD **150,00**

Supply 24 VDC

M1-3VR4B.0001.770DD **160,00**

• Order key options

M	1-	3	V	R	4	B.	0	0	0	1.	5	7	0	D	D	EUR	
M	1-	3	V	R	4	B.	0	0	0	1.	7	7	0	D	D		
																S100 to 100 VDC, measuring error 0.5% of final value	45,00
																S260 to 50 VDC, measuring error 0.5% of final value	15,00
																1 without keypad, operation via PM-TOOL	10,00
																X Other voltage supplies on demand	
																B Blue	33,00
																G Green	9,50
																Y Orange	3,00

Please state physical unit in order, e.g. m/min.

• Parameterisation software

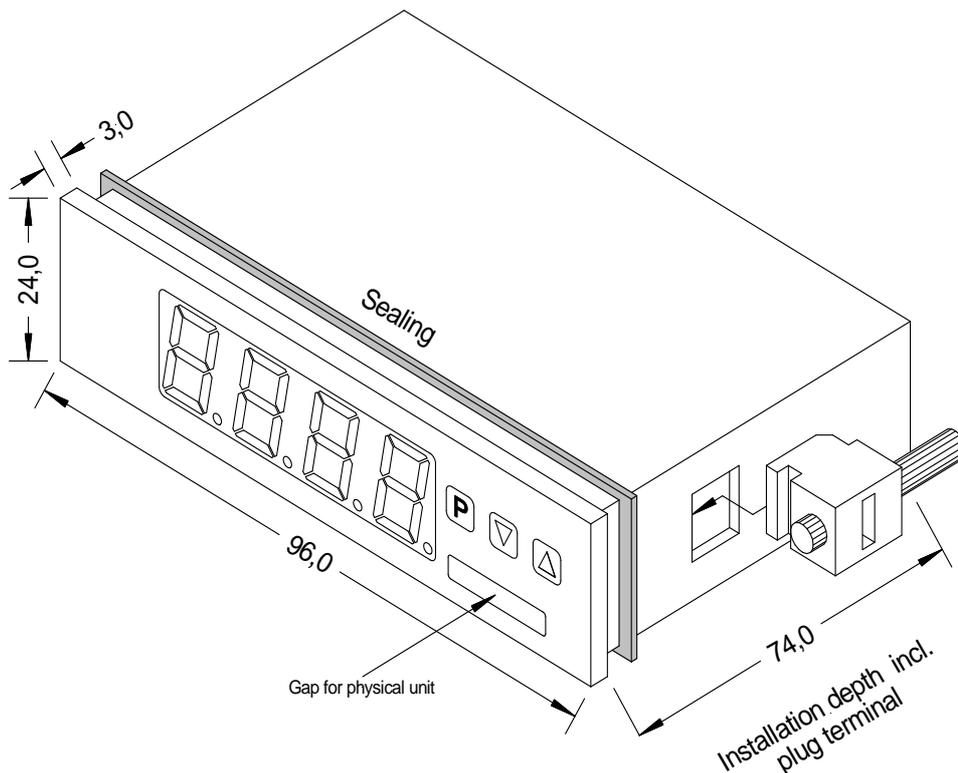
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)	
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 50 g	
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
	Display	4-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue or orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
Underflow	horizontal bars at the bottom		
Display time/ Measuring time	0.1 to 10.0 seconds		
Measuring input	Span	-5...80 mV	/ -10...180 mV
	Measuring range	0...60 mV	/ 0...150 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 Ω
	Measuring fault	0.2% of measuring range, ± 1 digit	/ 0.2% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
Resolution	approx. 18 bit at 1s measuring time		
Power pack	Supply	230 VAC ±10% (max. 3 VA)	
		24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0°C to +60°C	
	Storing temperature	-20°C to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



• Ordering code M1

	M	1-	3	V	R	4	B.	0	0	0	1.	7	7	0	D	D
Basic type M-Line																
Installation depth 74 mm incl. plug-in terminal																<input type="checkbox"/> S100 Measuring input 100 VDC <input type="checkbox"/> S260 Measuring input 50 VDC
Housing size 96 x 24 x 57 mm																Dimension <input type="checkbox"/> D physical unit (free selectable)
Display type V, A																Version <input type="checkbox"/> D D
Display colours Blue Green Red Orange																Switching points <input type="checkbox"/> 0 no switching points
Number of digits 4-digit																Protection class <input type="checkbox"/> 1 without keypad, operation via PM-TOOL <input type="checkbox"/> 7 IP65 / plug-in terminal
Digit height 14 mm																Supply voltage <input type="checkbox"/> 5 230 VAC <input type="checkbox"/> 7 24 VDC galv. isolated
Interface without																Measuring input <input type="checkbox"/> 1 Direct voltage, direct current
																Analog output <input type="checkbox"/> 0 without
																Sensor supply <input type="checkbox"/> 0 without



M3 – 5-digit digital panel meter in 96x24 mm (BxH) Direct current / direct voltage signals 0/4-20 mA, 0-10 VDC

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

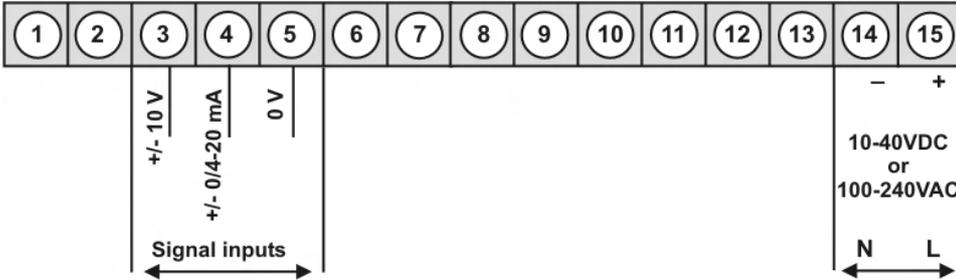
• **Direct current, direct voltage**

Supply 100-240 VAC, DC ± 10%

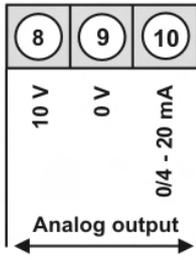
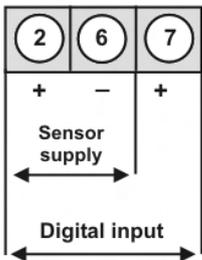
M3-3VR5B.0001.S70BD 220,00

Supply 10-40 VDC, 18-30 VAC

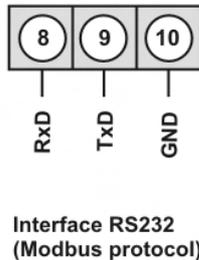
M3-3VR5B.0001.W70BD 220,00



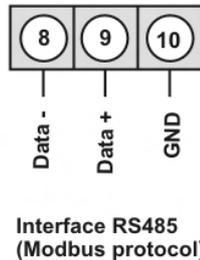
Options:



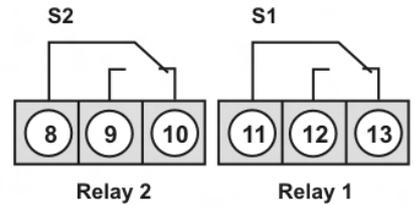
or



or



or



Interface RS232
(Modbus protocol)

Interface RS485
(Modbus protocol)

Alternative to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	0	0	1.	S	7	0	B	D
M	3-	3	V	R	5	B.	0	0	0	1.	W	7	0	B	D

EUR

1	1 relay output (with option analog output only 1 output is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
2	Sensor supply 10 VDC / 50 mA incl. digital input	35,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	35,00
3	Interface RS232 galv. isolated	65,00
4	Interface RS485 galv. isolated	65,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. min.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

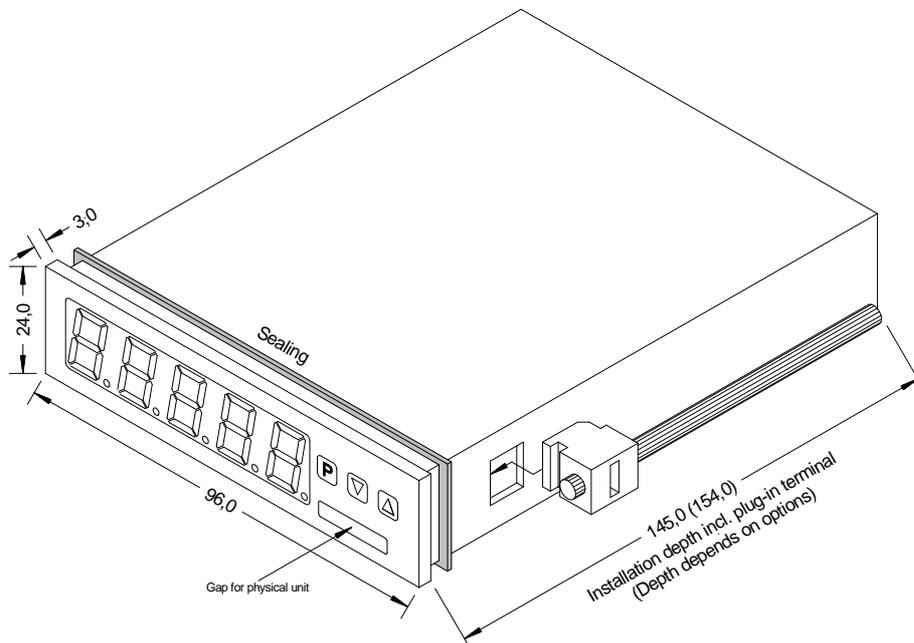
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (Standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Metering range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	-12...12 V / -22...24 mA 0-10 VDC / 0/4-20 mA Ri with ~200 kΩ / Ri with ~100 Ω 0.1% of measuring range, ± 1 digit / 0.1% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output Sensor supply	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit 24 VDC / 50 mA 10 VDC / 50 mA
Digital input	Input galv. insulated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol RS232 RS485	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

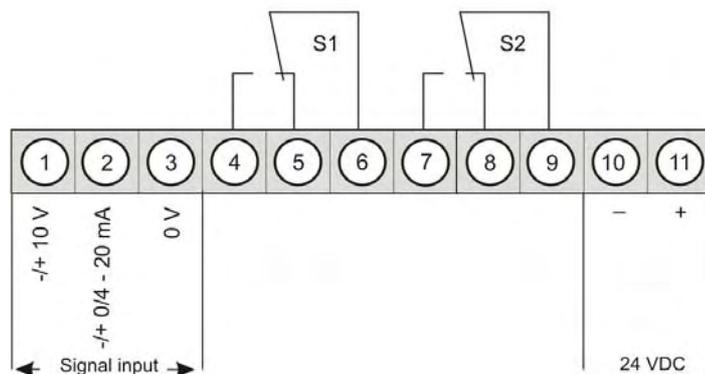
	M	3-	3	V	R	5	B.	0	0	0	1.	W	7	0	B	D
Standard type M-Line																
Installation depth 145 mm incl. plug-in terminal (154 mm)	3															
Housing size 96x24x120 mm (BxHxT)	3															
Display type V, A	V															
Display colours Blue Green Red Red/Green/Orange Orange	B G R T Y															
Number of digits 5-digits	5															
Digit height 14 mm	B															
Digital input without 1 digital input Interface RS232 Interface RS485 Interface RS232 Interface RS485	0 I 3 4 C D		galv. isolated galv. isolated galv. isolated incl. digital input incl. digital input													
Dimension																
D physical unit (on demand)																
Version																
B B																
Switching points																
0 without																
1 1 relay output																
2 2 relay outputs																
Protection class																
1 without keypad, operation via PM-TOOL																
7 IP65 / plug-in terminal																
Supply voltage																
S 100-240 VAC																
W 10-40 VDC																
Measuring input																
1 Direct voltage, direct current																
Analog output																
0 without																
X 1x 0-10 VDC, 0/4-20 mA																
Sensor supply																
0 without																
2 10 VDC / 50 mA (incl. digital input)																
3 24 VDC / 50 mA (incl. digital input)																

M1-tricolour – 4-digit digital panel meter in 96x48 mm (BxH) Standard signal 0/4-20 mA, 0-10 VDC

- tricolour display of -1999...9999 digits (red, green, orange switchable via limit values)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or for limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- 2 relay outputs (change-over-contacts)
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Direct current, direct voltage



ORDER NUMBER **EUR**
(without options)

M1-1VT4B.0001.772BD **210,00**

• Product key options

M	1-	1	V	T	4	B.	0	0	0	1.	7	7	2	C	D	EUR
														10,00		
														1 Without keypad, operation on the back		

Please state physical unit in order, e.g. bar.

• Parameterisation software

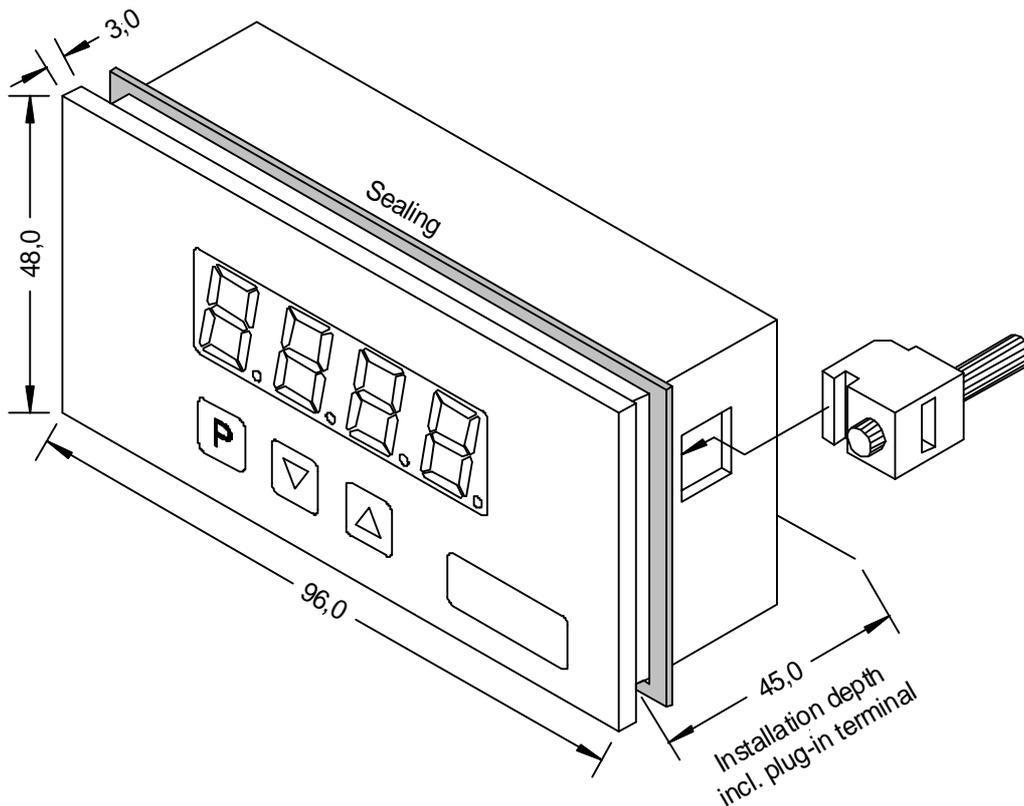
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adaptor. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 45 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	4-digit	
	Digit height	14 mm	
	Segment colour	tricolour (red, green, orange)	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing and/or change of colour	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time/ Measuring time	0.1 to 10.0 seconds	
Measuring input	Span	-12...12 V	/ -22...24 mA
	Measuring range	0-10 V	/ 0/4-20 mA
	Input resistance	Ri at ~200 kΩ	/ Ri at ~100 Ω
	Measuring fault	0.1% of measuring range, ± 1 digit / 0.1% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
	Resolution	approx. 18 bit at 1 second measuring time	
Outputs	Relay	with change-over contact 250 VAC / 5 AAC; 30 VDC, 5 ADC	
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC resistive burden 10 * 10 ⁶ mechanically	
Power pack	Supply	Division according to DIN EN50178 / Characteristics according to DIN EN 60255 24 VDC ±10 %, galvanic isolated (2 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



• Ordering code

	M	1-	1	V	T	4	B.	0	0	0	1.	7	7	2	C	D	
Basic type M-Line																	
Installation depth 45 mm incl. plug-in terminal																	Dimension D physical unit
Housing size 96 x 48 x 25 mm (BxHxD)																	Version C C
Display type V, A																	Setpoints 2 2 relay outputs
Display colours Tricolour (red-green-orange)																	Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 4-digit																	Supply voltage 7 24 VDC galvanic isolated
Digit height 14 mm																	Measuring input 1 Direct current, direct voltage
Interface without																	Analog output 0 without
																	Sensor supply 0 without

M1 – 4 digit digital panel meter in 96x48 mm (BxH)

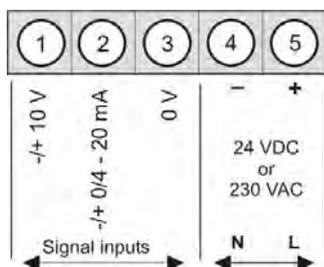
Standard signals 0/4-20 mA, 0-10 VDC, optional 50 VDC, 100 VDC

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Direct current, direct voltage



Supply 230 VAC

M1-1VR4B.0001.570CD **128,00**

Supply 24 VDC

M1-1VR4B.0001.770CD **140,00**

• Product key options

M	1-	1	V	R	4	B.	0	0	0	1.	5	7	0	C	D	EUR	
M	1-	1	V	R	4	B.	0	0	0	1.	7	7	0	C	D		
																S100 to 100 VDC, measuring error 0.5% of final value	45,00
																S260 to 50 VDC, measuring error 0.5% of final value	15,00
																1 Without keypad, operation on the back via interface	10,00
																X Other voltage supplies on demand!	
																B Blue	33,00
																G Green	9,50
																Y Orange	3,00

Please state physical unit in order, e.g. m/min.

• Parameterisation software

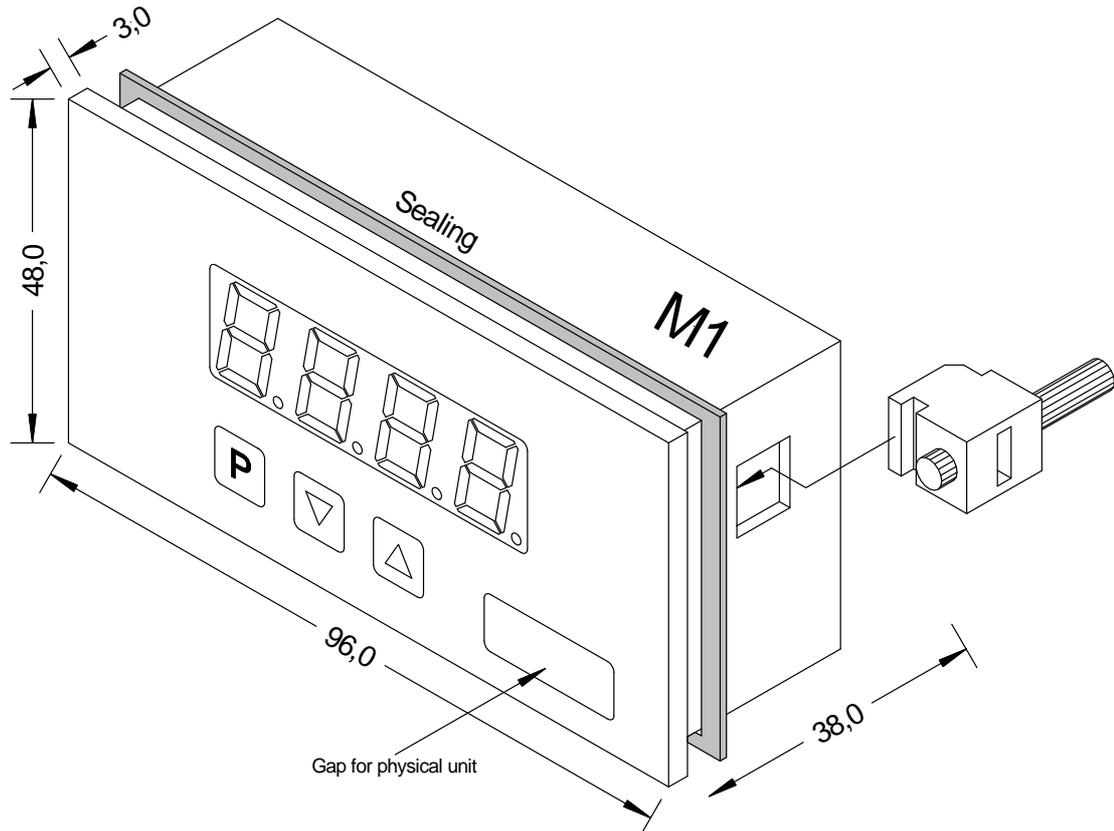
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 38 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
	Display	4-digit	
	Digit height	14 mm	
	Segment colour	Red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
Underflow	horizontal bars at the bottom		
Display time/ Measuring time	0.1 to 10.0 seconds		
Measuring input	Span	-12...12 V	/ -22...24 mA
	Measuring range	0-10 V	/ 0/4-20 mA
	Input resistance	Ri at ~200 kΩ	/ Ri at ~100 Ω
	Measuring fault	0.1% of measuring range, ± 1 digit / 0.1% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
	Resolution	approx. 18 Bit at 1s measuring time	
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)	
	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:





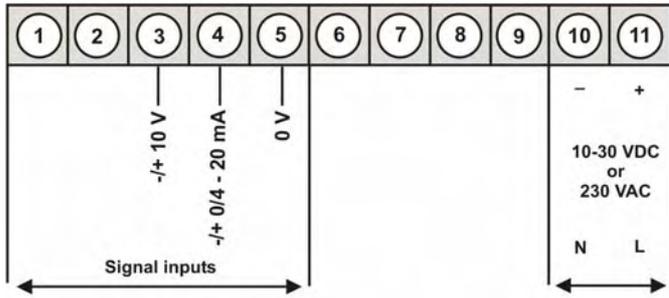
M2 – 5-digit digital panel meter in 96x48 mm (BxH) Standard signal 0/4-20 mA, 0-10 VDC

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER
(without options)

EUR

• **Direct current, direct voltage**



Supply 230 VAC

M2-1VR5B.0001.570CD

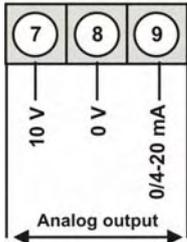
160,00

Supply 10-30 VDC

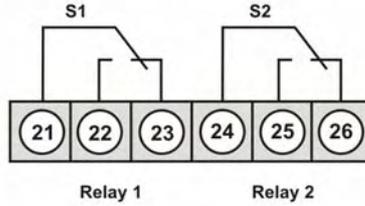
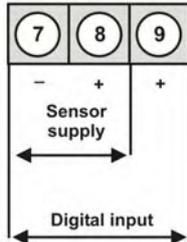
M2-1VR5B.0001.670CD

190,00

Options:



or



• **Product key options:**

M	2-	1	V	R	5	B.	0	0	0	1.	5	7	0	C	D
M	2-	1	V	R	5	B.	0	0	0	1.	6	7	0	C	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
2	Sensor supply 10 VDC / 20 mA incl. digital input with 230 VAC	25,00
	Sensor supply 10 VDC / 20 mA incl. digital input with 10-30 VDC	55,00
3	Sensor supply 24 VDC / 50 mA incl. digital input with 230 VAC	25,00
	Sensor supply 24 VDC / 50 mA incl. digital input with 10-30 VDC	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*For devices with a 230 VAC voltage supply, there is only one option possible: relay outputs, analog output or sensor supply.

Please state physical unit on demand, e.g. min.

• **Parameterisation software**

ORDER NUMBER

EUR

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

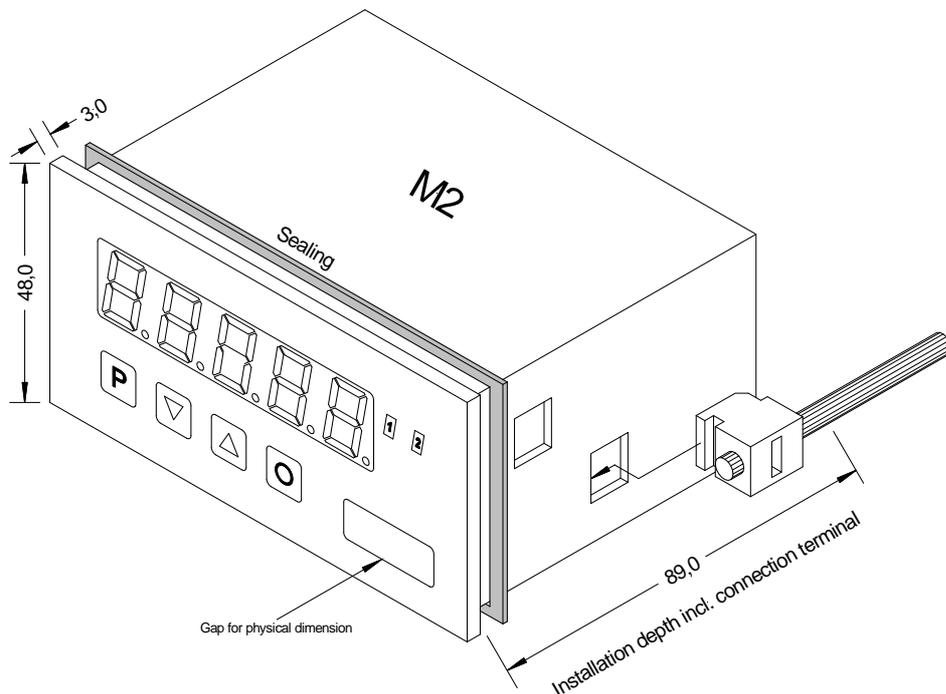
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	-12...12 V / -22...24 mA 0-10 V / 0/4-20 mA Ri at ~200 kΩ / Ri at ~100 Ω 0.1% of measuring range, ± 1 digit / 0.1% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1 second measuring time
Output	Relay Switching cycle Analog output Sensor supply	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255 0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit 24 VDC / 50 mA 10 VDC / 20 mA
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:





M3 – 5-digit digitales panel meter 96x48 (BxH) Standard signal 0/4-20 mA, 0-10 VDC

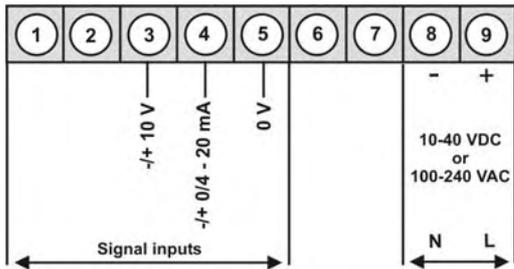
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: sensor supply
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER

EUR

(without options)

• **Direct current, direct voltage**



Supply 100-240 VAC, DC ±10%

M3-1VR5B.0001.S70BD

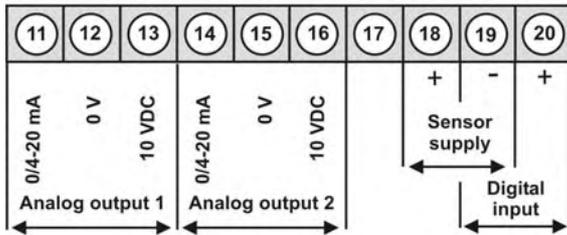
195,00

Supply 10-40 VDC, 18-30 VAC

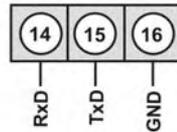
M3-1VR5B.0001.W70BD

210,00

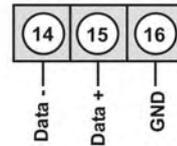
Options:



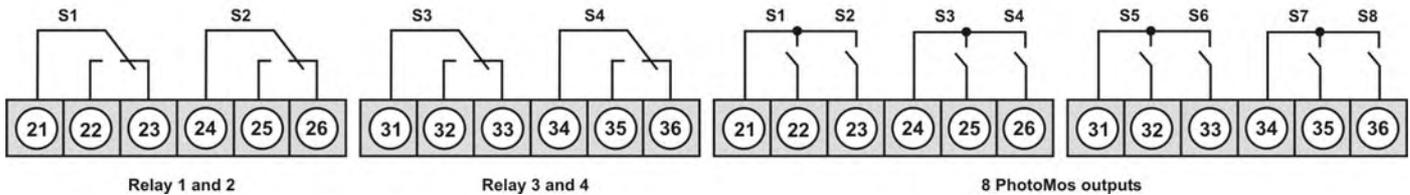
alternative for analog output 2



Interface RS232
(Modbus protocol)



Interface RS485
(Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	0	0	1.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	0	0	1.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
2	Sensor supply 10 VDC / 20 mA incl. digital input	25,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	25,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

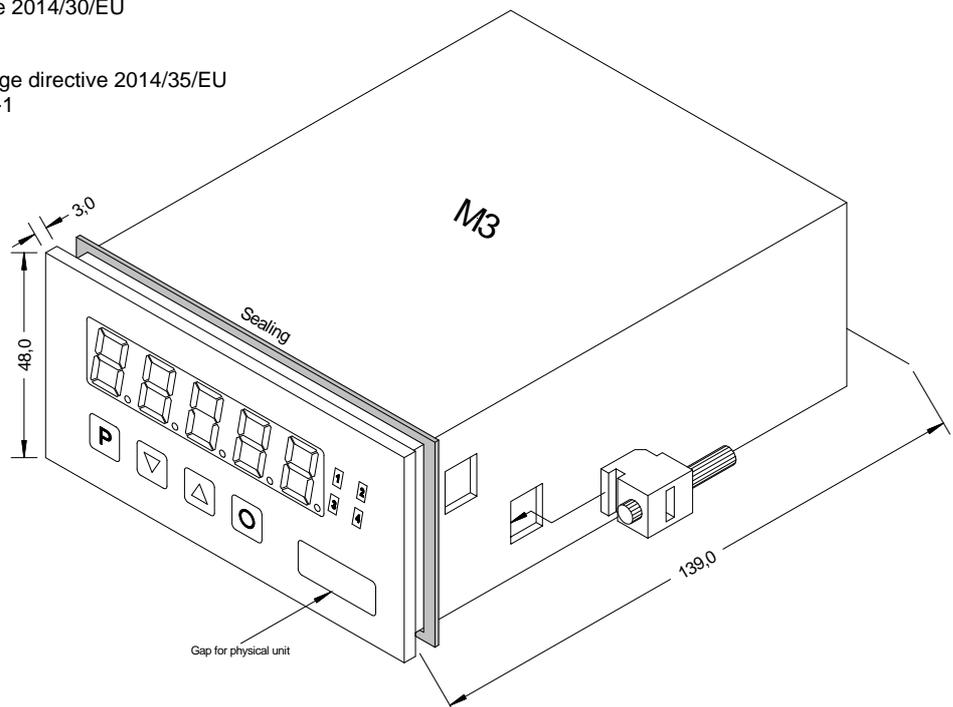
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 15 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection type	front side IP65 standard, back side IP00	
	Weight	approx. 350 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	5-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)	
	Range of display	-19999 to 99999	
	Threshold	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Span	-12...12 V	/ -22...24 mA
	Measuring range	0-10 VDC	/ 0/4-20 mA
	Input resistance	R _i at ~200 kΩ	/ R _i at ~100 Ω
	Measuring fault	0.1% of measuring range, ± 1 digit	/ 0.1% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F- conversion	
	Resolution	approx. 18 bit at 1s measuring time	
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC	
	Switching cycles	30 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically	
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255	
	Analog output	NOC contacts: 30 VDC/AC, 4 A	
	Sensor supply	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit	
		24 VDC / 50 mA	
		10 VDC / 20 mA	
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ	
Interface	Protocol	manufacturer's specifics ASCII	
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m	
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m	
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10% (max. 15 VA)	
		10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU		
	EN 61010; EN 60664-1		

Housing:



• Order key

	M	3-	1	V	R	5	B.	0	0	0	1.	S	7	0	B	D	
Basic type M-Line																	
Installation depth 139 mm (incl. plug-in terminal)																	Dimension <input type="checkbox"/> D physical unit (at buyer's option)
Housing size 96x48x120 mm (BxHxD)																	Version <input type="checkbox"/> B
Display type V, A, Ohm																	Switching points <input type="checkbox"/> 0 no switching point <input type="checkbox"/> 2 2 relay outputs <input type="checkbox"/> 4 4 relay outputs <input type="checkbox"/> 8 8 PhotoMos-outputs
Display colours Blue Green Red Red/Green/Orange Orange																	Protection class <input type="checkbox"/> 1 without keypad, via PM-TOOL <input type="checkbox"/> 7 IP65 / plug-in terminal
Number of digits 5-digit																	Voltage supply <input type="checkbox"/> S 100-240 VAC <input type="checkbox"/> W 10-40 VDC galv. isolated
Digit height 14 mm																	Measuring input <input type="checkbox"/> 1 Direct voltage, direct current
Digital input without 1 digital input Interface RS232 Interface RS485 Interface RS232 Interface RS485																	Analog output <input type="checkbox"/> 0 without <input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA <input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
																	Sensor supply <input type="checkbox"/> 0 without <input type="checkbox"/> 2 10 VDC / 20 mA (incl. digital input) <input type="checkbox"/> 3 24 VDC / 50 mA (incl. digital input)

M2-2VR4C – 4-digit digital panel meter

Standard signal measuring

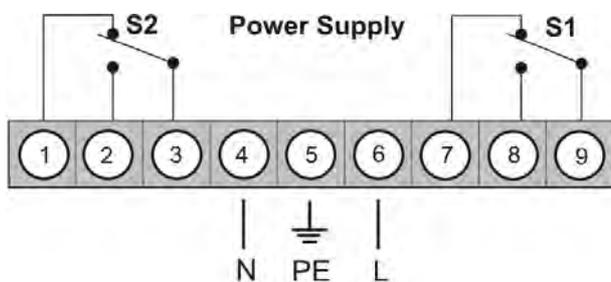
- Digit height: 20 mm
- Colour: red
- Range of display: -999...9999
- Housing: black, made of LEXAN 500R
- Protection class: IP65 (front), IP00 (back)
- Dimensions: 96x96 mm, depth 75 mm, including plug-in terminal
- Supply: 230 VAC
- Sensor supply: 24 V / 50 mA
- Measuring input: 0-10 VDC, 0/4-20 mA
- 2 relay outputs
- 10 point linearization
- Offset allowance
- Tara- / Hold-function



ORDER NUMBER

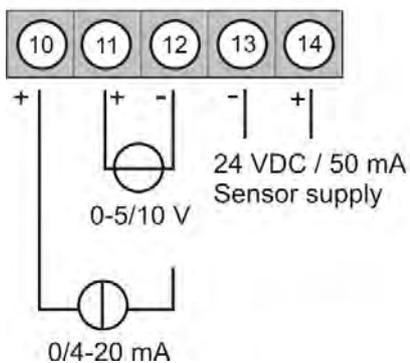
EUR

• Standard signals



M2-2VR4C.0301.572AD

275,00



• Technical data

Housing

Dimensions	96 x 96 x 75 mm (BxHxD), including plug-in terminal
Installation depth	49 mm absolute housing depth; 69 mm including plug-in terminal
Panel cut-out	91.0 ^{+0.6} x 91.0 ^{+0.6} mm
Wall thickness	up to 10 mm
Fixing	fastening element, fixable via screws
Material	LEXAN 500R, black
Weight	approx. 370 g
Connection	removable screw terminal; line cross section up to 2.5 mm ²
Installation grate	horizontally 120 mm / vertically 120 mm recommended

Display

Digit height	20 mm
Segment colour	red
Range of display	-999...9999
Set points	one LED per set points
Overflow	horizontal bars at the top
Underflow	horizontal bars at the bottom
Display time	0.1...10.0 seconds

Inputs

	Measuring range	R _i approx.	Measuring fault [%] of measuring range	Digit
Measuring range /	0...10 V	150 kΩ	0,1	± 1
Input resistance/	0...5 V	150 kΩ	0,1	± 1
Measuring fault	0...20 mA	100 Ω	0,1	± 1
(at measuring time =1 second)	4...20 mA	100 Ω	0,1	± 1
Temperature drift	all measuring inputs 50 ppm/K			
Measuring time = display time	0.1...10.0 seconds			
Measuring principle	Voltage converter / frequency converter			
Resolution (at 1 second measuring time)	approx. 20 bit			

Output

Relay	Change-over contact 230 VAC 5 A / 30 VDC 2 A (cos φ = 1); with ohm resistive burden
Switching cycle	0,5 * 10 ⁵ at max. contact rating 5 * 10 ⁶ mechanically Separation according to DIN EN 50178 Specification according to DIN EN 60255
Sensor supply (galvanic isolated)	24 VDC; 50 mA

Power pack

Voltage supply (galvanic isolated)	230 VAC / 50/60 Hz / ±10 %
Power consumption	max. 8 VA

Memory

Data life	Parameter memory EEPROM >20 years
-----------	--------------------------------------

Ambient conditions

Working temperature	0...60 °C
Storing temperature	-20...80 °C
Climatic density	rel. humidity ≤ 75 % on years average without dew

EMV

EN 61326, EN 55011

CE-sign

Conformity according to 2014/30/EU

Safety standard

According to low voltage directive 2014/35/EU; EN 61010, EN 60664-1

Direct current/-voltage (high voltage)

Measuring input 50 VDC, 300 VDC, 600 VDC, 1 ADC

96x24mm

- **M3-3 – Digital panel meter, 5-digit**
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - interface RS232/RS485
 - with far range power unit 100-240 VAC



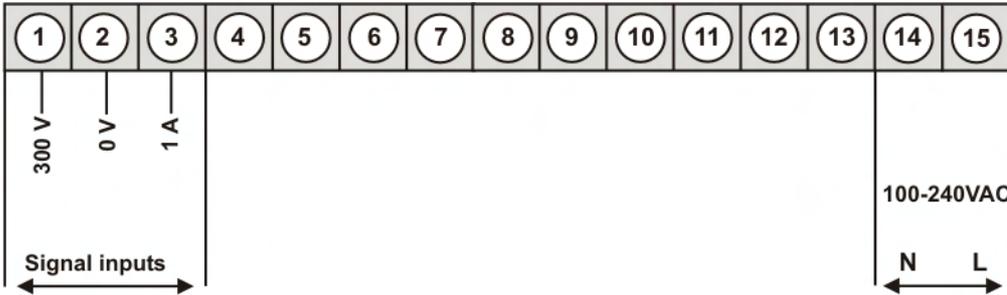
M3 – 5-digit digital panel meter in 96x24 mm (BxH) Standard signal 300 VDC, 1 ADC

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

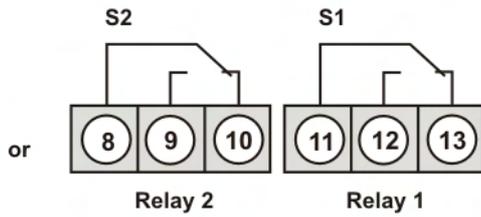
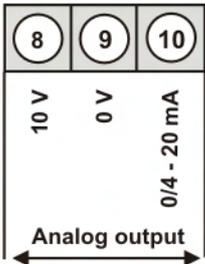
• **Direct current, direct voltage – special measuring inputs H**

Supply 100-240 VAC, DC ± 10%

M3-3VR5B.0H01.S70BD 270,00



Options:



Alternatively to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	H	0	1.	S	7	0	B	D	EUR	
											1					1 relay output (with option analog output only 1 switching point is possible)	20,00
											2					2 relay outputs	30,00
											1					without keypad, operation on the back	10,00
											X					Analog output 0/4-20 mA, 0-10 VDC	90,00
											B					Blue	44,00
											G					Green	10,00
											Y					Orange	4,00
											T					Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

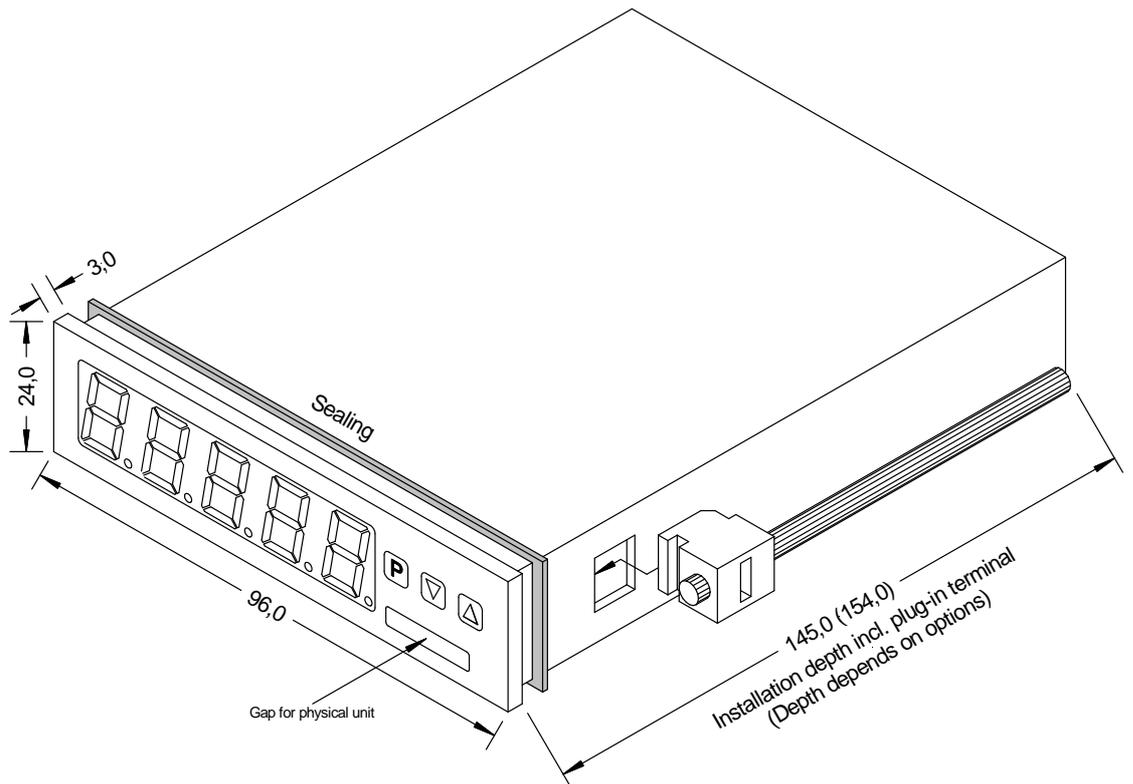
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for a wall thickness up to 10 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 250 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional in green, orange, blue or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold value	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Measuring span	-300...300 VDC / -1...1 ADC
	Measuring range	0...300 VDC / 0...1 ADC
	Input resistance	Ri with ~ 1 MΩ / Ri with ~ 0.2 MΩ
	Measuring fault	0.5 % of final value, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Output	Relay	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC
	Switching cycle	30 * 10 ³ at 2 AAC, 2 ADC ohm resistive burden, 10 * 10 ⁶ mechanically
	Analog output	Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Digital input	Input galv. insulated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive	2014/30/EU
EMV		EN 61326, EN 55011
Safety standard	According to low voltage directive	2014/35/EU, EN 61010; EN 60664-1

Housing:



• Order key

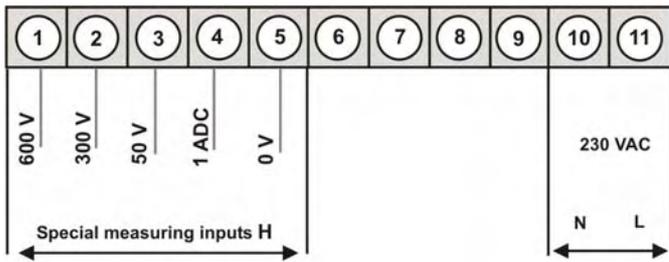
	M	3-	3	V	R	5	B.	0	H	0	1.	S	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (on demand)
Installation depth																	Version
145 mm incl. plug-in terminal (154 mm)			<input type="checkbox"/> 3														<input type="checkbox"/> B B
Housing size																	Switching points
96x24x120 mm (BxHxT)			<input type="checkbox"/> 3														<input type="checkbox"/> 0 without
Display type																	<input type="checkbox"/> 1 1 relay output
V, A				<input type="checkbox"/> V													<input type="checkbox"/> 2 2 relay outputs
Display colours																	Protection class
Blue					<input type="checkbox"/> B												<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Green					<input type="checkbox"/> G												<input type="checkbox"/> 7 IP65 / plug-in terminal
Red					<input type="checkbox"/> R												
Red/Green/Orange					<input type="checkbox"/> T												
Orange					<input type="checkbox"/> Y												Supply voltage
																	<input type="checkbox"/> S 100-240 VAC
Number of digits																	Measuring input
5-digits																	<input type="checkbox"/> 1 Direct voltage, direct current
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
Digital input																	Special measuring input
without																	<input type="checkbox"/> H 300 VDC, 1 ADC



**M2 – 5-digit digital panel meter in 96x48 mm (BxH)
Direct current / direct voltage signals
50 VDC, 300 VDC, 600 VDC, 1 ADC**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Direct current, direct voltage – Special measuring inputs H**

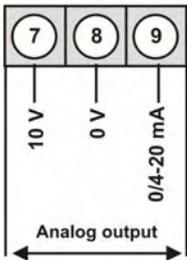


Supply 230 VAC

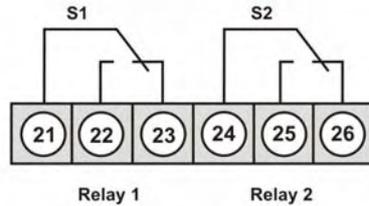
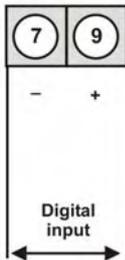
M2-1VR5B.0H01.570CD

220,00

Options:



or



• **Product key options**

M	2-	1	V	R	5	B.	0	H	0	1.	4	7	0	C	D	EUR	
															2	2 relay outputs	33,00
															1	Without keypad, operation on the back	10,00
															4	Voltage supply 115 VAC	10,25
															X	Analog output 0/4-20 mA, 0-10 VDC	90,00
															I	Digital input galv. isolated	10,00
															B	Blue	44,00
															G	Green	10,00
															Y	Orange	4,00
															T	Tricolour (Red-Green-Orange)*	30,00

*Only one option available: relay outputs or analog output.

Please state physical unit on demand, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

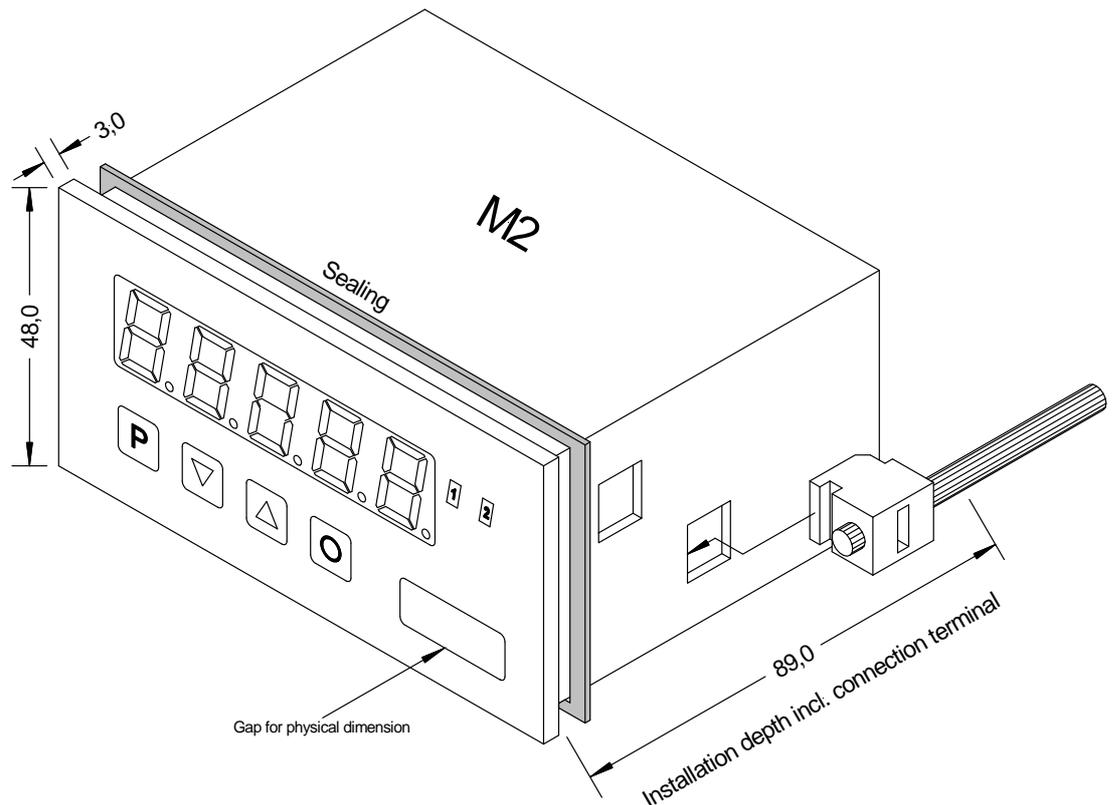
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)			
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm			
	Fixing	screw elements for insulation thickness up to 3 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection class	at the front IP65 standard, back side IP00			
	Weight	approx. 250 g			
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)			
	Display range	-19999 to 99999			
	Setpoints	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
Display time	0.1 to 10.0 seconds				
Measuring input	Span	0 – 600 VDC	/ 0 – 300 VDC	/ 0 – 50 VDC	/ 0 – 1 ADC
	Input resistance	Ri at ~ 2 MΩ	/ Ri at ~ 1 MΩ	/ Ri at ~200 kΩ	/ Ri at ~0,2 Ω
	Measuring fault	0.5 % of measuring range, ± 1 digit			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1s measuring time			
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC			
	Switching cycle	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically			
		Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255			
	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. insulated	<2.4 OFF; >10 V ON; max. 30 VDC, Ri at ~ 5 kΩ			
Power pack	Supply	230 VAC 50/60 Hz, DC ±10% (max. 10 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to +60°C			
	Storing temperature	-20 to +80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive 2014/30/EU				
EMV	EN 61326, EN 55011				
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1				

Housing:



• Order key

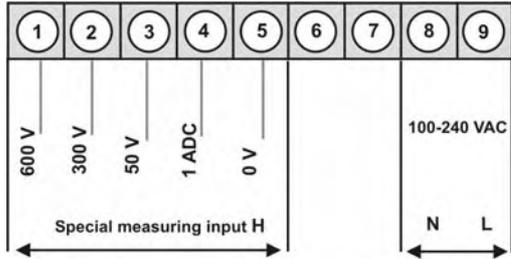
	M	2-	1	V	R	5	B.	0	H	0	1.	5	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit
Installation depth																	Version
89 mm (incl. plug-in terminal)																	<input type="checkbox"/> C C
Housing size																	Switching points
96x48x70 mm (BxHxD)																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
Display type																	Protection class
V, A																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours																	Supply voltage
Blue																	<input type="checkbox"/> 4 115 VAC
Green																	<input type="checkbox"/> 5 230 VAC
Red																	
Red/Green/Orange																	
Orange																	
Number of digits																	Measuring input
5-digit																	<input type="checkbox"/> 1 Direct current, direct voltage
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input																	Sensor supply
without																	<input type="checkbox"/> 0 without
1x digital input																	
without sensor supply																	
																	Special measuring input H
																	<input type="checkbox"/> H 600 VDC, 300 VDC, 50 VDC, 1 ADC



M3 – 5-digit digital panel meter 96x48 (BxH) Direct voltage / direct current signals 50 VDC, 300 VDC, 600 VDC, 1 ADC

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Direct voltage, direct current – special measuring input H**

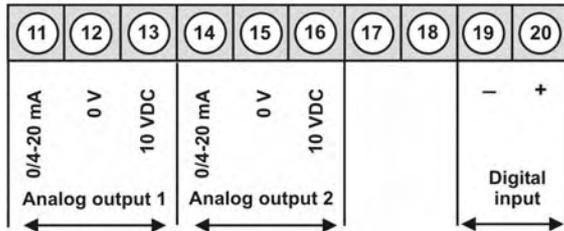


Supply 100-240 VAC, DC ±10%

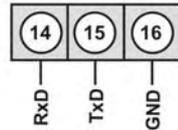
M3-1VR5B.0H01.S70BD

245,00

Options:

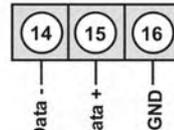


alternative for analog output 2

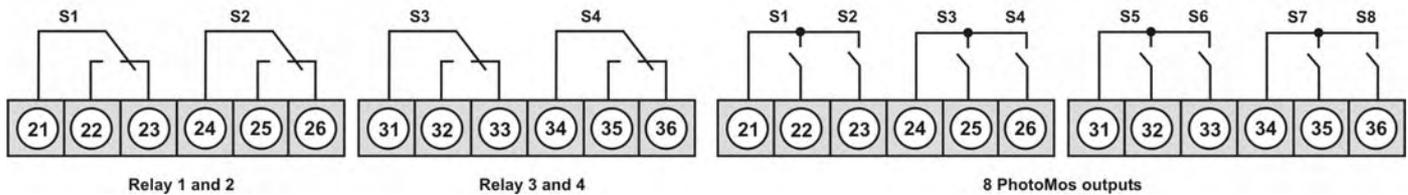


Interface RS232
(Modbus protocol)

or



Interface RS485
(Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	H	0	1.	S	7	0	B	D		EUR	
																2	2 relay outputs	33,00
																4	4 relay outputs	66,00
																8	8 PhotoMos-outputs	90,00
																1	without keypad, operation on the back	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
																Y	2 analog outputs galv. isolated	200,00
																3	Interface RS232 galv. isolated	55,00
																4	Interface RS485 galv. isolated	55,00
																I	Digital input galv. isolated	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00
																T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adaptor. Programming happens via an interface on the back.

ORDER NUMBER

EUR

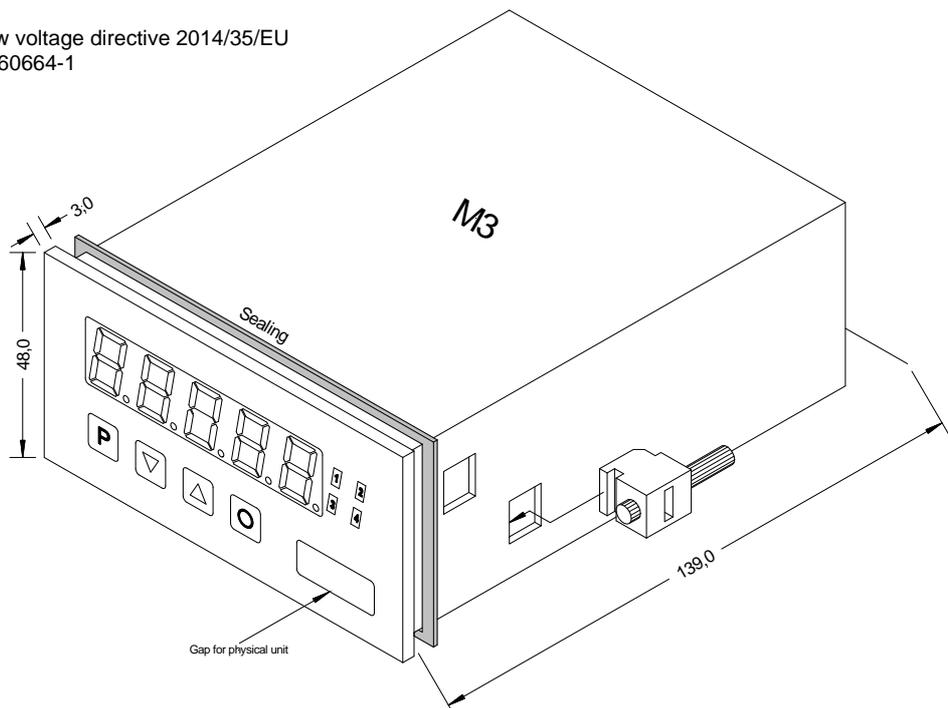
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Messeingang	Measuring span	-600...600 VDC / -300...300 VDC / -50...50 VDC / -1...1 ADC
	Measuring range	0...600 VDC / 0...300 VDC / 0...50 VDC / 0...1 ADC
	Input resistance	R _i at ~ 2 MΩ / R _i at ~ 1 MΩ / R _i at ~ 200 kΩ / R _i at ~ 0,2 Ω
	Measuring fault	0.5% of final
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F- conversion
	Resolution	approx. 18 bit at 1s measuring time
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	PhotoMos output	NOC contacts: 30 VDC/AC, 4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA; 10 VDC / 20 mA
Digital input	Input galv. isolated	< 2.4 V OFF; 10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU	
	EN 61010; EN 60664-1	

Housing:



Direct voltage / direct current (Shunt)

Measuring input: 0-60 mV, 0-150 mV, 0-300 mV, 0-1000 mV

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - digital input
 - analog output
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

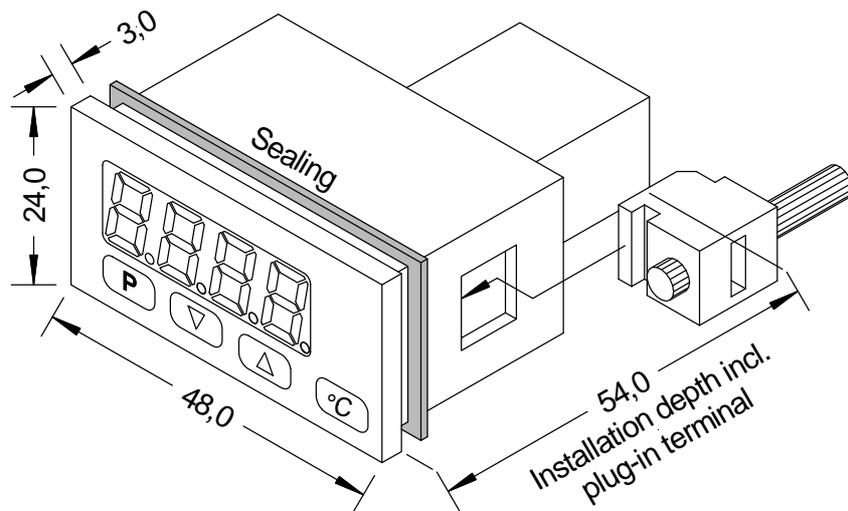
96x48mm

- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)	
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
Display	Display	4-digit	
	Digit height	10 mm	
	Segment colour	red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
Measuring input	Display time/ Measuring time	0.1 to 10.0 seconds	
	Span	-5...80 mV	/ -10...180 mV
	Measuring range	0...60 mV	/ 0...150 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 Ω
	Measuring fault	0.5% of measuring range, ± 1 Digit / 0.5% of measuring range, ± 1 Digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
Power pack	Measuring principle	U/F-conversion	
	Resolution	approx. 18 Bit at 1s measuring time	
	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1		

Housing:



• Order key

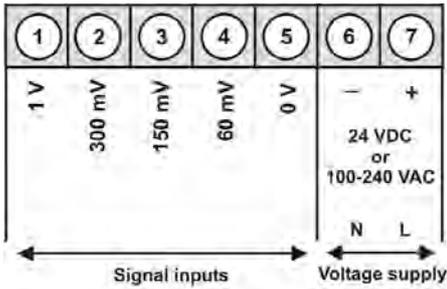
	M	1-	7	V	R	4	A.	0	0	0	2.	7	7	0	C	D	
Basic type M-Line																	Operation D physical unit
Installation depth 54 mm, incl. plug-in terminal																	Version C C
Housing size 48 x 24 x 27 mm (BxHxD)																	Switching points 0 no switching point
Display type mV																	Protection class 1 without keypad, operation on the back 7 IP65 / plug-in terminal
Display colours Blue Green Red Orange																	Supply voltage 7 24 VDC galv. isolated
Number of digits 4-digit																	Measuring input 2 Shunt
Digit height 10 mm																	Analog output 0 without
Digital input without																	Sensor supply 0 without



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Direct voltage signals – Shunt 60 mV, 150 mV, 300 mV, 1000 mV

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold exceedance / threshold undershooting
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- demand measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• Direct voltage (Shunt)



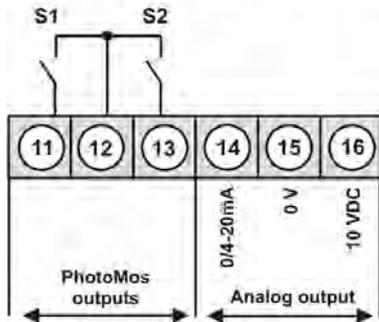
Supply 24 VDC

M3-7VR5A.0002.770BD 220,00

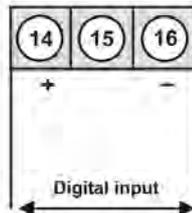
Supply 100-240 VAC, DC ±10%

M3-7VR5A.0002.S70BD 230,00

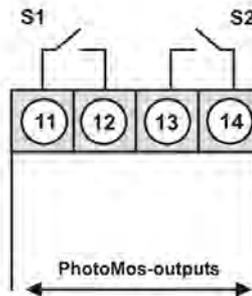
Options: device with a supply of 24 VDC



alternative for analog output



Options: device with a supply of 100-240 VAC



• Product key options: devices with a supply of 24 VDC

M	3-	7	V	R	5	A.	0	0	0	2.	7	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galvanic isolated	110,00
																I	Digital input galvanic isolated	20,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

• Product key options: devices with a supply of 100-240 VAC

M	3-	7	V	R	5	A.	0	0	0	2.	S	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

Please state physical unit on demand in your order, e.g. mV.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

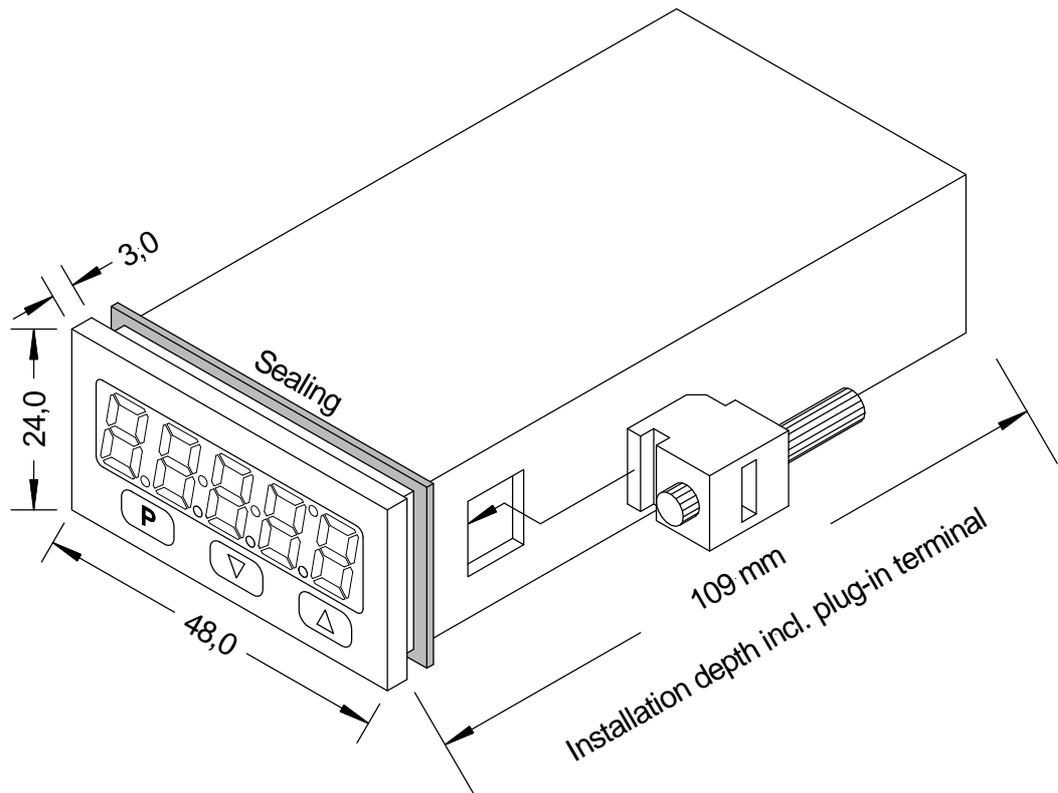
PM-TOOL-MUSB4

89,00

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)			
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm			
	Fixing	screw elements for wall thicknesses up to 5 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection class	at the front IP65 standard, at the back IP00			
	Weight	approx. 200 g			
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	10 mm			
	Segment colour	red (Standard), optional available in green, orange and blue			
	Display range	-19999 to 99999			
	Limit values	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
	Display time	0.1 to 10.0 seconds			
Measuring input	Span	-5...75 mV	/ -15...180 mV	/ -30...360 mV	/ -100...1200 mV
	Measuring range	0...60 mV	/ 0...150 mV	/ 0...300 mV	/ 0...1000 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 kΩ	/ Ri at ~60 kΩ	/ Ri at ~200 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit		/ 0.5% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1second measuring time			
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A			
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. isolated	<2.4 V OFF; 10 V ON; max. 30 VDC, R _i ~ 5 kΩ			
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to + 50°C			
	Storing temperature	-20 to + 80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive 2014/30/EU				
EMV	EN 61326, EN 55011				
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1				

Housing:



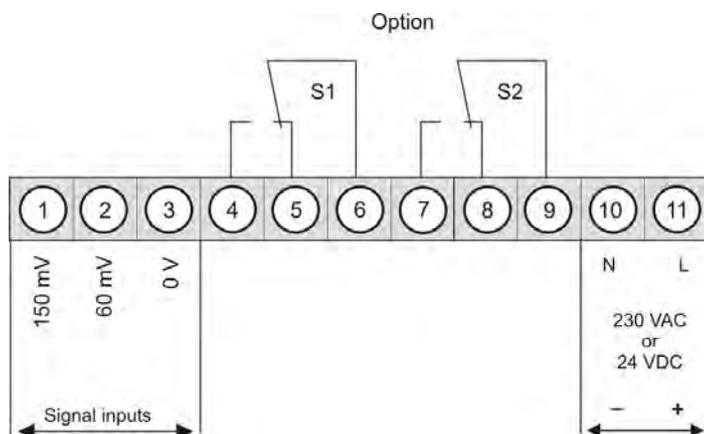
M1 – 4-digit digital panel meters in 72x36 mm (BxH) Direct voltage (Shunt) 0-60 mV, 0-150 mV

- red display with -1999...9999 digits (optional green, orange or blue displays)
- installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable setpoints
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Direct voltage (Shunt)



Supply 230 VAC

M1-6VR4B.0002.570BD **190,00**

Supply 24 VDC

M1-6VR4B.0002.770BD **200,00**

• Product key options

M	1-	6	V	R	4	B.	0	0	0	2.	5	7	0	B	D	EUR
M	1-	6	V	R	4	B.	0	0	0	2.	5	7	0	B	D	
M	1-	6	V	R	4	B.	0	0	0	2.	7	7	0	B	D	
											2	2 relay outputs				20,00
											1	without keypad, operation on the back				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

State physical unit by order, e.g. A!

• Parameterisation software

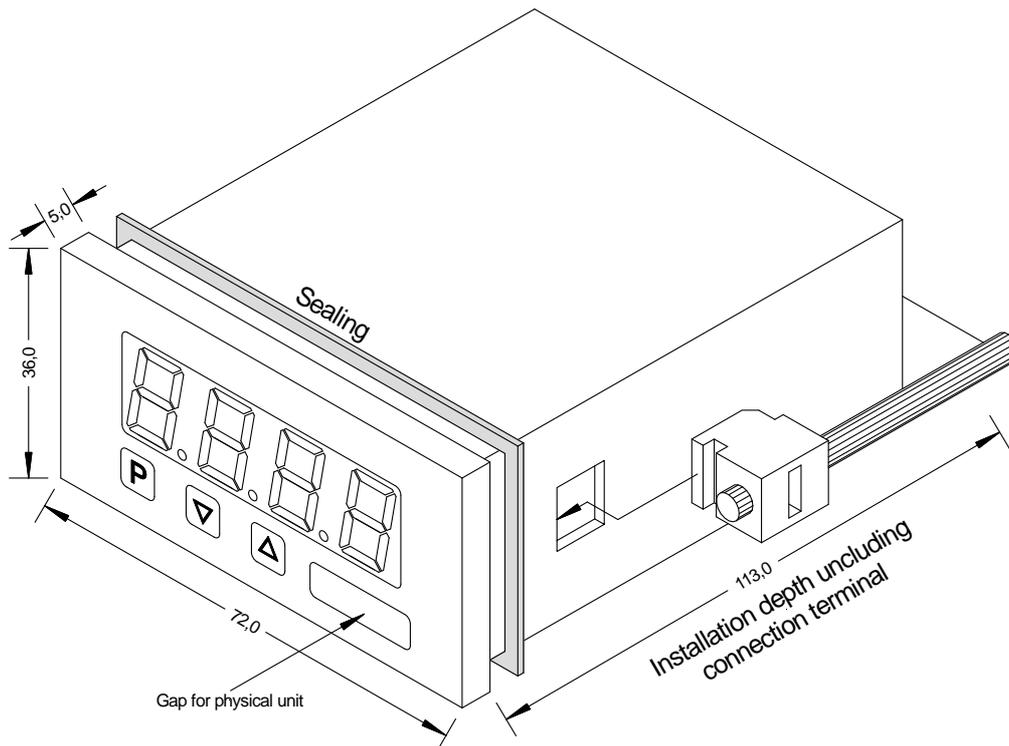
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)		
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm		
	Fixing	screw elements for wall thickness up to 3 mm		
	Housing material	PC Polycarbonate, black		
	Sealing material	EPDM, 65 Shore, black		
	Protection class	at the front IP65 standard, at the back IP00		
	Weight	approx. 200 g		
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²		
Display	Display	4-digit		
	Digit height	14 mm		
	Segment colour	red (Standard), optional available in green, blue and orange		
	Range of display	-1999 to 9999		
	Threshold values	optical display flashing		
	Overflow	horizontal bars at the top		
	Underflow	horizontal bars at the bottom		
Display time/Meas. time	0.1 to 10.0 seconds			
Measuring input	Measuring span	-5...80 mV	/ -10...180 mV	
	Measuring range	0...60 mV	/ 0...150 mV	
	Input resistance	Ri with ~12 kΩ	/ Ri with ~30 kΩ	
	Measuring error	0.5% of measuring range, ± 1 Digit / 0.5% of measuring range, ± 1 Digit		
	Temperature drift	100 ppm/K		
	Measuring time	0.1 ... 10.0 seconds		
	Measuring principle	U/F-conversion		
	Resolution	approx. 18 bit at 1s measuring time		
	Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC	
		Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically Diversity according to DIN EN50178 / Characteristics according to DIN EN60255	
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)		
	EEPROM	Data life ≥ 100 years at 25°C		
Ambient conditions	Working temperature	0 to +60°C		
	Storing temperature	-20 to +80°C		
	Climatic density	relative humidity 0-85% on years average without dew		
CE-sign	Conformity to directive 2014/30/EU			
EMV	EN 61326, EN 55011			
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1			

Housing:



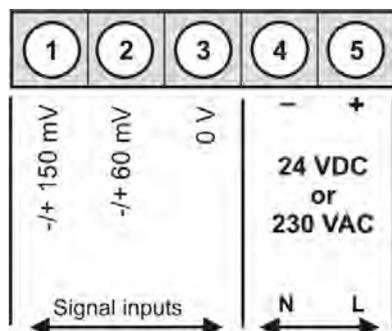
M1 – 4 digit digital panel meter in 96x24 mm (BxH) Direct voltage Shunt 0-150 mV, 0-60 mV



- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C

ORDER NUMBER **EUR**
(without options)

• Direct voltage (Shunt)



Supply 230 VAC

M1-3VR4B.0002.570DD 175,00

Supply 24 VDC

M1-3VR4B.0002.770DD 185,00

• Order key options

M	1-	3	V	R	4	B.	0	0	0	2.	5	7	0	D	D	EUR	
M	1-	3	V	R	4	B.	0	0	0	2.	7	7	0	D	D		
											1					without keypad, operation via PM-TOOL	10,00
											X					Other voltage supplies on demand!	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

Please state physical unit in order, e.g. A.

• Parameterisation software

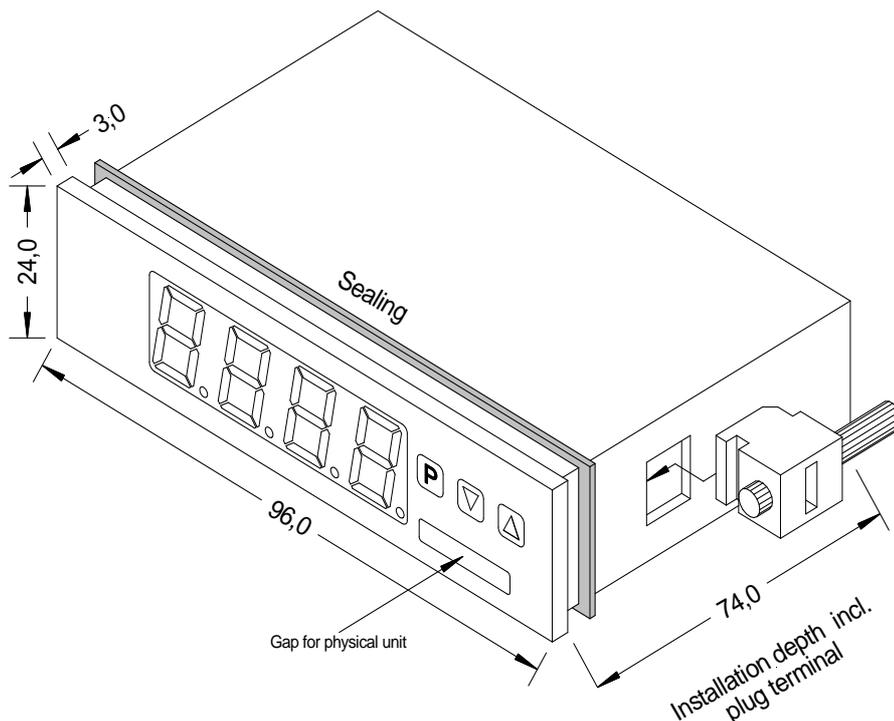
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 89,00

• Technical data

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)	
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 50 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	4-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time/ Measuring time	0.1 to 10.0 seconds	
Measuring input	Span	-5...80 mV	/ -10...180 mV
	Measuring range	0...60 mV	/ 0...150 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 Ω
	Measuring fault	0.5% of measuring range, ± 1 digit	/ 0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
	Resolution	approx. 18 bit at 1s measuring time	
Power pack	Supply	230 VAC ±10% (max. 3 VA)	
		24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:





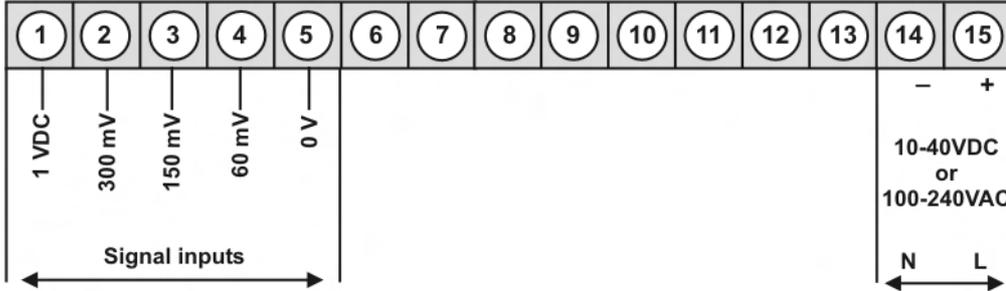
M3 – 5-digit digital panel meter in 96x24 mm (BxH) Direct voltage signals – Shunt 60 mV, 150 mV, 300 mV, 1000 mV

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- demand measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

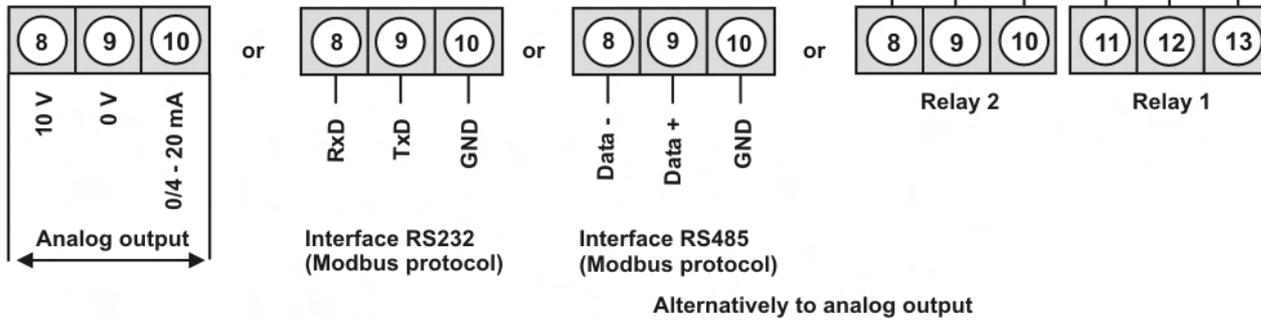
• **Direct voltage (Shunt)**

Supply 100-240 VAC, DC \pm 10% **M3-3VR5B.0002.S70BD** 250,00

Supply 10-40 VDC, 18-30 VAC **M3-3VR5B.0002.W70BD** 250,00



Options:



Alternatively to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	0	0	2.	S	7	0	B	D
M	3-	3	V	R	5	B.	0	0	0	2.	W	7	0	B	D

EUR

1	1 relay output (with option analog output only 1 switching point is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
3	Interface RS232 galvanic isolated	65,00
4	Interface RS485 galvanic isolated	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. mV.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

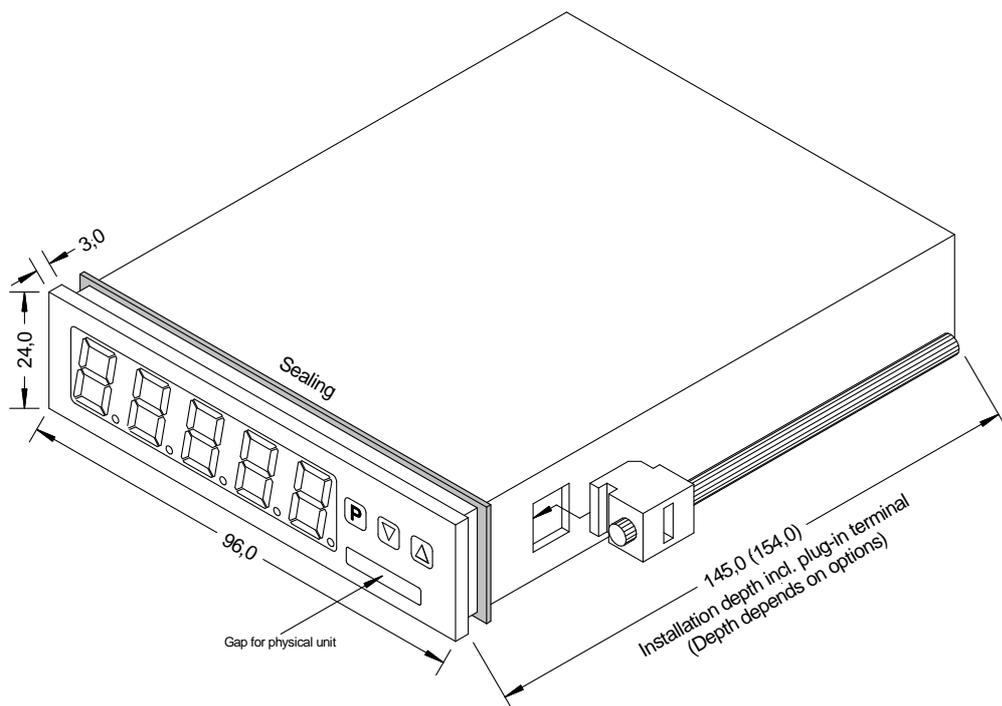
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back)			
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm			
	Fixing	screw elements for a wall thickness up to 10 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection class	at the front IP65 standard, at the back IP00			
	Weight	approx. 250 g			
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (Standard), optional in green, orange, blue or tricolour (red/green/orange)			
	Range of display	-19999 to 99999			
	Threshold value	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
	Display time	0.1 to 10.0 seconds			
Measuring input	Span	-5...75 mV	/ -15...180 mV	/ -30...360 mV	/ -100...1200 mV
	Measuring range	0...60 mV	/ 0...150 mV	/ 0...300 mV	/ 0...1000 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 kΩ	/ Ri at ~60 kΩ	/ Ri at ~200 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit / 0.5% of measuring range, ± 1 digit			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1s measuring time			
Output	Relay	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC			
	Switching cycle	30 * 10 ³ at 2 AAC, 2 ADC resistive burden, 10 * 10 ⁶ mechanically			
		Separation according to DIN EN50178 / Specific values according to DIN EN 60255			
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit			
Interface	Protocol	Modbus with ASCII or RTU-protocol			
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, Pipeline length max. 3 m			
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, Pipeline length max. 1000 m			
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC (max. 10 VA)			
Memory	EEPROM	Data preservation ≥ 100 years at 25°C			
Ambient condition	Working temperature	0°C to +50°C			
	Storing temperature	-20 to +80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive 2014/30/EU				
EMV	EN 61326, EN 55011				
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1				

Housing:

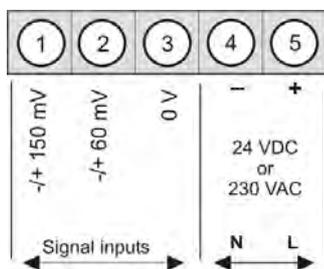


M1 – 4-digit digital panel meter in 96x48 mm (BxH) Direct voltage Shunt 0-150 mV, 0-60 mV

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Direct voltage Shunt



Supply 230 VAC

Supply 24 VDC

ORDER NUMBER **EUR**
(without options)

M1-1VR4B.0002.570CD **148,00**

M1-1VR4B.0002.770CD **160,00**

• Product key options

M	1-	1	V	R	4	B.	0	0	0	2.	5	7	0	C	D	EUR
M	1-	1	V	R	4	B.	0	0	0	2.	7	7	0	C	D	
											1	Without keypad, operation on the back via interface				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. %.

• Parameterisation software

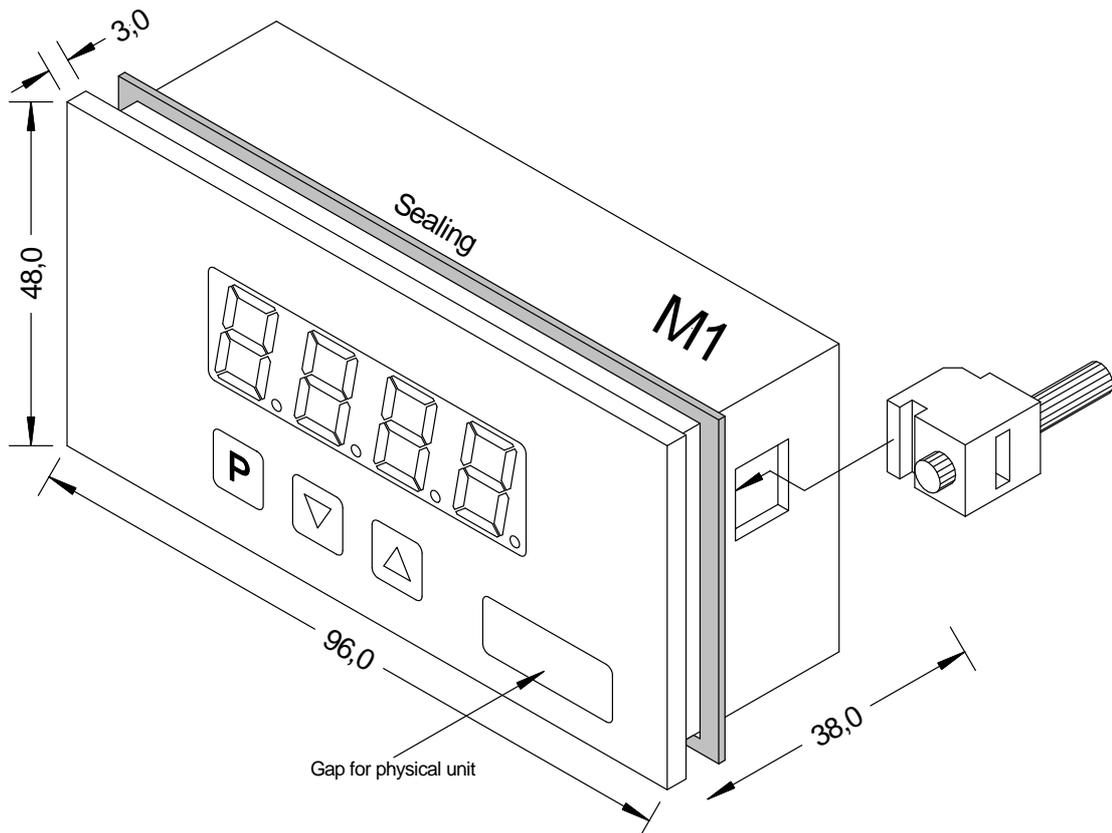
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 38 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
	Display	4-digit	
	Digit height	14 mm	
	Segment colour	Red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
Underflow	horizontal bars at the bottom		
Display time/ Measuring time	0.1 to 10.0 seconds		
Measuring input	Span	-5...80 mV	/ -10...180 mV
	Measuring range	0...60 mV	/ 0...150 mV
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 Ω
	Measuring fault	0.5% of measuring range, ± 1 digit / 0.5% of measuring range, ± 1 digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
Resolution	approx. 18 Bit at 1s measuring time		
Power pack	Supply	230 VAC ±10% (max. 3 VA)	
		24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:





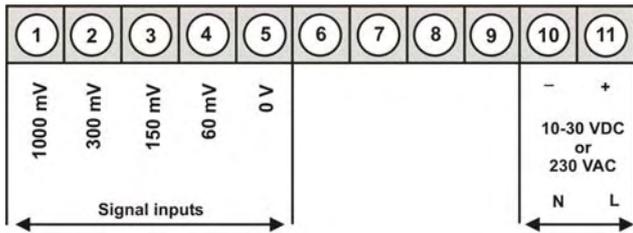
M2 – 5-digit digital panel meter in 96x48 mm (BxH) Direct voltage signals – Shunt 60 mV, 150 mV, 300 mV, 1000 mV

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- demand measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER
(without options)

EUR

• **Direct voltage (Shunt)**



Supply 230 VAC

M2-1VR5B.0002.570CD

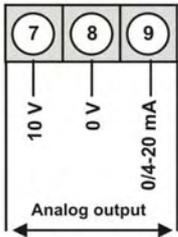
190,00

Supply 10-30 VDC

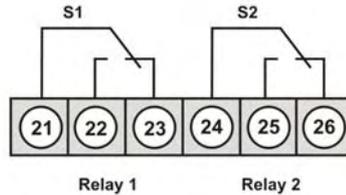
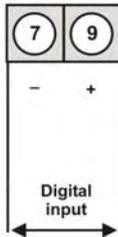
M2-1VR5B.0002.670CD

225,00

Options:



or



• **Product key options**

M	2-	1	V	R	5	B.	0	0	0	2.	5	7	0	C	D
M	2-	1	V	R	5	B.	0	0	0	2.	6	7	0	C	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

* Only one option available with 230 VAC voltage supply: relay outputs or analog output.

Please state physical unit on demand, e.g. A

ORDER NUMBER

EUR

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

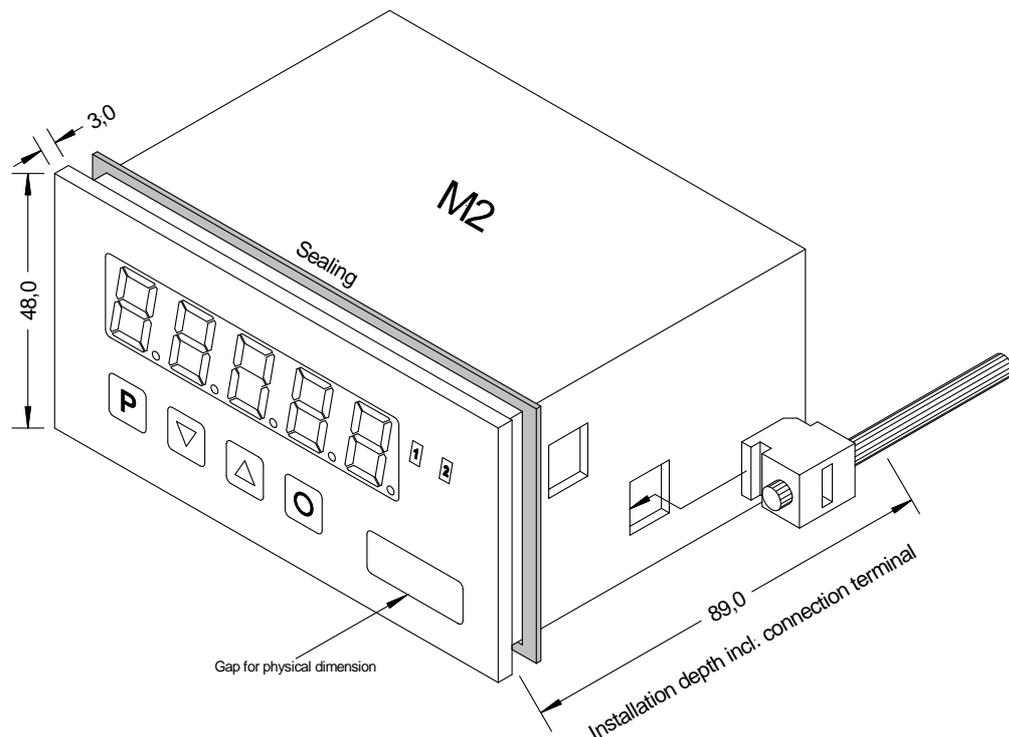
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)				
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm				
	Fixing	screw elements for insulation thickness up to 3 mm				
	Housing material	PC Polycarbonate, black				
	Sealing material	EPDM, 65 Shore, black				
	Protection class	at the front IP65 standard, back side IP00				
	Weight	approx. 250 g				
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²				
Display	Display	5-digit				
	Digit height	14 mm				
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)				
	Display range	-19999 to 99999				
	Setpoints	optical display flashing				
	Overflow	horizontal bars at the top				
	Underflow	horizontal bars at the bottom				
Display time	0.1 to 10.0 seconds					
Measuring input	Span	-5...75 mV	/ -15...180 mV	/ -30...360 mV	/ -100...1200 mV	
	Measuring range	0...60 mV	/ 0...150 mV	/ 0...300 mV	/ 0...1000 mV	
	Input resistance	Ri at ~12 kΩ	/ Ri at ~30 Ω	/ Ri at ~60 Ω	/ Ri at ~200 Ω	
	Measuring fault	0.5% of measuring range, ± 1 digit				
	Temperature drift	100 ppm/K				
	Measuring time	0.1 ... 10.0 seconds				
	Measuring principle	U/F-conversion				
	Resolution	approx. 18 bit at 1s measuring time				
	Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC			
		Switching cycle	10 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255			
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit				
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ				
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA)				
		10-30 VDC, galvanic isolated (max. 4 VA)				
Memory	EEPROM	Data life ≥ 100 years at 25°C				
Ambient conditions	Working temperature	0 to +60°C				
	Storing temperature	-20 to +80°C				
	Climatic density	relative humidity 0-85% on years average without dew				
CE-sign	Conformity to directive 2014/30/EU					
EMV	EN 61326, EN 55011					
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1					

Housing:

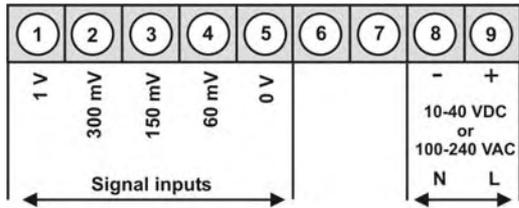




M3 – 5-digit digital panel meter 96x48 (BxH) Direct voltage signals Shunt 60 mV, 150 mV, 300 mV, 1000 mV

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- demand measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Direct voltage (Shunt)**



Supply 100-240 VAC, DC ±10%

M3-1VR5B.0002.S70BD

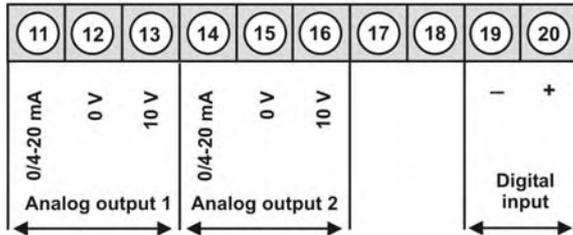
225,00

Supply 10-40 VDC, 18-30 VAC

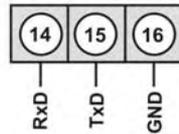
M3-1VR5B.0002.W70BD

240,00

Options:

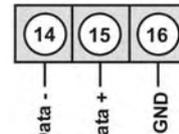


alternative to analog output 2

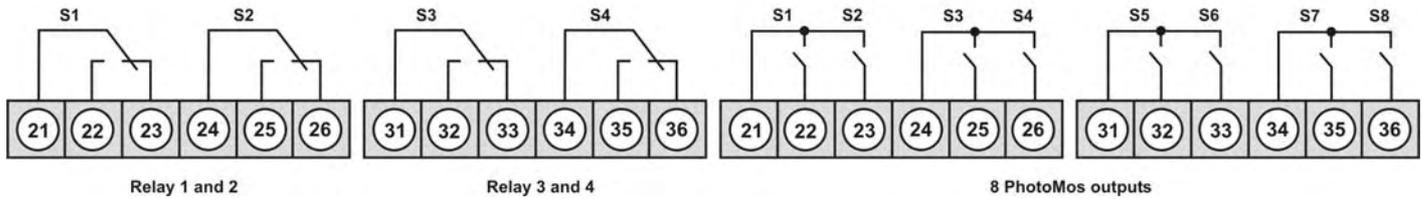


Interface RS232
(Modbus protocol)

or



Interface RS485
(Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	0	0	2.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	0	0	2.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. A.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

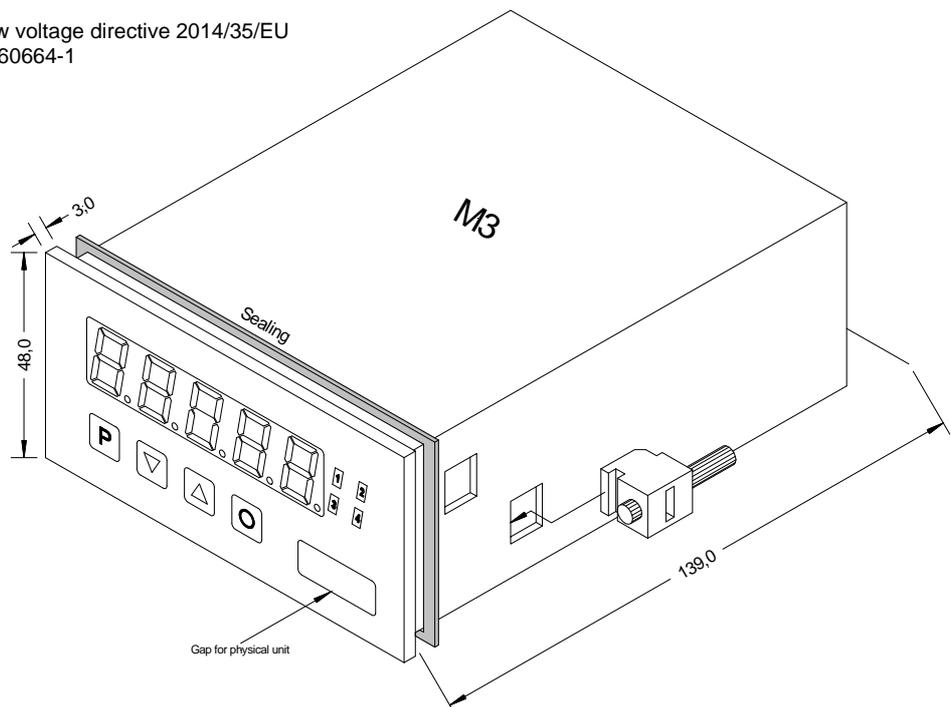
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)			
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm			
	Fixing	screw elements for insulation thickness up to 15 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection type	front side IP65 standard, back side IP00			
	Weight	approx. 350 g			
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)			
	Range of display	-19999 to 99999			
	Threshold	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
	Display time	0.1 to 10.0 seconds			
Measuring input	Span	-5...75 mV	/ -15...180 mV	/ -30...360 mV	/ -100...1200 mV
	Measuring range	0...60 mV	/ 0...150 mV	/ 0...300 mV	/ 0...1000 mV
	Input resistance	R _i at ~12 kΩ	/ R _i at ~60 kΩ	/ R _i at ~30 kΩ	/ R _i at ~200 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit / 0.5% of measuring range, ± 1 digit			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F- conversion			
	Resolution	approx. 18 bit at 1s measuring time			
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC			
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically			
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255			
	Analog output	NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. isolated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ			
Interface	Protocol	manufacturer's specifics ASCII			
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m			
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m			
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to + 60°C			
	Storing temperature	-20 to + 80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive 2014/30/EU				
EMV	EN 61326, EN 55011				
Safety standard	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1				

Housing:



Potentiometer

Measuring input: $>1\text{k}\Omega$... $>1000\text{k}\Omega$

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - digital input
 - analog output
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

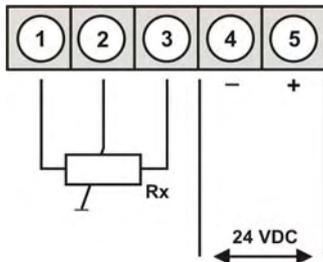
- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

M1 – 4-digit digital panel meter in 48x24 mm (BxH) Potentiometer >1 kΩ...<1000 kΩ

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable supporting points
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max-values or for limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Potentiometer >1 kΩ...<1000 kΩ



Supply 24 VDC

ORDERING NUMBER
(without options)

EUR

M1-7VR4A.0005.770CD

150,00

• Product key options

M	1-	7	V	R	4	A.	0	0	0	5.	7	7	0	C	D	EUR	
											1					without keypad, operation on the back	10,00
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

State physical unit in order, e.g. %.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

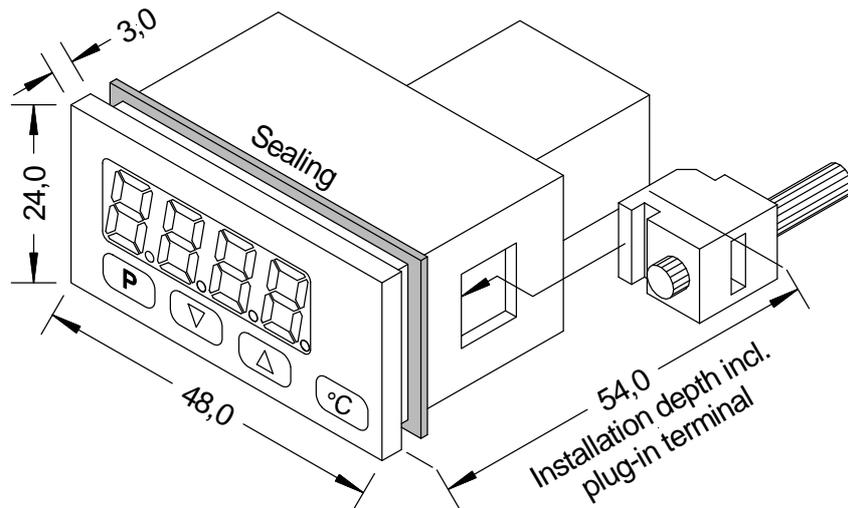
PM-TOOL-MUSB12

89,00

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
Display	Display	4-digit
	Digit height	10 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Measuring input	Span	>1 kΩ ... <1000 kΩ
	Measuring range	0...100%
	Measuring fault	0.5% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Power pack	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



• Order key

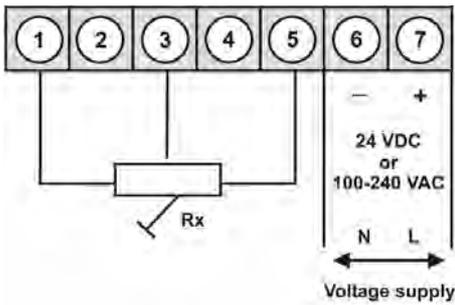
	M	1-	7	V	R	4	A.	0	0	0	5.	7	7	0	C	D
Basic type M-Line																
Installation depth 54 mm, incl. plug-in terminal																Operation D physical unit (free selectable)
Housing size 48x24x27 mm (BxHxD)																Version C C
Display type Ohm																Switching points 0 no switching point
Display colours Blue Green Red Orange																Protection class 1 without keypad, operation on the back 7 IP65 / plug-in terminal
Number of digits 4-digit																Supply voltage 7 24 VDC galv. isolated
Digit height 10 mm																Measuring input 5 Potentiometer > 1 kOhm...< 1000 kOhm
Digital input without																Analog output 0 without
																Sensor supply 0 without



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Potentiometer 0-100 % (>1 k Ω ... <1000 k Ω)

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable setpoints
- display flashing at threshold exceedance / threshold undershooting
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measuring (totaliser)
- mathematical functions like reciprocal value, square root, square, rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• **Potentiometer 0-100 % (>1 kΩ ... <1000 kΩ)**



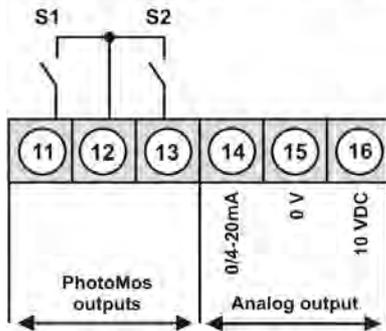
Supply 24 VDC

M3-7VR5A.0005.770BD 220,00

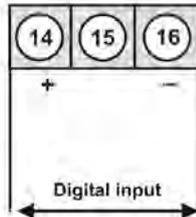
Supply 100-240 VAC, DC ± 10 %

M3-7VR5A.0005.S70BD 230,00

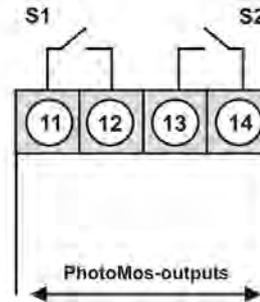
Options: device with a supply of 24 VDC



alternative for analog output



Options: device with a supply of 100-240 VAC



• **Product key options:** devices with a supply of 24 VDC

M	3-	7	V	R	5	A.	0	0	0	5.	7	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galvanic isolated	110,00
																I	Digital input galvanic isolated	20,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

• **Product key options:** devices with a supply of 100-240 VAC

M	3-	7	V	R	5	A.	0	0	0	5.	S	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

Please state physical unit on demand in your order, e.g. bar.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

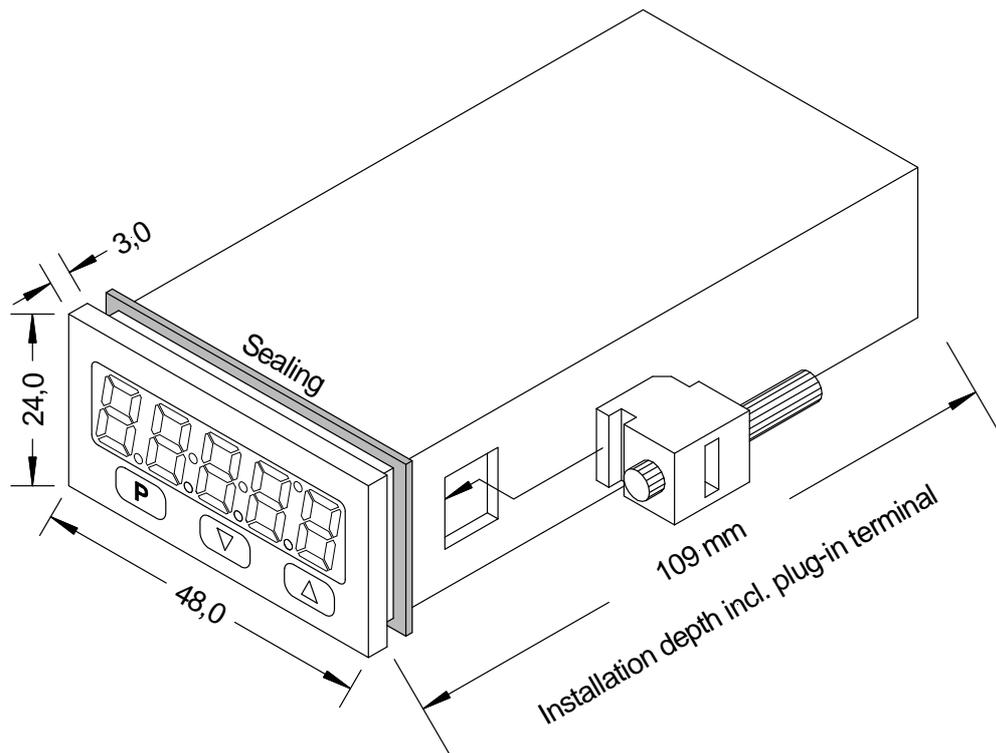
ORDER NUMBER **EUR**

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 5 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange and blue
	Display range	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Span	>1 kΩ ... <1000 kΩ
	Measuring range	0-100 %
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 Bit at 1second measuring time
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

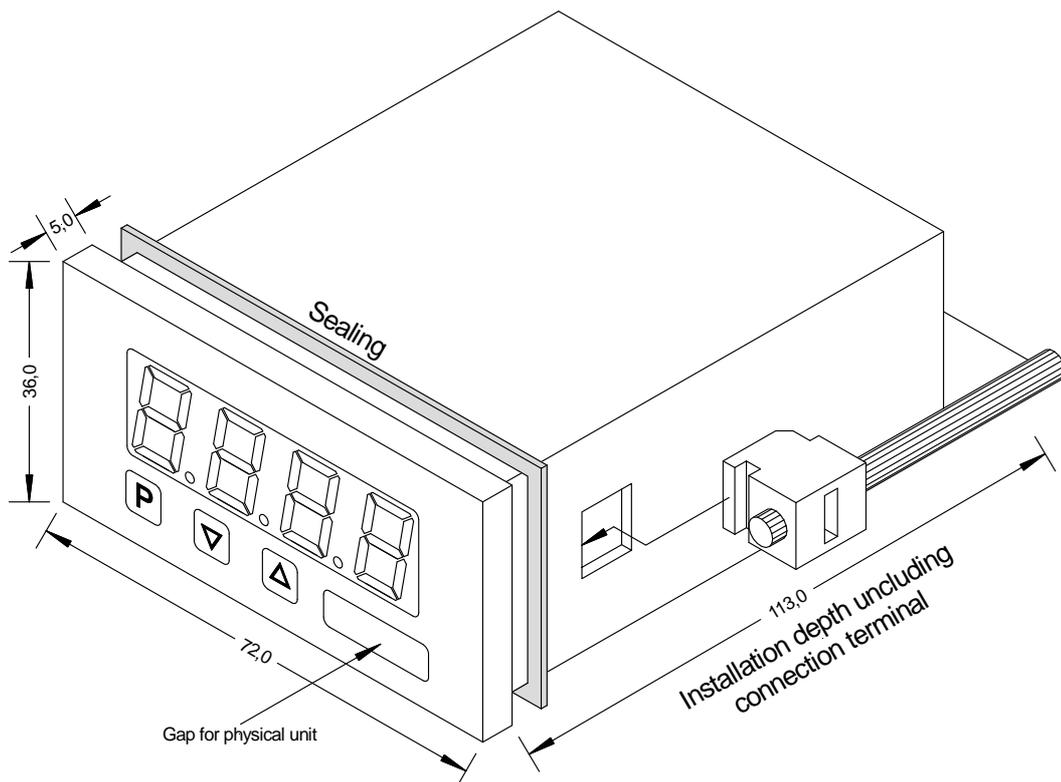
Housing:



• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fixing	screw elements for wall thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, blue and orange
	Range of display	-1999 to 9999
	Threshold values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time/Meas. time	0.1 to 10.0 seconds	
Measuring input	Measuring span	>1 kΩ ... <1000 kΩ
	Measuring range	0-100 %
	Measuring error	0.5% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC
	Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically
		Diversity according to DIN EN50178 / Characteristics according to DIN EN60255
Power pack	Supply	230 VAC ±10 % (max. 3 VA) 24 VDC ±10 %, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

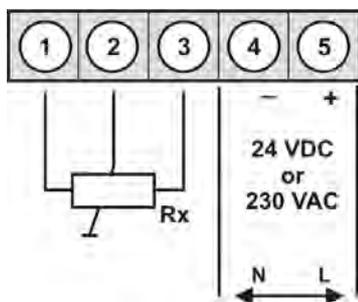


M1 – 4 digit digital panel meter in 96x24 mm (BxH) Potentiometer >1 kΩ ... <1000 kΩ

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Potentiometer >1 kΩ ... <1000 kΩ



Supply 230 VAC

Supply 24 VDC

ORDER NUMBER **EUR**
(without options)

M1-3VR4B.0005.570DD **175,00**

M1-3VR4B.0005.770DD **185,00**

• Order key options

M	1-	3	V	R	4	B.	0	0	0	5.	5	7	0	D	D	EUR	
M	1-	3	V	R	4	B.	0	0	0	5.	7	7	0	D	D		
											1					10,00	
											X					Other voltage supplies on demand!	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

Please state physical unit in order, e.g. %.

• Parameterisation software

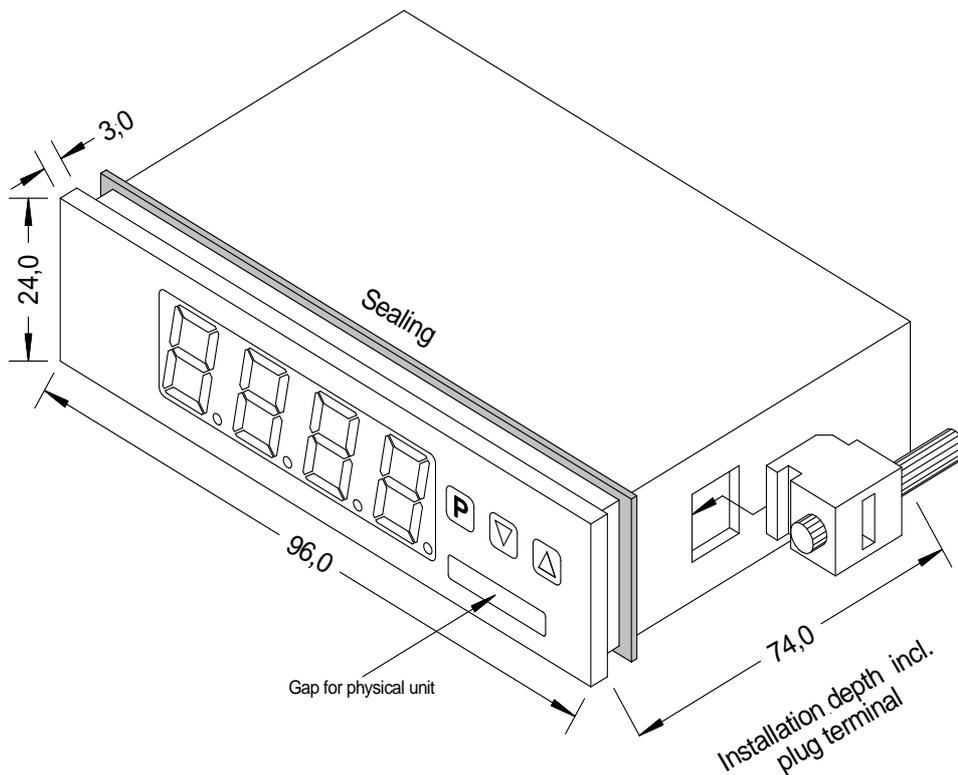
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 50 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	>1 k Ω ... <1000 k Ω
	Measuring range	0...100 %
	Measuring fault	0.5% of measuring range, \pm 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Power pack	Supply	230 VAC \pm 10% (max. 3 VA) 24 VDC \pm 10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life \geq 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:





M3 – 5-digit digital panel meter in 96x24 mm (BxH) Potentiometer >1 kΩ ... <1000 kΩ

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

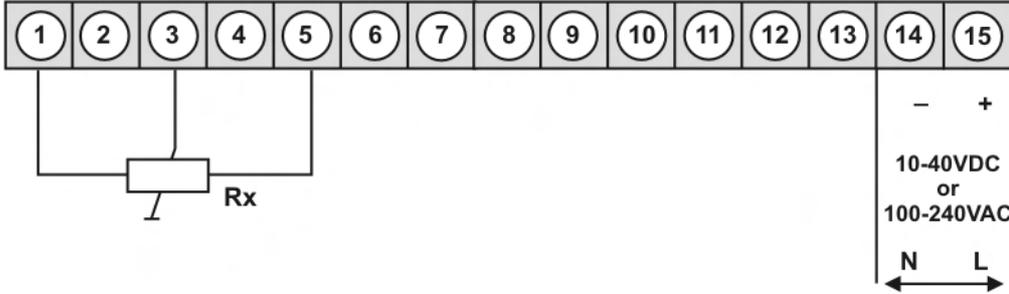
• **Potentiometer 0-100 % (>1 kΩ ... <1000 kΩ)**

Supply 100-240 VAC, DC ± 10%

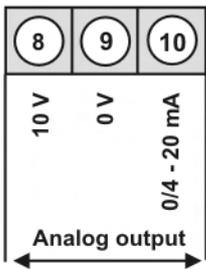
M3-3VR5B.0005.S70BD 248,00

Supply 10-40 VDC, 18-30 VAC

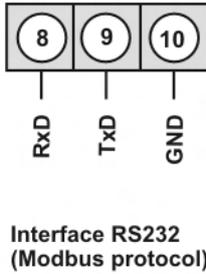
M3-3VR5B.0005.W70BD 248,00



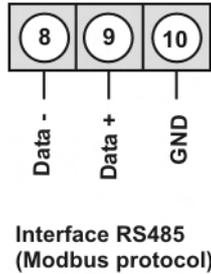
Options:



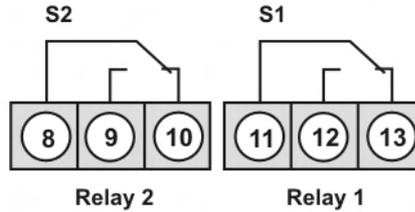
or



or



or



Alternatively to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	0	0	5.	S	7	0	B	D
M	3-	3	V	R	5	B.	0	0	0	5.	W	7	0	B	D

EUR

	1	1 relay output (with option analog output only 1 switching output is possible)	20,00
	2	2 relay outputs	30,00
	1	without keypad, operation on the back	10,00
	X	Analog output 0/4-20 mA, 0-10 VDC	90,00
	3	Interface RS232 galv. isolated	65,00
	4	Interface RS485 galv. isolated	65,00
	B	Blue	44,00
	G	Green	10,00
	Y	Orange	4,00
	T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. %.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

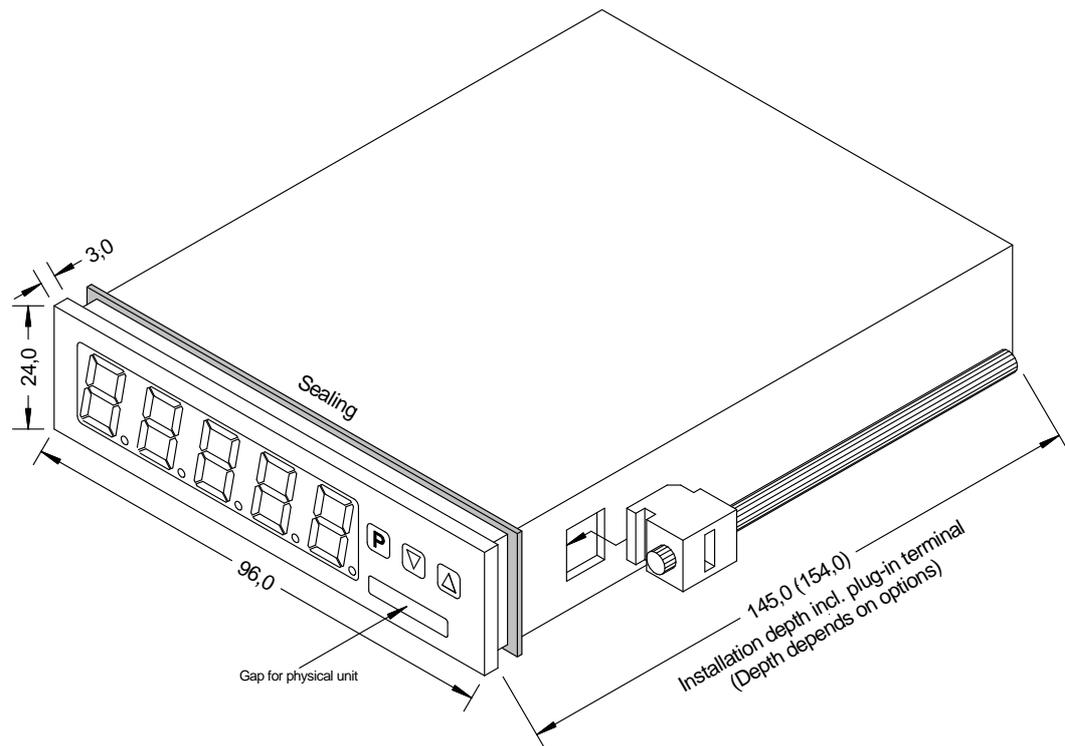
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (Standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	>1 kΩ ... <1000 kΩ 0-100 % 0.5% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Interface	Protocol RS232 RS485	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

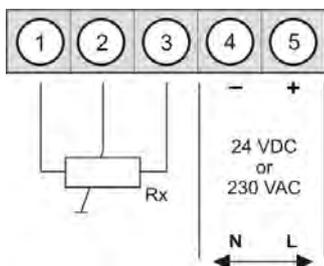


M1 – 4-digit digital panel meter in 96x48 mm (BxH) Potentiometer >1 kΩ ... <100 kΩ

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Potentiometer >1 kΩ ... <100 kΩ



Supply 230 VAC

Supply 24 VDC

ORDER NUMBER **EUR**
(without options)

M1-1VR4B.0005.570CD **148,00**

M1-1VR4B.0005.770CD **160,00**

• Product key options

M	1	1	V	R	4	B.	0	0	0	5.	5	7	0	C	D	EUR
M	1	1	V	R	4	B.	0	0	0	5.	7	7	0	C	D	
											1	Without keypad, operation on the back via interface				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. %.

• Parameterisation software

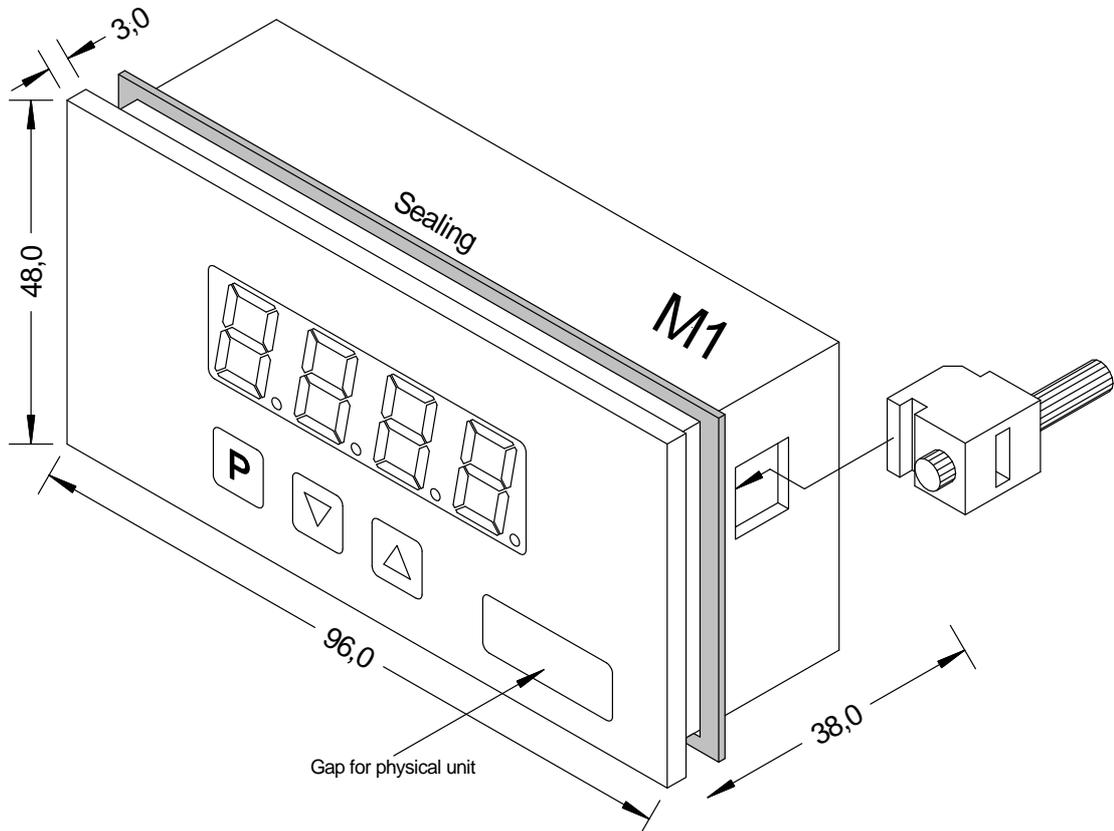
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 38 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	>1 kΩ ... <1000 kΩ
	Measuring range	0...100 %
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

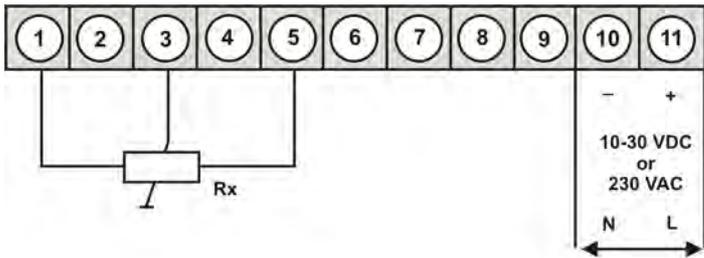




M2 – 5-digit digital panel meter in 96x48 mm (BxH) Potentiometer >1 k Ω ... <1000 k Ω

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

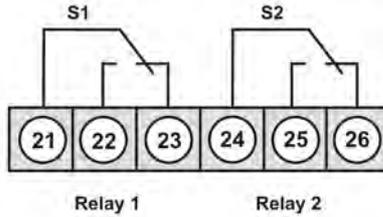
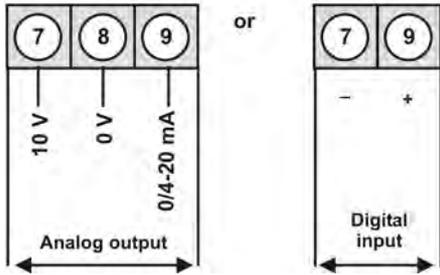
• **Potentiometer 0-100 % (>1 kΩ ... <1000 kΩ)**



Supply 230 VAC **M2-1VR5B.0005.570CD** 188,00

Supply 10-30 VDC **M2-1VR5B.0005.670CD** 218,00

Options:



• **Product key options**

M	2-	1	V	R	5	B.	0	0	0	5.	5	7	0	C	D
M	2-	1	V	R	5	B.	0	0	0	5.	6	7	0	C	D

		EUR
2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

* Only one option available with 230 VAC voltage supply: relay outputs or analog output.

Please state physical unit on demand, e.g. %.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

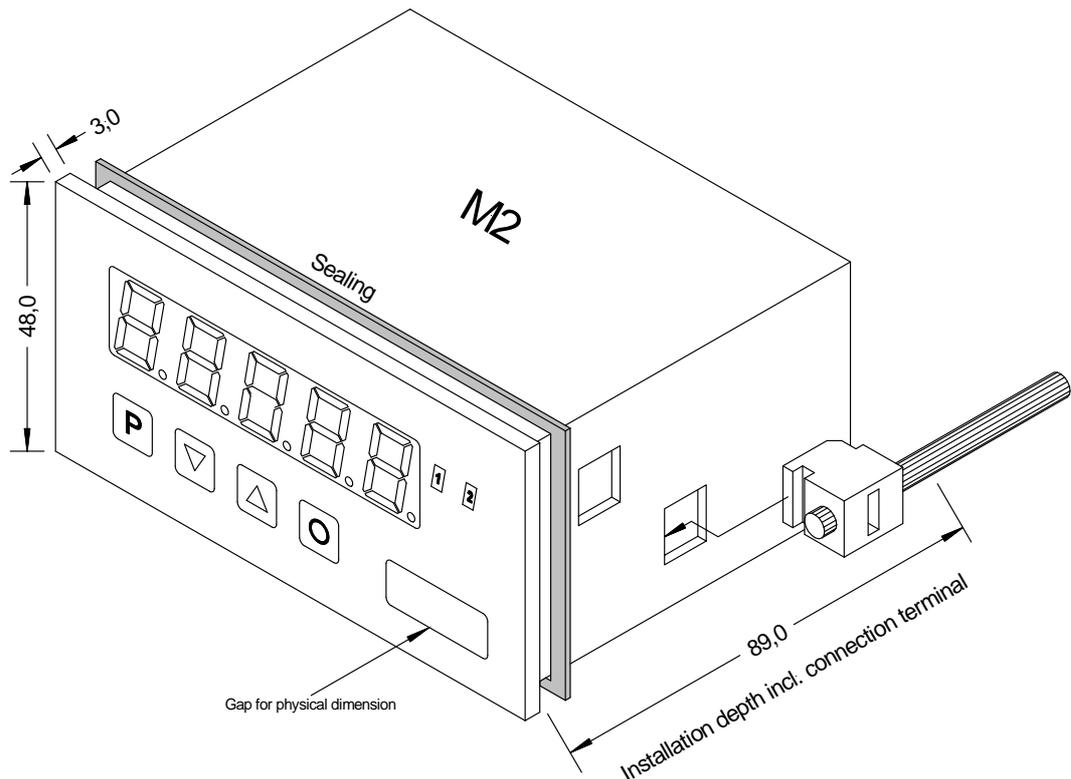
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 250 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Display range	-19999 to 99999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time	0.1 to 10.0 seconds	
Measuring input	Span	>1 kΩ ... <1000 kΩ
	Measuring range	0...100 %
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycle	10 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10% (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

	M	2-	1	V	R	5	B.	0	0	0	5.	5	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (free selectable)
Installation depth																	Version
89 mm (incl. plug-in terminal)																	<input type="checkbox"/> C C
Housing size																	Switching points
96x48x70 mm (BxHxD)																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
																	<input type="checkbox"/> 4 4 relay outputs
																	<input type="checkbox"/> 8 8 PhotoMos outputs
Display type																	Protection class
Potentiometer																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours																	Supply voltage
Blue																	<input type="checkbox"/> 4 115 VAC
Green																	<input type="checkbox"/> 5 230 VAC
Red																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Red/Green/Orange																	
Orange																	
Number of digits																	Measuring input
5-digit																	<input type="checkbox"/> 5 Potentiometer > 1 kΩ ... < 1.000 kΩ
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input																	Sensor supply
without																	<input type="checkbox"/> 0 without
1x digital input																	



M3 – 5-digit digital panel meter 96x48 (BxH) Potentiometer >1 k Ω ... <1000 k Ω

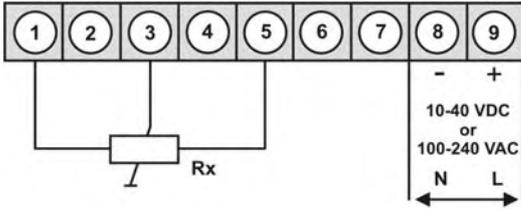
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER

EUR

(without options)

• **Potentiometer >1 kΩ ... <1000 kΩ**



Supply 100-240 VAC, DC ±10%

M3-1VR5B.0005.S70BD

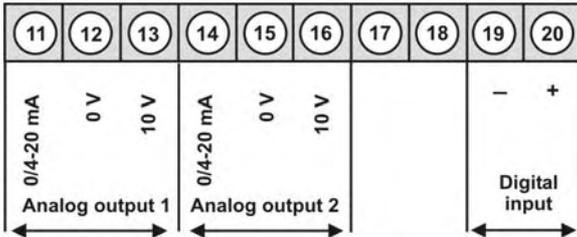
223,00

Supply 10-40 VDC, 18-30 VAC

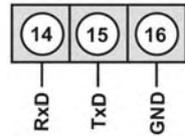
M3-1VR5B.0005.W70BD

238,00

Options:

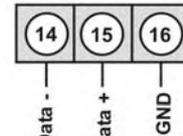


alternative to analog output 2

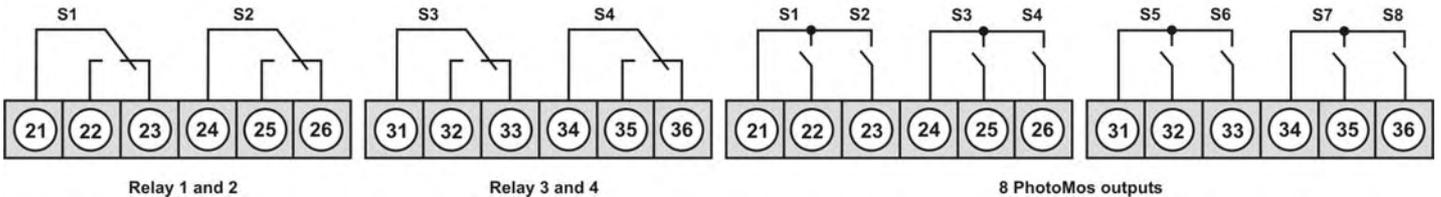


Interface RS232 (Modbus protocol)

or



Interface RS485 (Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	0	0	5.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	0	0	5.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. %.

ORDER NUMBER

EUR

• **Parameterisation software**

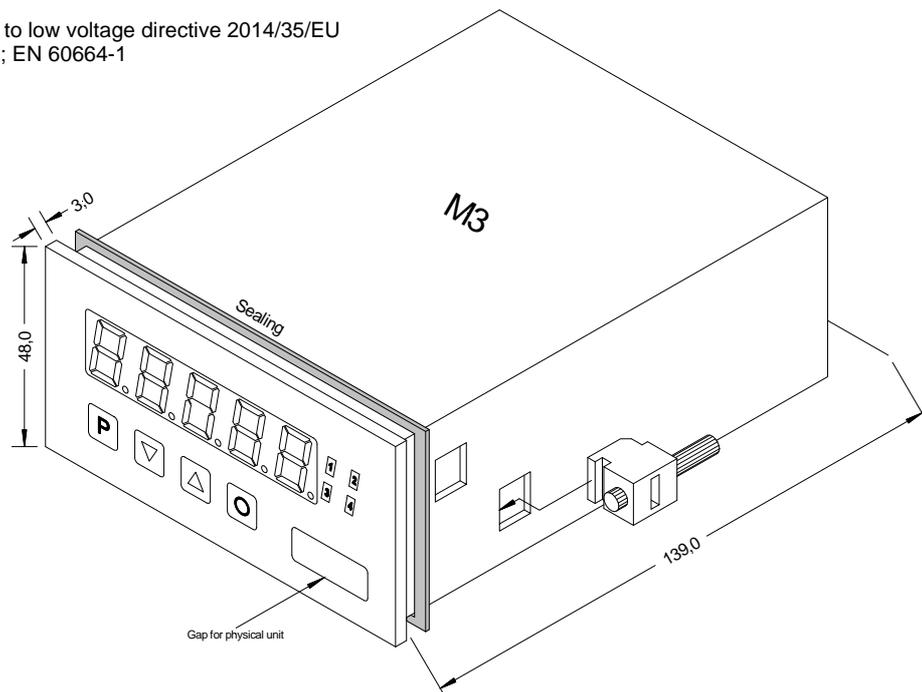
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Span	>1 k Ω ... <1000 k Ω
	Measuring range	0-100 %
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	Analog output	NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 k Ω , 0/4-20 mA / burden ≤ 500 Ω , 16 bit
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 k Ω
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz $\pm 10\%$ (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1	
Housing:		



• Order key

		M	3-	1	V	R	5	B.	0	0	0	5	S	7	0	B	D	
Basic type M-Line																		Dimension
																		<input type="checkbox"/> D physical unit (at buyer's option)
Installation depth 139 mm (incl. plug-in terminal)	<input type="checkbox"/> 3																	Version
																		<input type="checkbox"/> B B
Housing size 96x48x120 mm (BxHxD)	<input type="checkbox"/> 1																	Switching points
																		<input type="checkbox"/> 0 no switching point
																		<input type="checkbox"/> 2 2 relay outputs
																		<input type="checkbox"/> 4 4 relay outputs
																		<input type="checkbox"/> 8 8 PhotoMos-outputs
Display type Potentiometer	<input type="checkbox"/> V																	Protection class
																		<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Display colours		<input type="checkbox"/> B																<input type="checkbox"/> 7 IP65 / plug-in terminal
Blue		<input type="checkbox"/> G																Voltage supply
Green		<input type="checkbox"/> R																<input type="checkbox"/> S 100-240 VAC
Red		<input type="checkbox"/> T																<input type="checkbox"/> W 10-40 VDC galv. isolated
Red/Green/Orange		<input type="checkbox"/> Y																Measuring input
Orange																		<input type="checkbox"/> 5 Potentiometer >1 kΩ ... <1000 kΩ
Number of digits 5-digit	<input type="checkbox"/> 5																	Analog output
																		<input type="checkbox"/> 0 without
Digit height 14 mm	<input type="checkbox"/> B																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
																		<input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
Digital input		<input type="checkbox"/> 0																Sensor supply
without		<input type="checkbox"/> I																<input type="checkbox"/> 0 without
1 digital input		<input type="checkbox"/> 3 galv. isolated																
Interface RS232		<input type="checkbox"/> 4 galv. isolated																
Interface RS485		<input type="checkbox"/> C incl. digital input																
Interface RS232		<input type="checkbox"/> D incl. digital input																
Interface RS485																		

Resistance indicators

Measuring input: 1k Ω , 10 k Ω , 100 k Ω or 1000 k Ω

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - digital input
 - analog output
 - sensor supply
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
 - interface RS232/RS485
 - sensor supply
 - with far range power unit 100-240 VAC

96x48mm

- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
 - sensor supply
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - analog output
 - interface RS232/RS485
 - sensor supply
 - with far range power unit 100-240 VAC

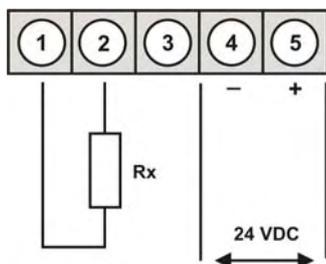
M1 – 4-digit digital panel meter in 48x24 mm (BxH) Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1 MΩ

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable supporting points
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max-values or for limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDERING NUMBER **EUR**
(without options)

• Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1 MΩ



Supply 24 VDC (<i>Measuring range 1 kΩ</i>)	M1-7VR4A.0806.770CD	150,00
Supply 24 VDC (<i>Measuring range 10 kΩ</i>)	M1-7VR4A.0506.770CD	150,00
Supply 24 VDC (<i>Measuring range 100 kΩ</i>)	M1-7VR4A.0606.770CD	150,00
Supply 24 VDC (<i>Measuring range 1 MΩ</i>)	M1-7VR4A.0706.770CD	150,00

• Product key options

M	1-	7	V	R	4	A.	0	0	0	6.	7	7	0	C	D	EUR
												1	Without keypad, operation on the back			10,00
												B	Blue			33,00
												G	Green			9,50
												Y	Orange			3,00

State physical unit in order, e.g. mm.

• Parameterisation software

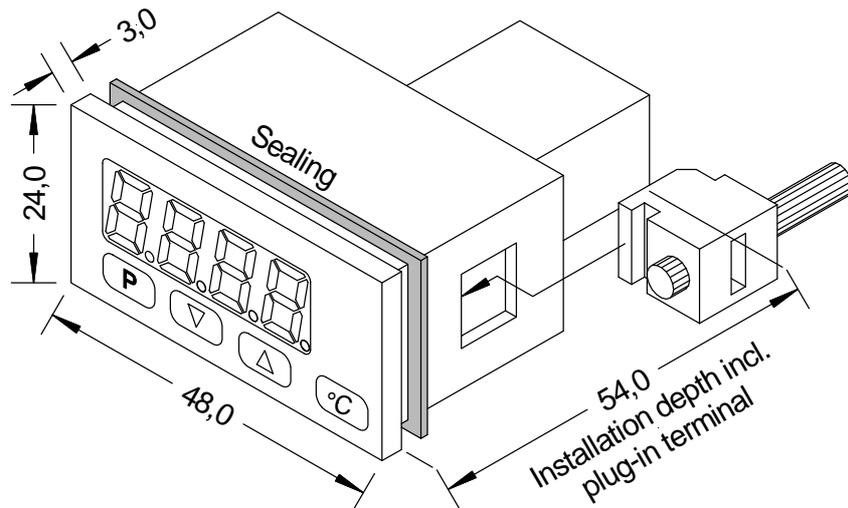
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB12 **89,00**

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
Display	Display	4-digit
	Digit height	10 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Measuring input	Span	0...1.1 kΩ, 0...11 kΩ, 0...110 kΩ, 0...1100 kΩ
	Measuring range	0...1 kΩ, 0...10 kΩ, 0...100 kΩ, 0...1000 kΩ
	Measuring fault	0.5% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 Bit at 1s measuring time
Power pack	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



• Order key

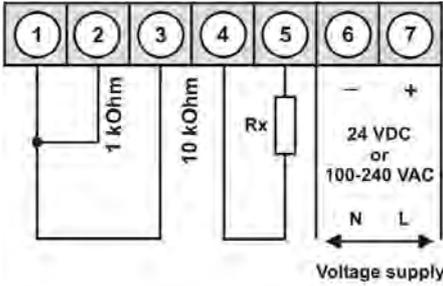
	M	1-	7	V	R	4	A.	0	0	0	6.	7	7	0	C	D
Basic type M-Line																
Installation depth 54 mm, incl. plug-in terminal																Operation D physical unit (free selectable)
Housing size 48x24x27 mm (BxHxD)																Version C C
Display type Resistance																Switching points 0 no switching point
Display colours Blue Green Red Orange																Protection class 1 without keypad, operation on the back 7 IP65 / plug-in terminal
Number of digits 4-digit																Supply voltage 7 24 VDC galv. isolated
Digit height 10 mm																Measuring input 6 Resistance
Digital input without																Analog output 0 without
																Resistance 8 1 kΩ 5 10 kΩ 6 100 kΩ 7 1 MΩ



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Resistance (1 k Ω or 10 k Ω)

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold exceedance / threshold undershooting
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measuring (totaliser)
- mathematical functions like reciprocal value, square root, square, rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• **Resistance (1 kΩ or 10 kΩ)**



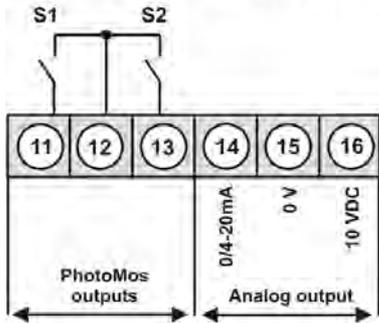
Supply 24 VDC

M3-7VR5A.0006.770BD 220,00

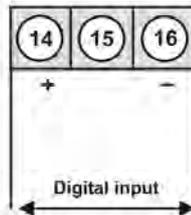
Supply 100-240 VAC, DC ± 10%

M3-7VR5A.0006.S70BD 230,00

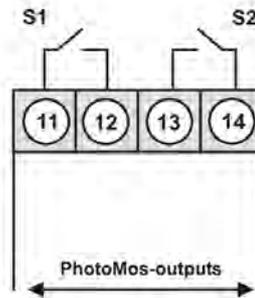
Options: device with a supply of 24 VDC



alternative for analog output



Options: device with a supply of 100-240 VAC



• **Product key options: devices with a supply of 24 VDC**

M	3-	7	V	R	5	A.	0	0	0	6.	7	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galvanic isolated	110,00
																I	Digital input galvanic isolated	20,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

• **Product key options: devices with a supply of 100-240 VAC**

M	3-	7	V	R	5	A.	0	0	0	6.	S	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

Please state physical unit on demand in your order, e.g. mm.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

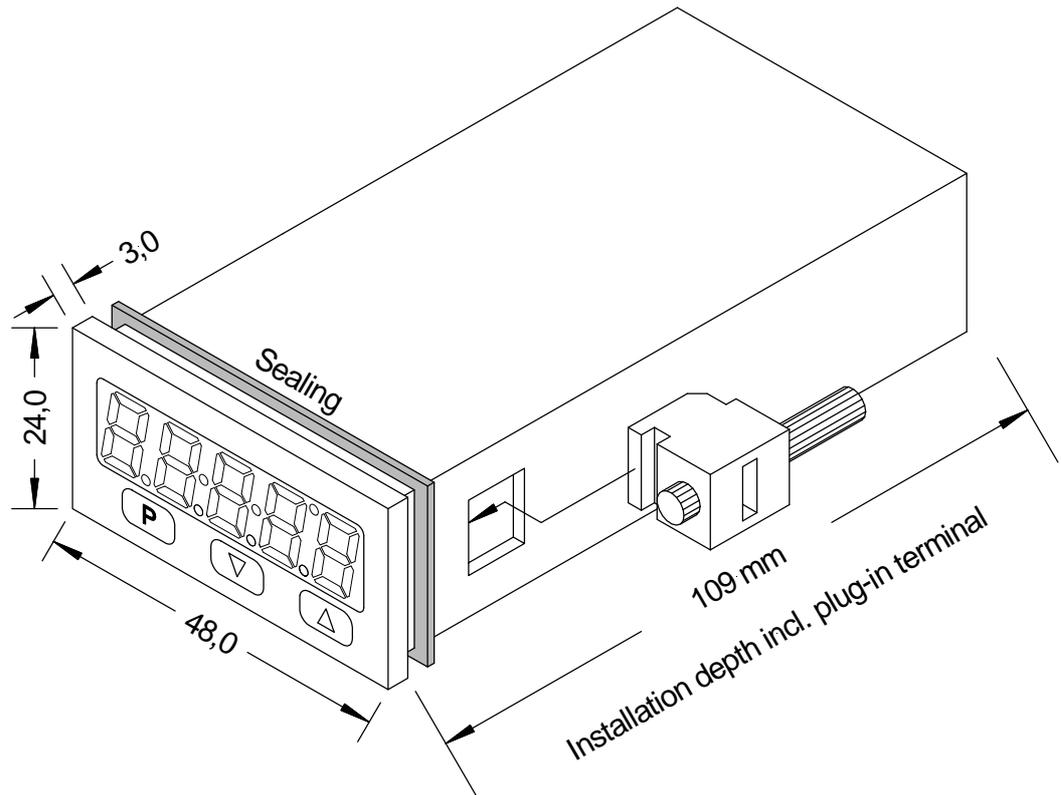
ORDER NUMBER **EUR**

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 5 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange and blue
	Display range	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Span	0...1.1 kΩ / 0...11 kΩ
	Measuring range	0...1 kΩ / 0...10 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 Bit at 1 second measuring time
	Output	PhotoMos
Analog output		0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	<2.4 V OFF; 10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



• Order key

	M	3-	7	V	R	5	A.	0	0	0	6.	7	7	0	B	D	
Standard type M-Line																	
Installation depth 109 mm (incl. plug-in terminal)																	
Housing size 48x24x90 mm (BxHxD)																	
Display type Resistance																	
Display colours Blue Green Red Orange																	
Number of digits 5-digit																	
Digit height 10 mm																	
Digital input without 1 digital input																	

Dimension
 D physical unit

Version
 B B

Setpoints
 0 no setpoint
 2 2 PhotoMos-outputs

Protection class
 1 without keypad, operation via PM-TOOL
 7 IP65 / pluggable terminal

Supply voltage
 7 24 VDC galv. isolated
 S 100-240 VAC

Measuring input
 6 1 kΩ, 10 kΩ

Analog output
 0 without
 X 0-10 VDC, 0/4-20 mA

Sensor supply
 1 without

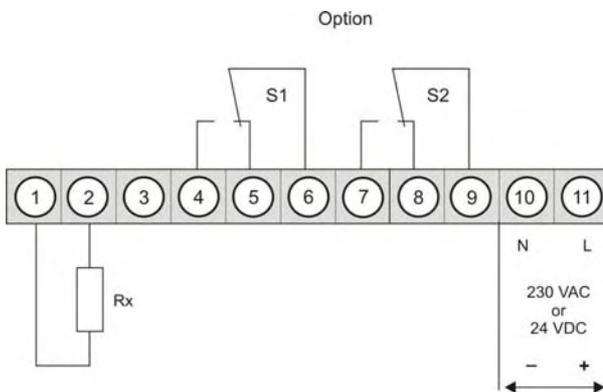
M1 – 4-digit digital panel meters in 72x36 mm (BxH) Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ

- red display with -1999...9999 digits (optional green, orange or blue displays)
- minimal installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ



Supply	Resistance	Order Number	EUR
Supply 230 VAC	1 kΩ	M1-6VR4B.0806.570BD	190,00
Supply 24 VDC	1 kΩ	M1-6VR4B.0806.770BD	200,00
Supply 230 VAC	10 kΩ	M1-6VR4B.0506.570BD	190,00
Supply 24 VDC	10 kΩ	M1-6VR4B.0506.770BD	200,00
Supply 230 VAC	100 kΩ	M1-6VR4B.0606.570BD	190,00
Supply 24 VDC	100 kΩ	M1-6VR4B.0606.770BD	200,00
Supply 230 VAC	1000 kΩ	M1-6VR4B.0706.570BD	190,00
Supply 24 VDC	1000 kΩ	M1-6VR4B.0706.770BD	200,00

• Product key options

Option	Description	EUR
M 1- 6 V R 4 B. 0 X 0 6. 5 7 0 B D		
M 1- 6 V R 4 B. 0 X 0 6. 7 7 0 B D		
2	2 relay outputs	20,00
1	without keypad, operation on the back	10,00
X	other voltage supplies on demand!	
B	Blue	33,00
G	Green	9,50
Y	Orange	3,00

State physical unit by order, e.g. mm!

• Parameterisation software

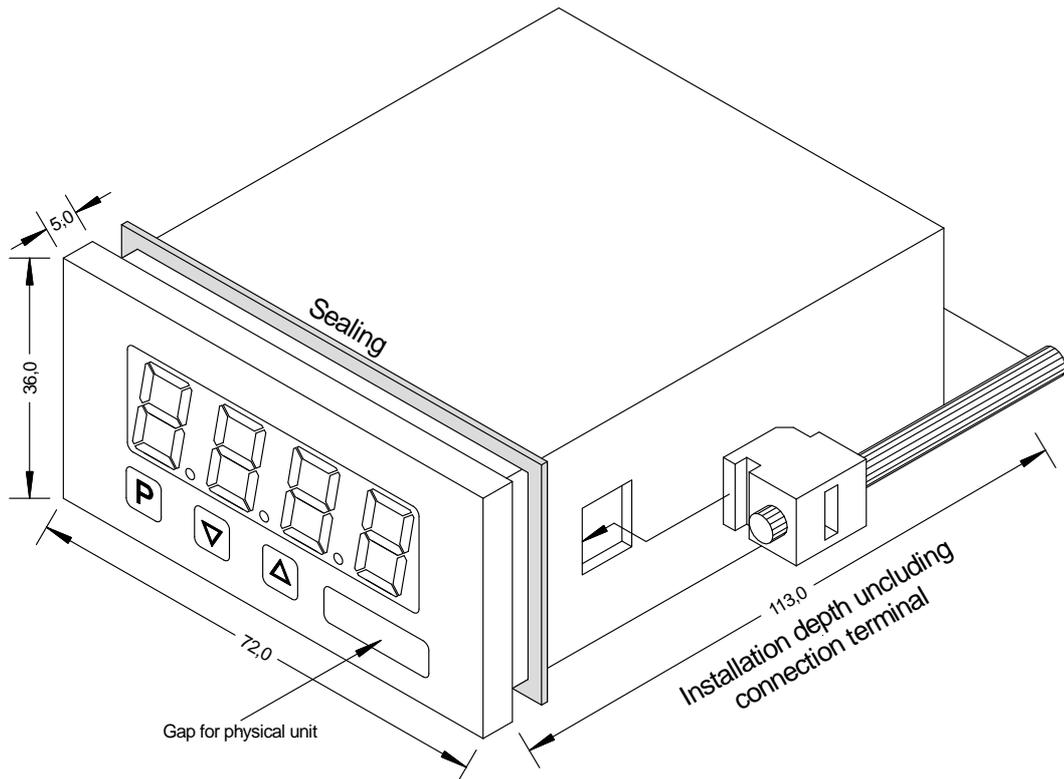
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens de via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm) 68.0 ^{+0.7} x 33.0 ^{+0.6} mm screw elements for wall thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 200 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold values Overflow Underflow Display time/Meas. time	4-digit 14 mm red (Standard), optional available in green, blue and orange -1999 to 9999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring span Measuring range Measuring error Temperature drift Measuring time Measuring principle Resolution	0...1.1 kΩ, 0...11 kΩ, 0...110 kΩ, 0...1100 kΩ 0...1 kΩ, 0...10 kΩ, 0...100 kΩ, 0...1000 kΩ 0.5% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycles	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC 30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically Diversity according to DIN EN50178 / Characteristics according to DIN EN60255
Power pack	Supply	230 VAC ±10 % (max. 3 VA) 24 VDC ±10 %, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



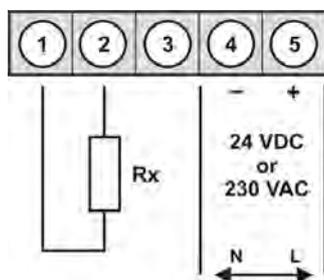
M1 – 4 digit digital panel meter in 96x24 mm (BxH) Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ



- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C

ORDER NUMBER **EUR**
(without options)

• Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ



Supply 230 VAC	<i>Measuring range 1 kΩ</i>	M1-3VR4B.0806.570DD	175,00
Supply 24 VDC	<i>Measuring range 1 kΩ</i>	M1-3VR4B.0806.770DD	185,00
Supply 230 VAC	<i>Measuring range 10 kΩ</i>	M1-3VR4B.0506.570DD	175,00
Supply 24 VDC	<i>Measuring range 10 kΩ</i>	M1-3VR4B.0506.770DD	185,00
Supply 230 VAC	<i>Measuring range 100 kΩ</i>	M1-3VR4B.0606.570DD	175,00
Supply 24 VDC	<i>Measuring range 100 kΩ</i>	M1-3VR4B.0606.770DD	185,00
Supply 230 VAC	<i>Measuring range 1000 kΩ</i>	M1-3VR4B.0706.570DD	175,00
Supply 24 VDC	<i>Measuring range 1000 kΩ</i>	M1-3VR4B.0706.770DD	185,00

• Order key options

M	1-	3	V	R	4	B.	0	0	0	6.	5	7	0	D	D	EUR	
M	1-	3	V	R	4	B.	0	0	0	6.	7	7	0	D	D		
											1					10,00	
											X					Other voltage supplies on demand	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

Please state physical unit in order, e.g. mm.

• Parameterisation software

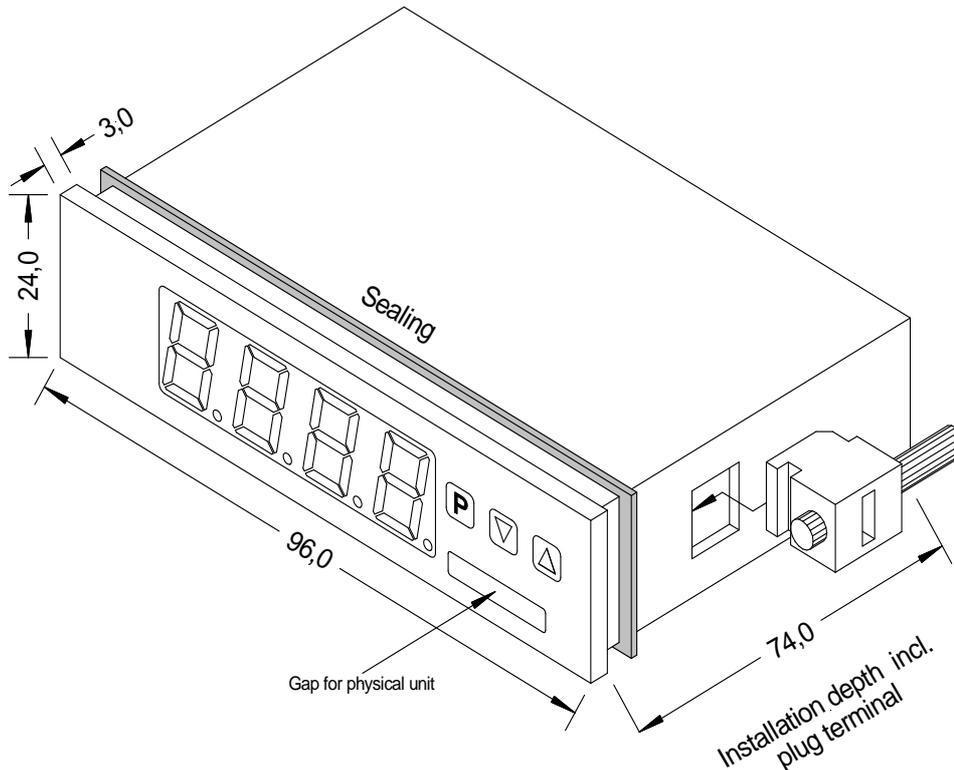
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 50 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	0...1.1 kΩ, 0...11 kΩ, 0...110 kΩ, 0...1100 kΩ
	Measuring range	0...1 kΩ, 0...10 kΩ, 0...100 kΩ, 0...1000 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:





M3 – 5-digit digital panel meter in 96x24 mm (BxH) Resistance 1 k Ω , 10 k Ω or 100 k Ω

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

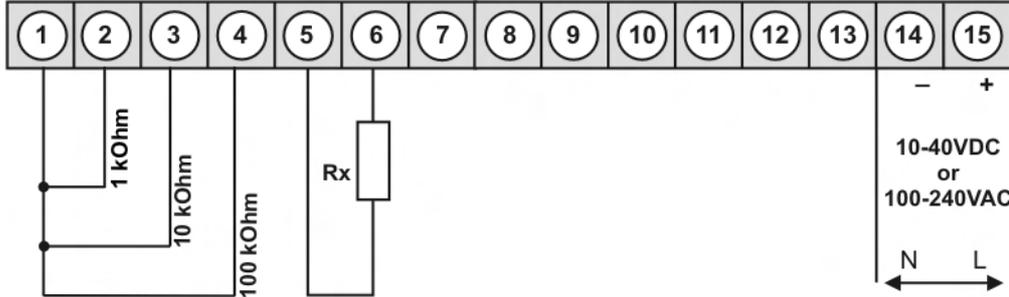
• **Resistance (1 kΩ, 10 kΩ or 100 kΩ)**

Supply 100-240 VAC, DC ± 10%

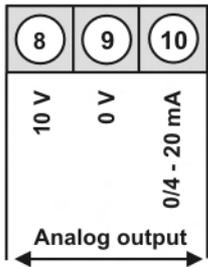
M3-3VR5B.0006.S70BD 248,00

Supply 10-40 VDC, 18-30 VAC

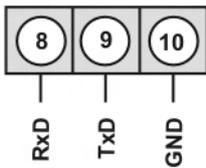
M3-3VR5B.0006.W70BD 248,00



Options:

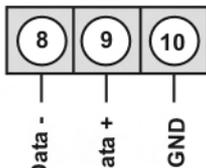


or



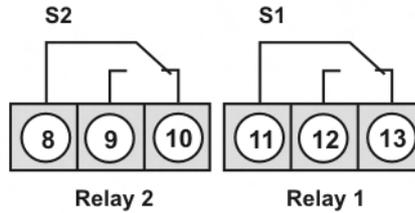
Interface RS232
(Modbus protocol)

or



Interface RS485
(Modbus protocol)

or



Alternatively to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	0	0	6.	S	7	0	B	D
M	3-	3	V	R	5	B.	0	0	0	6.	W	7	0	B	D

EUR

1	1 relay output (with option analog output only 1 switching point is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
3	Interface RS232 galvanic isolated	65,00
4	Interface RS485 galvanic isolated	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. mm.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

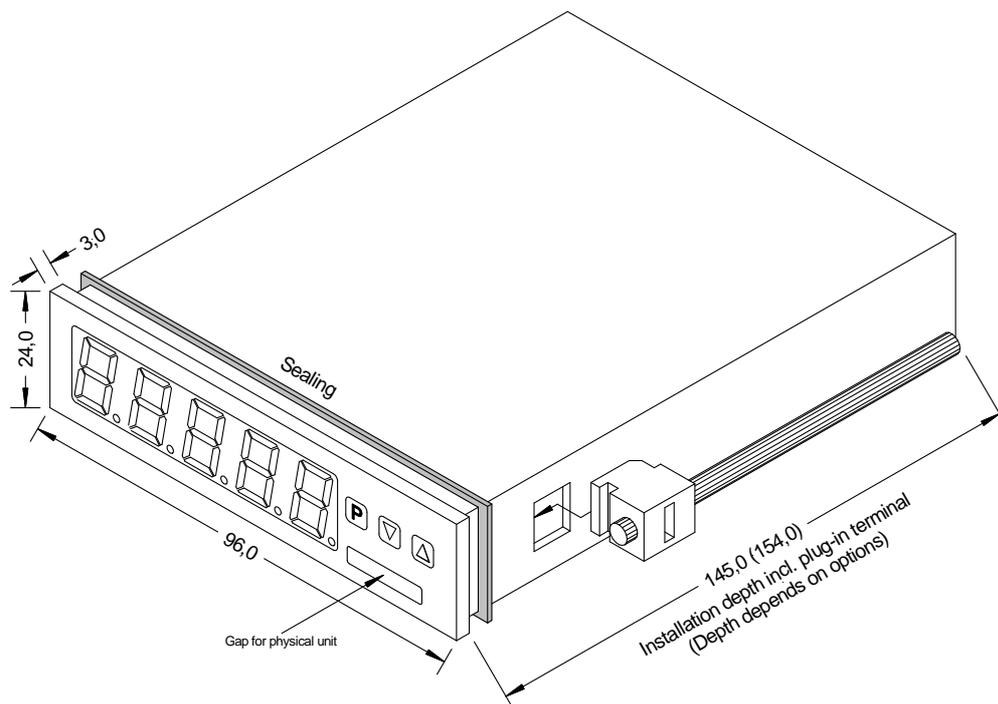
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (Standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	0...1.1 kΩ / 0...11 kΩ / 0...110 kΩ 0...1 kΩ / 0...10 kΩ / 0...100 kΩ 0.5% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC Ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Interface	Protocol RS232 RS485	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 DataBit, 1 StopBit, Pipeline length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, Pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

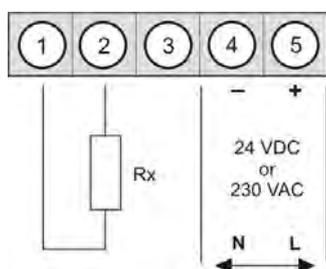


M1 – 4-digit digital panel meter in 96x48 mm (BxH) Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- 10 adjustable support points
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- tara-function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Resistance 1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ



Supply 230 VAC

Measuring range 1 kΩ

M1-1VR4B.0806.570CD

148,00

Supply 24 VDC

Measuring range 1 kΩ

M1-1VR4B.0806.770CD

160,00

Supply 230 VAC

Measuring range 10 kΩ

M1-1VR4B.0506.570CD

148,00

Supply 24 VDC

Measuring range 10 kΩ

M1-1VR4B.0506.770CD

160,00

Supply 230 VAC

Measuring range 100 kΩ

M1-1VR4B.0606.570CD

148,00

Supply 24 VDC

Measuring range 100 kΩ

M1-1VR4B.0606.770CD

160,00

Supply 230 VAC

Measuring range 1000 kΩ

M1-1VR4B.0706.570CD

148,00

Supply 24 VDC

Measuring range 1000 kΩ

M1-1VR4B.0706.770CD

160,00

• Product key options

M	1-	1	V	R	4	B.	0	X	0	6.	5	7	0	C	D
M	1-	1	V	R	4	B.	0	X	0	6.	7	7	0	C	D

EUR

1	Without keypad, operation on the back via interface	10,00
X	Other voltage supplies on demand!	
B	Blue	33,00
G	Green	9,50
Y	Orange	3,00

Please state physical unit in order, e.g. mm.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

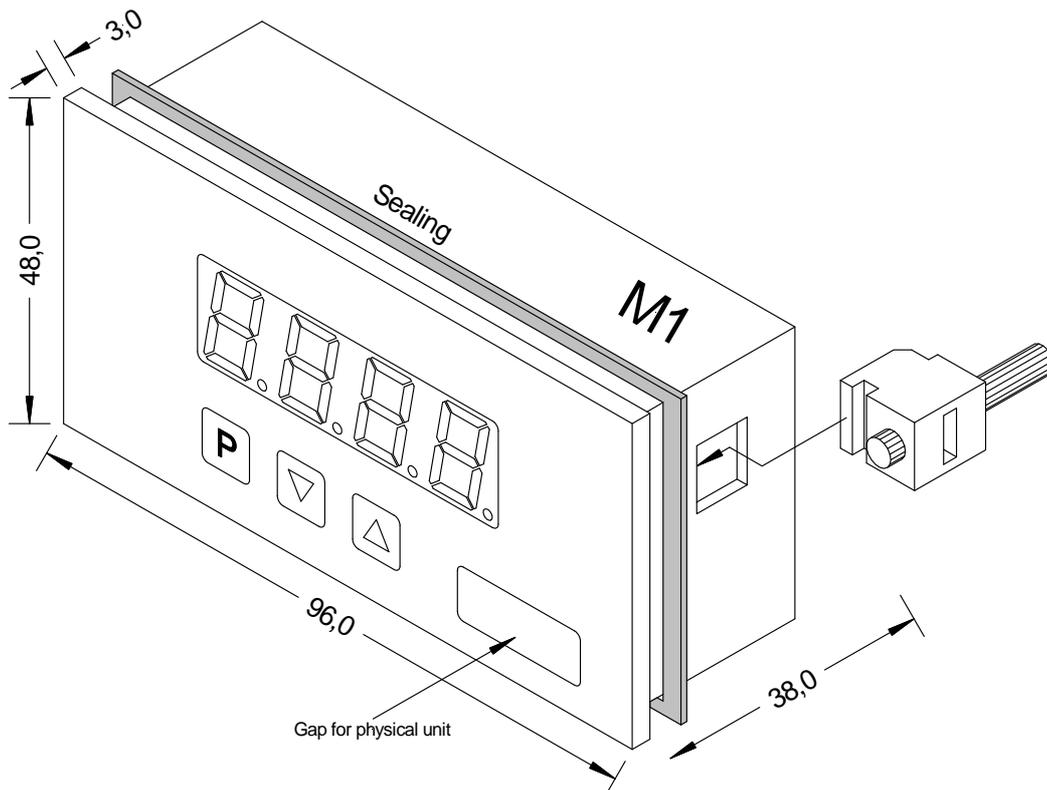
PM-TOOL-MUSB4

89,00

• Technical data

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 38 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	0...1.1 kΩ, 0...11 kΩ, 0...110 kΩ, 0...1100 kΩ
	Measuring range	0...1 kΩ, 0...10 kΩ, 0...100 kΩ, 0...1000 kΩ
	Measuring fault	0.5% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 bit at 1s measuring time
Power pack	Supply	230 VAC ±10 % (max. 3 VA) 24 VDC ±10 %, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

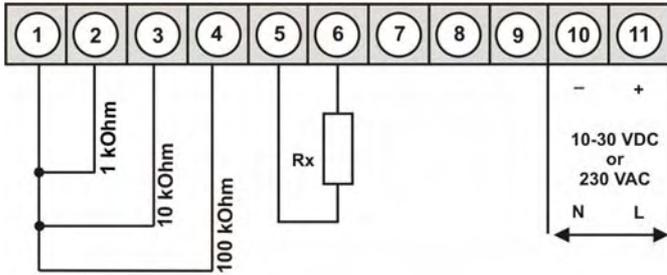




M2 – 5-digit digital panel meter in 96x48 mm (BxH) Resistance 1 k Ω , 10 k Ω or 100 k Ω

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function /hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• Resistance (1 kΩ, 10 kΩ or 100 kΩ)



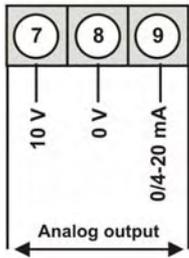
Supply 230 VAC

M2-1VR5B.0006.570CD 188,00

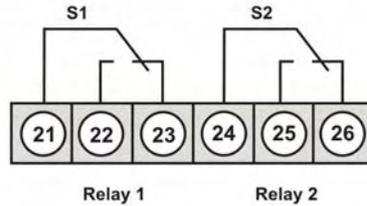
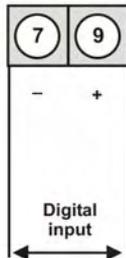
Supply 10-30 VDC

M2-1VR5B.0006.670CD 225,00

Options:



or



• Product key options

M	2-	1	V	R	5	B.	0	0	0	6.	5	7	0	C	D
M	2-	1	V	R	5	B.	0	0	0	6.	6	7	0	C	D

		EUR
2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*Only one option available with 230 VAC voltage supply: relay outputs or analog output.

Please state physical unit on demand, e.g. mm.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

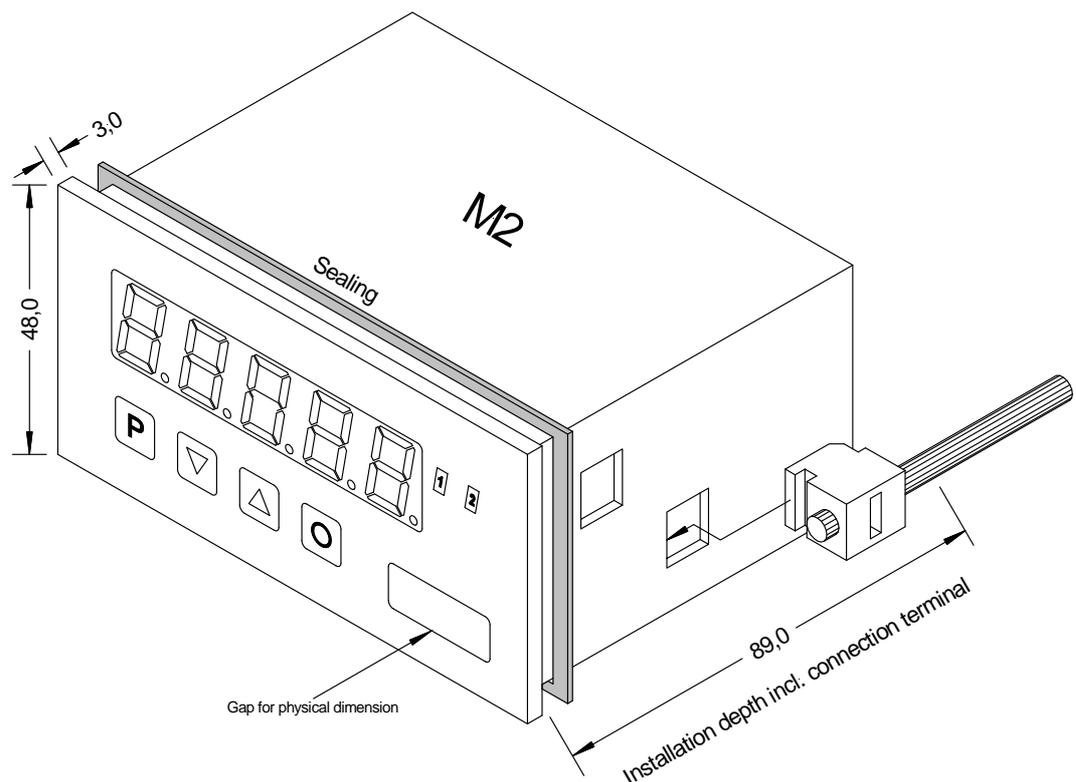
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	0...1.1 kΩ / 0...11 kΩ / 0...110 kΩ 0...1 kΩ / 0...10 kΩ / 0...100 kΩ 0.5% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 10 * 10 ³ at 5 AAC, 5ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255 0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:





M3 – 5-digit digital panel meter 96x48 (BxH) Resistance 1 k Ω , 10 k Ω or 100 k Ω

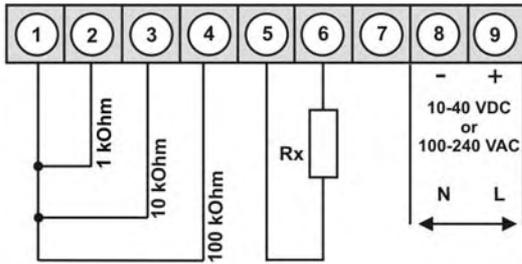
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: galv. isolated digital input
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -20°C...60°C

ORDER NUMBER

EUR

(without options)

• **Resistance 1 kΩ, 10 kΩ or 100 kΩ**



Supply 100-240 VAC, DC ±10%

M3-1VR5B.0006.S70BD

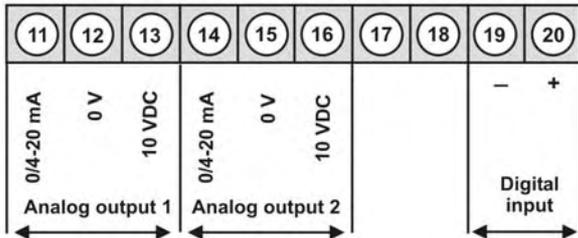
223,00

Supply 10-40 VDC, 18-30 VAC

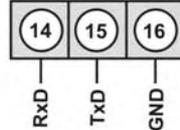
M3-1VR5B.0006.W70BD

238,00

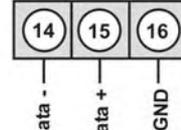
Options:



alternative to analog output 2

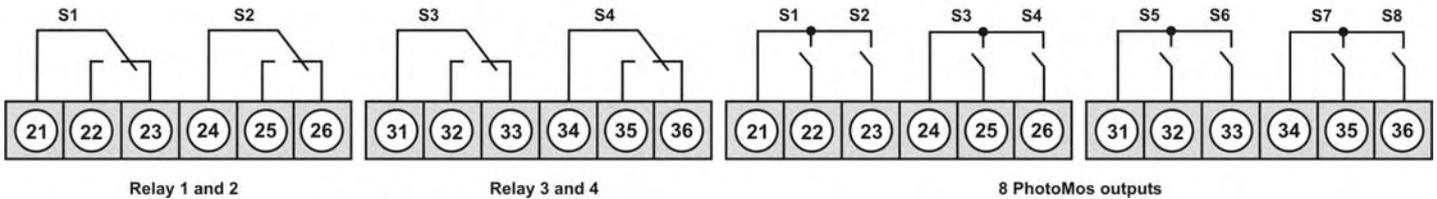


or



Interface RS232 (Modbus protocol)

Interface RS485 (Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	0	0	6.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	0	0	6.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. mm.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

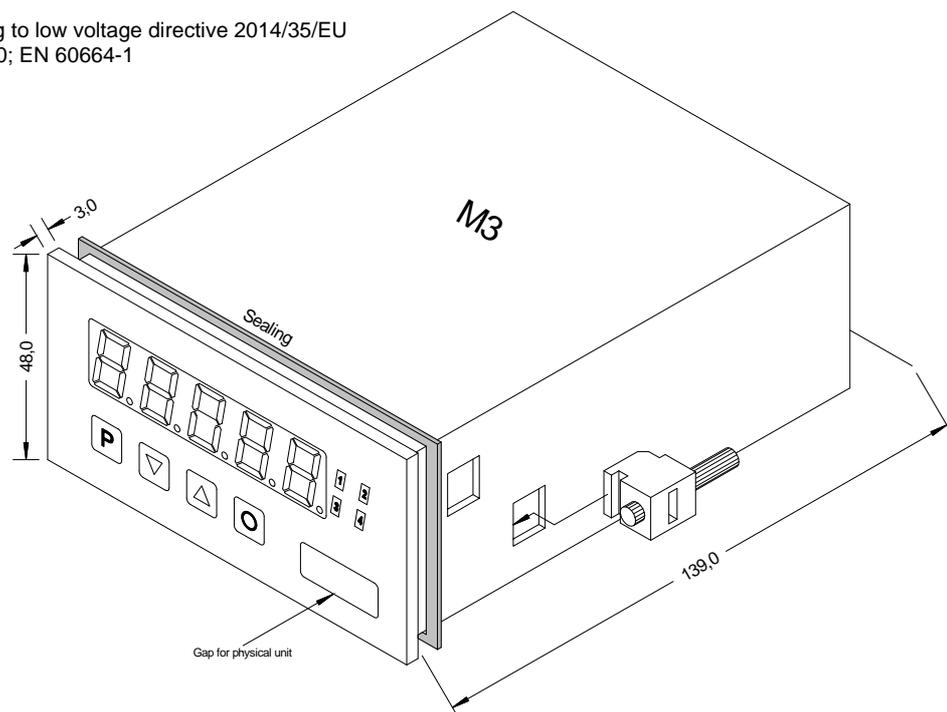
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection type Weight Connection	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 15 mm PC Polycarbonate, black EPDM, 65 Shore, black front side IP65 standard, back side IP00 approx. 350 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	0...1.1 kΩ / 0...11 kΩ / 0...110 kΩ 0...1 kΩ / 0...10 kΩ / 0...100 kΩ 0.5% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relays Switching cycles PhotoMos output Analog output	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255 NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol RS232 RS485	manufacturer's specifics ASCII 9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign EMV	Conformity to directive 2014/30/EU EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



Temperature Pt100

Measuring input: 2-/3-/4-wire -200°C...850°C / -328°F...1562°F

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - analog output
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (relay)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (relay)
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (relay)
 - 8 switching points (PhotoMos)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

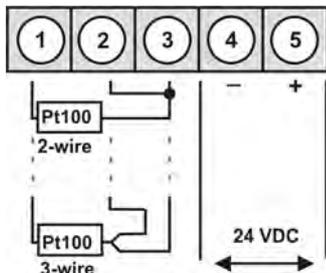
M1 – 4-digit digital panel meter in 48x24 mm (BxH) Pt100 2-/3-wire -200°C ... 850°C/-328°F...1562°F

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max-values or for limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDERING NUMBER **EUR**
(without options)

• Pt100 2-/3-wire -200°C ... 850°C/-328°F...1562°F



Supply 24 VDC

M1-7TR4A.030C.770CD **153,00**

• Product key options

M	1	7	T	R	4	A.	0	3	0	C.	7	7	0	C	D	EUR	
																10,00	
															1	Without keypad, operation on the back	10,00
															B	Blue	33,00
															G	Green	9,50
															Y	Orange	3,00

State physical unit in order, e.g. °F.

• Parameterisation software

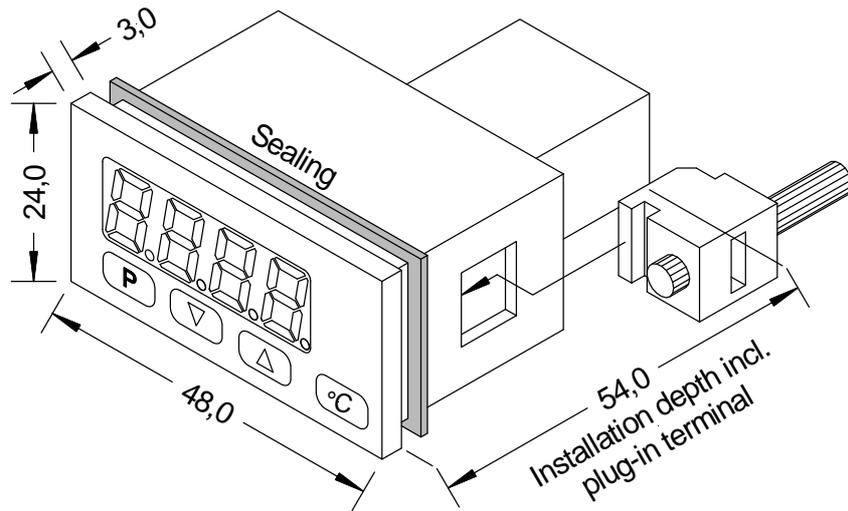
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB12 **89,00**

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
	Display	4-digit
	Digit height	10 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
Underflow	horizontal bars at the bottom	
Measuring input	Display time/ Measuring time	0.1 to 10.0 seconds
	Span	-200°C...850°C / -328°F...1562°F
	Measuring fault	0.1% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 0.1°C or 0.1°F
Power pack	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)
	Memory	EEPROM
Ambient conditions	Data life ≥ 100 years at 25°C	
CE-sign	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
EMV	conformity to directive 2014/30/EU	
Safety standard	EN 61326, EN 55011	
	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

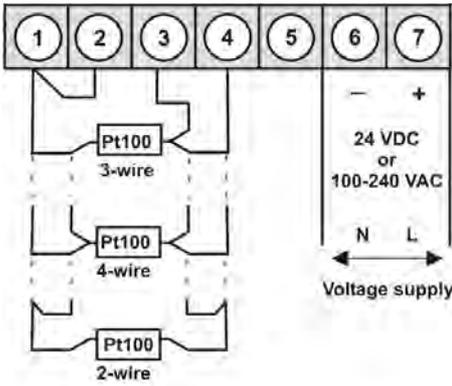
	M	1-	7	T	R	4	A.	0	3	0	C.	7	7	0	C	D	
Basic type M-Line																	Operation D physical unit (free selectable)
Installation depth 54 mm, incl. plug-in terminal																	Version C C
Housing size 48x24x27 mm (BxHxD)																	Switching points 0 no switching point
Display type Temperature																	Protection class 1 without keypad, operation on the back 7 IP65 / plug-in terminal
Display colours Blue Green Red Orange																	Supply voltage 7 24 VDC galv. isolated
Number of digits 4-digit																	Measuring input C Pt100
Digit height 10 mm																	Analog output 0 without
Digital input without																	Pt100 type 3 Pt100 2-/3-wire



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Pt100 (2-/3-/4-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold exceedance / threshold undershooting
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

● **Pt100 (2-/3-/4-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F**



Pt100 2-/4-wire

Supply 24 VDC
Supply 100-240 VAC, DC ± 10%

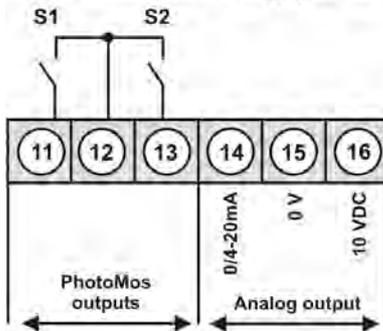
M3-7TR5A.010C.770BD 225,00
M3-7TR5A.010C.S70BD 235,00

Pt100 3-wire

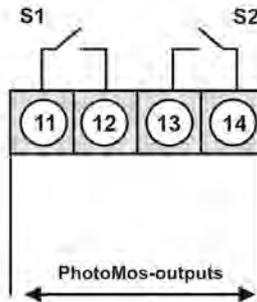
Supply 24 VDC
Supply 100-240 VAC, DC ± 10%

M3-7TR5A.030C.770BD 225,00
M3-7TR5A.030C.S70BD 235,00

Options: device with a supply of 24 VDC



Options: device with a supply of 100-240 VAC



● **Product key options: devices with a supply of 24 VDC**

M	3-	7	T	R	5	A.	0	1	0	C.	7	7	0	B	D		
M	3-	7	T	R	5	A.	0	3	0	C.	7	7	0	B	D		
																	EUR
																2	2 PhotoMos outputs 30,00
																1	Without keypad, operation on the back side 10,00
																X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated 110,00
																B	Blue 44,00
																G	Green 10,00
																Y	Orange 4,00

● **Product key options: devices with a supply of 100-240 VAC**

M	3-	7	T	R	5	A.	0	1	0	C.	S	7	0	B	D		
M	3-	7	T	R	5	A.	0	3	0	C.	S	7	0	B	D		
																	EUR
																2	2 PhotoMos outputs 30,00
																1	Without keypad, operation on the back side 10,00
																B	Blue 44,00
																G	Green 10,00
																Y	Orange 4,00

Please state physical unit on demand in your order, e.g. °F.

● **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

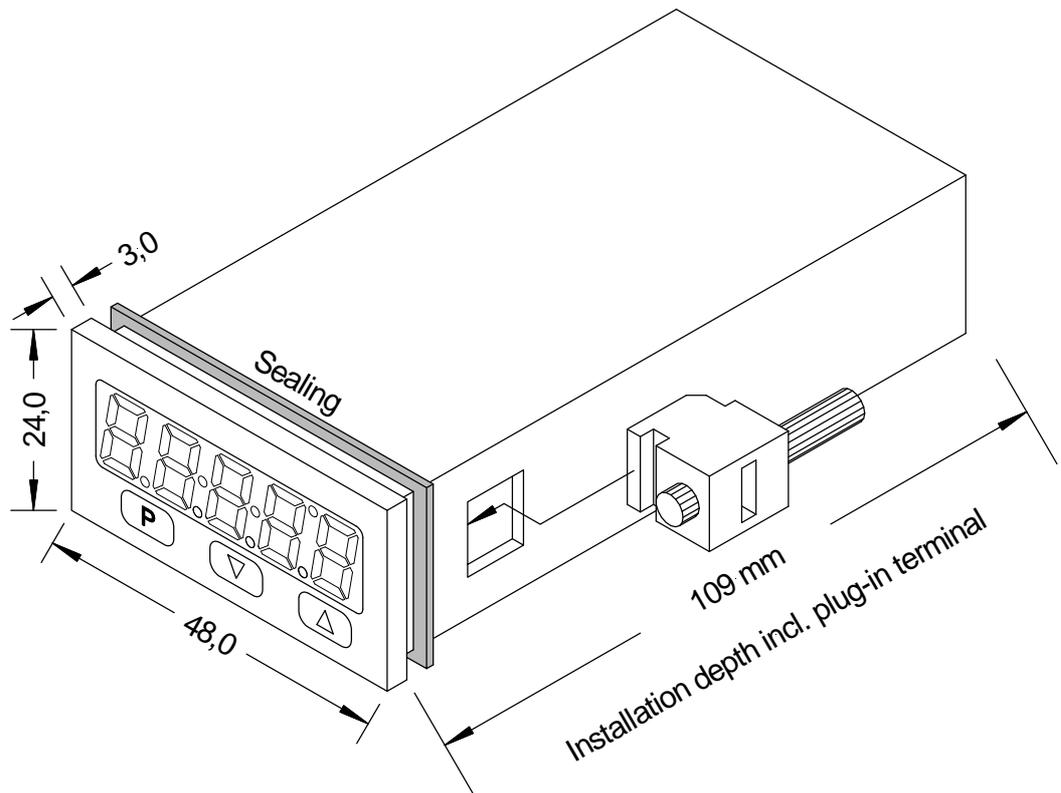
ORDER NUMBER **EUR**

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 5 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange and blue
	Display range	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Measuring range	-200.0...850.0°C / -328.0...1562.0°F
	Measuring fault	0.1% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-Wandlung
	Resolution	0.1°C or 0.1°F
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



• Order key

	M	3-	7	T	R	5	A.	0	1	0	C.	7	7	0	B	D	
Standard type M-Line																	
Installation depth 109 mm (incl. plug-in terminal)																	Dimension D physical unit
Housing size 48x24x90 mm (BxHxD)																	Version B B
Display type Temperature																	Switching points 0 no switching point 2 2 PhotoMos-outputs
Display colours Blue Green Red Orange																	Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / pluggable terminal
Number of digits 5-digit																	Supply voltage 7 24 VDC galv. isolated S 100-240 VAC
Digit height 10 mm																	Measuring input C Pt100 -200°C...850°C
Digital input without 1 digital input																	Analog output 0 without X 0-10 VDC, 0/4-20 mA
																	Temperature devices 1 Pt100 2-/4-wire 3 Pt100 3-wire

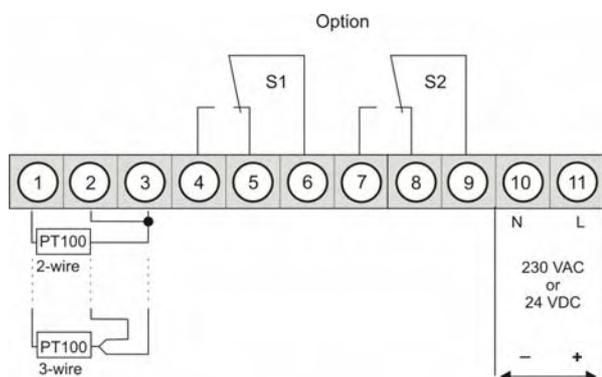
M1 – 4-digit digital panel meters in 72x36 mm (BxH) Pt100 2-/3-wire -200°C...850°C / -328°F...1562°F

- red display with -1999...9999 digits (optional green, orange or blue displays)
- minimal installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Pt100 2-/3-wire -200°C...850°C / -328°F...1562°F



Supply 230 VAC

M1-6TR4B.030C.570BD **195,00**

Supply 24 VDC

M1-6TR4B.030C.770BD **205,00**

• Product key options

M	1-	6	T	R	4	B.	0	3	0	C.	5	7	0	B	D	EUR
M	1-	6	T	R	4	B.	0	3	0	C.	7	7	0	B	D	
											2					20,00
											1					10,00
											X					
											B					33,00
											G					9,50
											Y					3,00

State physical unit by order, e.g. °F!

• Parameterisation software

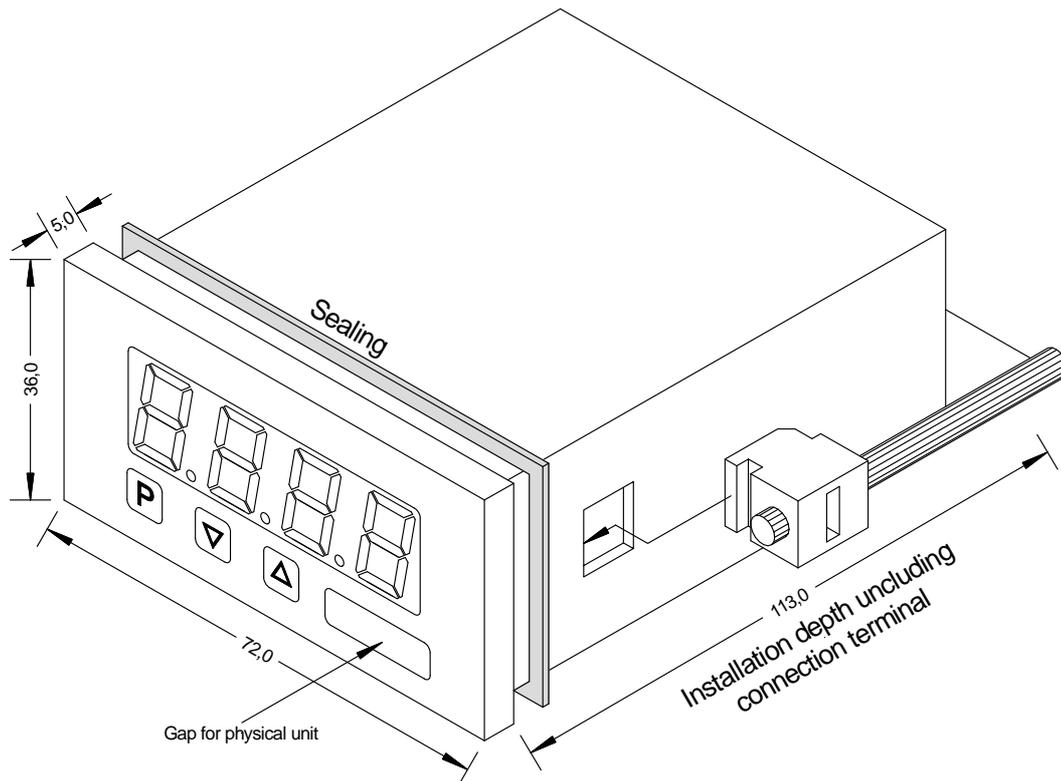
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fixing	screw elements for wall thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, blue and orange
	Range of display	-1999 to 9999
	Threshold values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time/Meas. time	0.1 to 10.0 seconds	
Measuring input	Measuring range	-200°C...850°C / -328°F...1562°F
	Measuring error	0.1% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 0.1°C or 0.1°F
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC
	Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically
		Diversity according to DIN EN50178 / Characteristics according to DIN EN60255
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

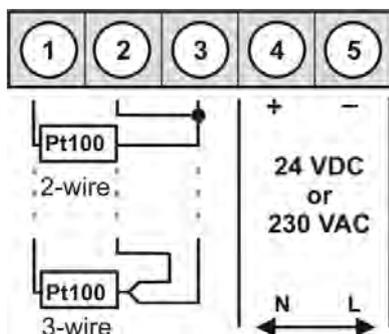


M1 – 4-digit digital panel meter in 96x24 mm (BxH) Pt100 2-/3-wire -200°C...850°C / -328°F...1562°F

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Pt100 2-/3-wire -200°C...850°C / -328°F...1562°F



Supply 230 VAC

Supply 24 VDC

ORDER NUMBER **EUR**
(without options)

M1-3TR4B.030C.570DD **180,00**

M1-3TR4B.030C.770DD **190,00**

• Order key options

M	1-	3	T	R	4	B.	0	3	0	C.	5	7	0	D	D	EUR	
M	1-	3	T	R	4	B.	0	3	0	C.	7	7	0	D	D		
											1					10,00	
											X					Other voltage supplies on demand!	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

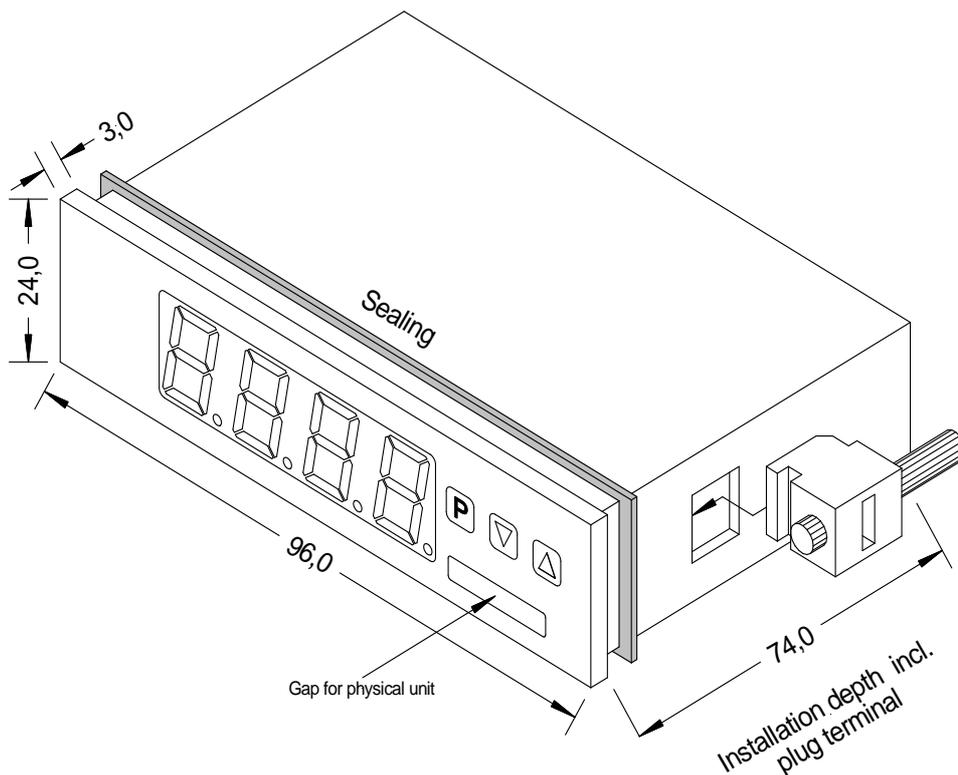
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 50 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	-200°C...850°C / -328°F...1562°F
	Measuring fault	0.1% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 0.1°C or 0.1°F
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Ordering code M1

	M	1-	3	T	R	4	B.	0	3	0	C.	7	7	0	D	D	
Basic type M-Line																Dimension	
																<input type="checkbox"/> D physical unit (free selectable)	
Installation depth																Version	
74 mm incl. plug-in terminal																<input type="checkbox"/> D D	
Housing size																Switching points	
96 x 24 x 57 mm																<input type="checkbox"/> 0 no switching points	
Display type																Protection class	
Temperature																<input type="checkbox"/> 1 no keypad, operation via PM-TOOL	
Display colours																<input type="checkbox"/> 7 IP65 / plug-in terminal	
Blue																Supply voltage	
Green																<input type="checkbox"/> 5 230 VAC	
Red																<input type="checkbox"/> 7 24 VDC galv. isolated	
Orange																Measuring input	
Number of digits																<input type="checkbox"/> C Pt100	
4-digit																Analog output	
Digit height																<input type="checkbox"/> 0 without	
14 mm																Sensor supply	
Interface																<input type="checkbox"/> 0 without	
without																Pt100 type	
																<input type="checkbox"/> 3 2-/3-wire	



M3 – 5-digit digital panel meter in 96x24 mm (BxH) Pt100 (3-/4-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galv. isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance / undercut
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

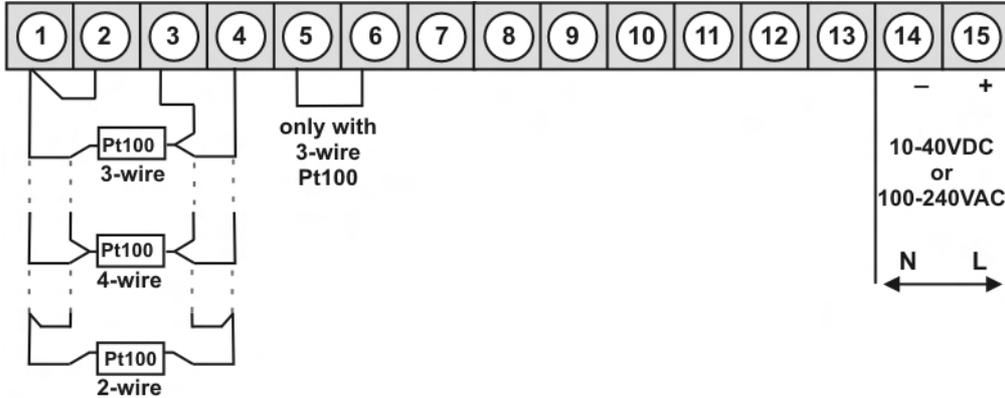
• **Pt100 (3-/4-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F**

Supply 100-240 VAC, DC ± 10%

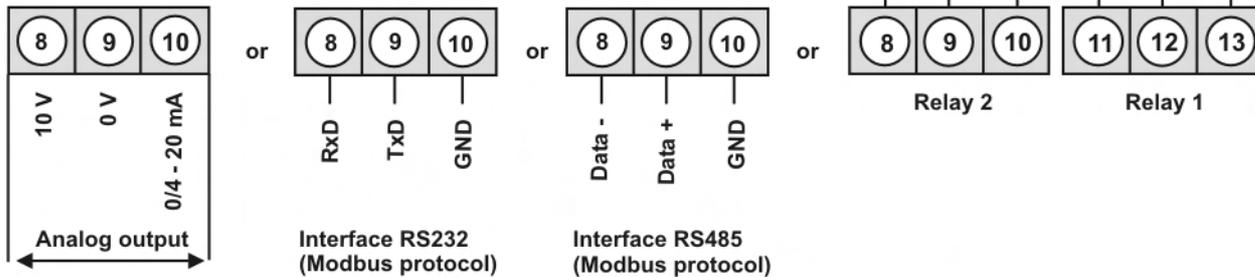
M3-3TR5B.010C.S70BD 255,00

Supply 10-40 VDC, 18-30 VAC

M3-3TR5B.010C.W70BD 255,00



Options:



Alternatively to analog output

• **Product key options**

M	3-	3	T	R	5	B.	0	1	0	C.	S	7	0	B	D
M	3-	3	T	R	5	B.	0	1	0	C.	W	7	0	B	D

		EUR
1	1 relay output (with option analog output only 1 switching point is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation on the back side	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
3	Interface RS232 galv. isolated	65,00
4	Interface RS485 galv. isolated	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. °F.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

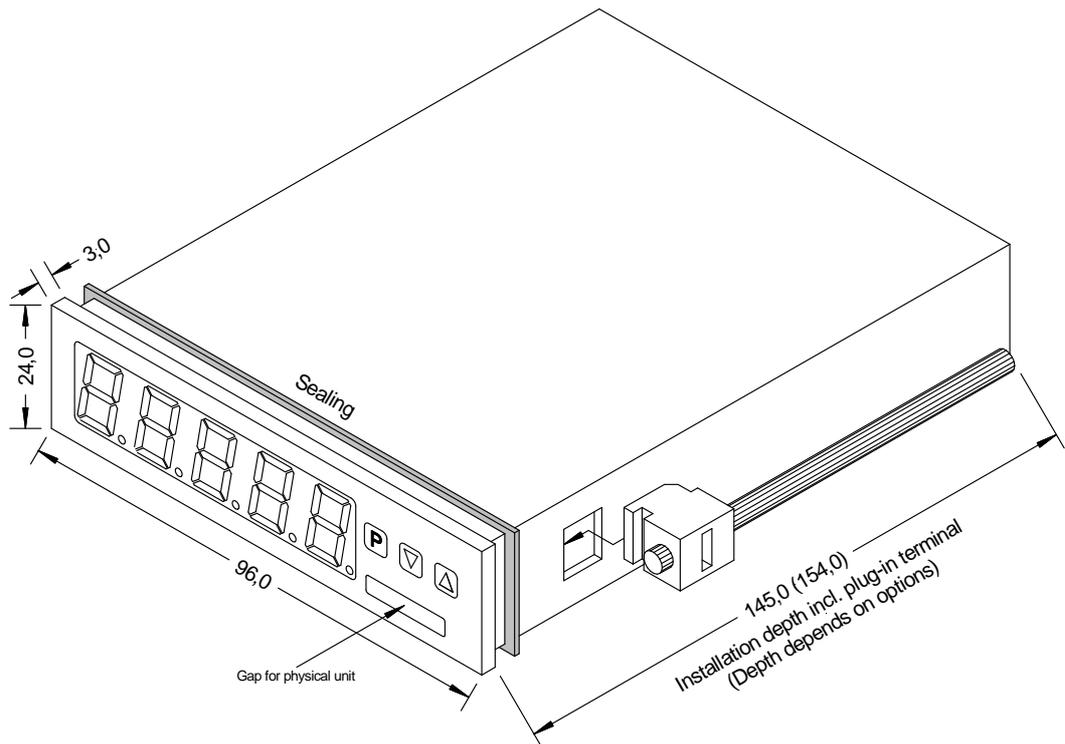
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	-200.0°C...850.0°C / -328.0°F...1562.0°F 0.1% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion 0.1°C or 0.1°F
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC Ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Interface	Protocol RS232 RS485	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0°C to +50°C -20°C to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

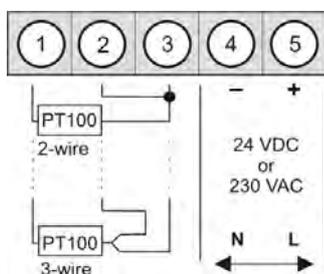


M1 – 4-digit digital panel meter in 96x48 mm (BxH) Pt100 2-/3- wire -200°C...850°C / -328°F...1562°F

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Pt100 2-/3- wire -200°C...850°C / -328°F...1562°F



Supply 230 VAC

Supply 24 VDC

ORDER NUMBER **EUR**
(without options)

M1-1TR4B.030C.570CD **153,00**

M1-1TR4B.030C.770CD **165,00**

• Product key options

M	1-	1	T	R	4	B.	0	3	0	C.	5	7	0	C	D	EUR	
M	1-	1	T	R	4	B.	0	3	0	C.	7	7	0	C	D		
											1					Without keypad, operation on the back via interface	10,00
											X					Other voltage supplies on demand!	
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

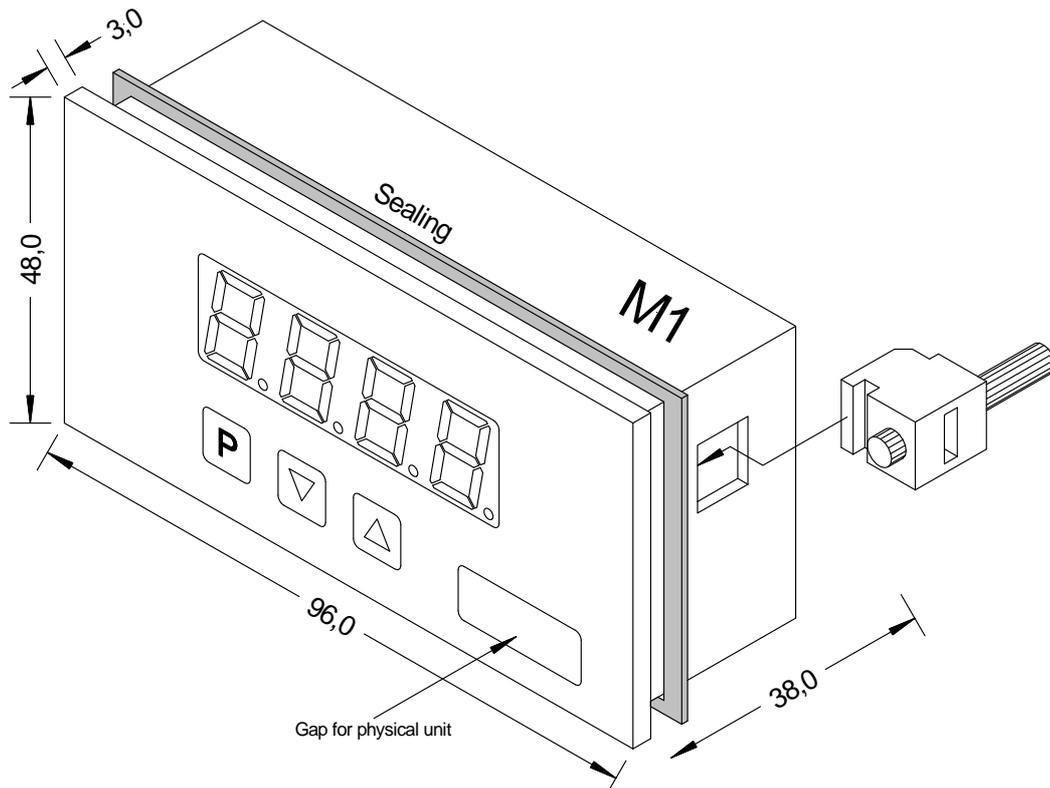
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adaptor. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96xH48xD25 mm (including plug-in terminal D= 38 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 100 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time/ Measuring time	4-digit 14 mm red (standard), optional available in green, blue and orange -1999 to 9999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring fault Temperature drift Measuring time Measuring principle Resolution	-200°C...850°C / -328°F...1562°F 0.1% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 0.1°C or 0.1°F
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:

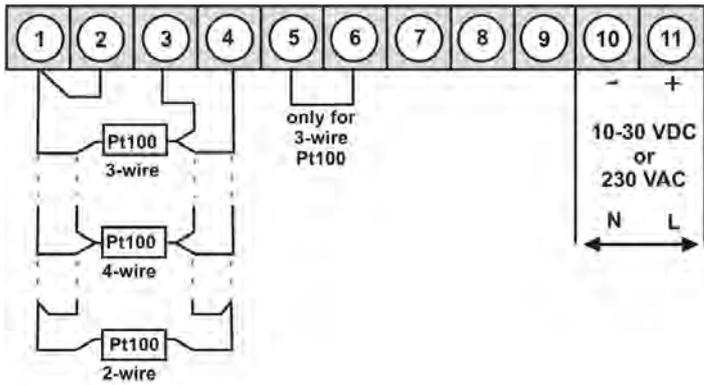




**M2 – 5-digit digital panel meter in 96x48 mm (BxH)
Pt100 (3-/4-wire) -200,0°C...850,0°C / -328,0°F...1562,0°F**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance/undercut
- flexible alarm system with adjustable delay times
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• Pt100 (3-/4-wire) -200,0°C...850,0°C / -328,0°F...1562,0°F



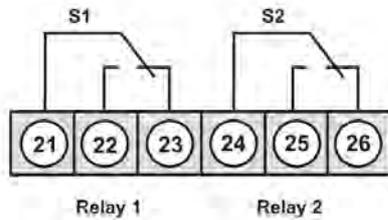
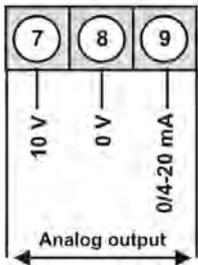
Supply 230 VAC

M2-1TR5B.010C.570CD 200,00

Supply 10-30 VDC

M2-1TR5B.010C.670CD 230,00

Options:



• Product key options

M	2-	1	T	R	5	B.	0	1	0	C.	5	7	0	C	D
M	2-	1	T	R	5	B.	0	1	0	C.	6	7	0	C	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*Only one option available with 230 VAC voltage supply: relay outputs or analog output

Please state physical unit on demand, e.g. °F.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

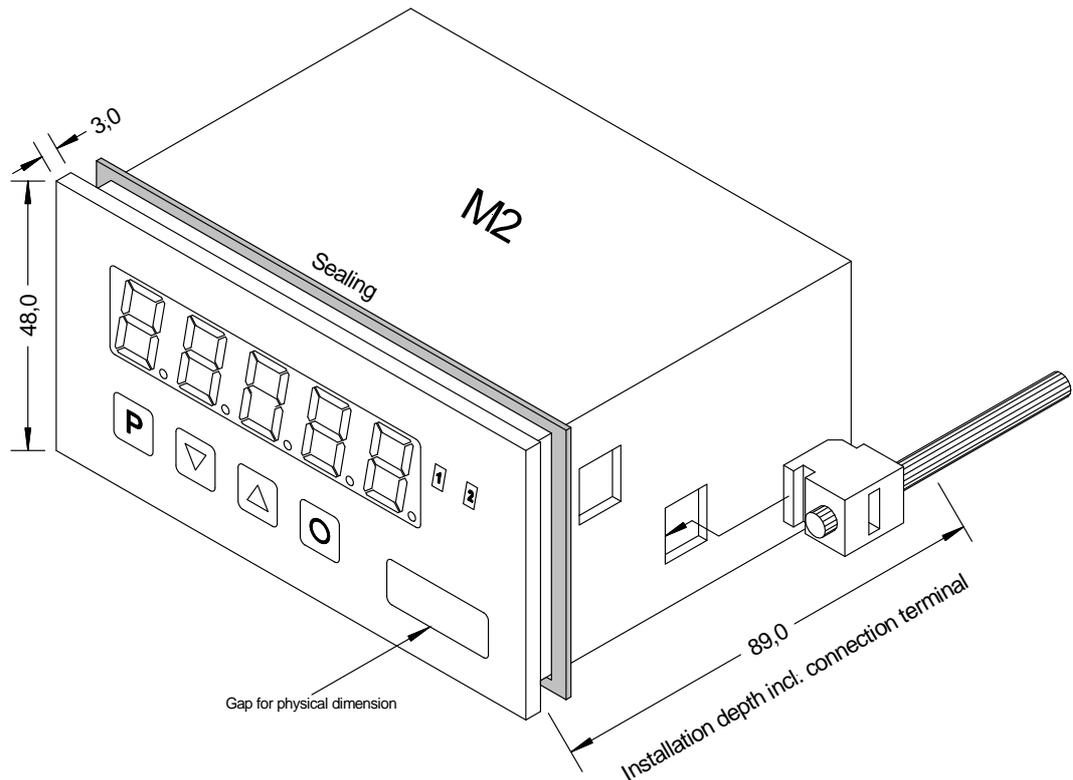
EUR

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring fault Temperature drift Measuring time Measuring principle Resolution	-200.0°C...+850.0°C / -328.0°F...+1562.0°F 0.1% of measuring range, ± 1 digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion 0.1°C or 0.1°F
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 10 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255 0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	
Housing:		



• Order key

	M	2-	1	T	R	5	B.	0	X	0	C.	6	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit
Installation depth																	Version
89 mm (incl. plug-in terminal)																	<input type="checkbox"/> C C
Housing size																	Setpoints
96x48x70 mm (BxHxD)																	<input type="checkbox"/> 0 no setpoints
																	<input type="checkbox"/> 2 2 relay outputs
Display type																	Protection class
Temperature																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours																	Supply voltage
Blue																	<input type="checkbox"/> 4 115 VAC
Green																	<input type="checkbox"/> 5 230 VAC
Red																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Red/Green/Orange																	
Orange																	
Number of digits																	Measuring input
5-digit																	<input type="checkbox"/> C Pt100
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input																	Sensor supply
without																	<input type="checkbox"/> 0 without
																	Temperature devices
																	<input type="checkbox"/> 1 Pt100 3-/4-wire



**M3 – 5-digit digital panel meter 96x48 (BxH)
Pt100 3-/4-wire -200.0°C...850.0°C / -328.0°F...1562.0°F**

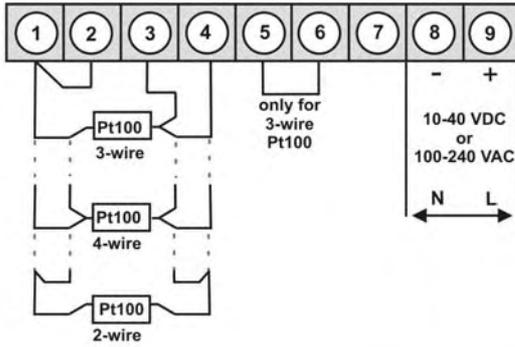
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance / undercut
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER

EUR

(without options)

• **Pt100 3-/4-wire -200.0°C...850.0°C / -328.0°F...1562.0°F**



Supply 100-240 VAC, DC ±10%

M3-1TR5B.010C.S70BD

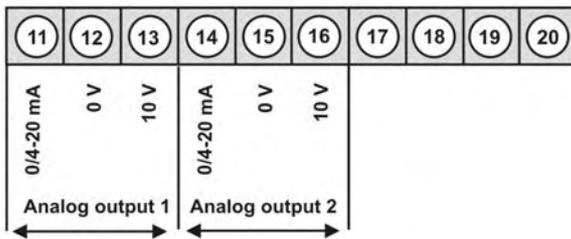
230,00

Supply 10-40 VDC, 18-30 VAC

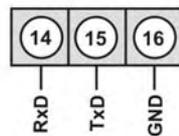
M3-1TR5B.010C.W70BD

245,00

Options:

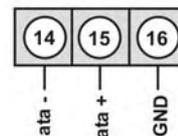


alternative to analog output 2

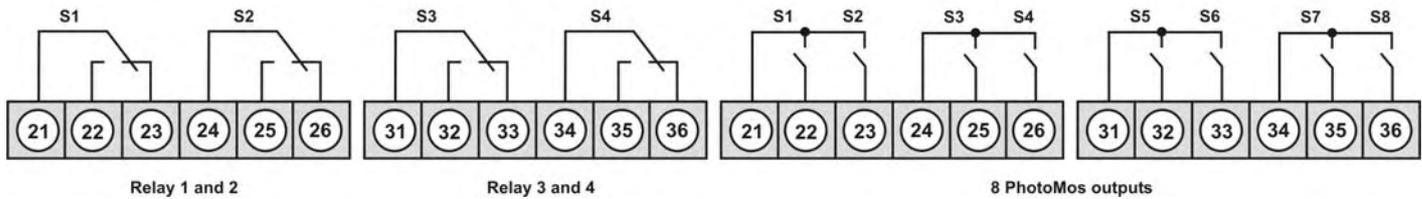


Interface RS232 (Modbus protocol)

or



Interface RS485 (Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	1	0	C.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	1	0	C.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. °F.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

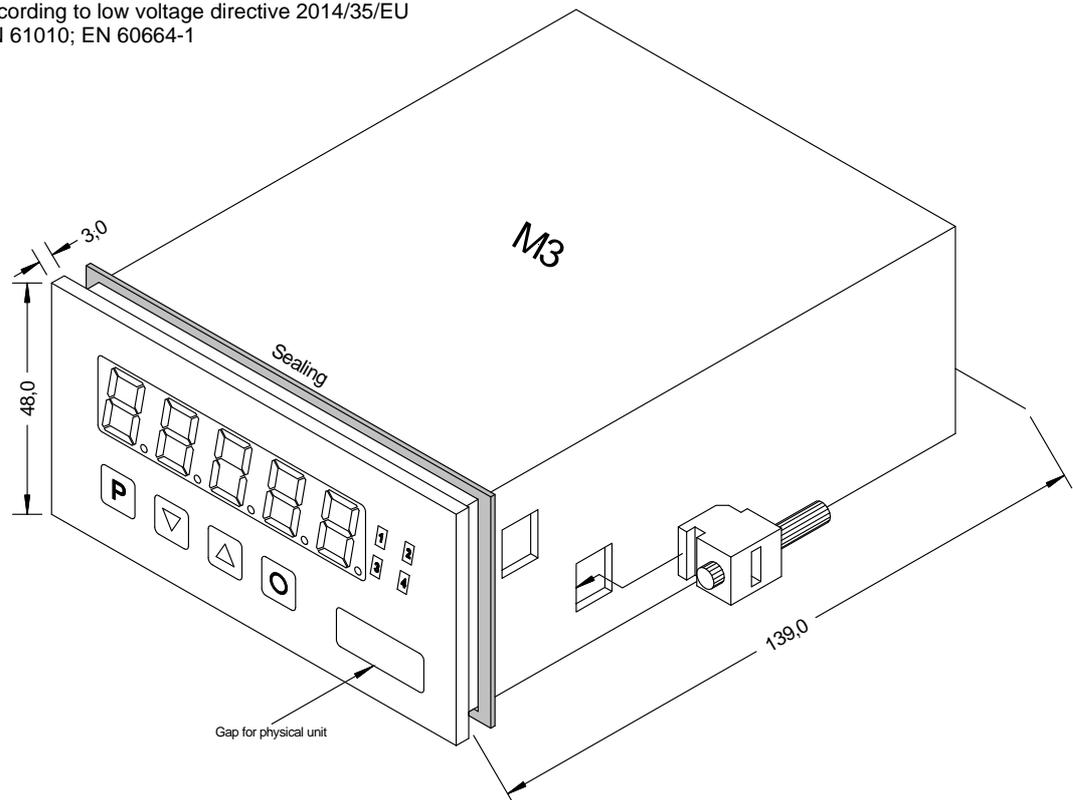
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Measuring range	-200.0...850.0°C / -328.0...1562.0°F
	Measuring fault	0.1% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	0.1°C or 0.1°F
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	Analog output	NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
	Memory	EEPROM
Ambient conditions	Working temperature	0 to + 60°C
	Storing temperature	-20 to + 80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



Temperature Pt1000

Measuring input: 2-wire -200°C...850°C / -328°F...1562°F

48x24mm

- M1-7 – Digital panel meter, 4-digit

72x36mm

- M1-6 – Digital panel meter, 4- digit
- 2 switching points (relay)

96x24mm

- M1-3 – Digital panel meter, 4- digit

96x48mm

- M1-1 – Digital panel meter, 4- digit

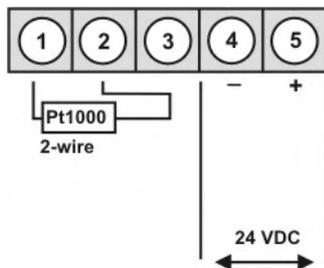
M1 – 4-digit digital panel meter in 48x24 mm (BxH) Pt1000 (2-wire) -200°C ... 850°C/-328°F...1562°F

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- displayed in °C or °F
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max values or for limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDERING NUMBER **EUR**
(without options)

• Pt1000 2-wire -200°C ... 850°C/-328°F...1562°F



Supply 24 VDC

M1-7TR4A.060C.770CD **153,00**

• Product key options

M	1-	7	T	R	4	A.	0	6	0	C.	7	7	0	C	D	EUR	
											1					without keypad, operation on the back	10,00
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

State physical unit in order, e.g. °F.

• Parameterisation software

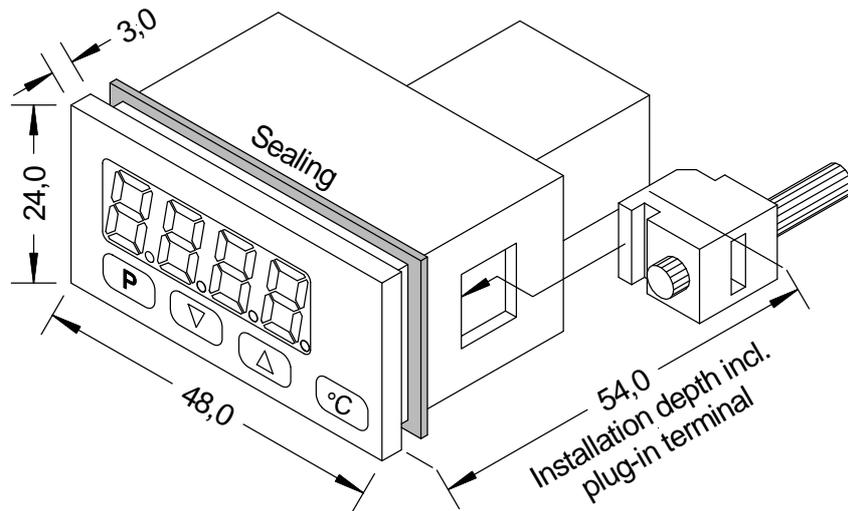
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB12 **89,00**

• **Technical data**

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
	Display	4-digit
	Digit height	10 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
Underflow	horizontal bars at the bottom	
Measuring input	Display time/ Measuring time	0.1 to 10.0 seconds
	Span	-200°C...850°C / -328°F...1562°F
	Measuring fault	0.2% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring principle	U/F-conversion
Power pack	Resolution	approx. 0.1°C or 0.1°F
	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

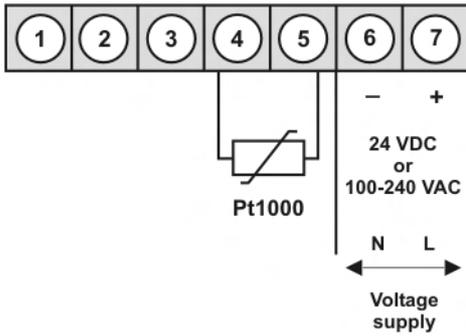
	M	1-	7	T	R	4	A.	0	6	0	C.	7	7	0	C	D	
Basic type M-Line																	Operation D physical unit (free selectable)
Installation depth 54 mm, incl. plug-in terminal																	Version C C
Housing size 48x24x27 mm (BxHxD)																	Switching points 0 no switching point
Display type Temperature																	Protection class 1 without keypad, operation on the back 7 IP65 / plug-in terminal
Display colours Blue Green Red Orange																	Supply voltage 7 24 VDC galv. isolated
Number of digits 4-digit																	Measuring input C Pt1000
Digit height 10 mm																	Analog output 0 without
Digital input without																	Pt1000 type 6 2-wire



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Pt1000 (2-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold exceedance / threshold undershooting
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• Pt1000 (2-wire) -200.0°C...850.0°C / -328.0°F...1562.0°F

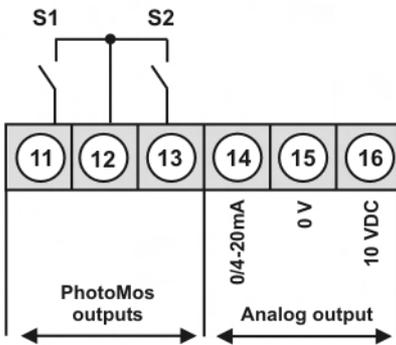


Pt1000 2-wire

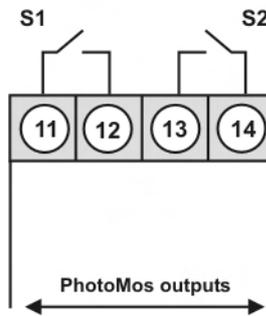
Supply 24 VDC
Supply 100-240 VAC, DC ± 10%

M3-7TR5A.060C.770BD 225,00
M3-7TR5A.060C.S70BD 235,00

Options: device with 24 VDC supply



Options: device with 100-240 VAC supply



• Product key options: devices with a supply of 24 VDC

M	3-	7	T	R	5	A.	0	6	0	C.	7	7	0	B	D	EUR
														2	2 PhotoMos outputs	30,00
														1	Without keypad, operation on the back side	10,00
														X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	110,00
														B	Blue	44,00
														G	Green	10,00
														Y	Orange	4,00

• Product key options: devices with a supply of 100-240 VAC

M	3-	7	T	R	5	A.	0	6	0	C.	S	7	0	B	D	EUR
														2	2 PhotoMos outputs	30,00
														1	Without keypad, operation on the back side	10,00
														B	Blue	44,00
														G	Green	10,00
														Y	Orange	4,00

Please state physical unit on demand in your order, e.g. °F.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

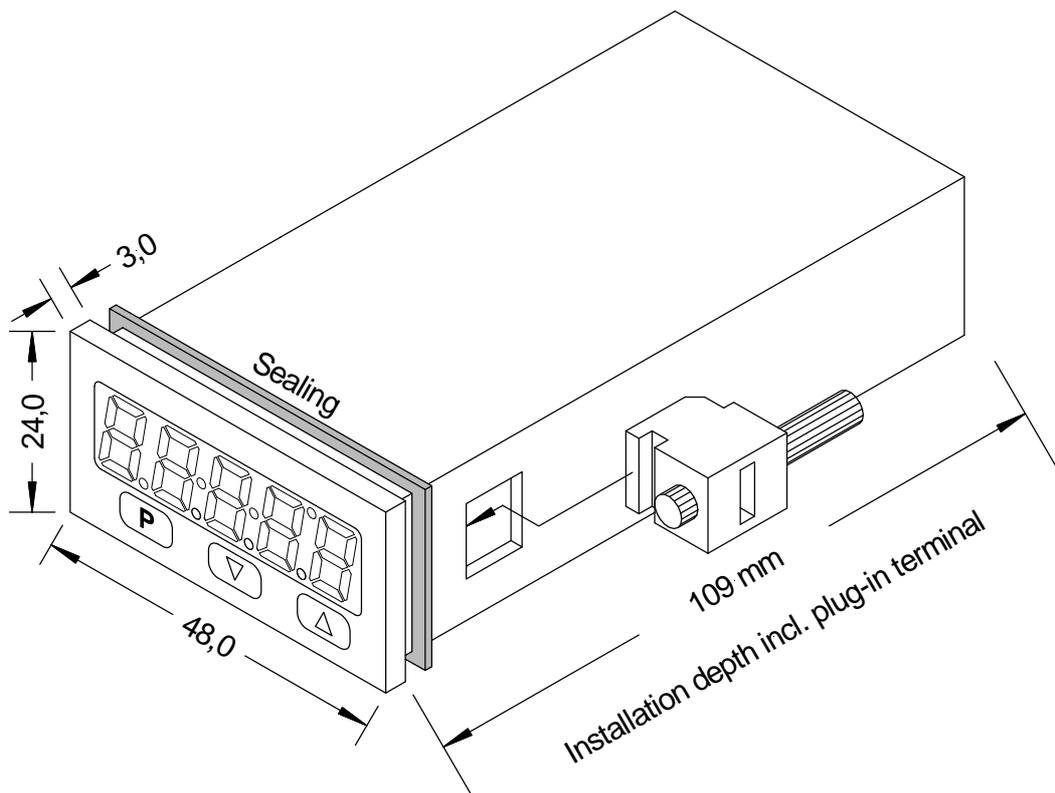
ORDER NUMBER EUR

PM-TOOL-MUSB4 89,00

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 5 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange and blue
	Display range	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time	0.1 to 10.0 seconds	
Measuring input	Measuring range	-200.0...850.0°C / -328.0...1562.0°F
	Measuring fault	0.2% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	0.1°C or 0.1°F
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Power pack	Supply	100-240 VAC 50/60 Hz / DC ±10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



• Order key

	M	3-	7	T	R	5	A.	0	6	0	C.	7	7	0	B	D	
Standard type M-Line																	
Installation depth 109 mm (incl. plug-in terminal)	3																
Housing size 48x24x90 mm (BxHxD)	7																
Display type Temperature	T																
Display colours Blue Green Red Orange	B G R Y																
Number of digits 5-digit	5																
Digit height 10 mm	A																
Digital input without	0																
			Dimension														
			D physical unit														
			Version														
			B B														
			Switching points														
			0 no switching point														
			2 2 PhotoMos-outputs														
			Protection class														
			1 without keypad, operation via PM-TOOL														
			7 IP65 / pluggable terminal														
			Supply voltage														
			7 24 VDC galv. isolated														
			S 100-240 VAC														
			Measuring input														
			C Pt1000 -200°C...850°C														
			Analog output														
			0 without														
			X 0-10 VDC, 0/4-20 mA														
			Temperature devices														
			6 Pt1000 2-wire														

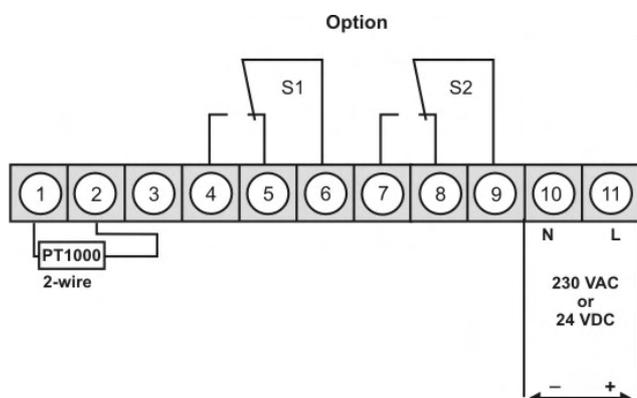
M1 – 4-digit digital panel meters in 72x36 mm (BxH) Pt1000 2-wire -200°C...850°C / -328°F...1562°F

- red display with -1999...9999 digits (optional green, orange or blue displays)
- minimal installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Pt1000 2-wire -200°C...850°C / -328°F...1562°F



Supply 230 VDC

M1-6TR4B.060C.570BD **195,00**

Supply 24 VDC

M1-6TR4B.060C.770BD **205,00**

• Product key options

M	1-	6	T	R	4	B.	0	6	0	C.	5	7	0	B	D	EUR
M	1-	6	T	R	4	B.	0	6	0	C.	7	7	0	B	D	
											2					20,00
											1					10,00
											X					
											B					33,00
											G					9,50
											Y					3,00

State physical unit by order, e.g. °F!

• Parameterisation software

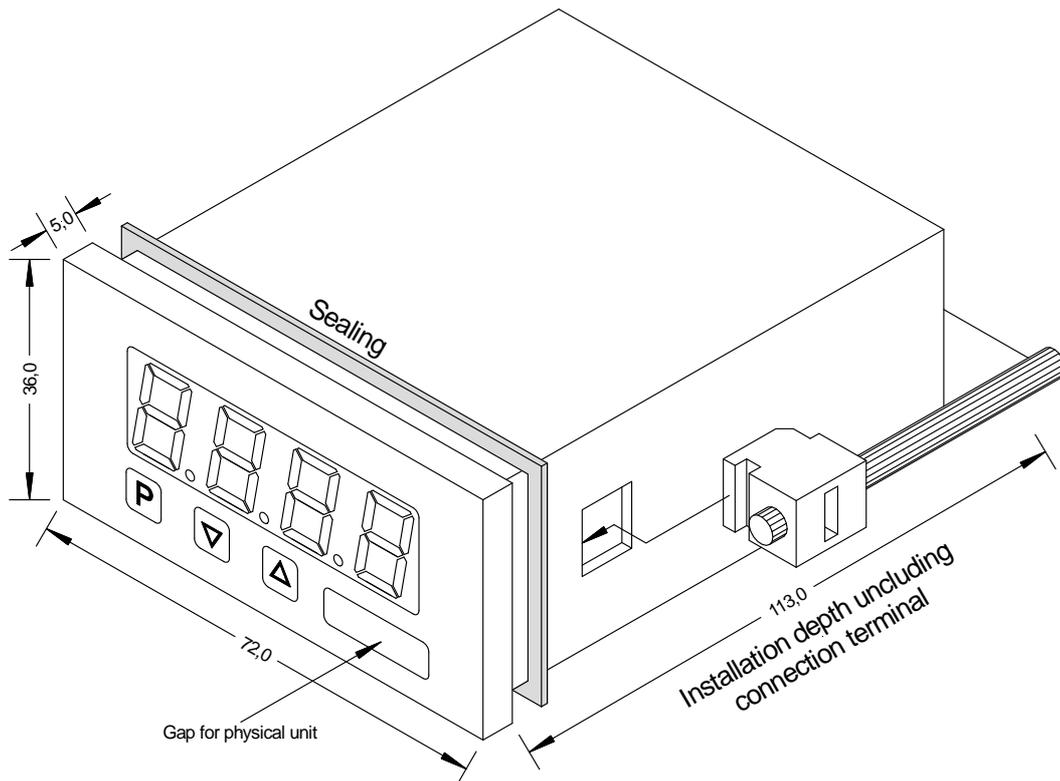
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fixing	screw elements for wall thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, blue and orange
	Range of display	-1999 to 9999
	Threshold values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time/Meas. time	0.1 to 10.0 seconds	
Measuring input	Measuring range	-200°C...850°C / -328°F...1562°F
	Measuring error	0.2% of measuring range, ± 1 Digit
	Temperature drift	100 ppm/K
	Measuring principle	
	Resolution	approx. 0.1°C or 0.1°F
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC
	Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically
		Diversity according to DIN EN50178 / Characteristics according to DIN EN60255
Power pack	Supply	230 VAC ±10 % (max. 3 VA) 24 VDC ±10 %, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Product key

	M	1-	6	T	R	4	B.	0	6	0	C.	7	7	0	B	D	
Basic type M-line																	
Installation depth 113 mm incl. plug-in terminal																	
Housing size 72x36x97 mm (BxHxD)																	
Display type Temperature																	
Display colours Blue Green Red Orange																	
Number of digits 4-digit																	
Digit height 14 mm																	
Digital input none																	

Dimension
D physical unit (free selectable)

Version
B B

Switching points
0 no switching points
2 2 relay outputs

Protection class
1 without keypad, operation on the back
7 IP65 / plug-in terminal

Supply voltage
5 230 VAC
7 24 VDC galv. isolated

Measuring input
C Pt1000

Analog output
0 none

Pt1000 type
6 2-wire

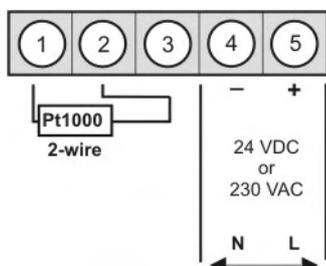
M1 – 4-digit digital panel meter in 96x24 mm (BxH) Pt1000 2-wire -200°C...850°C / -328°F...1562°F



- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C

ORDER NUMBER **EUR**
(without options)

• Pt1000 2-wire -200°C...850°C/ -328°F...1562°F



Supply 230 VAC

M1-3TR4B.060C.570DD **180,00**

Supply 24 VDC

M1-3TR4B.060C.770DD **190,00**

• Order key options

M	1-	3	T	R	4	B.	0	6	0	C.	5	7	0	D	D	EUR
M	1-	3	T	R	4	B.	0	6	0	C.	7	7	0	D	D	
											1	without keypad, operation via PM-TOOL				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

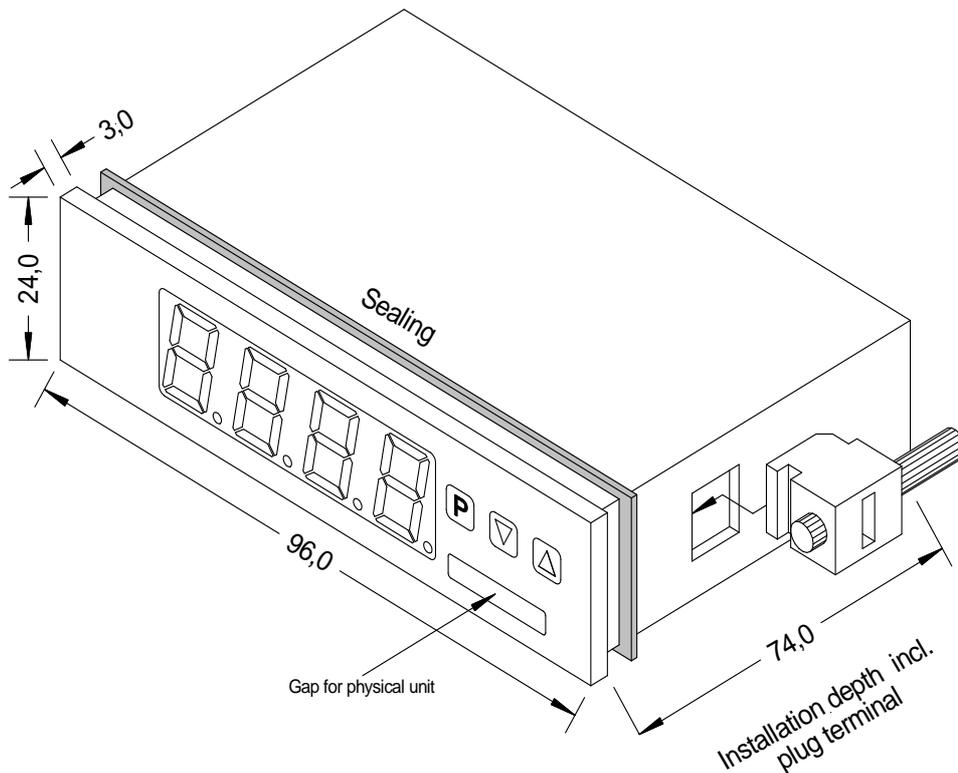
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 50 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Span	-200°C...850°C / -328°F...1562°F
	Measuring fault	0.2% of measuring range, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring principle	U/F-conversion
	Resolution	approx. 0.1°C or 0.1°F
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Ordering code M1

	M	1-	3	T	R	4	B.	0	6	0	C.	7	7	0	D	D
Basic type M-Line																
Installation depth 74 mm incl. plug-in terminal																<input type="checkbox"/> 1
Housing size 96 x 24 x 57 mm																<input type="checkbox"/> 3
Display type Temperature																<input type="checkbox"/> T
Display colours Blue Green Red Orange																<input type="checkbox"/> B <input type="checkbox"/> G <input type="checkbox"/> R <input type="checkbox"/> Y
Number of digits 4-digit																<input type="checkbox"/> 4
Digit height 14 mm																<input type="checkbox"/> B
Interface without																<input type="checkbox"/> 0
																<input type="checkbox"/> D
																<input type="checkbox"/> D
																<input type="checkbox"/> 0
																<input type="checkbox"/> 1 <input type="checkbox"/> 7
																<input type="checkbox"/> 5 <input type="checkbox"/> 7
																<input type="checkbox"/> C
																<input type="checkbox"/> 0
																<input type="checkbox"/> 6

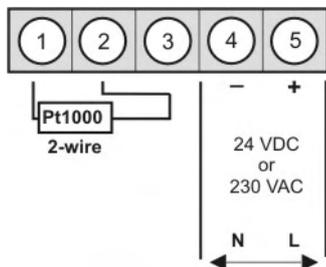
M1 – 4-digit digital panel meter in 96x48 mm (BxH) Pt1000 2-wire -200°C...850°C / -328°F...1562°F

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Pt1000 2-wire -200°C...850°C / -328°F...1562°F



Supply 230 VAC

Supply 24 VDC

M1-1TR4B.060C.570CD **153,00**

M1-1TR4B.060C.770CD **165,00**

• Product key options

M	1-	1	T	R	4	B.	0	6	0	C.	5	7	0	C	D	EUR
M	1-	1	T	R	4	B.	0	6	0	C.	7	7	0	C	D	
											1	Without keypad, operation on the back via interface				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

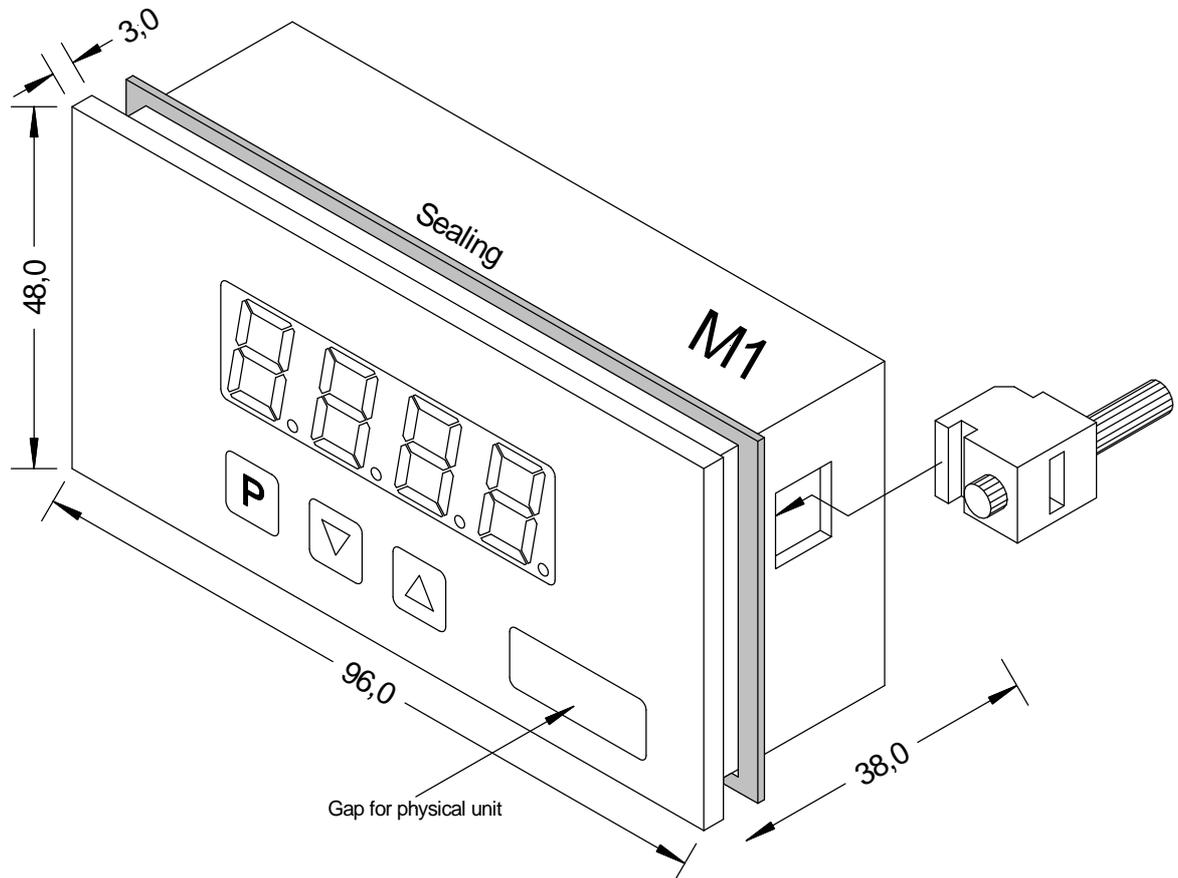
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB6 **89,00**

• Technical data

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96xH48xD25 mm (including plug-in terminal D= 38 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 100 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time/ Measuring time	4-digit 14 mm red (standard), optional available in green, blue and orange -1999 to 9999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Span Measuring fault Temperature drift Measuring principle Resolution	-200°C...850°C / -328°F...1562°F 0.2% of measuring range, ± 1 digit 100 ppm/K U/F-conversion approx. 0.1°C or 0.1°F
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



Temperature Thermocouple

Measuring input: Type B, E, J, K, L, N, R, S, T

48x24mm

- **M1-7 – Digital panel meter, 4-digit**
- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - analog output
 - with far range power unit 100-240 VAC

72x36mm

- **M1-6 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)

96x24mm

- **M1-3 – Digital panel meter, 4-digit**
- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M1-1 – Digital panel meter, 4-digit**
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - 8 switching points (PhotoMos)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

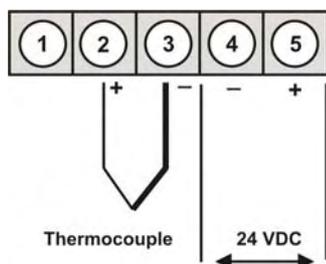
M1 – 4-digit digital panel meter in 48x24 mm (BxH) Thermocouple type B, E, J, K, L, N, R, S, T

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 27 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undercut
- navigation keys for the recall of min/max values or for limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDERING NUMBER **EUR**
(without options)

• Thermocouple type B, E, J, K, L, N, R, S, T



Supply 24 VDC

M1-7TR4A.040X.770CD **160,00**

• Product key options

M	1	7	T	R	4	A	0	4	0	X	7	7	0	C	D	EUR	
											1					Without keypad, operation on the back	10,00
											B					Blue	33,00
											G					Green	9,50
											Y					Orange	3,00

State physical unit in order, e.g. °F.

• Parameterisation software

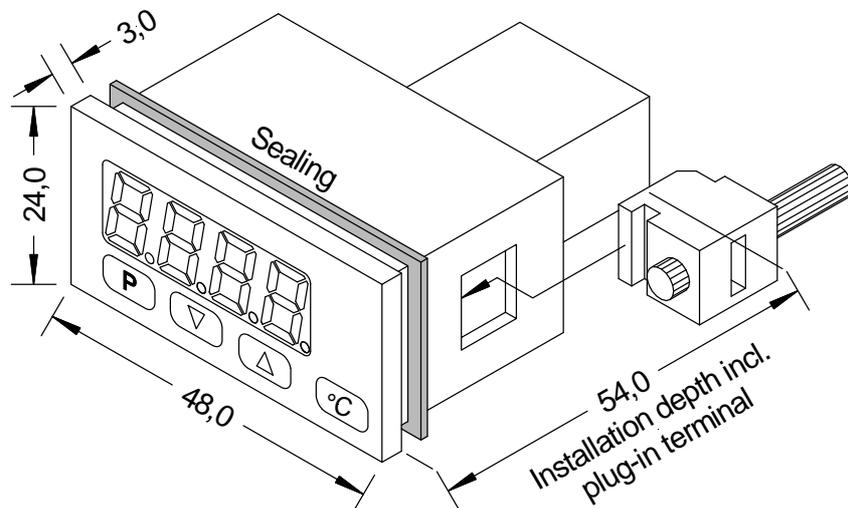
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB12 **89,00**

• Technical data

Dimension	Housing	B48xH24xD27 mm (including plug-in terminal D= 54 mm)	
	Panel cut-out	45.0 ^{+0.8} x 22.2 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 100 g	
Display	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
	Display	4-digit	
	Digit height	10 mm	
	Segment colour	red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
Underflow	horizontal bars at the bottom		
Measuring input	Display time/ Measuring time	0.1 to 10.0 seconds	
	Measuring range	Type L	-200°C...900°C
		Type J	-210°C...1200°C
		Type K	-270°C...1372°C
		Type B	80°C...1820°C
		Type S	-50°C...1768°C
		Type N	-270°C...1300°C
		Type E	-270°C...1000°C
		Type T	-270°C...400°C
		Type R	-50°C...1768°C
Measuring fault	2 K, ± 1 Digit		
Temperature drift	100 ppm/K		
Measuring time	0.1 ... 10.0 seconds		
Measuring principle	U/F-conversion		
Resolution	0.1°C		
Characteristic curve fault	< ± 1 kΩ		
Reference junction	Thermistor		
Power pack	Supply	24 VDC ±10%, galvanic isolated (max. 1 VA)	
	Memory	EEPROM	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1		

Housing:



• Order key

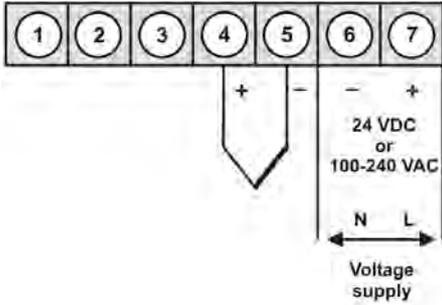
	M	1-7	T	R	4	A.	0	4	0	X.	7	7	0	C	D
Basic type M-Line															
Installation depth 54 mm incl. plug-in terminal														Operation <input type="checkbox"/> D physical unit (free selectable)	
Housing size 48x24x27 mm (BxHxD)														Version <input type="checkbox"/> C C	
Display type Temperature			<input type="checkbox"/> T											Switching points <input type="checkbox"/> 0 no switching point	
Display colours Blue Green Red Orange				<input type="checkbox"/> B <input type="checkbox"/> G <input type="checkbox"/> R <input type="checkbox"/> Y										Protection class <input type="checkbox"/> 1 without keypad, operation on the back <input type="checkbox"/> 7 IP65 / plug-in terminal	
Number of digits 4-digit														Supply voltage <input type="checkbox"/> 7 24 VDC galv. isolated	
Digit height 10 mm														Measuring input <input type="checkbox"/> C Type B, E, J, K, L, N, R, S,T (selectable)	
Digital input without														Analog output <input type="checkbox"/> 0 without	
														Temperature devices <input type="checkbox"/> 4 Thermocouple	



M3 – 5-digit digital panel meter in 48x24 mm (BxH) Thermocouple type L, J, K, B, S, N, E, T, R

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold exceedance / threshold undershooting
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

• **Thermocouple Type L, J, K, B, S, N, E, T, R**



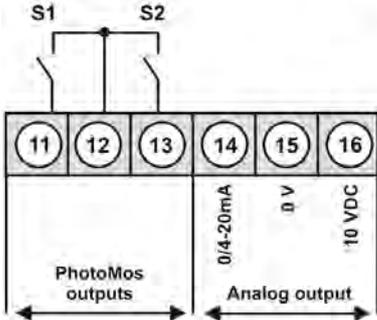
Supply 24 VDC

M3-7TR5A.040X.770BD 230,00

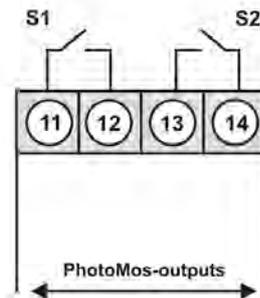
Supply 100-240 VAC, DC± 10%

M3-7TR5A.040X.S70BD 240,00

Options: device with a supply of 24 VDC



Options: device with a supply of 100-240 VAC



• **Product key options:** devices with a supply of 24 VDC

M	3-	7	T	R	5	A.	0	4	0	X.	7	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back side	10,00
										X							Analog output 0/4-20 mA, 0-10 VDC galv. isolated	110,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

• **Product key options:** devices with a supply of 100-240 VAC

M	3-	7	T	R	5	A.	0	4	0	X.	S	7	0	B	D	EUR		
																2	2 PhotoMos outputs	30,00
																1	Without keypad, operation on the back	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00

Please state physical unit on demand in your order, e.g. °C.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

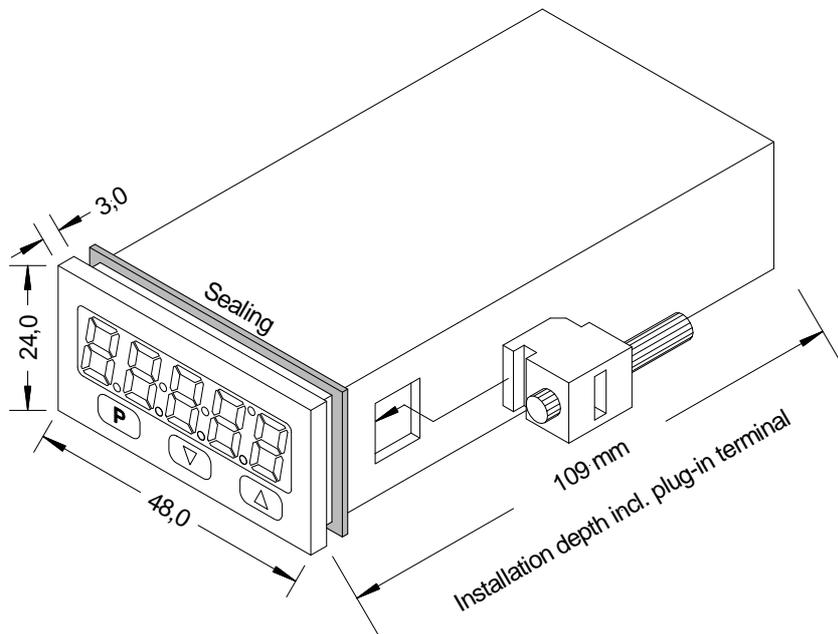
ORDER NUMBER **EUR**

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)	
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for wall thicknesses up to 5 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, at the back IP00	
	Weight	approx. 200 g	
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²	
Display	Display	5-digit	
	Digit height	10 mm	
	Segment colour	red (Standard), optional available in green, orange and blue	
	Display range	-19999 to 99999	
	Limit values	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Measuring range	Type L	-200...900°C
		Type J	-210...1200°C
		Type K	-270...1372°C
		Type B	80...1820°C
		Type S	-50...1768°C
		Type N	-270...1300°C
		Type E	-270...1000°C
		Type T	-270...400°C
		Type R	-50...1768°C
		Measuring fault	2 K, ± 1 digit
	Temperature drift	100 ppm/K	
Measuring time	0.1 ... 10.0 seconds		
Measuring principle	U/F-conversion		
Resolution	0.1°C		
Characteristic line fault	<±1 K		
Reference junction	Thermistor		
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A	
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit	
Power pack	Supply	100-240 VAC 50/60Hz / DC ±10% (max. 5 VA) 24 VDC ±10%, galvanic isolated (max. 4 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +50°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:



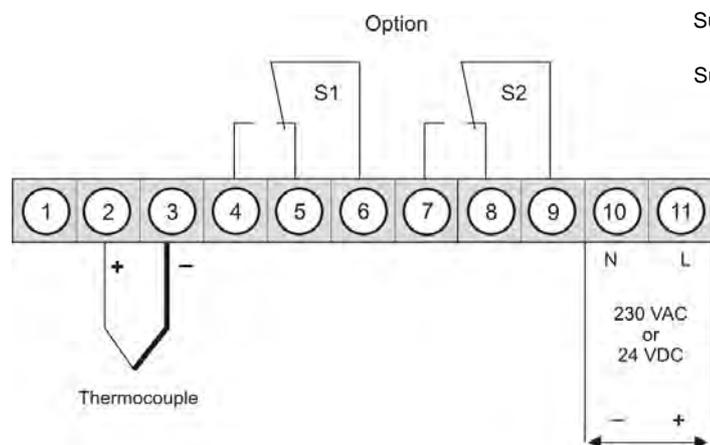
M1 – 4-digit digital panel meters in 72x36 mm (BxH) Thermocouple type L, J, K, B, S, N, E, T, R

- red display with -1999...9999 digits (optional green, orange or blue displays)
- minimal installation depth: 97 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold undercut/ exceedance
- navigation keys for the recall of the min/max-values or for threshold value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Thermocouple type L, J, K, B, S, N, E, T, R



Supply 230 VAC

M1-6TR4B.040X.570BD **195,00**

Supply 24 VDC

M1-6TR4B.040X.770BD **205,00**

• Product key options

M	1-	6	T	R	4	B.	0	4	0	X.	5	7	0	B	D	EUR
M	1-	6	T	R	4	B.	0	4	0	X.	7	7	0	B	D	
											2	2 relay outputs				20,00
											1	without keypad, operation on the back				10,00
											X	other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

State physical unit by order, e.g. m/min!

• Parameterisation software

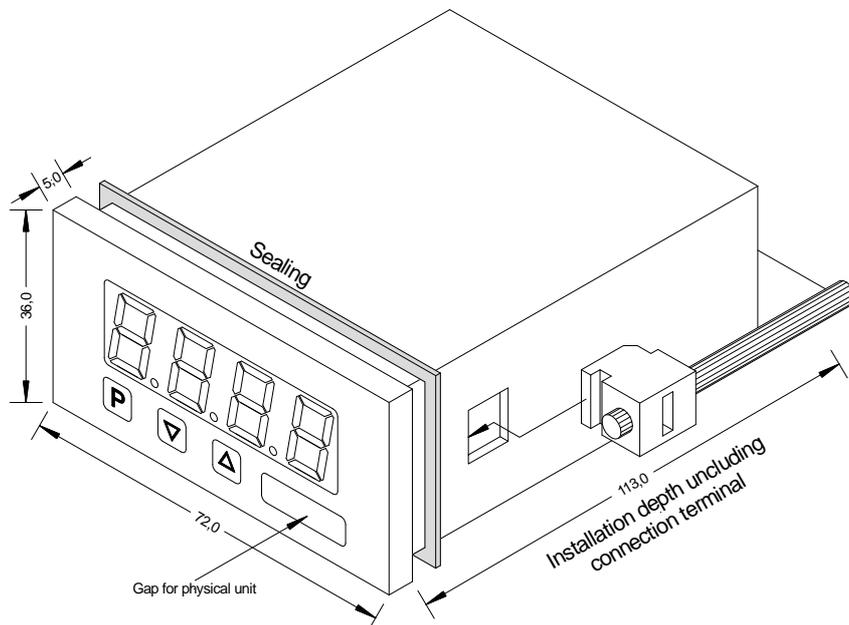
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B72 x H36 x D97 mm, (incl. plug-in terminal D = 113 mm)	
	Panel cut-out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm	
	Fixing	screw elements for wall thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, at the back IP00	
	Weight	approx. 200 g	
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²	
Display	Display	4-digit	
	Digit height	14 mm	
	Segment colour	red (Standard), optional available in green, blue and orange	
	Range of display	-1999 to 9999	
	Threshold values	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
Display time/Meas. time	0.1 to 10.0 seconds		
Measuring input	Measuring range	Type L -200...900°C Type J -210...1200°C Type K -270...1372°C Type B 80...1820°C Type S -50...1768°C Type N -270...1300°C Type E -270...1000°C Type T -270...400°C Type R -50...1768°C	
	Measuring error	2 K, ± 1 Digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversion	
	Resolution	0.1°C	
	Characteristic line error	<±1 kΩ	
	Reference junction	Thermistor	
	Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 VDC
	Switching cycles	30 * 10 ³ with 5 AAC, 5 ADC ohm resistive load 10 * 10 ⁶ mechanically Diversity according to DIN EN50178 / Characteristics according to DIN EN60255	
Power pack	Supply	230 VAC ±10% (max. 3 VA) 24 VDC ±10%, galvanic isolated (max. 1 VA)	
	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:

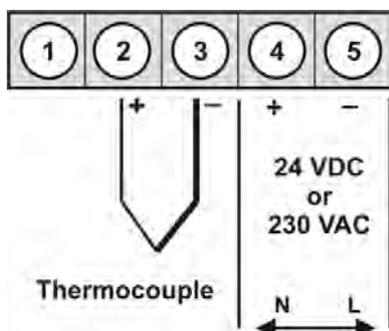


M1 – 4-digit digital panel meter in 96x24 mm (BxH) Thermocouple type B, E, J, K, L, N, R, S, T

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 57 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



• Thermocouple type B, E, J, K, L, N, R, S, T



Supply 230 VDC

Supply 24 VDC

ORDER NUMBER
(without options)

EUR

M1-3TR4B.040X.570DD 180,00

M1-3TR4B.040X.770DD 190,00

• Order key options

M	1-	3	T	R	4	B.	0	4	0	X.	5	7	0	D	D	EUR
M	1-	3	T	R	4	B.	0	4	0	X.	7	7	0	D	D	
											1	without keypad, operation via PM-TOOL				10,00
											X	Other voltage supplies on demand				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

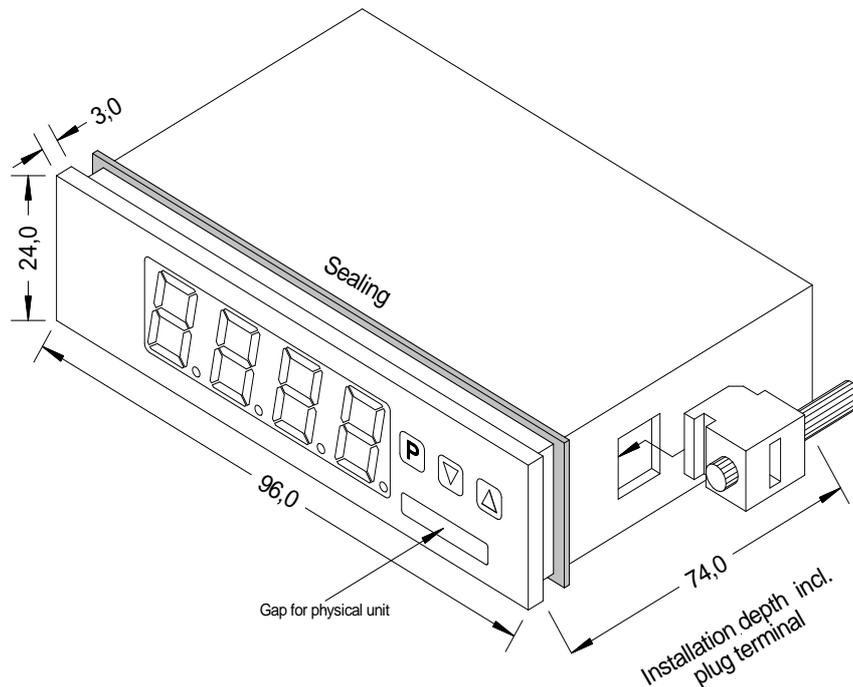
PM-TOOL-MUSB4

89,00

• Technical data

Dimension	Housing	B96 x H24 x D57 mm (including plug-in terminal, D= 74 mm)	
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for insulation thickness up to 3 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 standard, back side IP00	
	Weight	approx. 150 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	4-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue and orange	
	Display range	-1999 to 9999	
	Setpoints	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time/ Measuring time	0.1 to 10.0 seconds	
Measuring input	Measuring range	Type L	-200°C...900°C
		Type J	-210°C ...1200°C
		Type K	-270°C ...1372°C
		Type B	80°C ...1820°C
		Type S	-50°C ...1768°C
		Type N	-270°C ...1300°C
		Type E	-270°C ...1000°C
		Type T	-270°C ...400°C
	Type R	-50°C ...1768°C	
	Measuring fault	2 K, ± 1 Digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
Measuring principle	U/F-conversion		
Resolution	0.1°C		
Characteristic curve fault	<± 1 kΩ		
Reference junction	Thermistor		
Power pack	Supply	230 VAC ±10% (max. 3 VA)	
		24 VDC ±10%, galvanic isolated (max. 1 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign	Conformity to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1		

Housing:

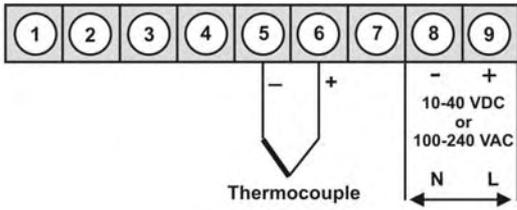




M3 – 5-digit digital panel meter 96x48 (BxH) Thermocouple type L, J, K, B, S, N, E, T, R

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance / undercut
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Thermocouple type L, J, K, B, S, N, E, T, R**



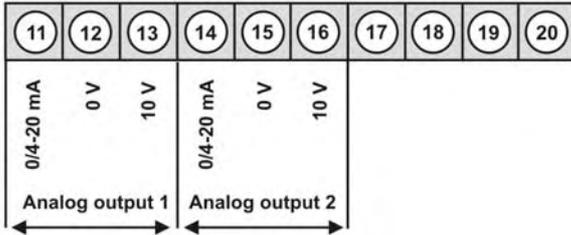
Supply 100-240 VAC, DC ±10%

M3-1TR5B.040X.S70BD 233,00

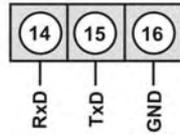
Supply 10-40 VDC, 18-30 VAC

M3-1TR5B.040X.W70BD 248,00

Options:

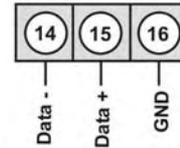


alternative to analog output 2

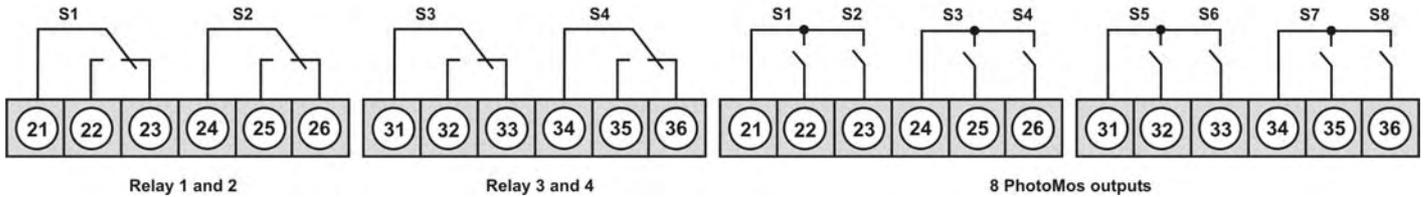


Interface RS232 (Modbus protocol)

or



Interface RS485 (Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	4	0	X.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	4	0	X.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. °F.

• **Parameterisation software**

ORDER NUMBER

EUR

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

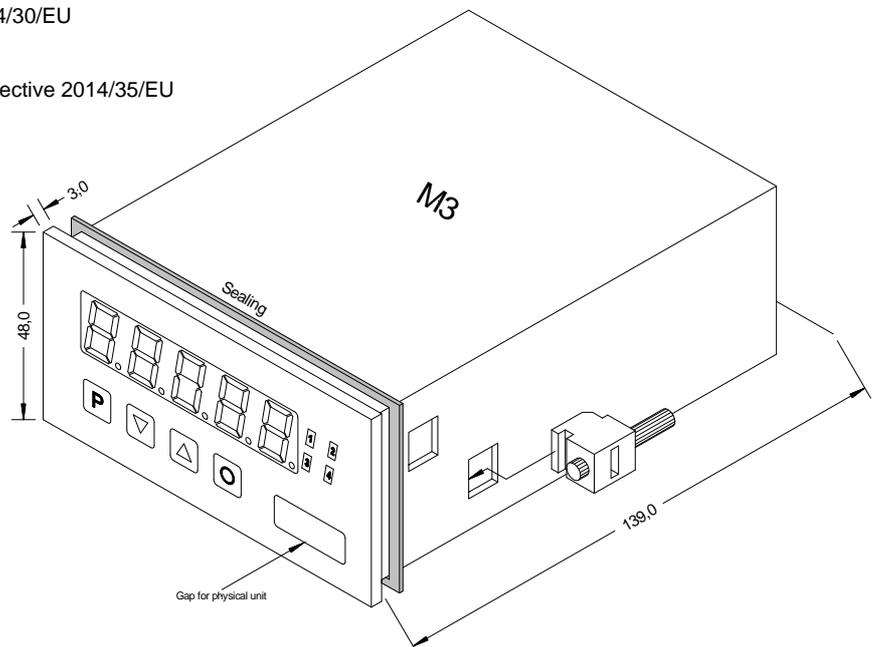
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 15 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection type	front side IP65 standard, back side IP00	
	Weight	approx. 350 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	5-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)	
	Range of display	-19999 to 99999	
	Threshold	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Measuring range	Type L	-200...900°C
		Type J	-210...1200°C
		Type K	-270...1372°C
		Type B	80...1820°C
		Type S	-50...1768°C
		Type N	-270...1300°C
		Type E	-270...1000°C
		Type T	-270...400°C
		Type R	-50...1768°C
		Measuring fault	2 K, ± 1 digit
	Temperature drift	100 ppm/K	
Measuring time	0.1 ... 10.0 seconds		
Measuring principle	U/F-conversions		
Resolution	0.1°C		
Characteristic curve fault	<±1 K		
Reference junction	Thermistor		
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC	
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255	
	PhotoMos output	NOC contacts: 30 VDC/AC, 4 A	
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit	
Interface	Protocol	manufacturer's specifics ASCII	
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m	
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m	
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA)	
		10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign EMV	Conformity to directive 2014/30/EU EN 61326, EN 55011		
	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1		

Housing:



• Order key

	M	3-	1	T	R	5	B.	0	4	0	X.	S	7	0	B	D	
Basic type M-Line																	
Installation depth 139 mm (incl. plug-in terminal)																	Dimension D physical unit (at buyer's option)
Housing size 96x48x120 mm (BxHxD)																	Version B
Display type Temperature																	Switching points 0 no switching point 2 2 relay outputs 4 4 relay outputs 8 8 PhotoMos-outputs
Display colours Blue Green Red Red/Green/Orange Orange																	Protection class 1 without keypad, via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 5-digit																	Voltage supply S 100-240 VAC W 10-40 VDC galv. isolated
Digit height 14 mm																	Measuring input X Thermocouple
Digital input without Interface RS232 Interface RS485																	Analog output 0 without X 1x 0-10 VDC, 0/4-20 mA Y 2x 0-10 VDC, 0/4-20 mA
																	Thermocouple 4 Type L, J, K, B, S, N, E, T, R

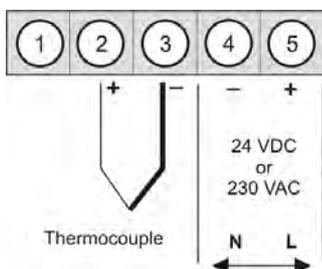
M1 – 4-digit digital panel meter in 96x48 mm (BxH) Thermocouple type B, E, J, K, L, N, R, S, T

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-value recording
- displayed in °C or °F
- display flashing at threshold exceedance / undershooting
- navigation keys for the recall of min/max-values or limit value corrections during operation
- impedance matching
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -40°C...+70°C



ORDER NUMBER **EUR**
(without options)

• Thermocouple type B, E, J, K, L, N, R, S, T



Supply 230 VAC

Supply 24 VDC

M1-1TR4B.040X.570CD **156,00**

M1-1TR4B.040X.770CD **168,00**

• Product key options

M	1-	1	T	R	4	B.	0	4	0	X.	5	7	0	C	D	EUR
M	1-	1	T	R	4	B.	0	4	0	X.	7	7	0	C	D	
											1	Without keypad, operation on the back via interface				10,00
											X	Other voltage supplies on demand!				
											B	Blue				33,00
											G	Green				9,50
											Y	Orange				3,00

Please state physical unit in order, e.g. °F.

• Parameterisation software

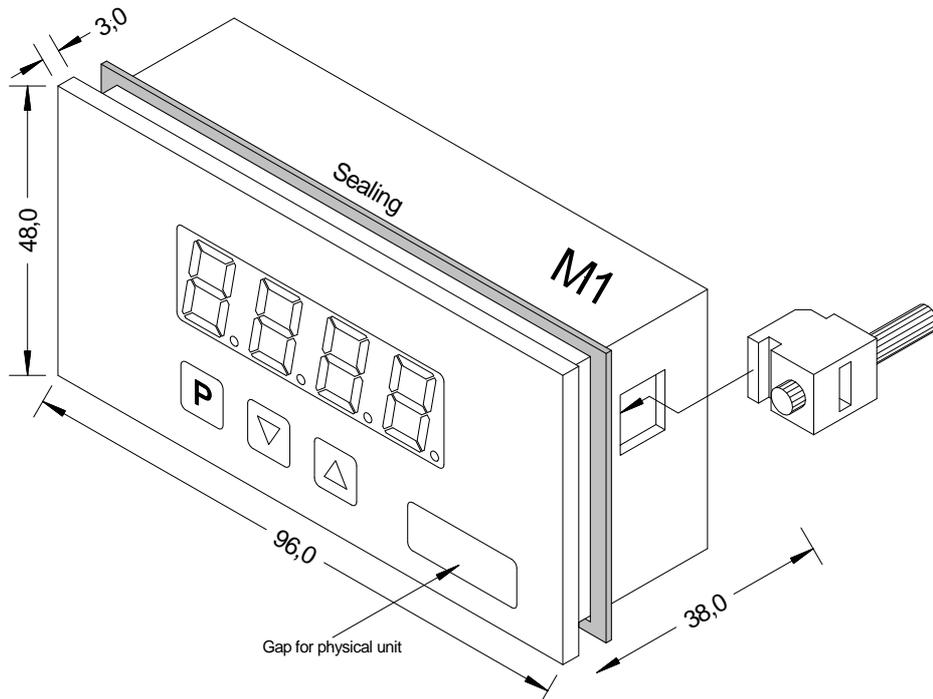
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimension	Housing	B96xH48xD25 mm (including plug-in terminal D= 38 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 100 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	4-digit
	Digit height	14 mm
	Segment colour	Red (standard), optional available in green, blue and orange
	Display range	-1999 to 9999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/ Measuring time	0.1 to 10.0 seconds
Measuring input	Measuring range	Type L -200°C...900°C Type J -210°C ...1200°C Type K -270°C ...1372°C Type B 80°C ...1820°C Type S -50°C ...1768°C Type N -270°C ...1300°C Type E -270°C ...1000°C Type T -270°C ...400°C Type R -50°C ...1768°C
	Measuring fault	2 K, ± 1 digit
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	0.1°C
	Characteristic curve fault	<± 1 K
	Reference junction	Thermistor
Power pack	Supply	230 VAC ±10 % (max. 3 VA) 24 VDC ±10 %, galvanic isolated (max. 1 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:





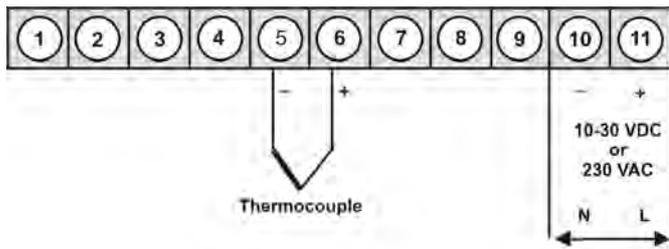
M2 – 5-digit digital panel meter in 96x48 mm (BxH) Thermocouple type L, J, K, B, S, N, E, T, R

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance/undercut
- flexible alarm system with adjustable delay times
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER
(without options)

EUR

• **Thermocouple type L, J, K, B, S, N, E, T, R**



Supply 230 VAC

M2-1TR5B.040X.570CD

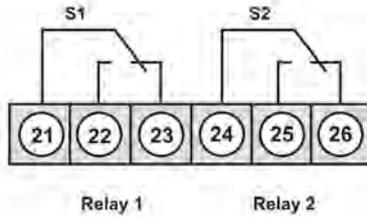
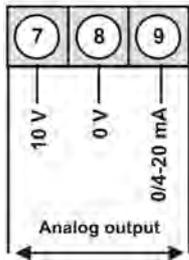
195,00

Supply 10-30 VDC

M2-1TR5B.040X.670CD

230,00

Options:



• **Product key options**

M	2-	1	T	R	5	B.	0	4	0	X.	5	7	0	C	D
M	2-	1	T	R	5	B.	0	4	0	X.	6	7	0	C	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*Only one option available with 230 VAC voltage supply: relay outputs, analog output or sensor supply.

Please state physical unit on demand, e.g. min.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

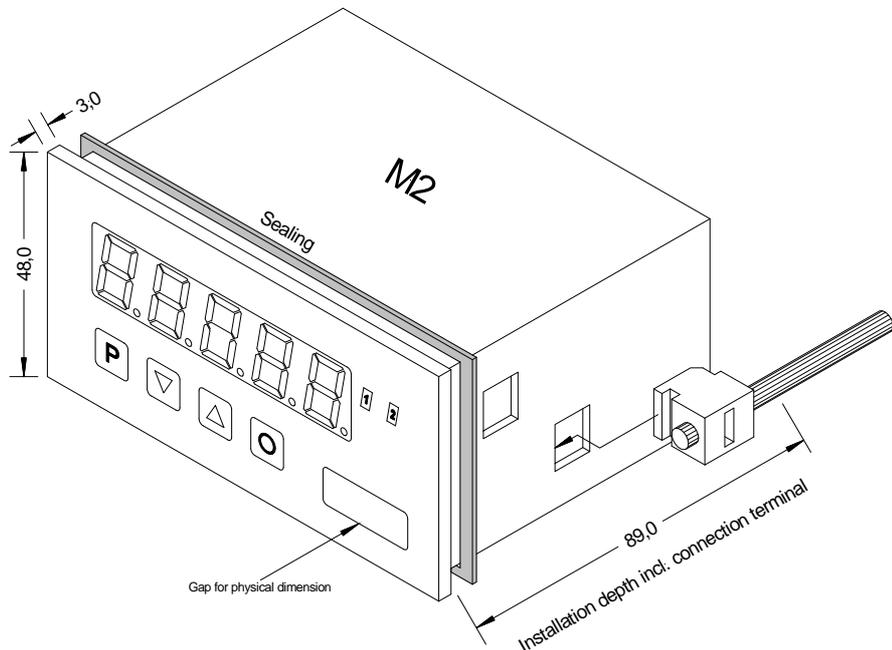
EUR

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution Characteristic curve fault Reference junction	Type L -200...900°C Type J -210...1200°C Type K -270...1372°C Type B 80...1820°C Type S -50...1768°C Type N -270...1300°C Type E -270...1000°C Type T -270...400°C Type R -50...1768°C 2 K, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion 0.1°C <± 1 K thermistor
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 5 AAC, 30 V /5 ADC 10 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255 0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Power pack	Supply	230 VAC 50/60 Hz ±10% (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	
Housing:		



• Order key

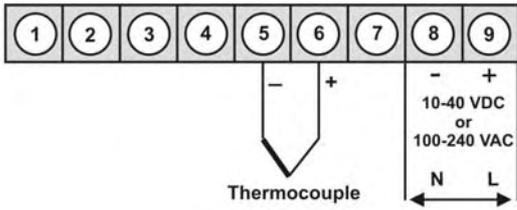
	M	2-	1	T	R	5	B.	0	4	0	X.	6	7	0	C	D	
Basic type M-Line																	Dimension D physical unit
Installation depth 89 mm (incl. plug-in terminal)																	Version C C
Housing size 96x48x70 mm (BxHxD)																	Switching points 0 no switching point 2 2 relay outputs
Display type Temperature																	Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal
Display colours Blue Green Red Red/Green/Orange Orange																	Supply voltage 4 115 VAC 5 230 VAC 6 10-30 VDC galv. isolated
Number of digits 5-digit																	Measuring input X Thermocouple type B, E, J, K, L, N, R, S, T
Digit height 14 mm																	Analog output 0 without X 0-10 VDC, 0/4-20 mA
Digital input without																	Temperature devices 4 Thermocouple



M3 – 5-digit digital panel meter 96x48 (BxH) Thermocouple type L, J, K, B, S, N, E, T, R

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- display flashing at threshold value exceedance / undercut
- flexible alarm system with adjustable delay times
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Thermocouple type L, J, K, B, S, N, E, T, R**



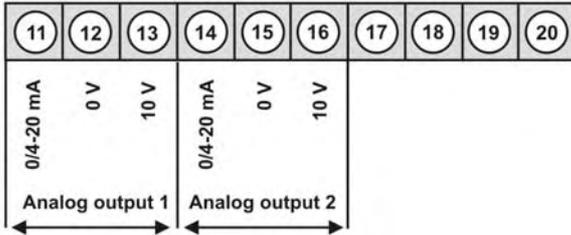
Supply 100-240 VAC, DC ±10%

M3-1TR5B.040X.S70BD 233,00

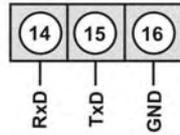
Supply 10-40 VDC, 18-30 VAC

M3-1TR5B.040X.W70BD 248,00

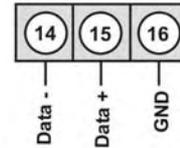
Options:



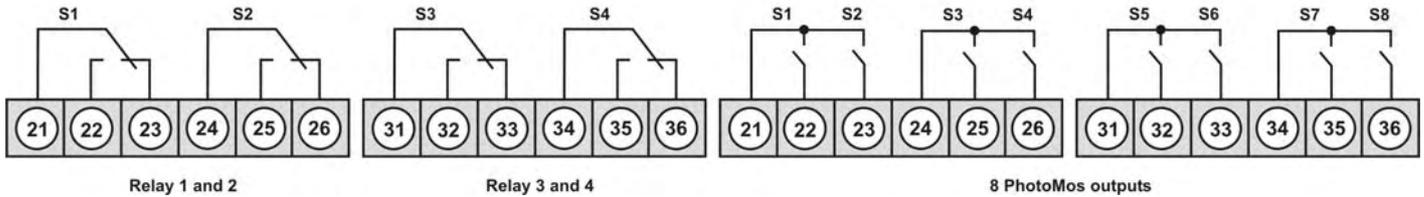
alternative to analog output 2



**Interface RS232
(Modbus protocol)**



**Interface RS485
(Modbus protocol)**



• **Order key options**

M	3-	1	V	R	5	B.	0	4	0	X.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	4	0	X.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. °F.

• **Parameterisation software**

ORDER NUMBER

EUR

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

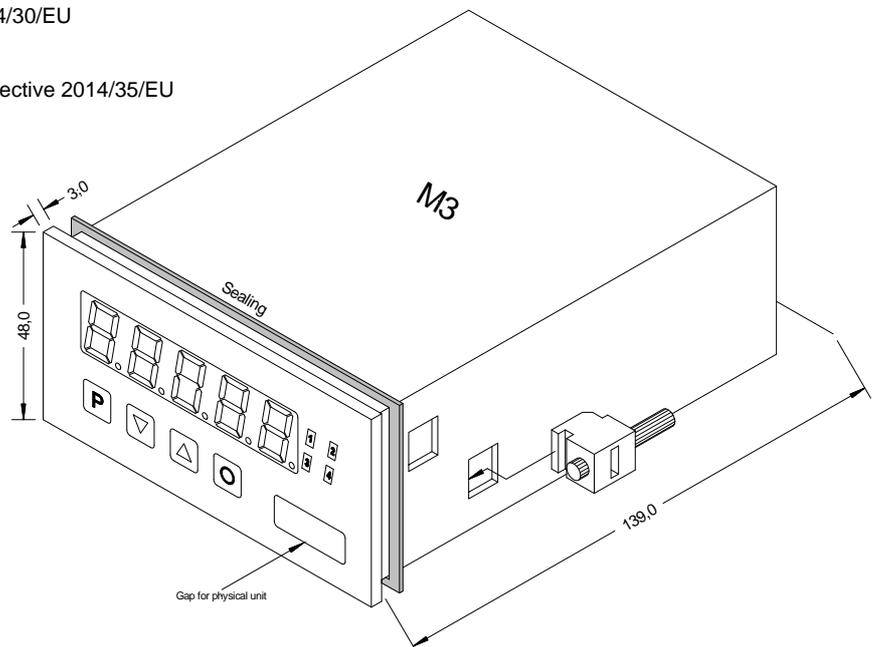
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for insulation thickness up to 15 mm	
	Housing material	PC Polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection type	front side IP65 standard, back side IP00	
	Weight	approx. 350 g	
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²	
Display	Display	5-digit	
	Digit height	14 mm	
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)	
	Range of display	-19999 to 99999	
	Threshold	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display time	0.1 to 10.0 seconds	
Measuring input	Measuring range	Type L -200...900°C Type J -210...1200°C Type K -270...1372°C Type B 80...1820°C Type S -50...1768°C Type N -270...1300°C Type E -270...1000°C Type T -270...400°C Type R -50...1768°C	
	Measuring fault	2 K, ± 1 digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1 ... 10.0 seconds	
	Measuring principle	U/F-conversions	
	Resolution	0.1°C	
	Characteristic curve fault	<±1 K	
	Reference junction	Thermistor	
	Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
		Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
		PhotoMos output	NOC contacts: 30 VDC/AC, 4 A
Analog output		0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit	
Interface	Protocol	manufacturer's specifics ASCII	
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m	
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m	
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)	
	Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-sign EMV	Conformity to directive 2014/30/EU		
	EN 61326, EN 55011		
Safety standard	according to low voltage directive 2014/35/EU		
	EN 61010; EN 60664-1		

Housing:



• Order key

	M	3-	1	T	R	5	B.	0	4	0	X.	S	7	0	B	D	
Basic type M-Line																	
Installation depth 139 mm (incl. plug-in terminal)																	Dimension D physical unit (at buyer's option)
Housing size 96x48x120 mm (BxHxD)																	Version B
Display type Temperature																	Switching points 0 no switching point 2 2 relay outputs 4 4 relay outputs 8 8 PhotoMos-outputs
Display colours Blue Green Red Red/Green/Orange Orange																	Protection class 1 without keypad, via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 5-digit																	Voltage supply S 100-240 VAC W 10-40 VDC galv. isolated
Digit height 14 mm																	Measuring input X Thermocouple
Digital input without Interface RS232 Interface RS485																	Analog output 0 without X 1x 0-10 VDC, 0/4-20 mA Y 2x 0-10 VDC, 0/4-20 mA
																	Thermocouple 4 Type L, J, K, B, S, N, E, T, R

Frequency (0.01 Hz...999.99 kHz)

Measuring input: pulse input, TTL, Namur, 3-wire NPN/PNP, incremental encoder

48x24mm

- **M3-7 – Digital panel meter, 5-digit**
 - 2 switching points (PhotoMos)
 - sensor supply
 - digital input
 - analog output
 - pulse output
 - with far range power unit 100-240 VAC

96x24mm

- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - pulse output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

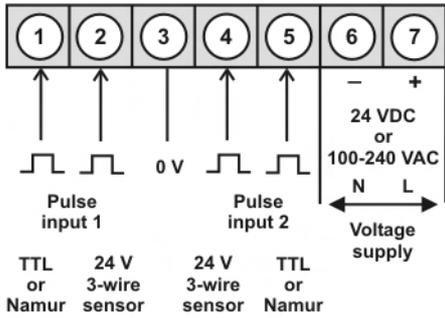
- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - pulse output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - pulse output
 - with far range power unit 100-240 VAC



**M3 – 5-digit digital panel meter in 48x24 mm (BxH)
Frequency 0.01 Hz to 999.99 kHz / 0.01 Hz to 9.999 kHz / 0-2.5000 kHz
Connection for Namur, 3-wire NPN/PNP, position survey via
incremental encoder (HTL- or TTL-output)**

- red display from -19999...99999 digits (optional green, orange or blue display)
- installation depth: 90 mm without plug-in terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold exceedance / threshold undershooting
- Schmitt-Trigger-input
- digital frequency filter for contact bounce suppression and interference suppression
- frequency filter with different pulse-duty factor
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measuring (totaliser) for frequencies up to 1 kHz (pulse precisely)
- mathematical functions like reciprocal value, square root, square, rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- optional: 2 PhotoMos-outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...50°C or -40°C...70°C without condensation

- Frequency (0.01 Hz to 999.99 kHz)
- Frequency (0.01Hz to 9.9999 kHz for transmitter / 0 to 2.5000 kHz for position survey)



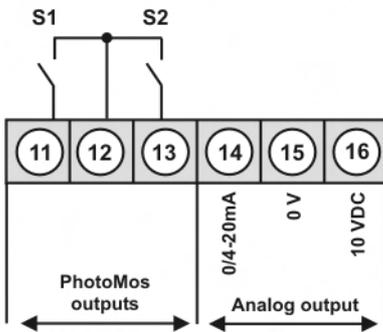
Supply 24 VDC ± 10%

M3-7FR5A.0007.770BD 220,00

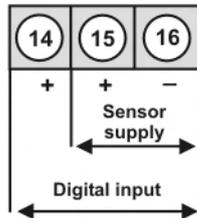
Supply 100-240 VAC, DC ± 10%

M3-7FR5A.0007.S70BD 230,00

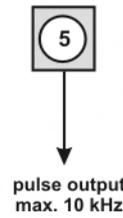
Options: devices for a supply of 24 VDC



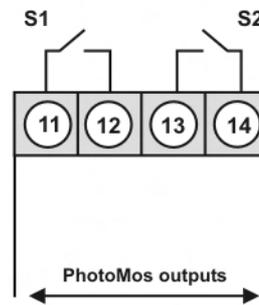
alternatively to analog output
for devices with position survey (required)



alternatively to pulse input 2



Options: devices for a supply of 100-240 VAC



• Product key options: devices with a supply of 24 VDC

M 3- 7 F R 5 A. 0 0 0 7. 7 7 0 B D

	EUR	
2	2 PhotoMos outputs	30,00
1	Without keypad, operation via parameterisation software PM-TOOL	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galvanic isolated	110,00
2	Sensor supply 10 VDC / 20 mA incl. digital input	45,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	45,00
K	Sensor supply 24 VDC / 50 mA incl. digital input and pulse output	50,00
I	Digital input galvanic isolated	20,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00

• Product key options: devices with a supply of 100-240 VAC

M 3- 7 F R 5 A. 0 0 0 7. S 7 0 B D

	EUR	
2	2 PhotoMos outputs	30,00
1	Without keypad, operation via parameterisation software PM-TOOL	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00

Please state physical unit on demand in your order, e.g. U/min.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

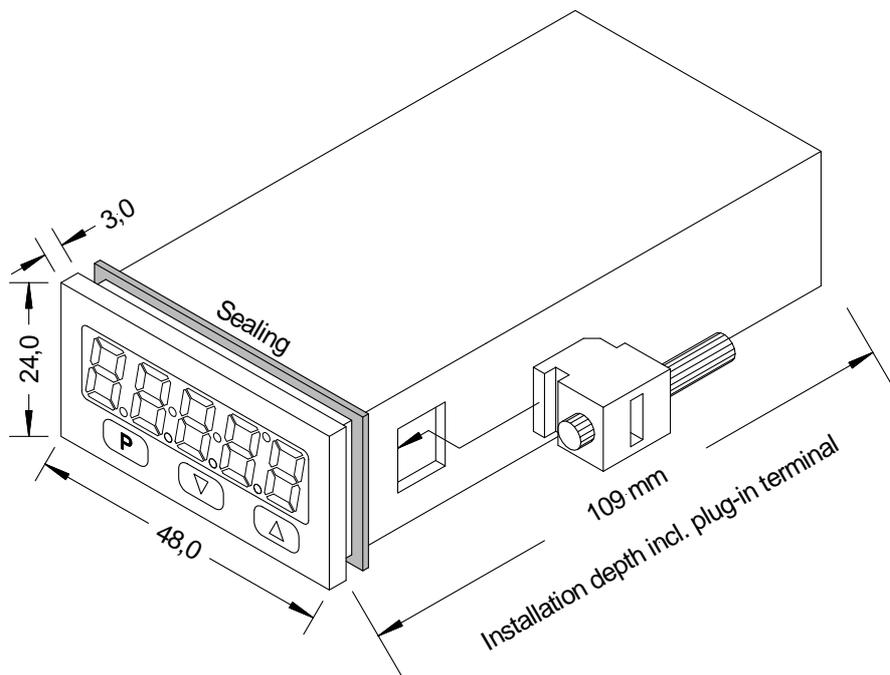
PM-TOOL-MUSB4

89,00

• **Technical data**

Housing dimension	Housing	B48 x H24 x T90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 5 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 200 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange and blue
	Display range	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Signal	Pulse input, TTL, Namur, 3-wire initiator PNP/NPN
	Input resistance	R _i at 24 V / 4 kΩ HTL level >15 V / < 4 V TTL level >4.6 V / <1.9 V
	Input frequency	0.01 Hz...999.99 kHz, 0.01 Hz...9.9999 kHz with rev counter, 0...2.5000 kHz with position recording
	Measuring fault	0.05% of measuring range, ± 1 digit
Output	PhotoMos	Closer contacts: 30 VDC/AC, 0.4 A
	Pulse output	max. 10 kHz
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA 10 VDC / 20 mA
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Power pack	Supply	100-240 VAC 50/60 Hz / DC ± 10% (max. 5 VA) 24 VDC ± 10%, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:





**M3 – 5-digit digital panel meter in 96x24 mm (BxH)
Frequency 0.01 Hz to 999.99 kHz / 0.01 Hz to 9.9999 kHz / 0-2.5000 kHz
Connection for Namur, 3-wire NPN/PNP, position survey via
incremental encoder (HTL- or TTL-output)**

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- Schmitt-Trigger-Input
- digital frequency filter for contact bounce suppression and interference suppression
- frequency filter with different pulse-duty factor
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser) for frequencies up to 1 kHz (pulse exact)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on request: devices for working temperatures of -20°C...60°C or -40°C...70°C

- Frequency (0.01 Hz to 999.99 kHz)

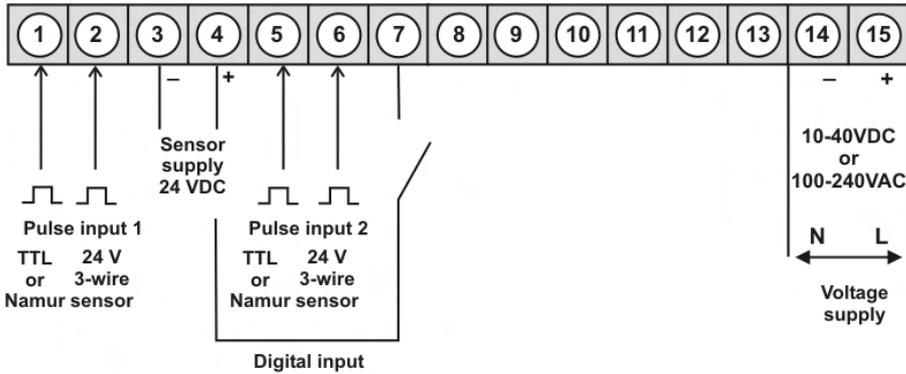
- Frequency (0.01Hz to 9.9999 kHz for transmitter / 0 to 2.5000 kHz for position survey)

Supply 100-240 VAC, DC ± 10%

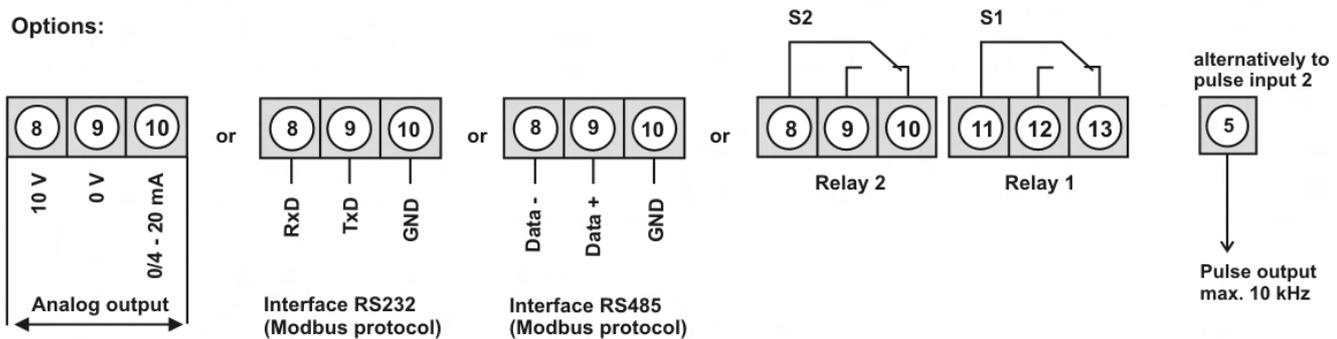
M3-3FR5B.0307.S70BD 245,00

Supply 10-40 VDC, 18-30 VAC

M3-3FR5B.0307.W70BD 255,00



Options:



Alternatively to analog output

Advice: Using Namur sensors with a nominal voltage of approx. 8 V, a sensor supply of 10 VDC needs to be provided.

• Product key options

M	3-	3	F	R	5	B.	0	3	0	7.	S	7	0	B	D
M	3-	3	F	R	5	B.	0	3	0	7.	W	7	0	B	D

EUR

1	1 relay output (with option analog output only 1 switching point is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation via parameterisation software PM-TOOL	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
2	Sensor supply 10 VDC / 50 mA incl. digital input	15,35
K	Pulse output	10,00
3	Interface RS232 galv. isolated	65,00
4	Interface RS485 galv. isolated	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. U/min.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

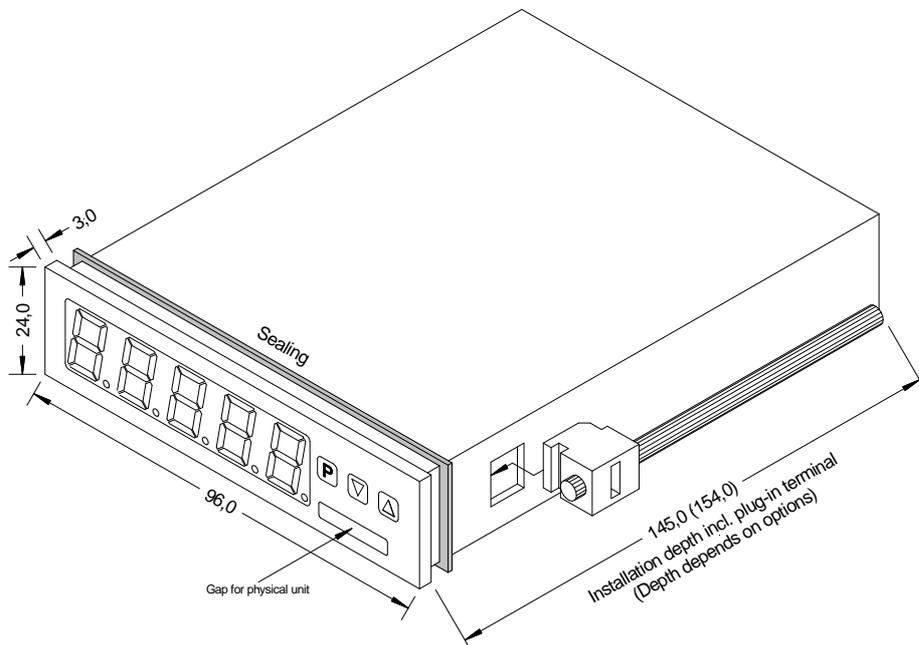
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	Screw elements for a wall thickness up to 10 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 Standard, at the back IP00
	Weight	approx. 250 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional in green, orange, blue or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold value	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time	0.1 to 10.0 seconds	
Measuring input	Signal	Pulse input, TTL, Namur, 3-wire initiator PNP/NPN
	Input resistance	Ri at 24 V / 4 kΩ HTL-level >15 V / < 4 V TTL-level >4.6 V / <1.9 V
	Input frequency	0.01 Hz selectable up to 999.99 kHz 0.01 Hz to 9.9999 kHz for speed transmitter, 0 to 2.5000 kHz for position survey
	Measuring fault	0.05% of measuring range
Output	Relay	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC
	Switching cycle	30 * 10 ³ at 2 AAC, 2 ADC Ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255
	Pulse output	max. 10 kHz
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Sensor supply	24 VDC / 50 mA; 10 VDC / 50 mA	
Digital input	Input galv. isolated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	Modbus with ASCII or RTU-protocol
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

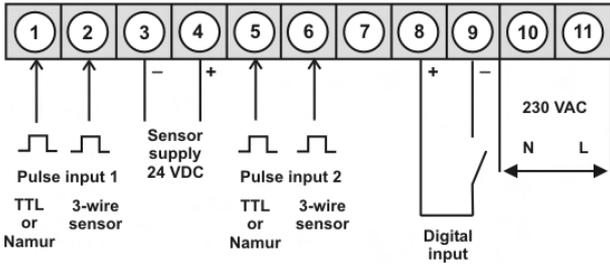
	M	3-	3	F	R	5	B.	0	3	0	7.	W	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (on demand)
Installation depth																	Version
145 mm incl. plug-in terminal (154 mm)			<input type="checkbox"/> 3														<input type="checkbox"/> B B
Housing size																	Switching points
96x24x120 mm (BxHxD)			<input type="checkbox"/> 3														<input type="checkbox"/> 0 without
Display type																	<input type="checkbox"/> 1 1 relay output
Frequency				<input type="checkbox"/> F													<input type="checkbox"/> 2 2 relay outputs
Display colours																	Protection class
Blue					<input type="checkbox"/> B												<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Green					<input type="checkbox"/> G												<input type="checkbox"/> 7 IP65 / plug-in terminal
Red					<input type="checkbox"/> R												
Red/Green/Orange					<input type="checkbox"/> T												
Orange					<input type="checkbox"/> Y												Supply voltage
Number of digits																	<input type="checkbox"/> S 100-240 VAC
5-digits																	<input type="checkbox"/> W 10-30 VDC
Digit height																	Measuring input
14 mm																	<input type="checkbox"/> 7 Frequency
Interface																	Analog output
without																	<input type="checkbox"/> 0 without
Interface RS232																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
Interface RS485																	
																	Sensor supply
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> 3 24 VDC / 50 mA (incl. digital input)
																	<input type="checkbox"/> 2 10 VDC / 50 mA (incl. digital input)
																	<input type="checkbox"/> K 24 VDC / 50 mA (incl. digital input and frequency output max. 10 kHz)



**M2 – 5-digit digital panel meter in 96x48 mm (BxH)
 Frequency 0.01 Hz to 999.99 kHz / 0.01 Hz to 9.9999 kHz / 0-2.5000 kHz
 Connection for Namur, 3-wire NPN/PNP, position survey via
 incremental encoder (HTL- or TTL-output)**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Schmitt-Trigger-Input
- digital frequency filter for contact bounce suppression and interference suppression
- frequency filter with different pulse-duty factor
- zero key for actuation of tara-function /hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser) for frequencies up to 1 kHz (pulse precisely)
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

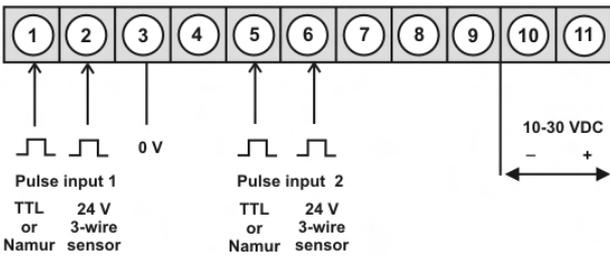
- Frequency (0.01 Hz to 999.99 kHz)
- Frequency (0.01Hz to 9.9999 kHz for transmitter / 0 to 2.5000 kHz for position survey)



Supply 230 VAC

M2-1FR5B.0307.570CD 185,00

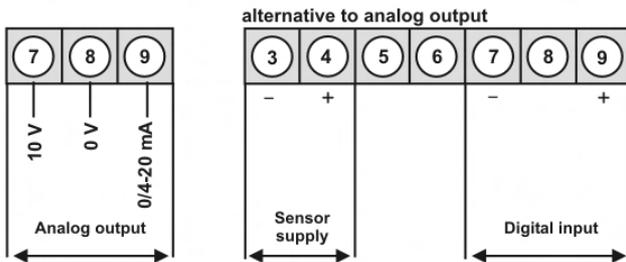
- Frequency (0.01 Hz to 999.99 kHz)
- Frequency (0.01Hz to 9.9999 kHz for transmitter / 0 to 2.5000 kHz for position survey)



Supply 10-30 VDC

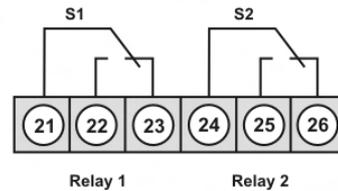
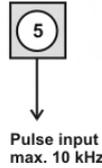
M2-1FR5B.0007.670CD 195,00

Options: M2-1FR5B.0007.670CD



Options: M2-1FR5B.0307.570CD / M2-1FR5B.0007.670CD

alternative to pulse input 2



Advice: Using Namur sensors with a nominal voltage of approx. 8 V, a sensor supply of 12 VDC needs to be provided.

• Product key options

M	2-	1	F	R	5	B.	0	3	0	7.	5	7	0	C	D
M	2-	1	F	R	5	B.	0	0	0	7.	6	7	0	C	D

		EUR
2	2 relay outputs	33,00
1	Without keypad, operation via PC-Software PM-TOOL	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	120,00
2	Sensor supply 10 VDC / 20 mA incl. digital input	55,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	55,00
6	Sensor supply 12 VDC / 50 mA incl. digital input	55,00
K	Pulse output max. 10 kHz, incl. sensor supply / incl. digital input	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

* 230 VAC voltage supply is not available with relay outputs.

Please state physical unit on demand, e.g. U/min.

• Parameterisation software

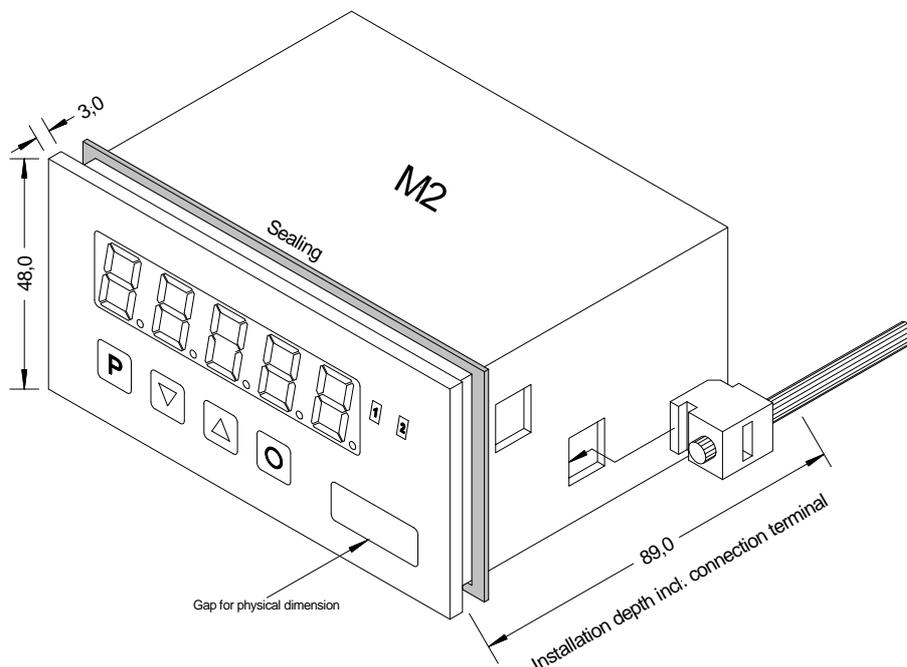
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 250 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Display range	-19999 to 99999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Measuring input	Signal	impulse input, TTL, Namur, 3-wire initiator PNP/NPN
	Input resistance	Ri at 24 V / 4 kΩ HTL level >15 V / < 4 V TTL level >4.6 V / <1.9 V
	Input frequency	0.01 Hz...999.99 kHz, 0.01 Hz...9.9999 kHz with rev counter, 0...2.5000 kHz with position recording
	Measuring fault	0.05% of measuring range, ± 1 digit
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycle	10 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
	Pulse output	max. 10 kHz
	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA 10 VDC / 20 mA
Digital input	Input galv. isolated	<2.4 OFF; >10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	
Housing:		

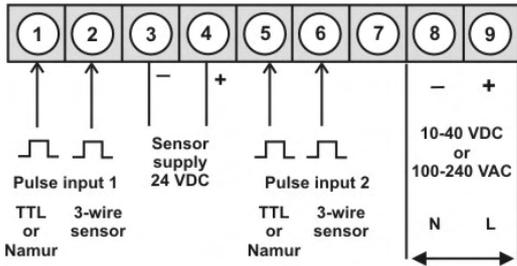




**M3 – 5-digit digital panel meter in 96x48 mm (BxH)
 Frequency 0.01 Hz to 999.99 kHz / 0.01 Hz to 9.9999 kHz / 0-2.5000 kHz
 Connections for Namur, 3-wire, NPN/PNP, position survey via
 incremental encoder (HTL- or TTL-output)**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance/undercut
- Schmitt-Trigger-input
- digital frequency filter for contact bounce suppression and interference suppression
- frequency filter with different pulse-duty factor
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume measuring (totaliser) for frequencies up to 1 kHz (pulse precisely)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

- Frequency (0.01 Hz to 999.99 kHz)
- Frequency (0.01 Hz to 9.9999 kHz for transmitter / 0 to 2.5000 kHz for position survey)



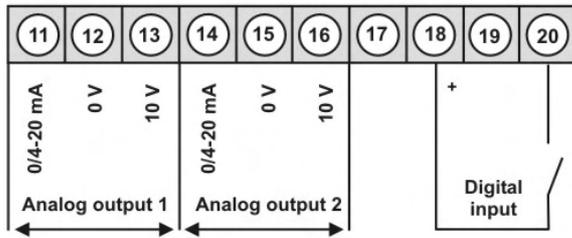
Supply 100-240 VAC, DC ±10%

M3-1FR5B.0307.S70BD 220,00

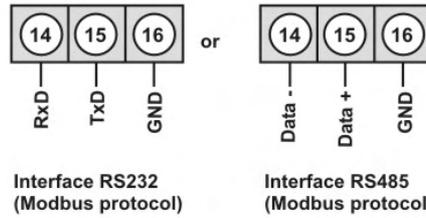
Supply 10-40 VDC, 18-30 VAC

M3-1FR5B.0307.W70BD 235,00

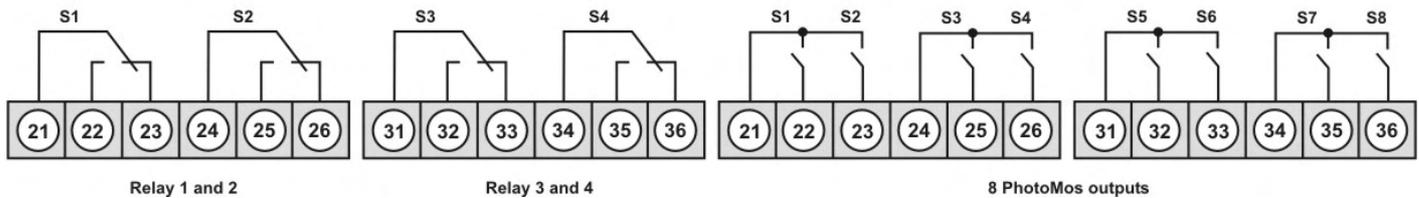
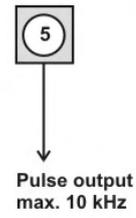
Options:



alternative to analog output 2



alternative to pulse input 2



Advice: Using Namur sensors with a nominal voltage of approx. 8 V, a sensor supply of 10 VDC needs to be provided.

• Order key options

M	3-	1	F	R	5	B.	0	3	0	7.	S	7	0	B	D
M	3-	1	F	R	5	B.	0	3	0	7.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
2	Sensor supply 10 VDC/50 mA incl. digital input	15,35
K	Pulse output max. 10 kHz	10,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. U/min.

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

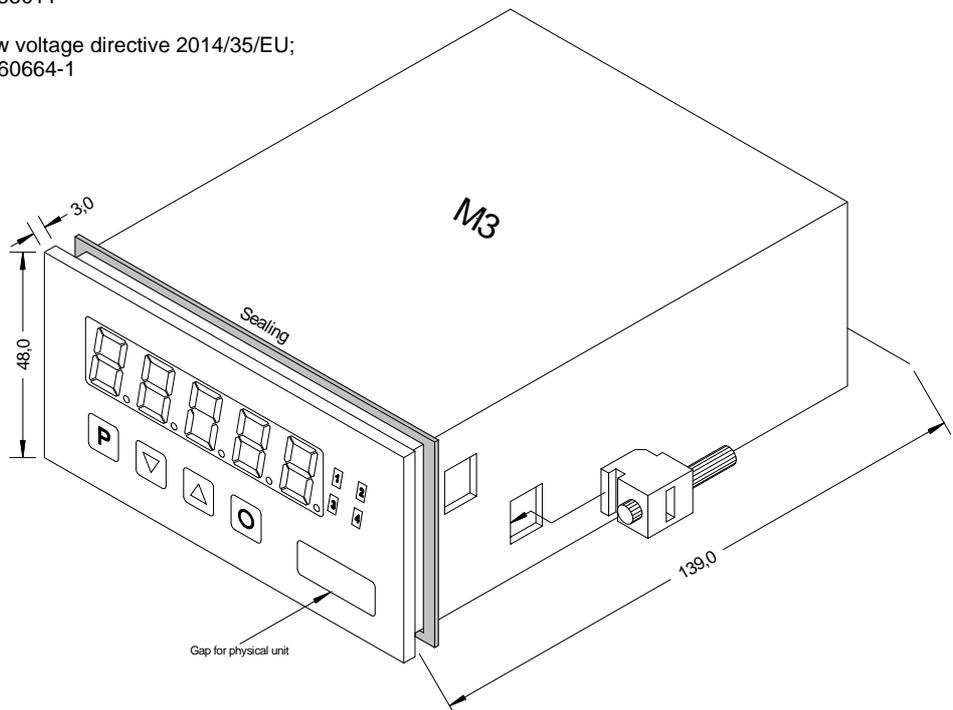
EUR

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Signal	Pulse input, TTL, Namur, 3-wire initiator PNP/NPN
	Input resistance	R _i at 24 V / 4 kΩ HTL level >15 V / < 4 V TTL level >4.6 V / <1.9 V
	Input frequency	0.01 Hz to 999.99 kHz, 0.01 Hz to 9.9999 kHz for speed sensor, 0 to 2.5000 kHz at position survey
	Measuring fault	0.05% of measuring range, ± 1 digit
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	PhotoMos output	NOC contacts: 30 VDC/AC, 4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA; 10 VDC / 20 mA
Digital input	Input galv. isolated	< 2.4 V OFF; > 10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	
Housing:		



• Order key

	M	3-	1	F	R	5	B.	0	3	0	7.	S	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (at buyer's option)
Installation depth 139 mm (incl. plug-in terminal)			<input type="checkbox"/> 3														Version
																	<input type="checkbox"/> B B
Housing size 96x48x120 mm (BxHxD)																	Switching points
			<input type="checkbox"/> 1														<input type="checkbox"/> 0 no switching points
																	<input type="checkbox"/> 2 2 relay outputs
																	<input type="checkbox"/> 4 4 relay outputs
																	<input type="checkbox"/> 8 8 PhotoMos-outputs
Display type Frequency				<input type="checkbox"/> F													Protection class
																	<input type="checkbox"/> 1 Without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colour Blue Green Red Red/Green/Orange Orange																	Voltage supply
																	<input type="checkbox"/> S 100-240 VAC
																	<input type="checkbox"/> W 10-40 VDC galv. isolated
Number of digits 5-digits																	Measuring input
																	<input type="checkbox"/> 7 Pulse, Namur, 3-wire NPN/PNP
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
																	<input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
Digital input without Interface RS232 Interface RS485																	Sensor supply
																	<input type="checkbox"/> 3 24 VDC / 50 mA (incl. digital input)
																	<input type="checkbox"/> 2 10 VDC / 50 mA (incl. digital input)
																	<input type="checkbox"/> K 24 VDC / 50 mA (incl. digital input and pulse output max. 10 kHz)

AC voltage / AC current

Measuring inputs: 10 VAC, 50 VAC, 100 VAC, 300 VAC, 5 AAC, 1 AAC

72x36mm

- **PVE4 – Digital panel meter, 4-digit, up to 300 VAC**
 - 2 switching points (Relay / PhotoMos)
 - analog output

92x24mm

- **M3-3 – Digital panel meter, 4-digit**
 - 2 switching points
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M2-1 – Digital panel meter, 4-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output
- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

PVE – 4-digit digital panel meter in 72x36 mm (BxH)

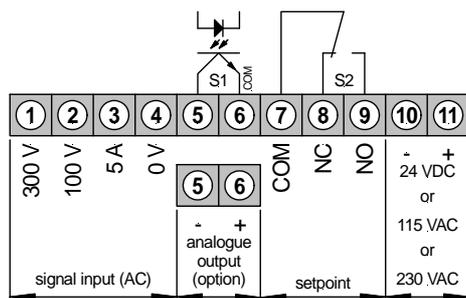
Alternating voltage / alternating current signals 100V, 300V, 5A, 1A

- potential-isolated
- 2 free scalable setpoints/hysteresis
- analog output galvanic insulated
- min/max memory



ORDER NUMBER **EUR**
(without options)

• Alternating voltage, alternating current



Power supply 230 VAC	Standard	PVE 4.004.6522C	249,00
	True effective value RMS	PVE 4.104.6522C	269,00
Power supply 24 VDC (galv. isolated)	Standard	PVE 4.004.6722C	269,00
	True effective value RMS	PVE 4.104.6722C	291,00

• Order key options

P	V	E	4.	0	0	4.	6	5	2	2	C
P	V	E	4.	1	0	4.	6	5	2	2	C
P	V	E	4.	0	0	4.	6	7	2	2	C
P	V	E	4.	1	0	4.	6	7	2	2	C

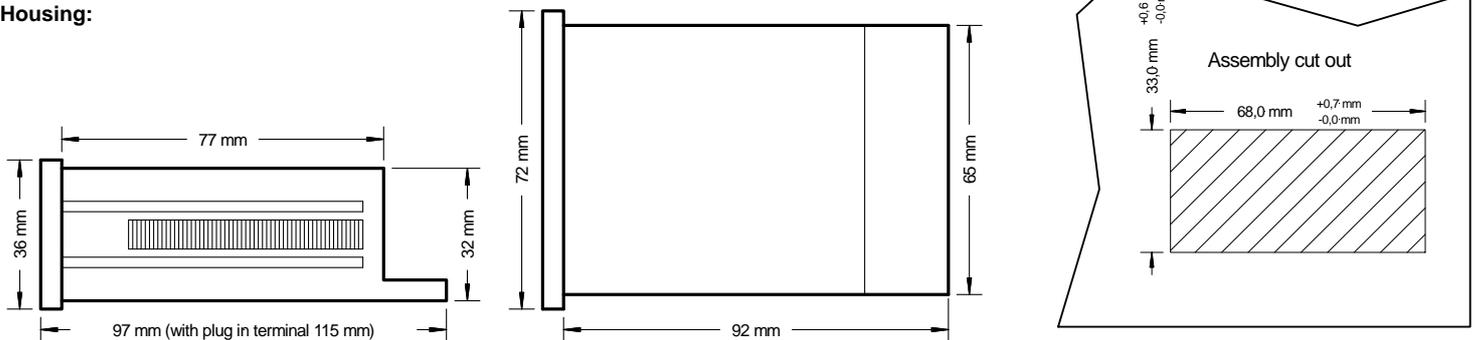
S108	Measuring input 1A, 5A not applicable	
1	Protection class IP65 at the front	11,80
4	Protection class IP54 at the front	7,10
7	Protection class IP65 at the front and plug-in terminal	22,40
8	plug-in terminal	10,60
9	Protection class IP54 at the front and plug-in terminal	17,70
4	Voltage supply 115 VAC	10,25
Switching point S1 is not applicable with analog output!		
1	Analog output 0-10 VDC at 230 VAC / 115 VAC	70,60
	Analog output 0-10 VDC at 24 VDC	111,70
2	Analog output 0-20 mA at 230 VAC / 115 VAC	76,40
	Analog output 0-20 mA at 24 VDC	117,60
3	Analog output 4-20 mA at 230 VAC / 115 VAC	76,40
	Analog output 4-20 mA at 24 VDC	117,60

Please state physical unit on demand, e.g. A.

• Technical data

Dimensions	Housing	W 72 x H 36 x XD 97 mm, including screw terminal
	Assembly cut out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fastening	latchable quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protective system	at the front IP40 connection IP00
	Weight	approx. 0.190 kg
	Connection	at the rear via terminals up to 2.5 mm ²
Input	Measuring range	100 V, 300 V, 5 A – optional 0-2 V, 20 V, 1 A All ranges selectable via connection terminal.
	Input resistance	Ri with 100 V = ~1 MΩ 300 V = ~4 MΩ 1 A = ~276 MΩ
Output	Relay outputs (Switching cycle)	change-over contact 240 VAC/0.25 A – 24 VDC/1 A, at ohm resistive burden 2 * 10 ⁵ at max. contact rate 10 * 10 ⁶ mechanically
	Open Collector	Supply by customers (U _B = 5-35 V / I _{max} = 100 mA with U _{CE sat})
	Analog output	0-10 VDC (12 bit) 0-20 mA (12 bit) burden max. 500 Ω 4-20 mA (12 bit) burden max. 500 Ω The analog output is galvanic isolated from the measuring input!
Accuracy	Resolution	-999...9999 Digit
	Temp. coefficient	I ~ 200 ppm/K / U ~ 100 ppm/K
	Measuring principle	voltage/frequency converter
	Frequency range	nominal precision 40 Hz to 100 Hz Standard / 40 Hz to 1000 Hz True RMS-value
PVE4.0x4.6xx2B	Measuring error	Voltage range: ±1.0% of final value, ±1 digit 0-1 A range: ±1.0% of final value, ±1 digit 1-5 A range: ±1.0% of final value, ±1 digit
	Measuring principle (input)	via precision rectifier = rms-value only with sinusoidal signal
PVE4.1x4.6xx2B	Measuring error	Voltage range: ±0.7% of final value, ±1 digit, crest factor 3 0-1 A range: ±0.7% of final value, ±1 digit, crest factor 3 1-5 A range: ±0.7% of final value, ±1 digit, crest factor 3
	Measuring principle (input)	rms-value
Power unit	Supply voltage	230/115 VAC ±10% (50-60 Hz), 24 VDC ±10%, galvanic isolated
	Power consumption	approx. 3 VA
Indication	Display	LED with 7 segments, 14 mm high, red 4-digit = indication 9999
	Overflow	indication of 4 horizontal bars
	Indication time	from 0.1 up to 10 seconds adjustable
Ambient conditions	Working temperature	0°C up to +60°C
	Storing temperature	-20°C up to +80°C

Housing:



CE-sign:

For unlimited use of the device according to directive 2014/30/EU for the „electromagnetic compatibility“, analog input lines need to be laid screened. The screen needs to be applied one-sided!

• Ordering code

	P	V	E	4.	0	0	4.	6	5	2	2	C	
Basic model													Version
													<input type="checkbox"/> C Version C
Voltage metering		<input type="checkbox"/> V											Switching points (standard)
													<input type="checkbox"/> 1 1 relay output
													<input type="checkbox"/> 2 1 relay output and 1 open collector output
Internal index			<input type="checkbox"/> E										Mechanical options
													<input type="checkbox"/> 1 Foil keyboard, protection IP65
													<input type="checkbox"/> 2 Foil keyboard, protection IP40
													<input type="checkbox"/> 4 Foil keyboard, protection IP54
													<input type="checkbox"/> 7 Plug-in terminal, foil keyboard, IP65
													<input type="checkbox"/> 8 Plug-in terminal, foil keyboard, IP40
													<input type="checkbox"/> 9 Plug-in terminal, foil keyboard, IP54
Number of digits 4 digits				<input type="checkbox"/> 4									Power supply
													<input type="checkbox"/> 4 115 VAC
													<input type="checkbox"/> 5 230 VAC
													<input type="checkbox"/> 7 24 VDC (galvanic isolated)
Sensor supply no sensor supply					<input type="checkbox"/> 0								Size of housing
													<input type="checkbox"/> 6 72x36 mm (BxD)
Alternating voltage, current Standard					<input type="checkbox"/> 0								Measuring input
True effective RMS					<input type="checkbox"/> 1								<input type="checkbox"/> 4 Alternating voltage, alternating current
Outputs no outputs					<input type="checkbox"/> 0								
0-10 V					<input type="checkbox"/> 1								
0-20 mA					<input type="checkbox"/> 2								
4-20 mA					<input type="checkbox"/> 3								



M3 – 5-digit digital panel meter in 96x24 mm (BxH) AC voltage signals / AC current signals – rms-value (TRMS) 50 VAC, 5 AAC

- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC galvanic isolated
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

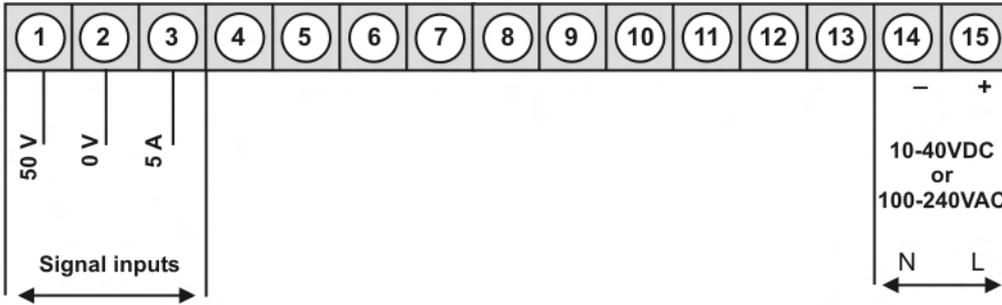
• **AC current, ac voltage (true RMS value)**

Supply 100-240 VAC, DC ± 10%

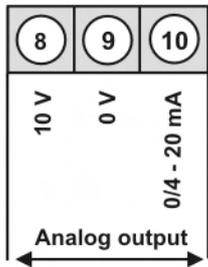
M3-3VR5B.0004.S70BD 305,00

Supply 10-40 VDC, 18-30 VAC

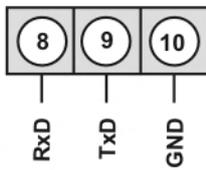
M3-3VR5B.0004.W70BD 305,00



Options:



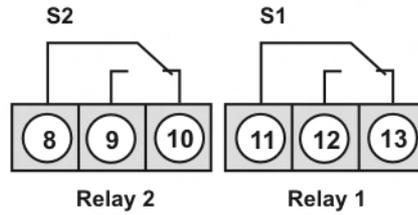
or



or



or



Interface RS232
(Modbus protocol)

Interface RS485
(Modbus protocol)

Alternative to analog output

• **Product key options**

M	3-	3	V	R	5	B.	0	0	0	4.	S	7	0	B	D
M	3-	3	V	R	5	B.	0	0	0	4.	W	7	0	B	D

EUR

1	1 relay output (with option analog output only 1 switching point is possible)	20,00
2	2 relay outputs	30,00
1	without keypad, operation on the back side	10,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
3	Interface RS232 galv. isolated	65,00
4	Interface RS485 galv. isolated	65,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

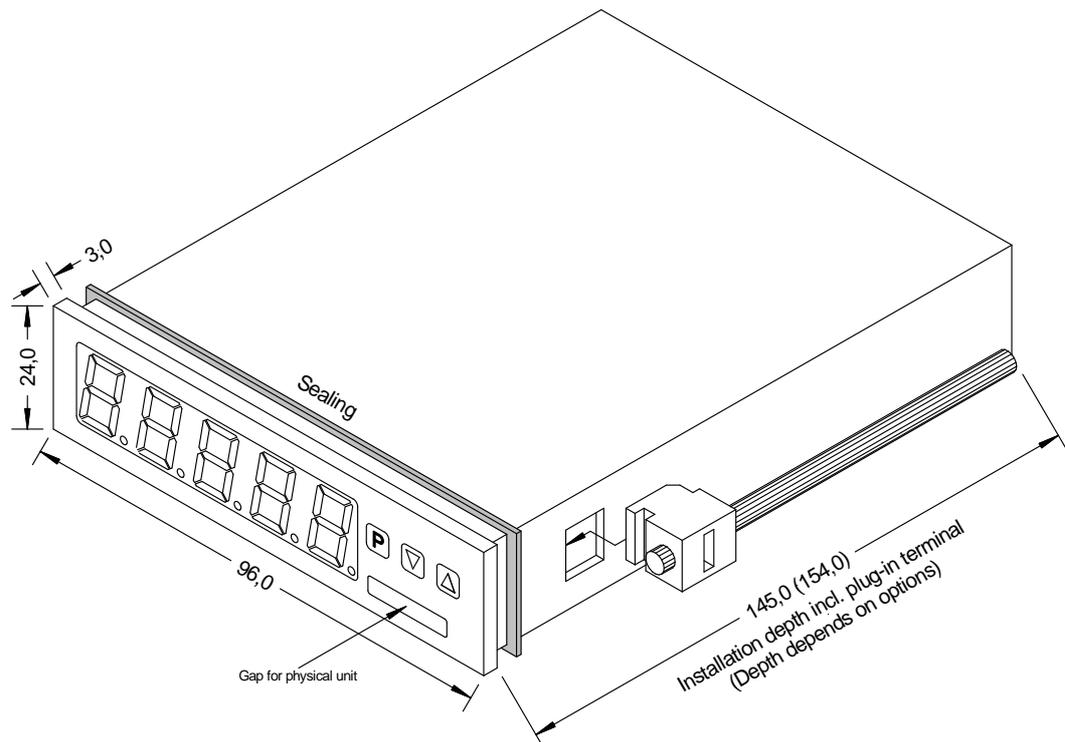
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (Standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	50 VAC / 5 AAC Ri at ~ 200 kΩ / Ri at ~ 0,05 Ω 0.5 % of final value with 50 Hz ... 1 kHz to crest factor 4 for input signals from 1%...100% of final value 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Interface	Protocol RS232 RS485	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 3 m 9.600 Baud, no parity, 8 DataBit, 1 StopBit, pipeline length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

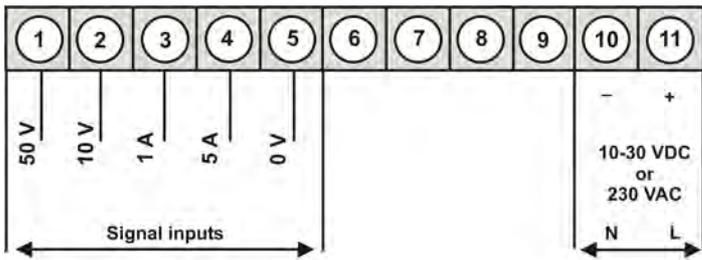
	M	3-	3	V	R	5	B.	0	0	0	4.	W	7	0	B	D
Standard type M-Line																
Installation depth 145 mm incl. plug-in terminal (154 mm)																
Housing size 96x24x120 mm (BxHxT)																
Display type V, A																
Display colours Blue Green Red Red/Green/Orange Orange																
Number of digits 5-digits																
Digit height 14 mm																
Digital input without Interface RS232 Interface RS485																
Dimension D physical unit (on demand)																
Version B																
Switching points 0 without 1 1 relay output 2 2 relay outputs																
Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal																
Supply voltage S 100-240 VAC W 10-40 VDC																
Measuring input 4 AC, TRUE RMS																
Analog output 0 without X 1x 0-10 VDC, 0/4-20 mA																
Sensor supply 0 without																



**M2 – 5-digit digital panel meter in 96x48 mm (BxH)
AC voltage / AC current signals rms-value (TRMS)
50 VAC, 10 VAC, 1 AAC, 5 AAC**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara- /hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectively setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **AC voltage, alternating current (true RMS)**



Supply 230 VAC

M2-1VR5B.0004.570CD

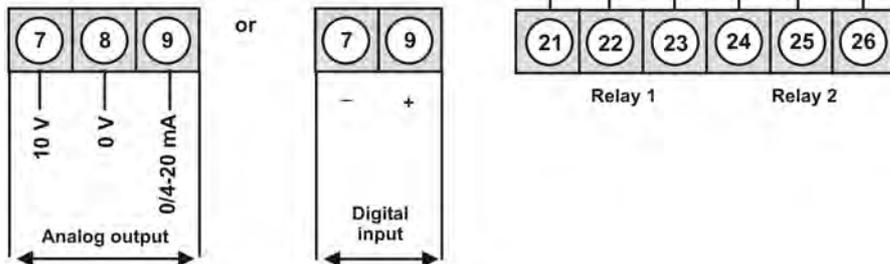
240,00

Supply 10-30 VDC

M2-1VR5B.0004.670CD

270,00

Options:



• **Product key options**

M	2-	1	V	R	5	B.	0	0	0	4.	5	7	0	C	D
M	2-	1	V	R	5	B.	0	0	0	4.	6	7	0	C	D

		EUR
2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*For devices with 230 VAC voltage supply, only one option is available: relay outputs or analog output.

Please state physical unit on demand, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

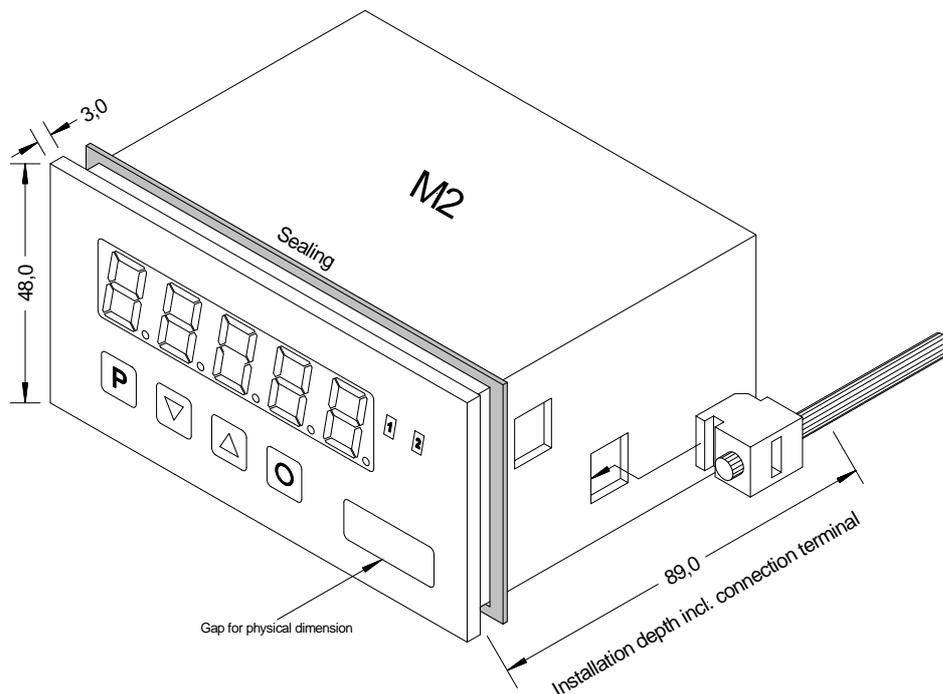
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	50 VAC / 10 VAC / 5 AAC / 1 AAC Ri at ~200 kΩ / Ri at ~40 kΩ / Ri at ~0.05 Ω / Ri at ~200 Ω 0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1 second measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255 0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10% (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



• Order key

	M	2-	1	V	R	5	B.	0	0	0	4.	6	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit
Installation depth																	Version
89 mm (incl. plug-in terminal)			<input type="checkbox"/> 2														<input type="checkbox"/> C C
Housing size																	Switching points
96x48x70 mm (BxHxD)			<input type="checkbox"/> 1														<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
Display type																	Protection class
V, A				<input type="checkbox"/> V													<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Display colours																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Blue																	Supply voltage
Green																	<input type="checkbox"/> 4 115 VAC
Red																	<input type="checkbox"/> 5 230 VAC
Red/Green/Orange																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Orange																	<input type="checkbox"/> Y
Number of digits																	Measuring input
5-digit																	<input type="checkbox"/> 4 AC voltage / AC current
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input																	Sensor supply
without																	<input type="checkbox"/> 0 without
1x digital input																	<input type="checkbox"/> I



**M3 – 5-digit digital panel meter in 96x48 mm (BxH)
AC current / AC voltage signals rms-value (TRMS)
50 VAC, 10 VAC, 1 AAC, 5 AAC**

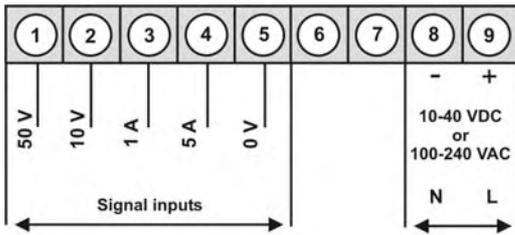
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER

EUR

(without options)

• **AC current, AC voltage (RMS-value)**



Supply 100-240 VAC, DC ±10%

Supply 10-40 VDC, 18-30 VAC

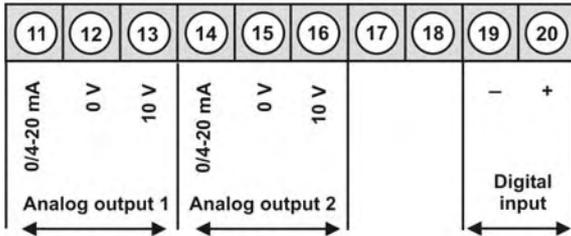
M3-1VR5B.0004.S70BD

245,00

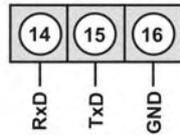
M3-1VR5B.0004.W70BD

260,00

Options:

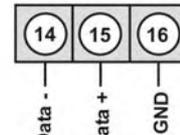


alternative to analog output 2

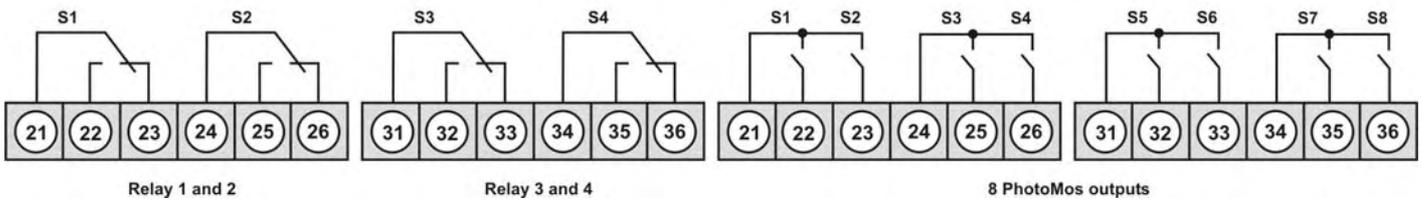


Interface RS232 (Modbus protocol)

or



Interface RS485 (Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	0	0	4.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	0	0	4.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

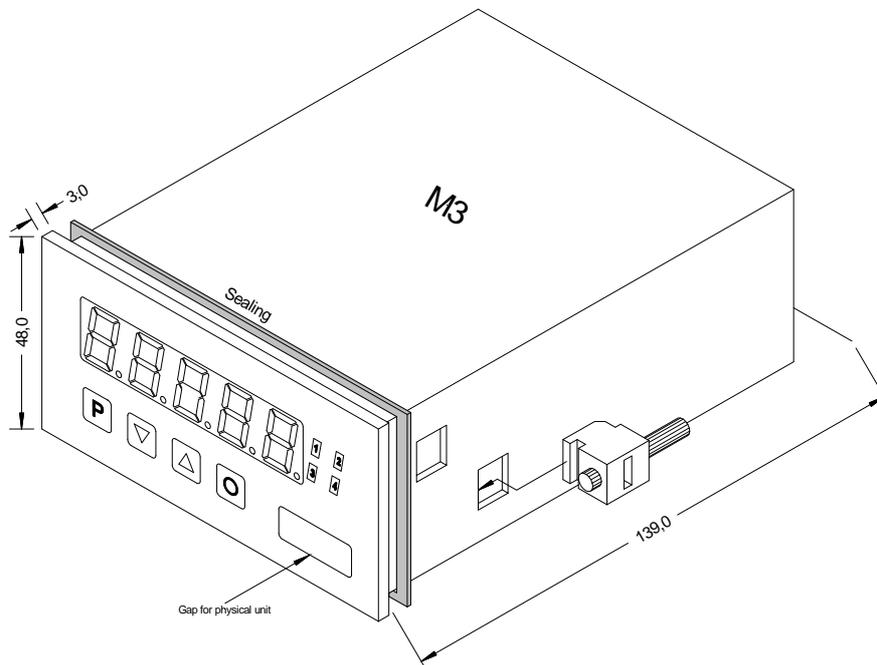
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)			
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm			
	Fixing	screw elements for insulation thickness up to 15 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection type	front side IP65 standard, back side IP00			
	Weight	approx. 350 g			
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)			
	Range of display	-19999 to 99999			
	Threshold	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
Measuring input	Measuring range	50 VAC	/ 10 VAC	/ 5 AAC	/ 1 AAC
	Input resistance	Ri at ~200 kΩ	/ Ri at ~40 kΩ	/ Ri at ~0.05 Ω	/ Ri at ~200 Ω
	Measuring fault	0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1 second measuring time			
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC			
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically			
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255			
	Analog output	NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. isolated	< 2.4 V OFF; >10 V ON; max. 30 VDC, Ri ~ 5 kΩ			
Interface	Protocol	manufacturer's specifics ASCII			
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m			
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m			
Power pack	Supply	100-240 VAC 50/60 Hz ± 10% (max. 15 VA)			
		10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to +60°C			
	Storing temperature	-20 to +80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive 2014/30/EU				
EMV	EN 61326, EN 55011				
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1				

Housing:



• Order key

	M	3-	1	V	R	5	B.	0	0	0	4.	S	7	0	B	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (at buyer's option)
Installation depth 139 mm (incl. plug-in terminal)			<input type="checkbox"/> 3														Version
																	<input type="checkbox"/> B B
Housing size 96x48x120 mm (BxHxD)																	Switching points
			<input type="checkbox"/> 1														<input type="checkbox"/> 0 no switching point
Display type V, A				<input type="checkbox"/> V													<input type="checkbox"/> 2 2 relay outputs
																	<input type="checkbox"/> 4 4 relay outputs
Display colours																	<input type="checkbox"/> 8 8 PhotoMos-outputs
Blue					<input type="checkbox"/> B												Protection class
Green					<input type="checkbox"/> G												<input type="checkbox"/> 1 Without keypad, operation via PM-TOOL
Red					<input type="checkbox"/> R												<input type="checkbox"/> 7 IP65 / plug-in terminal
Red/Green/Orange					<input type="checkbox"/> T												Voltage supply
Orange					<input type="checkbox"/> Y												<input type="checkbox"/> S 100-240 VAC
Number of digits 5-digit																	<input type="checkbox"/> W 10-40 VDC galv. isolated
																	Measuring input
Digit height 14 mm																	<input type="checkbox"/> 4 AC current, AC voltage
Digital input																	Analog output
without																	<input type="checkbox"/> 0 without
1 digital input																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
Interface RS232																	<input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
Interface RS485																	Sensor supply
Interface RS232																	<input type="checkbox"/> 0 without
Interface RS485																	

AC voltage/current (high voltage)

Measuring input: 300 VAC, 600 VAC, 1 AAC, 5 AAC

96x24mm

- **M3-3 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

96x48mm

- **M2-1 – Digital panel meter, 5-digit**
 - 2 switching points (Relay)
 - digital input
 - analog output

- **M3-1 – Digital panel meter, 5-digit**
 - 2/4 switching points (Relay)
 - 8 switching points (PhotoMos)
 - digital input
 - analog output
 - interface RS232/RS485
 - with far range power unit 100-240 VAC

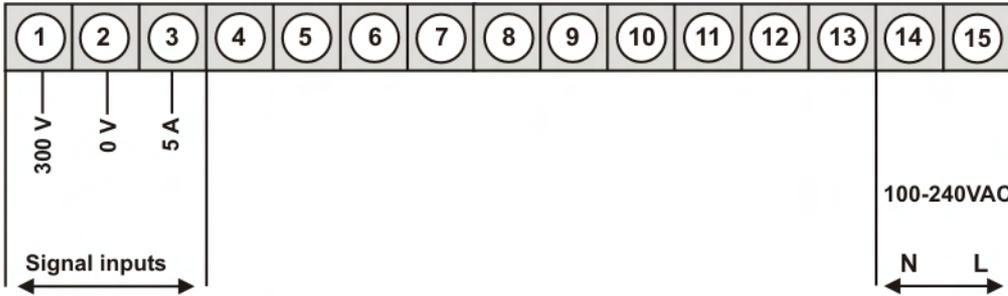


M3 – 5-digit digital panel meter in 96x24 mm (BxH) AC voltage signals / AC current signals – rms-value (TRMS) 300 VAC, 5 AAC

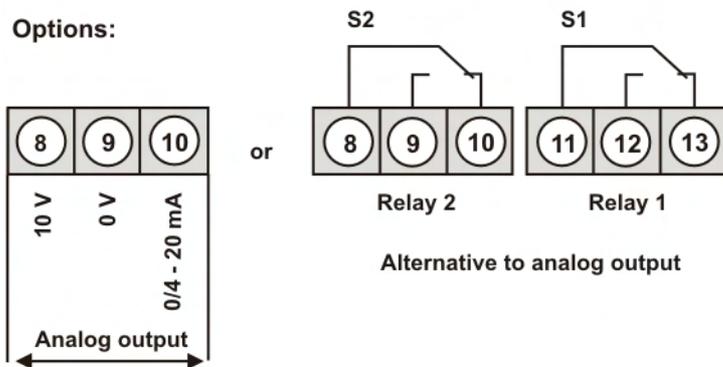
- red display from -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- navigation keys for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- flexible power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **AC current, ac voltage (true RMS value) – special measuring inputs H**

Supply 100-240 VAC, DC ± 10% **M3-3VR5B.0H04.S70BD** 345,00



Options:



• **Product key options**

M	3-	3	V	R	5	B.	0	H	0	4.	S	7	0	B	D	EUR		
																1	1 relay output (with option analog output only 1 switching point is possible)	20,00
																2	2 relay outputs	30,00
																1	without keypad, operation via PM-TOOL	10,00
																X	Analog output 0/4-20 mA, 0-10 VDC	90,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00
																T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

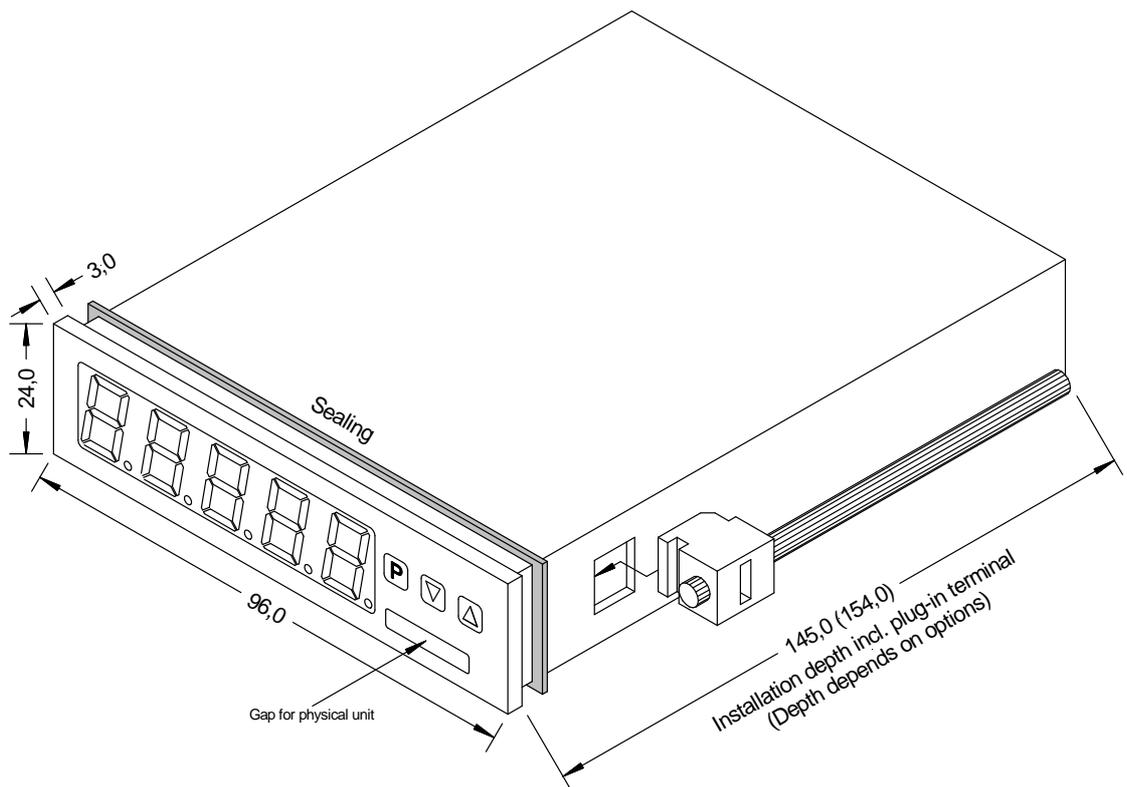
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D120 mm, (incl. plug-in terminal D= 145 mm cable outlet at the back) 92.0 ^{+0.8} x 22.2 ^{+0.3} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, at the back IP00 approx. 250 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Digit height Segment colour Range of display Threshold value Overflow Underflow Display time	5-digit 14 mm red (Standard), optional in green, orange, blue or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	300 VAC / 5 AAC R _i at ~ 1 MΩ / R _i at ~ 0.02 MΩ 0.5 % of final value with 50 Hz...1 kHz to crest factor 4, ± 1 digit for input signals from 1%...100% of final value 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 bit at 1s measuring time
Output	Relay Switching cycle Analog output	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA)
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient condition	Working temperature Storing temperature Climatic density	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	
Housing:		



• Order key

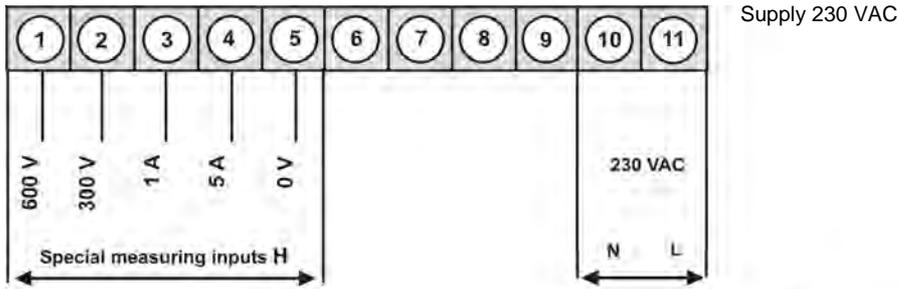
	M	3-	3	V	R	5	B.	0	H	0	4.	S	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (on demand)
Installation depth																	Version
145 mm incl. plug-in terminal (154 mm)			<input type="checkbox"/> 3														<input type="checkbox"/> B B
Housing size																	Switching points
96x24x120 mm (BxHxT)			<input type="checkbox"/> 3														<input type="checkbox"/> 0 without
Display type																	<input type="checkbox"/> 1 1 relay output
V, A				<input type="checkbox"/> V													<input type="checkbox"/> 2 2 relay outputs
Display colours																	Protection class
Blue					<input type="checkbox"/> B												<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Green					<input type="checkbox"/> G												<input type="checkbox"/> 7 IP65 / plug-in terminal
Red					<input type="checkbox"/> R												
Red/Green/Orange					<input type="checkbox"/> T												
Orange					<input type="checkbox"/> Y												Supply voltage
																	<input type="checkbox"/> S 100-240 VAC
Number of digits																	Measuring input
5-digits																	<input type="checkbox"/> 4 AC, TRUE RMS
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
Digital input																	Special measuring input
without																	<input type="checkbox"/> H 300 VAC, 5 AAC



**M2 – 5-digit digital panel meter in 96x48 mm (BxH)
AC voltage / AC current signals rms-value (TRMS)
300 VAC, 600 VAC, 1AAC, 5 AAC**

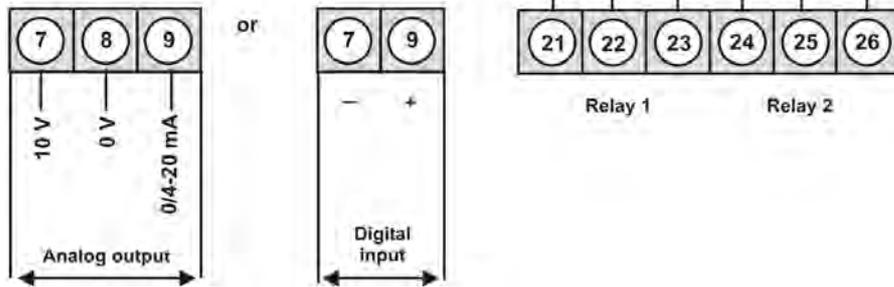
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function /hold-function, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- flexible power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, squaring and rounding
- constant setting / respectivley setpoint setting
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold, display change
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **AC voltage, alternating current (true RMS) – special measuring inputs H**



M2-1VR5B.0H04.570CD 260,00

Options:



• **Product key options**

M 2- 1 V R 5 B. 0 H 0 4. 5 7 0 C D		EUR	
	2	2 relay outputs	33,00
	1	Without keypad, operation on the back	10,00
	4	Voltage supply 115 VAC	10,25
	X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	I	Digital input galv. isolated	10,00
	B	Blue	44,00
	G	Green	10,00
	Y	Orange	4,00
	T	Tricolour (Red-Green-Orange)*	30,00

* Only one option is available: relay outputs or analog output.

Please state physical unit on demand, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

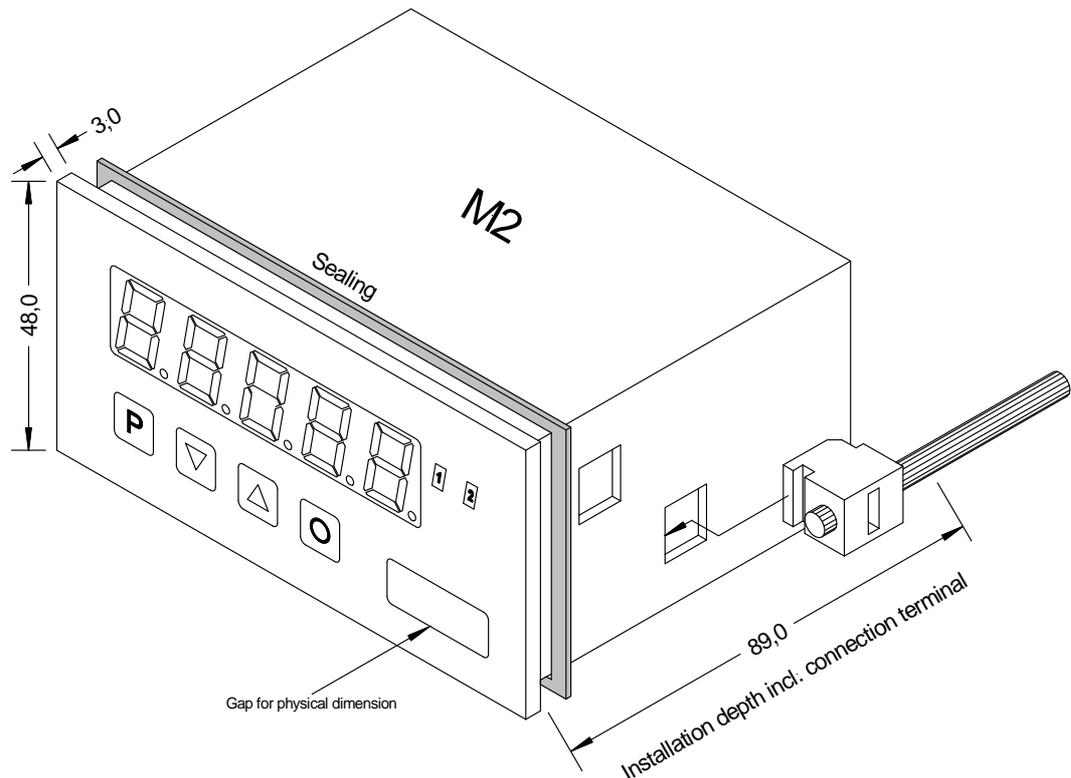
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)			
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm			
	Fixing	screw elements for insulation thickness up to 3 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection class	at the front IP65 standard, back side IP00			
	Weight	approx. 250 g			
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)			
	Display range	-19999 to 99999			
	Setpoints	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
Measuring input	Measuring range	600 VAC	/ 300 VAC	/ 5 AAC	/ 1 AAC
	Input resistance	Ri at ~2 MΩ	/ Ri at ~1 MΩ	/ Ri at ~0.05 Ω	/ Ri at ~200 Ω
	Measuring fault	0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1 second measuring time			
	Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC		
Switching cycle		30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255			
	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. isolated	<2.4 OFF; >10 V ON; max. 30 VDC, Ri at ~ 5 kΩ			
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to +60°C			
	Storing temperature	-20 to +80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign	Conformity to directive	2014/30/EU			
EMV		EN 61326, EN 55011			
Safety standard		According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1			

Housing:



• Order key

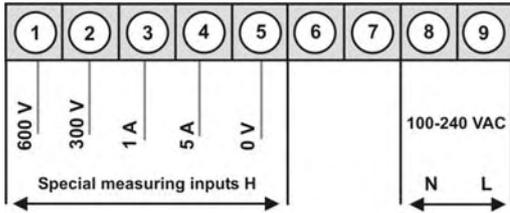
	M	2-	1	V	R	5	B.	0	H	0	4.	5	7	0	C	D		
Basic type M-Line																		Dimension
																		<input type="checkbox"/> D physical unit
Installation depth 89 mm (incl. plug-in terminal)																		Version
																		<input type="checkbox"/> C C
Housing size 96x48x70 mm (BxHxD)																		Switching points
																		<input type="checkbox"/> 0 no switching point
																		<input type="checkbox"/> 2 2 relay outputs
Display type V, A																		Protection class
																		<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																		<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours Blue Green Red Red/Green/Orange Orange																		Supply voltage
																		<input type="checkbox"/> 4 115 VAC
																		<input type="checkbox"/> 5 230 VAC
Number of digits 5-digit																		Measuring input
																		<input type="checkbox"/> 4 AC voltage / AC current
Digit height 14 mm																		Analog output
																		<input type="checkbox"/> 0 without
																		<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input without 1x digital input																		AC devices
																		<input type="checkbox"/> H 300 VAC, 600 VAC, 1 AAC, 5 AAC



**M3 – 5-digit digital panel meter 96x48 (BxH)
AC current / AC voltage signals rms-value (TRMS)
300 VAC, 600 VAC, 1AAC, 5 AAC**

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- power measurement and energy measurement at constant voltage
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: galv. isolated digital input for the triggering Tara, Hold, display change
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **AC current, AC voltage (RMS-value) – special measuring input H**

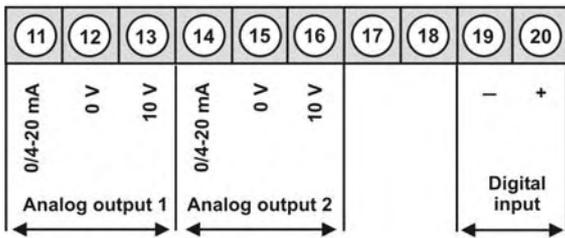


Supply 100-240 VAC, DC ±10%

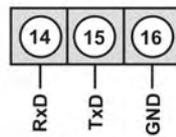
M3-1VR5B.0H04.S70BD

295,00

Options:

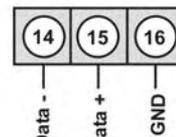


alternative to analog output 2

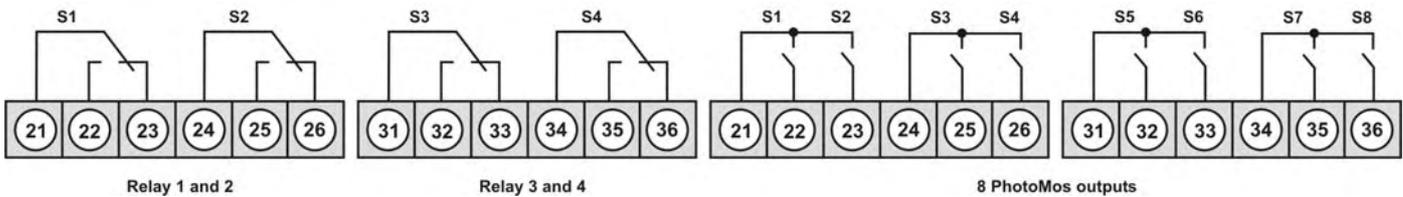


Interface RS232
(Modbus protocol)

or



Interface RS485
(Modbus protocol)



• **Order key options**

M	3-	1	V	R	5	B.	0	H	0	4.	S	7	0	B	D
M	3-	1	V	R	5	B.	0	H	0	4.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
I	Digital input galv. isolated	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. V.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

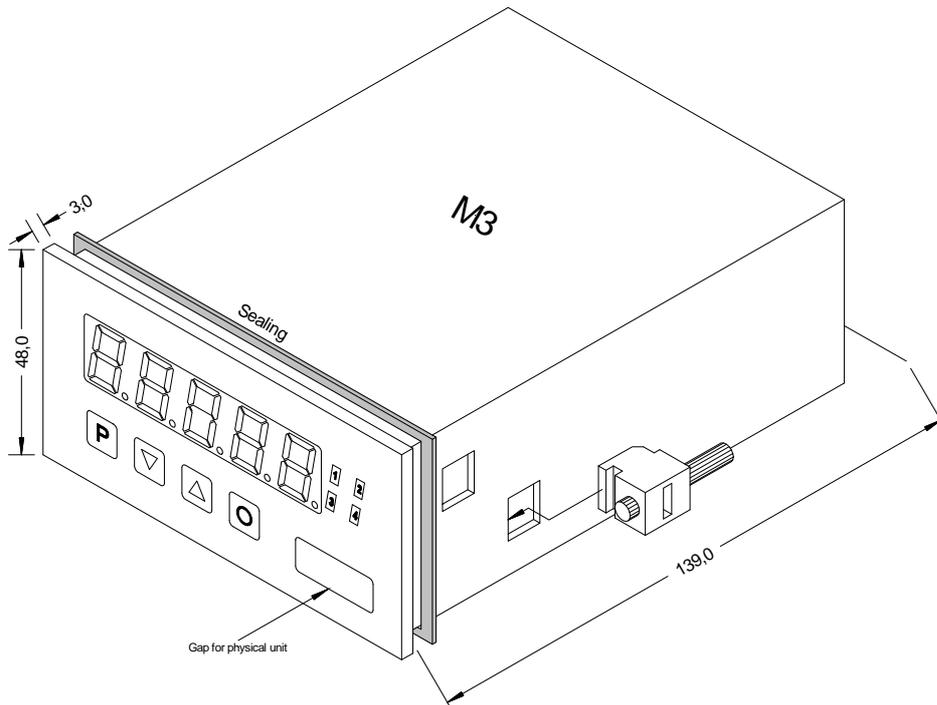
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)			
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm			
	Fixing	screw elements for insulation thickness up to 15 mm			
	Housing material	PC Polycarbonate, black			
	Sealing material	EPDM, 65 Shore, black			
	Protection type	front side IP65 standard, back side IP00			
	Weight	approx. 350 g			
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²			
Display	Display	5-digit			
	Digit height	14 mm			
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)			
	Range of display	-19999 to 99999			
	Threshold	optical display flashing			
	Overflow	horizontal bars at the top			
	Underflow	horizontal bars at the bottom			
Display time	0.1 to 10.0 seconds				
Measuring input	Measuring range	600 VAC	/ 300 VAC	/ 5 AAC	/ 1 AAC
	Input resistance	Ri at ~2 MΩ	/ Ri at ~1 MΩ	/ Ri at ~0.05 Ω	/ Ri at ~200 Ω
	Measuring fault	0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value			
	Temperature drift	100 ppm/K			
	Measuring time	0.1 ... 10.0 seconds			
	Measuring principle	U/F-conversion			
	Resolution	approx. 18 bit at 1 second measuring time			
Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC			
	Switching cycles	10 * 10 ⁵ at 5 AAC, 5 ADC contact rate, 10 * 10 ⁶ mechanically			
	PhotoMos output	Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255			
	Analog output	NOC contacts: 30 VDC/AC, 4 A 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit			
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ			
Interface	Protocol	manufacturer's specifics ASCII			
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m			
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m			
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA)			
Memory	EEPROM	Data life ≥ 100 years at 25°C			
Ambient conditions	Working temperature	0 to +60°C			
	Storing temperature	-20 to +80°C			
	Climatic density	relative humidity 0-85% on years average without dew			
CE-sign EMV	Conformity to directive 2014/30/EU				
	EN 61326, EN 55011				
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1				

Housing:



• Order key

	M	3-	1	V	R	5	B.	0	H	0	4.	S	7	0	B	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (at buyer's option)
Installation depth 139 mm (incl. plug-in terminal)																	Version
																	<input type="checkbox"/> B B
Housing size 96x48x120 mm (BxHxD)																	Switching points
																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
																	<input type="checkbox"/> 4 4 relay outputs
																	<input type="checkbox"/> 8 8 PhotoMos-outputs
Display type V, A																	Protection class
																	<input type="checkbox"/> 1 Without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours																	Voltage supply
Blue																	<input type="checkbox"/> S 100-240 VAC
Green																	
Red																	
Red/Green/Orange																	
Orange																	
Number of digits 5-digit																	Measuring input
																	<input type="checkbox"/> 4 AC voltage, AC current
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
																	<input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
Digital input																	Special measuring input H
without																	<input type="checkbox"/> H 300 VAC, 600 VAC, 1 AAC, 5 AAC
1 digital input																	
Interface RS232																	
Interface RS485																	
Interface RS232																	
Interface RS485																	

Pressure gauge with integrated pressure sensor

Measuring input: 16 bar

48x48mm

- PDE4 – Digital panel meter, 4-digit
- 1 switching point (Relay)
- analog output

PDE – 4-digit digital panel meter in 48x48 mm

Pressure device with integrated pressure sensor 16 bar

- zero balance via keypad with permanent storage
- pressure rang control via relay
- optional galvanic insulated analog output



ORDER NUMBER OF TYPE EUR
(without options)

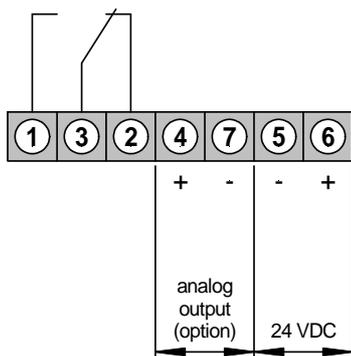
• Pressure

Pressure connection



Power supply 24 VDC

PDE 4.003.8361E on request



• Order key options

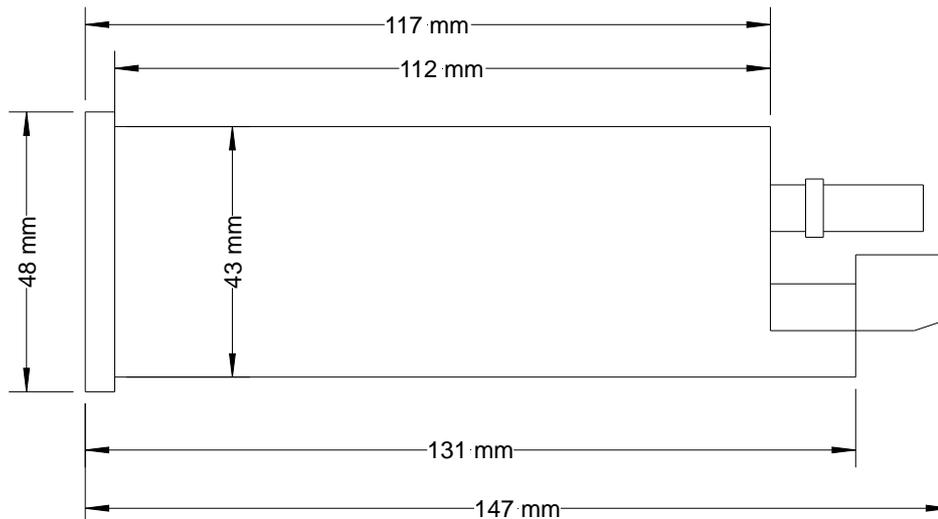
P	D	E	4	0	0	3	8	3	6	1	E	EUR		
												7	Protection class IP65	on request
												9	Protection class IP54	on request
												1	Analog output 0-10 VDC / 16 Bit	on request
												2	Analog output 0-20 mA / Burden 400 Ω	on request
												3	Analog output 4-20 mA / Burden 400 Ω	on request

Please state physical unit on demand, e.g. bar.

• **Technical data**

Housing	Dimensions	W 48 x H 48 x D 147 mm, (including plug-in terminal)
	Assembly cut out	45.0 ^{+0.6} x 45.0 ^{+0.6} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protective system	at the front IP40, connection IP00
	Weight	approx. 160 g
Connection	at the rear side via plug-in terminal up to 2.5 mm ²	
Input	Measuring range	0-16 bar
	Overpressure	24 bar permanently (Cracking pressure)
	Sensor	piezo resistive pressure sensor hybrid
	Pressure port	connection via 4 mm quick-release connector for pressure hose
Output	Relay output	charge 230 VAC/5 A – 30 VDC/5 A
	Analog output	0 -10 VDC – 16 bit (option)
	Analog output	0 – 20 mA - load 400 Ω/16 bit (option)
	Analog output	4 – 20 mA - load 400 Ω/16 bit (option)
Accuracy	Resolution	0.00 up to 16.00 bar
	Linearization fault	0.3% of FS
	Hysteresis	0.2% of FS
	Measuring fault zero point	0.1% of FS
	Temperature drift	max. 500 ppm/K / typically 150 ppm/K
	Measuring principle	Voltage converter / frequency converter (values mentioned above, after 5 min. of operation)
Power unit	Supply voltage	24 VDC (±20%)
	Power consumption	approx. 5 VA
Indication	Display	LED with 7 segments, 14 mm high, red 4-digit = indication 9999
	Overflow	Indication of 4 transversal bars
	Indication time	1 second
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing



• Ordering code

		P	D	E	4.	0	0	3.	8	3	6	1	E		
Basic model													Version		
													E version E		
Pressure	D												Switching points (standard)		
													1 1 relay output		
Internal index	E												Mechanical options		
													6 foil keyboard, protection IP40		
													7 plug-in terminal, foil keyboard, IP65		
													9 plug-in terminal, foil keyboard, IP54		
Number of digits	4												Power supply		
4 digits													3 24 VDC		
Sensor supply	0												Size of housing		
no sensor supply													8 48x48 mm (BxD)		
Outputs	0												Measuring input		
no outputs													3 16 bar pressure		
0-10 V															
0-20 mA															
4-20 mA															

Strain gauges-amplifier – melt pressure

Measuring input: 4-wire measuring bridge, 350 Ω , 1 mV/V, 2 mV/V, 3.3 mV/V

96x48mm

- **M2-1 – Digital panel meter, 5-digit**

- 2 switching points (Relay)
- bridge supply
- digital input
- analog output
- sensor supply
- with 80%-calibration

- **M3-1 – Digital panel meter, 5-digit**

- 2/4 switching points (Relay)
- 8 switching points (PhotoMos)
- bridge supply
- digital input
- analog output
- interface RS232/RS485
- sensor supply
- with far range power supply 100-240 VAC
- with 80%-calibration

- **PM5 – Digital panel meter, 5-digit**

- high exactness 0.002% of measuring range, under laboratory conditions
- up to 6 mV/V
- 2/4 switching points (Relay)
- bridge supply
- digital input
- analog output
- interface RS232/RS485
- sensor supply
- with 80%-calibration



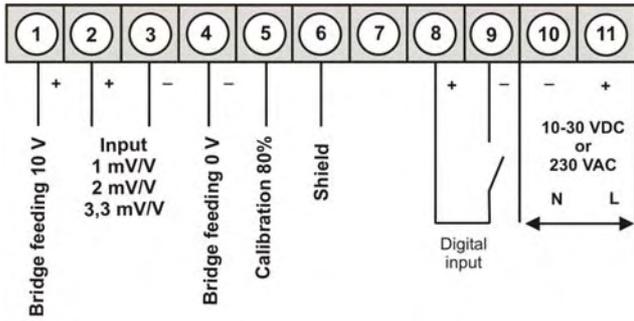
M2 – 5-digit digital panel meter in 96x48 mm (BxH) Strain gauge-amplifier with 80% calibration for 350 Ω melt pressure sensors

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function or sensor alignment
- standard digital input for Hold, Tara or sensor alignment
- flexible alarm system with adjustable delay times
- mathematical functions like reciprocal value, square root, squaring and rounding
- sliding averaging
- brightness control
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

ORDER NUMBER
(without options)

EUR

• **Strain gauge 4-wire with calibration**



Supply 230 VAC

M2-1MR5B.020X.570CD

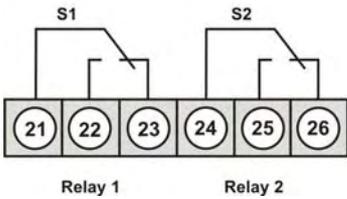
245,00

Supply 10-30 VDC

M2-1MR5B.020X.670CD

310,00

Options:



• **Product key options**

M	2-	1	M	R	5	B.	0	2	0	X.	5	7	0	C	D
M	2-	1	M	R	5	B.	0	2	0	X.	6	7	0	C	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

*For devices with 230 VAC voltage supply there are no relay outputs available.

Please state physical unit on demand, e.g. Nm.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

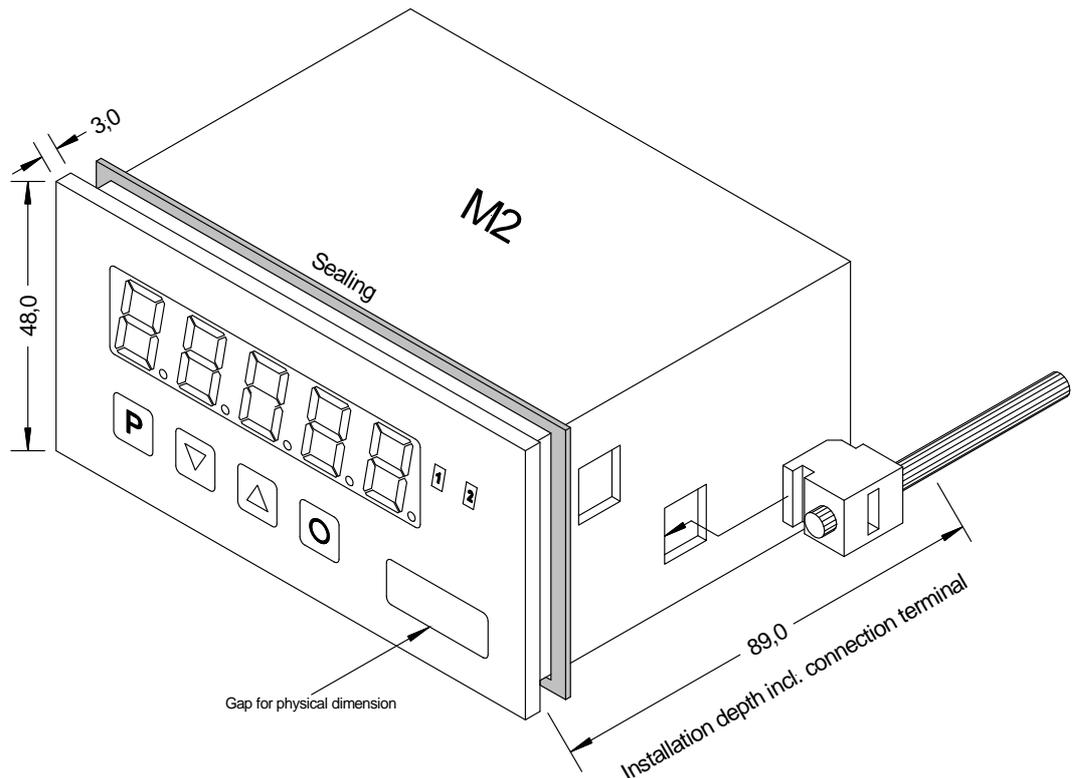
EUR

PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 ^{+0.8} x 45.0 ^{+0.6} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 250 g plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange or tricolour (red/green/orange) -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
Measuring input	Sensor sensitivity Sensor alignment Measuring fault Drift of temperature Measuring time Measuring principle Resolution	1 mV/V, 2 mV/V, 3.3 mV/V, free to 4 mV/V with 80% calibration always required 0.2% of measuring range in controlled electromagnetic environment 1 % of measuring range in industrial environment with a strong disturbing source 100 ppm/K 0.1 ... 10.0 seconds U/F-converter approx. 18 bit at 1second measuring time, 3.3 mV/V of measuring range
Output	Relay Switching cycle	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	
Housing:		



• Order key

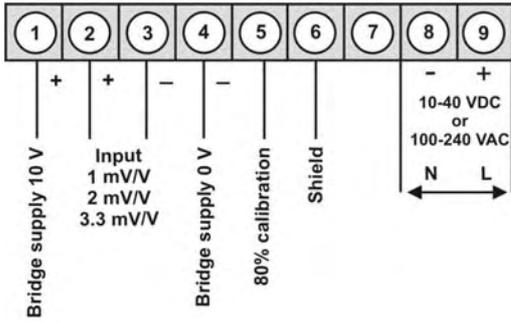
	M	2-	1	M	R	5	B.	0	2	0	X.	5	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit
Installation depth																	Version
89 mm (incl. plug-in terminal)																	<input type="checkbox"/> C C
Housing size																	Switching points
96x48x70 mm (BxHxD)																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
Display type																	Protection class
Melt pressure																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours																	Supply voltage
Blue																	<input type="checkbox"/> 4 115 VAC
Green																	<input type="checkbox"/> 5 230 VAC
Red																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Red/Green/Orange																	
Orange																	
Number of digits																	Measuring input
5-digit																	<input type="checkbox"/> X 1 mV/V – 3.3 mV
Digit height																	Analog output
14 mm																	<input type="checkbox"/> 0 without
Interface																	Bridge supply
without																	<input type="checkbox"/> 2 10 VD / 20-40 mA, incl. digital input



M3 – 5-digit digital panel meter in 96x48 mm (BxH) DMS-amplifier with an 80% calibration for 350 Ω melt pressure sensors

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara or sensor alignment
- standard digital input for Hold, Tara or sensor alignment
- flexible alarm system with adjustable delay times
- mathematical functions like reciprocal value, square root, square and rounding
- sliding averaging
- brightness control
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

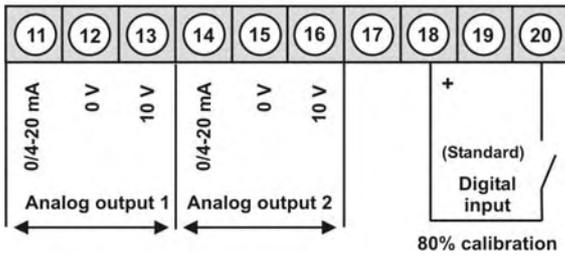
• **DMS-4-wire with calibration**



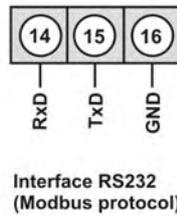
Supply 100-240 VAC, DC $\pm 10\%$
Supply 10-40 VDC, 18-30 VAC

M3-1MR5B.020X.S70BD	260,00
M3-1MR5B.020X.W70BD	275,00

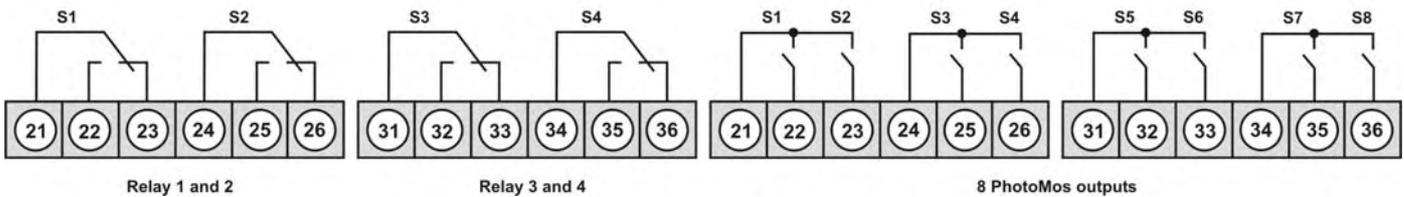
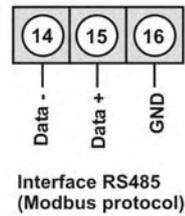
Options:



alternative to analog output 2



or



• **Order key options**

M	3-	1	M	R	5	B.	0	2	0	X.	S	7	0	B	D
M	3-	1	M	R	5	B.	0	2	0	X.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation on the back	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. Nm.

• **Parameterisation software**

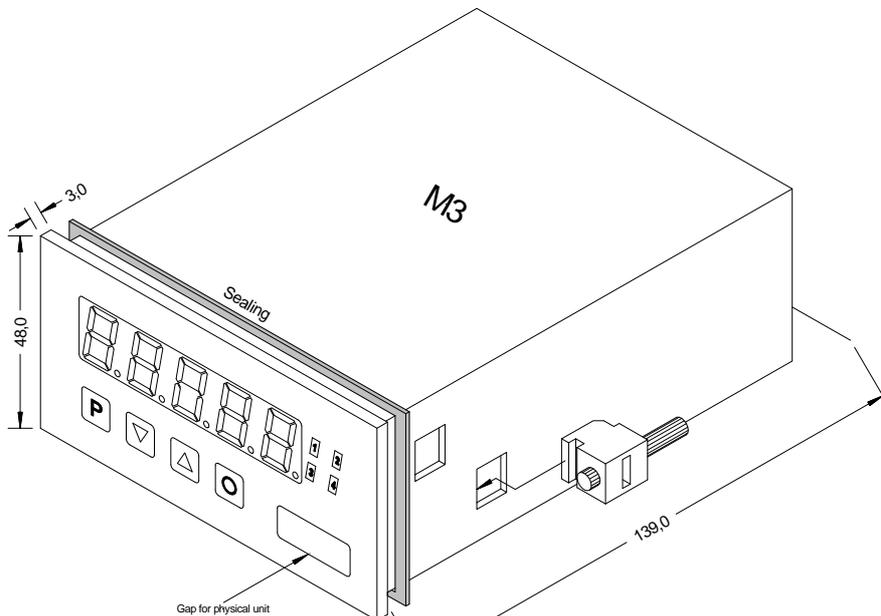
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4	89,00
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• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 sec
Measuring input	Sensor sensitivity	1 mV/V, 2 mV/V, 3.3 mV/V, free to 4 mV/V with 80% calibration
	Sensor alignment	always required
	Measuring fault	0.2% of measuring range in controlled electromagnetic environment 1 % of measuring range in industrial environment with a strong disturbing source
	Drift of temperature	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-converter
	Resolution	approx. 18 bit at 1second measuring time, 3.3 mV/V of measuring range
	Output	Relay
Switching cycle		30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
PhotoMos output		NOC contacts: 30 VDC/AC, 4 A
Analog output		0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Bridge supply		10 VDC / 20-40 mA / 250-500 Ω
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign EMV	Conformity to directive 2014/30/EU	
	EN 61326, EN 55011	
Safety standard		according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1

Housing:



• Order key

	M	3-	1	M	R	5	B.	0	2	0	X.	S	7	0	B	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (at buyer's option)
Installation depth 139 mm (incl. plug-in terminal)																	Version
																	<input type="checkbox"/> B B
Housing size 96x48x120 mm (BxHxD)																	Switching points
																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
																	<input type="checkbox"/> 4 4 relay outputs
																	<input type="checkbox"/> 8 8 PhotoMos-outputs
Display type Melt pressure sensors																	Protection class
																	<input type="checkbox"/> 1 Without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours Blue Green Red Red/Green/Orange Orange																	Voltage supply
																	<input type="checkbox"/> S 100-240 VAC, DC ±10%
																	<input type="checkbox"/> W 10-40 VDC galv. isolated, 18-30 VAC
Number of digits 5-digit																	Measuring input
																	<input type="checkbox"/> X Strain gauge 1.1 to 3.3 mV/V
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 1x 0-10 VDC, 0/4-20 mA
																	<input type="checkbox"/> Y 2x 0-10 VDC, 0/4-20 mA
Digital input without Interface RS232 Interface RS485																	Bridge supply
																	<input type="checkbox"/> 2 10 VDC / 20-40 mA (incl. digital input)



PM5 – 5-digit digital panel meter in 96x48 mm (BxD) Strain gauge amplifier with 80% calibration for 350 Ω melt pressure sensors

- red display of -19999...99999 digits; 14 mm digit height
- installation depth: 120 mm without plug-in screw terminal
- DMS-4-wire measurement
- adjustable input amplification for 1 mV/V-, 2 mV/V- or 3.3 mV/V-sensors
- integrated bridge supply for standard 350 Ω measuring bridges
- permanent wire breakage monitoring
- bipole input range for pressure and tractive forces
- integrated factory calibration for preset weighing cells
- auto-sensor recognition for 1 mV/V, 2 mV/V and 3.3 mV/V-sensors
- measuring rate with up to 100 measurements/s (measuring time is adjustable from 0.01s...10.00s)
- 24 bit transducer resolution, of which 19 bit are noiseless (500,000 / 0.0002% of measuring range)
- high long-term and temperature stability
- free selectable scaling and decimal point adjustment
- sensor alignment with 30 additional support points
- taring-function for manual and automatic control
- full automatic or semi-automatic calibration functions
- min/max-memory with adjustable permanent display
- display flashing at threshold exceedance / undercut
- flexible alarm system with adjustable delay times
- programming interlock via access code
- protection class IP65 at the front side
- plug-in screw terminal
- optional: 2 or 4 relay outputs
- optional: independently scalable analog output
- optional: interface RS232 or RS485
- accessories: PC-based configuration-kit PM-TOOL with CD & USB-adapter

ORDERING NUMBER **EUR**
(without options)

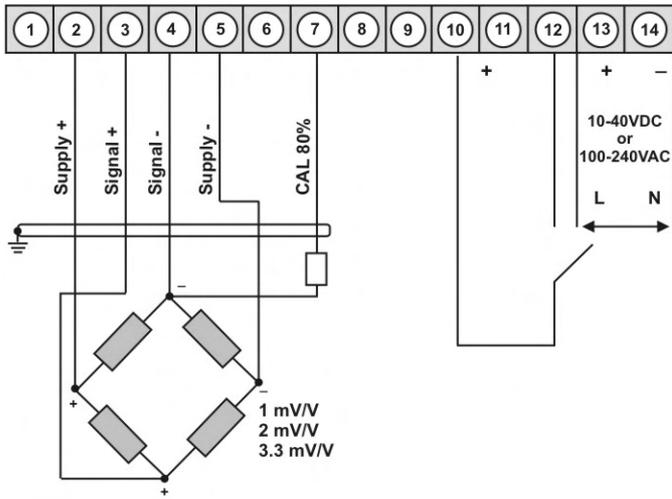
• **4-wire technology for strain gauge amplifier**

Supply 100-240 VAC / DC $\pm 10\%$

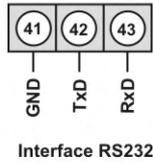
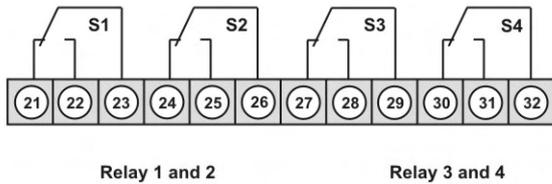
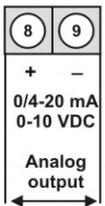
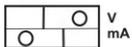
PM5.020X.1S70D **448,00**

Supply 10-40 VDC / 18-30 VAC

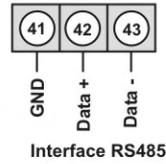
PM5.020X.1W70D **500,00**



Options:



or



• **Product key options**

P	M	5.	0	2	0	X.	1	S	7	0	D
P	M	5.	0	2	0	X.	1	W	7	0	D

EUR

2	2 relay outputs	50,00
4	4 relay outputs	65,00
X	Analog output 0-10 VDC / 0/4-20 mA	110,00
3	Interface RS232 with galvanic isolation	60,00
4	Interface RS485 with galvanic isolation	60,00

On demand state dimension unit on order, e.g. kN.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

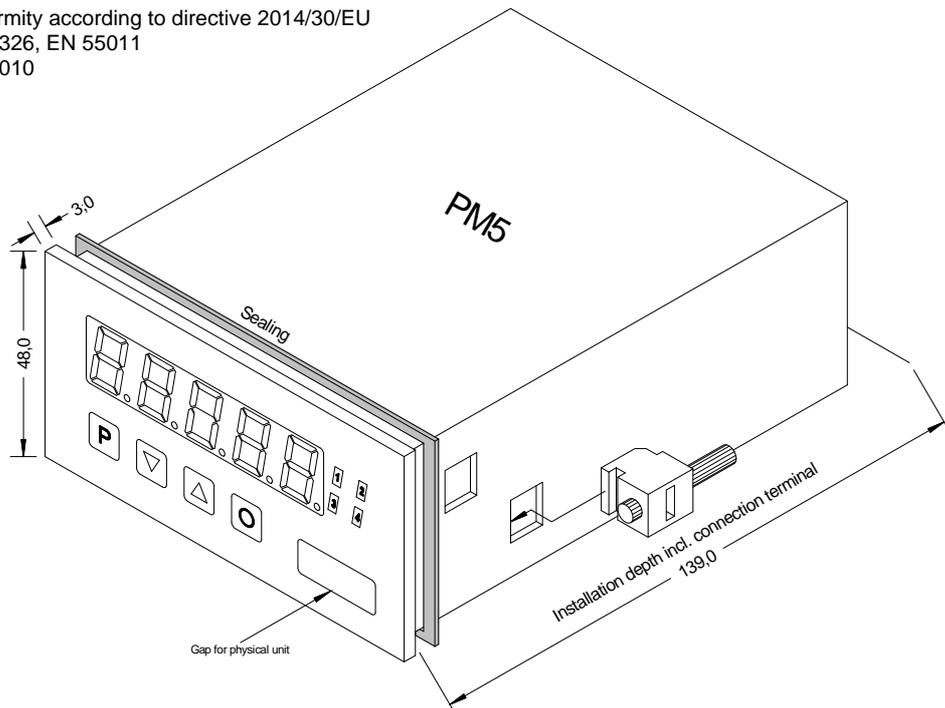
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, including plug-in terminal D = 139mm
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	latchable screw element for a wall thickness up to 15 mm
	Housing material	PC polycarbonate, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 350 g
Display	Connection	plug-in terminal; wire cross-section up to 2.5 mm ²
	Display	5-digit
	Digit height	14 mm, segment colour: red
	Display range	-9999 to 99999
	Switching points	one LED per switching point
	Overflow	horizontal bars at the top
Measuring input	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
	Measuring range (adjustable)	± 6 mV/V ± 3.3 mV/V ± 2 mV/V ± 1 mV/V
	Measuring accuracy (at 1s measuring time)	0.002% of measuring range – under laboratory conditions 0.1% of measuring range – in electromagnetic controlled surroundings 0.75% of measuring range – in industrial area
	Measuring bridge	200 Ω...500 Ω
	Bridge supply	approx. 10 VDC
	Input resistance signal	approx. 5 kΩ
	Drift of temperature	20 ppm/K
	Measuring principle	Sigma/Delta
	Measuring rate	0.01s...10.00s
Resolution	24 bit, max. 19 bit RMS	
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically
	Analog output	Division according to DIN EN50178 / Characteristics according to DIN EN 60255 0-10 VDC burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ, respectively 15 V contact supply
Interface	Protocol	ASCII manufacturer-specific
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10% (max. 15 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Weathering resistance	relative humidity 0-85% on years average without dew
CE-sign	Conformity according to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	EN 61010	

Housing



• Ordering code

	P	M.	5	0	2	0	X.	1	S	7	0	D	
Processor device													Version D Version D
Base 4-wire technology		M											Setpoints 0 no setpoint 2 2 relay outputs 4 4 relay outputs
Number of digits 5 digits			5										Mechanical options 7 IP65, foil keyboard, plug-in terminal
Interface no interface RS232 (galv. isolated) RS485 (galv. isolated)													Power supply S 100-240 VAC W 10-40 VDC
Sensor supply Bridge supply 10 VDC													Size of housing 1 96x48 mm (BxH)
Outputs no output 0-10 V, 0-20 mA, 4-20 mA													Measuring input X 1 mV/V, 2 mV/V, 3.3 mV/V

Straining gauges amplifier – Weighing technology

Measuring input: 4-wire measuring bridge, 1mV/V, 2 mV/V, 3.3 mV/V

96x48mm

- **M2-1 – Digital panel meter, 5-digit**

- 2 switching points (Relay)
- bridge supply
- digital input
- analog output
- sensor supply

- **M3-1 – Digital panel meter, 5-digit**

- 2/4 switching points (Relay)
- 8 switching points (PhotoMos)
- bridge supply
- digital input
- analog output
- interface RS232/RS485
- sensor supply
- with far range power unit 100-240 VAC

- **PW5 – Digital panel meter, 5-digit, 6-wire measuring bridge**

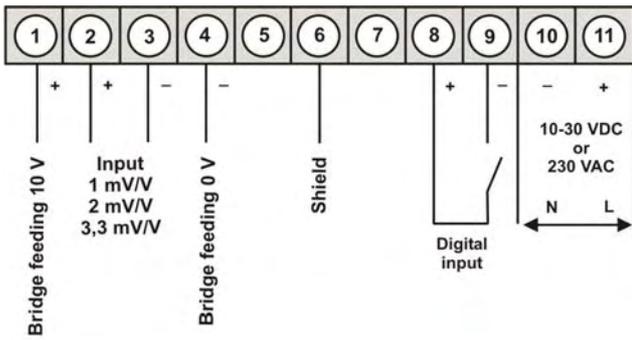
- high measurement precision 0.002% of measuring range, under laboratory conditions
- up to 6 mV/V
- 2/4 switching points (Relay)
- bridge supply
- digital input
- analog output
- interface RS232/RS485
- sensor supply



M2 – 5-digit digital panel meter 96x48 (BxH) DMS-amplifier – weighing technology

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- compact installation depth: 70 mm without plug-in terminal
- adjustment via factory default or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for actuation of tara-function / hold-function or sensor alignment
- standard digital input for Hold, Tara or sensor alignment
- flexible alarm system with adjustable delay times
- mathematical functions like reciprocal value, square root, squaring and rounding
- sliding averaging
- brightness control via parameters or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Weighing technology**



Supply 230 VAC

M2-1WR5B.020X.570CD

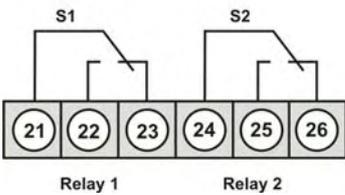
245,00

Supply 10-30 VDC

M2-1WR5B.020X.670CD

310,00

Options:



• **Product key options**

M	2-	1	W	R	5	B.	0	2	0	X.	5	7	0	C	D
M	2-	1	W	R	5	B.	0	2	0	X.	6	7	0	C	D

		EUR
2	2 relay outputs	33,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)*	30,00

* For devices with 230 VAC voltage supply there are no relay outputs available.

Please state physical unit on demand, e.g. kg.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

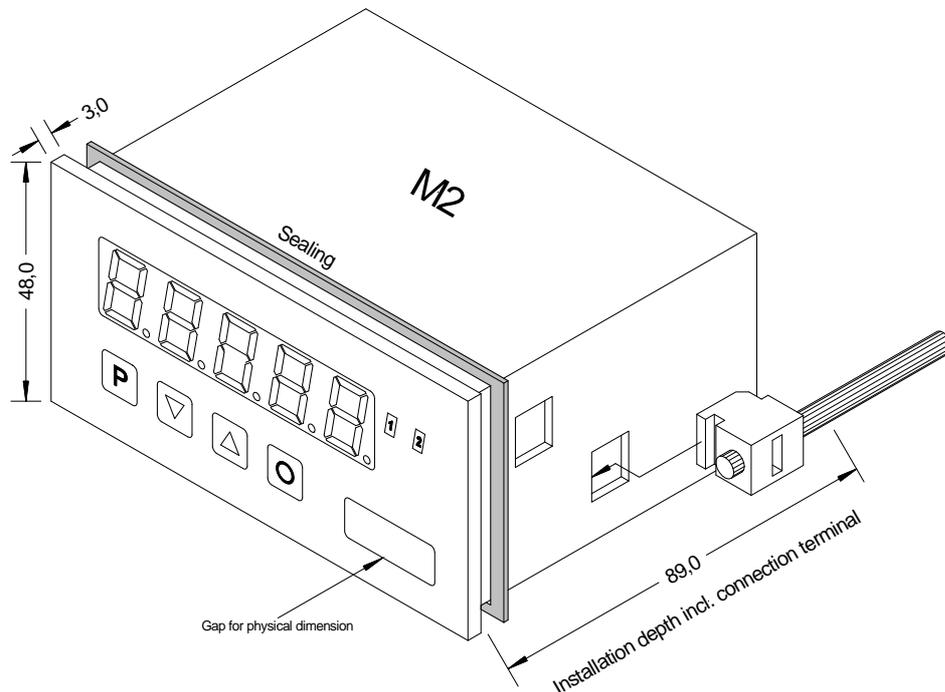
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimension	Housing	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, back side IP00
	Weight	approx. 250 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Display range	-19999 to 99999
	Setpoints	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Display time	0.1 to 10.0 seconds	
Measuring input	Sensor sensitivity	1 mV/V, 2 mV/V, 3.3 mV/V with Tara
	Sensor alignemt	always required
	Measuring fault	0.2% of measuring range in controlled electromagnetic environment 1 % of measuring range in industrial environment with a strong disturbing source
	Drift of temperature	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-converter
	Resolution	approx. 18 bit at 1second measuring time, 3.3 mV/V of measuring range
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycle	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
	PhotoMos output	NOC contacts: 30 VDC/AC, 4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
Bridge supply	10 VDC / 2-40 mA / 300-5000 Ω	
Digital input	Input galv. isolated	< 2.4 OFF; > 10 V ON; max. 30 VDC, Ri at ~ 5 kΩ
Power pack	Supply	230 VAC 50/60 Hz ±10% (max. 10 VA) 10-30 VDC, galvanic isolated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order key

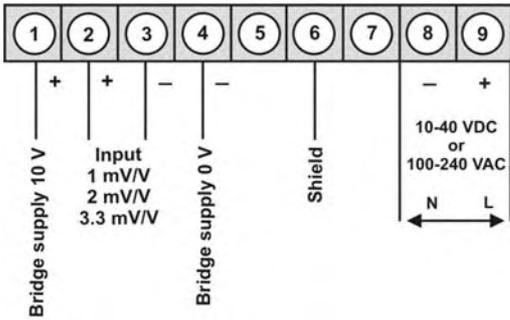
	M	2-	1	W	R	5	B.	0	2	0	X.	6	7	0	C	D	
Basic type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit
Installation depth 89 mm (incl. plug-in terminal)																	Version
																	<input type="checkbox"/> C C
Housing size 96x48x70 mm (BxHxD)																	Switching points
																	<input type="checkbox"/> 0 no switching point
																	<input type="checkbox"/> 2 2 relay outputs
Display type Weighing technology																	Protection class
																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
																	<input type="checkbox"/> 7 IP65 / plug-in terminal
Display colours Blue Green Red Red/Green/Orange Orange																	Supply voltage
																	<input type="checkbox"/> 4 115 VAC
																	<input type="checkbox"/> 5 230 VAC
																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Number of digits 5-digit																	Measuring input
																	<input type="checkbox"/> X Weighing technology 1 mV/V – 3.3 mV/V
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Interface without																	Bridge supply
																	<input type="checkbox"/> 0 without
																	<input type="checkbox"/> 2 10 VD / 20-40 mA, incl. digital input



M3 – 5-digit digital panel meter in 96x48 mm (BxH) DMS-amplifier – weighing technology

- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara or sensor alignment
- standard digital input for Hold, Tara or sensor alignment
- flexible alarm system with adjustable delay times
- mathematical functions like reciprocal value, square root, square and rounding
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs or 8 PhotoMos-outputs
- optional: 1 or 2 independently scalable analog outputs
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C

• **Weighing technology**



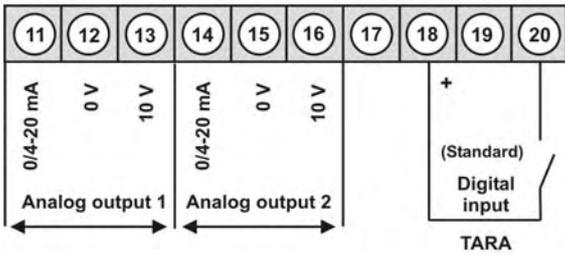
Supply 100-240 VAC, DC ±10%

M3-1WR5B.020X.S70BD 270,00

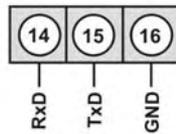
Supply 10-40 VDC, 18-30 VAC

M3-1WR5B.020X.W70BD 285,00

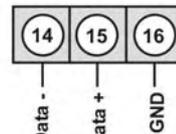
Options:



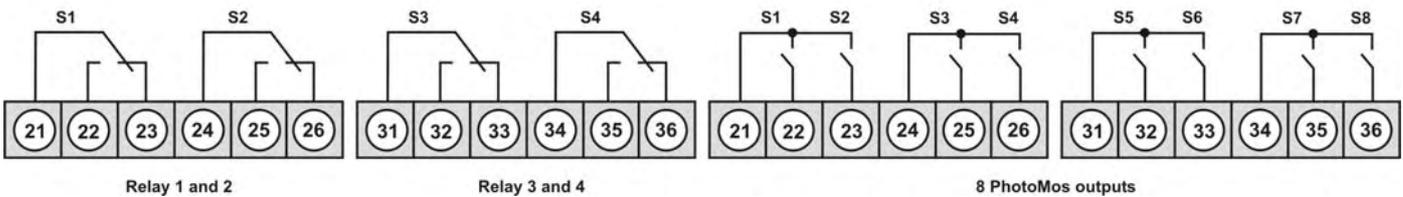
alternative to analog output 2



Interface RS232
(Modbus protocol)



Interface RS485
(Modbus protocol)



• **Order key options**

M	3-	1	W	R	5	B.	0	2	0	X.	S	7	0	B	D
M	3-	1	W	R	5	B.	0	2	0	X.	W	7	0	B	D

EUR

2	2 relay outputs	33,00
4	4 relay outputs	66,00
8	8 PhotoMos-outputs	90,00
1	without keypad, operation via PM-TOOL	10,00
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	100,00
Y	2 analog outputs galv. isolated	200,00
3	Interface RS232 galv. isolated	55,00
4	Interface RS485 galv. isolated	55,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

On demand state dimension unit on order, e.g. kg.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

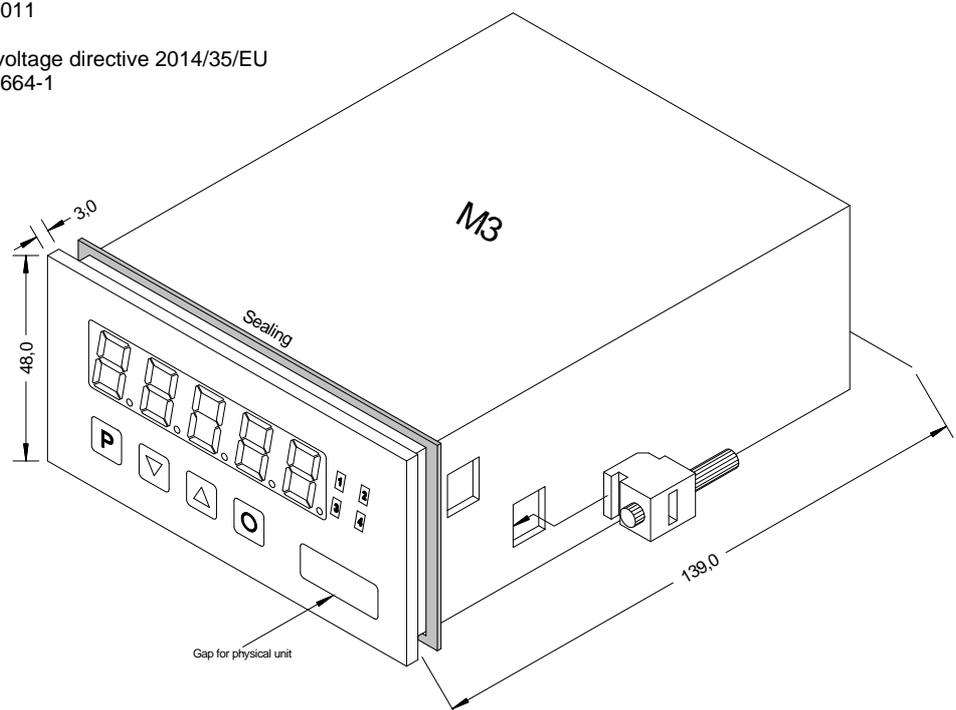
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (incl. plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for insulation thickness up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection type	front side IP65 standard, back side IP00
	Weight	approx. 350 g
	Connection	plug-in terminal; line cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (standard), optional available in green, blue, orange or tricolour (red/green/orange)
	Range of display	-19999 to 99999
	Threshold	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Sensor sensitivity	1 mV/V, 2 mV/V, 3.3 mV/V, free to 4 mV/V with Tara
	Sensor alignment	always required
	Measuring fault	0.2% of measuring range in controlled electromagnetic environment 1 % of measuring range in industrial environment with a strong disturbing source
	Drift of temperature	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-converter
	Resolution	approx. 18 bit at 1second measuring time, 3.3 mV/V of measuring range
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycle	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Separation in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	PhotoMos output	NOC contacts: 30 VDC/AC, 4 A
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Bridge supply	10 VDC / 2-40 mA / 300-5000 Ω
Digital input	Input galv. isolated	< 2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz ±10% (max. 15 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to + 60°C
	Storing temperature	-20 to + 80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU EN 61010; EN 60664-1	

Housing:



• Order key

		M	3-	1	W	R	5	B.	0	2	0	X.	S	7	0	B	D
Basic type M-Line																	
Installation depth 139 mm (incl. plug-in terminal)																	
Housing size 96x48x120 mm (BxHxD)																	
Display type Weighing technology																	
Display colours Blue Green Red Red/Green/Orange Orange																	
Number of digits 5-digit																	
Digit height 14 mm																	
Digital input without Interface RS232 Interface RS485																	

Dimension	
D	physical unit (at buyer's option)
Version	
B	B
Switching points	
0	no switching point
2	2 relay outputs
4	4 relay outputs
8	8 PhotoMos-outputs
Protection class	
1	without keypad, via PM-TOOL
7	IP65 / plug-in terminal
Voltage supply	
S	100-240 VAC
W	10-40 VDC galv. isolated
Measuring input	
X	1.1 to 3.3 mV/V
Analog output	
0	without
X	1x 0-10 VDC, 0/4-20 mA
Y	2x 0-10 VDC, 0/4-20 mA
Bridge supply	
2	10 VDC / 20-40 mA (incl. digital input)



PW5 – 5-digit digital panel meter in 96x48 mm (BxD) Strain gauge amplifier weighing technology for 350 Ω melt pressure sensors

- red display of -19999...99999 digits; 14 mm digit height
- installation depth: 120 mm without plug-in screw terminal
- DMS-6-wire measurement
- adjustable input amplification for 1 mV/V-, 2 mV/V- or 3.3 mV/V-sensors
- integrated bridge supply for standard 350 Ω (280-5.000 Ω) measuring bridges
- permanent wire breakage monitoring
- bipole input range for pressure and tractive forces
- integrated factory calibration for preset weighing cells
- auto-sensor recognition for 1 mV/V, 2 mV/V and 3.3 mV/V-sensors
- measuring rate with up to 100 measurements/s (measuring time is adjustable from 0.01s...10.00s)
- 24 bit transducer resolution, of which 19 bit are noiseless (500,000 / 0.0002% of measuring range)
 - high long-term and temperature stability
 - free selectable scaling and decimal point adjustment
 - sensor alignment with 30 additional support points
 - taring-function for manual and automatic control
 - full automatic or semi-automatic calibration functions
 - min/max-memory with adjustable permanent display
 - display flashing at threshold exceedance / undercut
 - flexible alarm system with adjustable delay times
 - programming interlock via access code
 - protection class IP65 at the front side
 - plug-in screw terminal
 - optional: 2 or 4 relay outputs
 - optional: independently scalable analog output
 - optional: interface RS232 or RS485
 - accessories: PC-based configuration-kit PM-TOOL with CD & USB-adapter

ORDERING NUMBER **EUR**
(without options)

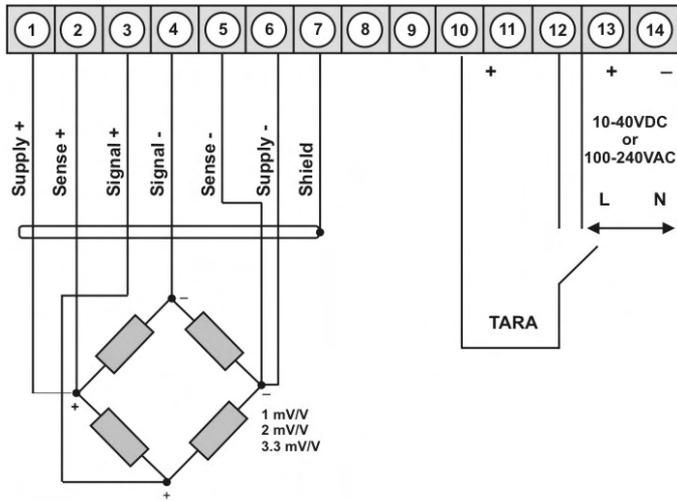
• **6-wire technology for strain gauge amplifier**

Supply 100-240 VAC / DC $\pm 10\%$

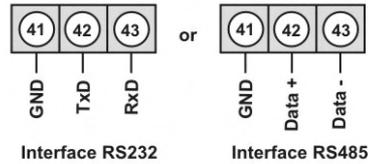
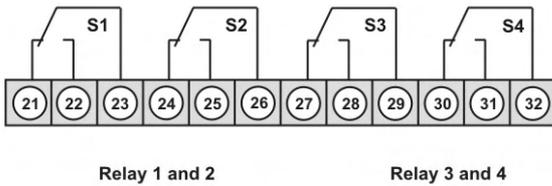
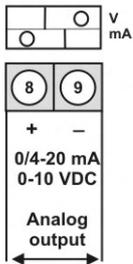
PW5.020X.1S70D **448,00**

Supply 10-40 VDC / 18-30 VAC

PW5.020X.1W70D **500,00**



Options:



• **Product key options**

P	W	5.	0	2	0	X.	1	S	7	0	D
P	W	5.	0	2	0	X.	1	W	7	0	D

EUR

2	2 relay outputs	50,00
4	4 relay outputs	65,00
X	Analog output 0-10 VDC / 0/4-20 mA	110,00
3	Interface RS232 with galvanic isolation	60,00
4	Interface RS485 with galvanic isolation	60,00

On demand state dimension unit on order, e.g. kN.

• **Parameterisation software**

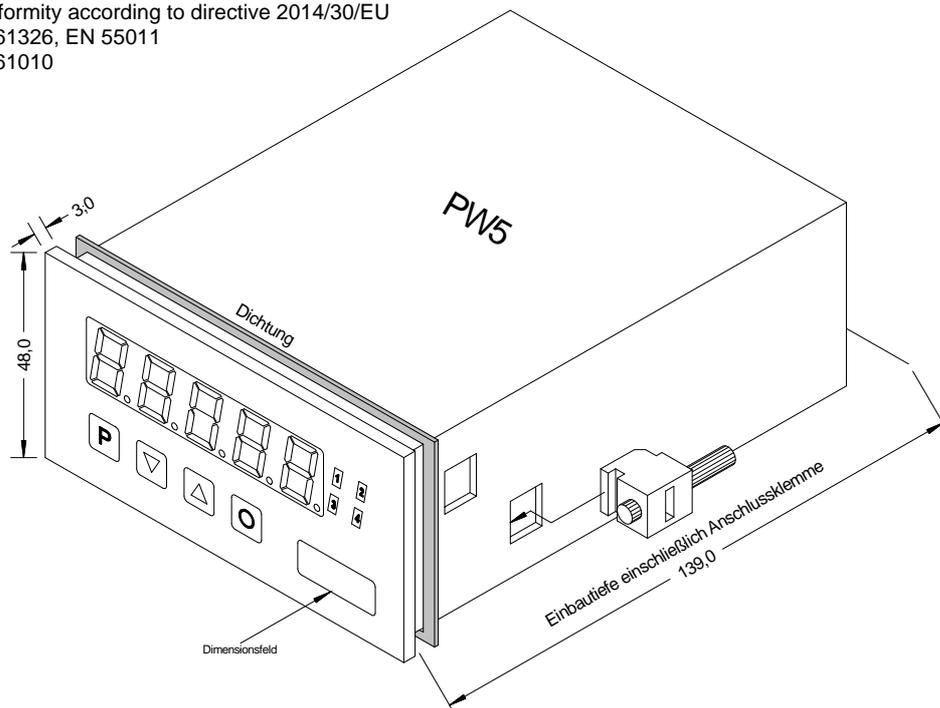
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, including plug-in terminal D = 139mm
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	latchable screw element for a wall thickness up to 15 mm
	Housing material	PC polycarbonate, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 350 g
Display	Connection	plug-in terminal; wire cross-section up to 2.5 mm ²
	Display	5-digit
	Digit height	14 mm, segment colour: red
	Display range	-9999 to 99999
	Switching points	one LED per switching point
	Overflow	horizontal bars at the top
Measuring input	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
	Measuring range (adjustable)	± 6 mV/V ± 3.3 mV/V ± 2 mV/V ± 1 mV/V
	Measuring accuracy (at 1s measuring time)	0.002% of measuring range – under laboratory conditions 0.1% of measuring range – in electromagnetic controlled surroundings 0.75% of measuring range – in industrial area
	Measuring bridge	280 Ω...5000 Ω
	Bridge supply	approx. 10 VDC
	Input resistance signal	> 10 MΩ
	Drift of temperature	20 ppm/K
	Measuring principle	Sigma/Delta
	Measuring rate	0.01s...10.00s
	Resolution	24 bit, max. 19 bit RMS
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically
	Analog output	Division according to DIN EN50178 / Characteristics according to DIN EN 60255 0-10 VDC burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ, respectively 15 V contact supply
Interface	Protocol	ASCII manufacturer-specific
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10% (max. 15 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Weathering resistance	relative humidity 0-85% on years average without dew
CE-sign	Conformity according to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	EN 61010	

Housing:



• Ordering code

	P	W.	5	0	2	0	X.	1	S	7	0	D	
Processor device													Version D Version D
Base 6-wire technology		W											Setpoints 0 no setpoint 2 2 relay outputs 4 4 relay outputs
Number of digits 5 digits			5										Mechanical options 7 IP65, foil keyboard, plug-in terminal
Interface no interface RS232 (galv. isolated) RS485 (galv. isolated)													Power supply S 100-240 VAC W 10-40 VDC
Sensor supply Bridge supply 10 VDC													Size of housing 1 96x48 mm (BxH)
Outputs no output 0-10 V, 0-20 mA, 4-20 mA													Measuring input X 1 mV/V, 2 mV/V, 3.3 mV/V

Multi-function indicator

Measuring inputs: Pt100, Voltage, Current, Shunt, Thermocouple, Resistance

48x24mm

- **M1-7U – Digital panel meter, 4-digit**
 - 2 semi-conductor switching points galv. not isolated
 - 5 adjustable supporting points

96x48mm

- **TFT1-11 – Digital panel meter with TFT display**
 - Metering point & signal identification up to max. 15 characters
 - display panel 2,4", 320x240 Pixel
 - minimal installation depth: 25 mm without plug-in terminal, with transformer 42 mm
 - 2 switching points (changer)
 - housing size: 96 x 48 mm

- **M1-1U – Digital panel meter, 4-digit**
 - 5 adjustable supporting points

- **PU5 – Digital panel meter, 5-digit**
 - high exactness
 - 24 Bit resolution
 - up to 50 measurements/s
 - 2/4 switching points (relay)
 - sensor supply
 - digital input
 - interface RS232/RS485

96x96mm

- **ML2-2 – Multifunction measuring instrument, 4-digit**
 - LCD display
 - Metering point & signal identification up to max. 15 characters
 - LCD display with all graphic features with 128x64 Pixel
 - manual adjustment of metering point via display menu (help text as ticker) or optional via interface RS485 with Modbus protocol

M1 – 4-digit digital panel meter in 48x24 mm (WxH)

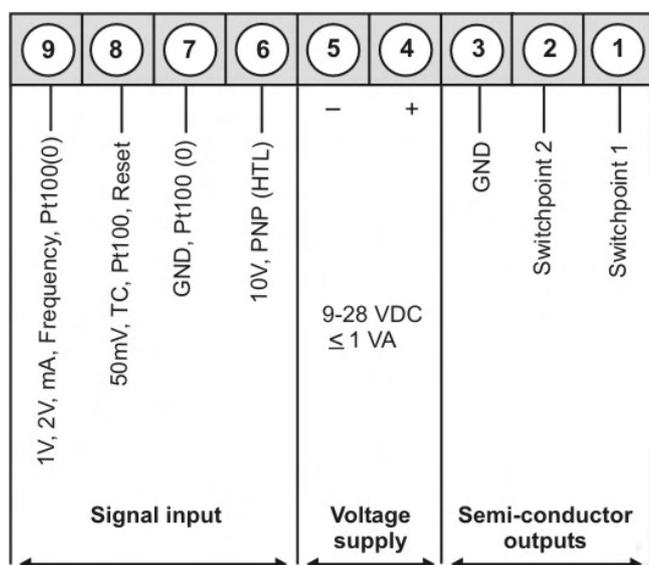
Multi-function measuring input: Direct voltage, Direct current, Pt100(0), Frequency, Thermocouple, Rotation speed, Counter

- red display of -1999...9999 Digits (optional green, orange or blue display)
- minimal installation depth: 52 mm without plug-in screw terminal
- digit height 10 mm
- min/max-value recording
- 5 adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Tara-function
- two semiconductor switching points galv. not isolated
- programming interlock via access code
- protection class IP65 at the front side
- plug-in screw terminal
- accessories: PC-based configuration kit PM-TOOL with CD & USB-adapter



ORDER NUMBER **EUR**
(without options)

• Multi-function measuring input



Supply 9-28 VDC
(galv. not isolated)

M1-7UR4A.000X.372AD **150,00**

Note:
Terminals 3, 5 and 7 are electrically connected in the device.

• Order key for options

M	1-	7	U	R	4	A	0	0	0	X.	3	7	2	A	D		EUR
																33,00	
																9,50	
																3,00	

Please quote physical unit by order, like e.g. m/min.

• Parameterisation software

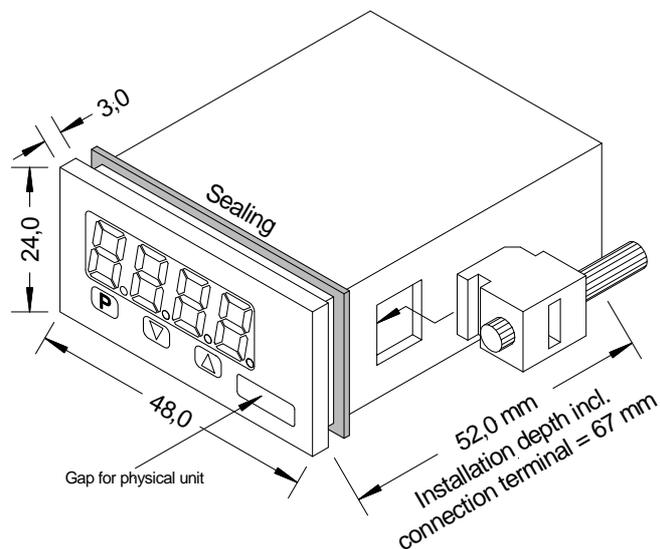
PC-based configuration software PM-TOOL, for devices without keypad;
for a simple adjustment of standard devices, incl. CD & USB-adapter.
Programming happens via interface on the back side.

PM-TOOL-MUSB4 **89,00**

• Technical data

Housing	Dimensions	W48 x H24 x D52 mm, (with plug-in terminal D=67 mm)	
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm	
	Fixing	screw elements for a wall thickness up to 5 mm	
	Housing material	PC Polycarbonate, black, UL94V-0	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	IP65 (Standard) at the front, IP00 at the back side	
	Weight	approx. 100 g	
	Connection	plug-in terminal; wire cross section up to 1.5 mm ²	
Display	Display	4-digit	
	Digit height	10 mm	
	Segment colour	red (Standard), optional available in green, blue or orange	
	Display range	-1999 to 9999	
	Switching points	LED S1, LED S2	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
	Display/Measuring time	0.1 to 10.0 seconds	
Measuring input			
Signal	Measuring range	Measuring span	Resolution
Voltage	0...10 V (R _i > 100 kOhm)	0...12 V	≥ 14 bit
Voltage	0...2 V (R _i ≥ 10 kOhm)	0...2.2 V	≥ 14 bit
Voltage	0...1 V (R _i ≥ 10 kOhm)	0...1.1 V	≥ 14 bit
Voltage	0...50 mV (R _i ≥ 10 kOhm)	0...75 mV	
Current	4...20 mA (R _i = ~125 Ohm)	1...22 mA	
Current	0...20 mA	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0.1°C / 0.1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0.001 Hz
NPN	0...3 kHz	0...3 kHz	0.001 Hz
PNP	0...1 kHz	0...1 kHz	0.001 Hz
Rotation speed	0...9999 1/min	0...9999 1/min	0.001 1/min
Counter	0...9999 (Prescaler up to 1000)		
Pulse counter	TTL / Low <2 V / High >3 V	HTL/PNP / Low <6 V / High >8 V	
	NPN / Low <0.8 V / High via resistance	Namur / Low <1.5 mA / High >2.5 mA	
Reset input	Active <0.8 V		
Measuring error	Standard	0.2% of measuring range ±1 digit	
	Pt100 / Pt1000	0.5% of measuring range ±1 digit	
	Thermocouples	measuring range ±1 digit	
Accurateness	Reference junction	± 1°C	
	Drift of temperature	100 ppm/K	
	Measuring time	0.01...2.0 seconds	
	Measuring rate	approx. 1/s at temperature sensor, approx. 100/s at standard signals	
	Measuring principle	U/F-conversion	
	Resolution	approx. 14 bit at 1s measuring time	
Output	Semiconductor switchpoint	Low-side / NPN: max. 28V, 100 mA / High / PNP U _v -3V, 100 mA	
Power pack	Supply	9-28 VDC galvanic not isolated, ≤1 VA	
Memory	EEPROM	Data preservation ≥ 100 years at 25°C	
Ambient conditions	Working temperature	-20 to +50°C	
	Storing temperature	-30 to +70°C	
	Weathering resistance	relative humidity 0-85% on years average without dew	
CE-sign	Conformity according to directive 2014/30/EU		
EMV	EN 61326		
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1		

Housing:



• **Order key**

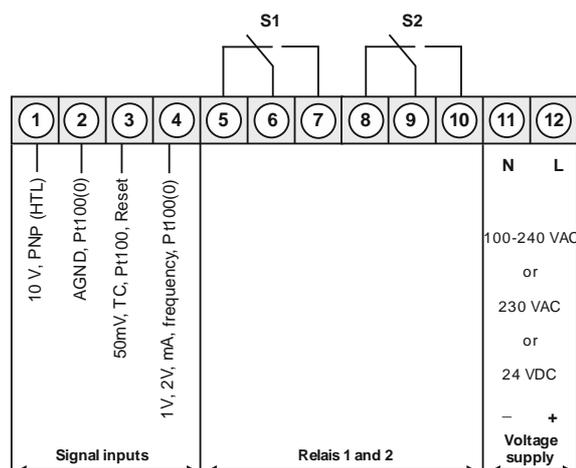
	M	1-	7	U	R	4	A.	0	0	0	X.	3	7	2	A	D		
Standard type M-Line																	Operation	
Installation depth 67 mm incl. plug-in terminal																	D	physical unit
Housing size 48x24x52 mm (WxHxD)																	A	Version A
Display type Multi-function meas. input																		Switching points 2 semiconductor switchpoints
Display colours Green Red Orange Blue																		Protection class IP65 / plug-in terminal
Number of digits 4-digit																		Voltage supply 9-28 VDC, galv. not isolated
Digit height 10 mm																		Measuring input Voltage, Current, Temperature, Frequency
Interface without																		Analog output without
																		Sensor supply without

TFT1 – full graphic indicator for panel-mounting in 96x48 mm (WxH) Multifunctional measuring input: direct voltage, direct current, Pt100(0), Thermocouple, frequency, rotational speed, counter

- presentation of metered value of -1999...9999 Digits
- digit height approx. 15 mm
- selectable colour for measurand and background: red, green, white, black, orange
- minimal installation depth: 25 mm without plug-in terminal, with transformer 42 mm
- display panel 2,4", 320x240 Pixel
- display of metering point description and signal description
- adjustable signs for physical dimensions
- min/max value recording
- 9 adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Tara function
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- 2 switching points (changer)
- option: interface RS485 with Modbus protocol
- accessories: PC-based configuration kit PM-TOOL with CD & USB adapter



• Multifunctional measuring input



Supply 100-240 VAC / DC ±10%

Supply 230 VAC

Supply 24 VDC galv. isolated

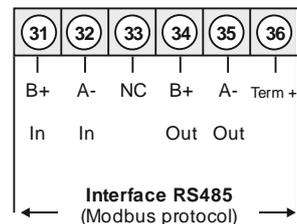
ORDER NUMBER **EUR**
(without options)

TFT1-11U.000X.S72A **255,00**

TFT1-11U.000X.572A **220,00**

TFT1-11U.000X.772A **230,00**

Option (relay 1 and 2 are not applicable):



• Order key option

T	F	T	1-	1	1	U.	0	0	0	X.	S	7	2	A
T	F	T	1-	1	1	U.	0	0	0	X.	5	7	2	A
T	F	T	1-	1	1	U.	0	0	0	X.	7	7	2	A

EUR

4 Interface RS485 – galv. isolated (only possible without relay)

55,00

• Parameterisation software

PC-based configuration software PM-TOOL for a simple adjustment,
incl. CD & USB adapter. Programming happens on the rear side via micro USB plug.

PM-TOOL-USB

29,00

• Technical data

Housing	Dimensions	W96 x H48 x D 25 mm, (with plug-in terminal 47 mm, devices with transformer 42 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for a wall thickness of up to 3 mm
	Housing material	PC Polycarbonate, black, UL94V-0
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front side IP65 standard, at the rear side IP00
	Weight	approx. 100 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ² push-in terminal; wire cross section up to 0.75mm ² for interface RS485

Display	Display	fullgraphic TFT-display with 320x240 Pixel
	Digit height	15 mm
	Presentation of metered value	-1999 to 9999
	Measurand background colour	Red, Green, White, Black or Orange (selectable)
	Limit values	optical display flashing

Measuring input

Signal	Measuring range	Measuring range	Resolution
Voltage	0...10 V Ri > 100 kOhm	0...12 V	≥ 14 bit
Voltage	0...2 V Ri ≥ 10 kOhm	0...2.2 V	≥ 14 bit
Voltage	0...1 V Ri ≥ 10 kOhm	0...1.1 V	≥ 14 bit
Voltage	0...50 mV Ri ≥ 10 kOhm	0...75 mV	
Current	4...20 mA Ri = ~125 Ohm	1...22 mA	
Current	0...20 mA Ri = ~125 Ohm	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0.1°C / 0.1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0.001 Hz / ±1
NPN	0...3 kHz	0...3 kHz	0.001 Hz / ±1
PNP	0...1 kHz	0...1 kHz	0.001 Hz
Rotational speed	0...9999 1/min	0...9999 1/min	0.001 1/min
Counter	0...9999 (prescaler up to 1000)		

Pulse input	TTL Low <2 V / High >3 V	HTL/PNP Low <6 V / High >8 V
	NPN Low <0.8 V / High via resistance	Namur Low <1.5 mA / High >2.5 mA

Reset input	active <0.8 V
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Relay	with changeover contact 30 VDC / 2 A resistive burden
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Interface	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000m
	Protocol	Modbus with ASCII or RTU-protocol

Measuring error	Standard	0.2% of measuring range ± 1 Digit
	Pt100 / Pt1000	0.5% of measuring range ± 1 Digit
	Thermocouples	0.3% of measuring range ± 1 Digit

Accuracy	Reference junction	± 1°C
	Drift of temperature	100 ppm/K
	Measuring time	0.01 to 2.0 seconds
	Measuring rate	approx. 1/s with temperature sensor, approx. 100/s with standard signals
	Measuring principle	U/F conversion
	Resolution	approx. 14 Bit at 1s measuring time

Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10%
		230 VAC 50/60 Hz, ≤ 3 VA
		24 VDC ± 10% galvanically isolated, ≤ 1 VA

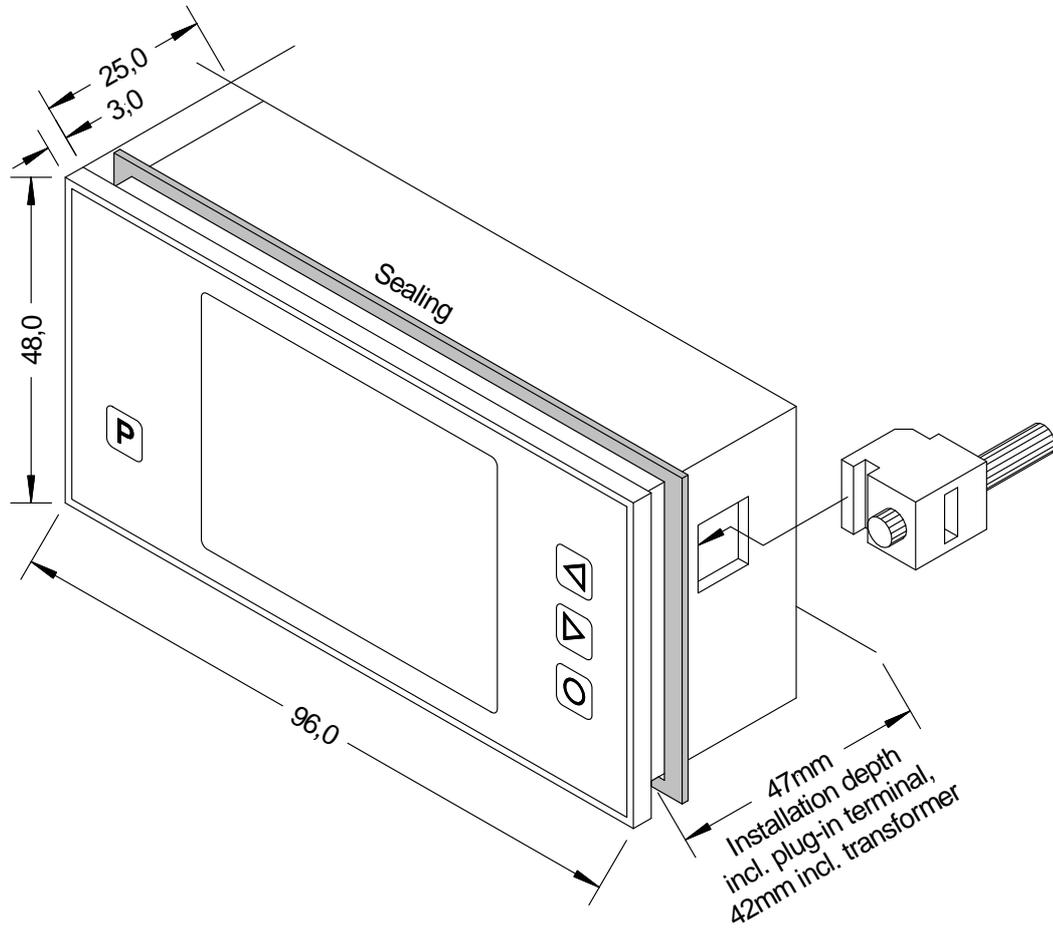
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
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Ambient conditions Working temperature -20 to + 50°C
Storing temperature -30 to + 70°C
Weathering resistance relative humidity 0-85% on years average without dew

EMV CE-identification EN 61326
Conformity according directive 2014/30/EU

Safety regulations According to low voltage directive 2013/35/EU; EN 61010; EN 60664-1

Housing:



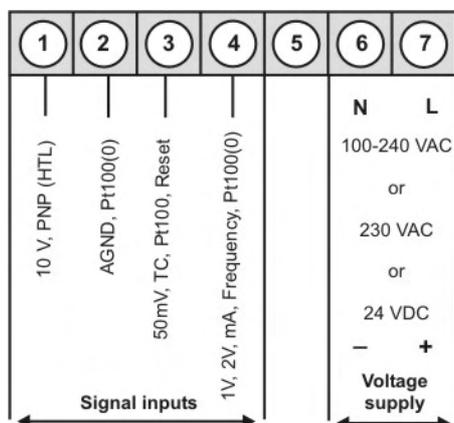
M1 – 4-digit digital panel meter in 96x48 mm (BxH)

Multi-function measuring input: Direct voltage, Direct current, Pt100(0), Frequency, Thermocouple, Rotation speed, Counter

- red display of -1999...9999 Digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in screw terminal
- digit height 14 mm
- min/max-value recording
- 5 adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Tara-function
- programming interlock via access code
- protection class IP65 at the front side
- plug-in screw terminal
- accessories: PC-based configuration kit PM-TOOL with CD & USB-adapter



• Multi-function measuring input



Supply 100-240 VAC / DC \pm 10%

ORDER NUMBER **EUR**
(without options)

M1-1UR4B.000X.S70AD **165,00**

Supply 230 VAC

M1-1UR4B.000X.570AD **145,00**

Supply 24 VDC galv. isolated

M1-1UR4B.000X.770AD **155,00**

• Order key for options

M	1-	1	U	R	4	B.	0	0	0	X.	S	7	0	A	D
M	1-	1	U	R	4	B.	0	0	0	X.	5	7	0	A	D
M	1-	1	U	R	4	B.	0	0	0	X.	7	7	0	A	D

B	Blue	EUR
G	Green	33,00
Y	Orange	9,50
		3,00

Please quote physical unit by order, like e.g. m/min.

• Parameterisation software

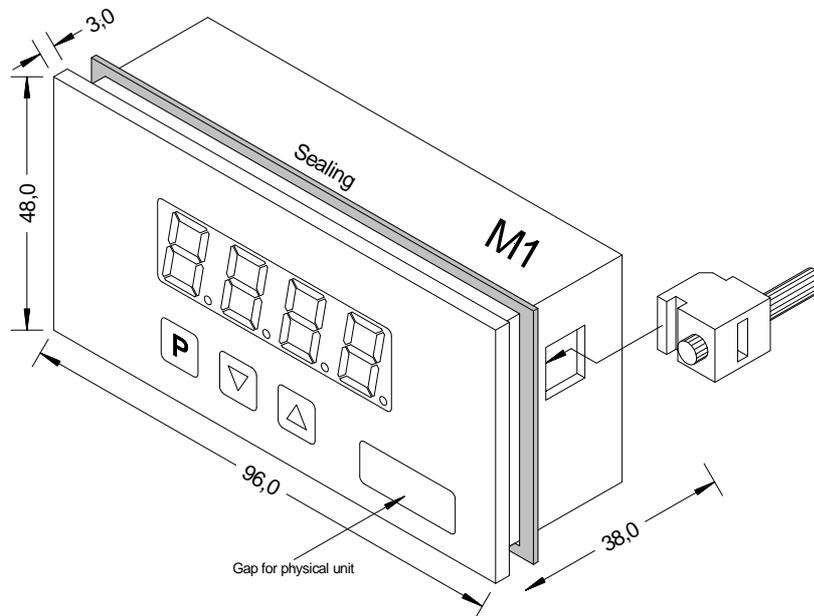
PC-based configuration software PM-TOOL, for devices without keypad; for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via interface on the back side.

PM-TOOL-MUSB4 **89,00**

• Technical data

Housing	Dimensions	W96 x H48 x D25 mm, (with plug-in terminal D=38 mm)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for a wall thickness up to 3 mm	
	Housing material	PC Polycarbonate, black, UL94V-0	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	IP65 (Standard) at the front, IP00 at the back side	
	Weight	approx. 100 g	
Connection	plug-in terminal; wire cross section up to 2.5 mm ²		
Display	Display	4-digit	
	Digit height	14 mm	
	Segment colour	red (Standard), optional available in green, blue or orange	
	Display range	-1999 to 9999	
	Limit values	optical display flashing	
	Overflow	horizontal bars at the top	
	Underflow	horizontal bars at the bottom	
Display/Measuring time	0.1 to 10.0 seconds		
Measuring input			
Signal	Measuring range	Measuring range	Resolution
Voltage	0...10 V (R _i > 100 kOhm)	0...12 V	≥ 14 bit
Voltage	0...2 V (R _i ≥ 10 kOhm)	0...2.2 V	≥ 14 bit
Voltage	0...1 V (R _i ≥ 10 kOhm)	0...1.1 V	≥ 14 bit
Voltage	0...50 mV (R _i ≥ 10 kOhm)	0...75 mV	
Current	4...20 mA (R _i = ~125 Ohm)	1...22 mA	
Current	0...20 mA (R _i = ~125 Ohm)	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0.1°C / 0.1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0.001 Hz / ±1
NPN	0...3 kHz	0...3 kHz	0.001 Hz / ±1
PNP	0...1 kHz	0...1 kHz	0.001 Hz
Rotation speed	0...9999 1/min	0...9999 1/min	0.001 1/min
Counter	0...9999 (Prescaler up to 1000)		
Pulse counter	TTL Low <2 V / High >3 V	HTL/PNP Low <6 V / High >8 V	
	NPN Low <0.8 V / High via resistance	Namur Low <1.5 mA / High >2.5 mA	
Reset input	active <0.8 V		
Measuring error	Standard	0.2% of measuring range ±1 digit	
	Pt100 / Pt1000	0.5% of measuring range ±1 digit	
	Thermocouples	0.3% of measuring range ±1 digit	
Accurateness	Reference junction	± 1°C	
	Drift of temperature	100 ppm/K	
	Measuring time	0.01...2.0 seconds	
	Measuring rate	approx. 1/s at temperature sensor, approx. 100/s at standard signals	
	Measuring principle	U/F-conversion	
Resolution	approx. 14 bit at 1s measuring time		
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10%	
		230 VAC 50/60 Hz, ≤ 3 VA	
		24 VDC ± 10% galvanic isolated, ≤ 1 VA	
Memory	EEPROM	Data preservation ≥ 100 years at 25°C	
Ambient conditions	Working temperature	-20 to +50°C	
	Storing temperature	-30 to +70°C	
	Weathering resistance	relative humidity 0-85% on years average without dew	
CE-sign	Conformity according to directive 2014/30/EU		
EMV	EN 61326		
Safety standard	According to low voltage directive 2014/35/EU; EN 61010; EN 60664-1		

Housing:



• **Order key**

	M	1-	1	U	R	4	B.	0	0	0	X.	S	7	0	A	D	
Standard type M-Line																Operation	
Installation depth 38 mm incl. plug-in terminal	1															Version	
Housing size 96x48x25 mm (BxHxD)	1															Switching points	
Display type Multi-function measuring input	U															Protection class	
Display colours Green Red Orange Blue	G R Y B															Voltage supply	
Number of digits 4-digit	4															Measuring input	
Digit height 14 mm	B															Analog output	
Interface without	0															Sensor supply	
																	0 without
																	0 without
																	0 without
																	0 without
																	0 without
																	0 without



PU5 – 5-digit digital panel meter in 96x48 mm (BxH)

Universal measuring inputs:

Pt100, current, voltage, shunt, thermocouple, resistance

- red display of -9999...99999 digits
- installation depth: 120 mm without plug-in screw terminal
- digit height 14 mm
- 24 bit transducer resolution
- with up to 50 measurements
- display adjustment via factory settings or directly via sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- permanent wire breakage monitoring
- display flashing at threshold value exceedance/undercut
- volume measurement (Totaliser)
- zero-key for the triggering of Hold, Tara
- flexible alarm system with adjustable delay times
- galv. isolated digital input for the triggering of Hold, Tara
- sensor supply
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs
- optional: independently scalable analog output
- optional: interface RS232 or RS485
- accessories: PC-based configuration software PM-TOOL incl. CD & USB-adapter

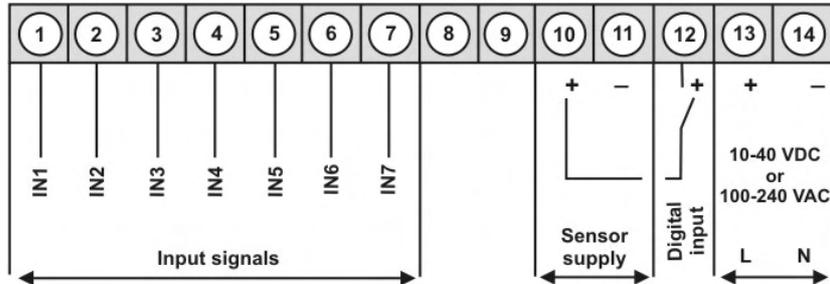
• **Universal measuring input: Pt100, voltage, current, shunt, thermocouple, resistance**

Power supply 100-240 VAC / DC $\pm 10\%$

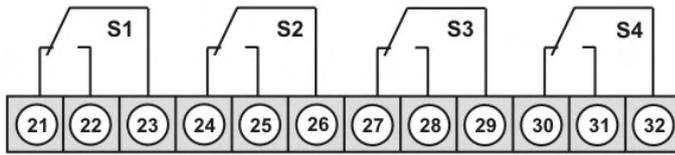
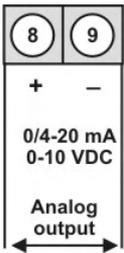
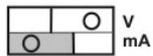
PU5.030X.1S70D 315,00

Power supply 10-40 VDC galv. isolated / 18-30 VAC

PU5.030X.1W70D 330,00

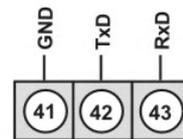


Options:



Relay 1 and 2

Relay 3 and 4



Interface RS232

or



Interface RS485

• **Product key options**

P	U	5.	0	3	0	X.	1	S	7	0	D
P	U	5.	0	3	0	X.	1	W	7	0	D

EUR

2	2 relay outputs	50,00
4	4 relay outputs	65,00
X	Analog output 0-10 VDC, 0/4-20 mA	110,00
3	Interface RS232 with galvanic isolation	60,00
4	Interface RS485 with galvanic isolation	60,00

On demand state dimension unit on order, e.g. min.

• **Parameterisation software**

PC based configuration software PM-Tool for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

PM-TOOL-MUSB4

89,00

• **Technical data**

Housing

Dimensions	B96xH48xD120 mm (including screw terminal = 139 mm)
Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
Fixing	screw element for wall thicknesses of up to 15 mm
Housing material	PC polycarbonate, black
Sealing material	EPDM, 65 Shore, black
Protection class	standard IP65 (front), IP00 (back)
Weight	approx. 350 g
Connection	plug-in terminal; wire cross-section up to 2.5 mm ²

Display

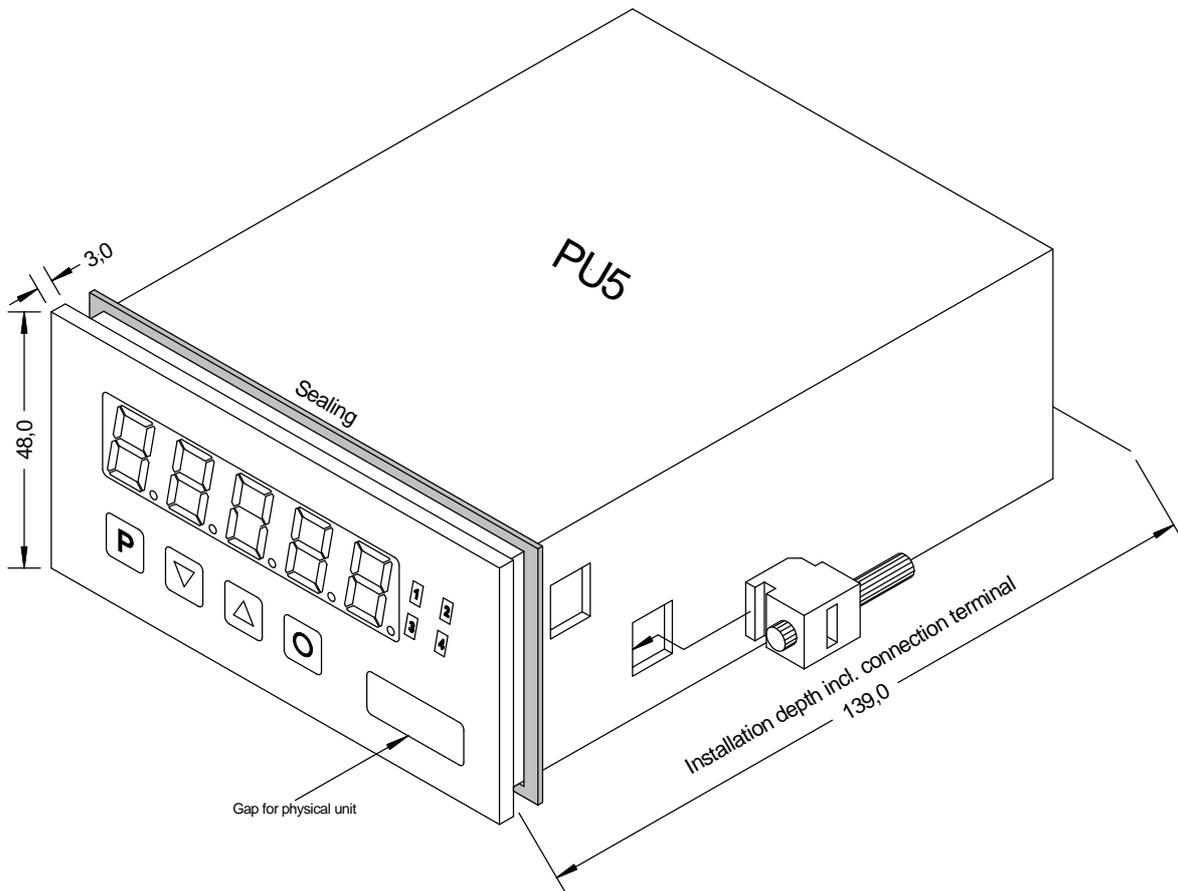
Display	5-digit
Digit height	14 mm
Segment colour	Red (Standard)
Display range	-9999...99999
Limit values	one LED per switching point
Overflow	horizontal bars at the top
Underflow	horizontal bars at the bottom

Input

	Measuring range	R_i	Measuring error T_u= 20...40°C [%] Measuring range	Digit
Voltage/Current	-1...10 V	150 kΩ	0.01	± 1
Measuring range/input resistance/	-1...5 V	150 kΩ	0.02	± 1
Measuring error at	0/4...20 mA	50 Ω	0.02	± 1
measuring time = 1 second	0...5 mA	50 Ω	0.02	± 1
	0...2 mA	50 Ω	0.02	± 1
	-500...2500 mV	1 MΩ	0.03	± 1
	-500...1250 mV	1 MΩ	0.03	± 1
	± 500 mV	1 MΩ	0.03	± 1
	± 300 mV	1 MΩ	0.03	± 1
	± 150 mV	1 MΩ	0.03	± 1
	± 75 mV	1 MΩ	0.04	± 1
	± 35 mV	1 MΩ	0.06	± 1
	± 15 mV	1 MΩ	0.06	± 1
Pt100 (2-/3-/4-wire)	-200.0°C...850.0°C	1 MΩ	0.04	± 1
Measuring range/input resistance/				
Meas. error at meas. time = 1 second				
Pt100: 3-/4-wire output resistance				
max. 10 Ω				
Thermocouple	Type L (-200°C...900°C)	1 MΩ	0.06	±1K
Measuring range/input resistance/	Type J (-210°C...1200°C)	1 MΩ	0.05	±1K
Meas. error at meas. time = 1 second	Type K (-250°C...1271°C)	1 MΩ	0.05	±1K
	Type B (100°C...1810°C)	1 MΩ	0.10	±1K
	Type S (0°C...1767°C)	1 MΩ	0.06	±1K
	Type N (-250°C...1300°C)	1 MΩ	0.06	±1K
	Type E (-260°C...1000°C)	1 MΩ	0.06	±1K
	Type R (0°C...1767°C)	1 MΩ	0.07	±1K
	Type T (-240°C...400°C)	1 MΩ	0.07	±1K
Resistance	100 Ω	1 MΩ	0.04	± 1
Measuring range/input resistance/	1 kΩ	1 MΩ	0.04	± 1
Meas. error at meas. time = 1 second	10 kΩ	1 MΩ	0.04	± 1
Drift of temperature	all measuring inputs	50 ppm/K at T_u < 20°C respectively > 40°C		
Measuring time	Current, voltage	0.02...10.00 s		
	Pt100 2-/4-wire	0.04...10.00 s		
	Pt100 3-wire	0.06...10.00 s		
	Thermocouple	0.04...10.00 s		
	Resistance 2-/4-wire	0.04...10.00 s		
	Resistance 3-wire	0.06...10.00 s		
Measuring principle	Sigma/Delta			
Resolution	24 bit			
Totaliser timing error	max. 0.1% of totaliser value at an integration time of >1 min			
Digital input	Input galv. isolated			
Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ			

Output	Relays	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically
	Separation	in accordance with DIN EN50178 / Specifications in accordance with DIN EN 60255
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA
Interface	Protocol	manufacturer's specifics ASCII
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10% (max. 15 VA)
		10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +60°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity <75% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



• Ordering code

		P	U	5.	0	3	0	X.	1	S	7	0	D		
Processor device													Version		
													<input type="checkbox"/> D	Version D	
Multi-function input	<input type="checkbox"/> U												Switching points		
													<input type="checkbox"/> 0	no switching point	
													<input type="checkbox"/> 2	2 relay outputs	
													<input type="checkbox"/> 4	4 relay outputs	
Number of digits													Mechanical options		
5 digits	<input type="checkbox"/> 5												<input type="checkbox"/> 7	IP65, foil keyboard, plug-in terminal	
Interface													Power supply		
no interface	<input type="checkbox"/> 0												<input type="checkbox"/> S	100-240 VAC	
RS232 (galv. isolated)	<input type="checkbox"/> 3												<input type="checkbox"/> W	10-40 VDC	
RS485 (galv. isolated)	<input type="checkbox"/> 4												Size of housing		
Sensor supply													<input type="checkbox"/> 1	96x48 mm (BxH)	
24 V / 50 mA	<input type="checkbox"/> 3												Measuring input		
Outputs													<input type="checkbox"/> X	Multi-function input	
no output	<input type="checkbox"/> 0												Current, Pt100, Resistance, Shunt, Thermocouple, Voltage		
0-10 V, 0-20 mA, 4-20 mA	<input type="checkbox"/> X														



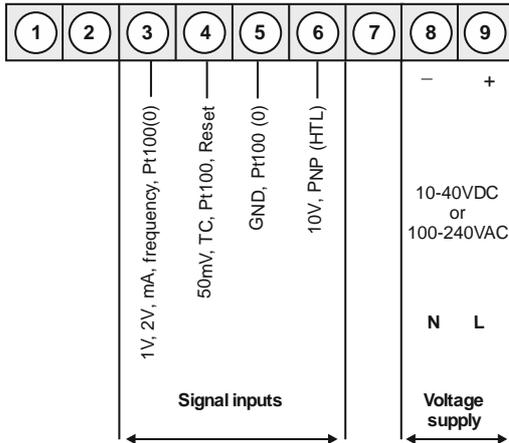
ML2-2 – LCD indicator for panel-mounting in 96x96mm

Multifunctional measuring inputs:

Direct voltage, direct current, Pt100, Pt1000, Thermocouple, pulse signals for frequency and rotational speed metering or counter

- multi voltage power supply unit of 100-240 VAC/DC or 10-40 VDC/18-30 VAC
- LCD indicator with all graphic features of 128x64 pixel
- measurand indication of -1999...9999 digits
- multicolour backlight (7 colours available)
- indication of metering point and signal identification
- 3-digit adjustable dimension unit
- adjustment of the metering point, manually via display menu (with help text as ticker)
or optionally via interface RS485 with ModBus protocol
- min/max memory, Tara function, 9-points-linearisation
- buzzer alarm for audible signalling with switchable confirmation function
- colour change at threshold value exceedance/undercut
- programming interlock via access code
- pluggable screw terminal
- optional: sensor supply
- optional: digital input for triggering of activities like e.g. TARA
- optional: analog output 0/4-20 mA, 0-10 VDC switchable
- optional: 2 relay outputs
- optional: RS232/RS485 interfaces (ModBus protocol) galvanically isolated
- accessories: PC-based configuration kit PM-TOOL with CD & USB-adapter

• **Multifunctional measuring input**



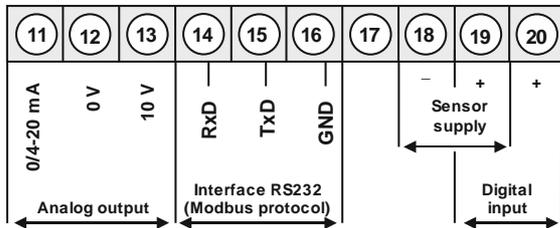
Supply 100-240 VAC, DC±10%

ML2-2UX4C.000X.S70AD 350,00

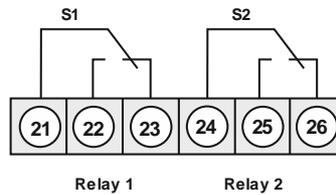
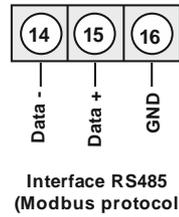
Supply 10-40 VDC, 18-30 VAC

ML2-2UX4C.000X.W70AD 350,00

Options:



alternative to RS232



• **Product key options**

M	L	2-	2	U	4	X.	0	0	0	X.	S	7	0	A	D
M	L	2-	2	U	4	X.	0	0	0	X.	W	7	0	A	D

2	2 relay outputs	33,00
X	Analog output 0/4-20 mA, 0-10 VDC galvanically isolated, 16 Bit switchable	120,00
Z	Analog output 0/4-20 mA, 0-10 VDC galvanically isolated, 12 Bit switchable	60,00
2	Sensor supply 10 VDC / 50 mA incl. digital input	25,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	25,00
3	Interface RS232 galvanically isolated	55,00
4	Interface RS485 galvanically isolated	55,00
1	Digital input galvanically isolated	10,00

EUR

• **Parameterisation software**

PC-based configuration software PM-TOOL, for devices without keypad; for simple adjustment of standard devices, incl. CD and USB-adapter. Programming happens on the back via interface.

ORDER NUMBER

EUR

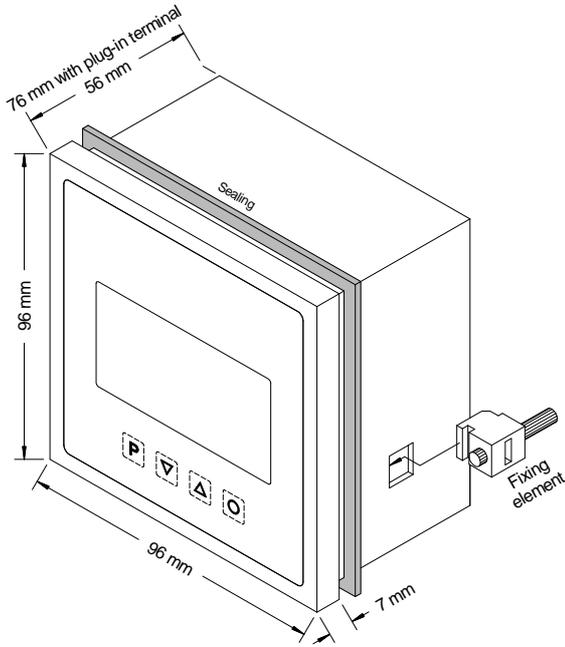
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H96 x D56 mm (incl. plug-in terminal D= 82 mm)	
	Panel cut-out	91.0 ^{+0.6} x 91.0 ^{+0.6} mm	
	Fixing	screw elements for a wall thickness up to 10 mm	
	Housing material	PC polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 Standard, at the back IP00	
	Weight	approx. 330 g	
	Connection	plug-in terminal; cable cross-section up to 2.5 mm ²	
Display	Display	LCD indicator with full graphic features with 128x64 Pixel	
	Indication of measurand	of -1999...9999 digits	
	Digit height	12 mm	
	Background colour	selectable: red, green, blue, white, yellow, teal, purple	
	LCD Schriftfarbe	black	
	Limit values	optical display flashing	
Measuring input	Measuring range	Measuring span	Resolution
Voltage	0...10 V (Ri > 100 kOhm)	0...12 V	≥ 14 bit
Voltage	0...2 V (Ri ≥ 10 kOhm)	0...2.2 V	≥ 14 bit
Voltage	0...1 V (Ri ≥ 10 kOhm)	0...1.1 V	≥ 14 bit
Voltage	0...50 mV (Ri ≥ 10 kOhm)	0...75 mV	
Current	4...20 mA (Ri = ~125 Ohm)	1...22 mA	
Current	0...20 mA (Ri = ~125 Ohm)	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0,1°C / 0,1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0,001 Hz / ±1
NPN	0...3 kHz	0...3 kHz	0,001 Hz / ±1
PNP	0...1 kHz	0...1 kHz	0,001 Hz
Rotational speed	0...9999 1/min	0...9999 1/min	0,001 1/min
Counter	0...9999 (prescaler up to 1000)		
Output	Relay	with changeover contact 250 V / 5 AAC, 30 V / 5 ADC	
	Switching cycle	30 * 10 ³ at 5 AAC, 5 ADC with ohm resistive burden, 10 * 10 ⁶ mechanically	
	Analog output	Diversification according to DIN EN50178 / Characteristics according to DIN EN 60255 10 VDC / burden 10kΩ, 0/4-20 mA / burden 500Ω, 16 Bit 10 VDC / burden 10kΩ, 0/4-20 mA / burden 500Ω, 12 Bit switchable	
	Sensor supply	24 VDC / 50 mA, 10 VDC / 20 mA	
	Buzzer	Signal transmitter as alarm indication	
Pulse input	TTL / Low <2 V / High >3 V	HTL/PNP / Low <6 V / High >8 V	
	NPN / Low <0.8 V / High via resistance	Namur / Low <1.5 mA / High >2.5 mA	
Reset input	active <0.8 V		
Digital input	< 6 V Low and > 18 V High max. 30 VDC galv. isolated		
Measuring fault	Standard	0.2% of measuring range ± 1 Digit	
	Pt100 / Pt1000	0.5% of measuring range ± 1 Digit	
	Thermocouples	0.3% of measuring range ± 1 Digit	
Accuracy	Reference junction	± 1°C	
	Temperature drift	100 ppm/K	
	Measuring time	0.01...2.0 seconds	
	Sampling rate	approx. 1/s with temperature sensor, approx. 100/s with standard signals	
	Measuring principle	U/F-conversion	
	Resolution	approx. 14 Bit at 1s measuring time	
Interface	Protocol ModBus	with ASCII- or RTU-protocol	
	RS232	9.600 Baud, no parity, 8 Databit, 1 StopBit, wire length max. 3m	
	RS485	9.600 Baud, no parity, 8 Databit, 1 StopBit, wire length max. 1000m	
Power pack	Supply	100-240 VAC 50/60 Hz /DC ±10 % (max. 15 VA) 10-40 VDC / 18-30 VAC 50/60 Hz (max. 15 VA)	
Memory	EEPROM	Data preservation ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +50°C	
	Storing temperature	-20 to +80°C	
	Wheathering resistance	relative humidity of 0-85% on years average without dew	
CE-sign	Conformity to guidance 2014/30/EU		
EMV	EN 61326, EN 55011		

Housing:



• Order key

		ML	2-	2	U	X	C.	0	0	0	0	X.	S	7	0	A	D
Standard type M-Line LCD																	
Installation depth 82 mm (incl. plug-in terminal)		2															
Housing dimensions 96 x 96 x 56 mm (BxHxD)		2															
Indicator type Universal / Multifunctional		U															
Display colour LCD: black Background colour selectable: Red, green, blue, white, yellow, teal, purple		X															
Number of digits 4-digit		4															
Pixel 128x64 pixel, all graphic features		C															
Digital input without Interface RS232 Interface RS485 Digital input		0		3		4		I									
		<p>Dimension</p> <p>D Physical unit (3 digits are adjustable)</p> <p>Version</p> <p>A A</p> <p>Switching points</p> <p>0 no switching points 2 2 relay outputs</p> <p>Protection class</p> <p>7 IP65 / pluggable terminal</p> <p>Power pack</p> <p>S 100-240 VAC, DC ±10% W 10-40 VDC, 18-30 VAC</p> <p>Measuring input</p> <p>X Multifunctional: voltage, current, shunt, frequency, counter, Pt100(0), Thermocouple</p> <p>Analog output</p> <p>0 without X 1x 0-10 VDC, 0/4-20 mA, 16 Bit Z 1x 0-10 VDC, 0/4-20 mA, 12 Bit</p> <p>Sensor supply</p> <p>0 without 2 10 VDC / 50 mA / incl. digital input 3 24 VDC / 50 mA / incl. digital input</p>															

Two-channel metering (Direct voltage/current)

Measuring input: 0-10 VDC, 0/4-20 mA

96x48mm

- **PZ5 – Digital panel meter, 5-digit**

- allocation of the channels via addition, subtraction, multiplication and division
- 2/4 switching points (Relay)
- sensor supply
- digital input
- analog output
- interface RS232/RS485



PZ5- 5-digit digital panel meter in 96x48 mm (BxH) two direct voltage/direct current signals 10 VDC, 0/4-20 mA, with calculation

- red display of -9999...99999 digits
- installation depth: 120 mm without plug-in screw terminal
- digit height 14 mm
- two independently adjustable analog outputs
- calculation of the channels by addition, subtraction, multiplication or division
- manual or automatic switching between channels and calculation channel
- resolution 24 bit
- up to 100 measurements/s respectively 50 measurements/s, 2 channels
- adjustment via factory settings or directly via sensor signal
- min/max-memory
- 30 additional adjustable support points per channel
- permanent wire breakage control
- display flashing at threshold value exceedance / undercut
- zero key for the triggering of Hold, Tara, channel switching
- flexible alarm system with adjustable delay times
- galv. isolated digital input for the triggering of Hold, Tara or channel switching
- sensor supply
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 2 or 4 relay outputs
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessory: PC-based configuration kit PM-TOOL incl. CD & USB-adapter

96x48

• **Two measuring inputs – direct voltage, direct current**

Power supply 100-240 VAC / DC ± 10%

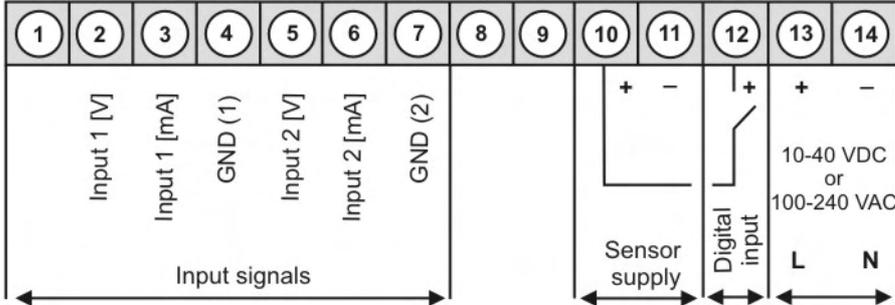
PZ5.0301.1S70D

315,00

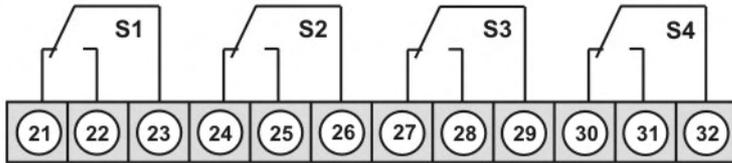
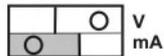
Power supply 10-40 VDC galv. isolated / 18-30 VAC

PZ5.0301.1W70D

330,00

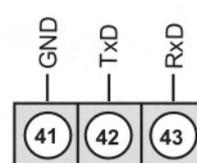


Options:

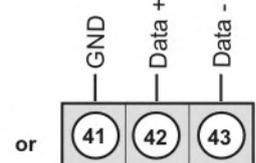


Relay 1 and 2

Relay 3 and 4



Interface RS232



Interface RS485

• **Product key options**

P	Z	5.	0	3	0	1.	1	S	7	0	D
P	Z	5.	0	3	0	1.	1	W	7	0	D

EUR

2	2 relay outputs	50,00
4	4 relay outputs	65,00
1	Analog output 0-10 VDC / 0/4-20 mA	110,00
3	Interface RS232 with galvanic isolation	60,00
4	Interface RS485 with galvanic isolation	60,00

• **Parameterisation software**

PC based configuration software PM-Tool for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

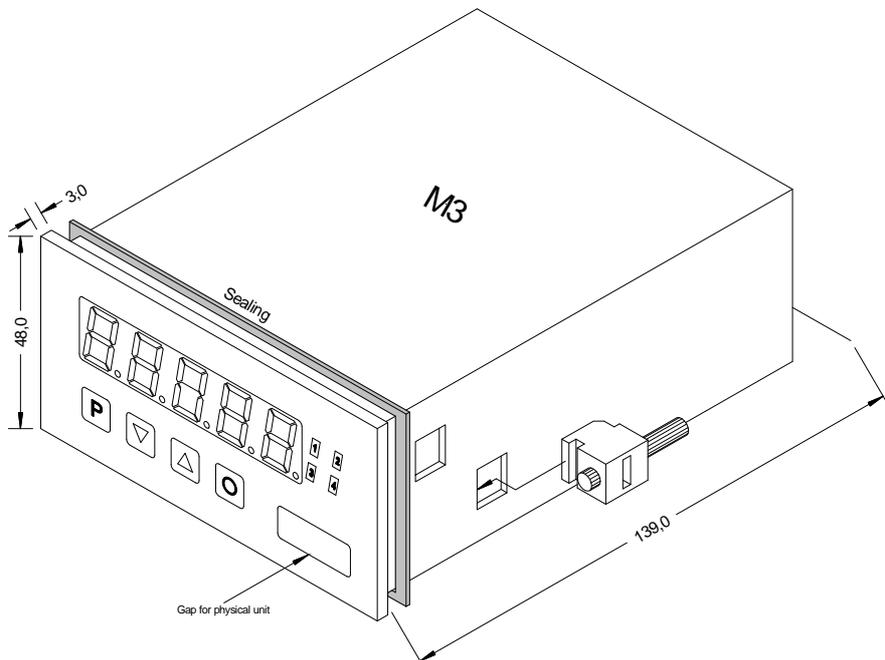
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H48 x D120 mm, (including plug-in terminal D = 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw element for a wall thickness of up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front IP65 standard, at the back IP00
	Weight	approx. 300 g
	Connection	plug-in terminal; cable cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm, segment colour: red
	Display range	-19999 up to 99999
	Switching points	one LED per switching
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
Measuring input	Measuring range	0-10 VDC and 0/4-20 mA
	Input resistance	0-10 VDC: Ri = ~150 kΩ 0/4-20 mA: Ri = ~50 Ω
	Measuring error	0.02% of measuring range + 0.01% of measuring value, ±1 digit at 1 sec measuring time
	Drift of temperature	all measuring inputs 50 ppm/K, at T _U < 20°C respectively > 40°C
	Measuring time	one channel: 0.02...10.00 seconds two channels: 0.04...10.00 seconds
	Measuring principle	Sigma/Delta
	Resolution	24 bit
Digital input	Input galv. isolated	<2.4 V OFF; >10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC with ohm resistive burden, 10 * 10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN 60255
	Analog output (galv. isolated)	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 bit
	Sensor supply	24 VDC / 50 mA
Interface	Protocol	ASCII manufacturer-specific
	RS232	9.600 Baud, no parity, 8 DataBit, 1 StopBit, cable length, max. 3 m
	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, cable length, max. 1000 m
Power supply	Supply	100-240 VAC 50/60 Hz, DC ± 10% (max. 15 VA) 10-40 VDC galv. isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0°C to + 50°C
	Storing temperature	-20°C to + 80°C
	Weathering resistance	relative humidity 0-75% on years average without dew
CE-sign	Conformity according to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety regulations	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Ordering code

	P	Z	5.	0	3	0	1.	1	S	7	0	D
Processor-based device												
Internal index Version D												D
Type of display two inputs		Z										
Number of digits 5-digit			5									
Interface none RS232 (galvanic isolated) RS485 (galvanic isolated)												
												0
												3
												4
Sensor supply 24 V / 50 mA												
												3
Analog output none 0-10 V, 0-20 mA, 4-20 mA												
												0
												X
Switching points no switching point 2 relay outputs 4 relay outputs												
												0
												2
												4
Mechanical options IP65, keypad, plug-in terminal												
												7
Voltage supply 100-240 VAC 10-40 VDC galv. isolated												
												S
												W
Housing dimension 96x48 mm (WxH)												
												1
Measuring input Voltage, current												
												1

Setpoint devices

Measuring input: 0-10 VDC, 0/4-20 mA

48x24mm

- **M3 – Digital panel meter, 5-digit**

- definable setting range for the setpoint
- contact supply 15 V
- 2 digital inputs
- analog output

96x24mm

- **M3 – Digital panel meter, 5-digit**

- definable setting range for the setpoint
- contact supply 15 V
- 2 digital inputs
- analog output

96x48mm

- **M2 – Digital panel meter, 5-digit**

- definable setting range for the setpoint
- contact supply 15 V
- 2 switching points (relay)
- optional voltage supply with 115 VAC
- 2 digital inputs
- analog output

- **M3 – Digital panel meter, 5-digit**

- definable setting range for the setpoint
- set point query via Profibus DP
- contact supply 15 V
- 2 digital inputs
- analog output

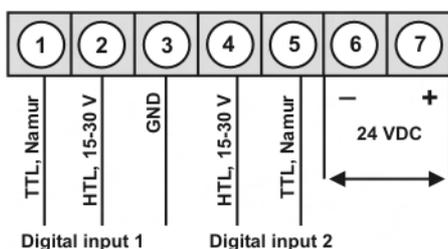
M3 – 5-digit panel meter in 48x24 mm (BxH) setpoint generator

- red display of -19999...99999 digits (optional green, orange, or blue display)
- minimal installation depth: 90 mm without plug-in terminal
- definable setting for the setpoint
- configurable output area between 0...10 V or 0...20 mA
- adjustable increment per press
- display flashing at threshold exceedance / undercut
- digital inputs for key switch or external adjustment buttons
- configurable as a code for the setpoint adjustment protection
- different operation variants for the control setpoint
- optional startup behaviour with last setting or default value
- optional speed settings for adjusting the setpoint
- quick response when changing the default value (ramp function)
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or -40°C...80°C



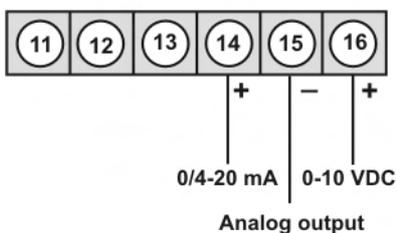
ORDER NUMBER **EUR**
(without options)

• Setpoint device



Supply 24 VDC

M3-7GR5A.00X0.770BD 330,00



• Product key options

M	3-	7	G	R	5	A.	0	0	X	0.	7	7	0	B	D		
															1	Without keypad, operation on the back	10,00
															B	Blue	44,00
															G	Green	10,00
															Y	Orange	4,00

Please state physical unit in order, e.g. %.

ORDER NUMBER **EUR**

• Parameterisation software

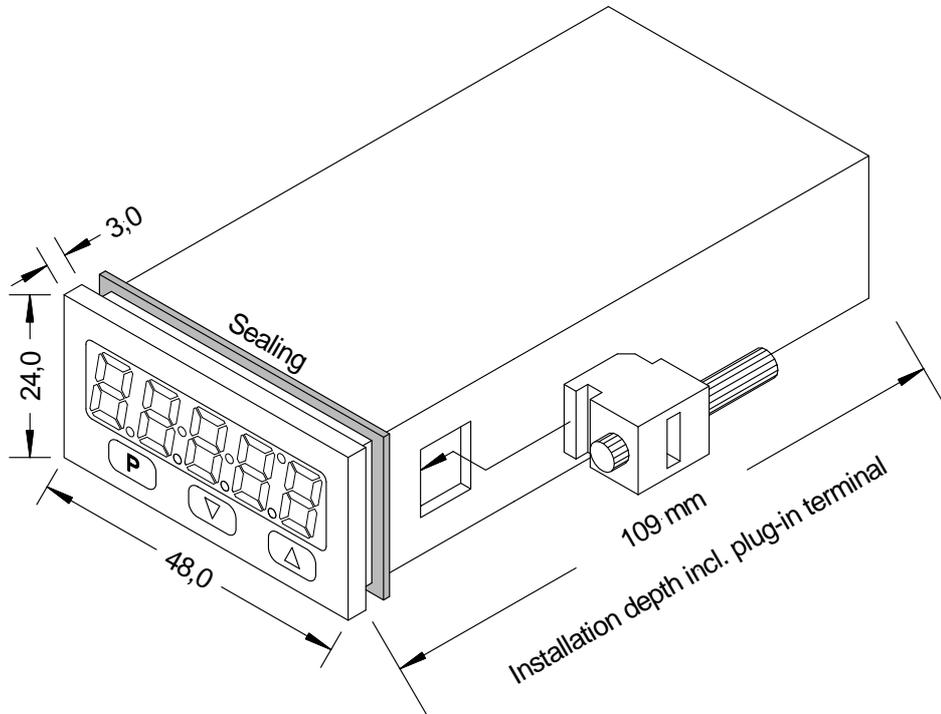
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 89,00

• **Technical data**

Dimensions	Housing	B48 x H24 x D90 mm, (with plug-in terminal D= 109 mm)
	Panel cut-out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	IP065 at the front (Standard) IP00 at the back side
	Weight	approx. 200 g
	Connection	plug-in terminal; wire-cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	10 mm
	Segment colour	red (Standard), optional available in green, orange or blue
	Range of display	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Digital input	2 digital inputs (galvanic isolated)	HTL: < 2.4 OFF; >10 V ON; max. 30 VDC TTL-Level: > 4.6 V / < 1.9 V, Namur
	Input resistance	Ri at ~5 kΩ
Output	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
Power pack	Supply	24 VDC, ±10% galvanic isolated (max. 4 VA)
Memory	EEPROM	Data retention ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity in accordance with directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order code

	M	3-	7	G	R	5	A.	0	0	X	0.	7	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (free selectable)
Installation depth 109 mm (incl plug-in terminal)																	Version
																	<input type="checkbox"/> B B
Housing size 48x24x90 mm (BxHxD)																	Switching points
																	<input type="checkbox"/> 0 no switching point
Type of display Setpoint device																	Protection class
																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Display colours Blue Green Red Orange																	<input type="checkbox"/> 7 IP65 / plug-in terminal
																	Supply voltage
																	<input type="checkbox"/> 7 24 VDC galv. isolated
Number of digits 5-digit																	Measuring input
																	<input type="checkbox"/> 0 without
Digit height 10 mm																	Analog output
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input 2 digital inputs (Standard)																	Sensor supply
																	<input type="checkbox"/> 0 without

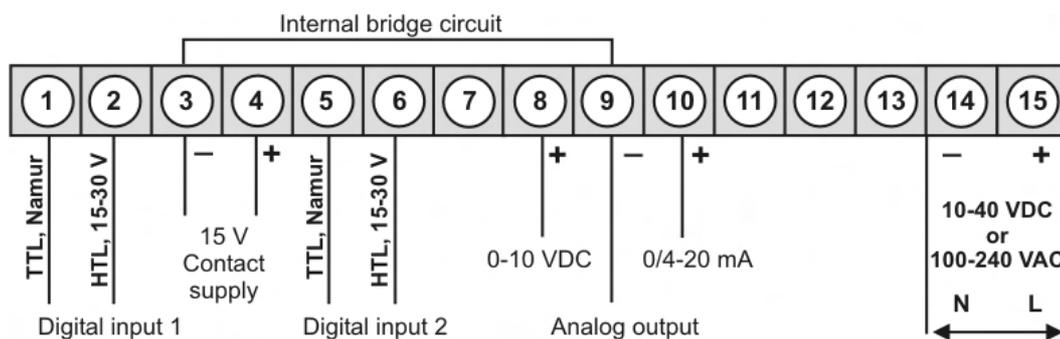
M3 – 5-digit panel meter in 96x24 mm (BxH) setpoint generator

- red display of -19999...99999 digits (optional green, orange, or blue display)
- minimal installation depth: 120 mm without plug-in terminal
- definable setting for the setpoint
- configurable output area between 0...10 V or 0...20 mA
- adjustable increment per press
- display flashing at threshold exceedance / undercut
- digital inputs for key switch or external adjustment buttons
- configurable as a code for the setpoint adjustment protection
- different operation variants for the control setpoint
- optional startup behaviour with last setting or default value
- optional speed settings for adjusting the setpoint
- quick response when changing the default value (ramp function)
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...60°C or -40°C...70°C



• Setpoint device

	ORDER NUMBER	EUR
Supply 100-240 VAC, DC ± 10%	M3-3GR5B.00X0.S70BD	330,00
Supply 10-40 VDC, 18.30 VAC	M3-3GR5B.00X0.W70BD	350,00



• Product key options

M	3-	3	G	R	5	B.	0	0	X	0.	S	7	0	B	D	EUR
M	3-	3	G	R	5	B.	0	0	X	0.	W	7	0	B	D	
										1	Without keypad, operation via PM-TOOL					10,00
										B	Blue					44,00
										G	Green					10,00
										Y	Orange					4,00

Please state physical unit in order, e.g. %.

• Parameterisation software

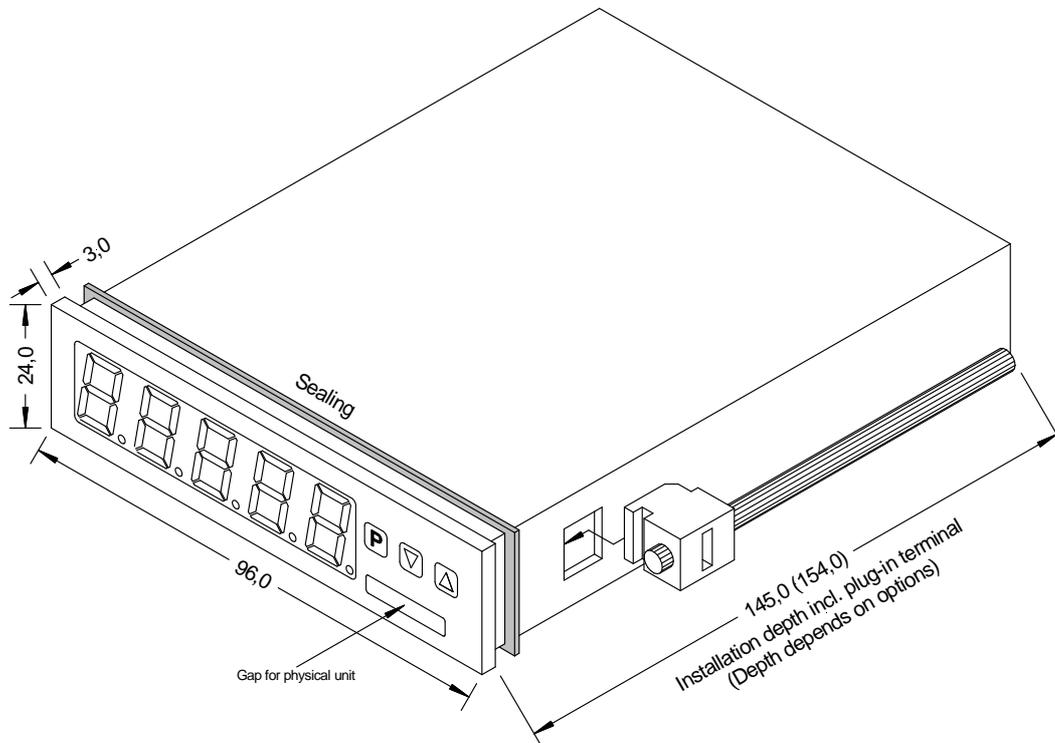
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

	ORDER NUMBER	EUR
	PM-TOOL-MUSB4	89,00

• Technical data

Dimensions	Housing	B96 x H24 x D120 mm, (with plug-in terminal D= 145 mm)
	Panel cut-out	92.0 ^{+0.8} x 22.2 ^{+0.3} mm
	Fixing	screw elements for wall thicknesses up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	IP065 at the front (Standard) IP00 at the back side
	Weight	approx. 250 g
	Connection	plug-in terminal; wire-cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, orange or blue
	Range of display	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Digital input	2 digital inputs (galv. isolated)	HTL: < 2.4 OFF; >10 V ON; max. 30 VDC TTL-Level: > 4.6 V / < 1.9 V, Namur
	Input resistance	Ri at ~5 kΩ
Output	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
	Contact supply	15 VDC / 10 mA
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10 % (max. 10 VA) 10-40 VDC, galvanically isolated, 18-30 VAC 50/60 Hz (max. 10 VA)
Memory	EEPROM	Data retention ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity in accordance with directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order code

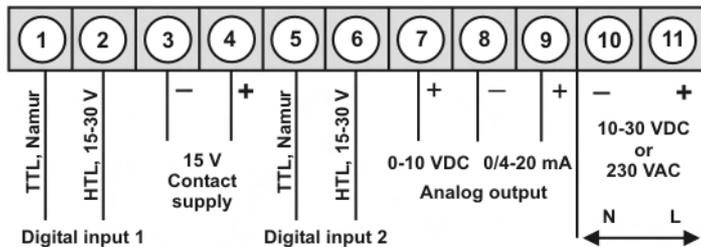
	M	3-	3	G	R	5	B.	0	0	X	0.	S	7	0	B	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D physical unit (free selectable)
Installation depth 145 mm (incl plug-in terminal)																	Version
																	<input type="checkbox"/> B B
Housing size 96x24x120 mm (BxHxD)																	Switching points
																	<input type="checkbox"/> 0 no switching point
Type of display Setpoint device																	Protection class
																	<input type="checkbox"/> 1 without keypad, operation via PM-TOOL
Display colours Blue Green Red Orange																	<input type="checkbox"/> 7 IP65 / plug-in terminal
																	Supply voltage
																	<input type="checkbox"/> S 100-240 VAC
																	<input type="checkbox"/> W 10-40 VDC galv. isolated
Number of digits 5-digit																	Measuring input
																	<input type="checkbox"/> 0 without
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> X 0-10 VDC, 0/4-20 mA
Digital input 2 digital inputs (Standard)																	Sensor supply
																	<input type="checkbox"/> 0 without

M2 – 5-digit panel meter in 96x48 mm (BxH) setpoint generator

- red display of -19999...99999 digits (optional green, orange, or blue display)
- minimal installation depth: 70 mm without plug-in terminal
- definable setting for the setpoint
- configurable output area between 0...10 V or 0...20 mA
- adjustable increment per press
- display flashing at threshold exceedance / undercut
- digital inputs for key switch or external adjustment buttons
- zero button for quick retrieval of a default value
- configurable as a code for the setpoint adjustment protection
- different operation variants for the control set point
- optional startup behaviour with last setting or default value
- optional speed settings for adjusting the setpoint
- quick response when changing the default value (ramp function)
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- optional: 2 relay outputs
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C or -40°C...80°C



• Setpoint device



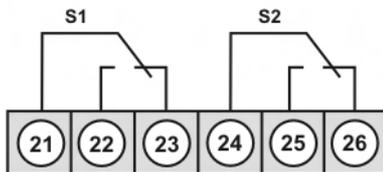
Supply 230 VAC

Supply 10-30 VDC

ORDER NUMBER **EUR**
(without options)

M2-1GR5B.00X0.570CD 260,00

M2-1GR5B.00X0.670CD 330,00



Relay option

• Product key options

M	2-	1	G	R	5	B.	0	0	X	0.	5	7	0	C	D
M	2-	1	G	R	5	B.	0	0	X	0.	6	7	0	C	D

EUR

2	2 relay outputs	30,00
1	Without keypad, operation on the back	10,00
4	Voltage supply 115 VAC	10,25
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00

Please state physical unit in order, e.g. %.

ORDER NUMBER **EUR**

PM-TOOL-MUSB4 **89,00**

• Parameterisation software

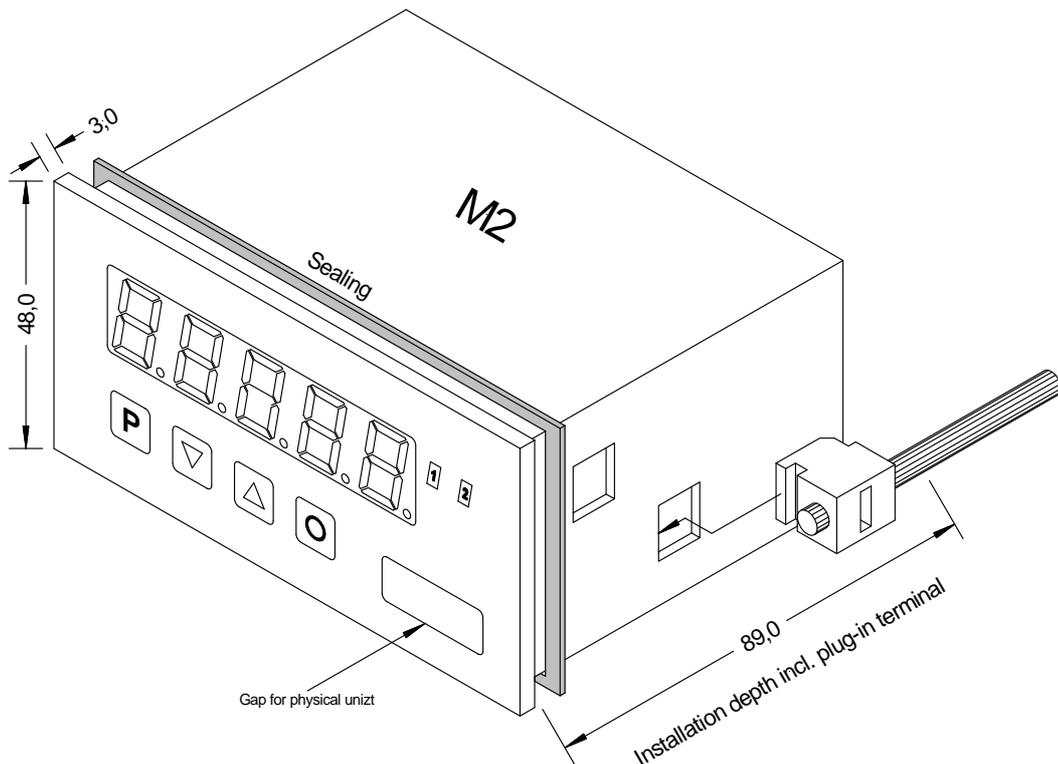
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

96x48

• Technical data

Dimensions	Housing	B96 x H48 x D70 mm, (with plug-in terminal D= 89 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for wall thicknesses up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	IP065 at the front (Standard) IP00 at the back side
	Weight	approx. 250 g
	Connection	plug-in terminal; wire-cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, orange or blue
	Range of display	-19999 to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
Digital input	2 digital inputs (galv. insulated)	HTL: < 2.4 V OFF; >10 V ON; max. 30 VDC TTL-Level: > 4.6 V / < 1.9 V, Namur
	Input resistance	Ri at ~5 kΩ
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycle	30 * 10 ³ at 5 AAC, A ADC ohm resistive burden 10 * 10 ⁶ mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
	Analog output	0-10 VDC/ burden ≥ 10 kΩ, 0/4-20 mA burden ≤ 500 Ω, 16 bit
	Contact supply	15 VDC / 10 mA
Power pack	Supply	230 VAC 50/60 Hz ±10 % (max. 10 VA) 10-30 VDC, galvanically isolated (max. 4 VA)
Memory	EEPROM	Data retention ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity in accordance with directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order code

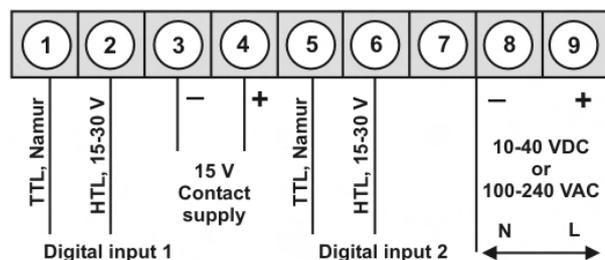
	M	2-	1	G	R	5	B.	0	0	X	0.	6	7	0	C	D	
Standard type M-Line																	
Installation depth 89 mm (incl plug-in terminal)																	Dimension D physical unit (free selectable)
Housing size 96x48x70 mm (BxHxD)																	Version C C
Type of display Setpoint device																	Switching points 0 no switching point 2 2 relay outputs
Display colours Blue Green Red Orange																	Protection class 1 without keypad, operation via PM-TOOL 7 IP65 / plug-in terminal
Number of digits 5-digit																	Supply voltage 4 115 VAC 5 230 VAC 6 10-30 VDC galv. isolated
Digit height 14 mm																	Measuring input 0 without
Digital input 2 digital inputs (Standard)																	Analog output X 0-10 VDC, 0/4-20 mA
																	Sensor supply 0 without

M3 – 5-digit panel meter in 96x48 mm (BxH) setpoint generator with setpoint query via Profibus

- red display of -19999...99999 digits (optional green, orange, or blue display)
- minimal installation depth: 120 mm without plug-in terminal
- definable setting for the setpoint
- setpoint query via Profibus DP
- adjustable increment per press
- display flashing at threshold exceedance / undercut
- digital inputs for key switch or external adjustment buttons
- zero button for quick retrieval of a default value
- configurable as a code for the setpoint adjustment protection
- different operation variants for the control set point
- optional startup behaviour with last setting or default value
- optional speed settings for adjusting the setpoint
- quick response when changing the default value (ramp function)
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -20°C...70°C



• Setpoint device



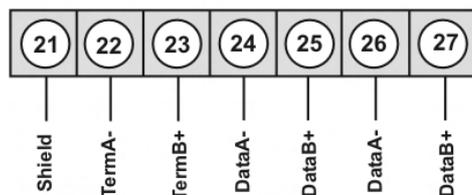
Supply 100-240 VAC, DC ± 10%

Supply 10-40 VDC, 18-30 VAC

ORDER NUMBER **EUR**
(without options)

M3-1GR5B.9000.S70BD 520,00

M3-1GR5B.9000.W70BD 540,00



• Product key options

M	3-	1	G	R	5	B.	9	0	0	0.	S	7	0	B	D
M	3-	1	G	R	5	B.	9	0	0	0.	W	7	0	B	D

EUR

1	Without keypad, operation via parameterisation software	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00

Please state physical unit in order, e.g. %.

ORDER NUMBER **EUR**

• Parameterisation software

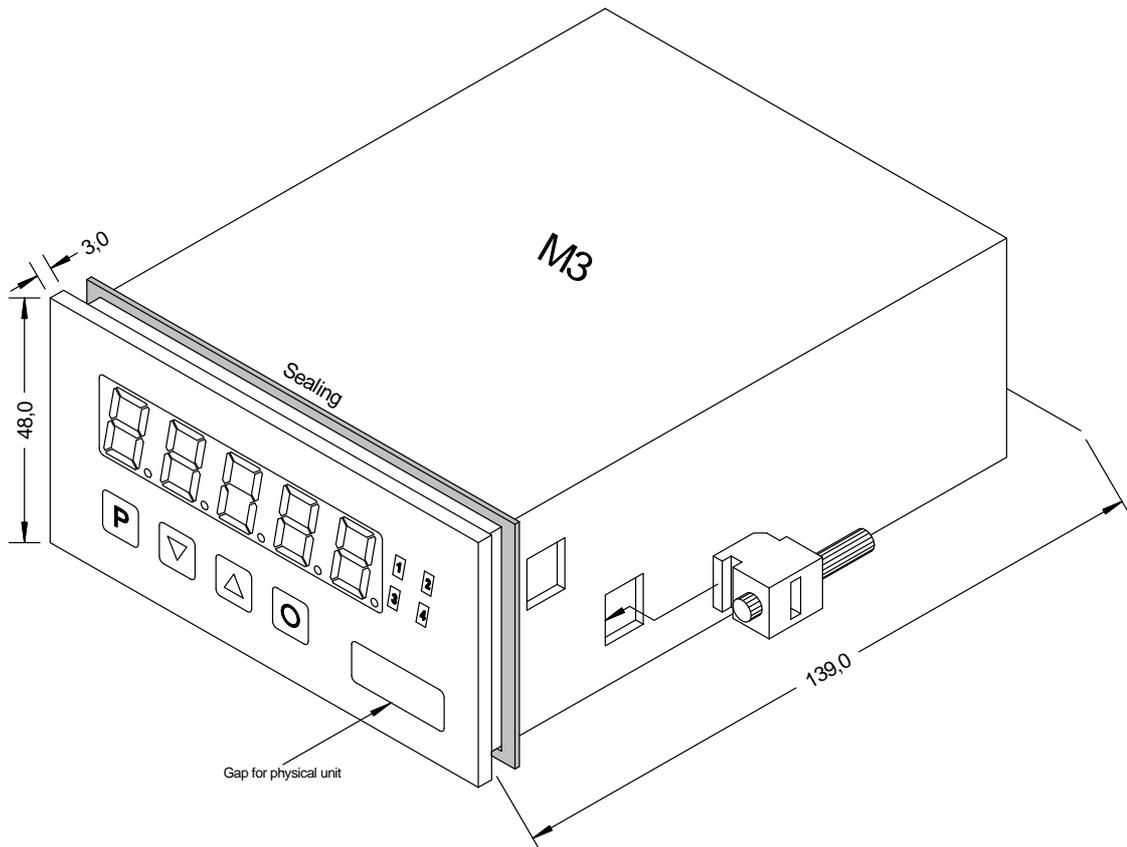
PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

PM-TOOL-MUSB4 **89,00**

• Technical data

Dimensions	Housing	B96 x H48 x D120 mm, (with plug-in terminal D= 139 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for wall thicknesses up to 15 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	IP065 at the front (Standard) IP00 at the back side
	Weight	approx. 350 g
	Connection	plug-in terminal; wire-cross section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, orange or blue
	Range of display	-19999 to 99999
	Limit values	optical display flashing
Digital input	2 digital inputs (galv. isolated)	HTL: < 2.4 V OFF; >10 V ON; max. 30 VDC TTL-Level: > 4.6 V / < 1.9 V, Namur
	Input resistance	Ri at ~5 kΩ
Output	Contact supply	15 VDC / 10 mA
Interface	Protocol	Profibus DP
	Baudrate	autobaud detection up to 12 Mbaud
	Interface	RS485
	Wire length	max. 1000m
	Bus termination	pull-up/-down according to EN 50170
Termination	via plug-in terminal	
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10% (max. 15 VA) 10-30 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data retention ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Climatic density	relative humidity 0-85% on years average without dew
CE-sign	Conformity in accordance with directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



• Order code

	M	3-	1	G	R	5	B.	9	0	0	0.	S	7	0	B	D	
Standard type M-Line																Dimension	
																<input type="checkbox"/> D physical unit (free selectable)	
Installation depth																Version	
139 mm (incl plug-in terminal)	<input type="checkbox"/> 3															<input type="checkbox"/> B B	
Housing size																Switching points	
96x48x120 mm (BxHxD)	<input type="checkbox"/> 1															<input type="checkbox"/> 0 no switching point	
Type of display																Protection class	
Setpoint device	<input type="checkbox"/> G															<input type="checkbox"/> 1 without keypad, operation via PM-TOOL	
Display colours																<input type="checkbox"/> 7 IP65 / plug-in terminal	
Blue	<input type="checkbox"/> B															Supply voltage	
Green	<input type="checkbox"/> G															<input type="checkbox"/> S 100-240 VAC	
Red	<input type="checkbox"/> R															<input type="checkbox"/> W 10-40 VDC galv. isolated	
Orange	<input type="checkbox"/> Y															Measuring input	
Number of digits																<input type="checkbox"/> 0 without	
5-digit	<input type="checkbox"/> 5															Analog output	
Digit height																<input type="checkbox"/> 0 without	
14 mm	<input type="checkbox"/> B															Sensor supply	
Interface																<input type="checkbox"/> 0 without	
Profibus DP	<input type="checkbox"/> 9																

Counter – adjustable as count-up-/reverse counter or timer

Measuring input: pulse input, Namur, 3-wire initiator

72x24mm

- **PC4 – Digital panel meter, 4-digit**
- 2 switching points (PhotoMos)
- reset-input

72x36mm

- **PC4 – Digital Einbauinstrument, 4-digit**
- 2 switching points (PhotoMos)
- reset-input
- sensor supply

96x24mm

- **PC6 – Digital panel meter, 6-digit**
- 2 switching points (PhotoMos)
- reset-input
- sensor supply

96x48mm

- **PC6 – Digital panel meter, 6-digit**
- 2 switching points (PhotoMos)
- reset-input
- sensor supply

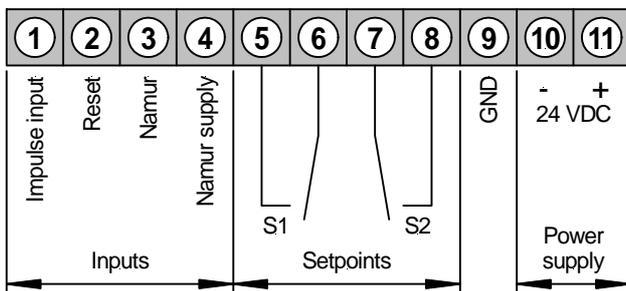
PC4 – 4-digit counter in 72x24 mm (BxH)

- red display from 0...9999 digit (optional green)
- pulse counter with display factor and reset
- timer with start-/stop- or reset function
- timer steps from 10 ms to 9999 s adjustable
- counter value storing during power failure and malfunction
- adjustable forward-/backward counting with initial value
- adjustable shoulder compilation
- adjustable pulse attenuation to 30 Hz, normally 10 kHz
- input for Namur sensors and 3-wire sensors
- switching contact for adjustable threshold values or pulse divisor
- protection class IP54 standard
- digit height 14 mm



ORDER TYPE **EUR**
(without options)

• Impulse counter



Power supply 24 VDC
(galvanic isolated)

PC 4.0003.5752B **280,00**

• Order key options

P	C	4	0	0	0	3	5	7	5	2	B			EUR
												G	Green LED on demand	
												7	Protection class IP65	10,25

• Technical data

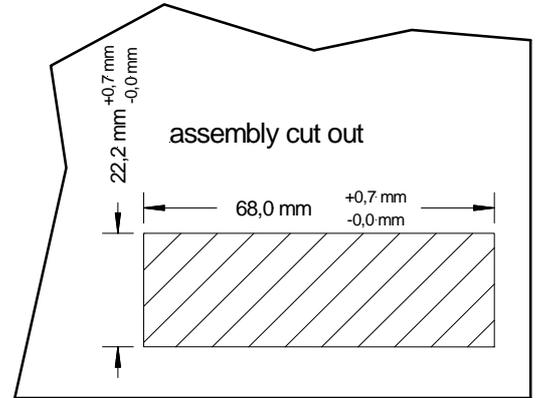
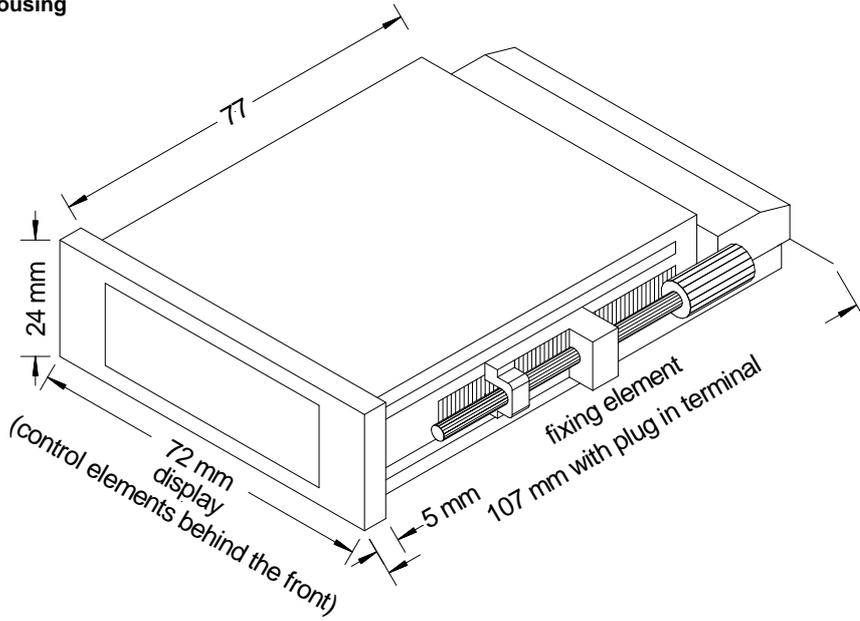
Housing	Dimension	72 x 24 x 107 mm (WxHxD) including plug-in terminal
	Assembly cut out	68.0 ^{+0.7} x 22.0 ^{+0.6} mm
	Fastening	special quick plastic clasp
	Wall thickness	0-50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54, (front), IP00 (rear side)
	Weight	approx. 120 g
Indication	Character height	14 mm
	Segment colour	red
Input	Impulse instalment	10000 impulses/s max. 30 pulses/s with active damping
	Input resistance	approx. 5 kΩ
	Input voltage	±5...24 V
	HIGH- / LOW level	≥6 V / <4 V
Output	Setpoints	30 VAC/0.4 A – 30 VDC/0.4 A
	Photo Mos	Input – output voltage / disruptive discharge 100 VAC
Power unit	Power supply	24 VDC / ±10 %
	Power consumption	max. 5 VA
Memory	EEPROM	Data conservation >30 years
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
	Climatic conditions	rel. humidity ≤75% in the annual mean without formation of condensation

EMV DIN 61326

CE-sign Conformity in accordance with 2014/30/EU

Safety requirement DIN 61010

Housing



• Ordering code

	P	C	4.	0	0	0	3.	5	7	6	2	B	
Processor device													Version
Type Counter	C												B Version B
Number of digits 4 digits			4										Setpoints 2 2 setpoints
Interface not available				0									Mechanical options 5 Protection IP54, plug-in terminal 7 Protection IP65 at the front, plug-in terminal
Sensor supply not available					0								Power supply 7 24 VDC (galvanic isolated)
Analog output not available													Size of housing 5 72x24 mm (BxH)
													3 Counter

PC4 – 4-digit counter in 72x36 mm (BxH)

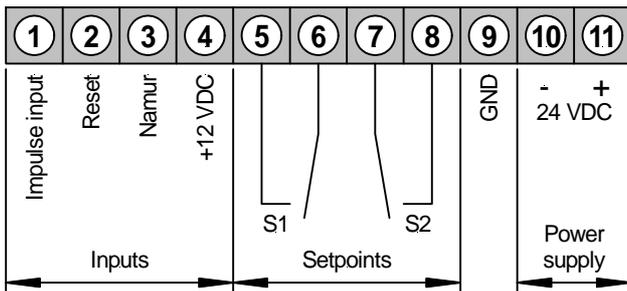
- red display from 0...9999 digit (optional green)
- pulse counter with display factor and reset
- timer with start-/stop- or reset function
- timer steps from 10 ms to 9999 s adjustable
- counter value storing during power failure and malfunction
- adjustable forward-/backward counting with initial value
- adjustable shoulder compilation
- adjustable pulse attenuation to 30 Hz, normally 10 kHz
- input for Namur sensors and 3-wire sensors
- switching contact for adjustable threshold values or pulse divisor
- protection class IP54 standard
- digit height 14 mm



ORDER NUMBER **EUR**
(without options)

PC 4.0H03.6742C **265,00**

• Impulse counter



Power supply 24 VDC
(galvanic isolated)

• Order key options

P	C	4	0	H	0	3	6	7	4	2	C		EUR
											G	Green LED on demand	
											1	Protection class IP65 at the front	10,25
											7	Protection class IP65 at the front and plug-in terminal	19,45
											9	plug-in terminal	9,20

Please state physical unit in order, e.g. kg.

• Technical data

Housing	Dimension	72 x 36 x 103 mm (WxHxD) including screw terminal 72 x 36 x 115 mm (WxHxD) including plug-in terminal
	Assembly cut out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fastening	special quick plastic clasp
	Wall thickness	0-50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54, (front), IP00 (rear side)
	Weight	ca. 140 g
	Connection	screw terminal /screw plug-in terminal; uni diameter joint up to 2.5 mm ²
Indication	Character height	14 mm
	Segment colour	red
	Display	4-digit
Input	Impulse instalment	10.000 impulses/s max. 30 pulses/s with active damping
	Input resistance	approx. 5 kΩ
	Input voltage	±5...24 V
	HIGH- / LOW level	≥ 6 V / < 4 V
Output	Sensor supply	12 VDC/15 mA (not galvanic isolated)
	Setpoints	30 VAC/0.4 A – 30 VDC / 0.4 A
	PhotoMos	Input – output voltage / disruptive discharge 100 VAC
Power unit	Power supply	24 VDC / ±10%
	Power consumption	max. 5 VA
Memory	EEPROM	Data conservation >30 years

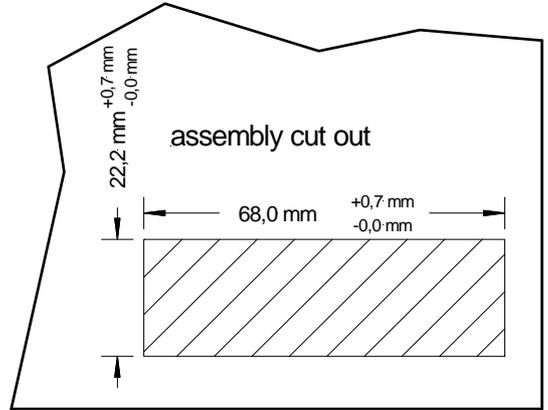
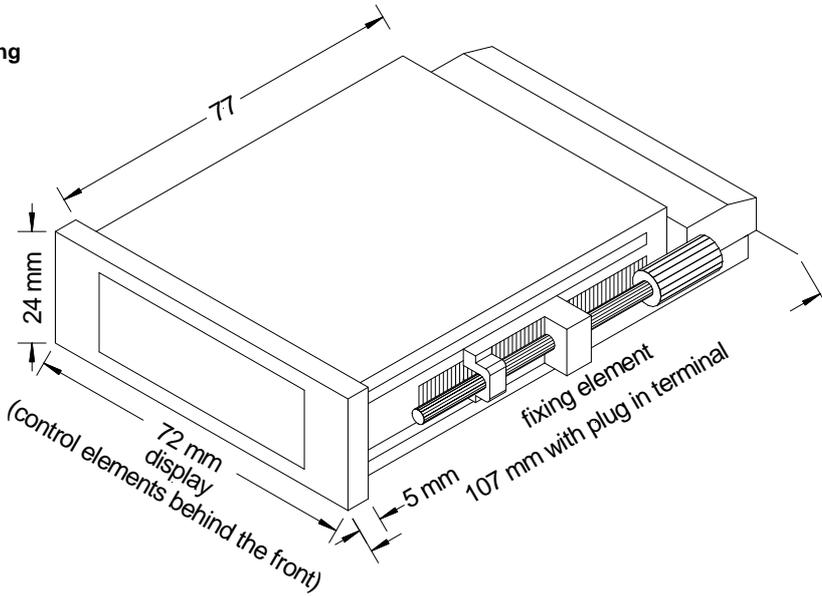
Ambient conditions Working temperature 0 up to +60°C
 Storing temperature -20 up to +80°C
 Climatic conditions rel. humidity ≤75% in the annual mean without formation of condensation

EMV DIN 61326

CE-sign Conformity in accordance with 2014/30/EU

Safety requirement DIN 61010

Housing



• **Ordering code**

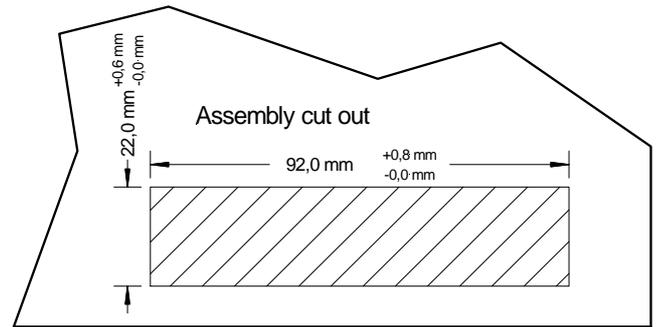
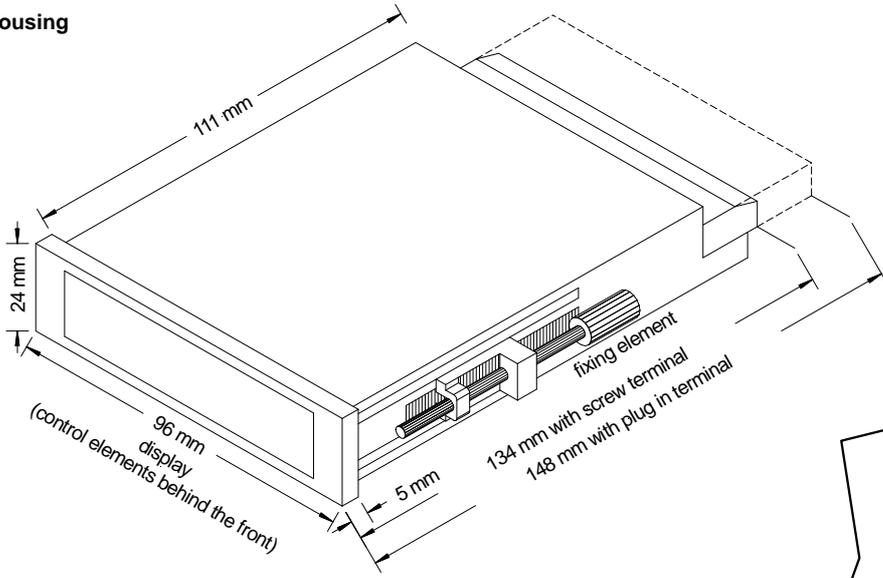
		P	C	4	0	H	0	3	6	7	4	2	C		
Processor device														Version	
														<input type="checkbox"/> C	Version C
Type														Switching points	
Counter	<input type="checkbox"/> C													<input type="checkbox"/> 2	2 switching points
Number of digits														Mechanical options	
4 digits	<input type="checkbox"/> 4													<input type="checkbox"/> 1	Keypad, protection IP65, screw terminal
Interface														<input type="checkbox"/> 4	Keypad, protection IP54, screw terminal
not available	<input type="checkbox"/> 0													<input type="checkbox"/> 7	Keypad, protection IP65, plug-in terminal
														<input type="checkbox"/> 9	Keypad, protection IP54, plug-in terminal
Sensor supply														Power supply	
12 VDC / 15 mA	<input type="checkbox"/> H													<input type="checkbox"/> 7	24 VDC (galvanic isolated)
Analog output														Size of housing	
not available	<input type="checkbox"/> 0													<input type="checkbox"/> 6	72x36 mm (BxH)
														<input type="checkbox"/> 3	Counter

EMV DIN 61326

CE-sign Conformity in accordance with 2014/30/EU

Safety requirement DIN 61010

Housing



• **Ordering code**

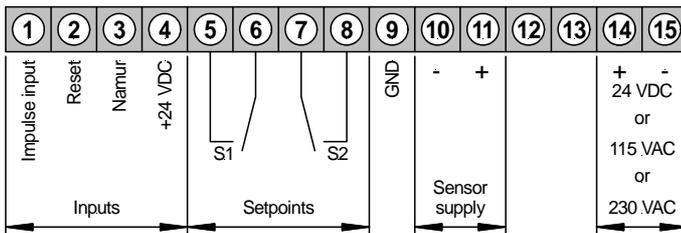
	P	C	6	0	H	0	3	3	7	3	2	B	
Processor device													
Type Counter	C												
Number of digits 6 digits	6												
Interface not available	0												
Sensor supply 12 VDC / 15 mA	H												
Analog output not available	0												
												Version Version B	
												Switching points 2 switching points	
												Mechanical options 3 Operation behind front pane, IP54, screw terminal 5 Operation behind front pane, IP54, plug-in terminal	
												Power supply 7 24 VDC (galvanic isolated)	
												Size of housing 6 96x24 mm (BxH)	
												Counter 3	

PC6 – 6-digit counter in 96x48 mm (BxH)

- red display from 0...999999 digit (optional green)
- pulse counter with display factor and reset
- timer with start-function, stop-function or reset function
- timer steps from 10 ms to 999999 s adjustable
- counter value storing during power failure and malfunction
- adjustable forward-/backward counting with initial value
- adjustable shoulder compilation
- adjustable pulse attenuation to 30 Hz, normally 10 kHz
- input for Namur sensors and 3-wire sensors
- switching contact for adjustable threshold values or pulse divisor
- protection class IP54 standard
- digit height 14 mm



• Impulse counter



Power supply 230 VAC
 Power supply 115 VAC
 Power supply 24 VDC
 (galvanic isolated)

ORDER NUMBER
 (without options)

EUR

PC 6.0303.1542B 280,00
PC 6.0303.1442B 280,00
PC 6.0303.1742B 310,00

• Order key options

P	C	6.	0	3	0	3.	1	X	4	2	B		EUR	
												G	Green LED on demand	
												1	Protection class IP65 at the front	10,25
												7	Protection class IP65 at the front and plug-in terminal	24,55
												9	Protection class IP54 at the front and plug-in terminal	14,30

Please state physical unit in order, e.g. kg.

• Technical data

Housing	Dimensions	96 x 48 x 134 mm (WxHxD) including screw terminal 96 x 48 x 148 mm (WxHxD) including plug-in terminal
	Assembly cut out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fastening	special quick plastic clasp
	Wall thickness	0-50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54, (front), IP00 (rear side)
	Weight	approx. 390 g
Connection	Connection	screw terminal /plug-in terminal; uni diameter joint up to 2.5 mm ²
Indication	Character height	14 mm
	Segment colour	red
	Display	6-digit
Input	Impulse installment	10000 pulses/s max 30 pulses/s with active damping
	Input resistance	approx. 5 kΩ
	Input voltage	±5...24 V
	HIGH- / LOW level	≥6 V / <4 V
Output	Sensor supply	24 VDC/15 mA
	galvanic isolated	
	Setpoints	30 VAC/0.4 A – 30 VDC / 0.4 A
	PhotoMos	Input – output voltage / disruptive discharge 100 VAC
Power unit	supply voltage	230 VAC / 50/60 Hz / ±10% 115 VAC / 50/60 Hz / ±10% 24 VDC / ±10%
	power consumption	max. 5 VA
Memory	EEPROM	Data conservation >30 years

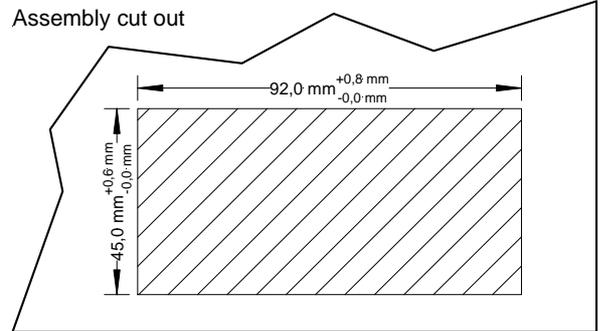
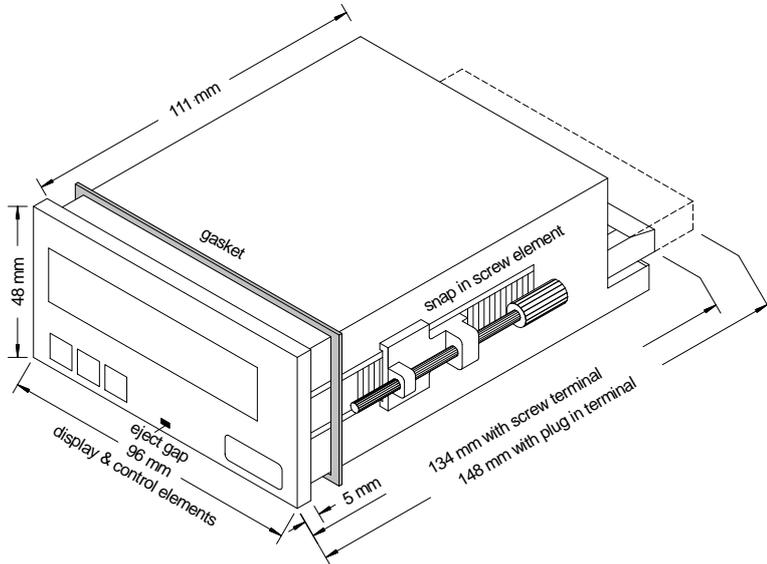
Ambient conditions Working temperature 0 up to +60 °C
 Storing temperature -20 up to + 80 °C
 Climatic conditions rel. humidity ≤75% in the annual mean without formation of condensation

EMV DIN 61326

CE-sign Conformity in accordance with 2014/30/EU

Safety standard DIN 61010

Housing



• **Ordering code**

		P	C	6	0	3	0	3	1	7	4	2	B		
Processor device														Version	
														<input type="checkbox"/> B	Version B
Type														Switching points	
Counter	<input type="checkbox"/> C													<input type="checkbox"/> 2	2 switching points
Number of digits														Mechanical options	
6 digits	<input type="checkbox"/> 6													<input type="checkbox"/> 1	Keypad, protection IP65, screw terminal
Interface														<input type="checkbox"/> 4	Keypad, protection IP54, screw terminal
not available	<input type="checkbox"/> 0													<input type="checkbox"/> 7	Keypad, protection IP65, plug-in terminal
														<input type="checkbox"/> 9	Keypad, protection IP54, plug-in terminal
Sensor supply														Power supply	
24 VDC / 15 mA	<input type="checkbox"/> 3													<input type="checkbox"/> 4	115 VAC
														<input type="checkbox"/> 5	230 VAC
														<input type="checkbox"/> 7	24 VDC (galvanic isolated)
Analog output														Size of housing	
not available	<input type="checkbox"/> 0													<input type="checkbox"/> 1	96x48 mm (BxH)
														<input type="checkbox"/> 3	Counter

Bargraph indicators

**Measuring input: direct current / direct voltage 0-10 VDC / 0/4-20 mA,
high voltage input up to 300 VDC,
pulse input, Namur or 3-wire-initiator**

48x24

- **BxO1 – Bargraph indicator, direct current / direct voltage: 0-50 VDC, 0/4-20 mA**
 - 10 segments
 - vertical / horizontal
 - bar- or DOT-display

72x24

- **BxO2– Bargraph indicator, direct current / direct voltage: 0-50 VDC, 0/4-20 mA**
 - 20 segments
 - vertical / horizontal
 - bar- or DOT-display

96x24

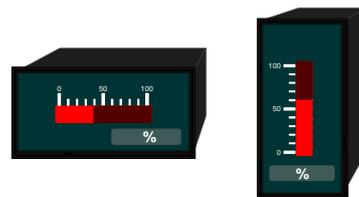
- **MB1 – Bargraph indicator, direct current / direct voltage: 0-10 VDC, 0/4-20 mA**
 - 30 segments
 - vertical / horizontal
 - minimal installation depth
 - adjustable bar- or DOT-display
- **MB3 – Bargraph with digital 7-segment-display, direct current / direct voltage: 0-10 VDC, 0/4-20 mA, alternatively up to 300 VDC**
 - 30 segments tricolour (red-green-orange)
 - vertical / horizontal
 - adjustable bar- or DOT-display
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - interface RS232/RS485
- **BxO3 – Bargraph indicator, direct current / direct voltage: 0-10 VDC, 0/4-20 mA**
 - 30 segments
 - vertical / horizontal
 - bar- or DOT-display

96x96

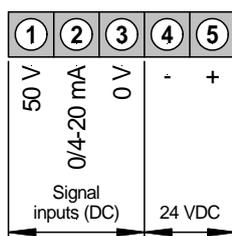
- **MB2 – Bargraph with digital 7-segment-display, direct current / direct voltage: 0-10 VDC, 0/4-20 mA**
 - 55 segments, adjustment 270°
 - 5-digit digital 7-segment-display
 - adjustable bar- or DOT-display
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - interface RS232/RS485
- **MB2 – Bargraph with digital 7-segment-display, frequency: 0.01 Hz to 999.99 kHz**
 - 55 segments, adjustment 270°
 - 5-digit digital 7-segment-display
 - adjustable bar- or DOT-display
 - 2 switching points (Relay)
 - sensor supply
 - digital input
 - analog output
 - interface RS232/RS485

BVO1, BHO1 – bargraph display in 48x24 mm (BxH) Direct current / direct voltage signals 0-50 VDC, 0/4-20 mA

- without setpoints
- display range adjustable via potentiometer
- protection class IP54



• Direct voltage, direct current



Power supply 24 VDC
galv. isolated

	ORDER NUMBER (without options)	EUR
vertical	BVO 1.001.775B	127,15
horizontal	BHO 1.001.775B	127,15

• Order key options

B	V	O	1.	0	0	1.	7	7	5	B
B	H	O	1.	0	0	1.	7	7	5	B

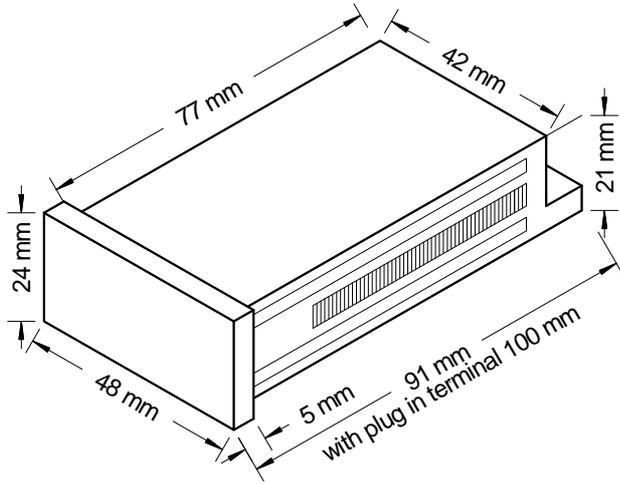
G	Green bargraph display	EUR 12,80
7	Protection class IP65 at the front side	EUR 28,10

Please state physical unit on demand in order, e.g. %.

• Technical data

Dimensions	Housing	48 x 24 x 100 mm, including plug-in terminal
	Assembly cut out	45.0 ^{+0.6} x 22.2 ^{+0.3} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-blend, colour black, UL94V-0
	Protection	at the front IP54 connection IP00
	Weight	approx. 60 g
	Connection	at the rear side via terminals up to 1.5 mm ²
	Input	Measuring range
Input resistance		All ranges selectable via connection terminal / offset adjustment supported by offset potentiometer Ri with 10 V = 100 K Ω 20 mA = 100 Ω
Accuracy	Resolution	10 digit
	Measuring fault	± 1 digit
	Temp. drift	100 ppm/K
Power unit	Supply voltage	24 VDC $\pm 10\%$ galvanic insulated
	Power consumption	approx. 1.5 VA
Display	Display	bargraph indication 10 digits
	Colour	red / optionally green
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C

Housing:



• **Ordering code**

B H O 1 0 0 1 7 7 5 B

Basic model

Orientation

horizontal
vertical

H
V

Digital indication (numeric)

without indication

0

Number of bars

10

1

Sensor supply

not available

0

Analog output

not available

0

Internal index

Mechanical options

5 Protection IP54
7 Protection IP65

Power supply

7 24 VDC galvanic isolated

Size of housing

7 48x24 mm

Measuring input

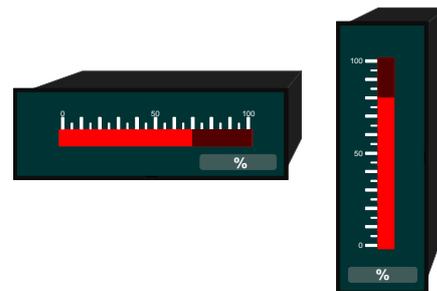
1 Direct voltage, direct current

BVO2, BHO2 – bargraph display in 72x24 mm (BxH)

Direct current, direct voltage

0-50 VDC, 0/4-20 mA

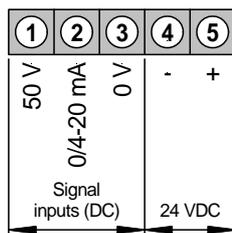
- without setpoints
- display range adjustable via potentiometer
- protection class IP54



ORDER NUMBER
(without options)

EUR

• Direct voltage, direct current



Power supply 24 VDC
galv. isolated

vertical	BVO 2.001.575B	161,15
horizontal	BHO 2.001.575B	161,15

• Order key options

B	V	O	2.	0	0	1.	5	7	5	B
B	H	O	2.	0	0	1.	5	7	5	B

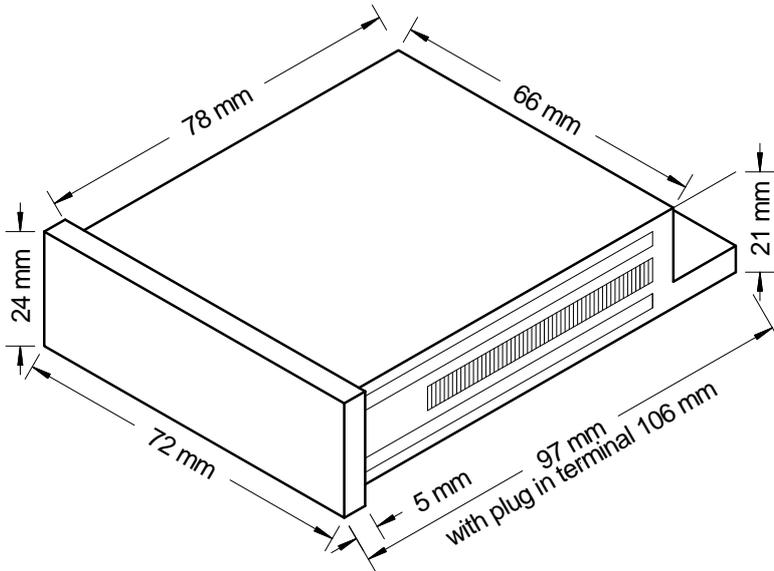
G	Green bargraph display	EUR 12,80
7	Protection class IP65 at the front side	EUR 28,10

Please state physical unit in order, e.g. %.

• Technical data

Dimensions	Housing	72 x 24 x 106 mm, including plug-in terminal
	Assembly cut out	68 ^{+0.7} x 22.2 ^{+0.3} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-blend, colour black, UL94V-0
	Protection	at the front IP54 connection IP00
	Weight	approx. 80 g
	Connection	at the rear side via terminals up to 1.5 mm ²
	Input	Measuring range
	Input resistance	R _i with 10 V = 100 K Ω 20 mA = 100 Ω
Accuracy	Resolution	20 digit
	Measuring fault	±1 digit
	Temp. drift	100 ppm/K
Power unit	Supply voltage	24 VDC ±10% galvanic isolated
	Power consumption	approx. 1.5 VA
Display	Display	bargraph indication 20 digits
	Colour	red / optionally green
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C

Housing:



• Ordering code

B H O 2 0 0 1 5 7 5 B

Basic model

Orientation

horizontal
vertical

H
 V

Digital display (numeric)

without display

0

Number of bars

20

2

Sensor supply

not available

0

Analog output

not available

0

Internal index

Mechanical options

5 Plug-in terminal, Protection IP54
 7 Plug-in terminal, Protection IP65

Power supply

1 **230/115 VAC**
 7 24 VDC galvanic isolated

Size of housing

5 **72x24**

Measuring input

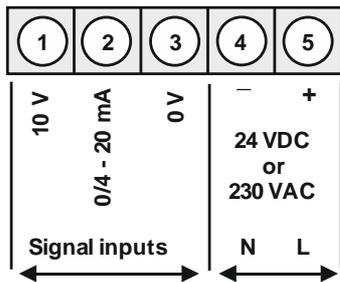
1 **Direct voltage, direct current**



**MB1 – bargraph display in 96x24 mm (BxH)
Direct voltage / direct current signals
0-10 VDC, 0/4-20 mA**

- 30 point bargraph display, colour: red or green, selectable via decode switch
- minimum installation depth: 60 mm without plug-in screw terminal
- adjustable via HEX switch and push-button
- pre-adjusted input for standard signals 0-10 V and 0/4-20 mA
- free adjustment on the input signal
- 8 different display types adjustable as bar, dot/point or curtain
- free choice of direction and display of centre (e.g. bars starting from the middle of display)
- control of bightness level in stages
- protection class IP65
- plug-in terminal
- optional: colour orange/green, blue/red

• **Direct current, direct voltage**



Supply 24 VDC

horizontal

MB1-33RHO.0001.770BD 155,00

vertical

MB1-33RVO.0001.770BD 155,00

Supply 230 VAC

horizontal

MB1-33RHO.0001.570BD 155,00

vertical

MB1-33RVO.0001.570BD 155,00

• **Product key options**

M	B	1-	3	3	R	3	H	O.	0	0	0	1.	7	7	0	B	D
M	B	1-	3	3	R	3	V	O.	0	0	0	1.	7	7	0	B	D
M	B	1-	3	3	R	3	H	O.	0	0	0	1.	5	7	0	B	D
M	B	1-	3	3	R	3	V	O.	0	0	0	1.	5	7	0	B	D

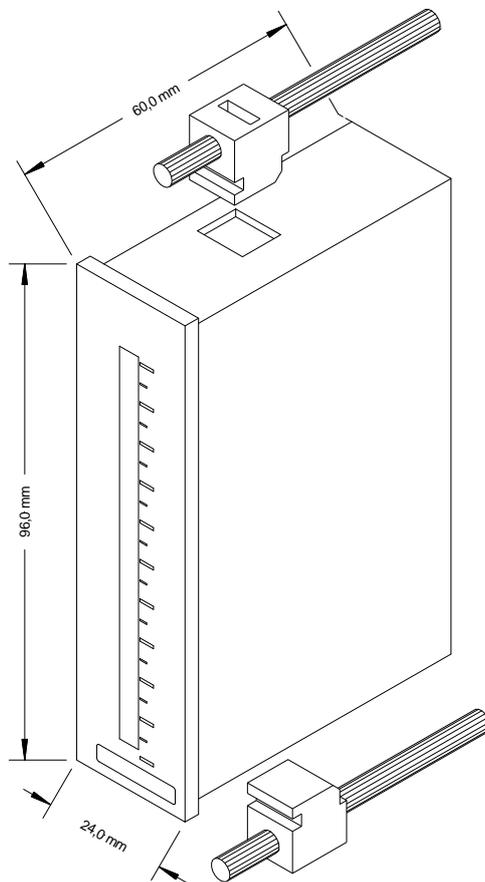
B	Blue/red bargraph display	xx,00
Y	Orange/green bargraph display	xx,00

Please state physical unit in order, e.g. %.

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x D60 mm (D=69 mm incl. plug-in terminal) 92.0 ^{+0.8} x 22.0 ^{+0.3} mm screw elements for insulation thickness up to 3 mm PC Polycarbonate; colour: black UL94V-0 EPDM, 65 Shore front IP65 standard, rear side IP00 approx. 100 g plug-in terminal; line cross section up to 2.5 mm ²
Display	Bargraph Bargraph segment Segment colour Display range Overflow Underflow Display time/Meas. time	30 points 4 mm red/green selectable, optionally blue/red, orange/green 30 point bargraph display all segments are flashing, except the last three segments flashing of the first two bargraph elements approx. 100 ms
Measuring input	Span Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	-12...12 V / -22 mA...24 mA 0...10 V / 0/4...20 mA Ri at ~200 kΩ / Ri at ~100 Ω 0.5% of final value, ±1 Digit / 0.5% of final value, ±1 Digit 100 ppm/K approx. 100 ms U/F-converter approx. 14 Bit at 0.1 s measuring time
Power pack	Supply	24 VDC, ±10% (max. 2 VA) 230 VAC, ±10% 50/60 Hz, max. 3 VA
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0 to +60°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	Conformity to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010, EN 60664-1	

Housing:



• Ordering code

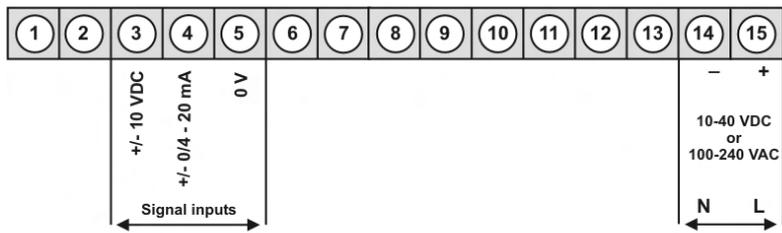
	M	B	1-	3	3	R	H	O.	0	0	0	1.	7	7	0	B	D	
Basic type M-Line																	Dimension	
Bargraph display	B																D physical unit	
Installation depth																	Version	
69 mm (incl. plug-in terminal)	1																B	
Housing size																	Setpoints	
B96xH24xD60 mm	3																0 no setpoints	
Resolution																	Protection class	
30 points	3																7 IP65 / plug-in terminal	
Display colours																	Voltage supply	
Red/Green	G																7 24 VDC galv. isolated	
Orange/Green	R																5 230 VAC	
Blue/Red	Y																Measuring input	
Adjustment																	1 Standard signal 0/4-20 mA, 0-10 VDC	
Horizontal	H																Analog output	
Vertical	V																0 without	
Digital display																	Sensor supply	
without	0																0 without	
																	Interface	
																	0 without	



MB3 – 3-digit digital panel meter in 96x24 mm with bargraph Direct current/direct voltage signals 0/4-20 mA, 0-10 VDC

- red 3-digit digital display -199...999 Digits (optional green display)
- 30-points-bargraph tricolour
- adjustable bargraph or dot operation or operation with permanent display of the midpoint
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply units 100-240 VAC, alternatively 10-40 VDC, galvanic isolated
- display adjustment via factory setting or directly via sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance/undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume metering (Totaliser)
- mathematic functions like reciprocal value, root extraction, squaring and rounding
- sliding averaging
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: galv. isolated digital input for the triggering of Tara, Hold or display change
- optional: interface RS232 or RS485
- accessories: PC-based configuration-kit PM-TOOL with CD & USB-adapter
- on demand: devices for working temperatures of -40°...+70°C (MB30...)

• Direct current, direct voltage



horizontal
vertical

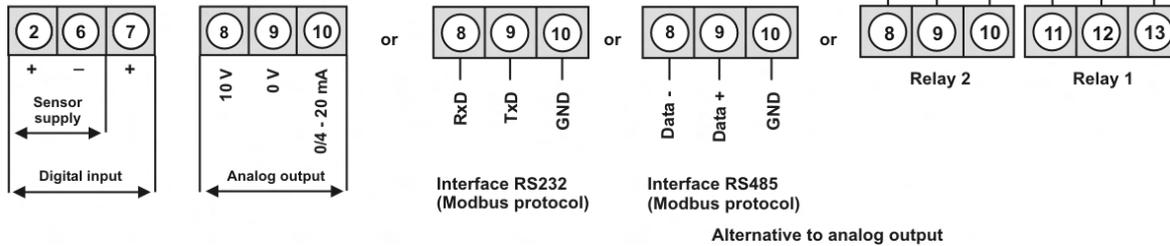
ORDER NUMBER
(without options)

EUR

MB3-3VT3HR.0001.S70AD 260,00
MB3-3VT3VR.0001.S70AD 260,00
Supply 100-240 VAC

MB3-3VT3HR.0001.W70AD 260,00
MB3-3VT3VR.0001.W70AD 260,00
Supply 10-40 VDC

Options:



• Product key options

M	B	3-	3	V	T	3	H	R.	0	0	0	1.	S	7	0	B	D
M	B	3-	3	V	T	3	V	R.	0	0	0	1.	S	7	0	B	D
M	B	3-	3	V	T	3	H	R.	0	0	0	1.	W	7	0	B	D
M	B	3-	3	V	T	3	V	R.	0	0	0	1.	W	7	0	B	D

Device with a supply of 100-240 VAC

EUR

Device with a supply of 10-30 VDC

	1	1 relay output (only 1 switching output possible with option analog output)	20,00
	2	2 relay outputs	30,00
	X	Analog output 0/4-20 mA, 0-10 VDC	90,00
	2	Sensor supply 10 VDC / 50 mA incl. digital input	35,00
	3	Sensor supply 24 VDC / 50 mA incl. digital input	35,00
	I	Digital input	10,00
	3	Interface RS232 galv. isolated	65,00
	4	Interface RS485 galv. isolated	65,00
	G	Green display, 8 mm height	10,00

Please state physical unit in order, e.g. %.

ORDER NUMBER

EUR

• Parameterisation software

Parameterisation software PM-TOOL, for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

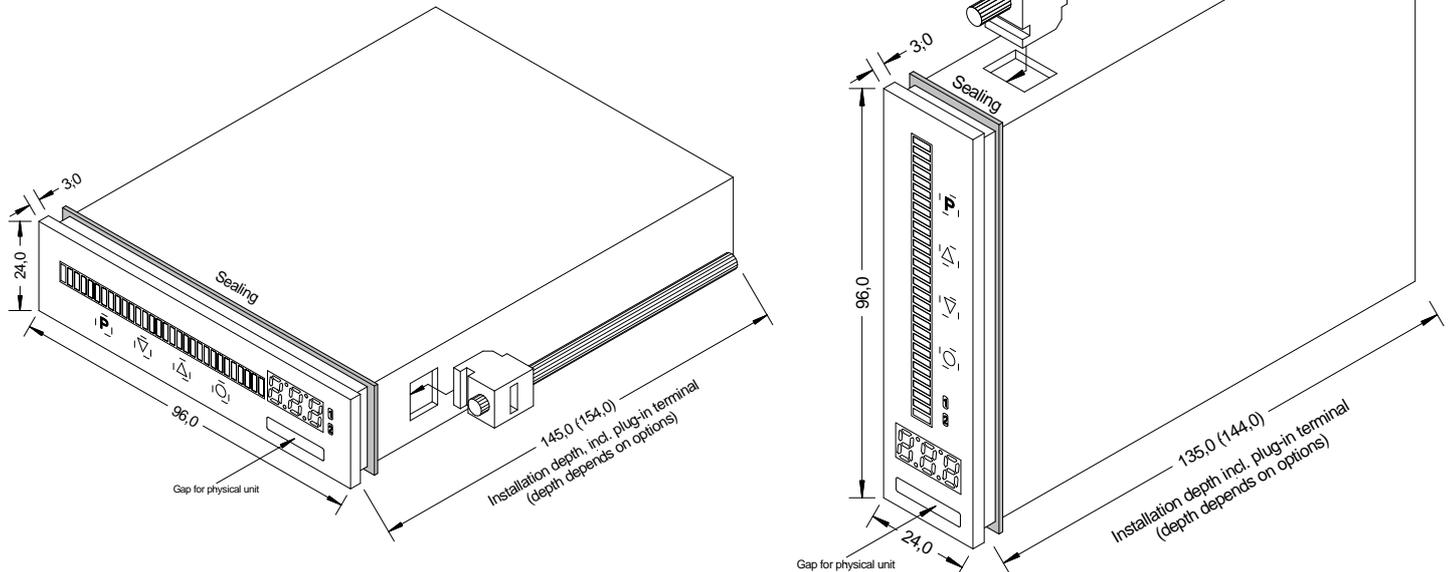
PM-Tool-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H24 x T120 mm (T=144 mm incl. plug-in terminal)	
	Panel cut-out	92.0 ^{+0.8} x 22.0 ^{+0.3} mm	
	Fixing	screw elements for a wall thickness of up to 3 mm	
	Housing material	PC Polycarbonate, colour black UL94V-0	
	Sealing material	EPDM, 65 Shore	
	Protection class	IP65 standard at the front IP00 at the back	
	Weight	approx. 200 g	
	Connection	plug-in terminal; wire cross section up to 2.5 mm ²	
	Display	Display	3-digit, 8 mm high
		Display	-199...999
Bargraph		30 digit, tricolour	
Segment colour		red, optional green	
Overflow		flashing of the two upper bargraph elements	
Underflow		flashing of the two lower bargraph elements	
Display time		0.01...10.0 seconds	
Measuring input	Measuring span	-12...12 V / -22 mA...24 mA	
	Measuring range	0...10 V / 0/4...20 mA	
	Input resistance	R _i at ~200 kΩ / R _i at ~100 Ω	
	Measuring error	0.1% of measuring range, ± 1 digit / 0,1% of measuring range, ± 1 Digit	
	Temperature drift	100 ppm/K	
	Measuring time	0.1...10.0 seconds	
	Measuring principle	U/F-converter	
	Resolution	approx. 18 bit at 1 second measuring time	
Output	Relay	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC	
	Switching cycle	30 * 10 ³ at 2 AAC, 2 ADC ohm resistive load, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255	
	Analog output	0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 Bit	
	Sensor supply	24 VDC / 50 mA 10 VDC / 50 mA	
Digital input	Input	< 2.4 V OFF; >10 V ON; max. 30 VDC R _i ~ 5 kΩ	
Interface	Protocol	manufacturer-specific ASCII	
	RS232	9.600 baud, no parity, 8 dataBit, 1 stopBit	
	Wire length	max. 3 m	
	RS485	9.600 baud, no parity, 8 dataBit, 1 stopBit	
Wire length	max. 1000 m		
Power pack	Supply	100-240 VAC 50/60 Hz / DC ±10 % (max. 10 VA) 10-40 VDC, galvanic isolated, 18-30 VAC 50/60 Hz (max. 10 VA)	
Memory	EEPROM	Data life ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +50°C	
	Storing temperature	-20 to +80°C	
	Climatic density	relative humidity 0-85% on years average without dew	
CE-marking	Conformity according to directive 2014/30/EU		
EMV	EN 61326, EN 55011		
Safety standard	according to directive 2014/35/EU		
	EN 61010; EN 60664-1		

Housing:

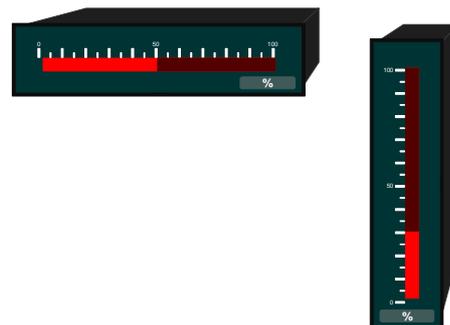


• Order key

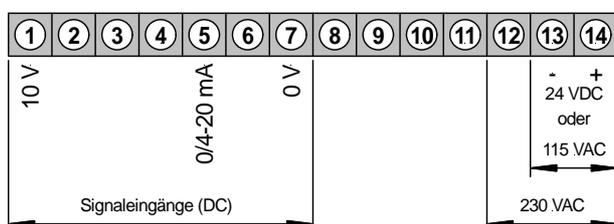
	M	B	3-	3	V	T	3	H	R.	0	0	0	1.	W	7	2	B	D	
Standard type M-Line																			Dimension
																			<input type="checkbox"/> D physical unit (free choice)
Bargraph display		<input type="checkbox"/> B																	Version
																			<input type="checkbox"/> B B
Installation depth																			Switching points
144 mm (incl. plug-in terminal)				<input type="checkbox"/> 3															<input type="checkbox"/> 0 no switching point
Housing size																			<input type="checkbox"/> 1 1 switching point
B96xH24xD120 mm																			<input type="checkbox"/> 2 2 switching points
Display type																			Protection class
V, A					<input type="checkbox"/> V														<input type="checkbox"/> 1 without keypad, operation on the back
Bargraph colours																			<input type="checkbox"/> 7 IP65 / plug-in terminal
Tricolour (red, green, orange)						<input type="checkbox"/> T													Supply voltage
Resolution																			<input type="checkbox"/> S 100-240 VAC
30 points																			<input type="checkbox"/> W 10-40 VDC, galv. isolated
Adjustment																			Measuring input
horizontal																			<input type="checkbox"/> 1 Direct voltage, direct current
vertical																			Analog output
Digital display																			<input type="checkbox"/> 0 none
3-digit, 8 mm, green																			<input type="checkbox"/> x 0-10 VDC, 0-20 mA, 4-20 mA
3-digit, 8 mm, red																			Sensor supply
Digital input																			<input type="checkbox"/> 0 without
none																			<input type="checkbox"/> 2 10 VDC / 50 mA, incl. digital input
1x digital input																			<input type="checkbox"/> 3 24 VDC / 50 mA, incl. digital input

BVO3, BHO3 – Bargraph device in 96x24 mm (BxH) Direct voltage/direct current signals 0-10 VDC, 0/4-20 mA

- without setpoints
- display range adjustable via potentiometer
- protection class IP54



• Direct voltage, direct current



Supply 230/115 VAC

vertical	BVO 3.001.315B	208,40
horizontal	BHO 3.001.315B	208,40

Supply 24 VDC
(galvanic isolated)

vertical	BVO 3.001.375B	208,40
horizontal	BHO 3.001.375B	208,40

• Order key options

B	V	O	3.	0	0	1.	3	1	5	B
B	V	O	3.	0	0	1.	3	7	5	B
B	H	O	3.	0	0	1.	3	1	5	B
B	H	O	3.	0	0	1.	3	7	5	B

- | | |
|---|------------------------|
| G | Green bar display |
| 7 | IP65 at the front side |
| 1 | Dot-display |

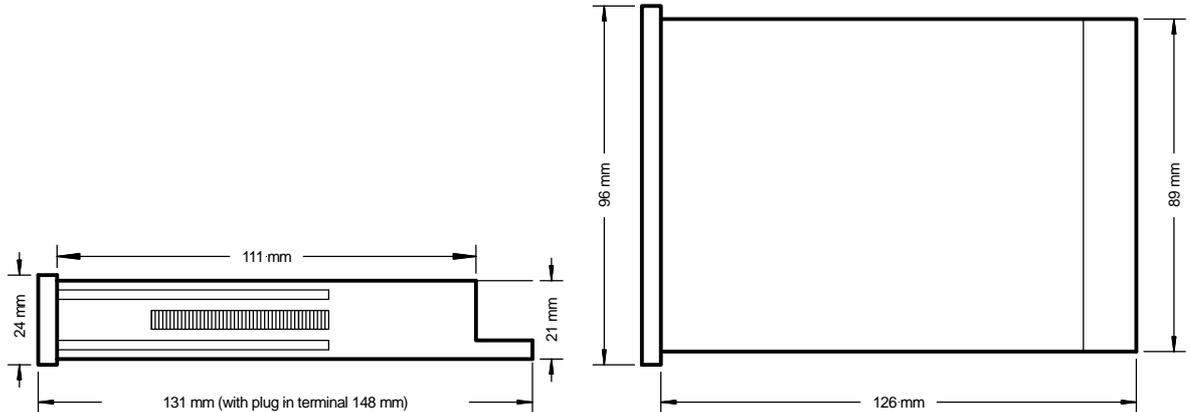
EUR

	12,80
	28,10

Please state physical unit in order, e.g. %.

• Technical data

Dimensions	Housing	W96 x H24 x D148 mm, including plug-in terminal
	Assembly cut out	92.0 ^{+0.8} x 22.0 ^{+0.6} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protective system	at the front IP54, connection IP00
	Weight	approx. 300 g
Input	Connection	at the rear side via terminals up to 2.5 mm ²
	Measuring range	0-10 V, 0/4-20 mA – all ranges selectable via connection terminal
	Measuring span	-0.5...12 V / -1 mA...25 mA
Accuracy	Input resistance	Offset adjustment supported by offset potentiometer Ri with 10 V = ~124 kΩ 20 mA = ~100 Ω
	Resolution	-99 up to 999 and 20 segments or 30 segments for bargraph
	Measuring fault	±1 digit
	Temp. drift	100 ppm/K
Power unit	Measuring principles	Dual-Slope-Integration
	Supply voltage	230/115 VAC ±10% (50-60 Hz), 24 VDC (±10 %) galvanic isolated
Indication	Power consumption	approx. 2 VA
	Display	bargraph display 30 segments
Ambient conditions	Overflow	EEE
	Underflow	---
	Measuring rate	250 ms
	Decimal point	selectable via bridge
	Dot indication	selectable via bridge
Housing:	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C



• Ordering code

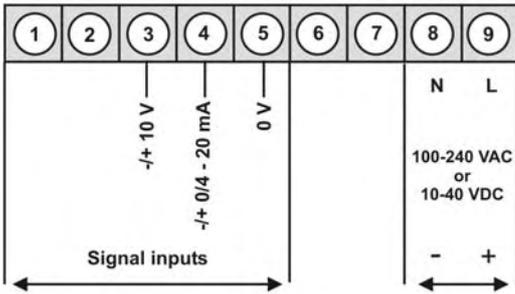
	B	H	O	3	0	0	1	3	1	5	B
Basic model											B Internal index
Orientation											Mechanical options
Horizontal		H									5 Plug in terminal, Protection IP54
Vertical		V									7 Plug in terminal, Protection IP65
Digital display											Power supply
without display			O								1 230/115 VAC
											7 24 VDC galvanic isolated
Number of bars											Size of housing
30				3							3 96x24
Display											Measuring input
Bargraph display											1 Direct voltage, direct current
Dot display											
Analog output											
Not available											0



MB2 – 5-digit digital panel meter in 96x96 (BxH) with bargraph 270° standard signal 0/4-20 mA, 0-10 VDC

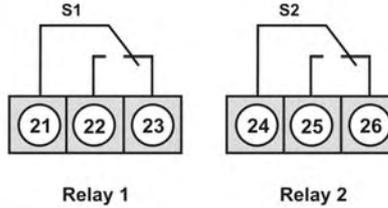
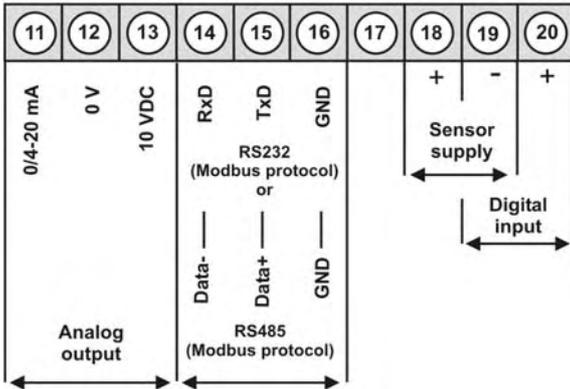
- red display of -19999...99999 digits
- red 55 dots bargraph
- adjustable bars or dot operation or operation with permanent display of plate centre
- small installation depth: 56 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- zero-key for triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- 2 relay outputs
- optional: sensor supply
- optional: 1 independently scalable analog output
- optional: digital input for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C

• **Direct current, direct voltage**



Supply 100-240 VAC DC ± 10%	MB2-2VR5RR.0001.S72AD	360,00
Supply 10-40 VDC, 18.30 VAC	MB2-2VR5RR.0001.W72AD	360,00

Options:



Advice:
Using Namur sensors with a nominal voltage of approx. 8 V, a sensor supply of 12 VDC needs to be provided.

• **Order key options**

M	B	2-	2	V	R	5	R	R.	0	0	0	1.	S	7	2	A	D
M	B	2-	2	V	R	5	R	R.	0	0	0	1.	W	7	2	A	D

EUR

1	without keypad, programming on the back side via interface	on demand
X	Analog output 0/4-20 mA, 0-10 VDC	120,00
2	Sensor supply 10 VDC / 20 mA incl. digital input	60,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	60,00
3	Interface RS232 galv. isolated	70,00
4	Interface RS485 galv. isolated	70,00
I	Digital input galv. isolated	10,00
B	Blue display	on demand
G	Green display	12,50
Y	Orange display	on demand

Please state physical unit, e.g. bar.

• **Parameterisation software**

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

ORDER NUMBER

EUR

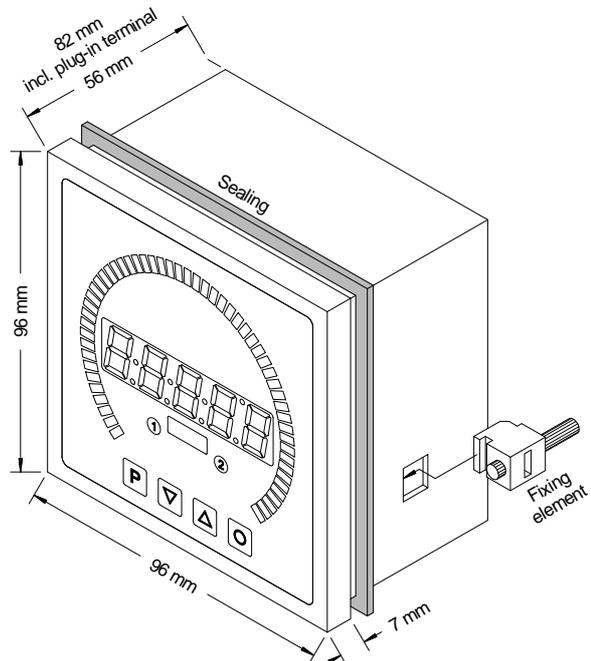
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H96 x D56 mm, (incl. plug-in terminal D = 82 mm) 91.0 ^{+0.6} x 91.0 ^{+0.6} mm screw elements for a wall thickness up to 10 mm PC Polycarbonate, black EPDM, 65 Shore, black front side IP65 standard, back side IP00 approx. 330 g plug-in terminal; cable cross-section up to 2.5 mm ²
Display	Display Digit height Segment colour Display range Limit values Overflow Underflow Display time Bargraph Alignment Bargraph colour	5-digit 14 mm red (Standard), optional available in green, orange, blue and tricolour, too -19999 up to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds 55 dots 270° red
Measuring input	Measuring span Measuring range Input resistance Measuring error Drift of temperature Measuring time Measuring principle Resolution	-12...12 V / -22...24 mA 0-10 VDC / 0/4-20 mA R _i with ~200 kΩ / R _i with ~100 Ω 0.1% of measuring range, ± 1 Digit / 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1 second measuring time
Output	Relay Switching cycles Analog output Sensor supply	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC 30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 Bit 24 VDC / 50mA 10 VDC / 20 mA
Digital input	Input galv. isolated	< 2.4 V OFF; 10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol RS232 Cable length RS485 Cable length	Modbus with ASCII or RTU-protocol 9.600 Baud, no parity, 8 Databit, 1 StopBit max. 3m 9.600 Baud, no parity, 8 Databit, 1 StopBit max. 1000m
Power pack	Supply	100-240 VAC 50/60 Hz / DC ±10 % (max. 15 VA) 10-40 VDC / 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years
Ambient conditions	Working temperature Storing temperature Weathering resistance	0 to +50°C -20 to +80°C relative humidity 0-85% on years average without dew
CE-sign	conformity according to directive 2014/30/EG	
EMV	EN 61326, EN 55011	
Safety standard	according to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:





MB3 – 3-digit digital panel meter in 96x24mm with bargraph Direct voltage/direct current signals 300 VDC, 1 ADC

- red 3-digit digital display -199...999 Digits (optional green display)
- 30-points-bargraph tricolour
- adjustable bargraph or dot operation or operation with permanent display of the midpoint
- installation depth: 120 mm without plug-in screw terminal
- multi voltage power supply units 100-240 VAC
- display adjustment via factory setting or directly via sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance/undercut
- zero key for the triggering of Hold, Tara, display change, setpoint setting, alarm actuation
- flexible alarm system with adjustable delay times
- volume metering (Totaliser)
- mathematic functions like reciprocal value, root extraction, squaring and rounding
- sliding averaging
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- optional: 1 or 2 relay outputs
- optional: 1 independently scalable analog output
- accessories: PC-based configuration-kit PM-TOOL with CD & USB-adapter
- on demand: devices for working temperatures of -25°...60°C

ORDER NUMBER
(without options)

EUR

• **Direct voltage, direct current**

Supply 100-240 VAC
DC ± 10%

horizontal

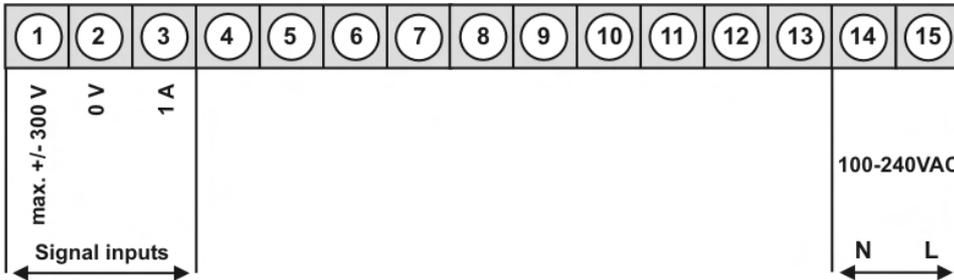
MB3-3VT3HR.0H01.S70BD

290,00

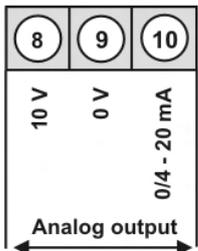
vertical

MB3-3VT3VR.0H01.S70BD

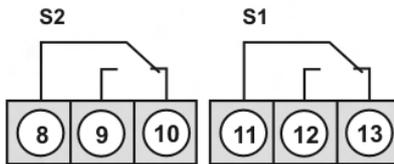
290,00



Options:



or



Relay 2 Relay 1

Alternative to analog output

• **Product key options**

M	B	3-	3	V	T	3	H	R.	0	H	0	1.	S	7	0	B	D
M	B	3-	3	V	T	3	V	R.	0	H	0	1.	S	7	0	B	D

EUR

1	1 relay output (with option analog output, only one switching point is possible)	30,00
2	2 relay outputs	30,00
X	Analog output 0/4-20 mA, 0-10 VDC	90,00
G	8 mm green display	10,00

Please state physical unit in order, e.g. %.

ORDER NUMBER

EUR

• **Parameterisation software**

Parameterisation software PM-TOOL, for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

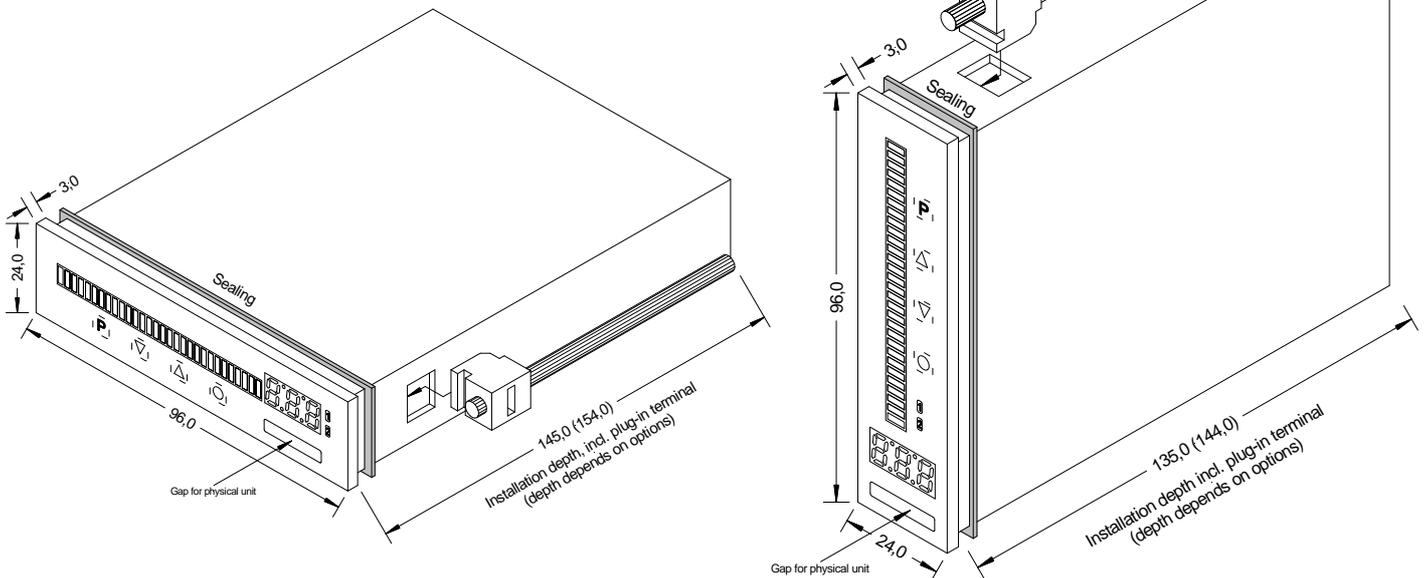
PM-Tool-MUSB4

89,00

• **Technical data**

Dimensions	Housing Panel cut-out Fixing Housing material Sealing material Protection class Weight Connection	B96 x H24 x T120 mm (T=144 mm incl. plug-in terminal) 92.0 ^{+0.8} x 22.0 ^{+0.3} mm screw elements for a wall thickness of up to 3 mm PC Polycarbonate, colour black UL94V-0 EPDM, 65 Shore IP65 standard at the front, IP00 at the back approx. 200 g plug-in terminal; wire cross section up to 2.5 mm ²
Display	Display Display Bargraph Segment colour Overflow Underflow Display time	3-digit, 8 mm high -199...999 30 digit, tricolour red, optional green flashing of the two upper bargraph elements flashing of the two lower bargraph elements 0.01...10.0 seconds
Measuring input	Measuring span Measuring range Input resistance Measuring error Temperature drift Measuring time Measuring principle Resolution	-300...300 VDC / -1...1 ADC 0... 300 VDC / 0...1 ADC Ri at ~1 MΩ / Ri at ~0,2 Ω 0.5% of final value, ± 1 digit 100 ppm/K 0.1...10.0 seconds U/F-converter approx. 18 bit at 1 second measuring time
Output	Relay Switching cycle Analog output Sensor supply	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC 30 * 10 ³ at 2 AAC, 2 ADC ohm resistive load, 10 * 10 ⁶ mechanically Separation according to DIN EN50178 / Specific values according to DIN EN 60255 0-10 VDC / burden ≥ 10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 Bit 24 VDC / 50 mA 10 VDC / 20 mA
Digital input	Input	< 2.4 V OFF; 10 V ON; max. 30 VDC Ri ~ 5 kΩ
Interface	Protocol RS232 Wire length RS485 Wire length	manufacturer-specific ASCII 9.600 baud, no parity, 8 dataBit, 1 stopBit max. 3 m 9.600 baud, no parity, 8 dataBit, 1 stopBit max. 1000 m
Power pack	Supply	100-240 VAC 50/60 Hz / DC ±10 % (max. 10 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature Storing temperature Climatic density	0°C to +50°C -20°C to +80°C relative humidity 0-85% on years average without dew
CE-marking EMV Safety standard	Conformity according to directive 2014/30/EU EN 61326, EN 55011 according to directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:

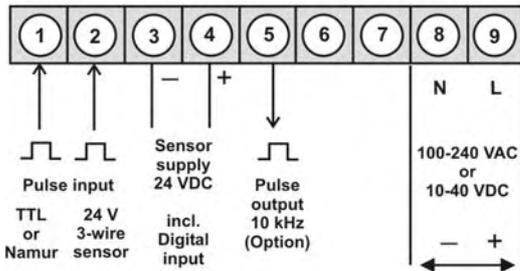




MB2 – 5-digit digital panel meter in 96x96 (BxH) with Bargraph 270° Frequency 0,01 Hz to 999,99 kHz

- red display of -19999...99999 digits
- red 55 dots bargraph
- adjustable bars or dot operation or operation with permanent display of plate centre
- small installation depth: 56 mm without plug-in screw terminal
- multi voltage power supply unit 100-240 VAC, alternatively 10-40 VDC
- adjustment via factory setting or directly on the sensor signal
- min/max-memory with adjustable permanent display
- 30 additional adjustable support points
- display flashing at threshold value exceedance / undercut
- Schmitt-Trigger-Input
- digital frequency filter for contact bounce suppression and interference suppression
- frequency filter with different pulse-duty factor
- zero-key for triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- flexible alarm system with adjustable delay times
- volume measurement (Totaliser) for frequencies up to 1kHz (exact pulse)
- mathematical functions like reciprocal value, square root, square and rounding
- constant setting / setpoint setting
- sliding averaging
- brightness control via parameter or front keys
- programming interlock via access code
- protection class IP65 at the front
- plug-in screw terminal
- 2 relay outputs
- sensor supply
- digital input for the triggering of Hold, Tara, display change, setpoint setting, alarm actuator
- optional: 1 independently scalable analog output
- optional: interface RS232 or RS485
- accessories: pc-based configuration-kit PM-TOOL with CD & USB adapter
- on demand: devices for working temperatures of -25°C...60°C

• Frequency (0.01 Hz to 999.99 kHz)



Supply 100-240 VAC, DC ± 10%

Supply 10-40 VDC, 18-30 VAC

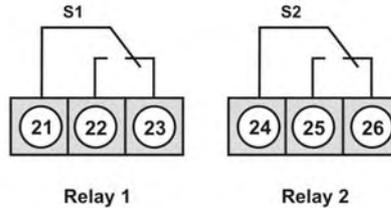
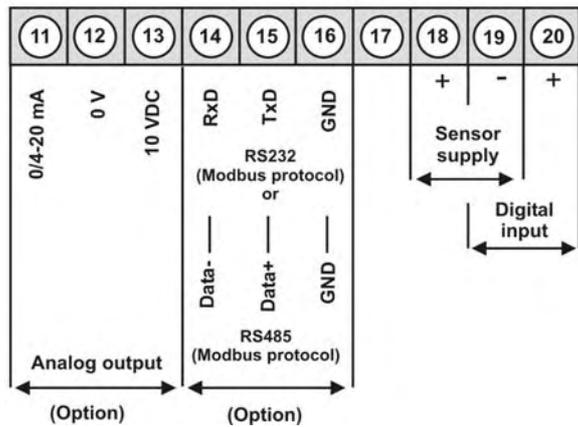
ORDER NUMBER

(without options)

EUR

MB2-2FR5RR.0307.S72AD 420,00

MB2-2FR5RR.0307.W72AD 420,00



Advice:

Using Namur sensors with a nominal voltage of approx. 8 V, a sensor supply of 12 VDC needs to be provided. For devices with sensor supply terminals 4 and 18 as well as 3 and 19 are galvanic connected in the device.

• Order key options

M	B	2-	2	F	R	5	R	R.	0	3	0	7.	S	7	2	A	D
M	B	2-	2	F	R	5	R	R.	0	3	0	7.	W	7	2	A	D

		EUR
X	Analog output 0/4-20 mA, 0-10 VDC galv. isolated	120,00
6	Sensor supply 12 VDC / 50 mA incl. digital input	15,35
K	Pulse output	10,00
3	Interface RS232 galv. isolated	70,00
4	Interface RS485 galv. isolated	70,00
B	Blue display	on demand
G	Green display	12,50
Y	Orange display	on demand

For devices with sensor supply, terminal 4 and 18 as well as 3 and 19 are galvanic connected inside the device.

ORDER NUMBER

EUR

• Parameterisation software

PC based configuration software PM-Tool for devices without keypad, for a simple adjustment of standard devices, incl. CD & USB-adapter. Programming happens via an interface on the back.

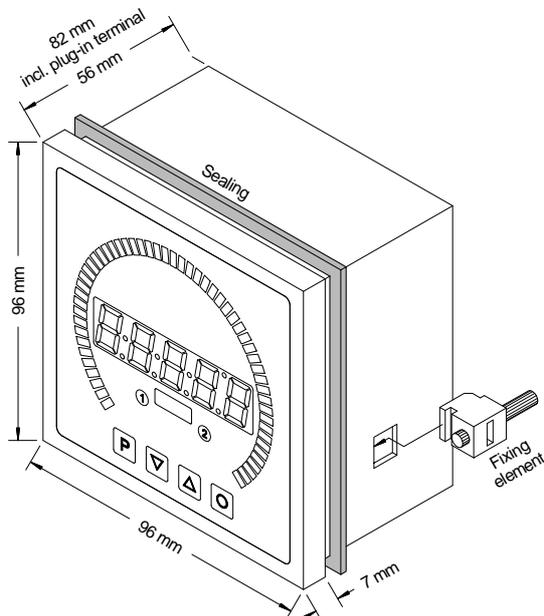
PM-TOOL-MUSB4

89,00

• **Technical data**

Dimensions	Housing	B96 x H96 x D56 mm, (incl. plug-in terminal D = 82 mm)
	Panel cut-out	91.0 ^{+0.6} x 91.0 ^{+0.6} mm
	Fixing	screw elements for a wall thickness up to 10 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	front side IP65 standard, back side IP00
	Weight	approx. 330 g
	Connection	plug-in terminal; cable cross-section up to 2.5 mm ²
Display	Display	5-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green, orange, blue and tricolour, too
	Display range	-19999 up to 99999
	Limit values	optical display flashing
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time	0.1 to 10.0 seconds
	Bargraph	55 dots
	Alignment	270°
Bargraph colour	red	
Measuring input	Signal	Pulse input, TTL, Namur, 3-lead initiator PNP/NPN
	Input resistance	R _i with 24 V / 4 kΩ High/Low level >15 V / < 4 V High/Low TTL-level >4.6 V / <1.9 V
	Input frequency	0.01 Hz selectable up to 999.99 kHz
	Measuring error	0.05% of measuring range; ±1 Digit
Output	Relay	with change-over contact 250 V / 5 AAC, 30 V / 5 ADC
	Switching cycles	30 * 10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10 * 10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN 60255
	Pulse output	max. 10 kHz (only with frequency metering)
	Analog output	0-10 VDC / burden ≥10 kΩ, 0/4-20 mA / burden ≤ 500 Ω, 16 Bit)
Sensor supply	24 VDC / 50mA 10 VDC / 20 mA	
Digital input	Input galv. isolated	< 2.4 V OFF; 10 V ON; max. 30 VDC, R _i ~ 5 kΩ
Interface	Protocol	Modbus with ASCII or RTU-protocol
	RS232	9.600 Baud, no parity, 8 Databit, 1 StopBit; cable length max. 3m
	RS232	9.600 Baud, no parity, 8 Databit, 1 StopBit; cable length max. 1000m
Power pack	Supply	100-240 VAC 50/60 Hz / DC ±10 % (max. 15 VA) 10-40 VDC / 18-30 VAC 50/60 Hz (max. 15 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Weathering resistance	relative humidity 0-85% on years average without dew
CE-sign	Conformity according to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to low voltage directive 2014/35/EU, EN 61010; EN 60664-1	

Housing:



Interface indicators

Triggering: RS232/RS485, BDC, Profibus DP

72x24mm

- **PB4 – Digital panel meter, 4-digit**
 - RS232/RS485
 - BCD address-coded

72x36mm

- **PB4 – Digital panel meter, 4-digit**
 - RS232/RS485
 - BDC address-coded

96x24mm

- **PB6 – Digital panel meter, 6-digit**
 - RS232/RS485
 - BCD address-coded

96x48mm

- **PB6 – Digital panel meter, 6-digit**
 - RS232/RS485
 - BDC address-coded

- **M2-1B – Digital panel meter, 6-digit**
 - Profibus DP

PB4 – 4-digit digital interface panel meter in 72x24 mm (BxH) RS232/RS485 or BCD (address-coded)

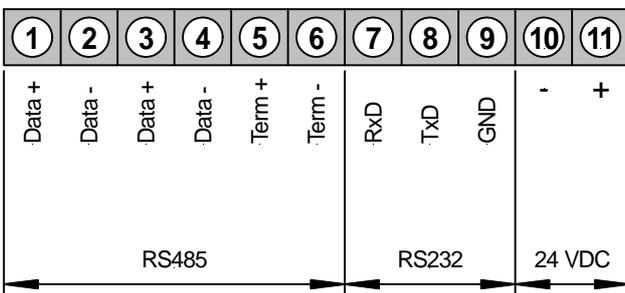
- red display with 4 digit character string
- RS232 or RS485 switchable
- adjustable baudrate 300 to 57 kbit/s
- protocol free adjustable
- adjustable address compilation
- adjustable start-sign/stop-sign
- adjustable readout range in protocol
- adjustable number compilation
- option: BCD address-coded with different character sets
- protection class IP54 standard



ORDER NUMBER
(without options)

EUR

• RS232/RS485

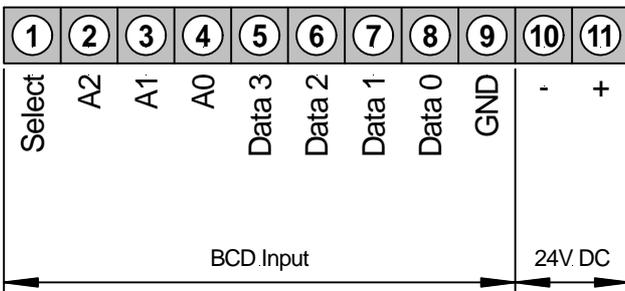


Power supply 24 VDC
(galvanic isolated)

PB 4.A000.5750B

280,00

• BCD (address codified)



Power supply 24 VDC
(galvanic isolated)

PB 4.B000.5750B

280,00

• Order key options

P	B	4.	A	0	0	0.	5	7	5	0	B
P	B	4.	B	0	0	0.	5	7	5	0	B

EUR

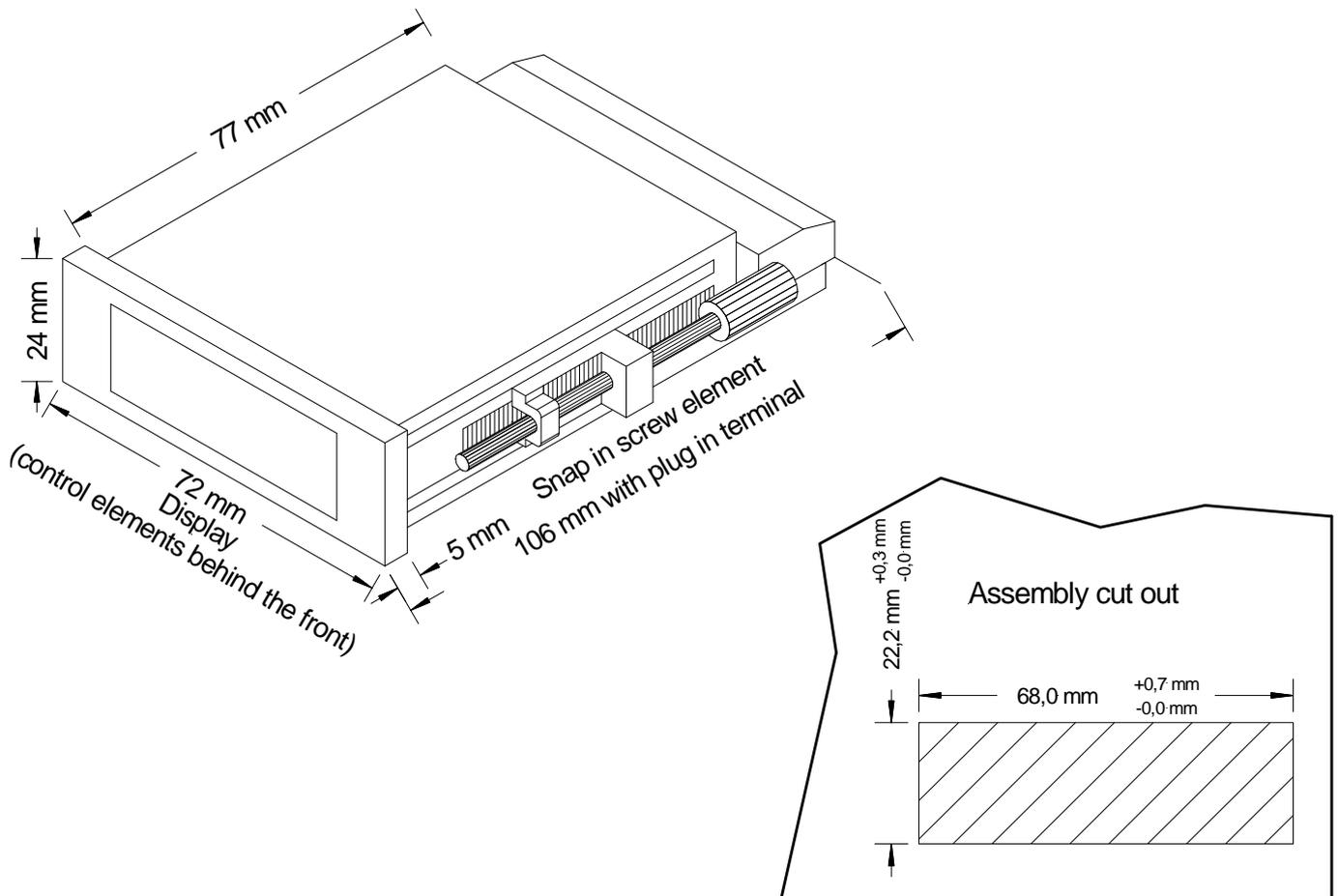
G	Green LED on request
1	Protection class IP65 at the front

10,25

• **Technical data**

Housing	Dimensions	72 x 24 x 106 mm (WxHxD) including plug-in terminal
	Assembly cut out	68.0 ^{+0.7} x 22.0 ^{+0.6} mm
	Fastening	snap in screw element for a wall thickness up to 50 mm
	Wall thickness	0...50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54 (front), IP00 (rear side)
	Weight	approx. 0.120 kg
Indication	Connection	screw-/plug-in terminal; wire cross-section up to 1.5 mm ²
	Size of digits	14 mm
	Colour of segments	red
Interface	Indication	4 digits
	Protocol	adjustable ASCII-report
	Baud rates	300, 1.200, 2.400, 4.800, 9.600, 19.200, 38.400, 57.600
	Interfaces	RS232 / RS485 adjustable
	Length/conductor	
	RS232	max. 3 m
	Length/conductor	
RS485	max. 1.000 m	
Interface BCD	Bus-participants	32
	Term schedule	activatable via connection terminal
Supply unit	HIGH / LOW	≥ 4.5 V / < 4 V
	Power supply	24 VDC / ±10%
Memory	Power consumption	max. 5 VA
	Parameter memory	EEPROM data life >30 years
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
	Climatic resistance	rel. humidity ≤75% in the average / year without dew
EMV	DIN 61326	
CE-sign	Conformity according to 2014/30/EU	
Safety standard	DIN 61010	

Housing



• Ordering code

	P	B	4.	A	0	0	0.	5	7	5	0	B	
Processor panel meter													Version Version B
Basic model binary input		B											Switching points without
Number of digits 4-digit			4										Mechanical options 5 operation rear side, IP54, plug-in terminal 7 operation rear side, IP65, plug-in terminal
Interface RS232/RS485 galv. isolated BCD				A B									Power supply 7 24 VDC (galvanic isolated)
Sensor supply no sensor supply					0								Housing 5 72x24 mm (BxH)
Analog output no analog output						0							0 Internal index

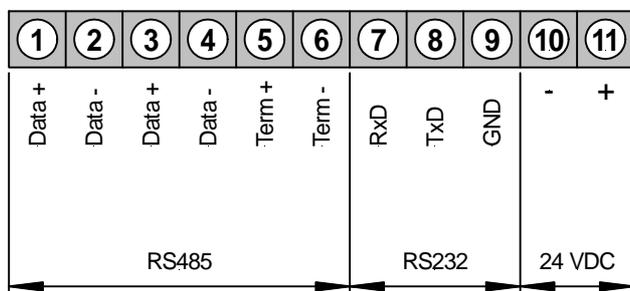
PB4 – 4-digit interface panel meter in 72x36 mm (BxH) RS232/RS485 or BCD (address-coded)

- red display with 4 digit character string
- RS232 or RS485 switchable
- adjustable baudrate 300-57 kbit/s
- protocol free adjustable
- adjustable address compilation
- adjustable start-sign/stop-sign
- adjustable readout range in protocol
- adjustable number compilation
- option: BCD address-coded with different character sets
- protection class IP54



ORDER NUMBER **EUR**
(without options)

• RS232/RS485

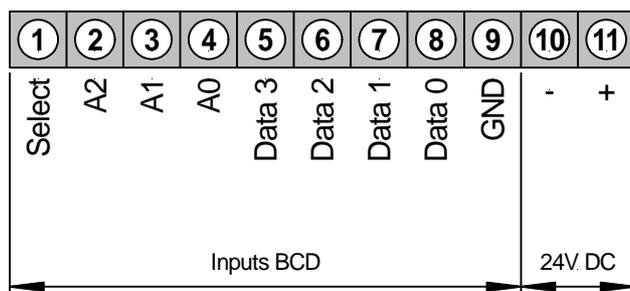


Power supply 24 VDC
(galvanic isolated)

PB 4.A000.6740C

250,00

• BCD (address codified)



Power supply 24 VDC
(galvanic isolated)

PB 4.B000.6740C

250,00

• Order key options

P	B	4.	A	0	0	0.	6	7	4	0	C
P	B	4.	B	0	0	0.	6	7	4	0	C

EUR

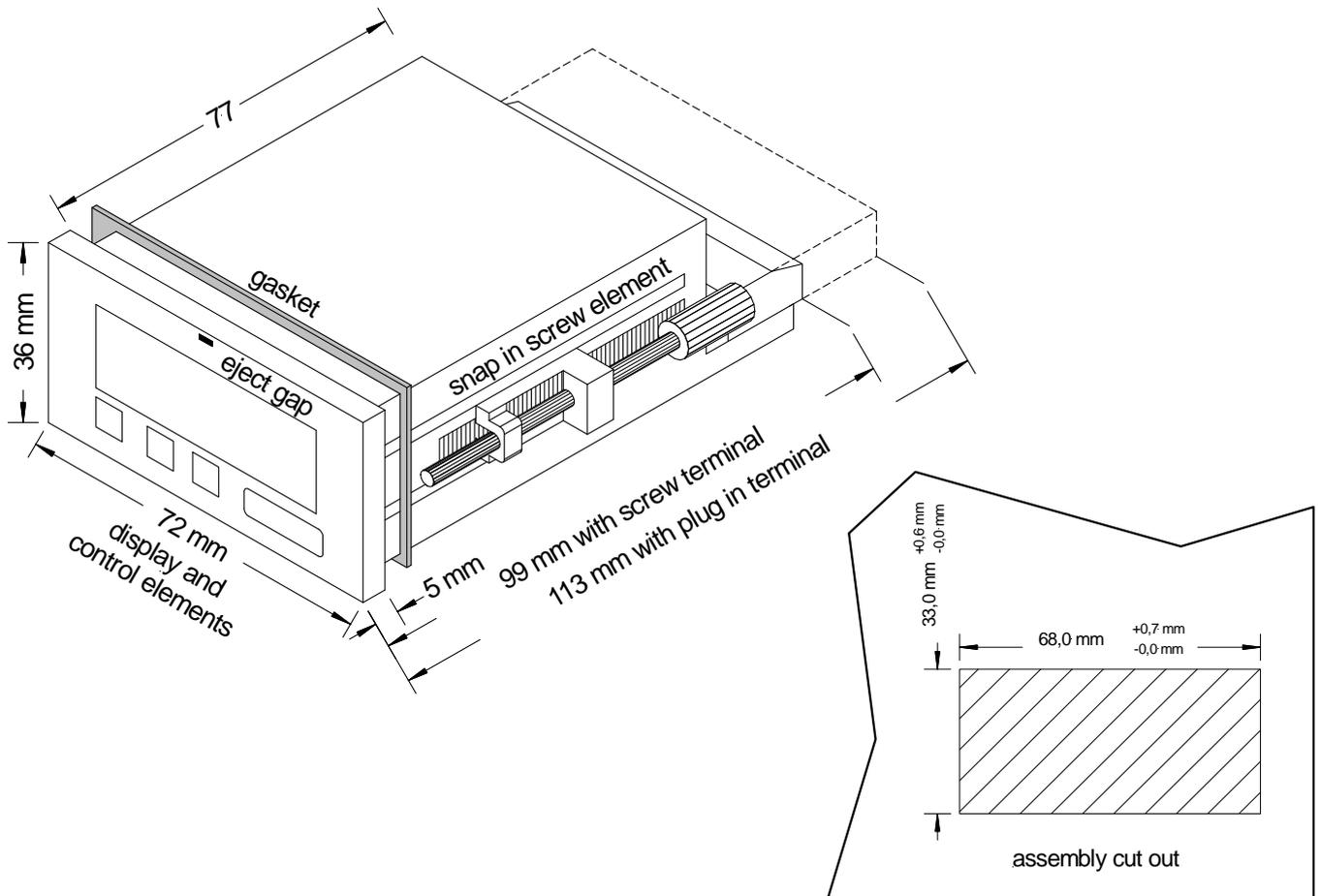
G	Green LED on request	
1	Protection class IP65 at the front	10,25
7	Protection class IP65 at the front and plug-in terminal	19,45
9	Protection class IP54 at the front and plug-in terminal	9,20

Please state physical unit in order, e.g. L/h.

• **Technical data**

Housing	Dimensions	72 x 36 x 103 mm (WxHxD) including screw terminal 72 x 36 x 115 mm (WxHxD) including plug-in terminal
	Assembly cut out	68.0 ^{+0.7} x 33.0 ^{+0.6} mm
	Fastening	snap in screw element
	Thickness/wall	0...50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54 (front), IP00 (rear side)
	Weight	approx. 140 g
Connection	screw-/plug in-terminal; wire cross-section up to 2.5 mm ²	
Indication	Size of digits	14 mm
	Colour of segments	red
	Indication	4 digits
Interface	Protocol	parametricable ASCII-report
	Baud rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600
	Interfaces	RS232 / RS485 adjustable
	Length/conductor RS232	max. 3 m
	Length/conductor RS485	max. 1.000 m
	Bus-participants term schedule	32 activatable via connection terminal
Interface BCD	HIGH / LOW	≥4.5 V / <4 V
Supply unit	Power supply	24 VDC / ±10%
	Power consumption	max. 5 VA
Memory	Parameter memory	EEPROM data life >30 years
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
	Climatic resistance	rel. humidity ≤ 75% in the average / year without dew
EMV	DIN 61326	
CE-sign	Conformity according to 2014/30/EU	
Safety standard	DIN 61010	

Housing



• Ordering code

	P	B	4.	A	0	0	0.	6	7	4	0	C	
Processor panel meter													
Basic model Binary input		<input type="checkbox"/> B											Version <input type="checkbox"/> C Version C
Number of digits 4 digits			<input type="checkbox"/> 4										Switching points <input type="checkbox"/> 0 without
Interface RS232/RS485 galv. isolated BCD				<input type="checkbox"/> A <input type="checkbox"/> B									Mechanical options <input type="checkbox"/> 1 Foil keyboard, IP65, screw terminal <input type="checkbox"/> 4 Foil keyboard, IP54, screw terminal <input type="checkbox"/> 7 Foil keyboard, IP65, plug-in terminal <input type="checkbox"/> 9 Foil keyboard, IP54, plug-in terminal
Sensor supply no sensor supply													Power supply <input type="checkbox"/> 7 24 VDC (galvanic isolated)
Analog output no analog output													Housing <input type="checkbox"/> 6 72x36 mm (BxH)
													<input type="checkbox"/> 0 Internal index

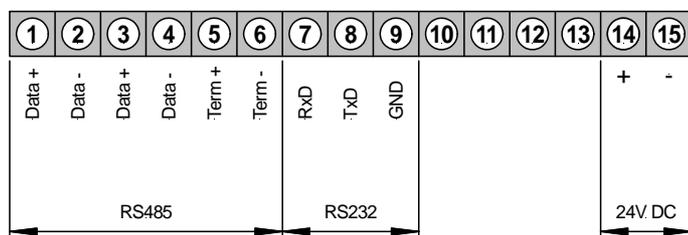
PB6 – 6-digit interface panel meter in 96x24 mm (BxH) RS232/RS485 or BCD (address-coded)

- red display with 6 digit character string
- RS232 or RS485 switchable
- adjustable baudrate 300-57 kbit/s
- protocol free adjustable
- adjustable address compilation
- adjustable start-sign/stop-sign
- adjustable readout range in protocol
- adjustable number compilation
- option: BCD address-coded with different character sets
- protection class IP54



ORDER NUMBER **EUR**
(without options)

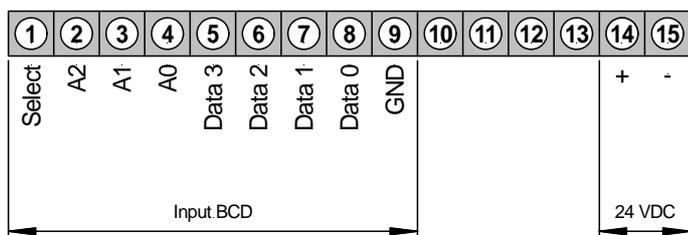
• RS232/RS485



Power supply 24 VDC
(galvanic isolated)

PB 6.A000.3730B **270,00**

• BCD (address-coded)



Power supply 24 VDC
(galvanic isolated)

PB 6.B000.3730B **270,00**

• Order key options

P	B	6.	A	0	0	0.	3	7	3	0	B
P	B	6.	B	0	0	0.	3	7	3	0	B

- G green LED on request
- 5 plug-in terminal

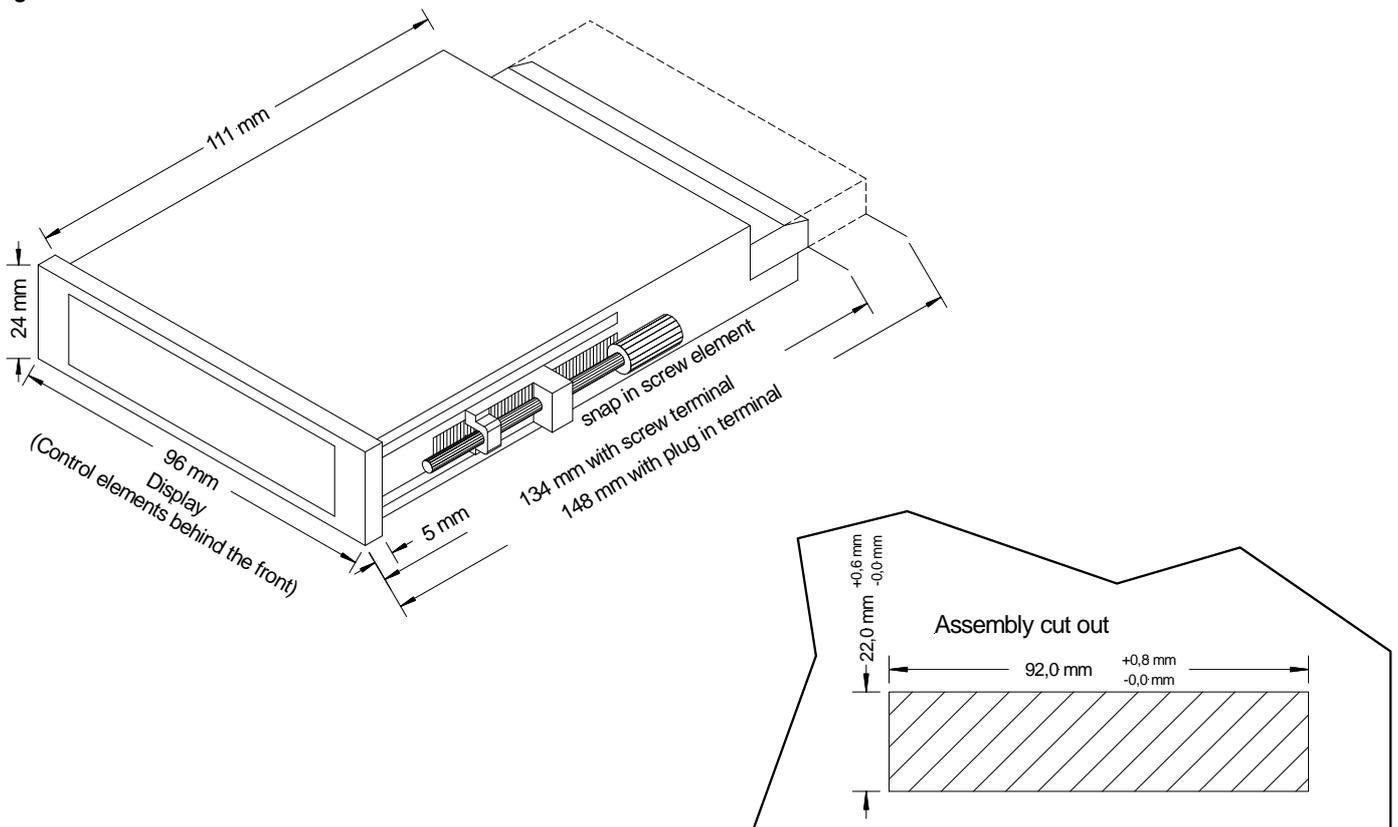
EUR

14,30

• **Technical data**

Housing	Dimensions	96 x 24 x 134 mm (WxHxD) including screw terminal 96 x 24 x 148 mm (WxHxD) including plug-in terminal
	Assembly cut out	92.0 ^{+0.8} x 22.0 ^{+0.6} mm
	Fastening	snap in screw element
	Thickness/wall	0...50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP40 (front), IP00 (rear side)
	Weight	approx. 0.250 kg
	Connection	screw-/plug in-terminal; wire cross-section up to 2.5 mm ²
Indication	Size of digits	14 mm
	Colour of segments	red
	Indication	4 digits
Interface	Protocol	parametricable ASCII-report
	Baud rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600
	Interfaces	RS232 / RS485 adjustable
	Length/conductor RS232	max. 3 m
	Length/conductor RS485	max. 1.000 m
	Bus-participants	32
	Term schedule	activatable via connection terminal
Interface BCD	HIGH / LOW	≥4.5 V / <4 V
Supply unit	Power supply	24 VDC / ±10%
	Power consumption	max. 5 VA
Memory	Parameter memory	EEPROM
	Data life	> 30 years
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
	Climatic resistance	rel. humidity ≤75% in the average / year without dew
EMV	DIN 61326	
CE-sign	Conformity according to 2014/30/EU	
Safety standard	DIN 61010	

Housing



• Ordering code

	P	B	6	A	0	0	0	3	7	3	0	B	
Processor panel meter													
Basic model Binary input													Version Version B
Number of digits 6 digits													Switching points without
Interface RS232/RS485 galv. isolated BCD													Mechanical options 3 Operation behind front, IP54, screw terminal 5 Operation behind front, IP54, plug-in terminal
Sensor supply no sensor supply													Power supply 7 24 VDC (galvanic isolated)
Analog output no analog output													Housing 3 96x24 mm (BxD)
													Internal index 0

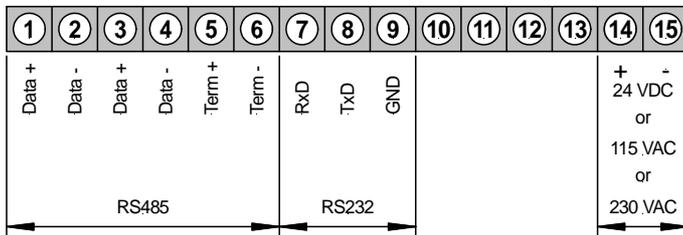
PB6 – 6-digit interface panel meter in 96x48 mm (BxH) RS232/RS485 or BCD (address-coded)

- red display with 6 digit character string
- RS232 or RS485 switchable
- adjustable baudrate 300-57 kbit/s
- protocol free adjustable
- adjustable address compilation
- adjustable start-sign/stop-sign
- adjustable readout range in protocol
- adjustable number compilation
- option: BCD address-coded with different character sets
- protection class IP54



ORDER NUMBER **EUR**
(without options)

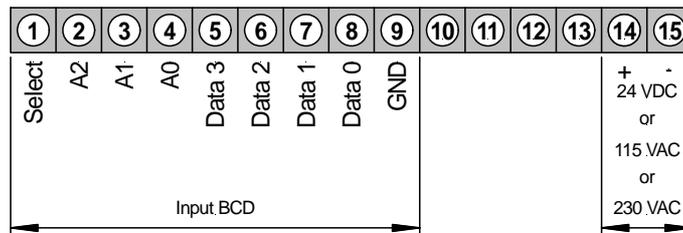
• RS232/RS485



Power supply 230 VAC
Power supply 115 VAC
Power supply 24 VDC
(galvanic isolated)

PB 6.A000.1540B **240,00**
PB 6.A000.1440B **260,00**
PB 6.A000.1740B **280,00**

• BCD (address coded)



Power supply 230 VAC
Power supply 115 VAC
Power supply 24 VDC
(galvanic isolated)

PB 6.B000.1540B **240,00**
PB 6.B000.1440B **260,00**
PB 6.B000.1740B **280,00**

• Order key options

P	B	6.	A	0	0	0.	1	x	4	0	B
P	B	6.	B	0	0	0.	1	x	4	0	B

G	green LED on request	
1	Protection class IP65 at the front	10,25
7	Protection class IP65 at the front and plug-in terminal	24,55
9	Protection class IP54 at the front and plug-in terminal	14,30

EUR

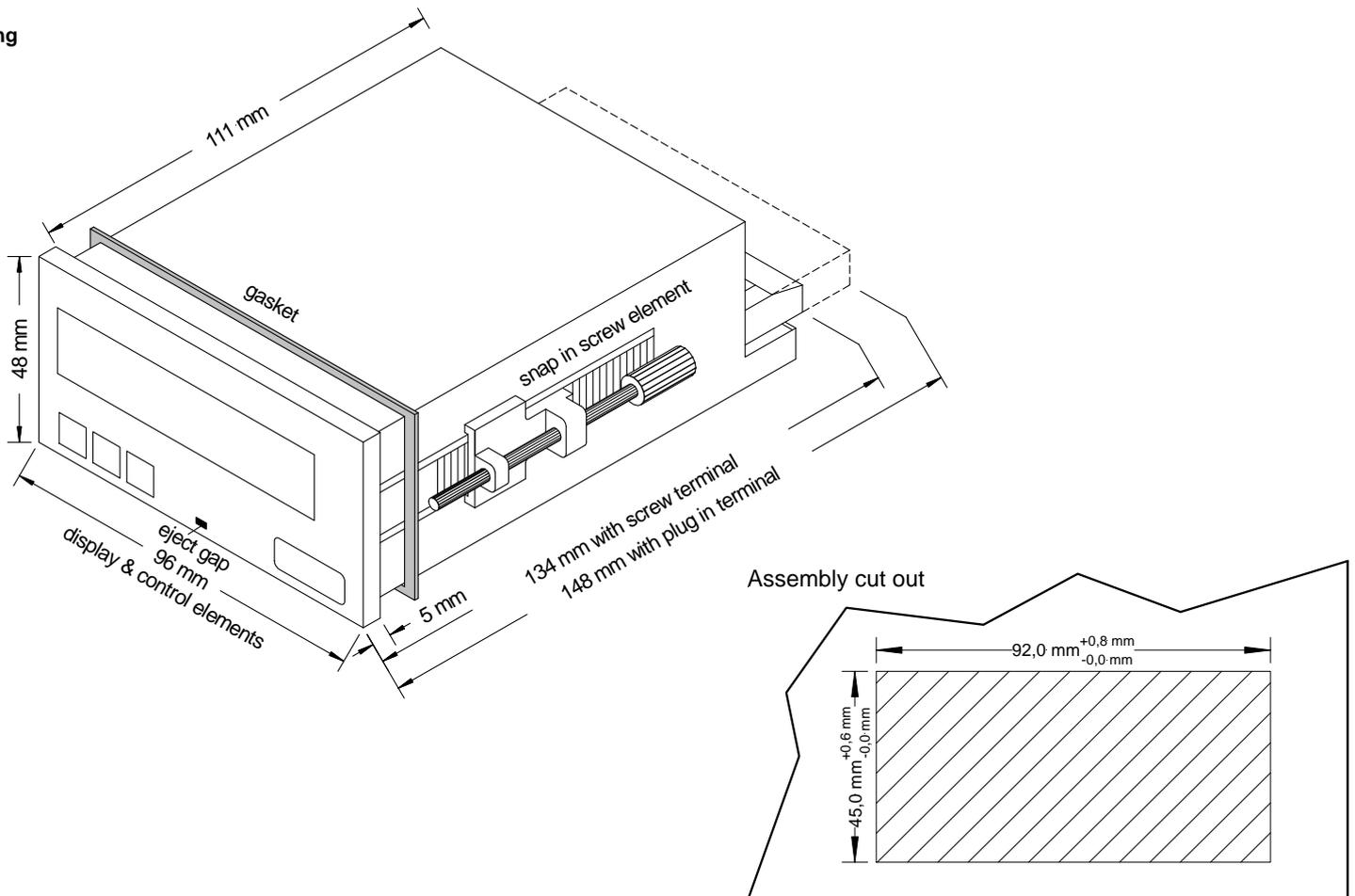
Please state physical unit in order, e.g. m.

96x48

• **Technical data**

Housing	Dimensions	96 x 48 x 134 mm (WxHxD) including screw terminal 96 x 48 x 148 mm (WxHxD) including plug-in terminal
	Assembly cut out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fastening	snap in screw element
	Thickness/wall	0...50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protection	standard IP54 (front), IP00 (rear side)
	Weight	approx. 390 g
	Connection	screw-/plug in-terminal; wire cross-section up to 2.5 mm ²
Indication	Size of digits	14 mm
	Colour of segments	red
	Indication	4 digits
Interface	Protocol	adjustable ASCII-report
	Baud rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600
	Interfaces	RS232 / RS485 adjustable
	Length/conductor RS232	max. 3 m
	Length/conductor RS485	max. 1.000 m
	Bus-participants	32
	Term schedule	activatable via connection terminal
Interface BCD	HIGH / LOW	≥4.5 V / <4 V
Power unit	Power supply	230 VAC / 50/60 Hz / ±10 % 115 VAC / 50/60 Hz / ±10 % 24 VDC / ±10 %
	Power consumption	max. 5 VA
Memory	Parameter memory	EEPROM
	Data life	> 30 years
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C
	Climatic resistance	rel. humidity ≤75% in the average / year without dew
EMV	DIN 61326	
CE-sign	Conformity according to 2014/30/EU	
Safety standard	DIN 61010	

Housing



• Ordering code

	P	B	6.	A	0	0	0.	1	7	4	0	B	
Processor panel meter													Version B version B
Basic model Binary input		B											Switching points 0 without
Number of digits 6 digits			6										Mechanical options 1 foil keyboard, IP65, screw terminal 4 foil keyboard, IP54, screw terminal 7 foil keyboard, IP65, plug-in terminal 9 foil keyboard, IP54, plug-in terminal
Interface RS232/RS485 galv. isolated BCD				A B									Power supply 4 115 VAC 5 230 VAC 7 24 VDC (galvanic isolated)
Sensor supply no sensor supply													Housing 1 96x48 mm (BxH)
Analog output no analog output													0 Internal index

M2 – 6-digit digital panel meter in 96x48 mm (BxH) Profibus device

- red display of -199999 to 999999 Digits (optional green or orange display)
- triggering via Profibus DP
- autobaud detection up to 12 Mbit/s
- address is adjustable via keypad
- triggering as 16 bit int/uint or 32 bit int/uint
- brightness level can be triggered or adjustable via Bus
- flashing of the digits is adjustable via Bus
- placing the setpoint can be triggered or adjustable via Bus
- protection class IP65 at the front
- pluggable screw terminal

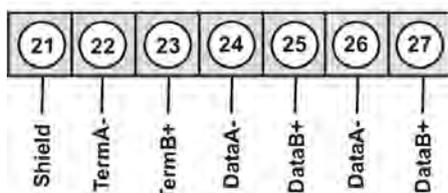
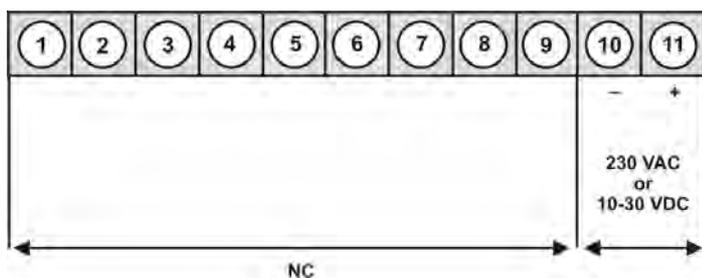


ORDER NUMBER **EUR**
(without options)

• Profibus DP

Supply 230 VAC **M2-1BR6B.9000.570CD** **480,00**

Supply 10-30 VDC **M2-1BR6B.9000.670CD** **510,00**



• Order key options

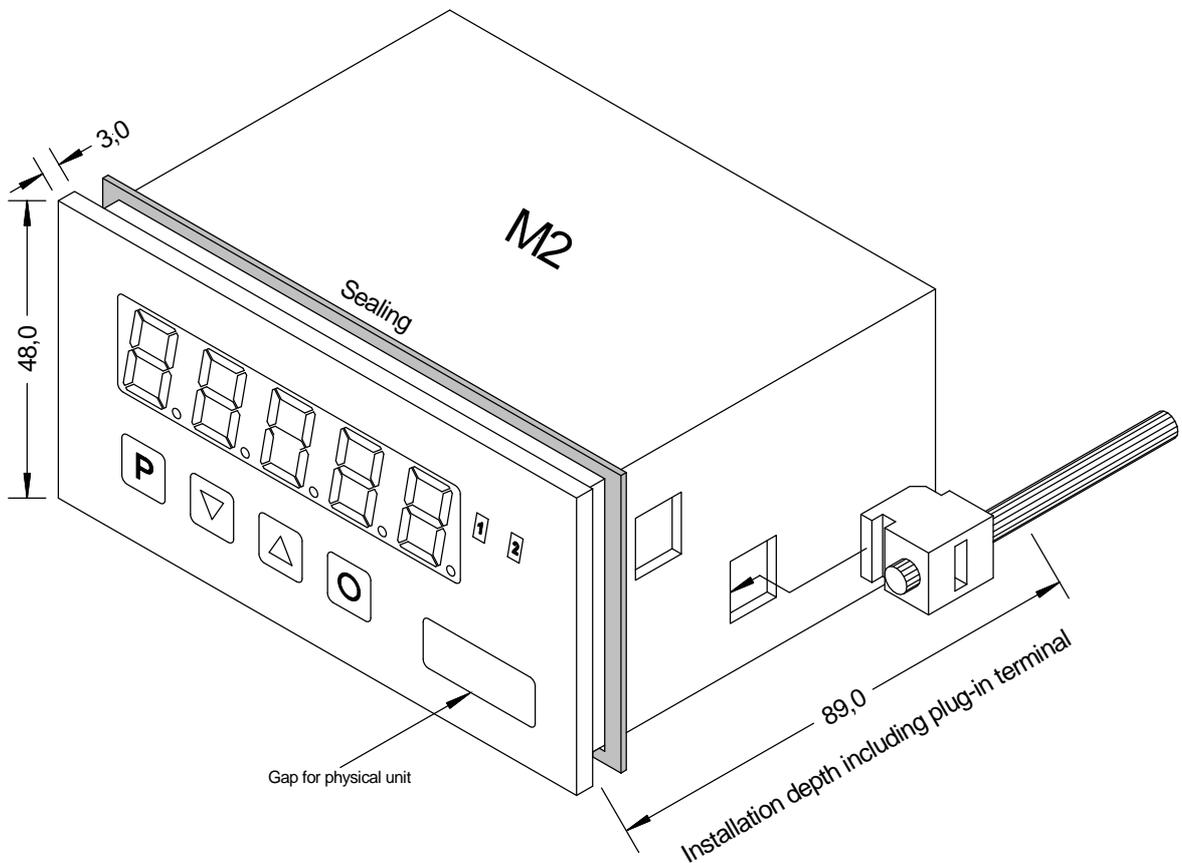
M	2-	1	B	R	6	B.	9	0	0	0.	5	7	0	C	D	EUR
M	2-	1	B	R	6	B.	9	0	0	0.	6	7	0	C	D	
											4	115 VAC voltage supply				10,25
											G	Green				10,00
											Y	Orange				4,00

Please state physical unit in order, e.g. bar.

• Technical data

Dimensions	Housing	B96 x H48 x D70 mm, (incl. plug-in terminal D= 89 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for wall thicknesses up to 3 mm
	Housing material	PC Polycarbonate, black
	Sealing material	EPDM, 65 Shore, black
	Protection class	IP65 at the front side (Standard) IP00 at the back side
	Weight	approx. 350 g
Connection		plug-in terminal; wire cross-section up to 2.5 mm ²
Display	Display	6-digit
	Digit height	14 mm
	Segment colour	red (Standard), optional available in green or orange
	Range of display	-199999 to 999999
Measuring input	Protocol	Profibus DP
	Baudrate	autobaud detection up to 12 Mbaud
	Interface	RS485
	Wire length	max. 1000m
	Bus termination	pull-up/-down according to EN 50170
	Termination	via plug-in terminal
Power pack	Supply	230 VAC +/- 10 % (max. 10 VA) 10-30 VDC, galvanic insulated (max. 4 VA)
Memory	EEPROM	Data life ≥ 100 years at 25°C
Ambient conditions	Working temperature	0 to +50°C
	Storing temperature	-20 to +80°C
	Weathering resistance	relative humidity 0-85% on years average without dew
CE-sign	Conformity according to directive 2014/30/EU	
EMV	EN 61326, EN 55011	
Safety standard	According to directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



• Product key

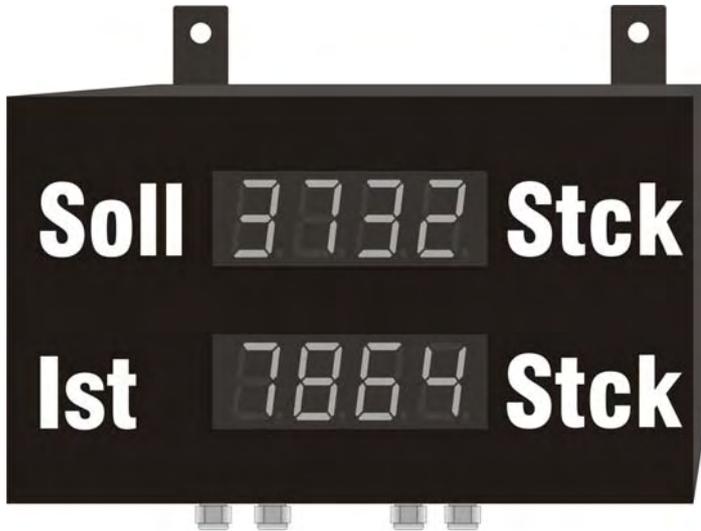
	M	2-	1	B	R	6	B.	9	0	0	0.	6	7	0	C	D	
Standard type M-Line																	Dimension
																	<input type="checkbox"/> D Physical unit (free selectable)
Installation depth 89 mm (incl. plug-in terminal)																	Version
																	<input type="checkbox"/> C C
Housing size 96 x 48 x 70 mm (BxHxD)																	Setpoints
																	<input type="checkbox"/> 0 no setpoints
Type of display Binary																	Protection class
																	<input type="checkbox"/> 1 no keypad, via PM-TOOL
Display colours Green Red Orange																	<input type="checkbox"/> 7 IP65 / plug-in terminal
																	Supply voltage
																	<input type="checkbox"/> 4 115 VAC
																	<input type="checkbox"/> 5 230 VAC
																	<input type="checkbox"/> 6 10-30 VDC galv. isolated
Number of digits 6-digit																	Measuring input
																	<input type="checkbox"/> 0 without
Digit height 14 mm																	Analog output
																	<input type="checkbox"/> 0 without
Digital input Profibus																	Sensor supply
																	<input type="checkbox"/> 0 without

Large-size indicator for indoor and outdoor use

Digit heights: 57 mm, 100 mm and 200 mm (on demand)

Colours: red, green, orange (amber)

Layout: single-line, multiline, customized applications



Different types of measuring inputs:

- Standard signals 0/4...20 mA, 0...5/10 V
- Pt100, 2-wire, 3-wire, 4-wire
- Frequency of 0.01 Hz to 100 kHz
- Counter
- Pulse rate up to 10.000 pulse/s at maximum
- Timer from 10 mS
- Interfaces RS232 / RS485
- BCD triggering
- Profibus DP



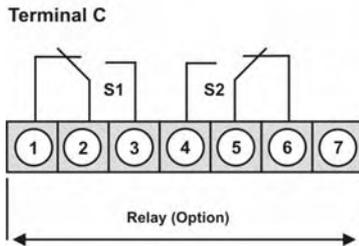
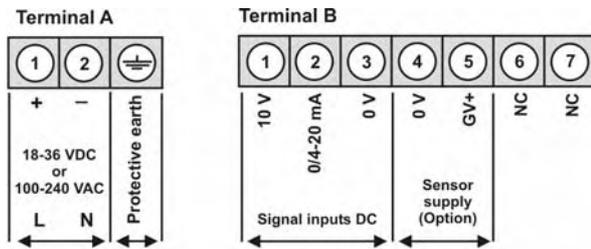
MG – 4-digit large size displays for indoor use

Standard signals 0/4-20 mA, 0-10 VDC

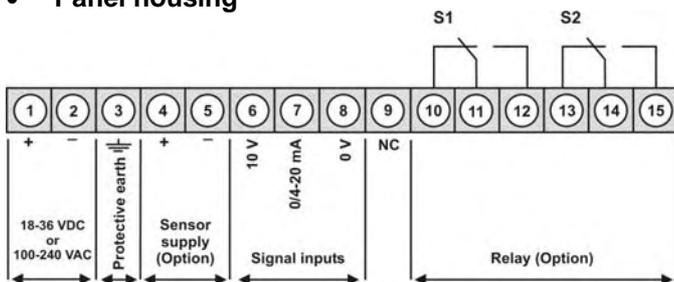
- red display of -999...9999 Digits
(optional 5 digits, or 6 digits with rounding function)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- display adjustment via factory setting or directly on the sensor signal
- min/max-memory
- 30 additional adjustable supporting points
- display flashing at threshold value exceedance / undercut
- rounding function for display slowdown
- zero point suppression
- programming interlock via code input
- on demand: outdoor devices with ultra-bright LED and heating



Build-up housing



Panel housing



Order key options

M	G	-	A	V	R	4	X.	0	0	0	1.	X	1	0	B	D	1	Built-on enclosure		
M	G	-	B	V	R	4	X.	0	0	0	1.	X	1	0	B	D	3	Panel housing	EUR	
																		2	2 relay outputs	120,00
																		3	Sensor supply 24 VDC / 50 mA	60,00
																		5	200 mm LED	on request
																		X	Number of digits	on request
																		G	Green LED	
																		X	Further device types	on request

State physical unit by order on demand, e.g. kg.

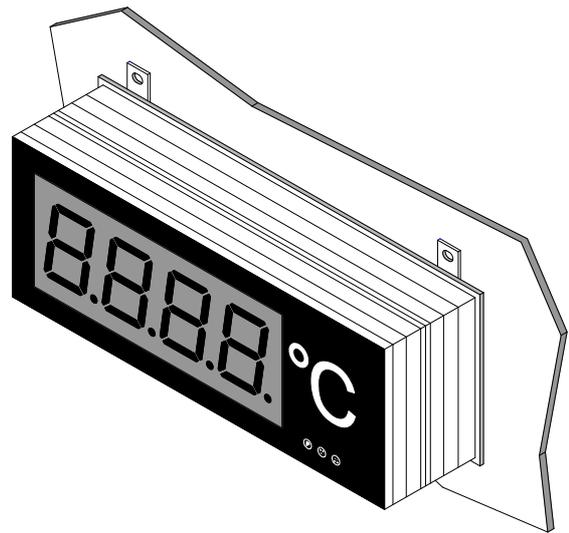
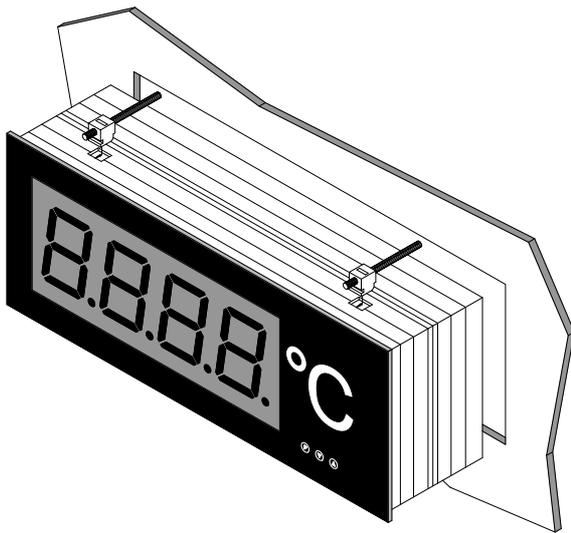
	Supply	Order number (without options)	EUR
57 mm	100-240 VAC	MG-AVR41.0001.S10BD1	730,00
57 mm	18-36 VDC	MG-AVR41.0001.710BD1	820,00
100 mm	100-240 VAC	MG-AVR42.0001.S10BD1	990,00
100 mm	18-36 VDC	MG-AVR42.0001.710BD1	1080,00

57 mm	100-240 VAC	MG-BVR41.0001.S10BD3	730,00
57 mm	18-36 VDC	MG-BVR41.0001.710BD3	820,00
100 mm	100-240 VAC	MG-BVR42.0001.S10BD3	990,00
100 mm	18-36 VDC	MG-BVR42.0001.710BD3	1080,00

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability	> 500 contact durability
	Connection type	screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	Screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	Front IP65, Connection IP00
Connection	Terminal type	15-pole removable screw clamp for inputs and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	-999...9999
	Overflow	Indication of horizontal bars at the top
	Underflow	Indication of horizontal at the bottom
	Display time	0.1...10.0 seconds
	Area	Indoor
Measuring input	Measuring range	R; approx. Measuring error Digit
	0...10 V	150 kΩ 0.1 ± 1
	0...5 V	150 kΩ 0.1 ± 1
	0...20 mA	100 Ω 0.1 ± 1
	4...20 mA	100 Ω 0.1 ± 1
	Temperature drift	all measuring inputs ~ 50 ppm/K
	Measuring-/ display time	0.01...10.0 seconds
	Measuring principle	Voltage-/frequency converter
Resolution (at 1 second measuring time)	approx. 20 bit	
Memory	EEPROM	Data life > 20 years
Output	Sensor supply	24 VDC / 50 mA
	Relay	With change-over contact 259 V / 5 AAC / 5 AAC, 30 V / 5 ADC
	Switching cycles	30*10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10*10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN60255
Power unit	Power supply	100-240 VAC nominal voltage ± 10%, 50/60 Hz 18-36 VDC, galv. isolated
	Power consumption	max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- **Assembly picture for panel and built-on enclosure**



- **Dimensions**

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268 mm	262 mm	124 mm	118 mm
4-digit with dimension	316 mm	310 mm		
5-digit with dimension	364 mm	358 mm		
6-digit with dimension	412 mm	406 mm		
7-digit with dimension	460 mm	454 mm		

100 mm display

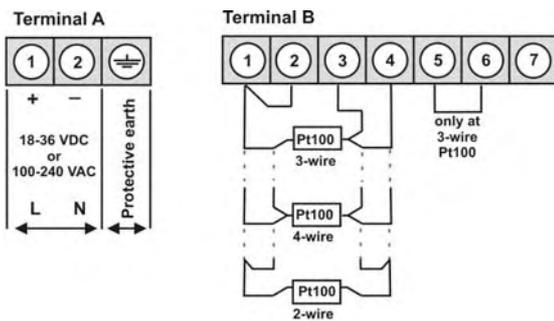
Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268 mm	262 mm	176 mm	170 mm
4-digit with dimension	526 mm	520 mm		
5-digit with dimension	616 mm	610 mm		
6-digit with dimension	706 mm	700 mm		
7-digit with dimension	796 mm	790 mm		

MG – 4-digit large size displays for indoor use Pt100, 2-/3-/4-wire -99.9°C...850°C

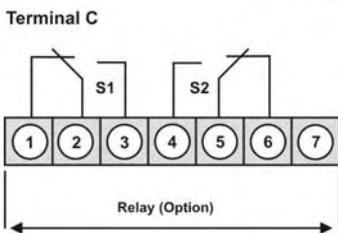
- red display of -999...9999 Digits (optional 3 digits)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- display adjustment via factory setting or directly on the sensor signal
- min/max-memory
- 10 additional adjustable supporting points
- display flashing at threshold value exceedance / undercut
- rounding function for display slowdown
- wire and sensor adjustment
- programming interlock via code input
- on demand: outdoor devices with ultra-bright LED and heating



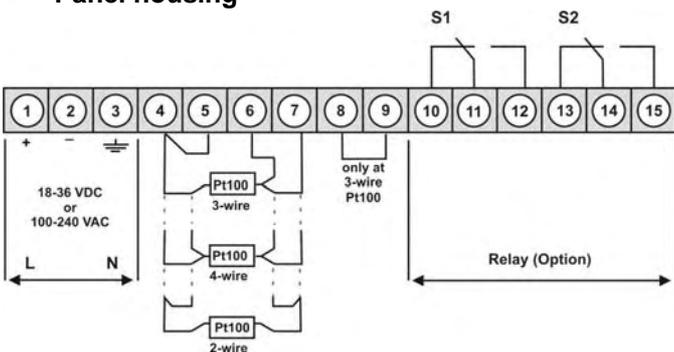
Built-on enclosure



Supply	Order number (without options)	EUR
57 mm 100-240 VAC	MG-ATR41.000C.S10BD1	730,00
57 mm 18-36 VDC	MG-ATR41.000C.710BD1	820,00
100 mm 100-240 VAC	MG-ATR42.000C.S10BD1	990,00
100 mm 18-36 VDC	MG-ATR42.000C.710BD1	1080,00



Panel housing



57 mm 100-240 VAC	MG-BTR41.000C.S10BD3	730,00
57 mm 18-36 VDC	MG-BTR41.000C.710BD3	820,00
100 mm 100-240 VAC	MG-BTR42.000C.S10BD3	990,00
100 mm 18-36 VDC	MG-BTR42.000C.710BD3	1080,00

Order key options

M	G	-	A	T	R	4	X	0	0	0	C	X	1	0	B	D	1	Built-on enclosure	EUR	
M	G	-	B	T	R	4	X	0	0	0	C	X	1	0	B	D	3	Panel housing		
																		2	Relay outputs	120,00
																		5	200 mm LED	on request
																		3	Number of digits: 3-digits	on request
																		G	Green LED	
																		X	Further device types	on request

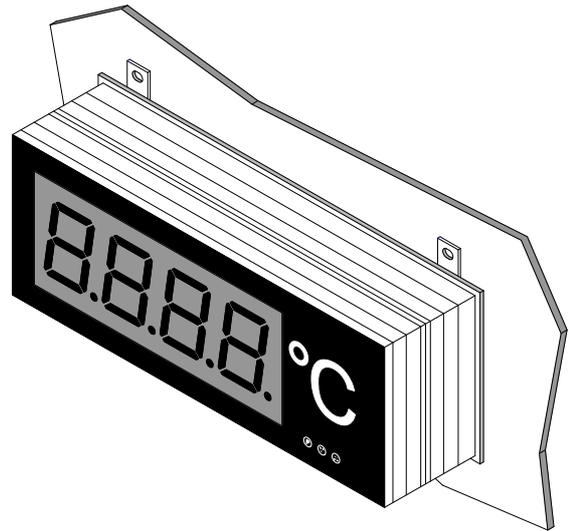
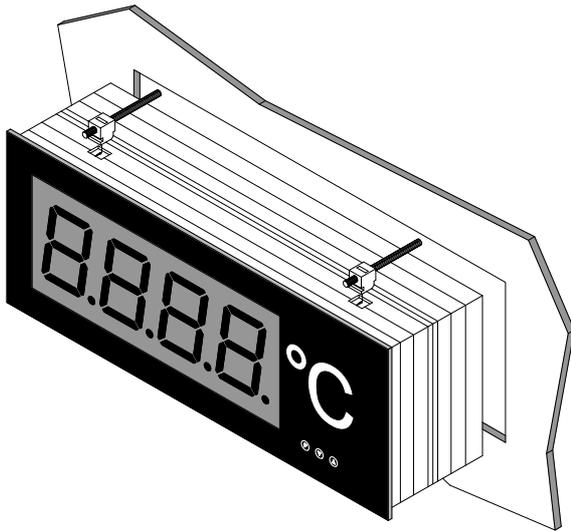
State physical unit by order on demand, e.g. °C.

Large-size displays

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability	> 500 contact durability
	Connection type	screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	front side IP65, connection IP00
Connection	Terminal type	15-pole removable screw clamp for in- and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	-999...9999
	Overflow	Indication of horizontal bars at the top
	Underflow	Indication of horizontal at the bottom
	Display time	0.1...10.0 seconds
	Area	Indoor
Measuring input	Measuring range	-99.9°C...850°C
	Measuring cycle	max. 10 measurements/second
	Wire resistance	≤ 500Ω per wire
	Resolution	approx. 20 bit at 1 second measuring time
	Meas. error 850°C	±0.1% of final value; ±3 Digit equates max. 1K
Accuracy	temperature coefficient ~ 130 ppm/K Measuring principle: voltage/frequency converter	
Memory	EEPROM	Data life > 20 years
Output	Relay	With change-over contact 259 V / 5 AAC / 5 AAC, 30 V / 5 ADC
	Switching cycles	30*10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10*10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN60255
Power unit	Power supply	100-240 VAC nominal voltage ±10%, 50/60 Hz
	Power consumption	18-36 VDC, galv. isolated max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- **Assembly picture for panel and built-on enclosure**



- **Dimensions**

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268 mm	262 mm	124 mm	118 mm
4-digit with dimension	316 mm	310 mm		

100 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	436 mm	430 mm	176 mm	170 mm
4-digit with dimension	526 mm	520 mm		

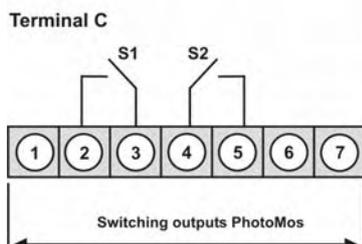
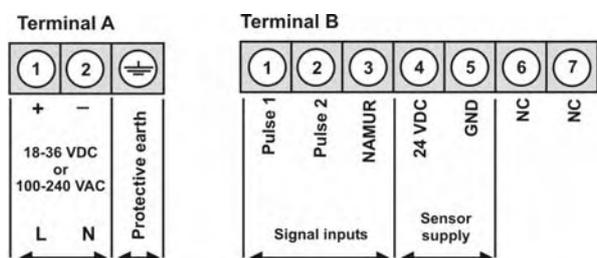
MG – 4-digit large size displays for indoor use

Two frequency inputs 0.01Hz to 100 kHz or designed for connection of Namur/3-wire NPN/PNP-sensors

- red display of -999...9999 Digits (optional 5-6 digits)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- frequency metering on two channels
- both scaled input signals can be freely calculated
- taring, reciprocal display and frequency division are possible with an one-channel metering
- each frequency channel can be linearised via 10 additional supporting points
- frequency input signal from 6 to 30 VDC are possible (TTL on demand)
- presetting of the frequency range in increments of 10 power
- measuring time/display time is free selectable from 0.1s to 10s
- switching contacts to adjustable threshold values
- on demand: outdoor devices with ultra-bright LED and heating



Built-on enclosure



	Supply	Order number (without options)	EUR
57 mm	100-240 VAC	MG-AFR41.0307.S10BD1	750,00
57 mm	18-36 VDC	MG-AFR41.0307.710BD1	840,00
100 mm	100-240 VAC	MG-AFR42.0307.S10BD1	1040,00
100 mm	18-36 VDC	MG-AFR42.0307.710BD1	1130,00

Panel housing

Drawing follows

57 mm	100-240 VAC	MG-BVR41.0001.S10BD3	750,00
57 mm	18-36 VDC	MG-BVR41.0001.710BD3	840,00
100 mm	100-240 VAC	MG-BVR42.0001.S10BD3	1040,00
100 mm	18-36 VDC	MG-BVR42.0001.710BD3	1130,00

Order key options

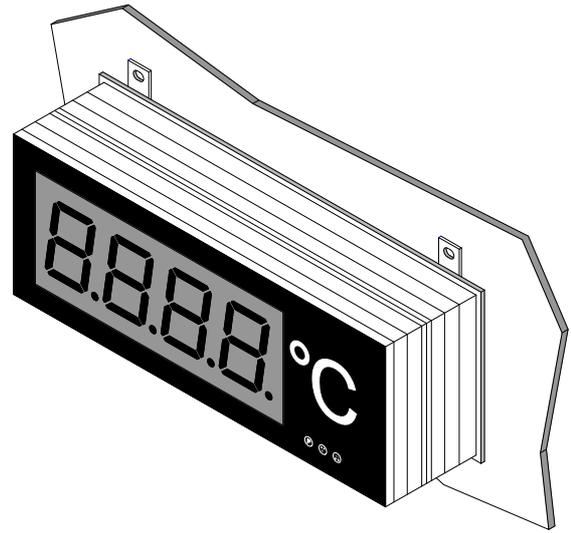
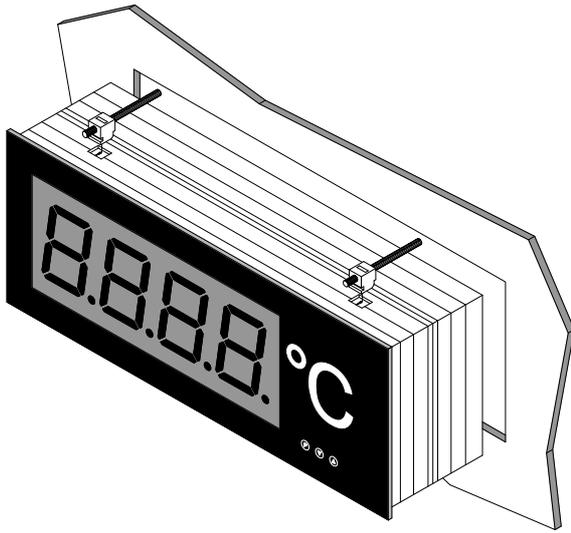
M	G	-	A	F	R	4	X.	0	3	0	7.	X	1	0	B	D	1	Built-on enclosure		
M	G	-	B	F	R	4	X.	0	3	0	7.	X	1	0	B	D	3	Panel housing	EUR	
																		5	200 mm LED	on request
																		X	Number of digits: 3-digits, 5-6 digits	on request
																		G	Green LED	
																		X	Further device types	on request

State physical unit by order on demand, e.g. U/min.

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability	> 500 contact durability
	Connection type	screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	Screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	Front IP65, Connection IP00
Connection	Terminal type	15-pole removable screw clamp for inputs and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	0...9999
	Overflow	Indication of horizontal bars at the top
	Underflow	Indication of horizontal at the bottom
	Display time	0.1...10.0 seconds
	Area	Indoor
Input	Pulse input	max. 30 VDC/3 mA
	Threshold	LOW < 4 VDC / HIGH > 6 VDC
	Frequency rang	0.01 HZ... 100 kHz
	Measuring time	0.1...10.0 seconds
	Meas.principle	pulse sum modulation / pulse width modulation
	Metering time period	< 10 µs
Memory	EEPROM	Data life > 20 years
Output	Sensor supply	24 VDC / 50 mA galv. isolated
	Namur supply	1.5 mA
	Switching points (Closer)	30 VAC / 0.4 A – 30 VDC / 0.4 A
	PhotoMos	Input/Output dielectric strength 100 VAC
Memory	EEPROM	Data life > 20 years
Power unit	Power supply	100-240 VAC nominal voltage ±10%, 50/60 Hz 18-36 VDC, galv. isolated
	Power consumption	max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- Assembly picture for panel and built-on enclosure



- Dimensions

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268 mm	262 mm	124 mm	118 mm
4-digit with dimension	316 mm	310 mm		
5-digit with dimension	364 mm	358 mm		
6-digit with dimension	412 mm	406 mm		

100 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	436 mm	430 mm	176 mm	170 mm
4-digit with dimension	526 mm	520 mm		
5-digit with dimension	616 mm	610 mm		
6-digit with dimension	706 mm	700 mm		

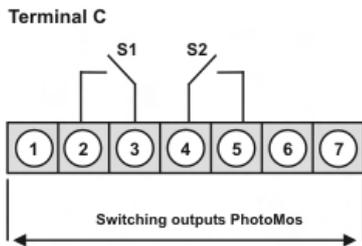
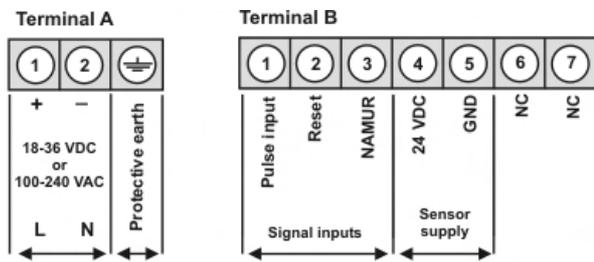
MG – 4-digit large size displays for indoor use

Counter

- red display of 0...9999 Digits (optional 5-8 digits)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- pulse counter with display factor and reset
- timer with start-/stop-/reset-function
- timer increments of 10ms up to 999999s adjustable
- counter value storage in case of power failure and malfunction
- adjustable forwards and backwards counting with initial value
- adjustable rising edge detection
- adjustable pulse attenuation to 30Hz, normally 10kHz
- input for Namur- and 3-wire-sensors
- switching contacts onto adjustable threshold values or pulse parts
- on demand: outdoor devices with ultra-bright LED and heating

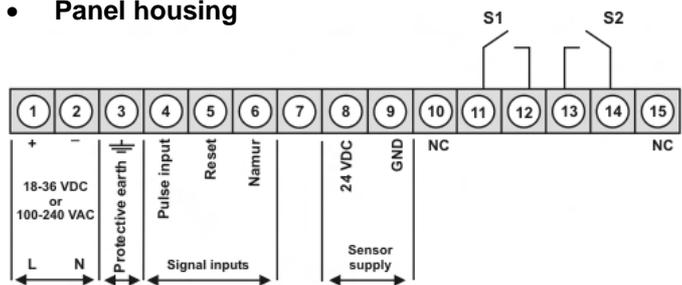


Built-on enclosure



	Supply	Order number (without options)	EUR
57 mm	100-240 VAC	MG-ACR41.0303.S12BD1	750,00
57 mm	18-36 VDC	MG-ACR41.0303.712BD1	840,00
100 mm	100-240 VAC	MG-ACR42.0303.S12BD1	1040,00
100 mm	18-36 VDC	MG-ACR42.0303.712BD1	1130,00

Panel housing



57 mm	100-240 VAC	MG-BCR41.0303.S12BD3	750,00
57 mm	18-36 VDC	MG-BCR41.0303.712BD3	840,00
100 mm	100-240 VAC	MG-BCR42.0303.S12BD3	1040,00
100 mm	18-36 VDC	MG-BCR42.0303.712BD3	1130,00

Order key options

M	G	-	A	C	R	4	X.	0	3	0	3.	X	1	2	B	D	1	Built-on enclosure	EUR	
M	G	-	B	C	R	4	X.	0	3	0	3.	X	1	2	B	D	3	Panel housing	EUR	
																		5	200 mm LED	on request
																		X	Number of digits: 5-8 digits	on request
																		G	Green LED	
																		X	Further device types	on request

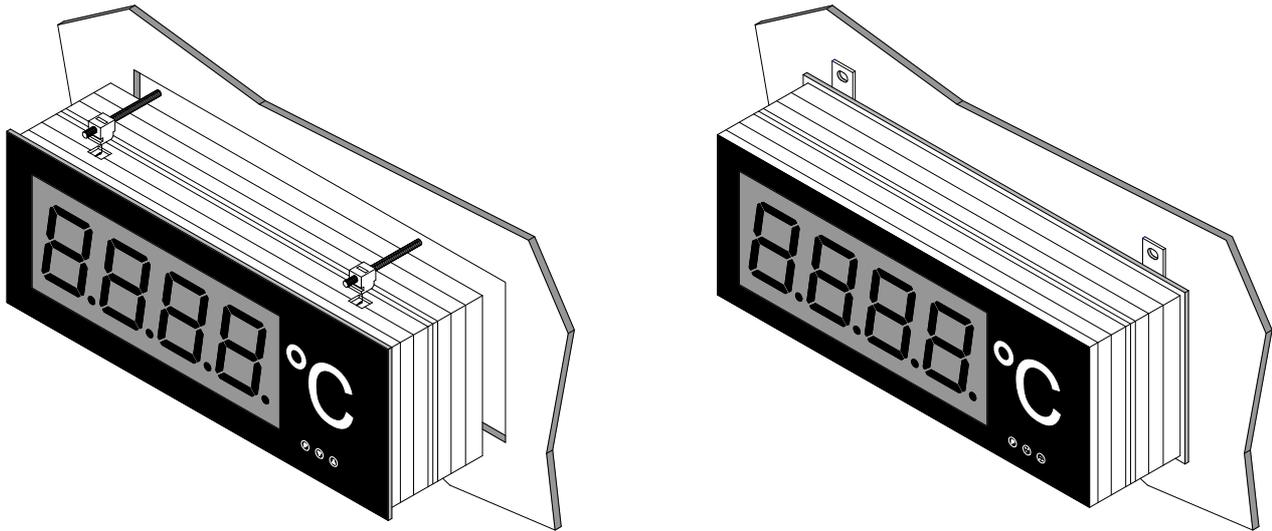
State physical unit by order on demand, e.g. kg.

Large-size displays

• Technical data

Dimensions	Built-on housing	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability	> 500 contact durability
	Connection type	screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	Front IP65, Connection IP00
Connection	Terminal type	15-pole removable screw clamp for in- and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	-999...9999
	Overflow	indication of horizontal bars at the top
	Underflow	indication of horizontal at the bottom
	Display time	0.1...10.0 seconds
Area	Indoor	
Input	Pulse rate	10.000 pulses/s max 30 pulses at active attenuation
	Input resistance	approx. 5 kOhm
	Input voltage	± 5...24 V
	HIGH-/LOW-level	≥ 6V / <4V
Output	Sensor supply	24 VDC/50 mA galv. isolated
	Switching points (closer)	30 VAC/0.4 A-30 VDC/0,4A
	PhotoMos	Input/Output dielectric strength
Memory	EEPROM	Data life > 20 years
Power unit	Power supply	100-240 VAC nominal voltage ±10%, 50/60 Hz 18-36 VDC, galv. isolated
	Power consumption	max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- **Assembly picture for panel and built-on enclosures**



- **Dimensions**

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268mm	262mm	124mm	118mm
4-digit with dimension	316mm	310mm		
5-digit with dimension	364mm	358mm		
6-digit with dimension	412mm	406mm		
7-digit with dimension	460mm	454mm		

100 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	436mm	430mm	176mm	170mm
4-digit with dimension	526mm	520mm		
5-digit with dimension	616mm	610mm		
6-digit with dimension	706mm	700mm		
7-digit with dimension	796mm	790mm		

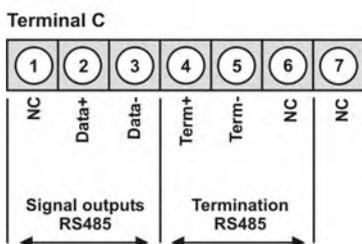
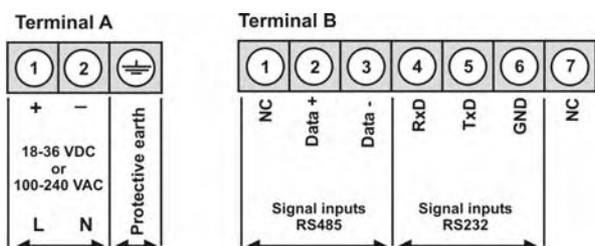
MG – 4-digit large size displays for indoor use

Interface triggering RS232 / RS485

- red display of 0...9999 Digits (optional 5-8 digits)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- RS232 or RS485 adjustable
- adjustable baud rate 300 to 57 kbit/s
- protocol free adjustable
- adjustable start-/stop-sign
- adjustable output range in the protocol
- adjustable number evaluation
- programming interlock via access code
- on demand: outdoor devices with ultra-bright LED and heating



Build-up housing



	Supply	Order number (without options)	EUR
57 mm	100-240 VAC	MG-ABR41.A000.S10BD1	710,00
57 mm	18-36 VDC	MG-ABR41.A000.710BD1	800,00
100 mm	100-240 VAC	MG-ABR42.A000.S10BD1	970,00
100 mm	18-36 VDC	MG-ABR42.A000.710BD1	1060,00

Panel housing

Drawing follows

57 mm	100-240 VAC	MG-BBR41.A000.S10BD3	710,00
57 mm	18-36 VDC	MG-BBR41.A000.710BD3	800,00
100 mm	100-240 VAC	MG-BBR42.A000.S10BD3	970,00
100 mm	18-36 VDC	MG-BBR42.A000.710BD3	1060,00

Order key options

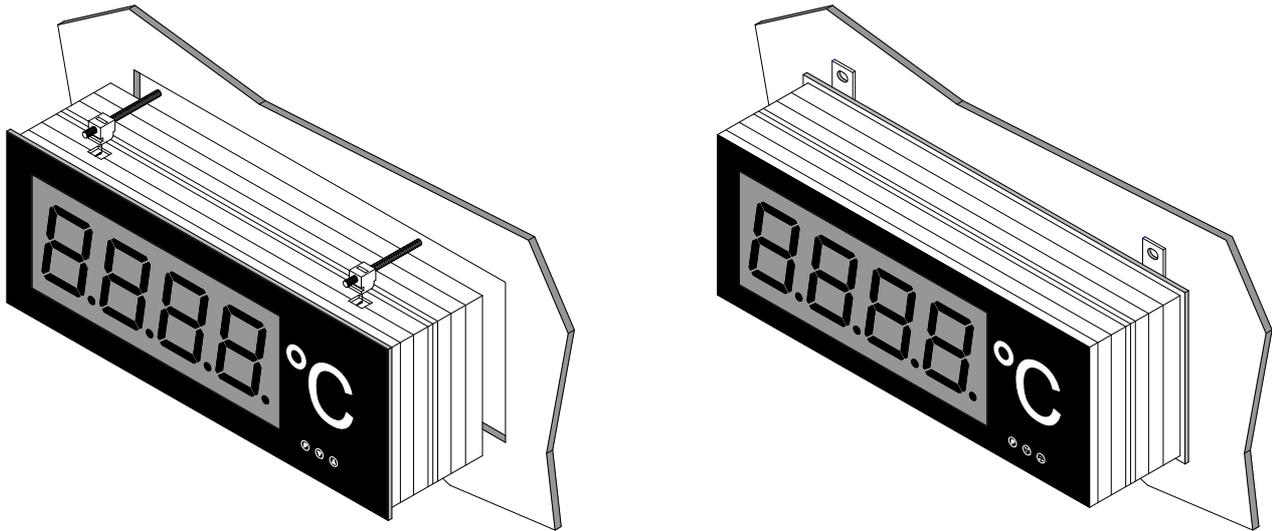
M	G	-	A	B	R	4	X	A	0	0	0	X	1	0	B	D	1	Built-on enclosure		
M	G	-	B	B	R	4	X	A	0	0	0	X	1	0	B	D	3	Panel housing	EUR	
																		5	200 mm LED	on request
																		X	Number of digits: 5-8 digits	on request
																		G	Green LED	
																		X	Further device types	on request

State physical unit by order on demand, e.g. kg.

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability	> 500 contact durability
	Connection type	screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	front side IP65, connection IP00
Connection	Terminal type	15-pole removable screw clamp for in- and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	-999...9999
	Overflow	Indication of horizontal bars at the top
	Underflow	Indication of horizontal at the bottom
	Display time	0.1...10.0 seconds
Area	Indoor	
Interface serial	Protocol	adjustable ACSII-protocol
	Baud rates	300, 1200, 2400, 9600, 19200, 38400, 57600
	Interfaces	RS232 / RS485 adjustable
	Interface RS232	max. 3m
	Interface RS485	max. 1000m
	Bus subscriber	max. 32
Termination	activatable via connection terminal	
Output	Sensor supply	24 VDC/50 mA galv. isolated
	Switching points (closer)	30 VAC/0.4 A-30 VDC/0,4A
	PhotoMos	Input/Output dielectric strength
Memory	EEPROM	Data life > 20 years
Power unit	Power supply	100-240 VAC nominal voltage ±10%, 50/60 Hz
	Power consumption	18-36 VDC, galv. isolated max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- Assembly picture for panel and built-on enclosure



- Dimensions

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268mm	262mm	124mm	118mm
4-digit with dimension	316mm	310mm		
5-digit with dimension	364mm	358mm		
6-digit with dimension	412mm	406mm		
7-digit with dimension	460mm	454mm		

100 mm display

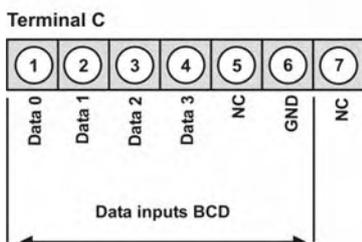
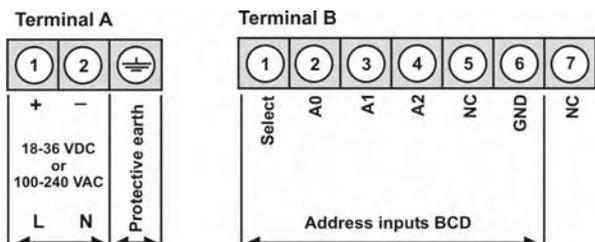
Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	436mm	430mm	176mm	170mm
4-digit with dimension	526mm	520mm		
5-digit with dimension	616mm	610mm		
6-digit with dimension	706mm	700mm		
7-digit with dimension	796mm	790mm		

MG – 4-digit large size displays for indoor use BCD address coded

- red display of -999...9999 Digits (optional 3, 5 or 6 digits)
- digit height 57 mm or 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- 9 free selectable character sets
- programming interlock via code input
- on demand: outdoor devices with ultra-bright LED and heating



Built-on enclosure



Panel housing

Drawing follows

		Order number (without options)	EUR
57 mm	100-240 VAC	MG-ABR41.B000.S10BD1	730,00
	18-36 VDC	MG-ABR41.B000.710BD1	820,00
100 mm	100-240 VAC	MG-ABR42.B000.S10BD1	1000,00
	18-36 VDC	MG-ABR42.B000.710BD1	1090,00
57 mm	100-240 VAC	MG-BBR41.B000.S10BD3	730,00
	18-36 VDC	MG-BBR41.B000.710BD3	820,00
100 mm	100-240 VAC	MG-BBR42.B000.S10BD3	1000,00
	18-36 VDC	MG-BBR42.B000.710BD3	1090,00

Order key options

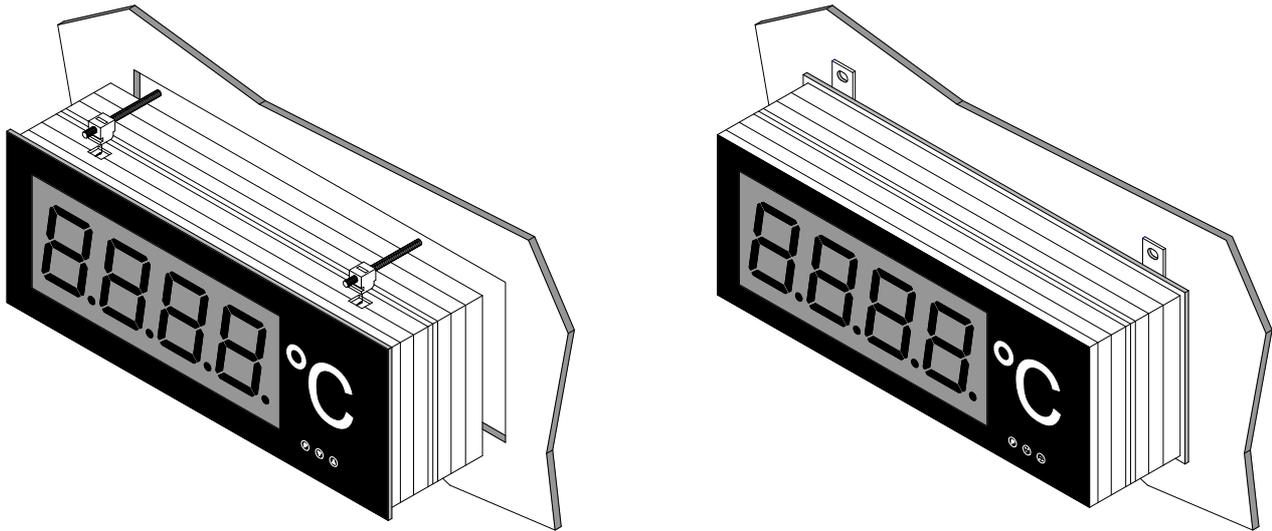
M	G	-	A	B	R	4	X.	B	0	0	0.	X	1	0	B	D	1	Built-on enclosures		
M	G	-	B	B	R	4	X.	B	0	0	0.	X	1	0	B	D	3	Panel housing		
																		5	200 mm LED	on request
																		X	Number of digits: 3, 5, or 6 digits	on request
																		G	Green LED	
																		X	Further device types	on request

State physical unit by order on demand, e.g. kg.

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability Connection type	> 500 contact durability screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	Screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	Front IP65, Connection IP00
Connection	Terminal type	15-pole removable screw clamp for in- and outputs for conductor diameter up to 1.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Display range	depends on sets of characters
	Area	Indoor
Interface	BCD	HIGH/LOW $\geq 4,5$ V / $\leq 2,4$ V
Memory	EEPROM	Data life > 20 years
Output	Sensor supply	24 VDC / 50 mA
	Relay	With change-over contact 259 V / 5 AAC / 5 AAC, 30 V / 5 ADC
	Switching cycles	30*10 ³ at 5 AAC, 5 ADC ohm resistive burden, 10*10 ⁶ mechanically Division according to DIN EN50178 / Characteristics according to DIN EN60255
Power unit	Power supply	100-240 VAC nominal voltage $\pm 10\%$, 50/60 Hz 18-36 VDC, galv. isolated
	Power consumption	max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	Conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- **Assembly picture for panel and built-on enclosure**



- **Dimensions**

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	268 mm	262 mm	124 mm	118 mm
4-digit with dimension	316 mm	310 mm		
5-digit with dimension	364 mm	358 mm		
6-digit with dimension	412 mm	406 mm		

100 mm display

Number of digits	Length L	Length LA	Height H	Height HA
3-digit with dimension	436 mm	430 mm	176 mm	170 mm
4-digit with dimension	526 mm	520 mm		
5-digit with dimension	616 mm	610 mm		
6-digit with dimension	706 mm	700 mm		

• Order code

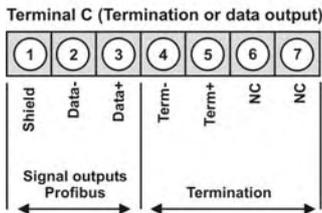
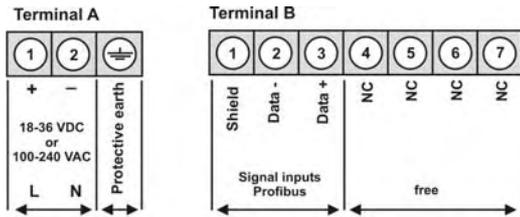
	M	G-	A	B	R	4	1.	B	0	0	1.	7	1	0	B	D	1
Standard type M-line																	
Large size display - indoor																	
Housing designs																	
Built-on housing	A																
Panel housing	B																
Suspendend/onesided	C																
Suspendend/double-sided	D																
Upright	E																
Portable	T																
Stainless steel housing	V																
	} on demand																
Display type																	
Interface	B																
Display colour																	
green LED	G																
red LED	R																
Number of digits																	
3-digit	3																
4-digit	4																
5-digit	5																
6-digit	6																
Digit height																	
57 mm LED	1																
100 mm LED	2																
200 mm LED	5																
Interfaces																	
BCD	B																
Connection																	
1 Rear side																	
2 Surface																	
3 Back side																	
Dimension																	
0 without																	
D simple labelling field (5 characters)																	
Z double labelling field																	
Version																	
B Version B																	
Setpoints																	
0 no setpoints																	
Protection class																	
1 IP65																	
Voltage supply																	
5 18-36 VDC																	
S 100-240 VAC																	
Measuring input																	
0 without																	
Analog output																	
0 without																	
Sensor supply																	
0 without																	

MG – 4-digit large size displays for indoor use Profibus DP

- red display of -999...9999 Digits (optional 5-8 digits)
- digit height 57 mm, 100 mm, 200 mm on demand
- Aluminium profile housing, protection class IP65
- built-on devices or panel meter
- programming interlock via code input
- on demand: outdoor devices with ultra-bright LED and heating

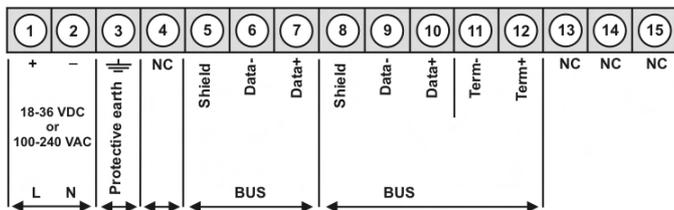


Built-on enclosure



Supply	Order number (without options)	EUR
57 mm 100-240 VAC	MG-ABR41.9000.S10BD1	1250,00
57 mm 18-36 VDC	MG-ABR41.9000.710BD1	1250,00
100 mm 100-240 VAC	MG-ABR42.9000.S10BD1	1398,00
100 mm 18-36 VDC	MG-ABR42.9000.710BD1	1398,00

Panel housing



57 mm 100-240 VAC	MG-BBR41.9000.S10BD3	1250,00
57 mm 18-36 VDC	MG-BBR41.9000.710BD3	1250,00
100 mm 100-240 VAC	MG-BBR42.9000.S10BD3	1398,00
100 mm 18-36 VDC	MG-BBR42.9000.710BD3	1398,00

Order key options

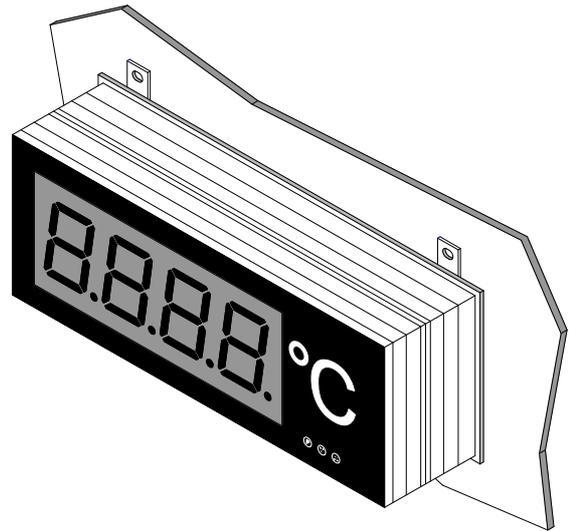
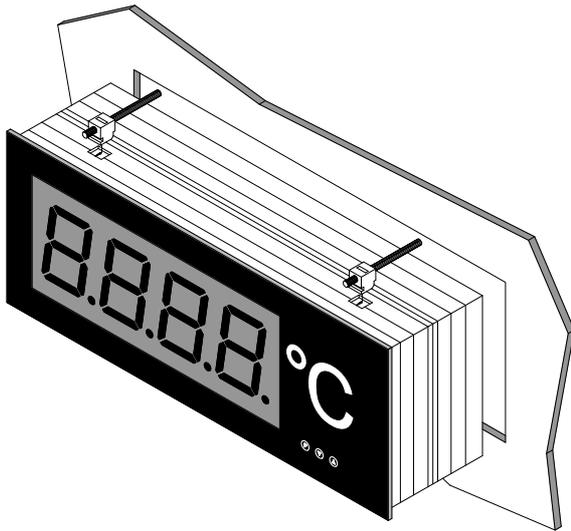
M	G	-	A	B	R	4	X	9	0	0	0	X	1	0	B	D	1	Built-on enclosure	EUR	
M	G	-	B	B	R	4	X	9	0	0	0	X	1	0	B	D	3	Panel housing		
																		5	200 mm LED	on request
																		X	Number of digits: 5-8 digits	on request
																		G	Green LED	
																		X	Further device types	on request

State physical unit by order on demand, e.g. kg.

• Technical data

Dimensions	Built-on enclosure	57 mm display: 316 mm x 124 mm x 82 mm (WxHxD) 100 mm display: 526 mm x 176 mm x 82 mm (WxHxD)
	Fixing	via fixing flange at the back
	Housing material Protection	Aluminium, black, powder-coated IP65
Connection	Type of plug	circular plug-in connector Binder-Series 693
	Cable admission	PG9 (6.0 ... 9.5 mm)
	Protection class	IP65
	Mechanic durability Connection type	> 500 contact durability screws
Terminal A	Number of poles	3 + PE
	Cable cross section	0.5...2.5 mm (AWG 20...14)
	Rating voltage	400 V
	Rating current	12 A
Terminal B & C	Number of poles	7
	Cable cross section	0.34...1.5 mm (AWG 22...16)
	Rating voltage	250 V
	Rating current	8 A
Dimensions	Panel housing	57 mm display: W 316 mm x H 124 mm x D 104 mm 100 mm display: W 526 mm x H 176 mm x D 104 mm
	Panel cut-out	57 mm display: W 310.0 x H 118.0 ^{+/-0.5} mm 100 mm display: W 520.0 x H 176.0 ^{+/-0.5} mm
	Fixing	Screw-/clamp fixing
	Housing material	Aluminium, black, powder-coated
	Protection	Front IP65, Connection IP00
Connection	Terminal type	15-pole removable screw clamp for voltage supply and inputs and outputs for conductor diameter up to 2.5 mm ²
Weight	57 mm display	approx. 3.0 kg
	100 mm display	approx. 5.0 kg
Display	Display	7-segment LED
	Digit height	57 mm, 100 mm
	Segment colour	red
	Number of digits	4 digits
	Area	Indoor
Profibus	Protocol	Profibus DP
	Baud rate	autobaud recognition up to 12 Mbaud
	Interfaces	RS485
	Cable length	max. 1000m
	Bus termination Termination	Pull-up/Pull-down regarding to EN50170 activatable via connection terminals
Memory	EEPROM	Data life > 20 years
Power unit	Power supply	100-240 VAC nominal voltage ±10%, 50/60 Hz 18-36 VDC, galv. isolated
	Power consumption	max. 30 VA
Ambient conditions	Working temperature	0...60°C
	Storing temperature	-20...80°C
	Climatic resistance	rel. humidity ≤ 75 % on year average without dew
EMV	EN 61326	
CE-sign	conformity to 2014/30/EU	
Safety standard	according to low voltage directive 2014/35/EU; EN61010; EN 60664-1	

- **Assembly picture for panel and built-on enclosure**



- **Dimensions**

57 mm display

Number of digits	Length L	Length LA	Height H	Height HA
4-digit with dimension	316 mm	310 mm	124 mm	118 mm
5-digit with dimension	364 mm	358 mm		
6-digit with dimension	412 mm	406 mm		
7-digit with dimension	460 mm	454 mm		

100 mm display

Number of digits	Length L	Length LA	Height H	Height HA
4-digit with dimension	526 mm	520 mm	176 mm	170 mm
5-digit with dimension	616 mm	610 mm		
6-digit with dimension	706 mm	700 mm		
7-digit with dimension	796 mm	790 mm		

Built-on enclosure / Desktop housings

AK1-1 – Built-on enclosure made of plastics

- for panel meter of the M1-line in 96x48 mm
- colour: RAL9005, black
- dimensions: 160x90x60.55 mm (BxHxD)
- material: ASA 757G Luran S
- protection class IP65
- connection via cable gland

AKV-2V – Built-on enclosure made of plastics, incl. digital indicator

- digital indicator: 20 mm digit height, red
- colour: RAL9005, black
- dimensions: 160x130x60 mm (BxHxD)
- range of display: -999...9999
- supply: 230 VAC
- sensor supply 24 V / 50 mA
- 2 switching points (Relay)
- protection class IP65

AMx-x – Built-on enclosure made of metal – customized applications

- for devices of the M-line
 - material: Aluminium profile, black, powder-coated
 - fixing clamps on the rear side
 - connection: 2/4 cable glands
- **Type AM1-1 for one M2-device in 96x48 mm**
 - dimensions: 176x144x82 mm (HxBxD)
- **Type AM2-1 for one M3-, PU5- or PZ5-device in 96x48 mm**
 - dimensions: 226x144x82 mm (HxBxD)
- **Type AM2-2 for two M2-devices in 96x48 mm**
 - dimensions: 226x144x82 mm (HxBxD)
- **Type AM2-3 for three M1-devices in 96x48 mm**
 - dimensions: 226x144x82 mm (HxBxD)

Desktop housings

- on demand

AK1 – plastic built-on enclosure for panel devices of the M1-line in 96x48 mm

Housing

- Material: ASA 757G Luran S
- Colour: black
- Dimensions (total): 160x90x40.55 mm (BxHxD)
- Working temperature: -40°...+80°C
- Inflammability: UL94 HB
- Dielectric strength: 26 kV/mm
- Surface resistance 1E13 Ω
- Ignition temperature: >400°C
- Weight: approx. 300 g

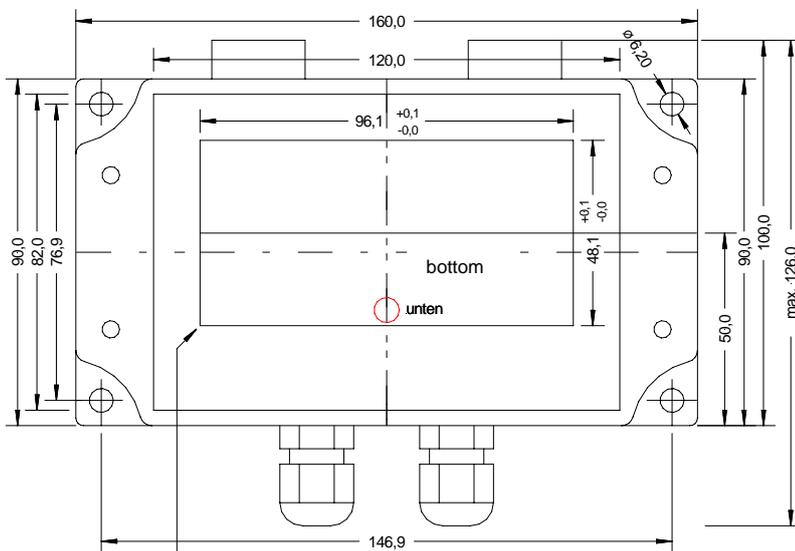
Protection class

- Sealing: IP65, PU flexible foam, -40°...+100°C
- Protective insulation: all insulation according to VDE100

Connection

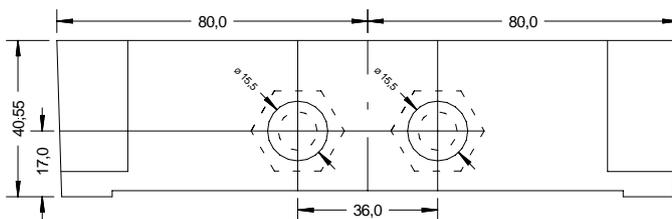
- Connection: via high-strength cable gland
- Cut-out: for 96x48 panel meters

Dimensions



Dimensions front side

Refinish the radius in the corners square



Dimensions rear side



ORDER NUMBER	EUR
AK1-1 (incl. assembly of the housing)	120,00

AKV-2VR4C – 4-digit plastic built-on enclosure including digital display

- Digit height: 20 mm
- Colour: Red
- Range of display: -999...9999
- Built-on enclosure: black, RAL9005
- Protection class: IP65
- Dimensions: 160 x 130 mm, Depth 60 mm
- Supply: 230 VAC
- Sensor supply: 24 V / 50 mA
- Measuring input: 0-10 VDC, 0/4-20 mA
- 2 relay outputs (changer)
- 10 points linearisation
- Offset set point
- Tara- / Hold-function

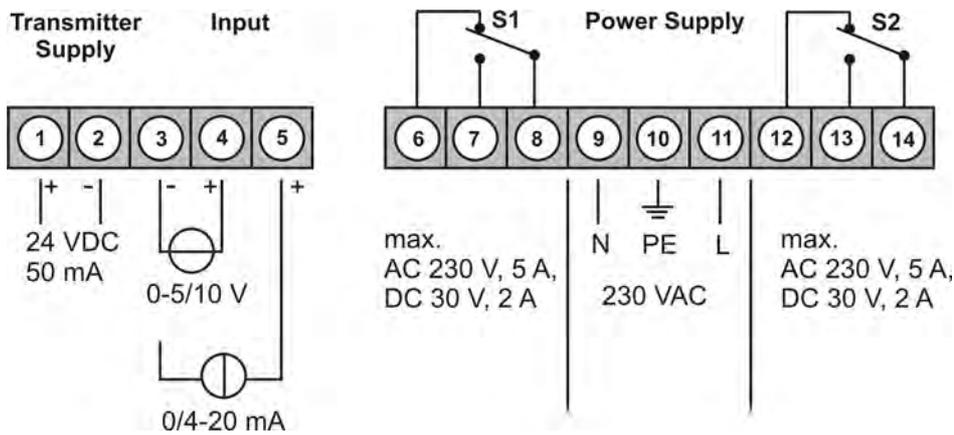


ORDER NUMBER

EUR

AKV-2VR4C.0301.572AD

375,00



• Technical data

Housing

Dimensions	160 x 130 x 60 mm (B x H x D)
Weight	max. 430 g
Fixing	4 fixing holes in the rear side of the housing
Material	ABS (UL94V-0)
Colour	black, RAL9005
Protection class	Standard IP65
Connection	reversible screw terminals; wire cross section up to 2.5 mm ² wire feeding via high-strength cable gland connection

Display

Digit height	20 mm
Segment colour	red
Range of display	-999...9999
Setpoints	one LED per setpoint
Overflow	horizontal bars at the top
Underflow	horizontal bars at the bottom
Display time	0.1...10.0 seconds

Input

	Measuring range	R _i approx.	Measuring error [%] MB	Digit
Measuring range /	0...10 V	150 kΩ	0.1	± 1
Input resistance /	0...5 V	150 kΩ	0.1	± 1
Measuring error	0...20 mA	100 Ω	0.1	± 1
(measuring time =1 second)	4...20 mA	100 Ω	0.1	± 1

Temperature drift	all measuring inputs: 50 ppm/K
Measuring time = display time	0.1...10.0 seconds
Measuring principle	Voltage conversion / frequency conversion
Resolution (at 1 sec measuring time)	approx. 20 bit

Output

Relay	Switch-over contact 250 VAC 5 AAC respectively 30 VDC 5 ADC; at ohm resistive burden
Switching cycles	0.5 * 10 ⁵ at max. contact rating 5 * 10 ⁶ mechanically
	Diversification according to DIN EN 50178 Characteristics according to DIN EN 60255

Sensor supply (galvanic insulated)	24 VDC; 50 mA
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Power pack

Voltage supply (galvanic insulated)	230 VAC / 50/60 Hz / ±10 %
Power consumption	max. 8 VA

Memory

Data life	Parameter memory EEPROM >20 years
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Ambient conditions

Working temperature	0...60°C
Storing temperature	-20...80°C
Weathering resistance	rel. humidity ≤ 75 % on years average without dew

EMV

	DIN 61326 conformity according to 2014/30/EU
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CE-sign

Safety standard	according to low voltage directive 2014/35/EU, DIN 61010, EN 60664-1
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AMx-x – metal built-on enclosure for devices of the M-line – for customized applications

- Aluminium, black, powder-coated
- Protection class IP65
- Fixing flanges on the back side
- Connection: 2 high-strength cable glands on the lower side

• **Type AM1-1**
for one M2-device in 96x48mm
Dimensions: 176x144x82mm (HxBxD)

• **Type AM2-1**
for one M3-, PU5 or PZ5-device in 96x48mm
Dimensions: 226x144x82mm (HxBxD)

• **Type AM2-2**
for two M2-devices in 96x48mm
Dimensions: 226x144x82mm (HxBxD)

• **Type AM2-3**
for three M1-devices in 96x48mm
Dimensions: 226x144x82mm (HxBxD)

ORDER NUMBER **EUR**

AM1-1-M2 **240,00**

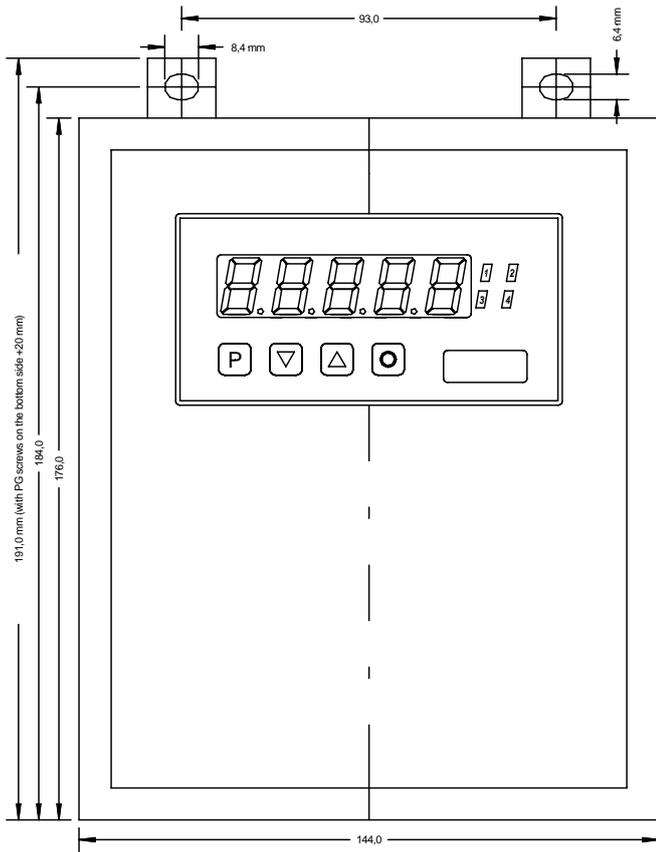
AM2-1-M3 (PU) **260,00**

AM2-2-M2 **240,00**

AM2-3-M1 **240,00**



• Dimensioning drawing

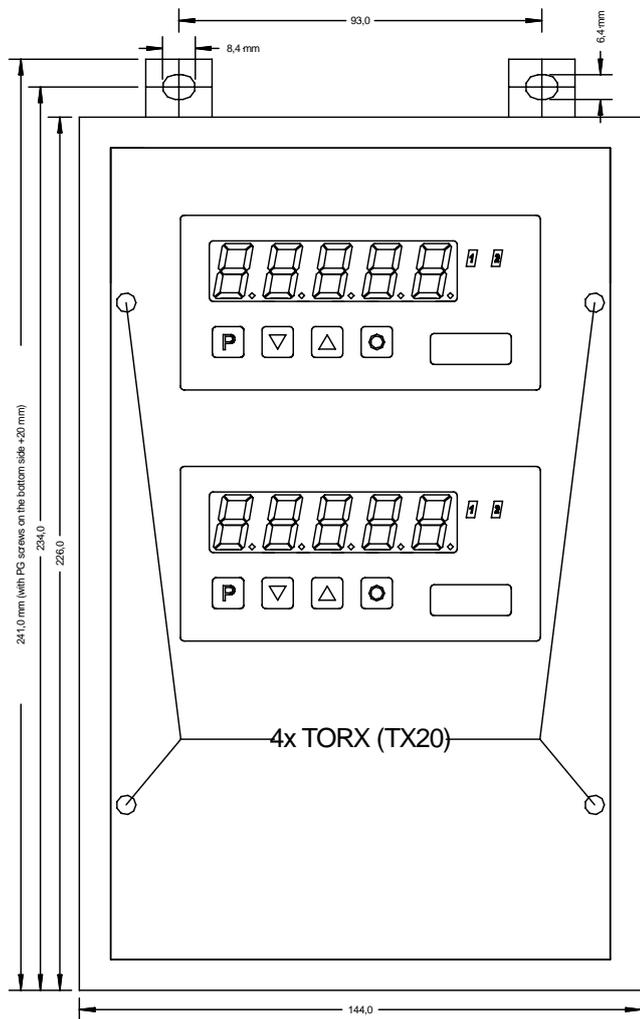


Housing for display AM1-1-M2

Dimensions H 176 x B 144 x D 82 mm

Rear wall, hanging

Connection via high-strength cable glands, internal plug-in terminal



Metal built-on enclosure

Type AM2-2-M2

Housing for 2x M2-1.. devices in wall-mounting

Dimensions H 226 x B 144 x D 82mm

Rear wall, hanging

Connection via high-strength cable glands, internal screw terminal

For connection of the display and for opening of the front, the 4 TORX screws (TX20) need to be loosen!

Desktop housings

On demand:

We offer you attractive desktop housings for different kind of size and customized.

Please contact us for an individual proposal!

Top hat rail mounting

Indicator with multifunction measuring input, 3-digit

- **MH-1U**

- red display of -199...999 Digits
- measuring inputs: Direct voltage, direct current, Pt100(0), thermocouple, frequency, rotational speed, counter
- 9 adjustable supporting points
- optional: interfaces RS232 / RS485 / Bluetooth

Pressure transducer – strain gauge

- **MH-DRADLM**

- 4-wire up to 2 strain gauge full bridge
- external tara function vial terminal
- interface RS232/RS485
- input sensitivity 0.1 to 5 mV/V

MH1U – 3-digit digital indicator for top hat rail mounting

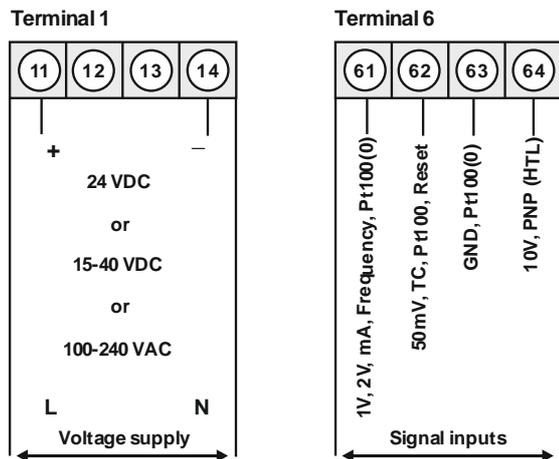
Multifunctional measuring input: Direct voltage, direct current, Pt100(0), Thermocouple, Frequency, Rotational speed, Counter

- red display of -199...999 Digits
- digit height approx. 7mm
- min/max value recording
- 9 adjustable supporting points
- display flashing at threshold value exceedance / threshold value undercut
- Tara function
- programming interlock via access code
- pluggable screw-terminal
- optional: analog output 0-10 VDC, 0/4-20 mA switchable
- optional: interfaces RS232 / RS485 / Bluetooth
- optional: sensor supply incl. digital input
- optional: 2 relay outputs / 2 PhotoMos-outputs / 2 relay outputs & 2 PhotoMos-outputs
- optional: Bluetooth interface
- optional: data logger
- accessories: PC-based configuration kit PM-TOOL with CD & USB adapter



ORDER NUMBER **EUR**
(without options)

• Multifunction measuring input



Supply 24 VDC galv. isolated

MH-1UR3A.000X.760A **148,00**

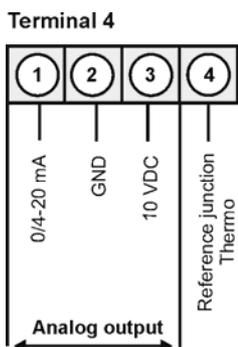
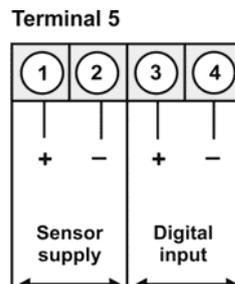
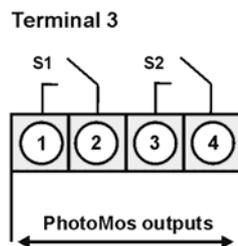
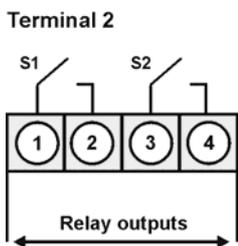
Supply 100-240 VAC/DC ±10%

MH-1UR3A.000X.S60A **173,00**

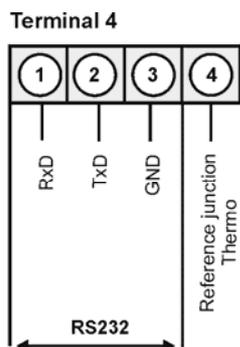
Supply 15-40 VDC / 20-30 VAC

MH-1UR3A.000X.W60A **180,00**

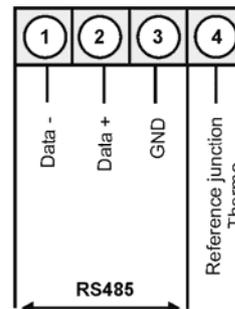
Options



alternative to analog output



or



• Order key for options

M	H-	1	U	R	3	A.	0	0	0	X.	6	7	0	A
M	H-	1	U	R	3	A.	0	0	0	X.	S	7	0	A
M	H-	1	U	R	3	A.	0	0	0	X.	W	7	0	A

EUR

May be combined to some extend.	2	2 Relay outputs	20,00
	3	2 PhotoMos outputs	25,00
	5	2 PhotoMos- and 2 relay outputs	45,00
	X	Analog output	65,00
	3	Sensor supply 24VDC/50mA incl. digital input for 24VDC power supply	40,00
	3	Sensor supply 24VDC/50mA incl. digital input for 10-30VDC, 100-240VAC power supply	20,00
	3	Interface RS232	55,00
	4	Interface RS485	55,00
	C	Bluetooth interface	} In preparation.
	D	Data logger	

• Parameterisation software

PC-based configuration software PM-TOOL, for devices without keypad; for a simple adjustment of standard devices, incl. CD & USB adapter. Programming happens via interface.

PM-TOOL-USB

29,00

• Technical data

Housing	Dimensions	W22.5 x H117.2 x D107 mm
	Fixing	top hat rail
	Housing material	PA6.6, black, UL94V-0
	Connection	plug-in terminal; wire cross section up to 1.5 mm ²
Display	Display	3-digit
	Digit height	7 mm
	Segment colour	red
	Range of display	-199 to 999
	Switching points	LED S1, LED S2, LED S3, LED S4
	Overflow	horizontal bars at the top
	Underflow	horizontal bars at the bottom
	Display time/Meas. time	0.1 to 10.0 seconds

Measuring input

Signal	Measuring range	Measuring span	Resolution
Voltage	0...10 V (Ri > 100 kOhm)	0...12 V	≥ 14 bit
Voltage	0...2 V (Ri ≥ 10 kOhm)	0...2,2 V	≥ 14 bit
Voltage	0...1 V (Ri ≥ 10 kOhm)	0...1,1 V	≥ 14 bit
Voltage	0...50 mV (Ri ≥ 10 kOhm)	0...75 mV	
Current	4...20 mA (Ri = ~125 Ohm)	1...22 mA	
Current	0...20 mA (Ri = ~125 Ohm)	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0,1°C / 0,1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0.001 Hz /
NPN	0...3 kHz	0...3 kHz	0.001 Hz /
PNP	0...1 kHz	0...1 kHz	0.001 Hz
Rotational speed	0...9999 1/min	0...9999 1/min	0.001 1/min
Counter	0...9999 (prescaler up to 1000)		

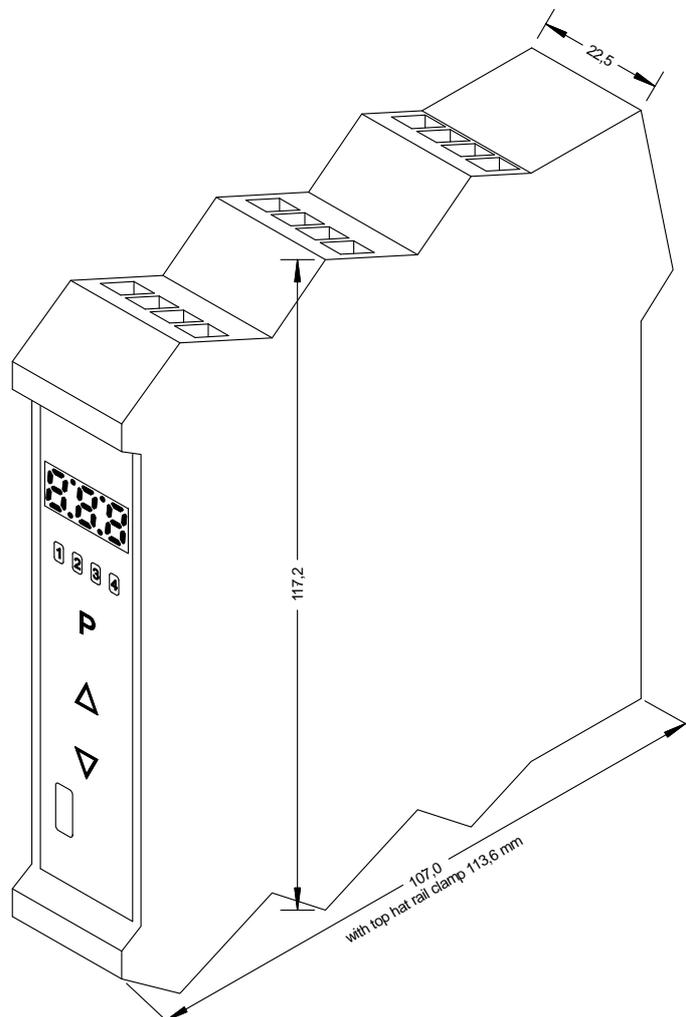
Pulse input **TTL** / Low <2 V / High >3 V **HTL/PNP** / Low <6 V / High >8 V
NPN / Low <0.8 V / High via resistance **Namur** / Low <1.5 mA / High >2.5 mA

Reset input active <0.8 V

Measuring error Standard 0.2% of measuring range ± 1 Digit
Pt100 / Pt1000 0.5% of measuring range ± 1 Digit
Thermocouple 0.3% of measuring range ± 1 Digit

Accuracy	Reference junction	± 1°C
	Drift of temperature	100 ppm/K
	Measuring time	0.01...2.0 seconds
	Measuring rate	approx. 1/s with temperature sensor, approx. 100/s with standard signals
	Measuring principle	U/F-conversion
	Resolution	approx. 14 Bit at 1s measuring time
Output	Sensor supply	24 VDC / 50 mA incl. digital input, < 2.4V OFF, > 10V ON, max. 30 VDC / Ri~ 14 kOhm
Switching points	2x relay outputs with normally open contact	Switching voltage 30 VDC/AC, max. 2 A resistive load operating life < 30 mV/< 10 mA – min. 2,5x10 ⁶ 30 VDC / 1 A – minimum 5x 10 ⁵ 30 VDC / 2 A – minimum 1x 10 ⁵
	2 PhotoMos-outputs with normally open contact	Switching voltage 30 VDC/AC, max. 0,4 A
Analog output	0-10 VDC / load min. 10 kOhm, 0/4-20 mA / load max. 500 Ohm, 12 Bit	
Interface	Modbus with ASCII or RTU protocol	
	USB	11520 Baud, no parity, 8 data bit, 1 stop bit, flow control (none)
	Bluetooth	9.600 Baud, no parity, 8 data bit, 1 stop bit, flow control (none)
	RS323	9.600 Baud, no parity, 8 data bit, 1 stop bit, wire length max. 3 m
	RS485	9.600 Baud, no parity, 8 data bit, 1 stop bit, wire length max. 1.000 m
Power pack	Supply	24 VDC ± 10% galvanic isolated, ≤ 5 VA 100-240 VAC 50/60 Hz DC ± 10%, ≤ 15 VA 15-40 VDC galvanic isolated / 20-30 VAC 50/60 Hz, ≤ 10 VA
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
Ambient conditions	Working temperature	-20 to + 50°C
	Storing temperature	-30 to + 70°C
	Weathering resistance	relative humidity 0-85% on years average without dew
EMV	EN 61326	
CE-identification	conformity according to directive 2014/30/EU	
Safety regulations	according to low voltage directive 2014/35/EU; EN 61010; EN 60664-1	

Housing:



● Purchase order key

	M	H-	1	U	R	3	A.	0	0	0	X.	S	6	0	A
Standard type M-Line															
Top hat rail housing	H														
Housing size 22.5 x 117.2 x 107 mm (WxHxD)			1												
Type of display Multifunction				U											
Display colour Red					R										
Number of digits 3-digit						3									
Digit height 7 mm							A								
Digital input															
Without						0									
Interface RS232						3	galv. isolated without analog output								
Interface RS485						4	galv. isolated without analog output								
Bluetooth interface						C									
Data logger						D									
Sensor supply															
Without						0									
24 VDC / 50 mA incl. digital input						3									
Version															
A A															
Switching points															
0 No switching points															
2 2 relay outputs															
3 2 PhotoMos outputs															
5 2 PhotoMos and 2 relay outputs															
Protection class															
6 IP20 / pluggable terminal															
Supply															
7 24 VDC, galv. isolated															
S 100-240 VAC, DC ±10%															
W 15-40 VDC, 20-30 VAC															
Measuring input															
X Direct voltage, direct current, Shunt, Resistance, Pt100(0), Thermocouple, Frequency, Counter															
Analog output															
X 1x 0-10 VDC, 0/4-20 mA (without interface)															

Top hat rail device – DMS

• Pressure transducer type MH-DRADLM

Input: 4-wire up to 2 strain gauges full bridge
 Input sensitivity: 0.1... 5 mV/V
 Sensor supply: 5 VDC
 Digital input: Tara function external via terminal
 Analog output: 4-20 mA, 0-10 VDC (Standard version)
 Voltage supply: 24 VDC ± 20%
 Resolution: 12 / 14 / 15 / 16 Bit
 Total error: 0.3% of final value
 Interface: RS232 (Adjustment and processing)
 Housing material: Plastics PA66 GF30 for top hat rail
 Protection class: IP20



• Ordering key options

M H- D R A D L M- 0 8 0 0 0 C- 1 0

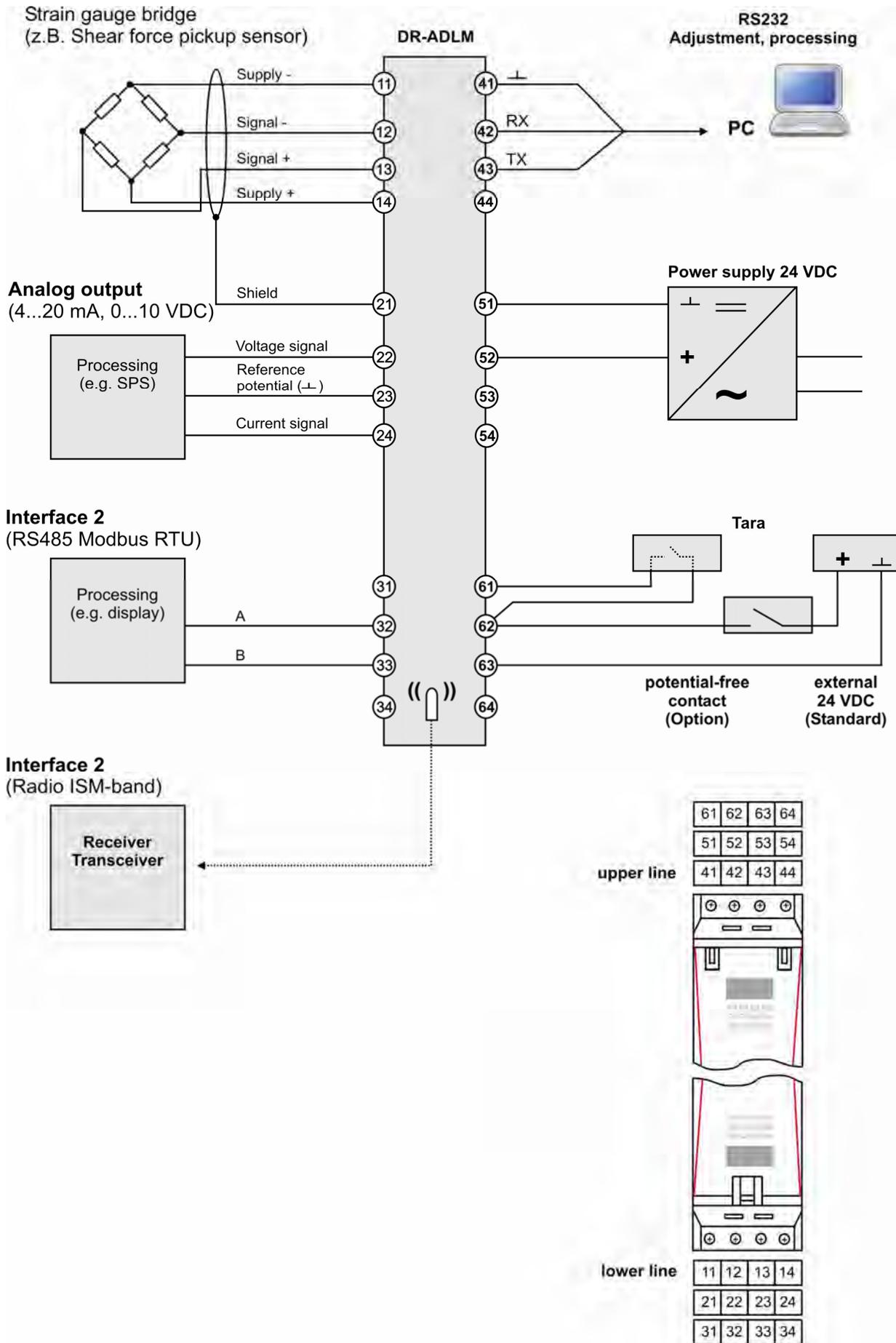
0	no special design
1	special design (please specify)
0	configuration – factory settings ¹
1	configuration – customized (please specify) ²
C	housing DR 22.5; TS 35
0	24 VDC supply
0	tara external (Standard)
1	tara internal
	Interface 2
0	without
2	RS485
8	radio ISM-path, internal aerial
8	output 4-20 mA, 0-10 VDC
9	0-20 mA, 2-10 VDC
0	input 0.1... 5 mV/V

1) Factory settings: sensitivity 3 mV/V / resolution: 16 Bit / measuring rate 5/s / filter: 1s

2) Menu items exist within the technical data. If the demanded values have not been specified, then the specifications of the factory settings will be taken over.

Price on demand

• Connection



• **Technical data**

Input

Amplifier up to 2 strain gauge full bridges 350 Ohm (sum signal)
Sensitivity 0.1... 5 mV/V (adjustable)

Output

Analog 0...10 V and 4...20 mA
optional 2... 10 V and 0...20 mA
Current burden <500 Ohm
Voltage load resistance 10 kOhm minimum

Interfaces

Interface 1 RS232 (adjustment and processing)
Interface 2 (Option) RS485 Modbus RTU (adjustment)
Transceiver-radio module (processing)
Frequency: 868 MHz ISM-band
Range: up to 300 m (MESH-able)
Modulation: FSK
Transmission power: 3.5 mW
Data rate: 19.2 kb/s
Aerial: intern

Accuracy

Resolution 12 / 14 / 15 / 16 Bit
At measuring rate 128 / 32 / 16 / 8 per second
Total error 0.3% of final value
Temperature coefficient <50 ppm/K
Sampling rate 10 ms...5s (adjustable)
Filter function 10 ms...5s (adjustable)

Power pack

Supply 24 VDC, ±20% (approx. 1.5 W)
Sensor supply 5 VDC 35 mA maximum

Ambient conditions

Working temperature -10°C...+60°C
Storing temperature -20°C...+70°C

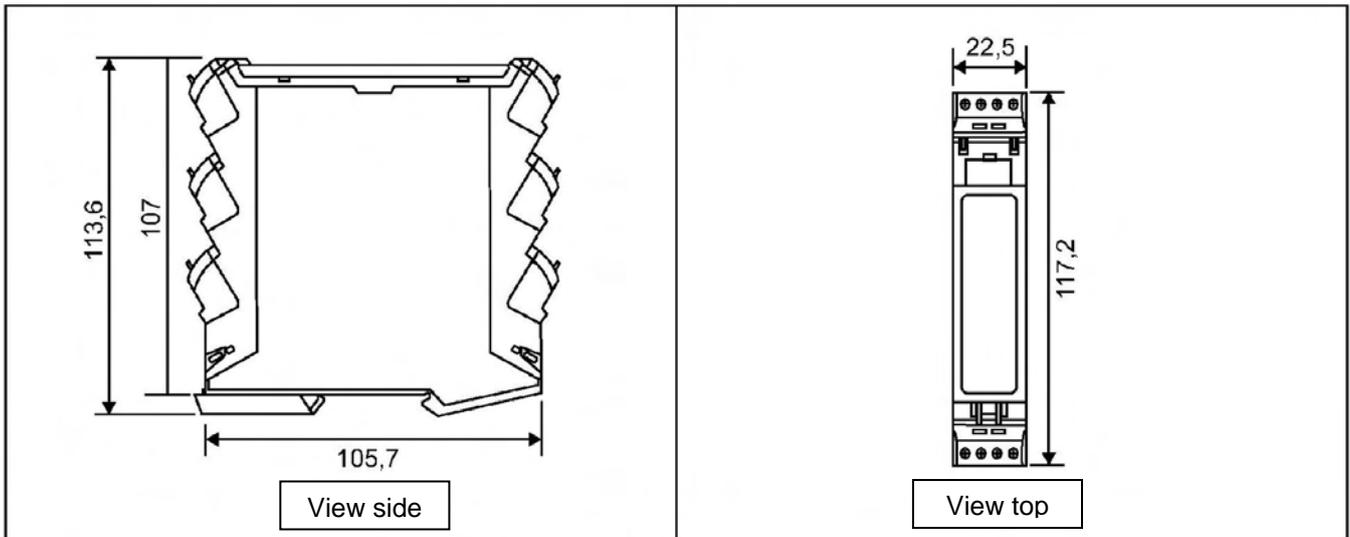
Tara

active (triggering with 24 VDC extern)
option: passive (triggering via potential-free contact)

Housing DR 22,5

Size 117.2 x 22.5 x 113.6 mm
Material PA66 GF30
Colour black
Inflammability UL 94 V-0
Assembly top hat rail TS 35
Protection class IP20
Weight approx. 180 g
Electrical connection 6 plug-in terminals 4-pole
Terminal area 0.13...3.31 mm²

Dimensions



LCD/TFT displays

Tripple display for standard signals

• TFT1-13

- Metering point & signal identification up to max. 15 characters
- display panel 2,4", 320x240 Pixel
- measuring value presentation of 3x -1999...9999 Digits
- 2 switching points (changer)
- housing size: 96 x 48 mm

Multifunction measuring inputs

• TFT1-11 multifunction device with TFT display

- Metering point & signal identification up to max. 15 characters
- display panel 2,4", 320x240 Pixel
- minimal installation depth: 25 mm without plug-in terminal, with transformer 42 mm
- 2 switching points (changer)
- housing size: 96 x 48 mm

• ML2-2 multifunction device with LCD display

- Metering point & signal identification up to max. 15 characters
- LCD display with all graphic features with 128x64 Pixel
- manual adjustment of metering point via display menu (help text as ticker) or optional via interface RS485 with Modbus protocol
- buzzer alarm for audible signalling with shiftable confirmation function
- housing size: 96 x 96 mm

TFT1 – triple indicator for panel-mounting in 96x48 mm (WxH)

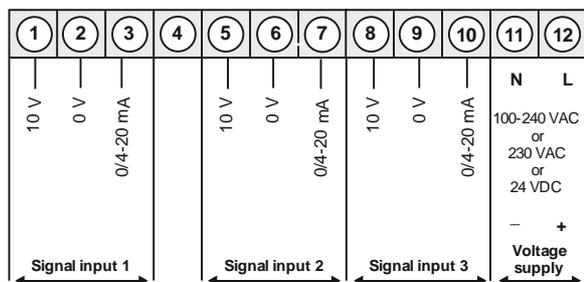
Standard signals: 3x 0/4-20 mA, 0-10 VDC (galv. not isolated among each other)

- presentation of metered value of 3x -1999...9999 digits
- digit height approx. 9 mm
- selectable colour for measurand and background: red, green, white, black, orange
- minimal installation depth: 25 mm without plug-in terminal, with transformer 42 mm
- display panel 2,4", 320x240 Pixel
- adjustable signs for physical dimensions
- min/max value recording
- 9 adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Tara function
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- option: 2 relay outputs
- accessories: PC-based configuration kit PM-TOOL with CD & USB adapter



ORDER NUMBER EUR
(without options)

• Multifunctional measuring input



Supply 100-240 VAC / DC ±10%

TFT1-13V.0001.S70A 255,00

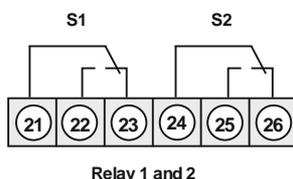
Supply 230 VAC

TFT1-13V.0001.570A 220,00

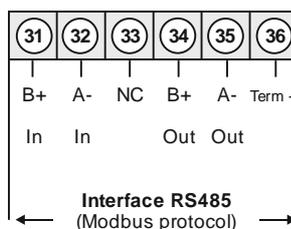
Supply 24 VDC galv. isolated

TFT1-13V.0001.770A 220,00

Options:



alternative to relay 1 and 2



in preparation

• Order key options

T	F	T	1	-	1	3	V.	0	0	0	1.	S	7	0	A
T	F	T	1	-	1	3	V.	0	0	0	1.	5	7	0	A
T	F	T	1	-	1	3	V.	0	0	0	1.	7	7	0	A

EUR

2	2 relay outputs	33,00
4	Interface RS485 – with Modbus protocol (in preparation)	55,00

• Parameterisation software

PC-based configuration software PM-TOOL, for a simple adjustment, incl. CD & USB adapter. Programming happens on the rear side via micro USB-plug.

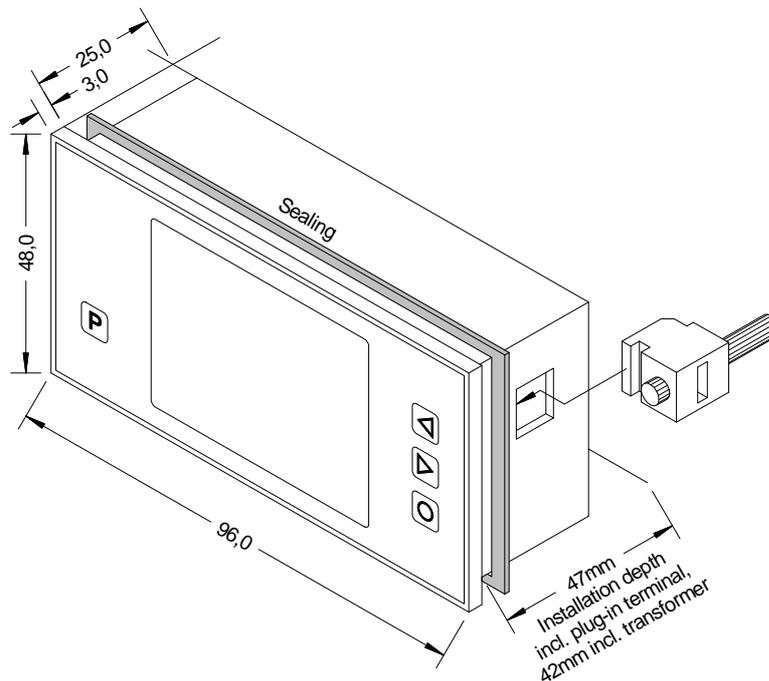
PM-TOOL-USB

29,00

• Technical data

Housing	Dimensions	W96 x H48 x D25 mm, (D = 42 mm with transformer, D = 47 mm, incl. plug-in terminals)	
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm	
	Fixing	screw elements for a wall thickness of up to 3 mm	
	Housing material	PC Polycarbonate, black, UL94V-0	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front side IP65 standard, at the rear side IP00	
	Weight	approx. 150 g	
Connection	plug-in terminal; wire cross section up to 2.5 mm ²		
	push-in terminal; wire cross section up to 0.75 mm ² for interface RS485		
Display	Display	fullgraphic TFT-display with 320x240 Pixel, font Segoe UI	
	Digit height	9 mm	
	Presentation of metered value	3x -1999 to 9999	
	Measurand background colour	Red, Green, White, Black or Orange (selectable)	
	Limit values	optical display flashing	
Measuring input			
Signal	Measuring range	Measuring range	Resolution
Voltage	0...10 V Ri > 100 kOhm	0...12 V	≥ 14 bit
Current	4...20 mA Ri = ~125 Ohm	1...22 mA	
Current	0...20 mA Ri = ~125 Ohm	0...22 mA	
Output	Relay with change-over Contact	30 VDC / 2 A resistive burden	
Interface (in preparation)	RS485 Protocol	9.600 Baud, no parity, 8 data bit, 1 stop bit, wire length max. 1000 m	
		Modbus with ASCII or RTU-protocol	
Measuring error	Standard	0.1% of measuring range ± 1 digit	
Accuracy	Drift of temperature	100 ppm/K	
	Measuring time	0.01 to 2.0 seconds	
	Measuring rate	approx. 100/s	
	Measuring principle	U/F conversion	
	Resolution	approx. 14 bit at 1 sec measuring time	
Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10%	
		230 VAC 50/60 Hz, ≤ 3 VA	
		24 VDC ± 10% galvanic isolated, ≤ 1 VA	
Memory	EEPROM	Data preservation ≥ 100 years at 25°C	
Ambient conditions	Working temperature	-20 to + 60°C, without dew	
	Storing temperature	-30 to + 70°C	
	Weathering resistance	relative humidity 0-85% on years average without dew	
	Height	up to 2000 m	
EMV	EN 61326		
CE-identification	Conformity according directive 2014/30/EU		
Safety regulations	According to low voltage directive 2013/35/EU; EN 61010; EN 60664-1		

Housing:

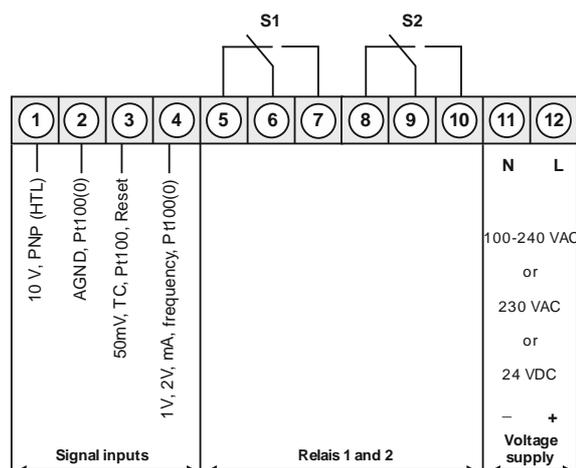


TFT1 – full graphic indicator for panel-mounting in 96x48 mm (WxH) Multifunctional measuring input: direct voltage, direct current, Pt100(0), Thermocouple, frequency, rotational speed, counter

- presentation of metered value of -1999...9999 Digits
- digit height approx. 15 mm
- selectable colour for measurand and background: red, green, white, black, orange
- minimal installation depth: 25 mm without plug-in terminal, with transformer 42 mm
- display panel 2,4", 320x240 Pixel
- display of metering point description and signal description
- adjustable signs for physical dimensions
- min/max value recording
- 9 adjustable supporting points
- display flashing at threshold value exceedance/undercut
- Tara function
- programming interlock via access code
- protection class IP65 at the front
- pluggable screw terminal
- 2 switching points (changer)
- option: interface RS485 with Modbus protocol
- accessories: PC-based configuration kit PM-TOOL with CD & USB adapter



• Multifunctional measuring input



Supply 100-240 VAC / DC ±10%

Supply 230 VAC

Supply 24 VDC galv. isolated

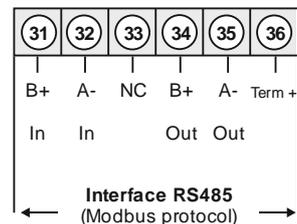
ORDER NUMBER **EUR**
(without options)

TFT1-11U.000X.S72A **255,00**

TFT1-11U.000X.572A **220,00**

TFT1-11U.000X.772A **230,00**

Option (relay 1 and 2 are not applicable):



• Order key option

T	F	T	1-	1	1	U.	0	0	0	X.	S	7	2	A
T	F	T	1-	1	1	U.	0	0	0	X.	5	7	2	A
T	F	T	1-	1	1	U.	0	0	0	X.	7	7	2	A

EUR

4 Interface RS485 – galv. isolated (only possible without relay)

55,00

• Parameterisation software

PC-based configuration software PM-TOOL for a simple adjustment,
incl. CD & USB adapter. Programming happens on the rear side via micro USB plug.

PM-TOOL-USB

29,00

• Technical data

Housing	Dimensions	W96 x H48 x D 25 mm, (with plug-in terminal 47 mm, devices with transformer 42 mm)
	Panel cut-out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fixing	screw elements for a wall thickness of up to 3 mm
	Housing material	PC Polycarbonate, black, UL94V-0
	Sealing material	EPDM, 65 Shore, black
	Protection class	at the front side IP65 standard, at the rear side IP00
	Weight	approx. 100 g
	Connection	plug-in terminal; wire cross section up to 2.5 mm ² push-in terminal; wire cross section up to 0.75mm ² for interface RS485

Display	Display	fullgraphic TFT-display with 320x240 Pixel
	Digit height	15 mm
	Presentation of metered value	-1999 to 9999
	Measurand background colour	Red, Green, White, Black or Orange (selectable)
	Limit values	optical display flashing

Measuring input

Signal	Measuring range	Measuring range	Resolution
Voltage	0...10 V Ri > 100 kOhm	0...12 V	≥ 14 bit
Voltage	0...2 V Ri ≥ 10 kOhm	0...2.2 V	≥ 14 bit
Voltage	0...1 V Ri ≥ 10 kOhm	0...1.1 V	≥ 14 bit
Voltage	0...50 mV Ri ≥ 10 kOhm	0...75 mV	
Current	4...20 mA Ri = ~125 Ohm	1...22 mA	
Current	0...20 mA Ri = ~125 Ohm	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0.1°C / 0.1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0.001 Hz / ±1
NPN	0...3 kHz	0...3 kHz	0.001 Hz / ±1
PNP	0...1 kHz	0...1 kHz	0.001 Hz
Rotational speed	0...9999 1/min	0...9999 1/min	0.001 1/min
Counter	0...9999 (prescaler up to 1000)		

Pulse input	TTL Low <2 V / High >3 V	HTL/PNP Low <6 V / High >8 V
	NPN Low <0.8 V / High via resistance	Namur Low <1.5 mA / High >2.5 mA

Reset input	active <0.8 V
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Relay	with changeover contact 30 VDC / 2 A resistive burden
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Interface	RS485	9.600 Baud, no parity, 8 DataBit, 1 StopBit, wire length max. 1000m
	Protocol	Modbus with ASCII or RTU-protocol

Measuring error	Standard	0.2% of measuring range ± 1 Digit
	Pt100 / Pt1000	0.5% of measuring range ± 1 Digit
	Thermocouples	0.3% of measuring range ± 1 Digit

Accuracy	Reference junction	± 1°C
	Drift of temperature	100 ppm/K
	Measuring time	0.01 to 2.0 seconds
	Measuring rate	approx. 1/s with temperature sensor, approx. 100/s with standard signals
	Measuring principle	U/F conversion
	Resolution	approx. 14 Bit at 1s measuring time

Power pack	Supply	100-240 VAC 50/60 Hz, DC ±10%
		230 VAC 50/60 Hz, ≤ 3 VA
		24 VDC ± 10% galvanically isolated, ≤ 1 VA

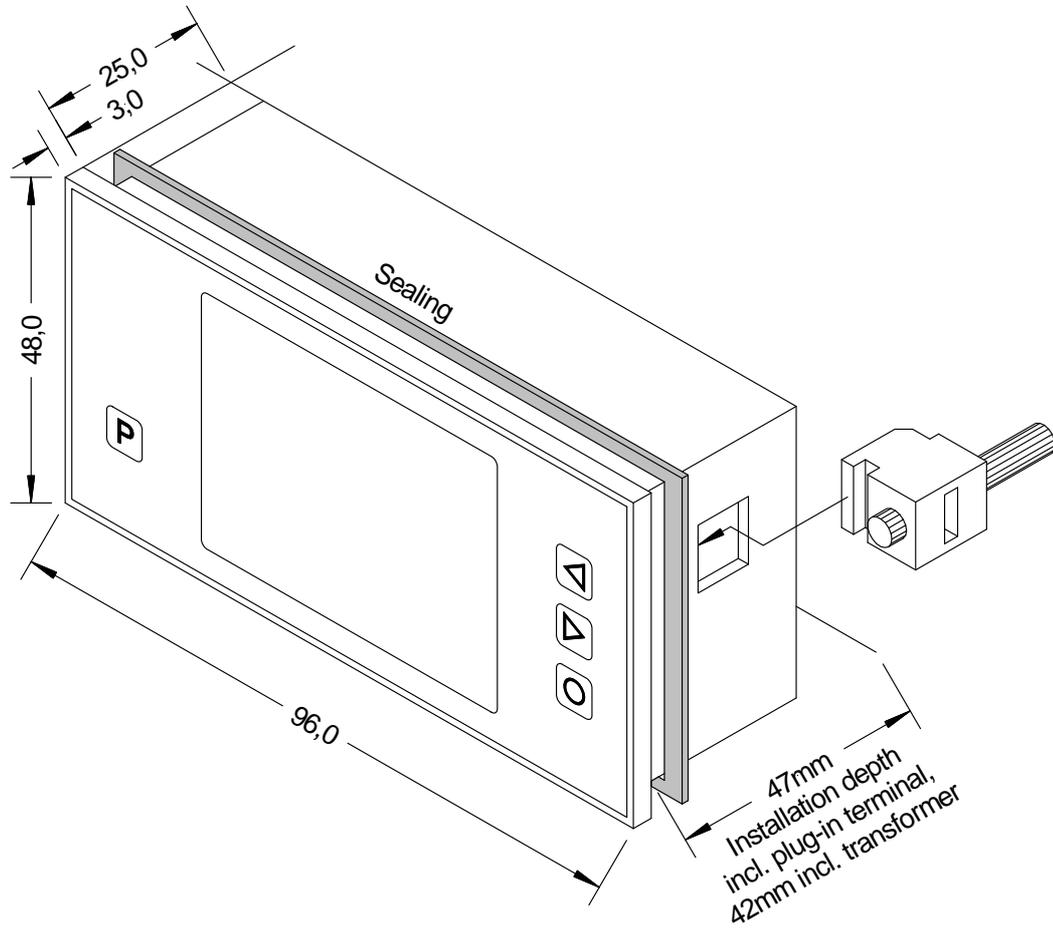
Memory	EEPROM	Data preservation ≥ 100 years at 25°C
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Ambient conditions Working temperature -20 to + 50°C
Storing temperature -30 to + 70°C
Weathering resistance relative humidity 0-85% on years average without dew

EMV CE-identification EN 61326
Conformity according directive 2014/30/EU

Safety regulations According to low voltage directive 2013/35/EU; EN 61010; EN 60664-1

Housing:

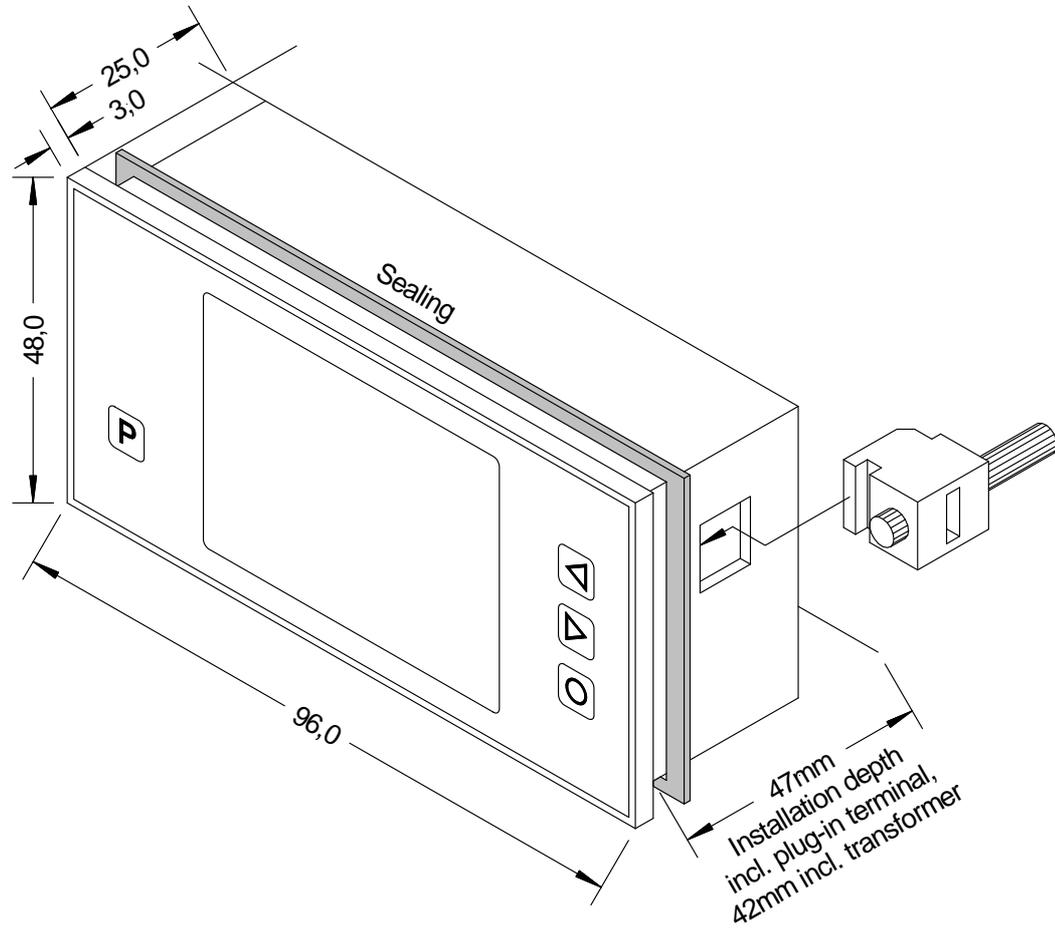


Ambient conditions Working temperature -20 to + 50°C
Storing temperature -30 to + 70°C
Weathering resistance relative humidity 0-85% on years average without dew

EMV CE-identification EN 61326
Conformity according directive 2014/30/EU

Safety regulations According to low voltage directive 2013/35/EU; EN 61010; EN 60664-1

Housing:





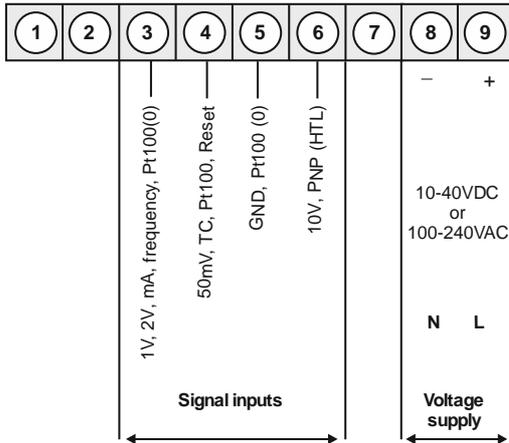
ML2-2 – LCD indicator for panel-mounting in 96x96mm

Multifunctional measuring inputs:

Direct voltage, direct current, Pt100, Pt1000, Thermocouple, pulse signals for frequency and rotational speed metering or counter

- multi voltage power supply unit of 100-240 VAC/DC or 10-40 VDC/18-30 VAC
- LCD indicator with all graphic features of 128x64 pixel
- measurand indication of -1999...9999 digits
- multicolour backlight (7 colours available)
- indication of metering point and signal identification
- 3-digit adjustable dimension unit
- adjustment of the metering point, manually via display menu (with help text as ticker)
or optionally via interface RS485 with ModBus protocol
- min/max memory, Tara function, 9-points-linearisation
- buzzer alarm for audible signalling with switchable confirmation function
- colour change at threshold value exceedance/undercut
- programming interlock via access code
- pluggable screw terminal
- optional: sensor supply
- optional: digital input for triggering of activities like e.g. TARA
- optional: analog output 0/4-20 mA, 0-10 VDC switchable
- optional: 2 relay outputs
- optional: RS232/RS485 interfaces (ModBus protocol) galvanically isolated
- accessories: PC-based configuration kit PM-TOOL with CD & USB-adapter

• **Multifunctional measuring input**



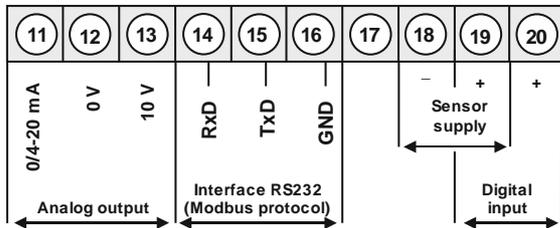
Supply 100-240 VAC, DC±10%

ML2-2UX4C.000X.S70AD 350,00

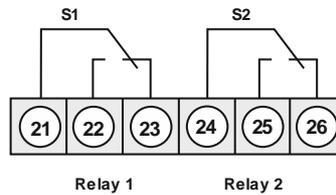
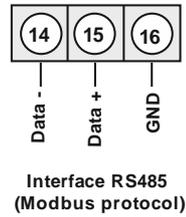
Supply 10-40 VDC, 18-30 VAC

ML2-2UX4C.000X.W70AD 350,00

Options:



alternative to RS232



• **Product key options**

M	L	2-	2	U	4	X.	0	0	0	X.	S	7	0	A	D
M	L	2-	2	U	4	X.	0	0	0	X.	W	7	0	A	D

2	2 relay outputs	33,00
X	Analog output 0/4-20 mA, 0-10 VDC galvanically isolated, 16 Bit switchable	120,00
Z	Analog output 0/4-20 mA, 0-10 VDC galvanically isolated, 12 Bit switchable	60,00
2	Sensor supply 10 VDC / 50 mA incl. digital input	25,00
3	Sensor supply 24 VDC / 50 mA incl. digital input	25,00
3	Interface RS232 galvanically isolated	55,00
4	Interface RS485 galvanically isolated	55,00
1	Digital input galvanically isolated	10,00

EUR

• **Parameterisation software**

PC-based configuration software PM-TOOL, for devices without keypad; for simple adjustment of standard devices, incl. CD and USB-adapter. Programming happens on the back via interface.

ORDER NUMBER

EUR

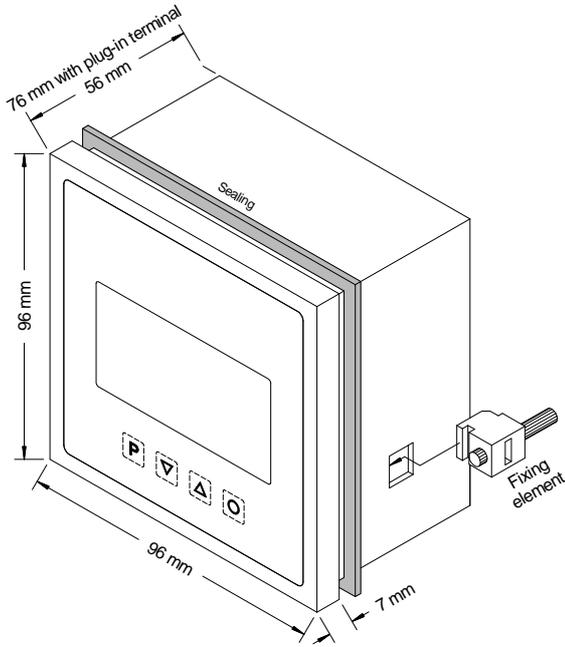
PM-TOOL-MUSB4

89,00

• Technical data

Dimensions	Housing	B96 x H96 x D56 mm (incl. plug-in terminal D= 82 mm)	
	Panel cut-out	91.0 ^{+0.6} x 91.0 ^{+0.6} mm	
	Fixing	screw elements for a wall thickness up to 10 mm	
	Housing material	PC polycarbonate, black	
	Sealing material	EPDM, 65 Shore, black	
	Protection class	at the front IP65 Standard, at the back IP00	
	Weight	approx. 330 g	
	Connection	plug-in terminal; cable cross-section up to 2.5 mm ²	
Display	Display	LCD indicator with full graphic features with 128x64 Pixel	
	Indication of measurand	of -1999...9999 digits	
	Digit height	12 mm	
	Background colour	selectable: red, green, blue, white, yellow, teal, purple	
	LCD Schriftfarbe	black	
	Limit values	optical display flashing	
Measuring input	Measuring range	Measuring span	Resolution
Voltage	0...10 V (Ri > 100 kOhm)	0...12 V	≥ 14 bit
Voltage	0...2 V (Ri ≥ 10 kOhm)	0...2.2 V	≥ 14 bit
Voltage	0...1 V (Ri ≥ 10 kOhm)	0...1.1 V	≥ 14 bit
Voltage	0...50 mV (Ri ≥ 10 kOhm)	0...75 mV	
Current	4...20 mA (Ri = ~125 Ohm)	1...22 mA	
Current	0...20 mA (Ri = ~125 Ohm)	0...22 mA	
Pt100-3-wire	-50...200°C	-58...392°F	0,1°C / 0,1°F
Pt100-3-wire	-200...850°C	-328...1562°F	1°C / 1°F
Pt1000-2-wire	-200...850°C	-328...1562°F	1°C / 1°F
Thermo K	-270...1350°C	-454...2462°F	1°C / 1°F
Thermo S	-50...1750°C	-328...3182°F	1°C / 1°F
Thermo N	-270...1300°C	-454...2372°F	1°C / 1°F
Thermo J	-170...950°C	-274...1742°F	1°C / 1°F
Thermo T	-270...400°C	-454...752°F	1°C / 1°F
Thermo R	-50...1768°C	-58...3214°F	1°C / 1°F
Thermo B	80...1820°C	176...3308°F	1°C / 1°F
Thermo E	-270...1000°C	-454...1832°F	1°C / 1°F
Thermo L	-200...900°C	-328...1652°F	1°C / 1°F
Frequency	0...10 kHz	0...10 kHz	0,001 Hz / ±1
NPN	0...3 kHz	0...3 kHz	0,001 Hz / ±1
PNP	0...1 kHz	0...1 kHz	0,001 Hz
Rotational speed	0...9999 1/min	0...9999 1/min	0,001 1/min
Counter	0...9999 (prescaler up to 1000)		
Output	Relay	with changeover contact 250 V / 5 AAC, 30 V / 5 ADC	
	Switching cycle	30 * 10 ³ at 5 AAC, 5 ADC with ohm resistive burden, 10 * 10 ⁶ mechanically	
	Analog output	Diversification according to DIN EN50178 / Characteristics according to DIN EN 60255	
		10 VDC / burden 10kΩ, 0/4-20 mA / burden 500Ω, 16 Bit	
		10 VDC / burden 10kΩ, 0/4-20 mA / burden 500Ω, 12 Bit switchable	
	Sensor supply	24 VDC / 50 mA, 10 VDC / 20 mA	
	Buzzer	Signal transmitter as alarm indication	
Pulse input	TTL / Low <2 V / High >3 V	HTL/PNP / Low <6 V / High >8 V	
	NPN / Low <0.8 V / High via resistance	Namur / Low <1.5 mA / High >2.5 mA	
Reset input	active <0.8 V		
Digital input	< 6 V Low and > 18 V High max. 30 VDC galv. isolated		
Measuring fault	Standard	0.2% of measuring range ± 1 Digit	
	Pt100 / Pt1000	0.5% of measuring range ± 1 Digit	
	Thermocouples	0.3% of measuring range ± 1 Digit	
Accuracy	Reference junction	± 1°C	
	Temperature drift	100 ppm/K	
	Measuring time	0.01...2.0 seconds	
	Sampling rate	approx. 1/s with temperature sensor, approx. 100/s with standard signals	
	Measuring principle	U/F-conversion	
	Resolution	approx. 14 Bit at 1s measuring time	
Interface	Protocol ModBus	with ASCII- or RTU-protocol	
	RS232	9.600 Baud, no parity, 8 Databit, 1 StopBit, wire length max. 3m	
	RS485	9.600 Baud, no parity, 8 Databit, 1 StopBit, wire length max. 1000m	
Power pack	Supply	100-240 VAC 50/60 Hz /DC ±10 % (max. 15 VA)	
		10-40 VDC / 18-30 VAC 50/60 Hz (max. 15 VA)	
Memory	EEPROM	Data preservation ≥ 100 years at 25°C	
Ambient conditions	Working temperature	0 to +50°C	
	Storing temperature	-20 to +80°C	
	Wheathering resistance	relative humidity of 0-85% on years average without dew	
CE-sign	Conformity to guidance 2014/30/EU		
EMV	EN 61326, EN 55011		

Housing:



• Order key

		ML	2-	2	U	X	C	0	0	0	0	X	S	7	0	A	D
Standard type M-Line LCD																	
Installation depth 82 mm (incl. plug-in terminal)		2															
Housing dimensions 96 x 96 x 56 mm (BxHxD)		2															
Indicator type Universal / Multifunctional		U															
Display colour LCD: black Background colour selectable: Red, green, blue, white, yellow, teal, purple		X															
Number of digits 4-digit		4															
Pixel 128x64 pixel, all graphic features		C															
Digital input without Interface RS232 Interface RS485 Digital input		0		3		4		I									
		<p>Dimension</p> <p>D Physical unit (3 digits are adjustable)</p> <p>Version</p> <p>A A</p> <p>Switching points</p> <p>0 no switching points 2 2 relay outputs</p> <p>Protection class</p> <p>7 IP65 / pluggable terminal</p> <p>Power pack</p> <p>S 100-240 VAC, DC ±10% W 10-40 VDC, 18-30 VAC</p> <p>Measuring input</p> <p>X Multifunctional: voltage, current, shunt, frequency, counter, Pt100(0), Thermocouple</p> <p>Analog output</p> <p>0 without X 1x 0-10 VDC, 0/4-20 mA, 16 Bit Z 1x 0-10 VDC, 0/4-20 mA, 12 Bit</p> <p>Sensor supply</p> <p>0 without 2 10 VDC / 50 mA / incl. digital input 3 24 VDC / 50 mA / incl. digital input</p>															

Sensor systems

Pt100 / Pt1000 (KTY & Thermocouple on demand)

- **MS-KW1** – Resistance thermometer, cable sensor

Pressure sensors – melt pressure

- **S-MD-xx** – Melt pressure transducer/sensor

Melt pressure transducer

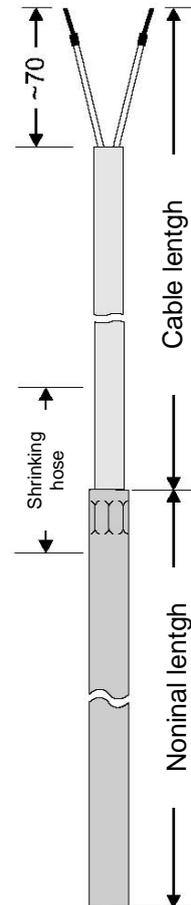
- **MS-PTST** – Melt pressure transducer

Sensor – Temperature

Resistance thermometer lead sensor type MS-KW1

Sensor:	Pt100 / Pt1000 / 2x Pt100 / 2x Pt1000 The temperature application area complies with the connection cable.
Type:	2-wire / 3-wire / 4-wire
Accuracy:	Class A / Class B / B1/2 DIN / B1/3 DIN / B1/10DIN
Material conduit:	Stainless steel 1.4571
Ø conduit:	4 mm / 5 mm / 6 mm Wall thickness: 0,25... 1 mm
Nominal length:	Standard: 30 mm (Ø4) / 50 mm (Ø4) 50 mm (Ø5) / 46 mm (Ø6) / 70 mm (Ø6) Maximal length: 2.000 mm Option: as indicated
Connection cable:	PVC-PVC / PTFE-Silicon / PTFE-PTFE / PTFE-meshwork-PTFE Glass fibre-glass fibre-stainless steel braid (2x 4-wire only with PTFE-Silicon)
Connection:	open ends, wire end sleeve, 70 mm Option: other length
Cable length:	Standard: 2 m Option: as indicated
Bend protection:	Shrinking hose Option: spring / without
Conduit to cable:	Hexagonal compression Option: ring compression
Protection class:	IP65 (to 250°C) This goes not for braid!
Insulation resistance:	Test voltage 500 VDC
Insulant:	without
Reaction time:	conduit 6x0,5 mm: t90: 30,9 s / t50: 12 s conduit 6x1 mm: t90: 22,1 s / t50: 7,6 s

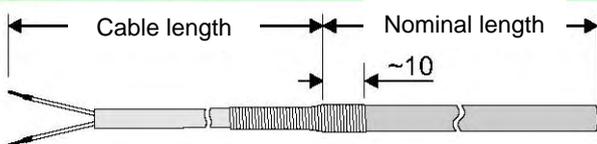
all dimensions in mm



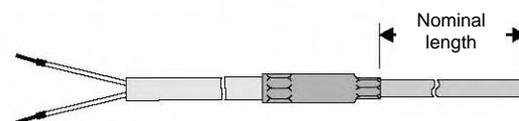
Maximum temperature application area:

Sensor:	-200°C... *450°C
Conduit:	Stainless steel 1.4571 (316Ti): to 600°C
Connection cable:	PVC: -10°C...105°C / Silicon: -45°C...180°C / PTFE: -75°C...205°C Glass fibre/braid: -60°C...550°C

Option bend protection



Option transitional bushing



Melt pressure sensor / Melt pressure transmitter

(Price on demand)

Ratings

Type designation

S-MD-st-u-vwxy-z

Spacer	Technical execution
s	Connecting thread
1	½ " 20 UNF 2A
2	M18 x 1.5
t	Shaft length
1	152 mm rigid
2	250 mm rigid
3	318 mm rigid
4	152 mm rigid + 457 mm flexible capillary tubes
u	Pressure range
50	0...50 bar
100	0...100 bar
200	0...200 bar
350	0...350 bar
400	0...400 bar
500	0...500 bar
600	0...600 bar
700	0...700 bar
800	0...800 bar
1000	0...1000 bar
v	Transfer medium
1	NaK-liquid metal
2	Mercury
w	Precision
1	+/- 0.5 % of final value
2	+/- 1 % of final value
x	Sensitivity / Analogue output
1	1 mV/V
2	2 mV/V
3	3.33 mV/V
4	4 - 20 mA / 2-conductor
5	0 - 10 V / 4-conductor
6	2 - 10 V / 4-conductor
4.4	4 - 20 mA / 4-conductor
y	Type of material of diaphragm
1	stainless steel, material no. 1.4545, coated with TiN ceramics
2	Hastelloy, material no. 2.4610, coated with TiN ceramics
3	Inconel, material no. 2.4668, coated with TiN ceramics
4	reinforced diaphragm of stainless steel, material no. 1.4545, coated with TiN ceramics
5	reinforced diaphragm of Inconel, material no. 2.4668, coated with TiN ceramics
z	Options
0	Options are not defined.



Ratings

Model:	S-MD-xx-x-1 / S-MD-xx-x-2
Filling medium:	Mercury / Sodium- Potassium (NaK)
max. diaphragm temperature:	400°C / 550°C
Pressure range:	0 - 50 ...0 -2000 bar / 0 - 50 ...0 -700 bar
max. overload:	1.5 x measuring range up to 1000 bar 1.25 x measuring range bigger than 1000 bar
Total measuring error:	≤ 0.5 % of full scale or ≤ 1 %
Resolution:	infinite
Bridge resistance:	350 Ohm \pm 3%
Supply voltage:	with all mV/V signals: max. 12 VDC with analogue output 4: 12 ... 30 VDC with analogue output 4.4: 24 VDC \pm 10 %
Null balance:	± 5 % of full scale
Output signal:	1 / 2 / 3.33 mV / V \pm 3% 0 (2)...10 V 4 - 20 mA
Internal calibration point:	80%
Reproducibility:	± 0.20 % of full scale / ± 0.20 % F. S.

Temperature influences at the diaphragm:

Change of zero point: $\leq \pm 0.015$ % of full scale / K

Change of sensitivity: $\leq \pm 0.010$ % of full scale / K

Temperature influences at the measuring head:

Change of zero point: $\leq \pm 0.020$ % of full scale / K / $\leq \pm 0.03$ % of full scale

Change of sensitivity: Measuring range / range ≥ 100 bar 0.02 % / K
Measuring range / range ≥ 50 bar 0.03 % / K

Sensor Technology – Pressure

Pressure transducer type MS-PTST

Input: pressure, relative / absolute (up to 16 bar)
 Output: 4-20 mA, 0-20 mA, 0-10 VDC, 0-5 VDC
 Measuring range: 0-0.1 bar to 0-1.000 bar
 Accuracy: <= 0,5% of the span (Option: 0.25%)
 Fluid temperature: -40°C...+100°C (Option: -40°C...+125°C)
 Process connection: G 1/2, G 1/4, 1/2 NPT, 1/4 NPT
 Electrical connection: DIN EN 175301-803 (valve), M12x1 cable
 Housing material: CrNi-Steel 316L
 Protection class: IP67 (IP65 at valve connector)



Order key options:

M	S	-	P	T	S	T	0	0	3	4	0	0	0	K	0
														0	Special design
														K	Pressure range as indicated
														0	Without gasket seal
														0	Temperature medium -30°C...+100°C
														1	Temperature medium -40°C...+125°C
														0	Electrical connection via angle plug DIN EN 175-301803 valve
														1	cable 1.5m
														2	M12x1, 4-pole
														0	Pressure connection G 1/2 (EN837), manometer
														1	Pressure connection G 1/4 (EN837), manometer
														2	Pressure connection G 1/4 (DIN 3853 E)
														3	1/2 NPT
														4	1/4 NPT
														0	Output 4-20 mA, 2-wire
														1	0-20 mA, 3-wire
														2	0-5 VDC, 3-wire
														3	0-10 VDC, 3-wire
														0	Fluid touching parts CrNi steel
														0	Pressure type relative 0,5%
														1	Pressure type absolute 0,5%
														2	Pressure type relative 0,25%
														3	Pressure type absolute 0,25%

Price on demand

Hazardous-area

MEX-CL

- 4-digit digital indicator, 8 mm digit height
- current loop 4-20 mA

MEX-CM

- 4-digit digital indicator, 8 mm digit height
- current loop 4-20 mA
- housing size: 96x48x30 mm

MEX-CL – 4-digit digital indication instrument for the hazardous area

Current loop 4-20 mA

- red display, 8 mm digit height, programmable -999...+9999 Digit
- input: 4...20 mA current loop
- voltage drop: under 3.2 V
- programming: via 3 push-buttons
- unit: the 4th digit is programmable (°C/°F)
- optional: II 2G EEx ia IIC T6
- optional: II 3G Ex nR II T6
- protection class: IP67 at the front
- housing: DIN BUZ-H top-/wall- and pipe mounting, built-on enclosure
- protection class round housing IP67, built-on enclosure IP63, plug-on housing IP62
- accessory: programming set (adapter, cable, software)
- certification: - EG_ EC-type examination certificate ZELM 05 ATEX 0252
- declaration of conformity ZELM 05 ATEX 3175X



• Order key options

M E X - C L 1 2 0 0 1

Other/Accessories

- 0 special design
- 1 programming set (Adapter, cable, software)
- 2 pipe mounting complete

Display range

- 0 without programming (Factory settings)
- 1 programmed

Connection

- 0 strip terminal
- 1 open cable heads

Housing

- 0 without
- 1 special DIN BUZ-H, protective conduit connection M24x1.5
- 2 for wall mounting
- 3 for pipe mounting up to 2"
- 4 with magnet mounting
- 5 special DIN BUZ-H, protective conduit connection d= 15.3 mm
- 6 special DIN BUZ-H, protective conduit connection d= 22.5 mm
- 7 plug-on DIN 43650 (Valve)
- 8 plug-on M12x1
- A Built-on enclosure made of Aluminium (E)

Type

- 0 standard, circular carrier (without Ex)
- 1 II 2 G EEx ia IIC T6 (circular carrier)
- 2 II 3 G EEx nR T6 (circular carrier)
- 3 standard, angular carrier (without Ex)
- 6 II 2 G EEx ia IIC T6 (angular carrier)

Price on demand



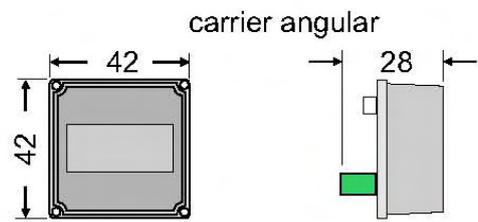
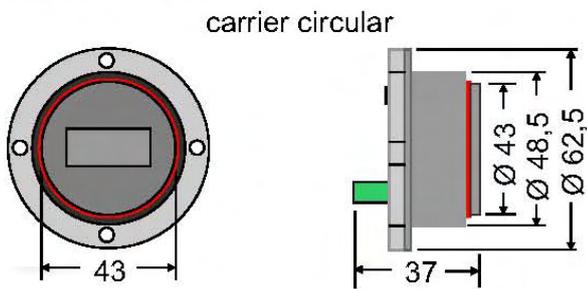
• Mechanics

Housing material	Macrolon
Protection class	Front IP67 connection IP20
Connection	open cable heads, terminal strip, up to 1.5 mm ²
Carrier circular	Dimensions: Ø 43/48.5/62.5 mm x 37 mm Fixing: 4 holes for M4 Weight: approx. 55 g
Carrier angular	Dimensions: 42x44x28 mm Fixing: 4 holes for 2 mm screws Weight: approx. 45 g

Accessories (Housing for the assembly of the device)

Types	Special housing for wall mounting, pipe mounting
-------	--

• Dimensions carrier



MEX-CM – 4-digit panel meter for the use in hazardous area (ex area) Current loop 4-20 mA

- red display, 8 mm digit height, programmable -999...9999 digit
- input: 4...20 mA current loop
- voltage drop: under 3.2 V
- programming: via 3 keys on the rear side
- unit: programmable 4th digit (°C/°F)
- minimum/maximum memory
- protection class: IP67 front side, IP20 rear side, sealed electronic
- housing: 96x48x30 mm (BxHxD)
- optional: Ex-protection, II 2G Ex ia IIC T6
- accessories: programming set (Adapter, cable, software)
- authorization: EC-type examination certificate ZELM 05 ATEX 0252 X



• Order key - options

M E X - C M 0 0 0 0 0 0

Special type	
<input type="checkbox"/> 0	No
<input type="checkbox"/> 1	Yes (only possible with standard type, please specify)
Dimension strip	
<input type="checkbox"/> 0	None ²
<input type="checkbox"/> 1	With (please specify)
Configuration	
<input type="checkbox"/> 0	Factory setting ¹
<input type="checkbox"/> 1	Customer-specific (please specify)
Connection	
<input type="checkbox"/> 0	Terminal strip
Housing	
<input type="checkbox"/> 0	Panel mounting, 96x48 mm
Type	
<input type="checkbox"/> 0	Standard
<input type="checkbox"/> 1	II 2 G Ex ia IIC T6

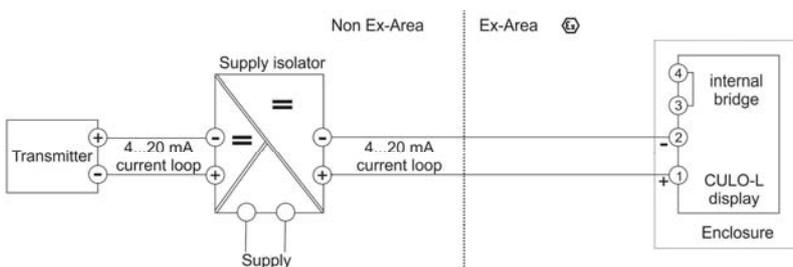
Price on request

- 1) Factory setting: Display: 0...250°C / Display time: 1 sec / Decimal point: without unit / Unit: °C / Zero point steadying: 2 / Programming interlock: without / Supporting points: without / TAG-number: 0
- 2) Dimension strip: The dimension strip can be adjusted by the user, by inserting it under the foil from the side of the device.

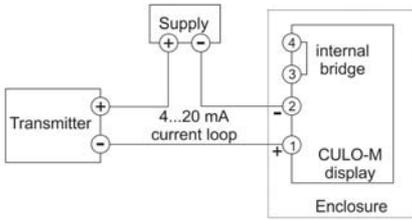
• Accessories

Programming set (Adapter, cable, software)

• Connection current loop display – for Ex-type



• **Connection current loop display – for standard type (no Ex-Type)**



• **Technical data**

Input
 Current loop 4...20 mA
 Input resistance $R_i < 160 \text{ Ohm}$ ($U = < 3.2 \text{ V}$)

Accuracy
 Resolution -999...9999 digit
 Measuring fault $\pm 0.2\%$ of measuring range, ± 1 digit
 Temperature drift 100 ppm/K

Indication
 Display 7 segment, 14 mm, red, 4-digit
 Overflow / Underflow to HI / to LO
 Display time 0.1 sec – 1 sec – 10 sec (adjustable)

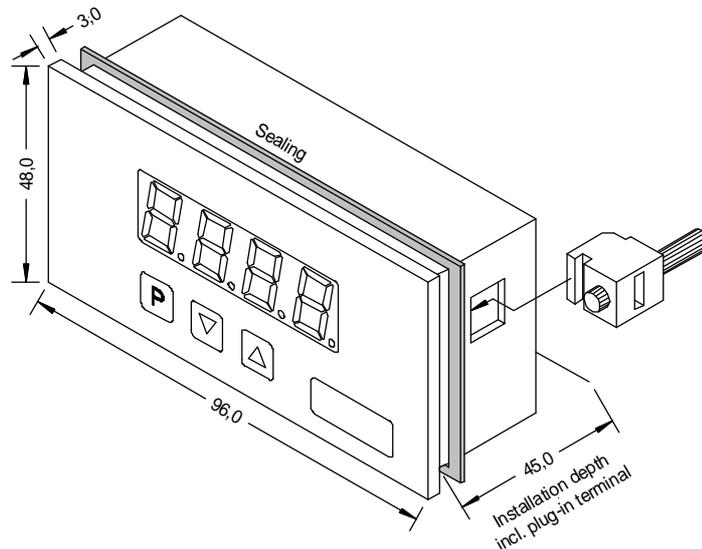
Ambient conditions
 Working temperature Standard: $0...+80^\circ\text{C}$ / Ex type: $-20...+50^\circ\text{C}$
 Storing temperature $-20...+80^\circ\text{C}$

Programmable characteristics
 Display range, display time, decimal point, unit ($^\circ\text{C}/^\circ\text{F}$), zero point steadying, programming interlock, supporting points, TAG-number

Authorization
 EC-type examination certificate: ZELM 05 ATEX 0252 X

Mechanic		
Housing	Panel mounting	96x48x28 mm
	Material	Polycarbonate
	Inflammability	UL94 HB
	Fixing	2 elements
Sealing	Flat seal	EPDM, 65 Shore, black
Assembly	Cut-out	92x45 mm
	Wall thickness	up to 3 mm
Protection class	Front	IP67
	Connection	IP20
Connection	Terminal strip	4-pole
	Cross section	up to 1.5 mm^2
Weight	approx. 75 g	

• **Dimensions**



Accessories

Adapter – combinable with different devices of the M-lines

- Adapter-8-1 – size 48x48x3mm (BxHxD), for one digital indicator in housing size 48x24mm (BxH)
- Adapter-5-1 – size 72x24x3mm (BxHxD), for one digital indicator in housing size 48x24mm (BxH)
- Adapter-6-1 – size 72x36x3mm (BxHxD), for one digital indicator in housing size 48x24mm (BxH)
- Adapter-9-1 – size 72x72x3mm (BxHxD), for one digital indicator in housing size 72x36mm (BxH)
- Adapter-2-1 – size 96x96x3mm (BxHxD), for one digital indicator in housing size 96x48mm (BxH)
- Adapter-2-2 – size 96x96x3mm (BxHxD), for two digital indicators in housing size 96x24mm (BxH)
- Adapter-2-3 – size 96x96x3mm (BxHxD), for three digital indicators in housing size 96x24mm (BxH)
- Adapter-4-1 – size 144x72x3mm (BxHxD), for one digital indicator in housing size 96x48mm (BxH)

Blind covers (incl. fixing)

- available for panel cut-outs in sizes as: 48x24, 48x48, 72x36, 72x72, 96x24, 96x48, 96x96 & 144x72mm

Gauge head selector switch

- **MSU06** – 6 positions (4-wire)



Aluminium-Adapter

– the elegant connection for existing panel cut-outs, can be combined with digital devices of the M-Line.

- Size 48x48x3mm (HxBxD)
with cut-out for one digital device in
housing size 48x24mm (BxH)
- Size 72x24x3mm (BxHxD)
with cut-out for one digital device in
housing size 48x24mm (BxH)
- Size 72x36x3mm (HxBxD)
with cut-out for one digital device in
housing size 48x24mm (BxH)
- Size 72x72x3mm (HxBxD)
with cut-out for one digital device in
housing size 72x36mm (BxH)
- Size 96x96x3mm (HxBxD)
with cut-out for one digital device in
housing size 96x48mm (BxH)
- Size 96x96x3mm (HxBxD)
with cut-out for two digital devices in
housing size 96x24mm (BxH)
- Size 96x96x3mm (HxBxD)
with cut-out for three digital devices in
housing size 96x24mm (BxH)
- Size 144x72x3mm (BxHxD)
with cut-out for one digital device in
housing size 96x48mm (BxH)

ORDER NUMBER	EUR
Adapter-8-1	29,00
Adapter-5-1	29,00
Adapter-6-1	49,00
Adapter-9-1	39,00
Adapter-2-1	49,00
Adapter-2-2	49,00
Adapter-2-3	49,00
Adapter-4-1	58,00

Technical data

Material	ALU, black anodised
Sealing	EPDM, 65 Shore
Protection class	IP65
Wall thickness	up to 3 mm
Weight	approx. 100 g

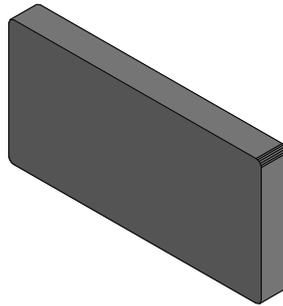
Accessories – Blind covers

Blind cover with fixing

ORDER NUMBER

EUR

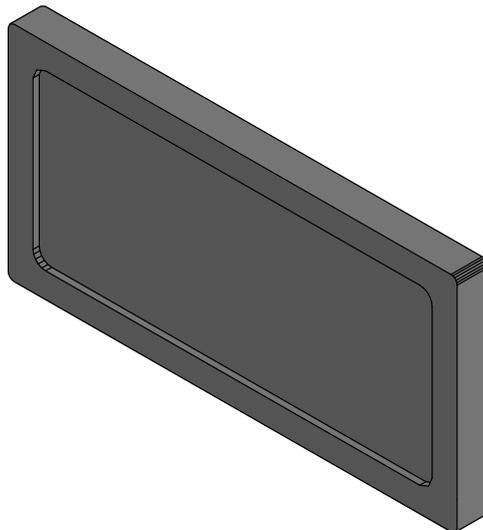
- for panel cut-out 48x24 mm



GH020-08

6,50

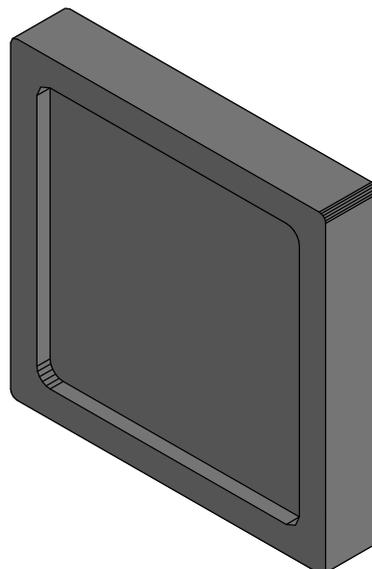
- for panel cut-out 72x36 mm



GH014-07

6,50

- for panel cut-out 48x48 mm



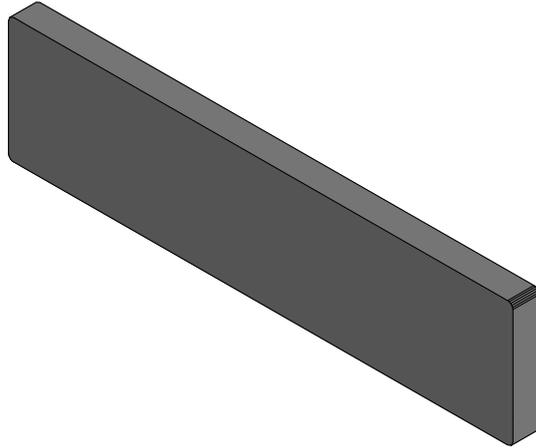
GH017-04

8,00

- for panel cut-out 96x24 mm

GH022-07

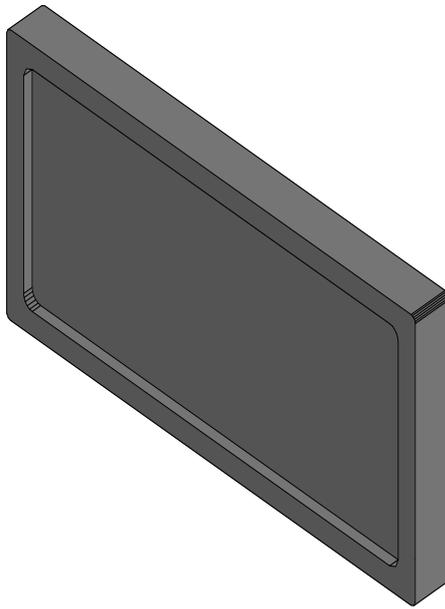
7,90



- for panel cut-out 96x48 mm

GH009-06

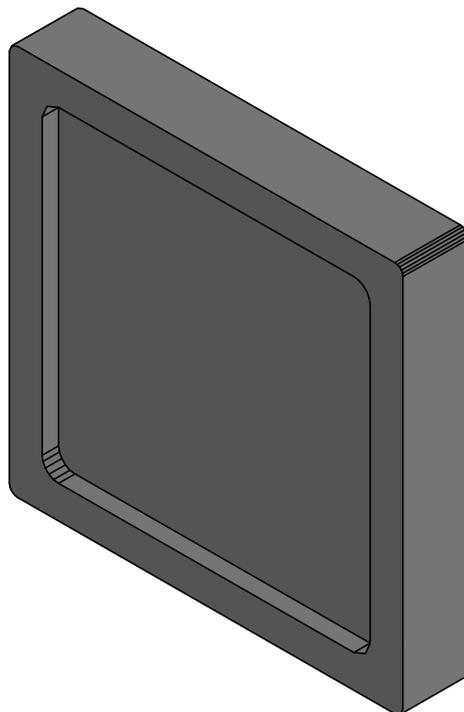
9,00



- for panel cut-out 96x96 mm

GH010-03

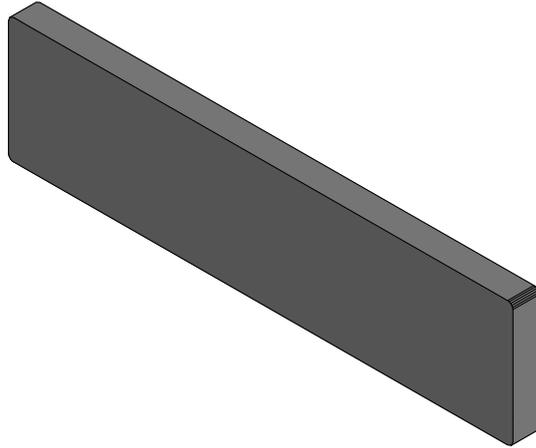
9,50



- for panel cut-out 96x24 mm

GH022-07

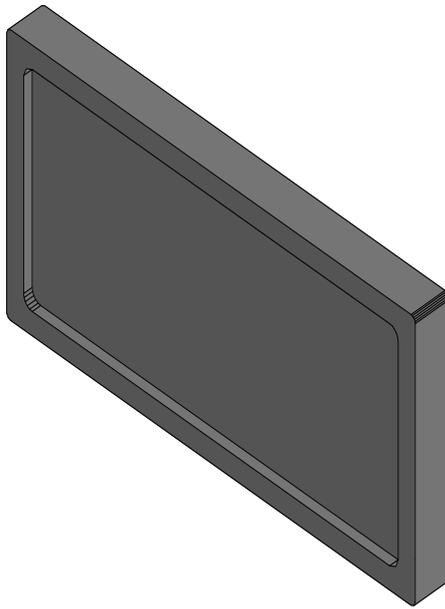
7,90



- for panel cut-out 96x48 mm

GH009-06

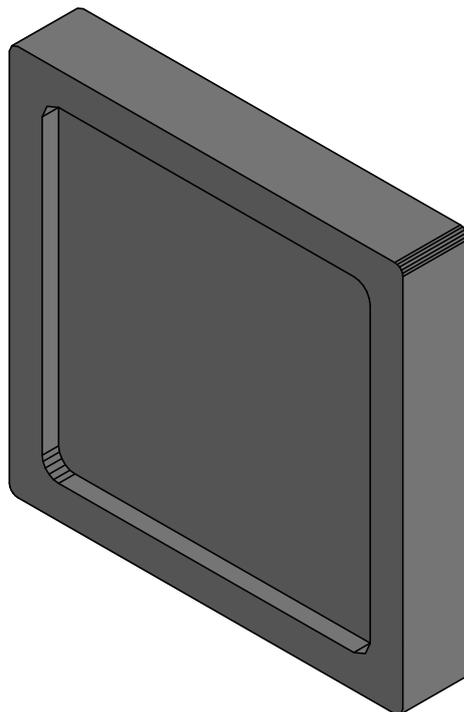
9,00



- for panel cut-out 96x96 mm

GH010-03

9,50

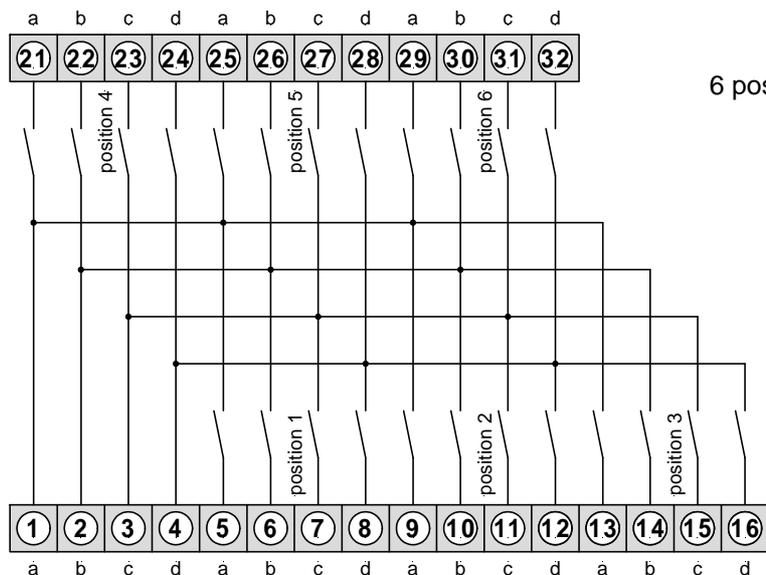


MSU – digital panel meter measuring point check switch

- high-grade setpoints for standard signals, thermocouple or Pt100
- 12 positions/2 wire
- 6 positions/4 wire



• Measuring point check switch 4 wire / 6 positions

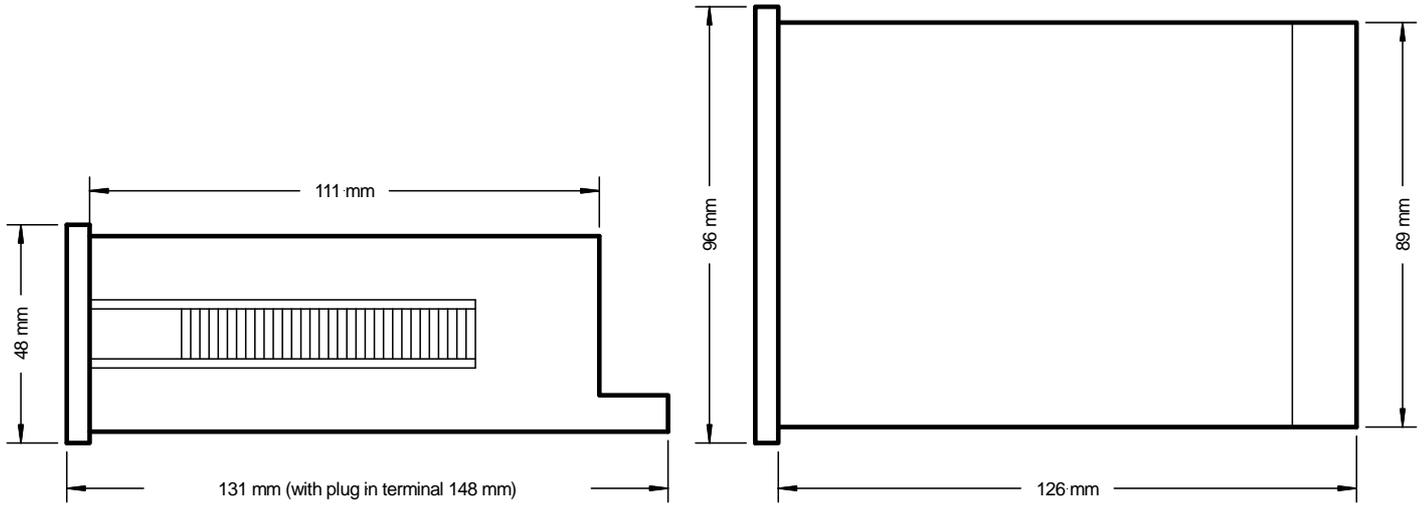


6 positions - 4 wire **MSU 06.40.106B** **365,00**

• Technical data

Dimension	Housing	W 96 x H 48 x D 134 mm, including screw terminal (D =148 mm, including plug-in terminal)
	Assembly cut out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-blend, colour black, UL94V-0
	Protective system	at the front IP40 connection IP00
	Weight	approx. 180 g
	Connection	at the rear side via terminals up to 2.5 mm ²
Mechanics	Lock-in graduation	30° = 6 lock-in positions for 4 wire
	Mechanical life	>25000 switching cycles
Electrical data	Operative range	Voltage < 42 V Current < 2 A
	Switching performance (resistive load)	1 V/1.5 A (AC/DC) 24 V/0.3 A (AC/DC) 42 V/0.2 A (AC/DC)
	Volume resistance	<30 mΩ when new
Ambient conditions	Working temperature	0 up to +60°C
	Storing temperature	-20 up to +80°C

Housing:



Assembly cut out

