Electric Energy Measurement

smartprocess
control & instrumentation

Smart Process & Control LTD

Smart Process & Control Ltd manufacture a comprehensive range of Electricity Meters and Multifunction Power Monitors, specialising in MID Approved Measuring devices. Our product range covers the requirements of basic kWh Meters to a programmable Multifunction Meter with additional parameters allowing end users to analyse their consumption in detail. We have ongoing development projects for general Metering requirements and also work closely with some of the largest UK Switchgear and Switchboard Manufacturers, as well as UK utility companies to offer specific product design for their needs.

We operate from a UK-based office with a Remote Production facility. At our UK-based office we run many different procedures, including a full QA department ensuring the quality of our products. We also focus strongly on Sales & Marketing, Research & Development, Customer Service and Order Completion from stock, achieving a next-day turnaround. With over 20 years of experience in the metering industry, we pride ourselves on the agility of our company and service we offer, whilst remaining competitive and innovative.

To ensure quality and conformity, our business has obtained an ISO 9001 certification.

In line with recent changes and legislation with regards to the Measuring Instrument Directive which will be effective as of 2016 it has been our main aim to manufacture a full range of MID products at a price level that will enable the consumer to use in any application regardless of whether the meter is being used for billing or non billing applications. It is peace of mind and future proof. We are the smart choice for your metering needs.

QMS ISO 9001 REGISTERED

RS Components (Global Distribution)

For the last 75 years, RS Components have been serving engineers and procurement specialists with an extensive range of electrical components available from stock for a next day delivery. We are pleased to be the designated manufacturer in charge of development & own-branding the collection of Digital Power Meters for RS Components. Our flexibility as a company was complimented by our ability to offer a quick and effective solution to a gap in the RS Product Range. With a client base of over 1 million customers across 80 countries, we look forward to the continuous improvement of our working relationship.

Havells Switchgear

Havells is a global manufacturer of Electrical and Power Distribution equipment, with a focus on industrial and domestic circuit protection, switchgear, cables & wires, motors, fans, power capacitors, CFL lamps and luminaires for domestic, commercial & industrial applications. We have a successful relationship with regards to supplying them metering solutions and developing new products. We enjoy working with their Engineering team to ensure we are not only offering them metering products but providing new solutions which cover ease of installation, simplistic use and cost effectiveness.

UK Power Networks

UK Power Networks own and maintain electricity cables and lines across London, the South East and East of England. We are pleased to have worked with their Technical Engineering team to develop a bespoke Power Meter for distribution monitoring and automation. The meter has been designed around their specific requirements whilst remaining commercially viable. We have also worked with 3rd parties involved in this project to insure the success of the roll out.

SMARTRAIL X Series

SMARTRAIL X45A-MID

Dinrail (1 Module) Mounted
Single Phase (1P2W) Networks
230V AC / 50Hz
45A AC Direct Connected
1000IMP/kWh Pulsed Output
Reads kWh (999999.9)
Class B Accuracy
Analogue Display
MID B&D Approved

SMARTRAIL X45DB-MID

Dinrail (1 Module) Mounted
Single Phase (1P2W) Networks
230V AC / 50Hz
45A AC Direct Connected
1000IMP/kWh Pulsed Output
Reads kWh (999999.9)
Class B Accuracy
Digital Backlit Display
MID B&D Approved

SMARTRAIL X45M-MID

Dinrail (1 Module) Mounted
Single Phase (1P2W) Networks
230V AC / 50Hz
45A AC Direct Connected
Dual Pulse & Modbus Outputs
Multifunction (V, A, kW, kVA, PF, Hz, kWh)
Class B Accuracy
Digital Backlit Display
MID B&D Approved

SMARTRAIL XCTM-MID

Dinrail (1 Module) Mounted
Single Phase (1P2W) Networks
230V AC / 50Hz
100mV AC CT Operated
Dual Pulse & Modbus Outputs
Multifunction (V, A, kW, kVA, PF, Hz, kWh)
Class B Accuracy
Digital Backlit Display
MID B&D Approved

SMARTRAIL X100 MID Series

Dinrail (2 Module) Mounted
Single Phase (1P2W) Networks
230V AC / 50Hz
100A AC Direct Connected
Class B Accuracy
Digital Backlit Display
MID B&D Approved
Basic & Advanced Models
Pulsed Output (SR X100B-MID)
Dual Pulsed Output (SR X100-MID)
RS485 Modbus RTU Output (SR X100-MID)
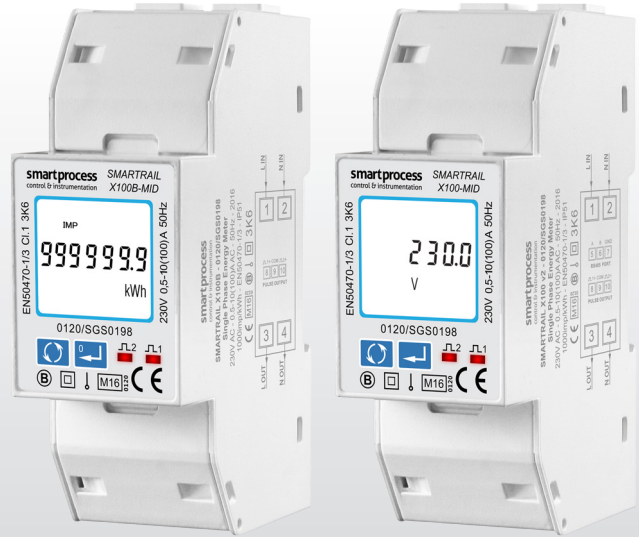
PARAMETER LIST	SR X100B-MID	SR X100-MID
Voltage	N	Y
Current	N	Y
Voltage THD	N	N
Current THD	N	N
Current Max Demand	N	N
Current Max Power	N	Y
Active Power	Y	Y
Reactive Power	N	Y
Apparent Power	N	Y
Power Factor	N	Y
Frequency	N	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	Y	Y
Resettable Export Active Energy	Y	Y
Total Active Energy	N	Y
Import Reactive Energy	N	Y
Export Reactive Energy	N	Y
Total Reactive Energy	N	Y
Hours Run	N	Y

SMARTRAIL X Series

SMARTRAIL X835-100 MID Series

Dinrail (4 Module) Mounted
Three Phase Networks
230/400V AC / 50Hz
100A AC Direct Connected
Class B Accuracy
Digital Backlit Display
MID B&D Approved
Basic & Advanced Models
Pulsed Output (SR X835-100B-MID)
Dual Pulsed Output (SR X835-100-MID)
RS485 Modbus RTU (SR X835-100-MID)

PARAMETER LIST	SR X835-100B-MID	SR X835-100-MID
Voltage	N	Y
Current	N	Y
Voltage THD	N	Y
Current THD	N	Y
Current Max Demand	N	Y
Current Max Power	N	Y
Active Power	Y	Y
Reactive Power	N	Y
Apparent Power	N	Y
Power Factor	N	Y
Frequency	N	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	Y	N
Resettable Export Active Energy	Y	N
Total Active Energy	N	Y
Import Reactive Energy	N	Y
Export Reactive Energy	N	Y
Total Reactive Energy	N	Y
Hours Run	N	N

SMARTRAIL X835 Series

Dinrail (4 Module) Mounted
Single & Three Phase Networks
230/400V AC / 50Hz
-/1A & -/5A CT Operated (SR X835)
-/333mV CT Operated (SR X835mV)
Class 1 Accuracy
Digital Backlit Display
MID B&D Approved
Dual Pulsed Output
RS485 Modbus RTU Output

PARAMETER LIST	SR X835	SR X835mV
Voltage	Y	Y
Current	Y	Y
Voltage THD	Y	Y
Current THD	Y	Y
Current Max Demand	Y	Y
Current Max Power	Y	Y
Active Power	Y	Y
Reactive Power	Y	Y
Apparent Power	Y	Y
Power Factor	Y	Y
Frequency	Y	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	N	N
Resettable Export Active Energy	N	N
Total Active Energy	Y	Y
Import Reactive Energy	Y	Y
Export Reactive Energy	Y	Y
Total Reactive Energy	Y	Y
Hours Run	N	N

SMARTRAIL X Series

SMARTRAIL X835 MID Series

Dinrail (4 Module) Mounted
Three Phase Networks
230/400V AC / 50Hz
-/1A & -/5A CT Operated
Class B Accuracy
Digital Backlit Display
MID B&D Approved
Basic & Advanced Models
Pulsed Output (SR X835B-MID)
Dual Pulsed Output (SR X835-MID)
RS485 Modbus RTU Output (SR X835-MID)

PARAMETER LIST	SR X835B-MID	SR X835-MID
Voltage	N	Y
Current	N	Y
Voltage THD	N	Y
Current THD	N	Y
Current Max Demand	N	Y
Current Max Power	N	Y
Active Power	Y	Y
Reactive Power	Y	Y
Apparent Power	Y	Y
Power Factor	N	Y
Frequency	N	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	Y	N
Resettable Export Active Energy	Y	N
Total Active Energy	Y	Y
Import Reactive Energy	Y	Y
Export Reactive Energy	Y	Y
Total Reactive Energy	Y	Y
Hours Run	N	N

SMARTRAIL X835-2C Series

Dinrail (6 Module) Mounted
Single & Three Phase Networks
230/400V AC / 50Hz
-/1A & -/5A CT Operated (SR X835-2C)
-/333mV CT Operated (SR X835-2CmV)
Class 1 Accuracy
Digital Backlit Display
Dual Pulsed Output
RS485 Modbus RTU Output
6 Channel Single Phase Meter or
Dual Three Phase Meter

PARAMETER LIST	SR X835	SR X835mV
Voltage	Y	Y
Current	Y	Y
Voltage THD	Y	Y
Current THD	Y	Y
Current Max Demand	Y	Y
Current Max Power	Y	Y
Active Power	Y	Y
Reactive Power	Y	Y
Apparent Power	Y	Y
Power Factor	Y	Y
Frequency	Y	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	N	N
Resettable Export Active Energy	N	N
Total Active Energy	Y	Y
Import Reactive Energy	Y	Y
Export Reactive Energy	Y	Y
Total Reactive Energy	Y	Y
Hours Run	N	N

SMART X Series

SMART X835 Series

96mm² Panel Mounted (92mm² Cutout)
Single & Three Phase Networks
230/400V AC / 50Hz
-/1A & -/5A CT Operated (SMART X835)
-/333mV CT Operated (SMART X835mV)
Class B Accuracy
Digital Backlit Display
Dual Pulsed Output
RS485 Modbus RTU Output

PARAMETER LIST	SMART X835	SMART X835mV
Voltage	Y	Y
Current	Y	Y
Voltage THD	Y	Y
Current THD	Y	Y
Current Max Demand	Y	Y
Current Max Power	Y	Y
Active Power	Y	Y
Reactive Power	Y	Y
Apparent Power	Y	Y
Power Factor	Y	Y
Frequency	Y	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	N	N
Resettable Export Active Energy	N	N
Total Active Energy	Y	Y
Import Reactive Energy	Y	Y
Export Reactive Energy	Y	Y
Total Reactive Energy	Y	Y
Hours Run	N	N

SMARTPANEL X835 Series

96mm² Panel Mounted (92mm² Cutout)
Single & Three Phase Networks
230/400V AC / 50Hz
-/0.1A, -/1A & -/5A CT Operated
Class B Accuracy
Digital Backlit Display
MID B&D Approved
Dual Pulsed Output
RS485 Modbus RTU Output
RJ12 Plug In **or** Traditional Terminals
Phase Summary Screen

PARAMETER LIST	SP RJ12-MID	SP X835-MID
Voltage	Y	Y
Current	Y	Y
Voltage THD	Y	Y
Current THD	Y	Y
Current Max Demand	Y	Y
Current Max Power	Y	Y
Active Power	Y	Y
Reactive Power	Y	Y
Apparent Power	Y	Y
Power Factor	Y	Y
Frequency	Y	Y
Import Active Energy	Y	Y
Export Active Energy	Y	Y
Resettable Import Active Energy	N	N
Resettable Export Active Energy	N	N
Total Active Energy	Y	Y
Import Reactive Energy	Y	Y
Export Reactive Energy	Y	Y
Total Reactive Energy	Y	Y
Hours Run	N	N

Split Core CT Series

Split Core CT Series

Frequency: 50-60Hz
Accuracy: ±1% between 20% - 120%
Insulation voltage: 600V AC
Maximum primary voltage: 5000V AC
Dielectric strength: 2.5KV/1mA/1min
Operating temperature: -15°C to +60°C
Operating humidity: <85%
Case material: PC / UL94-V0
Bobbin: PBT
Core: Permalloy
Internal structure: Epoxy

Model	Aperture	CT Secondary
SCT10-50/0.1	10mm	100mV
SCT10-1000/0.1	10mm	100mV
SCT24-100/5A	24mm	5A
SCT24-150/5A	24mm	5A
SCT24-200/5A	24mm	5A
SCT24-300/5A	24mm	5A
SCT36-100/5A	36mm	5A
SCT36-200/5A	36mm	5A
SCT36-300/5A	36mm	5A
SCT36-400/5A	36mm	5A
SCT36-500/5A	36mm	5A
SCT36-600/5A	36mm	5A

	A	B	C	D	
SCT10	41	24	10	26.5	mm
SCT24	65	45	24.5	40	mm
SCT36	81.5	57	35.7	51	mm
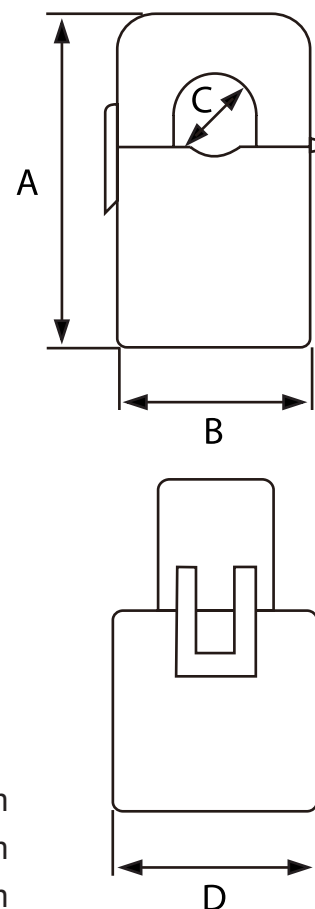
Three Phase Block CT Series

Frequency: 50-60Hz
Accuracy: ±1% between 20% - 120%
Insulation voltage: 600V AC
Maximum primary voltage: 5000V AC
Dielectric strength: 2.5KV/1mA/1min
Operating temperature: -15°C to +60°C
Operating humidity: <85%
Case material: PC / UL94-V0
Available Centres: 25mm / 35mm / 45mm

Model	Aperture	CT Secondary
CT325-60/5A	15x25mm	5A
CT325-100/5A	15x25mm	5A
CT325-125/5A	15x25mm	5A
CT325-150/5A	15x25mm	5A
CT335-60/5A	21x25mm	5A
CT335-100/5A	21x25mm	5A
CT335-125/5A	21x25mm	5A
CT335-200/5A	21x25mm	5A
CT335-250/5A	21x25mm	5A
CT345-250/5A	31x31mm	5A
CT345-300/5A	31x31mm	5A
CT345-400/5A	31x31mm	5A
CT345-500/5A	31x31mm	5A
CT345-600/5A	31x31mm	5A
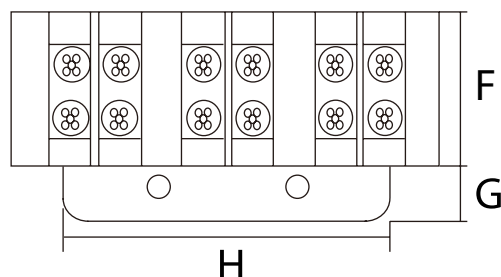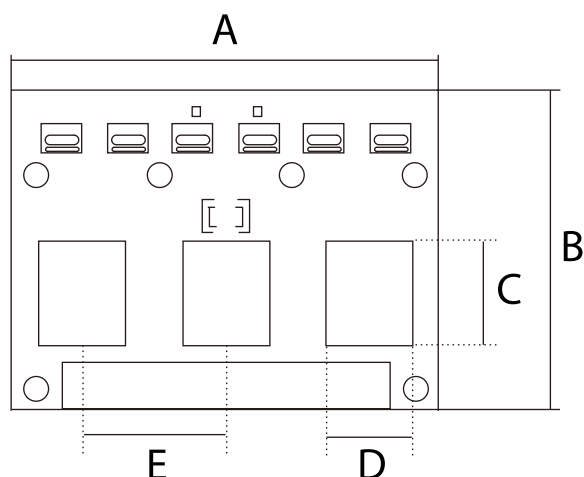
	A	B	C	D	E	F	G	H	
CT325	76	82	21	15	25	60	16	51	mm
CT335	105	80	25	21	35	38	15	70	mm
CT345	142	91	31	31	45	38	15	91	mm

SMARTRAIL SDL Series

SMARTRAIL Sigfox Datalogger

Dinrail (1 Module) Mounted
Wireless Data Transfer
SIGFOX™ Network Connectivity
Remote Monitoring Solution
Minimal Data Charges
No Software / Licence Fees
Pulsed Inputs
RS485 Modbus RTU Input
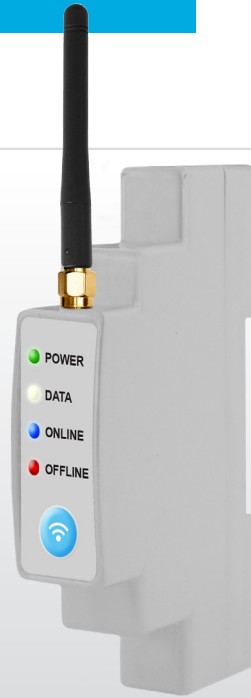
The SMARTRAIL-SDL Datalogger is a low-cost solution for remotely monitoring Smart Process digital power meters equipped with Modbus RS485 RTU.

This devices utilizes the SIGFOX™ network to transfer data wirelessly from meter to the cloud. This data can be presented using our software, or if preferred, it can be provided in a raw format such as a CSV file allowing you to present the data through your own software.

SIGFOX™ is a leading cellular network dedicated to low-bandwidth communications for connected devices. Its technology is particularly suited to connecting objects requiring a low-cost data transfer. This technology also eradicates the requirement for a SIM card.

The SMARTRAIL-SDL is specifically designed to enable a simple, low cost, remote wireless management solution that does not require specialist technical skills for installation.

The SMARTRAIL-SDL can take up to 3 parameter inputs through Modbus RS485 from the following list:

Total Active Energy (Σ kWh)
Import Active Energy (kWh)
Export Active Energy (kWh)
Current (A)
Voltage (V)
Instantaneous Power (kW)
Power Factor (PF)
Frequency (Hz)

This can be 3 parameters from 1 meter, or 1 parameter per meter from 3 meters.

The SMARTRAIL-SDL also has the facility to take 2 pulsed inputs for legacy meters such as water, gas or electricity meters that do not have Modbus RS485 communications.

Examples of Monitoring Setups

Below are some examples of how the SMARTRAIL-SDL can be wired in conjunction with other meters to read parameters accordingly:

1 Electricity Meter - 3 Parameters

Parameters:
Meter 1: Total Active Energy (Σ kWh)
Meter 1: Import Active Energy (kWh)
Meter 1: Export Active Energy (kWh)

3 Electricity Meters - 1 Parameter Per Meter

Parameters:
Meter 1: Total Active Energy (Σ kWh)
Meter 2: Total Active Energy (Σ kWh)
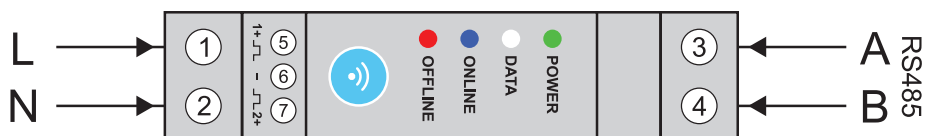Meter 3: Total Active Energy (Σ kWh)

1 Water Meter, 1 Gas Meter, Electricity Meter

Parameters:
Water Meter: 1 Pulsed Input
Gas Meter: 1 Pulsed Input
Power Meter: Total Active Energy (Σ kWh)

Smart Process & Control LTD
(An ISO 9001:2015 Company)

Office & Warehouse:
Smart Process,
Unit 11 Totman Close,
Rayleigh,
Essex,
SS6 7UZ,
United Kingdom.

Tel: 01268 773 422
Fax: 01268 775 058
Email: sales@smartprocess.co.uk