

CATALOGUE 2015

TEST AND CONTROL EQUIPMENTS CURRENT AND VOLTAGE TRANSFORMERS



AE2TM
Electric & Electronic equipments

THE FOUNDER



Antonio Corbetta was born in 1932 in Brianza (active region of northern Italy); and like many businessmen of the area, he started working very early gathering experience in various fields of working world. He graduated in Electro technical school, and immediately joined the staff of the largest company in the industry; C.G.S. in Monza (historical company founded in 1896 by Eng. **Camillo Olivetti**), at that time, sole reality in Italy operating in the measurement field. He worked there, from 1950 until 1968 (the date of the founding of his own company which was called AE2) where he gained experience in the Experimental Laboratory alongside Eng. **Pagliari**, (pupil of Eng. **BARBAGELATA**, creator of the homonymous method of measurement). There, he worked in the development of the first analog meters that had cases of fine wood and graduated scales lithographed instead of individually tracked, as well as the construction of the first analog comparators.

Forte della conoscenza acquisita, costruisce svariati banchi di prova ed apparecchiature speciali per numerose aziende e scuole italiane.

ANNO 1968	ANNO 1971	ANNO 1972	ANNO 1973	ANNO 1974	ANNO 1975	ANNO 1980
Bench for trial engines	Calibration and testing bench for single-phase kWh-meters	CT and VT test bench analog comparator	Mobile laboratory to control CT and VT transformers, for large users; ENEL-Rome	Mobile laboratory to control CT and VT transformers, for large users; ENEL-Ancona	Analog comparator C.M.R 1-5	Bench calibration for CT TECNOMASIO BROWN BOVERI (ABB)

AE2 - HISTORY

As mentioned above, Antonio Corbetta founded his own company in 1968 as contracting job, working mainly for the major leading companies in the electrical field, until the end of 1975; year in which he began his own production of current transformers (TAB series), voltage transformers (TVD series) and analog measurement instrumentation. In years, 1980 develops new and advanced internal systems for AC and DC ammeters and voltmeters for a known Italian leader in the field of measurement.

In a relatively closed market for that time, AE2 able to assert itself thanks to the quality and innovation of its products. In years 1990, various types of electronic products, increasing demand from the market, enriched the AE2 catalogue.

After more than 40 years of growth, AE2 is a well-known company, providing today its products to prestigious companies operating in the electro technical sector, both in Italy and abroad, he is having found its strength, keeping the eyes open to the future.

AE2 - 2000 MQ LOOKING TO THE FUTURE



In 2001, the second generation of family Corbetta has decided to continue his father's business by investing in a new production factory, built in the industrial area of Sovico (MB). The commitment of the sons and the entourage, is always to keep up the consideration so far achieved in the production of those devices that have made AE2 so famous.

SOME OF OUR MAJOR CUSTOMERS:



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GENERAL CONDITIONS OF SALE

- > The customer accepts, without exception, all the conditions out below gives the order, even if not explicitly stated.
- > Unless otherwise specifically agreed the customer accepts in writing to only stay at our terms therefore nullify or supersede the terms of purchase of the buyer, without prior written notification.
- > Our sales prices, can be subject to changes without further notice due to changes, these are those existing at the time of the shipment of the material ordered.
- > Our terms of delivery, even if agreed in writing, they are not strictly binding us. In the event of a late delivery or shipment, the purchaser may reject all or part of the goods and\or ask for refund in case of direct or indirect damage.
- > The goods, carefully packed, are at the risk and peril of the purchaser, even if shipped prepaid. We do not cover liability for theft, damage or tampering that may occur in shipping the goods.
- > The warrantors, both legal and contractual, is limited to the efforts of eliminating the material or manufacturing flaws due to poor quality, excluding incidental or consequential damages coming from manufacturing flaws.
- > The warranty on AE2 SRL is 12 months of operation, but not later than 18 months from the date of delivery, it does not include normal wear and tear, neither the consequences due to an incorrect installation, or to the malfunctions and failures due to neglect or inexperience, and can even be called when the purchaser has tampered with the material, without our consent.
- > The delivery of the material means, made and accepted with the agreement of our retention of title to the total fulfillment of payment obligations with us waiting.
- > In case of late payment agreed, default interest will be charged on the basis of the bank rate liabilities in force at the time of the delay, plus three points.
- > Complaints must be notified in writing within eight days of receipt, after this point there are no rights for a complain or refund.
- > We do not accept returns of materials unless previously authorized in writing by the AE2 SRL's Director.
- > Any material returned must be sent to our office, shipment is paid by the customer.
- > The goods being manufactured will be credited at purchase price and burdened with a reimbursement of administrative and tax by 10% (ten percent).
- > For any dispute the competent Court of Milan was elected as our legal address the party accept their conditions.

The information and technical data of this document are subject to change; AE2 SRL reserves its right to change any specifications without further notice at any time, pending on the evolution of materials and technologies.

The product installation must be performed in accordance with the applicable laws. AE2 SRL assumes no responsibility regarding the use of the products, this provides specific rules on the environment and\or its installation, to follow these is the responsibility of the installer.

CONTROL AND TEST EQUIPMENTS INDEX



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DIGITAL CONTROL EQUIPMENTS



COMPARATOR G803

The Comparator G803 (dial gauge) is a device capable of carrying out comparisons of measures between a measurement transformer under test (voltage: VT or current: CT) and a transformer sample for which the technical characteristics are well known. The comparisons are highlighted as well as the possible differences regarding the transformation ratio and the phase angle between the Currents or the Voltages of the primary and secondary circuit.

The Comparator allows to do these measures in a simple and very precise operation through a keypad sealed membrane, that is against dust and moisture, it is placed on the front of the instrument.

It consists essentially of an analog circuitry and of some processors of great precision. The final results of the various measures, are extrapolated from a conversion process run from a components of great reliability and great stability in time; the basic electronic card is connected with other circuits through a series of connectors that make it, in case of failure, easy to be fix or replaced, this is also valid for the digital voltmeters in the front panel.



The results of the Comparator G803 are reliable, not only from the front panel but also by a software that makes it easy and automatic the measurements and to get the test results. Download the software, the documentation and the user manual from the website: www.ae2.it



The simplicity of the maneuvers together with great precision and reliability, it is the best compromise between cost and performance for a comparison of measure.

TECHNICAL FEATURES

- Construction according to IEC 60044-1 - ANSI / IEEE C57.13
- Operation: 40Hz.....100 Hz
- Power supply: 200V.....240V CA; 45/60 Hz
- Consumption: < 20 VA
- Dimensions: 360 x 350 h140 mm
- Weight: 4 kg
- Real-time reading or statistical
- Software and USB port to interface with PC XP / 2000
- Customized software for printing (test report on request)

MEASURE WITH CURRENT TRANSFORMER (CT)

- | | |
|--------------------------------------|---|
| Nominal capacities: | 1 - 2 - 5 to 20 A |
| Supplement Transformer: | 5 A secondary |
| Current: | 0.01A.....40 A |
| Maximum resolution, error ratio: | 0.001% |
| Maximum error of the compare device: | 0.5% full scale with primary current 100% |
| Maximum error of phase: | 30% (30 centiradians) |

Conversion of the phase error in centiradians or minutes

Accuracy% of the value of the primary current: 0.5% full scale

Maximum readable power: 200 VA

Maximum permissible values: 210% del valore nominale

Residual performance: < 0,6 VA

Automatic change of scale for values below 10% of the current or of the primary voltage

Intervention Acoustic signal for values higher than 210%

MEASURE WITH TRANSFORMERS VOLTAGE

Single range 100 V nominal.

Minimum and maximum allowed values: 2....210 V

Input impedance: ≥ 100 Kohm

External switched performance (on/off) from keyboard: 200VA maximum

Measure at terminals of the comparator or 4-wire (remote) mode, directly on the transformer under test

Automatic change of scale values smaller than 8 VA

The readings of primary current and voltage are always real and not integrated as per the ratio errors and phase.

PRECISION READINGS

Voltage / Current - Vn/In:

1% - 20%	($\pm 0,5\%$ rdg ; $\pm 0,5\%$ fs)
20% - 200%	($\pm 0,5\%$ rdg ; $\pm 0,5\%$ fs)

Error ratio Vn/In:

5% - 200%	($\pm 0,5\%$ rdg ; ± 50 ppm, ± 1 digit)
1%	($\pm 2\%$ rdg ; ± 200 ppm, ± 1 digit)
5% - 400%	($\pm 0,5\%$ rdg ; ± 100 ppm, ± 1 digit)
1%	($\pm 3\%$ rdg ; ± 200 ppm, ± 1 digit)

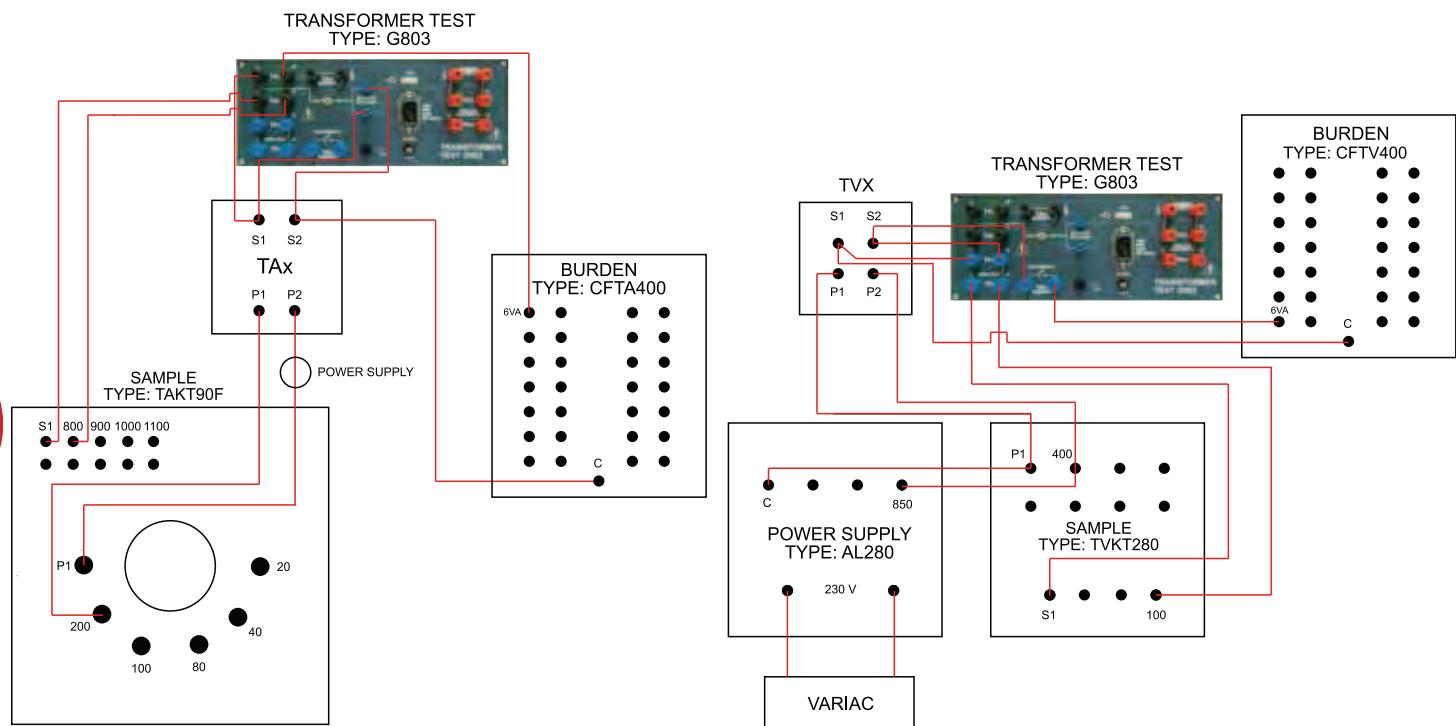
Error Phase Vn/In:

5% - 200%	($\pm 0,5\%$ rdg ; $\pm 0,34$ min, ± 1 digit)
1%	($\pm 2\%$ rdg ; $\pm 0,68$ min, ± 1 digit)
5% - 400%	($\pm 0,5\%$ rdg ; $\pm 0,68$ min, ± 1 digit)
1%	($\pm 3\%$ rdg ; $\pm 0,68$ min, ± 1 digit)

Where **1 crad = 34,4 min** **Fs = 20%-200% referred to Vn/In**

Reading Error ratio reading example: from 0,500 to 0,5% rdg=0,0025=0,497 (5)-50ppm=0,492 (5) – 1 digit = 0,491 (5)

ELECTRICAL WIRING



Current transformer (CT)

Voltage transformer (VT)



TURNS COUNTER G809

The Turns counter G809 is an equipment normally used to know the relationship of the wounded turns on the coils of transformers for industrial uses. The principle of operation is relatively simple since the instrument performs, with a single measurement, the ratio between the voltage applied to the primary and the voltage induced to the secondary.

When it was necessary to perform a measurement in a core transformer with toroidal shape, it is sufficient to pass through the core one single turn to get the number of turns of the primary winding.

The voltage has very low values, some volts only, with a frequency between 50 and 100 Hz; typically this combination meets most of the measures with power transformers, and measurement transformers.

The accuracy of the measurements is sufficient to ensure the exact number of turns, or, as in the case of a transformer with multiple windings on the same core, the exact turns ratio between one or more windings.

The ratio value found is displayed by a 4 ½ digits display.

The measurable ratio values are between 0.5 and 2000; the capacities are manually selectable from the panel, while the lighted up indicator suggest the choice of the flow with greater precision.

A second display indicates the value of the excitation current refers to the voltage applied to the primary, and an indication light flashes to alert the operator that the measure is not correct and the relevant measures are not reliable. The Turns counter G809, also performs a gross measurement of the phase between primary and secondary, which has the sole scope to determine the exact layout of the outputs of the primary winding with respect to the secondary. A blinking light indicates the inversion of the terminals.

This equipment has a great simplicity of use and a high-speed execution; do not require particular sources neither voltage nor current.

The presence of magnetic and electrostatic fields not affect the proper functioning and reliability of the measure. The voltages and currents involved are extremely low; therefore, the use of the instrument can be used in absolute safety and without endanger the health of the operator.

TECHNICAL FEATURES

Auxiliary power supply

180V....240V C.A., 12VA massimo

Operation with internal battery (optional)

Frequency of use

83Hz ± 5 %

Four capacities of measurement of the turns ratio:

from 0,5 to 2000, and specifically:

1 = 0,5.....1,9999

2 = 2,000.....19,999

3 = 20,00.....199,99

4 = 200,0.....1999,9

Outside values are indicated by a warning light

0,2% ± 2 digit

0,05% of range

0,1 % ± 3 digit

± 2 digit

3%

0,01%

0,5V...2,5V RMS (true rms)

100mA RMS (true rms)

Measurement Accuracy:

0,2% ± 2 digit

Maximum resolution of error ratio:

0,05% of range

Accuracy of measurement ratio:

0,1 % ± 3 digit

Measurement accuracy of the excitation current:

± 2 digit

Accuracy of current consumption value:

3%

Maximum resolution:

0,01%

Maximum voltage applied to the primary circuit:

0,5V...2,5V RMS (true rms)

Maximum current:

100mA RMS (true rms)

Indication with blinking Led for current consumption values of the primary circuit higher than 100mA

Out of range indication with flashing LED

Indication of reverse polarity with flashing LED

Indication of absorbed current by the primary circuit

Operation with internal battery (optional)

250 x 250 h 150 mm

2.5 Kg. Approx.

Maximum size:

Weight:



TURNS COUNTER G810

The Turns counter G810 is an equipment that thanks its simple utilization, its small size and high accuracy of readings, is the ideal solution for the ratio verification of the number of turns between the primary and secondary winding in a voltage or current transformer. The voltage applied to the primary circuit is 2V or 20V and the frequency is between 80 and 90Hz.

The maximum current in the primary circuit is normally limited to 100 mA.

The use of a microprocessor and a variable amplifier high precision allows to perform automatically the choice of the extent of each transformation ratio of between 0.9 and 11,000; this line extension allows you to cover most of the measures of toroidal or not toroid transformers.

An internal memory always keeps unchanged the values of the settings in each course and in any voltage (2V or 20V). The instrument is equipped with signs suggesting the operator correct maneuvers in order to best use the instrument.

The reading of the transformation ratio, between primary and secondary is visible on a 4 ½ digit display, while the value of the excitation current is visible on the 3 ½ digit display. The minimum value of appreciable current is around 0.1 mA. The generator is protected when the excitation current may exceed 100mA, as in the case for example of a short circuit.

In the case of toroidal transformers, operations are greatly simplified, as it is enough to cross a single turn the core of the transformer to get the number of turns on the winding under test. In a rare case the primary winding exceeds the 11,000 turns, it is enough to make two turns through the core of the toroid and multiply the reading for two; in other words, increasing the number of turns that cross the toroid and that, ultimately, constitute the secondary winding, it is possible to know the number of turns of any transformer wounded on a toroid. In many applications, it is important to know the polarity of the secondary windings, for which an acoustic signal will warn the operator that polarity inversion occurred. The indication of the turns ratio is not influenced by the polarity.

It was included in the G810 equipment, an indicator of the current absorption of the primary circuit, very useful when the same model of transformer current values are very different.

In this case, it will be up to the operator to investigate the causes of differences so high; the most frequent causes are the result of a different quality of magnetic support or a partial short circuit between the turns of the primary or the secondary.

The excitation current cannot in any case exceed the threshold of 100mA because it is internally limited. However, a current that exceeds the threshold of 20/30mA could, due to an excessive induction in the magnetic support, contain an excessive distortion of the signal able to significantly alter the value of the turns ratio between primary and secondary.

TECHNICAL FEATURES

Auxiliary Power Supply:

180V....240V C.A., 12VA maximum

Operation with internal battery (optional)

80.....90Hz ± 5 %

Measuring range of turns ratio: 4, 0.9...10,10....100, 100...1000, 1000...11000

Measurement Accuracy:

0,1% ± 3 digit up to 1000

0,2% ± 3 digit from 1000 to 11000

Maximum resolution:

0,01% of the flow value

Accuracy of current consumption:

5%

Maximum voltage applied to the primary circuit: 2V or 20V RMS (true RMS)

Indication with flashing Led for current consumption values of the primary circuit higher than 100mA

Out of range indication with flashing LED

Indication of reverse polarity with flashing LED

Indication of current absorbed by the primary circuit

Maximum size: 250 x 280 h 110 mm

Weight: 3 Kg about.

CONSIDERATIONS ON THE PRIMARY CURRENT EXCITATION

The excitation current alters the theoretical value of the turns ratio in function of the intensity and the Ohmic resistance of the primary winding. In other words we can say that the voltage, actually applied to the primary circuit, corresponds to V_{in-l} (but) $\times R$ (ohm).

This decrease of the voltage applied, will give to a proportional increase in the reading of the turns ratio between primary and secondary.

In normal conditions, when the number of primary turns is greater than one hundred, wounded on cores of magnetic material with a cross section greater than two square cm; the difference is practically negligible.

To get an accurate reading ($\pm 0.2\%$), the excitation current must not exceed 5.4 mA

The equipment has been shown to maintain its characteristics even in the presence of environments particularly disturbed by magnetic or electrostatic interferences. It can work with the normal voltage network, 230V AC or with its rechargeable 12 Volt/ 2Ah battery. The conditions of the limits of battery are indicated on the display. The charge of battery can be considered complete after 24 hours if it is turned on and connected to the mains voltage.

The instrument is very robust and reliable; all components are of excellent quality and able to guarantee a smooth and continuous operation.

Considering the extremely modest level of voltages (20 Vrms), the instrument can be used without taking special attention to the safety of the operator.

ATTENTION!

- The instrument is not protected against any voltage or current applied to the input and output terminals.
- Avoid the presence of voltage or current sources in the immediate vicinity of the terminals.

SAMPLEMENT EQUIPMENT

PORTABLE CURRENT TRANSFORMER TAKT55



The portable samplement CTs model TAKT55, are produced using a coated metal hammered gray case.

On the front part it is applied a plate in insulating material named ABET light grey, to which are fixed the poles of the primary and secondary windings 1A or 5A. Maximum capacity 250A. In case of high currents, the device can be provided with a through hole having a diameter of 55 mm. Dimensions: 225x160h90 mm



PORTABLE CURRENT TRANSFORMER TAKT55F

The portable samplement CTs model TAKT55F, are produced using a coated metal hammered gray case.

On the front part it is applied to a plate in insulating material ABET light grey, to which are fixed the poles of the secondary windings, while the primary is passed in the central hole with a diameter of 55 mm.

Maximum capacity 1500A. Secondary windings 1A or 5A.
Dimensions: 225x160h90 mm



PORTABLE VOLTAGE TRANSFORMER TVKT280

The portable samplement VTs model TVKT280 are constructed with the aim to perform the verification of measurement voltage transformers, by comparison between a transformer to test and a samplement transformer, for which are known the technical characteristics.

It consists of a painted iron hammered grey box, with a front in "ABET" light gray material, on which are located the terminals; the handle located on the top side of the apparatus, allows easy transportation.

Dimensions: 280 x 280 h 150 mm



VOLTAGE DIVIDER TT400

The voltage divider TT400 is an equipment constructed with the aim to perform the verification of measuring voltage transformers, by a comparison between a transformer to test and a supplement transformer for which the technical characteristics are well known.

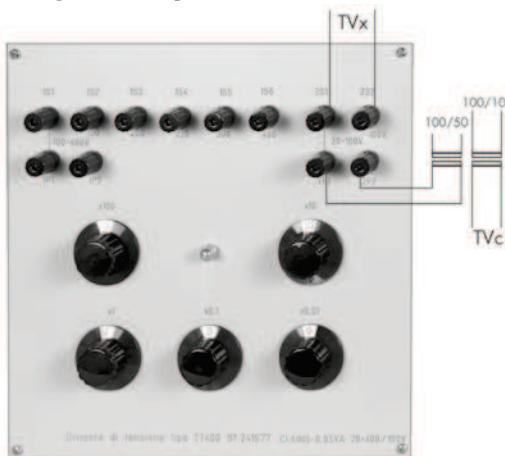
It has an accuracy class of 0.005% to the provision of 0.05 VA, but you can also get targeted values of a given load, and can be customized according to customer needs. The isolation between the primary circuit and the secondary circuit is 0,72kV and is tested to 3 kV for a minute, according to the standard regulations.

The voltage divider TT400 is constituted by a box of enameled iron in hammered grey color, with a grey front named "abet" on which are positioned the terminals and changeover switches; the handle located on the top side of the apparatus, allows easy transportation.

The primary winding goes from 20V up to a maximum of 100V, while the secondary winding is from 100V to 400V, and the switches ranging from 100V to 0,01V.

The dimensions are: 280 x 280 h 150 mm and the weight is about 30kg.

Usage example -1



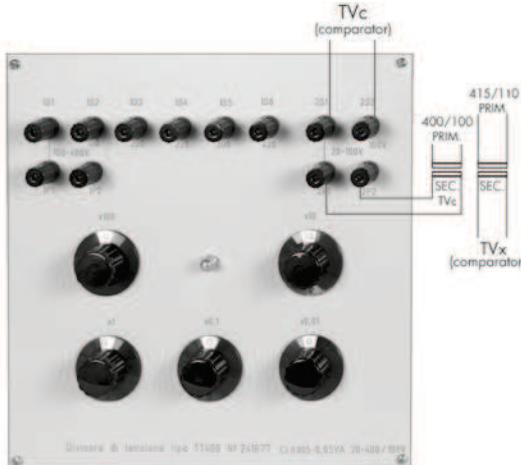
You want to make a test of a transformer (TVx) with ratio 100V / 50V, by using a supplement transformer (TVC) having ratio 100V / 100V.

In this case, having to raise the voltage, it is good to connect the secondary terminals TVx into the terminals of the divider denominated 2P1 - 2P2 (Figure 1); set the knob x10 on the value 5 which corresponds to 50V, in this way to the terminals 2S1 - 2S2, you will have the 100V that can be compared with the comparator (G803) and obtain the relative values of phase and ratio.

The knob x100 in this case, will be irrelevant for the setting of the input value. Where it is necessary on the contrary, to reduce the value of the secondary TVx, you must use terminals 1P1 - 1P2 with the value set, for example, at 120V; so you will have to terminals 1S1 - 1S2 the value of 100V. In this case, the knob x100 will be effective.



Usage example -2



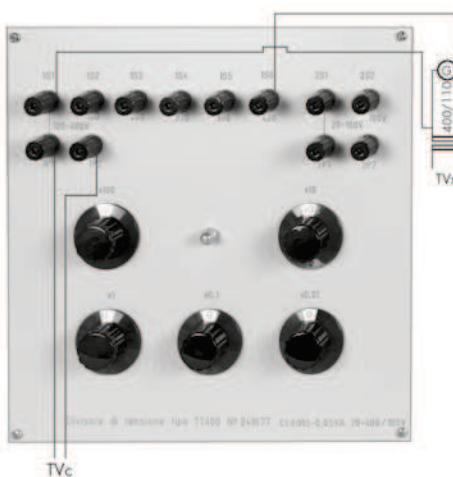
You want to make a test of ratio a transformer with different ratio on primary and secondary (eg, TVx = 415V / 110V), with change to be made on the supplement transformer (TVC) with ratio 400V / 100V.

You should refer to the following formula, where "ratio" means the value of the primary divided by the value of the secondary:

$$\frac{415/110 \text{ (TVx ratio)}}{400/100 \text{ (TVC ratio)}} \times 100 = 94,32 \text{ (value on the divider)}$$

In this case the nominal voltage on the comparator will be reached to 110%

Usage example -3



The voltage divider TT400 can also be used directly as a sample in low voltage transformer, connecting it directly to the comparator (TVC).

In the case of a ratio TV 400V / 110 V, set 110,00 by the appropriate knob and power the primary circuits in parallel. If the primary is different, proportionally calculate the correct value to set.

CURRENT TRANSFORMER



TAKT90F-A5

The CT sample model TAKT, is a device manufactured so to perform the verification of the current transformers for measuring in Low Voltage, through comparison between a transformer to test and also for a sample transformer of technical characteristics well known.

You can have primary ratio from 1A to 5000A and secondary ratio of 5A (in the model TAKT90F-A5) or double ratios of 1A and 5A (in the model TAKT90F-A1-A5). The secondary ratios can be customized with the addition of corrective turns, to obtain other ratios than the standard.

The CT sample TAKT consists of a box of fine wood, with a front "ABET" light grey, where its terminals are positioned; its handle, located on the top side of the device, allows easy transportation.



TAKT90F-A1-A5

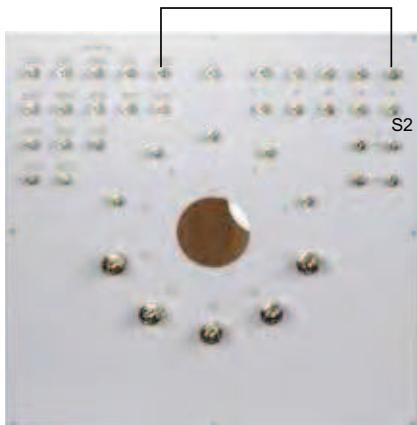
The primary winding goes from 1A to a maximum of 400A, while the secondary winding goes from 800 to 3000 ASP (ampere-turns) with secondary 1A as well as secondary 5A.

The through hole with 90mm diameter, allows the control of primary currents exceeding 400 A

This transformer has an accuracy class of 0.05% to the burden of 5 VA, the insulation between primary and secondary is 0,72kV and it is tested at 3 kV for one minute.

It is possible to make a series of ratios using the table located on top of TAKT.

The dimensions are: 460 x 210 h 460mm and weight is approximately 30kg.



Example of its use:

In case that the secondary is 5A, by connecting the terminal of the primary 200 A, to the terminal of the secondary 1000 Asp, you will get a current of 250 A; in fact all primary ranges, refer to 800 Asp and may be increased in proportion.

For different values, is possible to apply the correction Ampere-turns in order to obtain the necessary value.

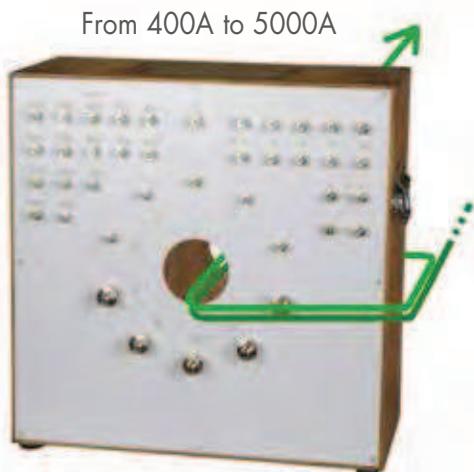
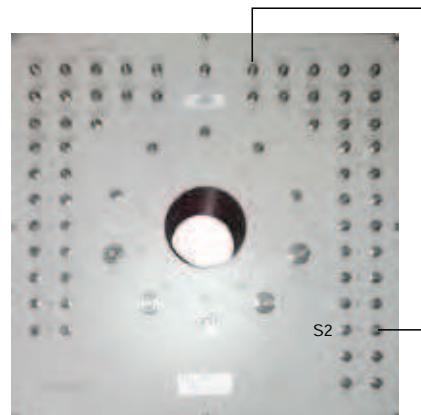
(For example, if you want a primary value of 1.1 A; calculating with the following proportion $1:800 = 1: X$ you get $X = 880$, at that point you have to connect the secondary Ampere-turns $800 + 80$ as shown in the picture.

So when 5A are circulating in the secondary (S1-S2) between terminal 1 and primary P1 there will be 1.1A.

Of course, if you use the passing hole, you will 880A.

If the secondary is 1A, reference should be made to this scheme.

Note that the secondary pole (800) is entered in the correction turns from the side S1; in doing so the ampere-turns are added together; on the contrary, if you want to subtract the turns, you must enter from S2 side.



In this picture, however you can see the currents achieved using the way through hole.

By making one pass you will get the nominal current ratings as described on its secondary pole;

eg: 800A; while if on the same you can make two passes through the hole, the value is halved (400 A).

BURDEN EQUIPMENT

The AE2 burden boxes, are made using the finest materials available. Unlike the existing boxes currently sold on the market, they are distinguished by a very high stability and endurance. Their ranges can be made according to customer requests.



BURDEN BOX FOR CURRENT TRANSFORMER CFTA400

This box is made of fine wood, with a front laminated in "ABET" color light grey on it there are the terminals.

If used correctly and not overloaded our boxes do not require maintenance.

The presence of particular and specific materials, creates a low variation on the values, pending the temperature changes allowing a more reliable measurement.

Burden for CT with capacity of 1 A and 5 A, with capacities from 1 VA to 100 VA, Power Factor from cosphi 1 to cosphi 0.5 can be made under request.

Appropriate weighted cordons are supplied with the device, in order to obtain the correct value of the burdens.

Dimensions: 400 x 270 h 400 mm



BURDEN BOX FOR VOLTAGE TRANSFORMER CFTV400

This box consists of a housing of precious wood, with a front in laminate "ABET" light grey on which are positioned the terminals.

If used correctly and not overloaded excessively, our boxes do not require any maintenance.

The presence of particular and specific materials, determine a low variation of the values following the temperature allowing a much more reliable measurement.

Burden for VT with a range of 100V and 100V: $\sqrt{3}$, with powers from 1 VA to 100 VA. Power Factor from cosphi 1 to cosphi 0.5 can be made under request.

Dimensions: 400 x 270 h 400 mm

TOROIDAL POWERS

The toroidal powers displayed here, have the function to rise or lower the current or the voltage, in order to reach the desired test value. They can also be made for other custom uses, that needs to be communicated in advance at the time of the order.



VOLTAGE TOROIDAL POWER SUPPLY IN HOUSING AL280

Power supplies in housing, are easy to transport. Coupled up with a "Variac" they can reach those proof values required. Dimensions: 280 x 130 h 280.

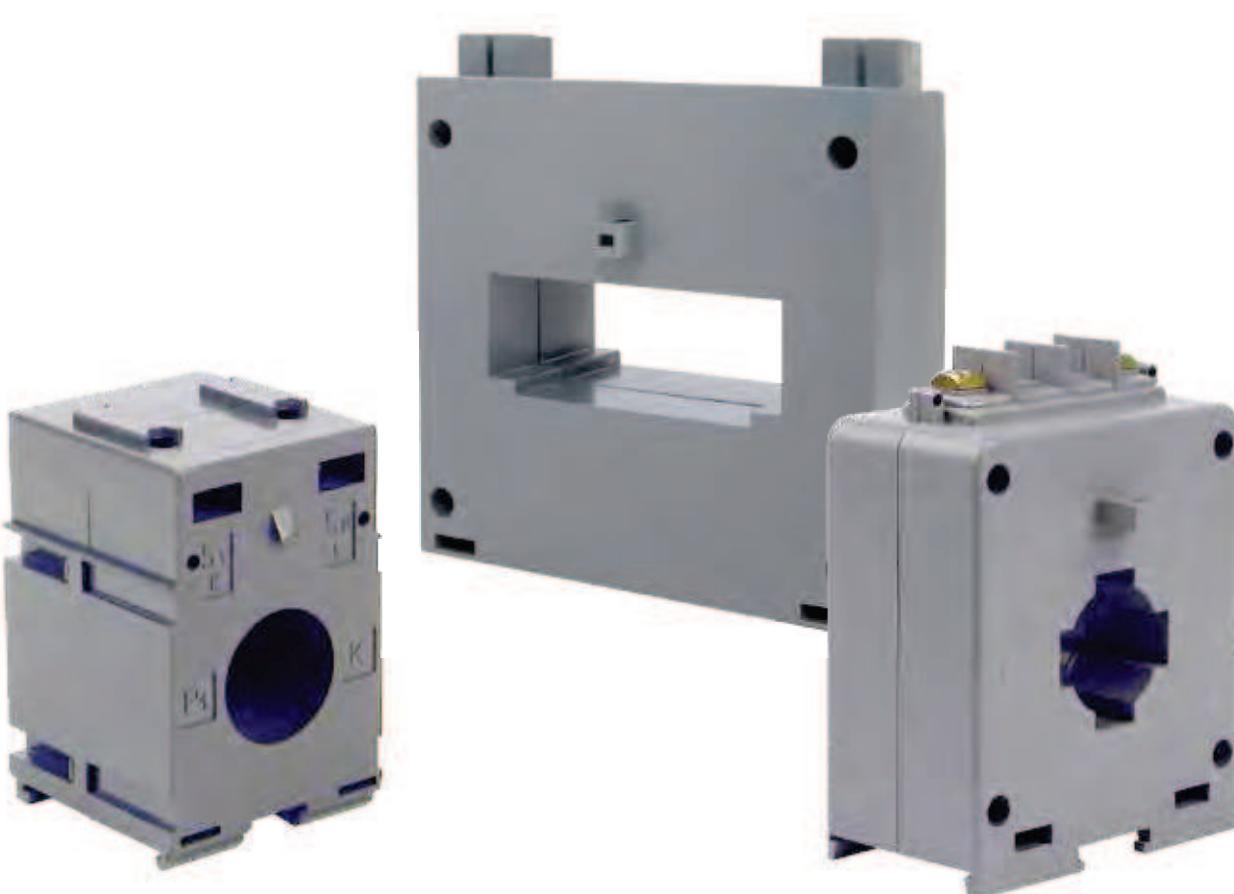
Other types can be manufactured on customer's requests.



CURRENT TOROIDAL POWER SUPPLY NOT IN HOUSING ALK

Toroidal power supplies, are used by inserting the cable that will be fed through their own hole; performing one or more passage of the cable till the current value desired is then reached.

Their power is on customer's request up to a maximum of 5 KVA. Other sizes and types are available at customer request.



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GENERAL INFORMATIONS

APPLICATION

The Current transformers for low-voltage equipments are designed to allow the measurement of very high currents using normal reading instruments, and / or for the protection of electrical circuits in the most varied applications. They are built for secondary currents of 1A and 5A (different secondary currents can be made on request). The range of primary currents influence the size of the transformers and may vary from 1A up to 6000 A.

OPERATING CONDITIONS

The transformers are designed to operate in a protected ambient with climatic conditions of moderate temperature (standard construction) or tropical (on request). The thermal current is measured at 120% of rated current, while a current range of 150%, 200% or 400% is possible following a specific customer's request. The temperature range of operation is defined between -25 °C and + 40 °C; while the relative humidity should be of about 85% as a maximum.

PROJECT

These current transformers are intended for single-phase low voltage and transform the current flowing through the primary circuit into a current in the secondary circuit (normally lower) with a level of accuracy specified by the relevant standards. Their insulation class is of type E; the windings of the circuits are enclosed in plastic housings made in material resistant to heat, fire, fungi and termites and are produced for different types of primary circuit that use busbars or cables. As mentioned above, the range of the primary current goes from 1A to 6000A (other flow can be realized on specific request). Models TN, TR, TS, TA have a sealable terminal cover for closing the secondary terminals (supplied for some types, optional on others)

MOUNTING

The transformers are permanently marked with the sense of input and output of the current on the two sides of the housing; They have accessories that allow the fixing on horizontal or vertical bars, on cables, on DIN bars, directly on the panels or plates by means of screws; They can be mounted in any position but **cannot be used as supporting elements for the current busbars**. The details of the different installation options are displayed chapter by chapter.

OPERATION

Current transformers must not work with the secondary winding open because of dangerous surges that may ensue. These overvoltages are proportional to the ratio of the transformer and then to the number of the turns and the section of the core. You could also have an undesirable magnetization of the core, which can impair the precision of the transformer. It is therefore recommended, in case of maintenance, to short circuit the secondary.

To avoid the problem against accidental openings of the circuit would be better to use the electronic circuit of automatic protection (ACC-PROTEL) that with automatic and instantaneous intervention keeps the voltage below 25V RMS.

PACKING, TRANSPORT, STORAGE

The current transformers must be packed in a convenient way to avoid damage in transit, especially for long distances; given their weight, it is recommended not to place delicate items below them. They must also be stored in a dry and with temperatures between -40 °C and + 80 °C.

HANDLING AND DISPOSAL OF PRODUCTS USED

Thanks to the materials and technology used in their manufacture, the transformers do not present a danger to the environment. The products used or damaged must be removed by segregating the various parts of steel, nonferrous metals, plastics and rubber. Parties so segregated must be recycled or disposed of by specialized companies.

CERTIFICATION

AE2 is able to provide certification of the metering equipment if the Technical Department of Finance requests it. While the certification of the entire plant is to be requested to the competent UTF local offices. In the case of a group of three measurement, systems consisting of 3 current transformers and a kWh-meter, 5 verification certificates are necessary. When the measurement group to be certified is a 2 systems, 4 certificates are necessary as that the CTs involved are only two.

This certificate, as well as the test report (accuracy curve) must be requested when ordering. The transformer should in fact be present in the company for the collection of data.

DEFINITIONS

Thermal current (I_{th}):	is the highest primary current (effective value) the transformer can withstand for 1 second without causing damage due to excessive overloads, with secondary shorted.
Dynamic current (I_{din}):	is the highest primary current (peak value) that the transformer can withstand without causing damage due to electromagnetic efforts, with secondary shorted.
Maximum operating voltage:	is the highest value of the voltage (rms) that the transformer can withstand.
Test voltage:	is the voltage at power frequency, for the isolation, that the transformer bears for 1 minute between primary and secondary to ground, and between the secondary to ground.
Safety factor (FS):	is the ratio between the value of the primary current which causes saturation of the core and the value of the nominal primary current. Lower is the value of "FS" and more the instrument is protected.

DIMENSIONING THE LOAD

The total load that will be connected to the transformer, must take into account the consumption of the connected device, the self-consumption of the transformer, as well as the losses due to the connection cables. Below the table upon consumption of the cables in relation to their length and section:

Cable section mm ²	Secondary 5A					Secondary 1A						
	Power VA (two poles) - Distance m					Power VA (two poles) - Distance m						
	1 m	2 m	4 m	6 m	8 m	10 m	10 m	20 m	40 m	60 m	80 m	100 m
1	0,36	0,71	1,43	2,14	2,85	3,57	0,36	0,71	1,43	2,14	2,85	3,57
1,5	0,58	1,15	2,31	3,46	4,62	5,77	0,23	0,46	0,92	1,39	1,85	2,31
2,5	0,36	0,71	1,43	2,14	2,86	3,57	0,14	0,29	0,57	0,86	1,14	1,43
4	0,22	0,45	0,89	1,34	1,79	2,24	0,09	0,18	0,36	0,54	0,71	0,89
6	0,15	0,30	0,60	0,89	1,19	1,49	0,06	0,12	0,24	0,36	0,48	0,60
10	0,09	0,18	0,36	0,54	0,71	0,89	0,04	0,07	0,14	0,21	0,29	0,36

Below the table of the maximum permissible load in amperes, of copper bars under current rules:

Dimension	Rated current (In) A			Dimensione	Rated current (In) A		
	1 bar	2 bars	3 bars		1 bar	2 bars	3 bars
20x5 mm	325	560		40x10	715	1290	1770
20x10 mm	427	925	1180	50x10	852	1510	2040
30x5 mm	379	672	896	60x10	985	1720	2300
30x10 mm	573	1060	1480	80x10	1240	2110	2790
40x5 mm	482	836	1090	100x10	1490	2480	3260

PRECISION CLASS FOR MEASURING CURRENT TRANSFORMERS

Under the current rules, the limits of current error and the error limits of the phase angle of each transformer, must be included between the data in the table:

Accuracy class	Current error (ratio) in percent (+/-) of the rated current under specified				Angle error (+/-) as a percentage of rated current shown below				Centiradians			
					Minutes							
	5	20	100	120	5	20	100	120	5	20	100	120
0,1	0,4	0,2	0,1	0,1	15	8	5	5	0,45	0,24	0,15	0,15
0,2	0,75	0,35	0,2	0,2	30	15	10	10	0,9	0,45	0,3	0,3
0,5	1,5	0,75	0,5	0,5	90	45	30	30	2,7	1,35	0,9	0,9
1	1,3	1,50	1,0	1,0	180	90	60	60	5,4	2,7	1,8	1,8
3	da 0,5 In a 1,2 In ± 3				no prescription							

In many systems, the application requires transformers class 0.2S or 0.5S.

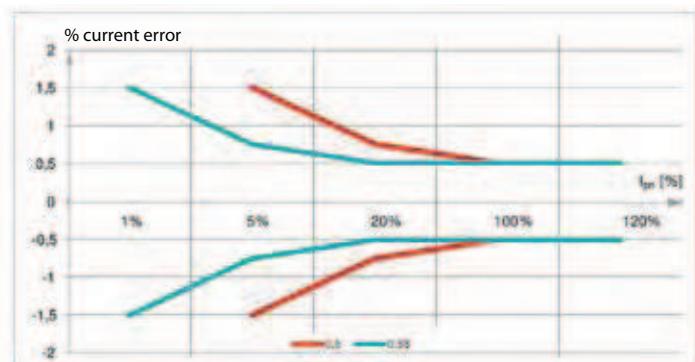
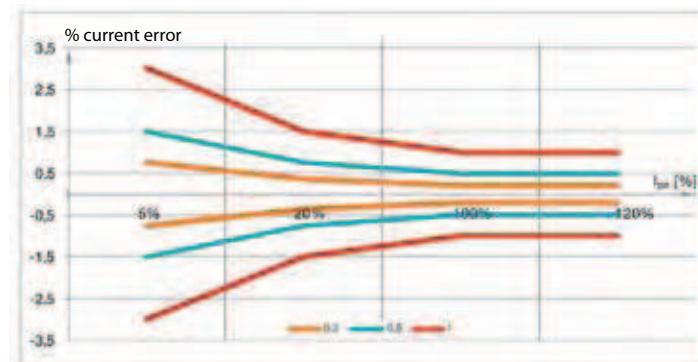
It is therefore necessary that they meet the required values even from 1% of the nominal load as the table:

Accuracy class	Current error (ratio) in percent (+/-) of the rated current under specified					Angle error (+/-) as a percentage of rated current shown below					Centiradians				
						Minutes									
	1	5	20	100	120	1	5	20	100	120	1	5	20	100	120
0,2 S	0,75	0,35	0,2	0,2	0,2	30	15	10	10	10	0,9	0,45	0,3	0,3	0,3
0,5 S	1,5	0,75	0,5	0,5	0,5	90	45	30	30	30	2,7	0,35	0,9	0,9	0,9

CHARACTERISTIC CURVE OF ERRORS

Class 0.2 - 0.5 to 1 0.5

Comparison between class 0,5 and class 0,5S



PRECISION CLASS FOR PROTECTION CURRENT TRANSFORMERS

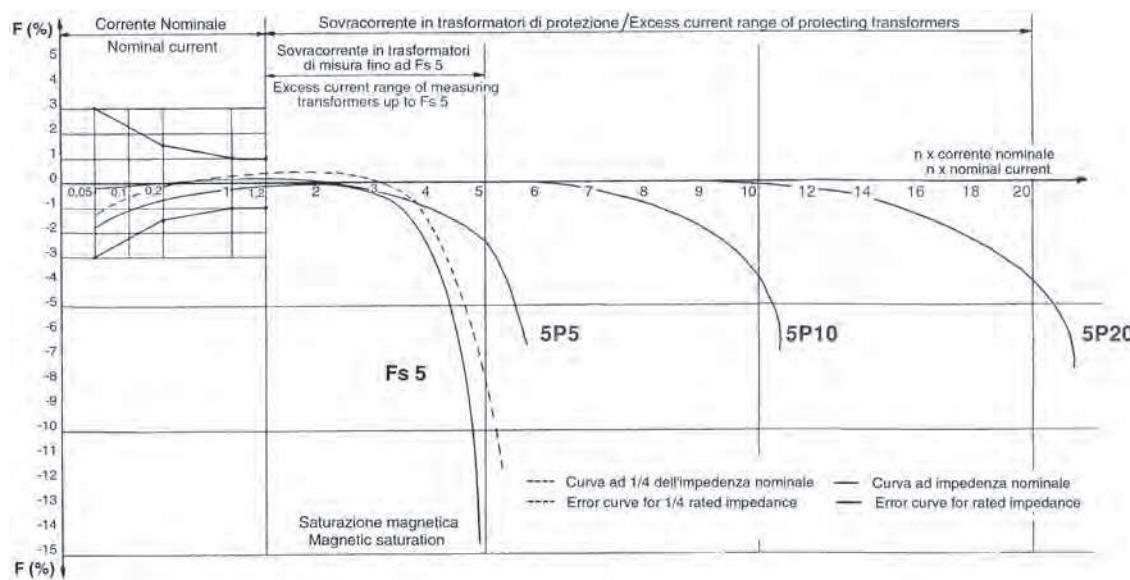
Under the current rules, the limits of current error and the error limits of the phase angle of each transformer must be included between the data in the table:

Accuracy class	Errore di corrente (rapporto) in percento (+/-) della corrente nominale sotto indicata	Current error (ratio) in percent (+/-) of the rated current under specified		Angle error (+/-) as a percentage of the rated current under specified
		Minutes	Centiradians	
5P	1	60	1,8	5
10P	3			10

In some protection systems, where the characteristics of the current transformers depend on the overall design of the equipment, additional requirements are set out in the rules for class PX.

With this class, identifies a current transformer with low leakage reactance, for which the knowledge of the secondary excitation characteristic, the resistance of the secondary winding, the resistance of the benefit and secondary turns ratio, are sufficient to evaluate its performance in relation to the type of protection relay with which must be used.

SATURATION CURVES OF SAFETY AND PROTECTION TRANSFORMERS



RESISTIVE NOMINAL PERFORMANCE (RB)

Nominal value of the resistive performance connected to the secondary, in ohms.

STRENGTH OF THE SECONDARY WINDING (RCT)

DC resistance of the secondary winding, in ohms, reported at 75 °C or other temperature if specified.

NOMINAL F.E.M. OF KNEE POINT (EK)

The minimum sinusoidal F.E.M. (effective value at rated frequency, when applied to the secondary terminals of the transformer with all other terminals open circuit, determine, with an increase of 10%, an increase of the effective value of the excitation current not exceeding the 50% (the effective f.e.m. of knee point will be \geq to the nominal f.e.m. of knee point)).

NOMINAL TURNS RATIO

The prescribed ratio between the number of primary turns and the number of turns in the secondary. Example 1: 1/1600 (one primary turn with six hundred secondary turns).

Example 2: 2/1200 (current transformer ratio similar to the previous example that uses two primary turns, 600 turns).

TURNS RATIO ERROR

The difference between the nominal and effective turns ratio, expressed in %.

$$\text{Error turns ratio (\%)} = \frac{\text{effective turns ratio} - \text{nominal turns ratio}}{\text{Nominal turns ratio}} \times 100$$

DIMENSIONING FACTOR (KX)

Factor assigned by the buyer to indicate the multiple of the rated secondary current (I_{sn}) that you may have in case of failure, including safety factors, up to which the transformer must meet the requirements of operation.

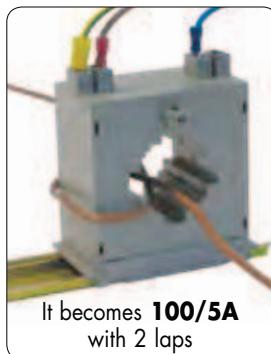
- Class 0.5 is required for the energy meters.
- Class 1 is required for measures and unofficial energy counters.

HOW TO CALCULATE THE DIAMETER OF A CABLE

To go back to the diameter of a cable (for example) of 95 mm², reference should be made to the following formula:
 Section rxrx = 3.14 ie $3.14 \times r^2$ where: $r = \sqrt{\text{sezione}} / 3.14$; $r = \sqrt{95} / 3.14 = \sqrt{30.25} = 5.5$ mm, therefore, the radius is 5.5 mm
 Diameter = $r + r$ then the diameter is equal to $5.5 + 5.5$ mm = 11 mm (diameter of only copper, to which the thickness of the insulating material must be added, Ø total about 20 mm)

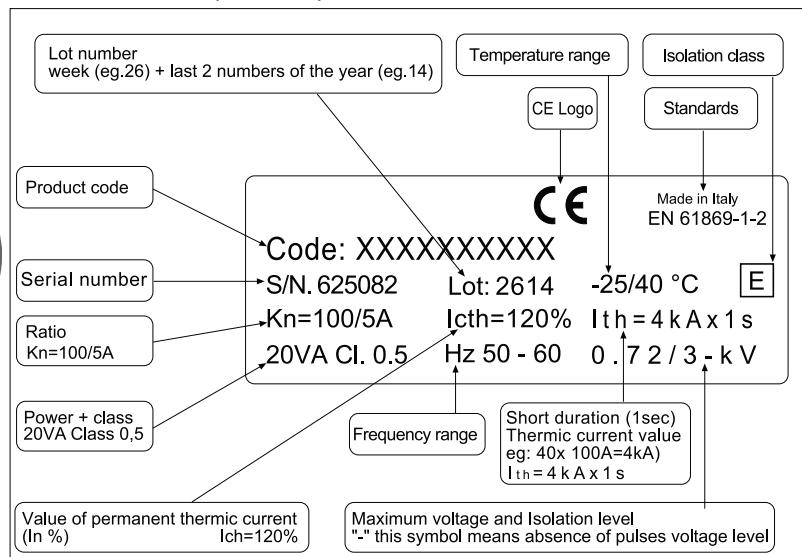
USING THE SAME TRANSFORMER, FOR DIFFERENT CAPACITIES

Having dire need, you can use the same current transformer getting different primary currents; because in fact the effective primary current is the ratio between the rated current and number of turns, you can reduce the value of the primary current (while maintaining the values of the secondary current, performance and accuracy class) in the following way:



PRODUCT LABEL SYMBOLOLOGY

Below is an example of explanation



ELECTRICAL CHARACTERISTICS

Standards reference : All current transformers are built in accordance with the new European standards IEC 61869-1 and IEC 61869-2 (which replace the old standards IEC 60044-1).

Rated primary current (Ip)

1A ..6000A to be specified

Rated secondary current (Isn)

1A o 5A or other to be specified

Accuracy class for measuring

3 - 1 - 0,5 - 0,5S - 0,2 - 0,2S - 0,1- PX to be specified

Accuracy class for protection

5P5 - 5P10 - 5P15 - 5P20 - 10P5 - 10P10 to be specified

Operating Frequency

50..60Hz(400Hz on request)

Rated continuous thermal current (Icth)

120%

Rated thermal short circuit (Ith)

40In/1s

Rated dynamic current (Idyn)

2,5x Ith

Safety factor (FS)

$\leq 2 \dots \leq 15$ according to the type and range

Nominal Power

1...50VA depending of model

Maximum allowable temperature on f the cable or bar

+70°C

INSULATION

Dry transformer with air insulation

Class E, where the limit of the over temperature on the windings is K = 75 °C

Resin insulation on request

0,72kV

3kV

Maximum operating voltage (Um)

Test voltage

ENVIRONMENTAL CONDITIONS

To use in a protected environment with an altitude up to 2000m above sea level. The dew is permissible

+20°C +/-1%
-20°C ...+40°C
-40°C ...+80°C
≤ 85%

HOUSING

Polycarbonate self-extinguishing material
Protection degree

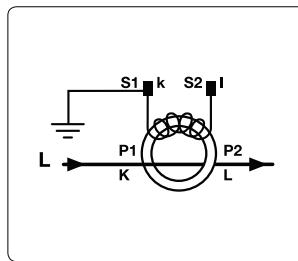
ABS, UL94-V0
IP30

TERMINALS

Protection degree
Material
Value of torque for screws M4x6
Value of torque for nuts M4
Value of traction for M4x6 screws
Limit of elasticity for M4x6 screws
Marking terminals

IP00 (IP40 with the use of the sealable terminal cover)
Brass CuZn37
1,9Nm
1,0Nm
440 N/mm²
340 N/mm²
P1-P2(K-L) / s1-s2(k-l)
P1(K) primary winding input
s1(k) secondary winding input
P2(L) primary winding output
s2(l) secondary winding output

CONNECTIONS



During installation, ensure precise sense input (P1-K) and output (P2-L) of the primary current. In models with primary and secondary current on terminals, do not invert the two connections. It is always advisable grounding the transformers. If you need to disconnect the load from transformers with the system on, **è necessario cortocircuitare i due morsetti del secondario del trasformatore stesso.**



HOW TO ORDER

In order to place an order, you must include the following data:

- Transformer type (size of the bar or cable to use; maximum dimensions)
- Primary current (Ipn)
- Secondary current (Isn)
- Power in VA
- Accuracy class for measuring or protection
- Safety factor (FS5 or FS10 where required);
- Climatic conditions in which you will install the transformer; moderate or tropical (for moderate climate is considered standard for tropical climate is to be specified when ordering)
- Number of pieces

WARRANTY

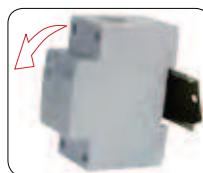
The manufacturer provides a warranty of 12 months from the date of commissioning, but not more than 18 months from the date of delivery. The manufacturer is not liable for defects or damage arising from incorrect transport and never after the reception of the transformers by the customer; by a bad preservation; by incorrect installation or improper selection of the transformer for an electrical specific system.

MODULAR CURRENT TRANSFORMERS - TD SERIES

Range of transformers characterized by a 2 DIN modules EN 50022 housing, that allows quick mounting on DIN rails.

ASSEMBLY INSTRUCTIONS

Mounting on DIN rail EN 50022 must be carried out in the manner indicated in the figure; first insert the inelastic hook, then rotate the housing of the transformer until it locks. Proceed in reverse order of disassembly. No additional tools are required except for the release of the transformer having to remove it.



WIRING INSTRUCTIONS

Connect the two wires to terminals 1 and 2; the ground can be made using the terminal 1 (S1). The cable of the primary current should be inserted in the central hole paying attention to the direction of flow of the same current as shown in FIG.

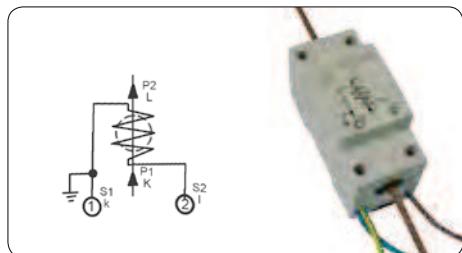


TABLE OF CODES

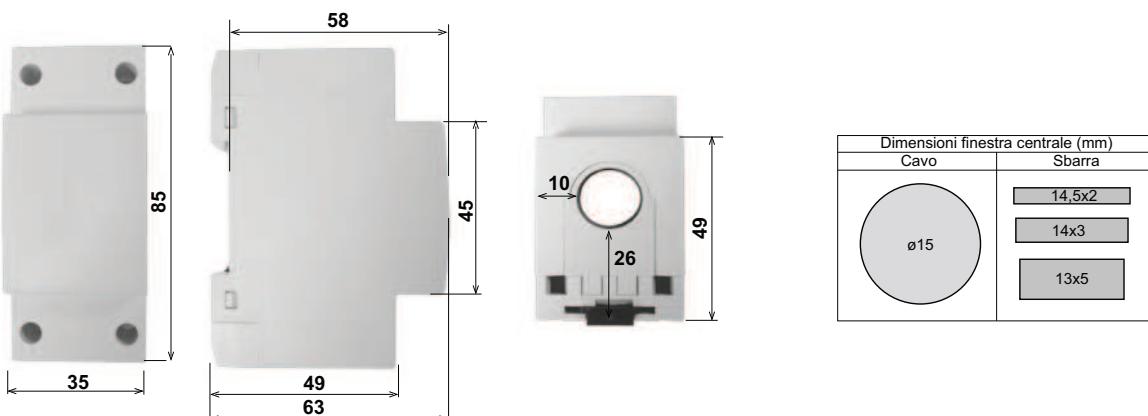
Family ID	TD = DIN rail mounting transformer	TD	15	-150	A	5	-1	-5	VA	-Y	-T	-X	-
Dimensions central window	15=15 mm												
Primary current	040=40A; 050=50A; 060=60A; 075=75A; 080=80A; 100=100A; 120=120A; 125=125A; 150=150A												
A	Ampère												
Secondary Current	1=1A; 5=5A												
Class	1; 3												
Power	2; 3; 5												
VA	Volt - Ampère												
Y	Tropicalized Version												
T	Version with housing resistant to high temperatures												
X	Anonymous version												
Other possible data for a total of 30 characters. Example: value of FS													

18

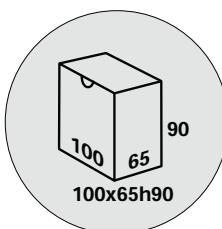
MEASURING TRANSFORMERS

TD15

Transformer suitable for primary current by cable with a maximum diameter of 15mm.



Primary current	Class	power	Secondary current	Secondary current	weight
A	VA	5A	1A	Kg	
40	3	2	TD15-040A5-3-2VA	TD15-040A1-3-2VA	0,25
50	3	2	TD15-050A5-3-2VA	TD15-050A1-3-2VA	0,25
60	3	3	TD15-060A5-3-3VA	TD15-060A1-3-3VA	0,25
75	3	3	TD15-075A5-3-3VA	TD15-075A1-3-3VA	0,25
80	3	3	TD15-080A5-3-3VA	TD15-080A1-3-3VA	0,25
100	1	3	TD15-100A5-1-3VA	TD15-100A1-1-3VA	0,25
120	1	5	TD15-120A5-1-5VA	TD15-120A1-1-5VA	0,25
125	1	5	TD15-125A5-1-5VA	TD15-125A1-1-5VA	0,25
150	1	5	TD15-150A5-1-5VA	TD15-150A1-1-5VA	0,25



SPLIT-CORE CURRENT TRANSFORMERS - TA SERIES

Ideal range of transformers to be installed in plants already in operation, where there is the need to be connected without interrupting the primary circuit or change the existing application.



WIRING INSTRUCTIONS TA10

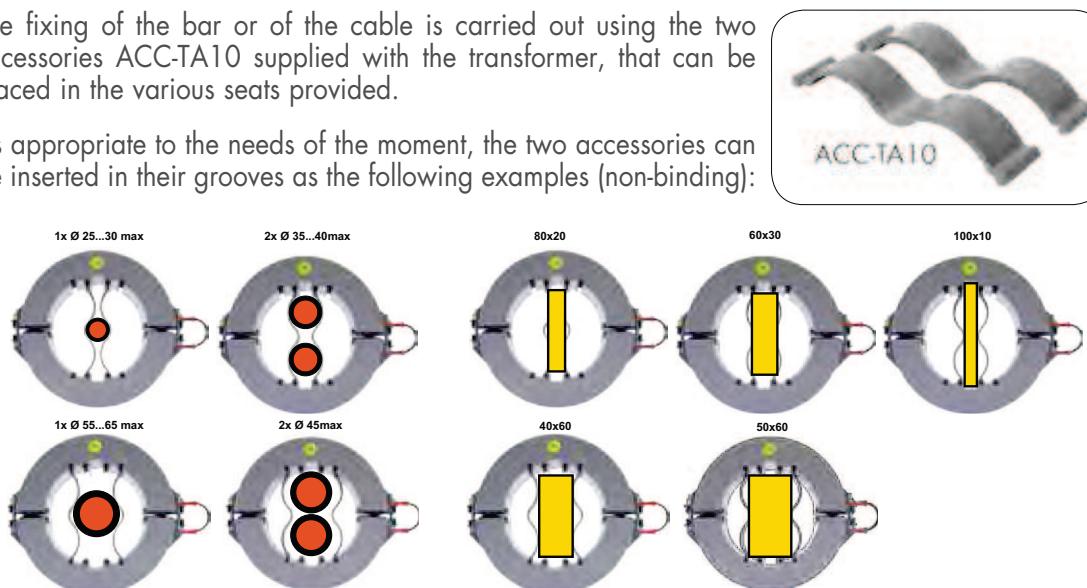
After you have properly installed the transformer around the cable / busbar (paying attention to the direction of current flow), be sure to restore the bridge with the cable supplied as shown in figure, in order to allow the circulation of the current between the two hemispheres of the CT. The connection to the load is then made using the two central fast-on terminals; the ground can be made using the terminal S1. **It is recommended to not over tighten the clamping screws located near the core cut, to avoid the breaking of blocks in ABS. The two ends of the core that will be in contact, must be previously coated with grease conductor in order to allow a good contact.** Tightening torque of M4 screws: 2.0 Nm



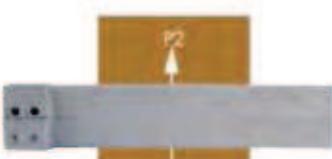
ASSEMBLY INSTRUCTIONS TA10

The fixing of the bar or of the cable is carried out using the two accessories ACC-TA10 supplied with the transformer, that can be placed in the various seats provided.

As appropriate to the needs of the moment, the two accessories can be inserted in their grooves as the following examples (non-binding):



WIRING INSTRUCTIONS TA28-TA26V-TA66V-TA20



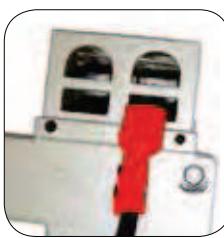
Tip head-string from P2 side of case



Without head-string from P2 side of case



Fork head-string from P1 side of case



Fast-on head-string (6.3 mm) P1 side of case

The grounding can be made using the terminal S1. The presence of the double clamp allows you to make short circuits when it is necessary to disconnect the load from the transformer.

It is recommended to not over tighten the clamping screws located near the cutted core. The two ends of the core that will be in contact must be previously coated with grease conductor in order to allow a good contact.

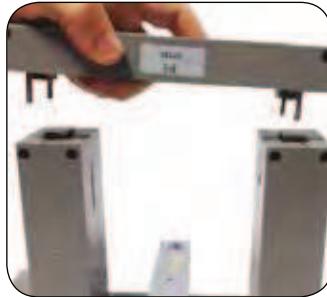
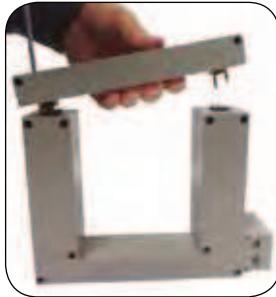
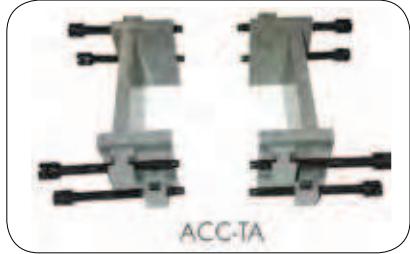
The sealable terminal cover ACC-COP5 is not supplied with the transformer, but only on request, being the terminals sufficiently protected against accidental contacts.



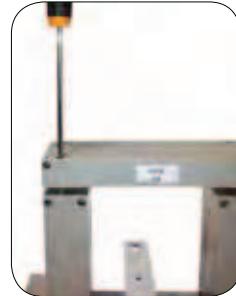


ASSEMBLY INSTRUCTIONS TA28-TA26V-TA66V-TA20

The fixing of the bar is made using the accessories ACC-TA supplied with the transformer, to be positioned as shown in the picture.



- 1) Unscrew the four screws M4
 - 2) Make a short circuit on the secondary winding (S1-S2) of the transformer.
 - 3) Place the transformer on the bar or cable.
 - 4) Pay attention to the position: the P1 side of the transformer must match the P1 side of the opening section of the core
 - 5) For a better contact, put a conductor grease between the surfaces of the core. Be sure to match the two faces of the core, tightening uniformly the four M4 screws.



- 6) Check that there is no light among the two sides of the core.

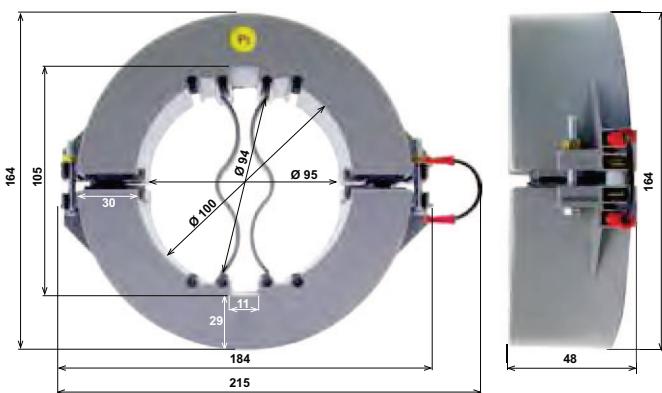
7) Tighten the screws with a torque of 2.0 Nm. The two plastic cases do not have to join.

TABLE OF CODES

MEASURING SPLIT-CORE TRANSFORMERS

TA10

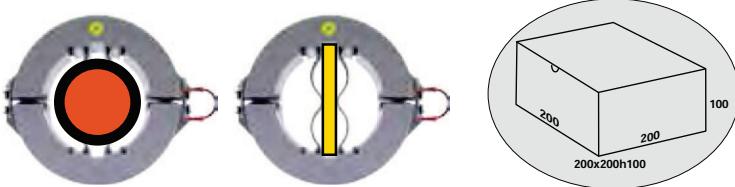
Transformer suitable for primary current by cable with a maximum diameter of 90 mm, or busbar 100x10mm.



Primary current A	Class	Power VA	Secondary current 5A	Secondary current 1A	Weight Kg
500	0.5	5	TA10-500A5-0.5-5VA	TA10-500A1-0.5-5VA	1,10
600	0.5	5	TA10-600A5-0.5-5VA	TA10-600A1-0.5-5VA	1,10
750	0.5	5	TA10-750A5-0.5-8VA	TA10-750A1-0.5-8VA	1,10
800	0.5	8	TA10-800A5-0.5-8VA	TA10-800A1-0.5-8VA	1,10
1000	0.5	10	TA10-1k0A5-0.5-10VA	TA10-1k0A1-0.5-10VA	1,10
1200	0.5	20	TA10-1k20A5-0.5-20VA	TA10-1k2K0A1-0.5-20VA	1,10
1250	0.5	20	TA10-1k25A5-0.5-20VA	TA10-1k2K5A1-0.5-20VA	1,10
1500	0.5	30	TA10-1k5A5-0.5-30VA	TA10-1k5A1-0.5-30VA	1,20
1600	0.5	40	TA10-1k6A5-0.5-40VA	TA10-1k6A1-0.5-40VA	1,20
2000	0.5	40	TA10-2k0A5-0.5-40VA	TA10-2k0A1-0.5-40VA	1,20

ø90 max

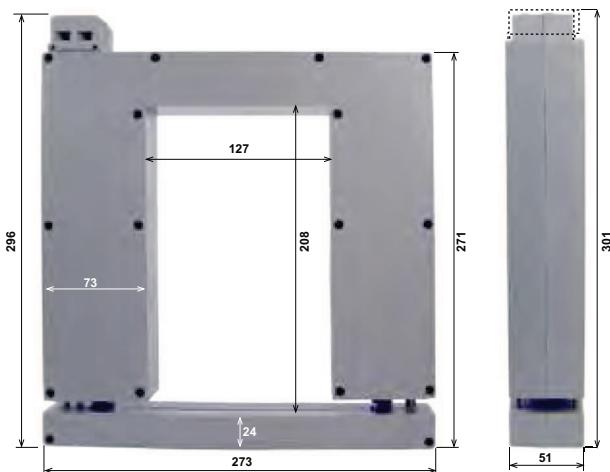
100x10



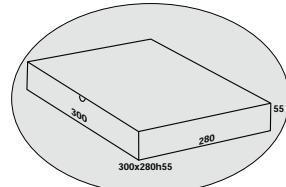
MEASURING SPLIT-CORE TRANSFORMERS

TA20

Transformer suitable for primary current by horizontal bar 120x10 - 2x120x10 - 3x120x10 - 4x120x10mm; by vertical bar 200x10 - 2x200x10 - 3x200x10 - 4x200x10mm; or by cable with suitable diameter to calculate.



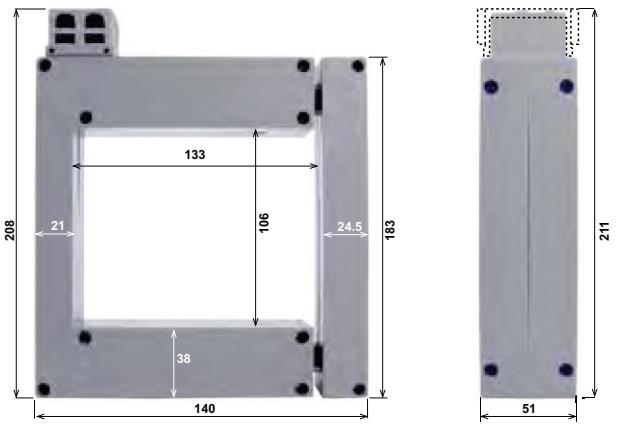
Primary current A	Class	Power VA	Secondary current 5A	Secondary current 1A	Weight Kg
1000	0.5	10	TA20-1K0A5-0.5-10VA	TA20-1K0A1-0.5-10VA	2,00
1200	0.5	10	TA20-1K2A5-0.5-10VA	TA20-1K2A1-0.5-10VA	2,00
1250	0.5	10	TA20-1K25A5-0.5-10VA	TA20-1K25A1-0.5-10VA	2,00
1500	0.5	10	TA20-1K5A5-0.5-10VA	TA20-1K5A1-0.5-10VA	2,50
1600	0.5	10	TA20-1K6A5-0.5-10VA	TA20-1K6A1-0.5-10VA	2,50
2000	0.5	15	TA20-2K0A5-0.5-15VA	TA20-2K0A1-0.5-15VA	2,50
2500	0.5	20	TA20-2K5A5-0.5-20VA	TA20-2K5A1-0.5-20VA	3,00
3000	0.5	20	TA20-3K0A5-0.5-20VA	TA20-3K0A1-0.5-20VA	3,00
3200	0.5	20	TA20-3K2A5-0.5-20VA	TA20-3K2A1-0.5-20VA	3,00
4000	0.5	30	TA20-4K0A5-0.5-30VA	TA20-4K0A1-0.5-30VA	3,50
5000	0.5	30	TA20-5K0A5-0.5-30VA	TA20-5K0A1-0.5-30VA	4,00
6000	0.5	30	TA20-6K0A5-0.5-30VA	TA20-6K0A1-0.5-30VA	4,50



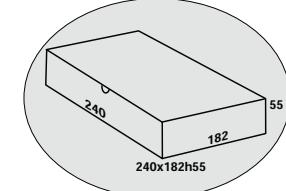
MEASURING SPLIT-CORE TRANSFORMERS

TA28

Transformer suitable for primary current by horizontal bar 120x10 - 2x120x10 - 3x120x10 - 4x120x10mm; by vertical bars 200x10 - 2x200x10 - 3x200x10 - 4x200x10mm; or by cable with suitable diameter to calculate.



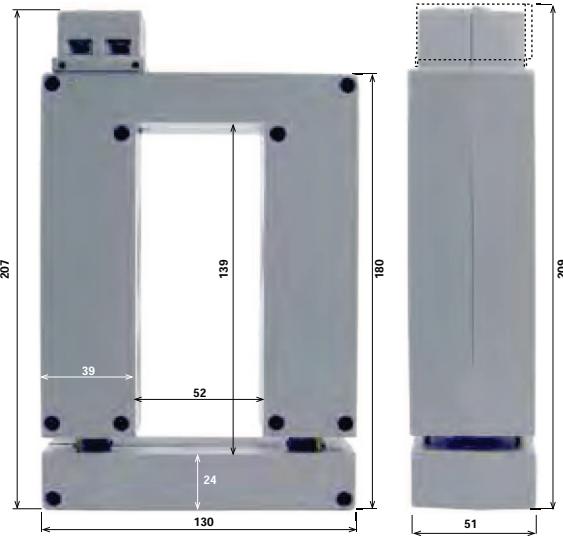
Primary current A	Class	Power VA	Secondary current 5A	Secondary current 1A	Weight Kg
1000	0.5	10	TA28-1K0A5-0.5-10VA	TA28-1K0A1-0.5-10VA	1,50
1200	0.5	10	TA28-1K2A5-0.5-10VA	TA28-1K2A1-0.5-10VA	1,50
1250	0.5	10	TA28-1K25A5-0.5-10VA	TA28-1K25A1-0.5-10VA	1,50
1500	0.5	10	TA28-1K5A5-0.5-10VA	TA28-1K5A1-0.5-10VA	1,50
1600	0.5	10	TA28-1K6A5-0.5-10VA	TA28-1K6A1-0.5-10VA	1,50
2000	0.5	15	TA28-2K0A5-0.5-15VA	TA28-2K0A1-0.5-15VA	1,50
2500	0.5	20	TA28-2K5A5-0.5-20VA	TA28-2K5A1-0.5-20VA	1,50



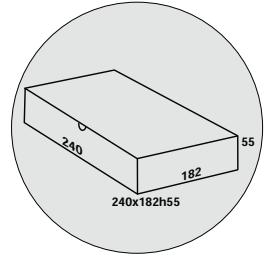
MEASURING SPLIT-CORE TRANSFORMERS

TA26V

Transformer suitable for primary current by vertical bar 2x80x5; 3x80x5; 5x80x5; 2x100x5; 3x100x5; 4x100x5; 100x10; 2x100x10; 5x100x5; 3x120x10; 2x125x5mm or by cable with suitable diameter to calculate.



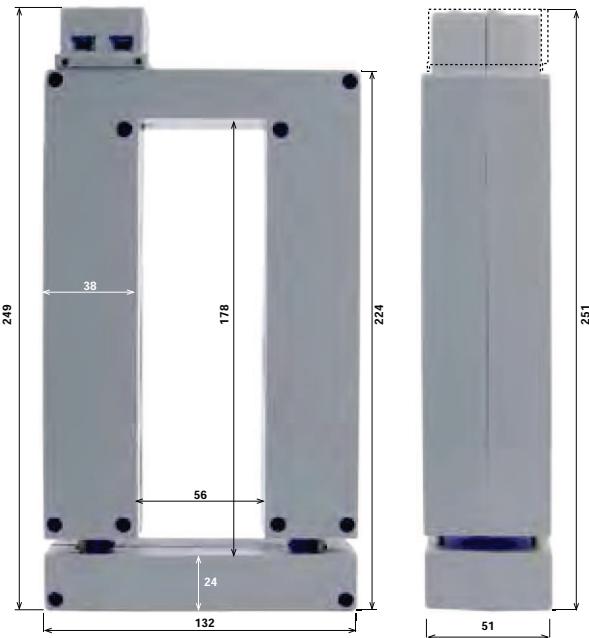
Primary current A	Class	Power	Secondary current 5A	Secondary current 1A	Weight Kg
1200	0.5	20	TA26V-1K2A5-0.5-20VA	TA26V-1K2A1-0.5-20VA	1,50
1250	0.5	20	TA26V-1K25A5-0.5-20VA	TA26V-1K25A1-0.5-20VA	1,50
1500	0.5	20	TA26V-1K5A5-0.5-20VA	TA26V-1K5A1-0.5-20VA	1,50
1600	0.5	20	TA26V-1K6A5-0.5-20VA	TA26V-1K6A1-0.5-20VA	1,50
2000	0.5	20	TA26V-2K0A5-0.5-20VA	TA26V-2K0A1-0.5-20VA	1,50
2500	0.5	20	TA26V-2K5A5-0.5-20VA	TA26V-2K5A1-0.5-20VA	1,50



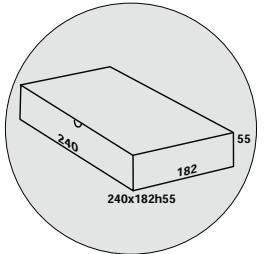
MEASURING SPLIT-CORE TRANSFORMERS

TA66V

Transformer suitable for primary current by vertical bar 2x80x5; 3x80x10; 3x80x5; 5x80x5; 2x100x5; 3x100x5; 4x100x5; 100x10; 2x100x10; 5x100x5; 3x120x10; 2x125x5; 2x160x10 mm or by cable with suitable diameter to calculate.



Primary current A	Class	Power	Secondary current 5A	Secondary current 1A	Weight Kg
1200	0.5	20	TA66V-1K2A5-0.5-20VA	TA66V-1K2A1-0.5-20VA	1,50
1250	0.5	20	TA66V-1K25A5-0.5-20VA	TA66V-1K25A1-0.5-20VA	1,50
1500	0.5	20	TA66V-1K5A5-0.5-20VA	TA66V-1K5A1-0.5-20VA	1,50
1600	0.5	20	TA66V-1K6A5-0.5-20VA	TA66V-1K6A1-0.5-20VA	1,50
2000	0.5	20	TA66V-2K0A5-0.5-20VA	TA66V-2K0A1-0.5-20VA	1,50
2500	0.5	20	TA66V-2K5A5-0.5-20VA	TA66V-2K5A1-0.5-20VA	2,00
3000	0.5	20	TA66V-3K0A5-0.5-20VA	TA66V-3K0A1-0.5-20VA	2,50
3200	0.5	20	TA66V-3K2A5-0.5-20VA	TA66V-3K2A1-0.5-20VA	2,50
4000	0.5	30	TA66V-4K0A5-0.5-30VA	TA66V-4K0A1-0.5-30VA	2,50
5000	0.5	30	TA66V-5K0A5-0.5-30VA	TA66V-5K0A1-0.5-30VA	3,00



TAPED TOROIDAL CURRENT TRANSFORMERS - TAK SERIES

Range of transformers employed when it is necessary to detect the homopolar currents (imbalance current existing on a three-phase cable), or in all those cases in which it is necessary high performance.



The toroidal transformers, all with passing primaries, can be made under the specifications provided by the customer or based on the actual technical characteristics calculated by our engineering department; In fact, the dimensions are not fixed but detected time by time according to the required technical characteristics.

Construction methods involve the use of the toroid in AIR, GAS or OIL; the finish is made by taping cotton protected with epoxy paint.

Thanks to sophisticated testing equipment, we reach very high accuracy Classs (also 0.1%) and on request, we can issue certificates and test reports for quality assurance.

The cables of the secondary current can be in PVC, Teflon or Silicon-glass material according to the needs, with application of the grounding of the core.

The temperature of use is of -25 ° C + 40°C; if the transformers are immersed in oil, the maximum temperature of use rises to 130 ° C.

When ordering, it is essential to indicate:

- The value of the primary current which must be minimum 50A
- The value of the secondary current which must be minimum 1A
- The accuracy class- Power (VA)
- The internal diameter (the outer diameter and the depth are therefore dependent variables from the above mentioned data)**

ASSEMBLY INSTRUCTIONS

Being transformers provided with no extra accessory, the cable, busbar or panel mounting must be made in the most appropriate manner by the customer.

The customer must make the insulation between the primary and the secondary, during assembly

WIRING INSTRUCTIONS

After the transformer is properly installed around the cable / busbar (paying attention to the direction of current flow), the connection to the load is carried out using the two free cables coming out of the toroid.

CURRENT TRANSFORMERS WITH BUILT-IN TRANSDUCER - TC SERIES

Range of transformers in which the electronic circuits for conversion of the measurement and the generation of the output signal, are incorporated in the same transformer.; thus enabling to obtain the ammetric and voltmetric measurement, directly on the PLC or other acquisition system.

The use of this range allows a considerable economic savings by avoiding the interposition of external transducers and double connections.If you wish to use also a reading instrument, connect in series to the PLC.

Response time 500ms - resistive load, 300 maximum at 24 VDC - Operating frequency, 50 / 60H. Different characteristics can be made on request.

ASSEMBLY INSTRUCTIONS



With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

- The mounting on DIN rail EN 50022 is performed using the fork accessory
- The wall mounting using the two brackets
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



DIN rail mounting



Wall mounting



Mounting on cable or primary busbar

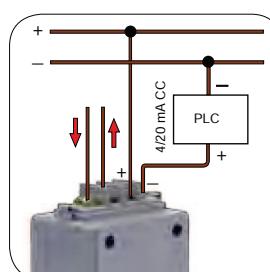
WIRING INSTRUCTIONS TC OUTPUT 4 / 20mA self-supplied

Transformers supplied directly by PLC with voltage 20VDC ... 30VDC.

If you wish to use also a reading instrument, connect in series to the PLC.

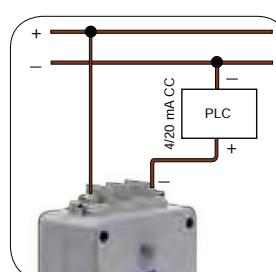
Response time 500ms - Resistive load 300 max 24 VDC - Operating frequency 50 / 60Hz Different characteristics can be made on request.

Connect the cables as shown on figure



TCP1A

The cable of the primary current must be connected to the terminals paying attention to the flow direction of the current as shown in figure.



OTHER TC CODES

The primary current is given by the, incorporated busbar/cable fitted into the central window of CT.

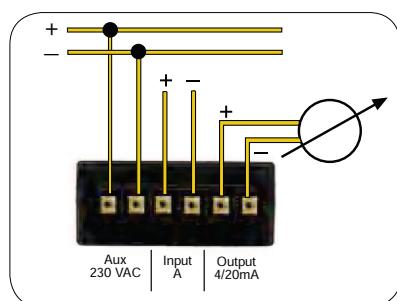
Pay attention to the flow direction of the current which must be always in direction P1->P2

WIRING INSTRUCTIONS TC OUTPUT 4 / 20mA with separate auxiliary power supply

Transformers with auxiliary power supply 230VAC (optional 12VDC, 24VDC, 48VDC)

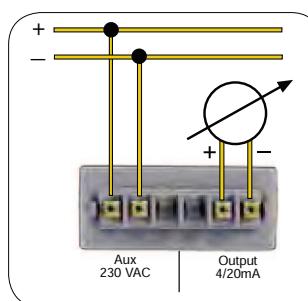
Response time 500ms - Resistive load 300 max 24 VDC - Operating frequency 50 / 60Hz Power Different characteristics can be made on request.

Connect the cables as shown on figure



TCP1

The cable of the primary current must be connected to the terminals paying attention to the flow direction of the current as shown in figure.



OTHER TC CODES

The primary current is given by the, incorporated busbar/cable fitted into the central window of CT.

Pay attention to the flow direction of the current which must be always in direction P1->P2

WIRING INSTRUCTIONS TC OUTPUT 20mA and 10V DC

Transformers supplied directly by PLC with voltage 20VDC ... 30VDC.

Response time 500ms - Operating frequency 50/60Hz.

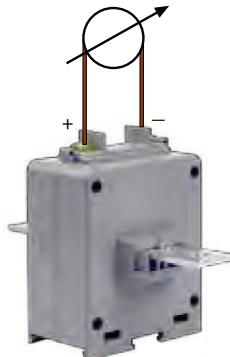
Resistive load: 300 max for models with 20mA output; > 10k maximum for models with output 10V. Different features can be made on request.

Connect the cables as shown on figure



TCP1

The cable of the primary current must be connected to the terminals paying attention to the flow direction of the current as shown in figure.



OTHER TC CODES

The primary current is given by the, incorporated busbar/cable fitted into the central window of CT.

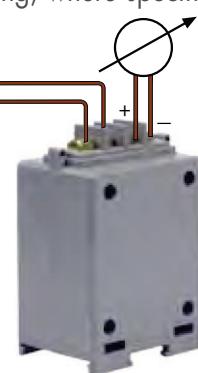
Pay attention to the flow direction of the current which must be always in direction P1->P2



Necessary wiring, where specified



TR....



TCP1-005A-20MA-1

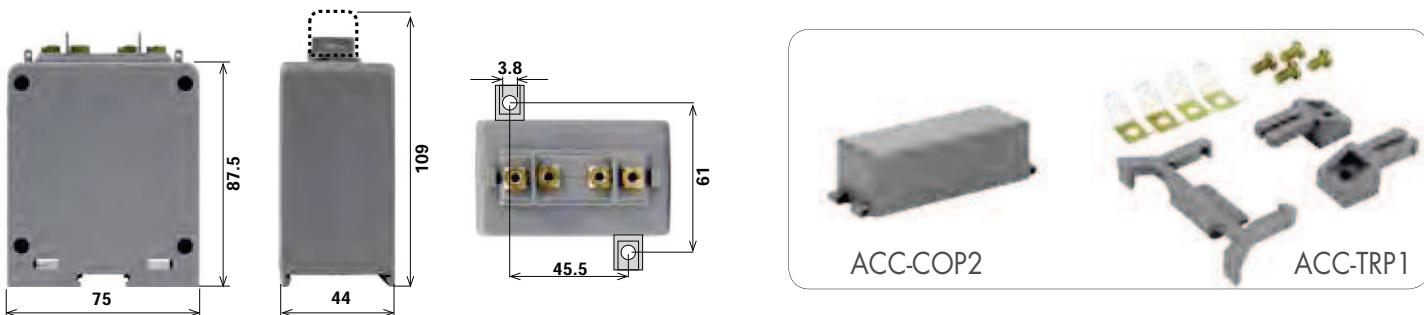
TABLE OF CODES

Family ID	TC = Transformer with built-in transducer	TC	P1A	-4k0	A	420	MA	-1	-Y	-R	-T	-X	-
P1A= Primary and Secondary on terminals with auxiliary power supply													
P1= Primary and Secondary on terminals with auxiliary power supply													
P2A= Primary on terminals and Secondary on busbar with auxiliary power supply													
P2A= Primary on terminals and Secondary on busbar with auxiliary power supply													
43A= central window 30x10mm with auxiliary power supply													
43= central window 30x10mm without auxiliary power supply													
5A= central window 50x20mm with auxiliary power supply													
5= central window 50x20mm without auxiliary power supply													
6A= central window 60x20mm with auxiliary power supply													
6= central window 60x20mm without auxiliary power supply													
8A= central window 80x30mm with auxiliary power supply													
8= central window 80x30mm without auxiliary power supply													
12A= central window 125x50mm with auxiliary power supply													
12= central window 125x50mm without auxiliary power supply													
Primary current	1=1A; 5=5A; 10=10A; 15=15A; 20=20A; 25=25A; 30=30A; 40=40A; 50=50A; 60=60A; 75=75A; 80=80A; 100=100A; 125=125A; 150=150A; 200=200A; 250=250A; 300=300A; 400=400A; 500=500A; 600=600A; 750=750A; 800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A; 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A; 4k0=4000A												
A	Ampère												
Secondary Current	420=4/20 mA; 20=20 mA; 10=10 V												
Measuring unit	MA=milliAmpère; V=Volt												
Class	1												
Y	Tropicalized Version												
R	Resin antivibration version												
T	Version with housing resistant to high temperatures												
X	Anonymous version												
Other possible data for a total of 30 characters. Example: value of FS													

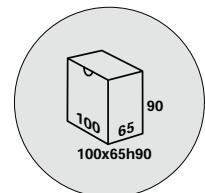
MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TCP1...

Wounded primary current transformer with primary and secondary current on terminals



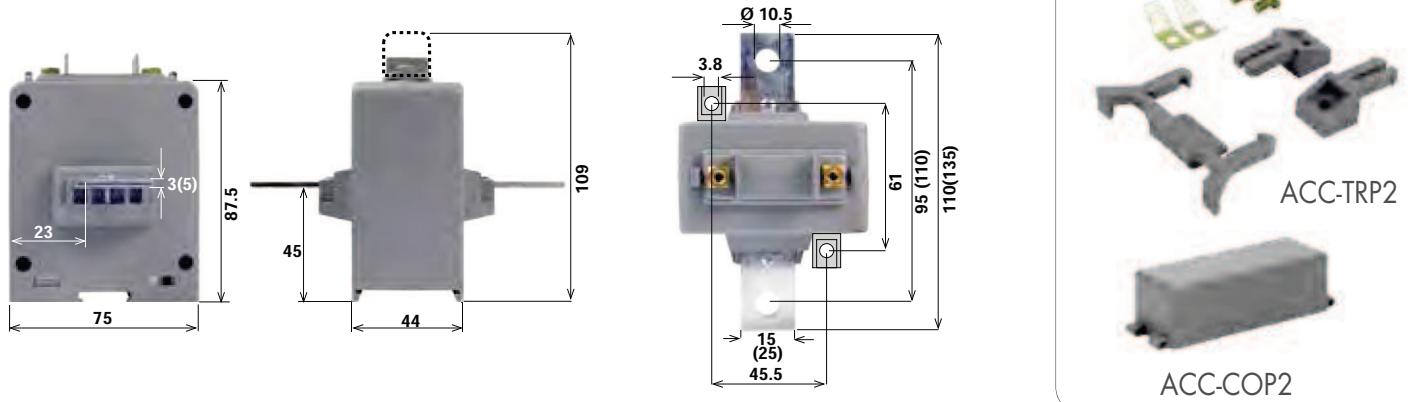
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
1	1	TCP1A-001A-420MA-1	TCP1A-001A-420MA-1-230	TCP1-001A-20MA-1	TCP1-001A-10V-1	0,5
5	1	TCP1A-005A-420MA-1	TCP1A-005A-420MA-1-230	TCP1-005A-20MA-1	TCP1-005A-10V-1	0,5
10	1	TCP1A-010A-420MA-1	TCP1A-010A-420MA-1-230	TCP1-010A-20MA-1	TCP1-010A-10V-1	0,5
15	1	TCP1A-015A-420MA-1	TCP1A-015A-420MA-1-230	TCP1-015A-20MA-1	TCP1-015A-10V-1	0,5
20	1	TCP1A-020A-420MA-1	TCP1A-020A-420MA-1-230	TCP1-020A-20MA-1	TCP1-020A-10V-1	0,5
25	1	TCP1A-025A-420MA-1	TCP1A-025A-420MA-1-230	TCP1-025A-20MA-1	TCP1-025A-10V-1	0,5
30	1	TCP1A-030A-420MA-1	TCP1A-030A-420MA-1-230	TCP1-030A-20MA-1	TCP1-030A-10V-1	0,5
40	1	TCP1A-040A-420MA-1	TCP1A-040A-420MA-1-230	TCP1-040A-20MA-1	TCP1-040A-10V-1	0,5



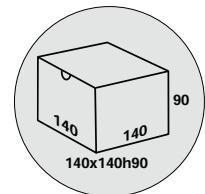
TMEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TCP2...

Wounded primary current transformer with primary and secondary current on terminals



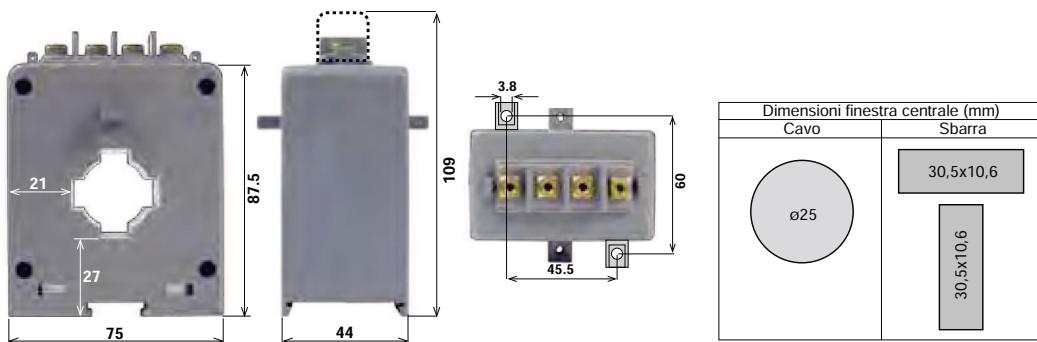
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
50	1	TCP2A-050A-420MA-1	TCP2A-050A-420MA-1-230	TCP2-050A-20MA-1	TCP2-050A-20MA-1	0,5
60	1	TCP2A-060A-420MA-1	TCP2A-060A-420MA-1-230	TCP2-060A-20MA-1	TCP2-060A-20MA-1	0,5
75	1	TCP2A-075A-420MA-1	TCP2A-075A-420MA-1-230	TCP2-075A-20MA-1	TCP2-075A-20MA-1	0,5
80	1	TCP2A-080A-420MA-1	TCP2A-080A-420MA-1-230	TCP2-080A-20MA-1	TCP2-080A-20MA-1	0,5



MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC43...

Transformer suitable for primary current by cable with a maximum diameter of 25mm; by vertical or horizontal bar with a maximum size of 30x10mm. and secondary current on terminals.



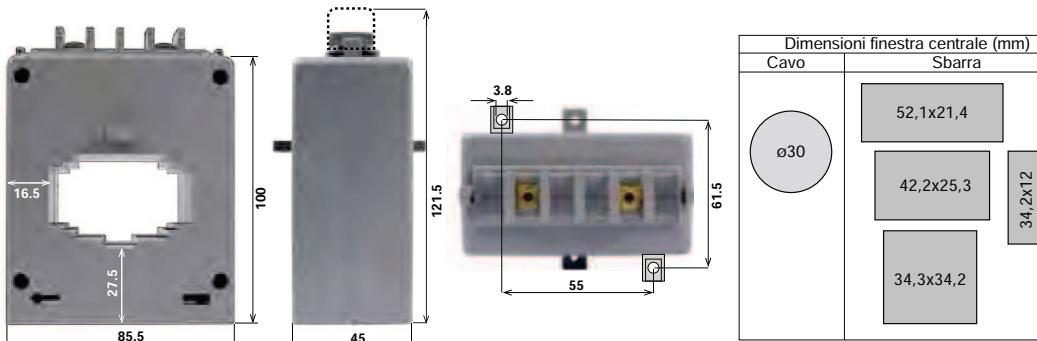
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
50	1	TC43A-050A-420MA-1	TC43A-050A-420MA-1-230	TC43-050A-20MA-1	TC43-050A-10V-1	0,7
60	1	TC43A-060A-420MA-1	TC43A-060A-420MA-1-230	TC43-060A-20MA-1	TC43-060A-10V-1	0,7
75	1	TC43A-075A-420MA-1	TC43A-075A-420MA-1-230	TC43-075A-20MA-1	TC43-075A-10V-1	0,7
80	1	TC43A-080A-420MA-1	TC43A-080A-420MA-1-230	TC43-080A-20MA-1	TC43-080A-10V-1	0,7
100	1	TC43A-100A-420MA-1	TC43A-100A-420MA-1-230	TC43-100A-20MA-1	TC43-100A-10V-1	0,7
120	1	TC43A-120A-420MA-1	TC43A-120A-420MA-1-230	TC43-120A-20MA-1	TC43-120A-10V-1	0,7
125	1	TC43A-125A-420MA-1	TC43A-125A-420MA-1-230	TC43-125A-20MA-1	TC43-125A-10V-1	0,7
150	1	TC43A-150A-420MA-1	TC43A-150A-420MA-1-230	TC43-150A-20MA-1	TC43-150A-10V-1	0,7
200	1	TC43A-200A-420MA-1	TC43A-200A-420MA-1-230	TC43-200A-20MA-1	TC43-200A-10V-1	0,7
250	1	TC43A-250A-420MA-1	TC43A-250A-420MA-1-230	TC43-250A-20MA-1	TC43-250A-10V-1	0,7
300	1	TC43A-300A-420MA-1	TC43A-300A-420MA-1-230	TC43-300A-20MA-1	TC43-300A-10V-1	0,7
400	1	TC43A-400A-420MA-1	TC43A-400A-420MA-1-230	TC43-400A-20MA-1	TC43-400A-10V-1	0,7
500	1	TC43A-500A-420MA-1	TC43A-500A-420MA-1-230	TC43-500A-20MA-1	TC43-500A-10V-1	0,7

The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR43 (5A secondary) with corresponding primary current (eg. TR43-200A). See wiring diagram on page 25.

MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

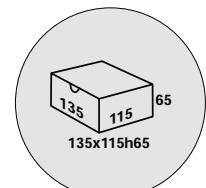
TC5...

Transformer suitable for primary current by cable with a maximum diameter of 30mm; by horizontal bar with a maximum size of 30x30mm, 40x25mm, 50x20mm; by vertical bar with maximum dimensions of 30x10mm. and secondary current on terminals.



Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
100	1	TC5A-100A-420MA-1	TC5A-100A-420MA-1-230	TC5-100A-20MA-1	TC5-100A-10V-1	0,7
150	1	TC5A-150A-420MA-1	TC5A-150A-420MA-1-230	TC5A-150A-20MA-1	TC5-150A-10V-1	0,7
200	1	TC5A-200A-420MA-1	TC5A-200A-420MA-1-230	TC5A-200A-20MA-1	TC5-200A-10V-1	0,7
250	1	TC5A-250A-420MA-1	TC5A-250A-420MA-1-230	TC5A-250A-20MA-1	TC5-250A-10V-1	0,7
300	1	TC5A-300A-420MA-1	TC5A-300A-420MA-1-230	TC5A-300A-20MA-1	TC5-300A-10V-1	0,7
400	1	TC5A-400A-420MA-1	TC5A-400A-420MA-1-230	TC5A-400A-20MA-1	TC5-400A-10V-1	0,7
500	1	TC5A-500A-420MA-1	TC5A-500A-420MA-1-230	TC5A-500A-20MA-1	TC5-500A-10V-1	0,7
600	1	TC5A-600A-420MA-1	TC5A-600A-420MA-1-230	TC5A-600A-20MA-1	TC5-600A-10V-1	0,7
750	1	TC5A-750A-420MA-1	TC5A-750A-420MA-1-230	TC5A-750A-20MA-1	TC5-750A-10V-1	0,7
800	1	TC5A-800A-420MA-1	TC5A-800A-420MA-1-230	TC5A-800A-20MA-1	TC5-800A-10V-1	0,7
1000	1	TC5A-1K0A-420MA-1	TC5A-1K0A-420MA-1-230	TC5A-1K0A-20MA-1	TC5-1K0A-10V-1	0,7
1200	1	TC5A-1K2A-420MA-1	TC5A-1K2A-420MA-1-230	TC5A-1K2A-20MA-1	TC5-1K2A-10V-1	0,7
1250	1	TC5A-1K25A-420MA-1	TC5A-1K25A-420MA-1-230	TC5A-1K25A-20MA-1	TC5-1K25A-10V-1	0,7
1500	1	TC5A-1K5A-420MA-1	TC5A-1K5A-420MA-1-230	TC5A-1K5A-20MA-1	TC5-1K5A-10V-1	0,7

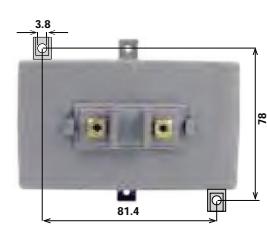
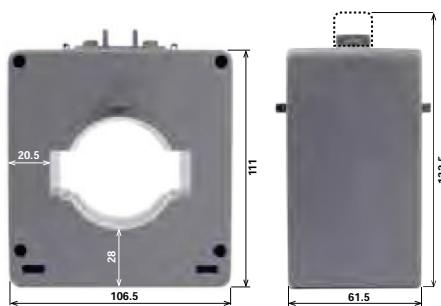
The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR5 (5A secondary) with corresponding primary current (eg. TR5-600A). See wiring diagram on page 25.



MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC6...

Transformer suitable for primary current by cable with a maximum diameter of 50mm; by horizontal bar with a maximum size of 50x20mm, 60x20mm and secondary current on terminals. With separate power supply, an auxiliary 2-pole terminal is mounted.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
ø50	64,7x20,4
	54,4x22,5



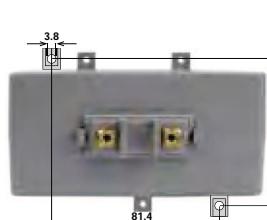
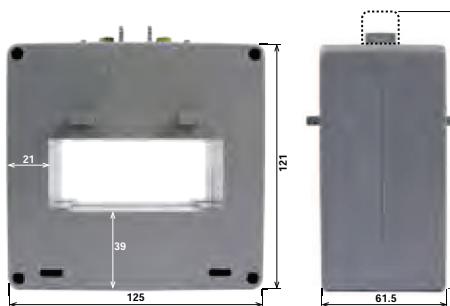
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
250	1	TC6A-250A-420MA-1	TC6A-250A-420MA-1-230	TC6A-250A-20MA-1	TC6-250A-10V-1	1
300	1	TC6A-300A-420MA-1	TC6A-300A-420MA-1-230	TC6A-300A-20MA-1	TC6-300A-10V-1	1
400	1	TC6A-400A-420MA-1	TC6A-400A-420MA-1-230	TC6A-400A-20MA-1	TC6-400A-10V-1	1
500	1	TC6A-500A-420MA-1	TC6A-500A-420MA-1-230	TC6A-500A-20MA-1	TC6-500A-10V-1	1
600	1	TC6A-600A-420MA-1	TC6A-600A-420MA-1-230	TC6A-600A-20MA-1	TC6-600A-10V-1	0,7
750	1	TC6A-750A-420MA-1	TC6A-750A-420MA-1-230	TC6A-750A-20MA-1	TC6-750A-10V-1	0,7
800	1	TC6A-800A-420MA-1	TC6A-800A-420MA-1-230	TC6A-800A-20MA-1	TC6-800A-10V-1	0,7
1000	1	TC6A-1K0A-420MA-1	TC6A-1K0A-420MA-1-230	TC6A-1K0A-20MA-1	TC6-1K0A-10V-1	0,7
1200	1	TC6A-1K2A-420MA-1	TC6A-1K2A-420MA-1-230	TC6A-1K2A-20MA-1	TC6-1K2A-10V-1	0,7
1250	1	TC6A-1K25A-420MA-1	TC6A-1K25A-420MA-1-230	TC6A-1K25A-20MA-1	TC6-1K25A-10V-1	0,8
1500	1	TC6A-1K5A-420MA-1	TC6A-1K5A-420MA-1-230	TC6A-1K5A-20MA-1	TC6-1K5A-10V-1	0,8
1600	1	TC6A-1K6A-420MA-1	TC6A-1K6A-420MA-1-230	TC6A-1K6A-20MA-1	TC6-1K6A-10V-1	0,8
2000	1	TC6A-2K0A-420MA-1	TC6A-2K0A-420MA-1-230	TC6A-2K0A-20MA-1	TC6-2K0A-10V-1	0,8
2500	1	TC6A-2K5A-420MA-1	TC6A-2K5A-420MA-1-230	TC6A-2K5A-20MA-1	TC6-2K5A-10V-1	1

The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR6 (5A secondary) with corresponding primary current (eg. TR6-800A -...). See wiring diagram on page 25.

MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC8...

Transformer suitable for primary current by one or two cables with a maximum diameter of 30mm; by horizontal bar with a maximum size of 60x30mm, 80x30mm and secondary current on terminals. With separate power supply, an auxiliary 2-pole terminal is mounted.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
ø30	82,5x32,5
	64,7x34,6



Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
400	1	TC8A-400A-420MA-1	TC8A-400A-420MA-1-230	TC8A-400A-20MA-1	TC8-400A-10V-1	0,8
500	1	TC8A-500A-420MA-1	TC8A-500A-420MA-1-230	TC8A-500A-20MA-1	TC8-500A-10V-1	1
600	1	TC8A-600A-420MA-1	TC8A-600A-420MA-1-230	TC8A-600A-20MA-1	TC8-600A-10V-1	1
750	1	TC8A-750A-420MA-1	TC8A-750A-420MA-1-230	TC8A-750A-20MA-1	TC8-750A-10V-1	0,7
800	1	TC8A-800A-420MA-1	TC8A-800A-420MA-1-230	TC8A-800A-20MA-1	TC8-800A-10V-1	0,7
1000	1	TC8A-1K0A-420MA-1	TC8A-1K0A-420MA-1-230	TC8A-1K0A-20MA-1	TC8-1K0A-10V-1	0,7
1200	1	TC8A-1K2A-420MA-1	TC8A-1K2A-420MA-1-230	TC8A-1K2A-20MA-1	TC8-1K2A-10V-1	0,7
1250	1	TC8A-1K25A-420MA-1	TC8A-1K25A-420MA-1-230	TC8A-1K25A-20MA-1	TC8-1K25A-10V-1	1
1500	1	TC8A-1K5A-420MA-1	TC8A-1K5A-420MA-1-230	TC8A-1K5A-20MA-1	TC8-1K5A-10V-1	1
1600	1	TC8A-1K6A-420MA-1	TC8A-1K6A-420MA-1-230	TC8A-1K6A-20MA-1	TC8-1K6A-10V-1	1
2000	1	TC8A-2K0A-420MA-1	TC8A-2K0A-420MA-1-230	TC8A-2K0A-20MA-1	TC8-2K0A-10V-1	1
2500	1	TC8A-2K5A-420MA-1	TC8A-2K5A-420MA-1-230	TC8A-2K5A-20MA-1	TC8-2K5A-10V-1	1
3000	1	TC8A-3K0A-420MA-1	TC8A-3K0A-420MA-1-230	TC8A-3K0A-20MA-1	TC8-3K0A-10V-1	1,5

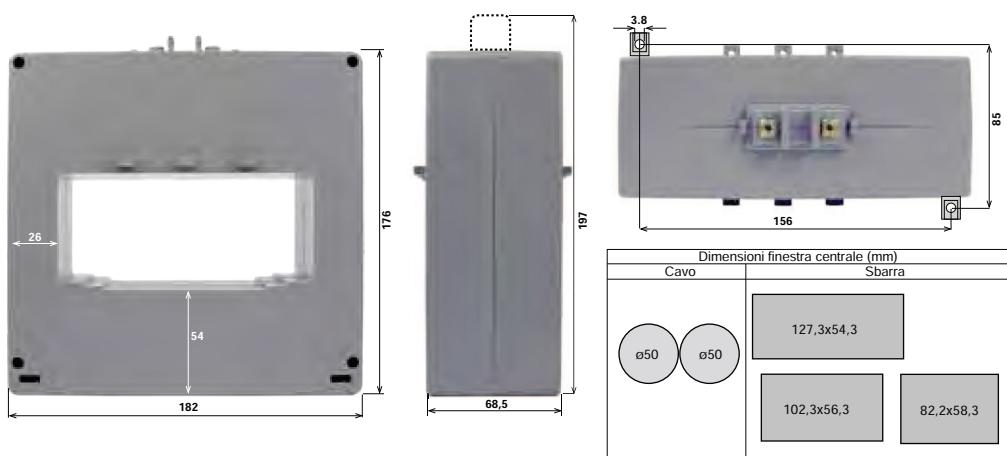
The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR8 (5A secondary) with corresponding primary current (eg. TR8-800A -...). See wiring diagram on page 25.

MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC12...

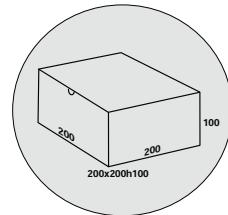
Transformer suitable for primary current by one or two cables with a maximum diameter of 50mm; by horizontal bar with a maximum size 80x50mm, 100x50mm, 125x50mm and secondary current on terminals.

With separate power supply, an auxiliary 2-pole terminal is mounted.



Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
400	1	TC12A-400A-420MA-1	TC12A-400A-420MA-1-230	TC12A-400A-20MA-1	TC12-400A-10V-1	1
500	1	TC12A-500A-420MA-1	TC12A-500A-420MA-1-230	TC12A-500A-20MA-1	TC12-500A-10V-1	1
600	1	TC12A-600A-420MA-1	TC12A-600A-420MA-1-230	TC12A-600A-20MA-1	TC12-600A-10V-1	1
750	1	TC12A-750A-420MA-1	TC12A-750A-420MA-1-230	TC12A-750A-20MA-1	TC12-750A-10V-1	1
800	1	TC12A-800A-420MA-1	TC12A-800A-420MA-1-230	TC12A-800A-20MA-1	TC12-800A-10V-1	1
1000	1	TC12A-1K0A-420MA-1	TC12A-1K0A-420MA-1-230	TC12A-1K0A-20MA-1	TC12-1K0A-10V-1	1
1200	1	TC12A-1K2A-420MA-1	TC12A-1K2A-420MA-1-230	TC12A-1K2A-20MA-1	TC12-1K2A-10V-1	1
1250	1	TC12A-1K25A-420MA-1	TC12A-1K25A-420MA-1-230	TC12A-1K25A-20MA-1	TC12-1K25A-10V-1	1
1500	1	TC12A-1K5A-420MA-1	TC12A-1K5A-420MA-1-230	TC12A-1K5A-20MA-1	TC12-1K5A-10V-1	1
1600	1	TC12A-1K6A-420MA-1	TC12A-1K6A-420MA-1-230	TC12A-1K6A-20MA-1	TC12-1K6A-10V-1	1
2000	1	TC12A-2K0A-420MA-1	TC12A-2K0A-420MA-1-230	TC12A-2K0A-20MA-1	TC12-2K0A-10V-1	1
2500	1	TC12A-2K5A-420MA-1	TC12A-2K5A-420MA-1-230	TC12A-2K5A-20MA-1	TC12-2K5A-10V-1	1,5
3000	1	TC12A-3K0A-420MA-1	TC12A-3K0A-420MA-1-230	TC12A-3K0A-20MA-1	TC12-3K0A-10V-1	1,5
4000	1	TC12A-4K0A-420MA-1	TC12A-4K0A-420MA-1-230	TC12A-4K0A-20MA-1	TC12-4K0A-10V-1	2

The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR12 (5A secondary) with corresponding primary current (eg. TR12-750A ...). See wiring diagram on page 25.



RATIO CORRECTION TRANSFORMERS -TCRP SERIES

Range of transformers used when it is necessary to correct the transformation ratio of the main CT, to adapt it to specific needs of the measurement circuit or to recover the phase shift caused by the connection star / delta, filtering out any homopolar currents. Different characteristics can be made on request.
When ordering, specify the exact value of the primary and secondary current.

ASSEMBLY INSTRUCTIONS



With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

- The mounting on DIN rail EN 50022 is performed using the fork accessory
- The wall mounting using the two brackets
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



DIN rail mounting



Wall mounting



Mounting on cable or primary busbar



WIRING INSTRUCTIONS

Connect the cables as shown.

The cable of the primary current must be connected to the terminals, paying attention to the direction of flow as shown in figure.

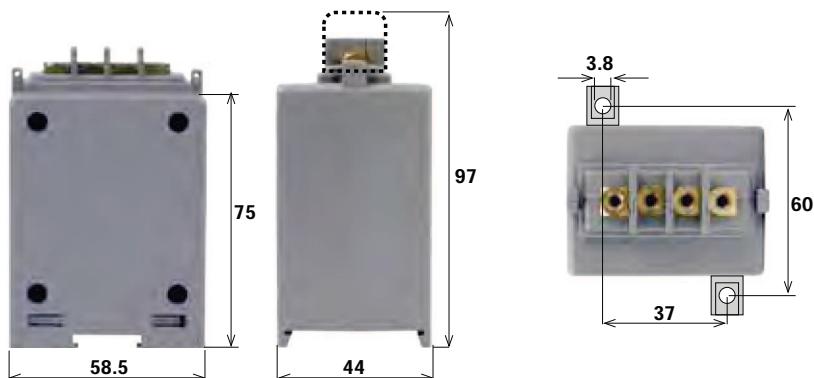
TABLE OF CODES

Family ID	TCR	P1	-37.5	A	2	-0.5	-10	VA	-Y	-R	-T	-X	-
Dimensions central window													
P1E=Primary and secondary on terminals													
P1=Primary and secondary on terminals													
Primary current	mention the values between 0,1A and 40A												
A	Ampère												
Secondary Current	mention the values between 0,2A and 10A												
Class	0,5												
Power	2; 10												
VA	Volt - Ampère												
Y	Tropicalized Version												
R	Resin antivibration version												
T	version with housing resistant to high temperatures												
X	Anonymous version												
Other possible data for a total of 30 characters. Example: value of FS													

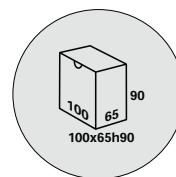
RATIO CORRECTION MEASURING TRANSFORMERS

TCRP1E

Wound primary current transformer with primary and secondary on terminals



Primary current	Secondary current	Class	Power	Weight
A	A		VA	Kg
da 0,1 a 40	da 0,2 a 10	0.5	2	0,30

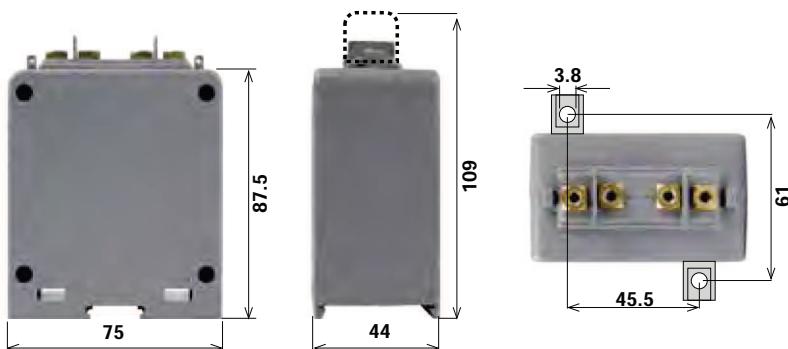


Example: TCRP1E-0.25A1-0.5-2VA

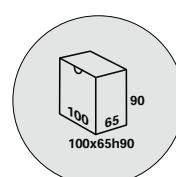
RATIO CORRECTION MEASURING TRANSFORMERS

TCRP1

Wound primary current transformer with primary and secondary on terminals



Primary current	Secondary current	Class	Power	Weight
A	A		VA	Kg
da 0,5 a 40	da 0,5 a 10	0.5	10	0,40



Examples: TCRP1-37.5A2-0.5-10VA
TCRP1-0.30A0.75-0.5-10VA

CURRENT TRANSFORMERS - TE SERIES

Range of toroidal transformers, with magnetic core fitted into a thermoplastic ABS, self-extinguishing case, according to UL94-V0, embedded in epoxy resin named ISEPOX. Transformers specifically developed for installation in electrical substations related to the medium voltage network, with a maximum voltage of service for the isolation of 0,72kV, where the cable of the primary current is already being isolated for voltages up to 24kV. Within this range there are transformers specifically produced in compliance with CEI 0-16 edition II-July 2008.



ASSEMBLY INSTRUCTIONS

The fixing of this type of toroids is provided in the wall through the brackets obtained directly from the mold.

Considering the high weight of these transformers, we recommend to do not use any other method of fixation, and in any case never use the cable / busbar as support for the same.

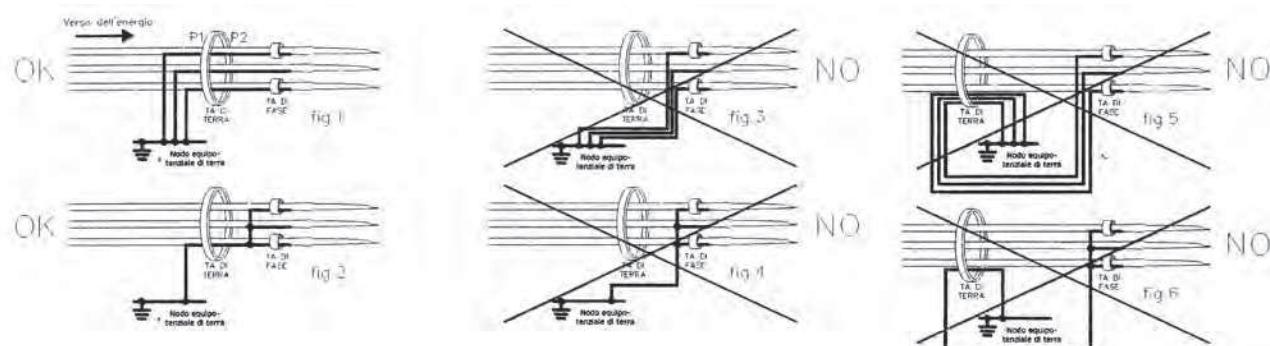
WIRING INSTRUCTIONS

Connect the cables as shown. The cable inserted in the center window of the CT. gives the primary current.



Legenda:

- 1) Phase CT
- 2) Ground CT (all the 3 MT cables have obligatorily to pass through it)
- 3) Shield of MT cables
- 4) Isolated junction between the MT shield cable and the ground conductor
- 5) Wires of MT ground shield cable
- 6) Equipotential node of ground
- 7) Signal cable of the ground CT



WARNING: mandatory instructions for a smooth passage of the grounding conductors of the MT cable shield within the phase CTs and the ground CT.

- 1) In order to cancel the current circulating in the MT cable shield MT, pass the conductors of ground shields, to the internal of the phase CT and to the internal of the ground CT before connecting them to the ground equipotential node (see figure 1 or alternatively figure 2).
- 2) A link as in figure 3 or 4 can cause accidental tripping of the earth fault protection (functions 50N or 51N or 67N).
- 3) Passing the conductors to the internal of the ground CT, pay attention to the direction, avoiding to make connections as shown in figure 5 or 6.
- 4) It is recommended that the earthing of the MT cable shields is made with insulated wires, so as to avoid any contact with metal parts to the ground before passing inside the ground CT and the phase CT.
- 5) In the case of installations with directional earth fault protection (67N function) it is necessary to pay attention also to the direction of ground CT installation. You must be sure that the energy always flows from P1 to P2.

TABELLA DI CODIFICA

	TE	070	-300	A	5	1	-10	-VA	-Y	-T	-X	-	AI
Family ID													
Dimensions central window	070=70 mm 105 e 105D=105 mm 210=210 mm 320=320 mm												
Primary current	40=40A; 50=50A; 60=60A; 75=75A; 80=80A; 100=100A; 125=125A; 150=150A; 200=200A; 250=250A; 300=300A; 400=400A; 500=500A; 600=600A; 750=750A; 800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A; 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A; 4k0=4000A; 5k0=5000A; 6k0=5000A												
A	Ampère												
Secondary Current	1=1A; 5=5A												
Class	0,5; 1; 5P5; 5P10; 5P15; 5P20												
Power	0,5; 10												
VA	Volt - Ampère												
Y	Tropicalised Version												
T	Version with housing resistant to high temperatures												
X	Anonymous version												
Other possible data for a total of 30 characters. Example: value of FS													
Automatically appropriate													

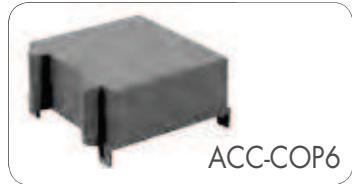
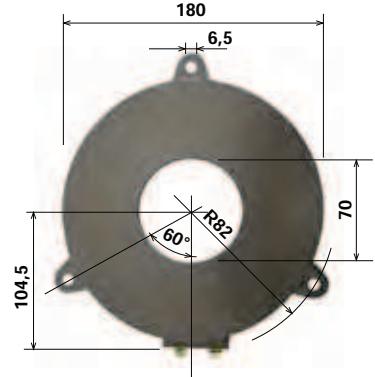
TECHNICAL DATA

Nominal primary current:	from 40A to 6000A, to communicate when ordering 5A o 1A, da comunicare in fase d'ordine
Secondary current:	5A o 1A, da comunicare in fase d'ordine
Number of primary windings:	1 o 2. a richiesta
Number of secondary windings:	1 o 2. a richiesta
Operating frequency:	60Hz
Test voltage:	3kV/1minuto
Insulation:	Class E
Permanent overload:	120%
Thermal short-circuit current (Ith):	fino a 40kA/1secondo
Dynamic short circuit current(Idyn):	2,5 x Ith
Protection degree:	IP40
Safety factor (Fs):	<10 per i trasformatori di misura
Operating temperature:	-20°C.....+40°C
Storage temperature:	-40°C.....+80°C
Indoor installation	
Construction according to CEI EN60044-1	
Power and class, on request	

When offer / order is requested, communicate the transformation ratio (primary current / secondary current), class (e.g.: cl. 0,5; 5P10) and power (VA)

MEASURING AND PROTECTION TRANSFORMERS

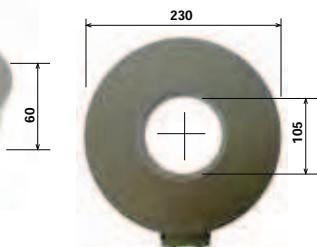
TE070



ACC-COP6

MEASURING AND PROTECTION TRANSFORMERS

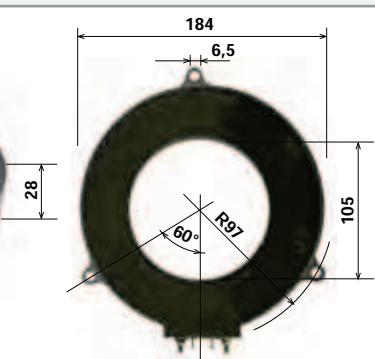
TE105



ACC-COP6

MEASURING AND PROTECTION TRANSFORMERS

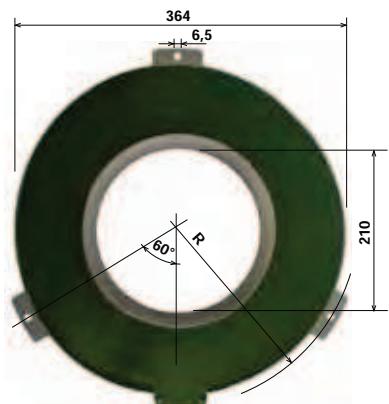
TE105D



ACC-COP1

MEASURING AND PROTECTION TRANSFORMERS

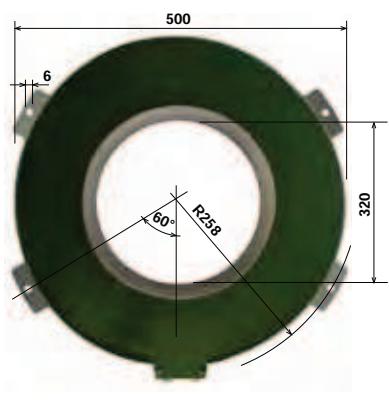
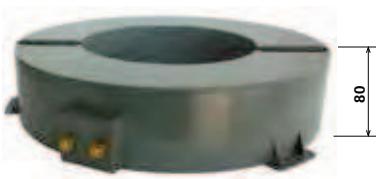
TE210



ACC-COP6

MEASURING AND PROTECTION TRANSFORMERS

TE320



ACC-COP6

PROTECTION TRANSFORMERS

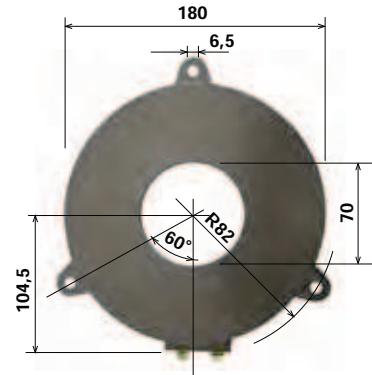
TE070

Current transformers for protection of the maximum current, defined by CEI 0-16 as "Automatically appropriate". They are dedicated to the powering of the not integrated general protection system (SPG), whose primary function is precisely to protect, in the most selective possible way, the network of the Distributor in case of failure within the network of the customer, and not the electrical equipments.

The transformers of TE range must be able to power, with acceptable errors, the protection in the range of variability expected for the primary current fault.

TECHNICAL DATA

Insulation class:	II	Nominal continuous thermal current	1,2 lpn
Short-circuit thermal current (I _{th}):	12,5/16kA/1second	Nominal dynamic current:	31,5/40kA pk
Test voltage:	3kV/1 minute	Operating temperature:	-20°C .. +40°C
Storage temperature:	-40°C.....+80°C	Operating frequency:	50/60Hz
Insulation class (EN60085):	A	Protection degree:	IP40
Construction according to	CEI EN60044-1	Impact test according to	CEI EN60309-5J
Tracking resistance according to	IEC 112-500V	Installazione per interno	



Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
300	5P30	10	TE070-300A5-5P30-10VA		10
300	5P30	5	TE070-300A1-5P30-5VA		10

PROTECTION TRANSFORMERS

TE105

Current transformers for protection of the maximum current, defined by CEI 0-16 as "Automatically appropriate". The homopolar transformer must be able to power, with acceptable errors, the protection (SPG) in the expected range of variability for the primary current fault.

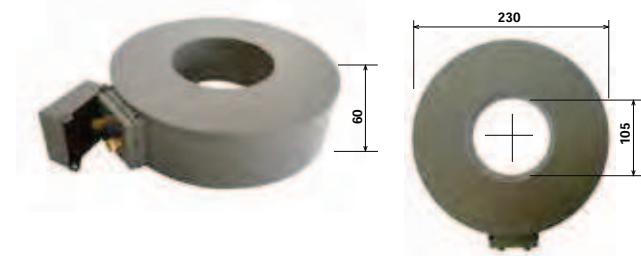
TECHNICAL DATA

Insulation class:	II	Nominal continuous thermal current	800A
Short-circuit thermal current (I _{th}):	12,5/16kA/1second	Nominal dynamic current:	31,5/40kA pk
Test voltage:	3kV/1 minute	Operating temperature:	-20°C .. +40°C
Storage temperature:	-40°C.....+80°C	Operating frequency:	50/60Hz
Insulation class (EN60085):	A	Protection degree:	IP40
Construction according to	CEI EN60044-1	Impact test according to	CEI EN60309-5J
Tracking resistance according to	IEC 112-500V	Installazione per interno	

Ratio errors and allowed angle table

Current [I/I _n]	Ratio error [%]	Angle error [°]
0,01	+/- 5	+/- 2
0,05	+/- 1	+/- 2
1	+/- 1	+/- 2
20	+/- 5	+/- 2

Primary current	Class	Power	Secondary current	Weight
A	VA	2	1A	Kg
100			TE105-100A1-5P20-2VA-AI	9

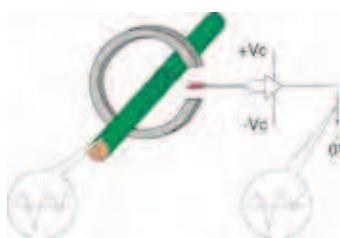


TE105

"HALL EFFECT" DC CURRENT TRANSFORMERS - TH SERIES

Range of transformers used in alternative to Shunts, when high voltages are present in the system and therefore higher galvanic separations are required. Standard auxiliary power supply 230VAC, others on request - Response time : 500 ms Resistive load: 500 maximum - Test voltage: 0,72kV/3 kV - Power consumption: <2,5VA
Unidirectional positive and negative output, excluding secondary 4/20mA. Other specifications on request.

OPERATIVE PRINCIPLE



The operating principle "Open Loop (O / L) is given by the magnetic flux created by the primary current (I_p) which is concentrated in a magnetic circuit and measured in the open part of the toroid through the Hall sensor.

The output signal from the plate then is exactly the value of the primary current



The function of the sensor is based on the "Hall effect" galvano-magnetic principle, named after the discovery of the American physicist Edwin Herbert Hall; namely the formation of a difference of potential on the opposite faces of the electrical conductor, due to a magnetic field perpendicular to the electric current that flows in it.

ASSEMBLY INSTRUCTIONS

With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

- The mounting on DIN rail EN 50022 is performed using the fork accessory
- The wall mounting using the two brackets
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



DIN rail mounting



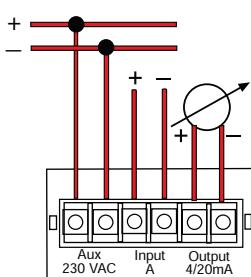
Wall mounting



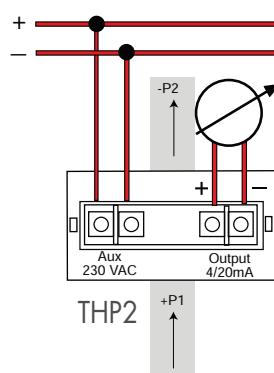
Mounting on cable or primary busbar

WIRING INSTRUCTIONS

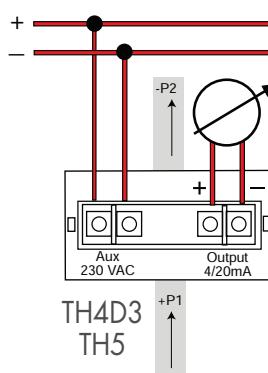
Connect the cables as in figure, depending of the type in use



THP1



THP2



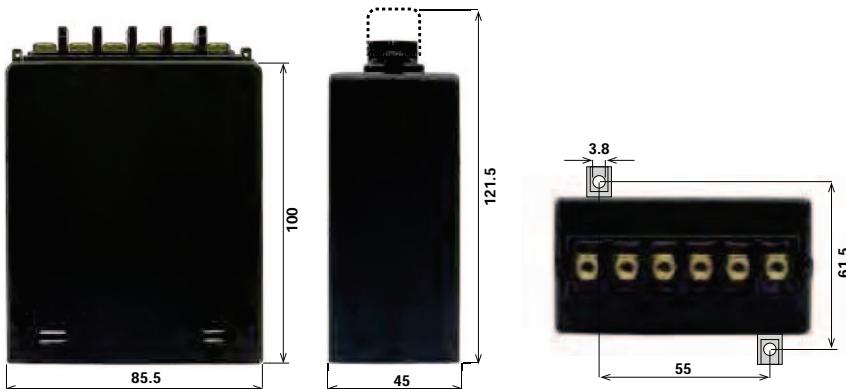
TH4D3
TH5

The cable of the primary current must be connected to the terminals, paying attention to the direction of the current flow as shown in the figure, in the wounded primary models.

"HALL EFFECT" DC CURRENT TRANSFORMERS

THP1

Primary wounded current transformer with primary and secondary on terminals



Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
1	1	THP1-1/420MA-1-230V	THP1-1/20MA-1-230V	THP1-1/10V-1-230V	0,5
5	1	THP1-5/420MA-1-230V	THP1-5/20MA-1-230V	THP1-5/10V-1-230V	0,5
10	1	THP1-10/420MA-1-230V	THP1-10/20MA-1-230V	THP1-10/10V-1-230V	0,5
15	1	THP1-15/420MA-1-230V	THP1-15/20MA-1-230V	THP1-15/10V-1-230V	0,5
20	1	THP1-20/420MA-1-230V	THP1-20/20MA-1-230V	THP1-20/10V-1-230V	0,5
25	1	THP1-25/420MA-1-230V	THP1-25/20MA-1-230V	THP1-25/10V-1-230V	0,5
30	1	THP1-30/420MA-1-230V	THP1-30/20MA-1-230V	THP1-30/10V-1-230V	0,5
40	1	THP1-40/420MA-1-230V	THP1-40/20MA-1-230V	THP1-40/10V-1-230V	0,5

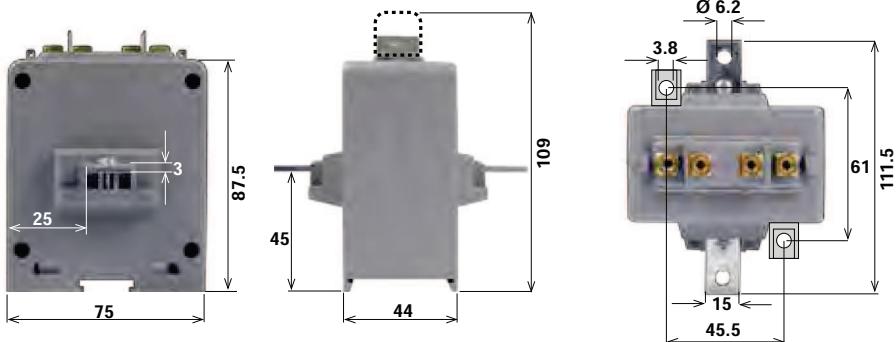
"HALL EFFECT" DC CURRENT TRANSFORMERS

THP2

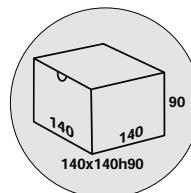
Primary wounded current transformer with primary current by incorporated bar and secondary current on terminals
Bar 15x3x110 mm up to 200A

Bar 25x3x135 mm for 250A and 300A

Bar 25x5x135 mm for 400A



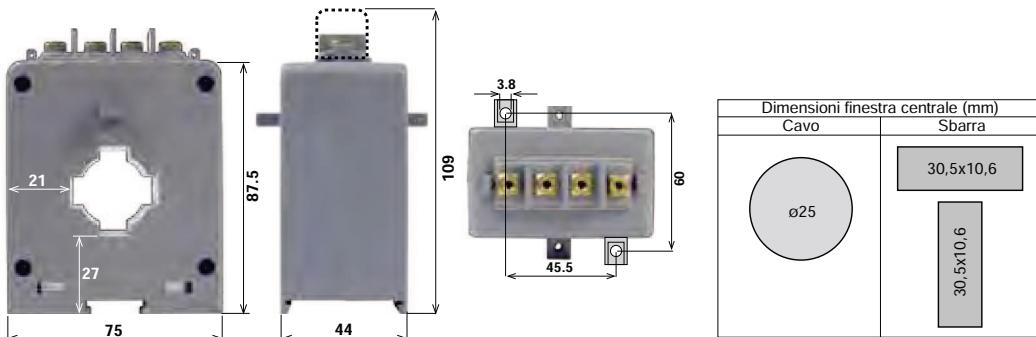
Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
50	1	THP2-50/420MA-1-230V	THP2-50/20MA-1-230V	THP2-50/10V-1-230V	0,5
60	1	THP2-60/420MA-1-230V	THP2-60/20MA-1-230V	THP2-60/10V-1-230V	0,5
75	1	THP2-75/420MA-1-230V	THP2-75/20MA-1-230V	THP2-75/10V-1-230V	0,5
80	1	THP2-80/420MA-1-230V	THP2-80/20MA-1-230V	THP2-80/10V-1-230V	0,5
100	1	THP2-100/420MA-1-230V	THP2-100/20MA-1-230V	THP2-100/10V-1-230V	0,5
125	1	THP2-125/420MA-1-230V	THP2-125/20MA-1-230V	THP2-125/10V-1-230V	0,5
150	1	THP2-150/420MA-1-230V	THP2-150/20MA-1-230V	THP2-150/10V-1-230V	0,5
200	1	THP2-200/420MA-1-230V	THP2-200/20MA-1-230V	THP2-200/10V-1-230V	0,5
250	1	THP2-250/420MA-1-230V	THP2-250/20MA-1-230V	THP2-250/10V-1-230V	
300	1	THP2-300/420MA-1-230V	THP2-300/20MA-1-230V	THP2-300/10V-1-230V	
400	1	THP2-400/420MA-1-230V	THP2-400/20MA-1-230V	THP2-400/10V-1-230V	



"HALL EFFECT" DC CURRENT TRANSFORMERS

TH43

Transformer suitable for primary current by cable with a maximum diameter of 25mm; by vertical or horizontal bar with a maximum size of 30x10mm., and secondary current on terminals.

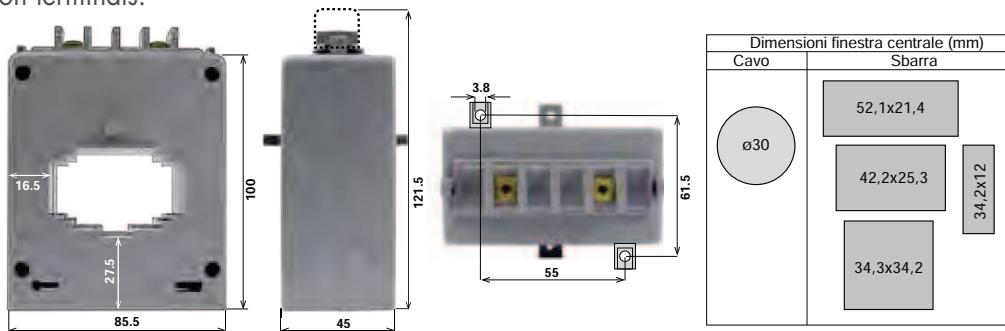


Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
50	1	TH43-50/420MA-1-230V	TH43-50/20MA-1-230V	TH43-50/10V-1-230V	0,5
60	1	TH43-60/420MA-1-230V	TH43-60/20MA-1-230V	TH43-60/10V-1-230V	0,5
75	1	TH43-75/420MA-1-230V	TH43-75/20MA-1-230V	TH43-75/10V-1-230V	0,5
80	1	TH43-80/420MA-1-230V	TH43-80/20MA-1-230V	TH43-80/10V-1-230V	0,5
100	1	TH43-100/420MA-1-230V	TH43-100/20MA-1-230V	TH43-100/10V-1-230V	0,5
120	1	TH43-120/420MA-1-230V	TH43-120/20MA-1-230V	TH43-120/10V-1-230V	0,5
125	1	TH43-125/420MA-1-230V	TH43-125/20MA-1-230V	TH43-125/10V-1-230V	0,5
150	1	TH43-150/420MA-1-230V	TH43-150/20MA-1-230V	TH43-150/10V-1-230V	0,5
200	1	TH43-200/420MA-1-230V	TH43-200/20MA-1-230V	TH43-200/10V-1-230V	0,5
250	1	TH43-250/420MA-1-230V	TH43-250/20MA-1-230V	TH43-250/10V-1-230V	0,5
300	1	TH43-300/420MA-1-230V	TH43-300/20MA-1-230V	TH43-300/10V-1-230V	0,5
400	1	TH43-400/420MA-1-230V	TH43-400/20MA-1-230V	TH43-400/10V-1-230V	0,5

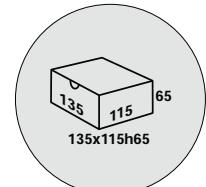
"HALL EFFECT" DC CURRENT TRANSFORMERS

TH5

Transformer suitable for primary current by cable with a maximum diameter of 30mm; by horizontal bar with a maximum size of 30x30mm, 40x25mm, 50x20mm; by vertical bar with maximum dimensions of 30x10mm., and secondary current on terminals.



Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
100	1	TH5-100/420MA-1-230V	TH5-100/20MA-1-230V	TH5-100/10V-1-230V	0,5
120	1	TH5-120/420MA-1-230V	TH5-120/20MA-1-230V	TH5-120/10V-1-230V	0,5
125	1	TH5-125/420MA-1-230V	TH5-125/20MA-1-230V	TH5-125/10V-1-230V	0,5
150	1	TH5-150/420MA-1-230V	TH5-150/20MA-1-230V	TH5-150/10V-1-230V	0,5
200	1	TH5-200/420MA-1-230V	TH5-200/20MA-1-230V	TH5-200/10V-1-230V	0,5
250	1	TH5-250/420MA-1-230V	TH5-250/20MA-1-230V	TH5-250/10V-1-230V	0,5
300	1	TH5-300/420MA-1-230V	TH5-300/20MA-1-230V	TH5-300/10V-1-230V	0,5
400	1	TH5-400/420MA-1-230V	TH5-400/20MA-1-230V	TH5-400/10V-1-230V	0,5



CURRENT TRANSFORMERS - TM SERIES

ELECTRONIC USE TRANSFORMERS - TM EL ... SERIES

Range of transformers characterized by a small size, indicated in all those installations where space has considerable importance; the presence of Fast-On (6.3mm) terminals, also allows a significant reduction of wiring time.

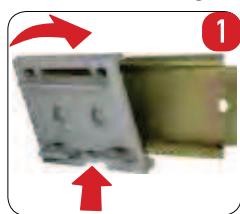
ASSEMBLY INSTRUCTIONS

With the transformer it is provided a socket containing a series of accessories that depending on the model, allow various types of fixations;

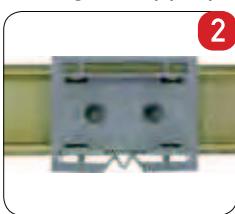
- The mounting on DIN rail EN 50022 is performed using the base ACC-TM1-3 or ACC-TM4-5
- The wall mounting using the two brackets or the basis mentioned above
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

DIN rail-mounting



Using the appropriate base for codes TM1-TM3-TM4-TM5



Place the choice base on the bar and press as shown in figures (1-2)

Position the transformer on the base previously assembled and press as shown in figure (3)

Wall fixing



For codes TM1-TM3-TM4-TM5

Secure the base to the wall with two screws (not supplied), then attach the transformer as shown in the previous figures.

For the code TM6.

Insert the brackets into the proper places as shown in the figure and fasten them to the wall with two screws (not supplied).

Mounting on cable or primary busbar



Possible for all codes using the two screws provided together with the transformers as shown in figure. When you have to fix a cable, it is recommended to protect the tip of the screws properly, in order to not pinch the cable.

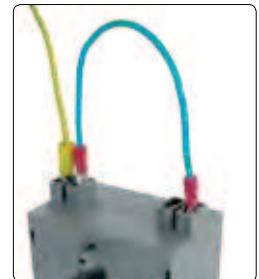
WIRING INSTRUCTIONS



Connect the cable S1 in one of the two terminals of the corresponding side, and the cable S2 in one of the two cables of the opposite side. The selected terminal is irrelevant since the two adjacent Fast-On terminals are internally connected. The cable / bar of the primary current must be inserted into the transformer paying attention to the flow direction of the current, which must always be in the direction P1 → P2.

The double terminal lets you make a short-circuit when it is necessary to disconnect the load from the transformer, so as not to damage the transformer or the operator.

It is also possible to make the grounding if you do not want to use the same Fast-On terminal used for the connection to the load.



TRANSFORMERS FOR ELECTRONIC USE

they are used for current measurements from 25A to 600A (nominal primary current). The main feature is the high number of turns of the secondary winding, which allows to have a very low secondary current, suitable for an electronic measurement circuit which can be detected as voltage on a resistor. This resistor of low power and low cost is directly mounted on the printed circuit.

Have isolation voltage of 3 kV between primary and secondary, and operating frequency of 50/60Hz.

Applications:

- Current sensor for protection circuits and control of devices such as rectifiers bridges, motors, UPS and similar.
- Current sensor for measuring instruments (current probe).

Reports or technical data different than the proposed, can be made on request .

MEASURING TRANSFORMERS CODE TABLE

	TM	3	-150	A	5	-1	-5	VA	-Y	-T	-X	-
Family ID												
Central window dimensions	1=diameter 22 mm; 3=bar 30x10 mm 4=bar 40x10 mm; 5=bar 50x10 mm 6=bar 60x20 mm											
Primary current	040=40A; 050=50A; 060=60A; 075=75A; 080=80A; 100=100A; 120=120A; 125=125A; 150=150A; 200=200A 250=250A; 300=300A; 400=400A; 500=500A, 600=600A 750=750A; 800=800A; 1k0=1000A; 1k2=1200A											
A	Ampère											
Secondary current	1=1A; 5=5A											
Class	0.5; 1; 3											
Power	1.3; 1.5; 2; 3; 4; 6; 10											
VA	Volt - Ampère											
Y	Tropicalized version											
T	Version with housing resistant to high temperatures											
X	Anonymous version											
Other possible data for a total of 30 characters. Example: value of FS												

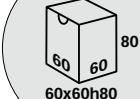
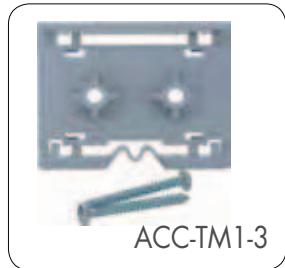
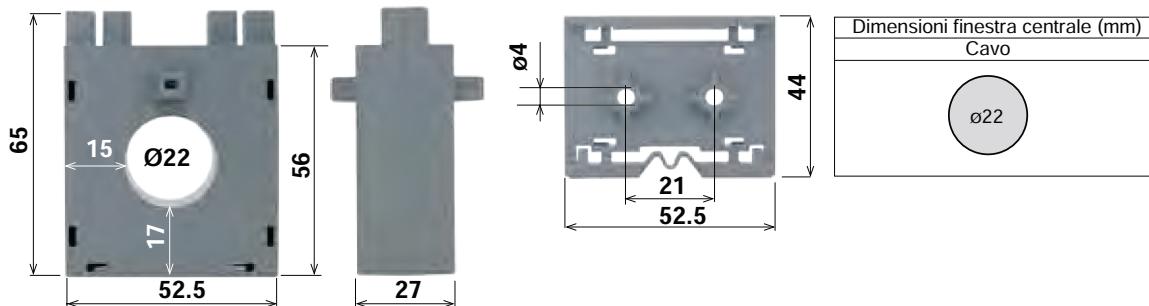
ELECTRONIC USE TRANSFORMERS CODE TABLE

	TM	3EL	-100	A	0.2	-1	-5	VA	-Y	-T	-X	-
Family ID												
Central window dimensions	1EL=diameter 22 mm; 3EL=bar 30x10 mm 4EL=bar 40x10 mm; 6EL=bar 60x20 mm											
Primary current	025=25A; 050=50A; 100=100A; 200=200A 300=300A; 400=400A; 600=600A 1k0=1000A; 1k5=1500A											
A	Ampère											
Secondary current	0.05=0.05A; 0.1=0.1A; 0.2=0.2A; 0.4=0.4A											
Class	0.2; 0.3; 0.4; 0.5; 0.8; 1; 1.5; 2; 2.5; 3											
Power	0.2; 0.5; 0.6; 1; 1.25; 3; 4; 5											
VA	Volt - Ampère											
Y	Tropicalized version											
T	Version with housing resistant to high temperatures											
X	Anonymous version											
Other possible data for a total of 30 characters. Example: value of FS												

MEASURING TRANSFORMERS / TRANSFORMERS FOR ELECTRONIC USE

TM1 / TM1EL

Transformer suitable for primary current by cable with maximum diameter of 21mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
30	3	0.5	TM1-030A5-3-0.5VA	TM1-030A1-3-0.5VA	0,20
40	3	1.3	TM1-040A5-3-1.3VA	TM1-040A1-3-1.3VA	0,20
50	3	1.5	TM1-050A5-3-1.5VA	TM1-050A1-3-1.5VA	0,20
60	3	1.5	TM1-060A5-3-1.5VA	TM1-060A1-3-1.5VA	0,20
75	3	1.5	TM1-075A5-3-1.5VA	TM1-075A1-3-1.5VA	0,20
80	3	2	TM1-080A5-3-2VA	TM1-080A1-3-2VA	0,20
100	1	2	TM1-100A5-1-2VA	TM1-100A1-1-2VA	0,20
120	1	3	TM1-120A5-1-3VA	TM1-120A1-1-3VA	0,20
125	1	3	TM1-125A5-1-3VA	TM1-125A1-1-3VA	0,20
150	1	4	TM1-150A5-1-4VA	TM1-150A1-1-4VA	0,20
200	0.5	3	TM1-200A5-0.5-3VA	TM1-200A1-0.5-3VA	0,20
250	0.5	3	TM1-250A5-0.5-3VA	TM1-250A1-0.5-3VA	0,20

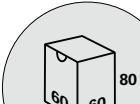
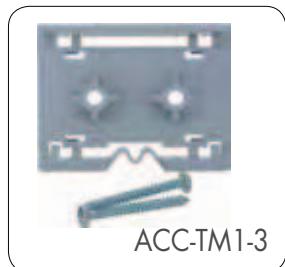
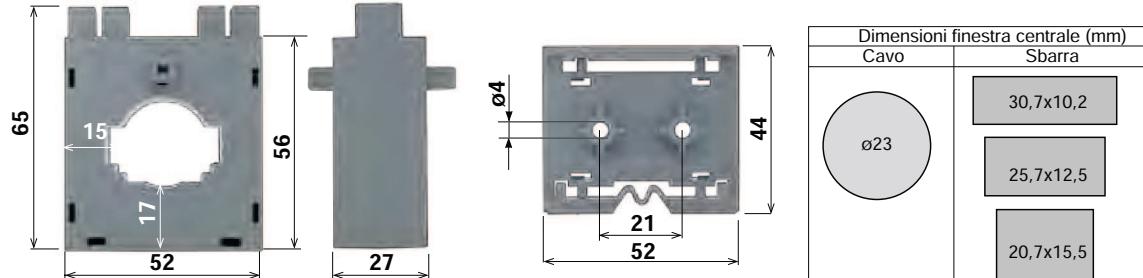
Transformers for electronic use

Primary current	Class	Code	Secondary current	Power	Turns number	Resistance (Ohms)	Secondary voltage (VAC)	Weight
A			A	VA	S1-S2	Ru	Vu	Kg
25	2	TM1EL-025A0.05-2-0.2VA	0,05	0,2	500	40	2	0,2
25	2,5	TM1EL-025A0.20-2.5-0.6VA	0,20	0,6	125	10	2	0,2
50	1	TM1EL-050A0.05-1-0.2VA	0,05	0,2	1000	80	4	0,2
50	1,5	TM1EL-050A0.20-1.5-0.6VA	0,20	0,6	250	10	4	0,2
100	0,4	TM1EL-100A0.10-0.4-1.25VA	0,10	1,25	1000	20	2	0,2
100	0,8	TM1EL-100A0.20-0.8-4VA	0,20	4	500	20	4	0,2
200	0,5	TM1EL-200A0.20-0.5-4VA	0,20	4	1000	20	4	0,2
200	1	TM1EL-200A0.40-1-4VA	0,40	4	500	20	8	0,2
300	0,3	TM1EL-300A0.20-0.3-4VA	0,20	4	1500	20	4	0,2
400	0,2	TM1EL-400A0.20-0.2-4VA	0,20	4	2000	20	4	0,2
400	0,4	TM1EL-400A0.40-0.4-4VA	0,40	4	1000	20	8	0,2
600	0,5	TM1EL-600A0.20-0.5-4VA	0,20	4	3000	20	4	0,2
600	0,2	TM1EL-600A0.40-0.2-4VA	0,40	4	1500	20	8	0,2

MEASURING TRANSFORMERS / TRANSFORMERS FOR ELECTRONIC USE

TM3 / TM3EL

Transformer suitable for primary current by cable with maximum diameter 23mm or horizontal bar 20x12, 25x15, 30x10mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	3	2	TM3-100A5-3-2VA	TM3-100A1-3-2VA	0,20
120	1	1.5	TM3-120A5-1-1.5VA	TM3-120A1-1-1.5VA	0,20
125	1	1.5	TM3-125A5-1-1.5VA	TM3-125A1-1-1.5VA	0,20
150	1	2.5	TM3-150A5-1-2.5VA	TM3-150A1-1-2.5VA	0,20
200	1	3	TM3-200A5-1-3VA	TM3-200A1-1-3VA	0,20
250	0.5	2	TM3-250A5-0.5-2VA	TM3-250A1-0.5-2VA	0,20
300	0.5	2	TM3-300A5-0.5-2VA	TM3-300A1-0.5-2VA	0,20
400	0.5	3	TM3-400A5-0.5-3VA	TM3-400A1-0.5-3VA	0,20

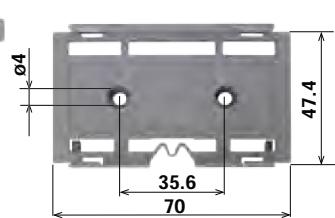
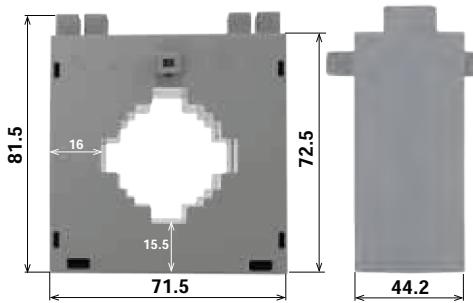
Transformers for electronic use

Primary current	Class	Code	Secondary current	Power	Turns number	Resistance (Ohms)	Secondary voltage (VAC)	Weight
A			A	VA	S1-S2	Ru	Vu	Kg
50	3	TM3EL-050A0.05-3-0.5VA	0,05	0,5	1000			0,2
200	1	TM3EL-200A0.20-1-4VA	0,20	4	1000			0,2
400	3	TM3EL-400A0.05-3-0.2VA	0,05	0,2	8000			0,2
400	1	TM3EL-400A0.20-1-4VA	0,20	4	2000			0,2
600	1	TM3EL-600A0.20-1-4VA	0,20	4	3000			0,2

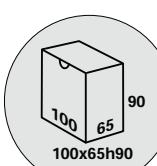
MEASURING TRANSFORMERS / TRANSFORMERS FOR ELECTRONIC USE

TM4 / TM4EL

Transformer suitable for primary current by cable with maximum diameter 30mm or horizontal/vertical bar 25x25,30x20, 40x10mm.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra (orizzontale o verticale)
ø30	40,4x10,3
30,5x20,4	30,5x20,4
25,5x25,5	25,5x25,5



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	3	TM4-100A5-1-3VA	TM4-100A1-1-3VA	0,40
120	1	3	TM4-120A5-1-3VA	TM4-120A1-1-3VA	0,40
125	1	3	TM4-125A5-1-3VA	TM4-125A1-1-3VA	0,40
150	1	3	TM4-150A5-1-3VA	TM4-150A1-1-3VA	0,40
200	1	4	TM4-200A5-1-4VA	TM4-200A1-1-4VA	0,40
250	1	6	TM4-250A5-1-6VA	TM4-250A1-1-6VA	0,40
300	0,5	6	TM4-300A5-0,5-6VA	TM4-300A1-0,5-6VA	0,40
400	0,5	10	TM4-400A5-0,5-10VA	TM4-400A1-0,5-10VA	0,40
500	0,5	10	TM4-500A5-0,5-10VA	TM4-500A1-0,5-10VA	0,30
600	0,5	10	TM4-600A5-0,5-10VA	TM4-600A1-0,5-10VA	0,30
750	0,5	10	TM4-750A5-0,5-10VA	TM4-750A1-0,5-10VA	0,30
800	0,5	10	TM4-800A5-0,5-10VA	TM4-800A1-0,5-10VA	0,30

Transformers for electronic use

Primary current	Class	Code	Secondary current	Power	Turns number	Resistance (Ohms)	Secondary voltage (VAC)	Weight
A			A	VA	S1-S2	Ru	Vu	Kg
100	3	TM4EL-100A0.05-3-1VA	0,05	1	2000			0,40
150	2	TM4EL-150A0.05-2-1VA	0,05	1	3000			0,40
200	2	TM4EL-200A0.05-2-1VA	0,05	1	4000			0,40
400	2	TM4EL-300A0.20-2-4VA	0,20	4	2000			0,40
600	0,5	TM4EL-600A0.20-0.5-4VA	0,20	4	3000			0,40
600	0,5	TM4EL-600A0.20-0.5-4VA-T	0,20	4	3000			0,40

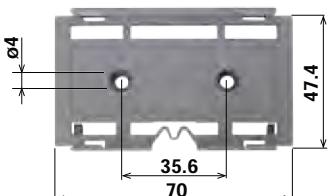
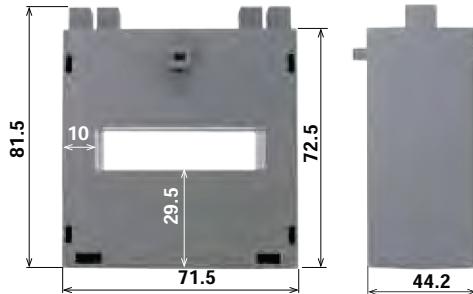
-T = Housing resistant to high temperatures

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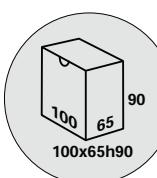
MEASURING TRANSFORMERS / TRANSFORMERS FOR ELECTRONIC USE

TM5

Transformer suitable for primary current by horizontal bar 50x10mm.

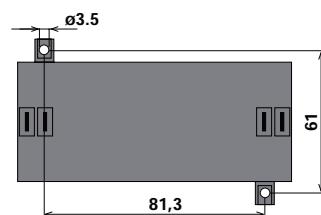
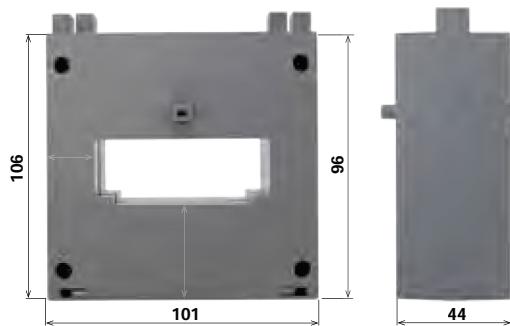


Dimensioni finestra centrale (mm)	
Sbarra	
50,5x12,5	



Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
150	1	2	TM5-150A5-1-2VA	TM5-150A1-1-2VA	0,40
200	1	2	TM5-200A5-1-2VA	TM5-200A1-1-2VA	0,40
250	1	3	TM5-250A5-1-3VA	TM5-250A1-1-3VA	0,40
300	0,5	3	TM5-300A5-0,5-3VA	TM5-300A1-0,5-3VA	0,40
400	0,5	4	TM5-400A5-0,5-4VA	TM5-400A1-0,5-4VA	0,40
500	0,5	6	TM5-500A5-0,5-6VA	TM5-500A1-0,5-6VA	0,30
600	0,5	6	TM5-600A5-0,5-6VA	TM5-600A1-0,5-6VA	0,30
750	0,5	6	TM5-750A5-0,5-6VA	TM5-750A1-0,5-6VA	0,30
800	0,5	10	TM5-800A5-0,5-10VA	TM5-800A1-0,5-10VA	0,30
1000	0,5	10	TM5-1K0A5-0,5-10VA	TM5-1K0A1-0,5-10VA	
1200	0,5	10	TM5-1K2A5-0,5-10VA	TM5-1K2A1-0,5-10VA	

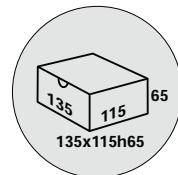
Transformer suitable for primary current by one or two cables with maximum diameter 22mm or horizontal bar 50x20, 60x20mm.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
ø22	ø22
63,8x20,5	51,3x23,3



ACC-TM6



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
300	0,5	4	TM6-300A5-0,5-4VA	TM6-300A1-0,5-4VA	0,50
400	0,5	6	TM6-400A5-0,5-6VA	TM6-400A1-0,5-6VA	0,50
500	0,5	6	TM6-500A5-0,5-6VA	TM6-500A1-0,5-6VA	0,50
600	0,5	6	TM6-600A5-0,5-6VA	TM6-600A1-0,5-6VA	0,60
750	0,5	6	TM6-750A5-0,5-6VA	TM6-750A1-0,5-6VA	0,60
800	0,5	10	TM6-800A5-0,5-10VA	TM6-800A1-0,5-10VA	0,60
1000	0,5	10	TM6-1K0A5-0,5-10VA	TM6-1K0A1-0,5-10VA	0,60
1200	0,5	15	TM6-1K2A5-0,5-15VA	TM6-1K2A1-0,5-15VA	0,60
1250	0,5	15	TM6-1K25A5-0,5-15VA	TM6-1K25A1-0,5-15VA	0,60
1500	0,5	20	TM6-1K5A5-0,5-20VA	TM6-1K5A1-0,5-20VA	0,80
1600	0,5	20	TM6-1K6A5-0,5-20VA	TM6-1K6A1-0,5-20VA	0,80
2000	0,5	20	TM6-2K0A5-0,5-20VA	TM6-2K0A1-0,5-20VA	0,80

Transformers for electronic use

Primary current	Class	Code	Secondary current	Power	Turns number	Resistance [Ohms]	Secondary voltage [VAC]	Weight
A			A	VA	S1-S2	Ru	Vu	Kg
250	1	TM6EL-250A0.05-1-1VA	0,05	1	5000			0,40
600	0,5	TM6EL-600A0.20-0.5-3VA	0,20	3	3000			0,40
1000	0,5	TM6EL-1K0A0.20-0.5-5VA	0,20	5	5000			0,40
1000	0,5	TM6EL-1K0A0.20-0.5-5VA-T	0,20	5	5000			0,40
1500	0,5	TM6EL-1K5A0.20-0.5-5VA	0,20	5	7500			0,40
1500	0,5	TM6EL-1K5A0.20-0.5-5VA-T	0,20	5	7500			0,40

-T = Housing resistant to high temperatures

CURRENT TRANSFORMERS - TN SERIES

PROTECTION TRANSFORMERS - TN P ... SERIES

Range of transformers characterized by small size indicated in all those installations where space has considerable importance and double terminals in opposition.

ASSEMBLY INSTRUCTIONS

Together with the transformer it is provided a sachet containing a series of accessories, which depending on the model allow various types of fixing:

- The mounting on DIN EN 50022 requires no accessories, but simply by pressing upon the transformer thanks to the presence on the same, on the bottom side, the adequate fastening system.
- The wall mounting using the two brackets, or, in the case of code TN60, the special dedicated accessory.
- The direct mounting on the cable or on the busbar, using screws.

These fasteners must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer, having to remove it.

Mounting on DIN rail

Place the transformer on the DIN rail and press it as shown in figures.



Wall fixing



Through the appropriate base for the code TN60, secure the base to the wall with 4 screws (not supplied), then insert the transformer in the slaid as shown.

Using the two brackets for the code TN22. Insert the brackets into the proper place as shown in the figure and fasten them to the wall with two screws (not supplied).

Mounting on cable or primary busbar



Fixing possible for all codes, using the two screws supplied with the transformer, as shown in figure.

WIRING INSTRUCTIONS

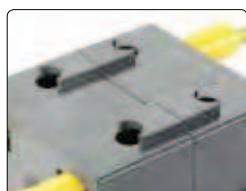


Connect the cable S1 in one of the two terminals of the corresponding side; and the cable S2 in one of the two terminals of the opposite side. The selected terminal is irrelevant since the two terminals in opposition are internally connected.

The cable / busbar of the primary current must be inserted into the transformer paying attention to the flow direction of the current, which must always in the direction P1 → P2.



The double terminal lets you make a short-circuit when it is necessary to disconnect the load from the transformer, so as not to damage the transformer or the operator. It is also possible to ground it if you do not want to use the same terminal used for connection to the load.



The terminals of this range have been designed with a sufficient protection degree against accidental contact. Is available on request, however, the ACC-COP4 sealable terminal cover.



PROTECTION TRANSFORMERS

The current transformer used as a current generator for protection relays, has characteristics different from those of the measurement transformer. In fact to this range it is required a saturation of the magnetic circuit with primary currents $5 \times I_n$, whereas for the protection transformer is necessary that the value of the secondary current follows the increasing of the primary current up to 10, 15 or 20 times the I_n , guaranteeing thus the intervention of the relay to the provided fault current. It is important to do not load the transformer with a performance P , higher than the stated, in order to do not change the saturation of transformer, and keep unchanged the following formula:

$P = R \times I^2$ where P = load on CT; R = resistance of the relay + resistance of the cables; I = rated secondary current of the C. Ratio or technical data different from those proposed, can be made on request.

MEASURING TRANSFORMERS CODE TABLE

Family ID

Central window dimensions
22=diameter 22 mm
60=diameter 50 mm / bar 60x10 mm
10=diameter 40 mm / bar 100x40 mm
18=diameter 80 mm

Primary current
40=40A; 50=50A; 60=60A; 75=75A; 80=80A;
100=100A; 125=125A; 150=150A; 200=200A;
250=250A; 300=300A; 400=400A; 500=500A;
600=600A; 750=750A; 800=800A; 1k0=1000A;
1k2=1200A; 1k25=1250A; 1k5=1500A; 1k6=1600A;
2k0=2000A; 2k5=2500A; 3k0=3000A; 4k0=4000A

A Ampére

Secondary current 1=1A; 5=5A

Class 0.5; 1; 3

Power 1; 1.2; 1.5; 2; 2.5; 3; 4; 5; 6; 10; 15; 20; 30; 40; 50

VA Volt - Ampére

Y Tropicalized version

R Resined anti vibrating version

T Version with housing resistant to high temperatures

X Anonymous version

Other possible data for a total of 30 characters. Example: value of FS

PROTECTION TRANSFORMERS CODE TABLE

Family ID

Central window dimensions

60=diameter 50 mm / bar 60x10 mm
10=diameter 40 mm / bar 100x40 mm
18=diameter 80 mm

Primary current
40=40A; 50=50A; 60=60A; 75=75A; 80=80A;
100=100A; 125=125A; 150=150A; 200=200A;
250=250A; 300=300A; 400=400A; 500=500A;
600=600A; 750=750A; 800=800A; 1k0=1000A;
1k2=1200A; 1k25=1250A; 1k5=1500A; 1k6=1600A;
2k0=2000A; 2k5=2500A; 3k0=3000A; 4k0=4000A

A Ampére

Secondary current 1=1A; 5=5A

Class 5P5; 5P10; 5P15; 5P20

Power 1; 1.2; 1.5; 2; 2.5; 3; 4; 5; 6; 10; 15; 20; 30; 40; 50

VA Volt - Ampére

Y Tropicalized version

R Resined anti vibrating version

T Version with housing resistant to high temperatures

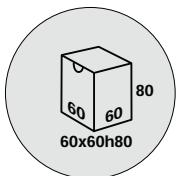
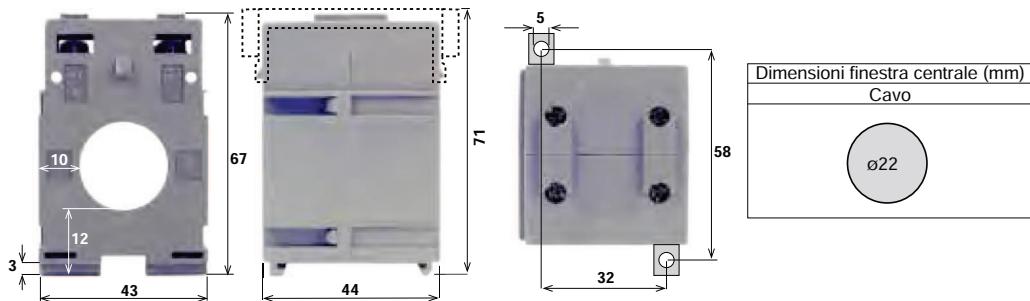
X Anonymous version

Other possible data for a total of 30 characters. Example: value of FS

MEASURING TRANSFORMER

TN22

Transformer suitable for primary current by cable with maximum diameter 22mm.

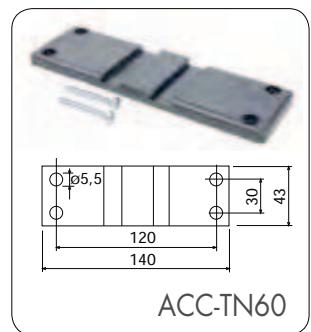
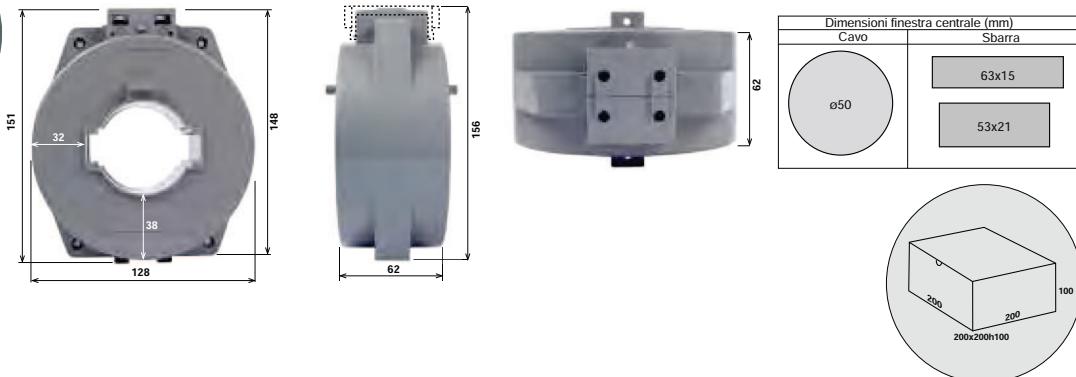


Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	1	TN22-040A5-3-1VA	TN22-040A1-3-1VA	
50	3	1	TN22-050A5-3-1VA	TN22-050A1-3-1VA	
60	1	1	TN22-060A5-1-1VA	TN22-060A1-1-1VA	
75	1	1.2	TN22-075A5-1-1.2VA	TN22-075A1-1-1.2VA	
80	1	1.5	TN22-080A5-1-1.5VA	TN22-080A1-1-1.5VA	
100	1	2	TN22-100A5-1-2VA	TN22-100A1-1-2VA	
120	1	2	TN22-120A5-1-2VA	TN22-120A1-1-2VA	
125	1	3	TN22-125A5-1-3VA	TN22-125A1-1-3VA	
150	0.5	2,5	TN22-150A5-0.5-2.5VA	TN22-150A1-0.5-2.5VA	
200	0.5	3	TN22-200A5-0.5-3VA	TN22-200A1-0.5-3VA	
250	0.5	5	TN22-250A5-0.5-5VA	TN22-250A1-0.5-5VA	
300	0.5	5	TN22-300A5-0.5-5VA	TN22-300A1-0.5-5VA	

MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS

TN60 / TN60P

Transformer suitable for primary current by cable with maximum diameter 50mm or horizontal bar 50x20, 60x10mm.



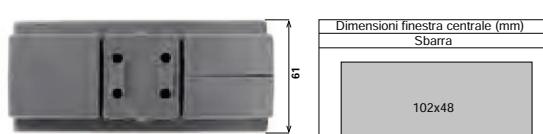
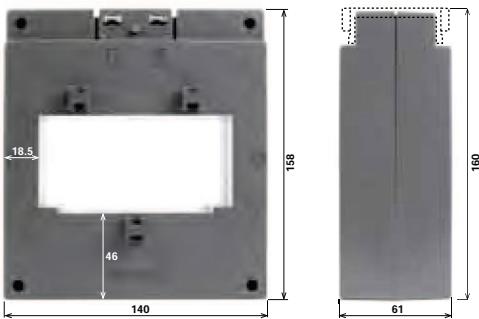
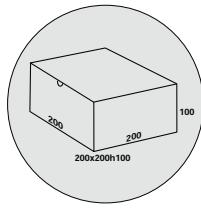
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
400	0.5	10	TN60-400A5-0.5-10VA	TN60-400A1-0.5-10VA	1,00
500	0.5	10	TN60-500A5-0.5-10VA	TN60-500A1-0.5-10VA	1,00
600	0.5	15	TN60-600A5-0.5-15VA	TN60-600A1-0.5-15VA	1,00
750	0.5	20	TN60-750A5-0.5-20VA	TN60-750A1-0.5-20VA	1,00
800	0.5	20	TN60-800A5-0.5-20VA	TN60-800A1-0.5-20VA	1,00
1000	0.5	30	TN60-1K0A5-0.5-30VA	TN60-1K0A1-0.5-30VA	1,00
1200	0.5	30	TN60-1K2A5-0.5-30VA	TN60-1K2A1-0.5-30VA	1,00
1250	0.5	30	TN60-1K25A5-0.5-30VA	TN60-1K25A1-0.5-30VA	1,00
1500	0.5	40	TN60-1K5A5-0.5-40VA	TN60-1K5A1-0.5-40VA	1,00
1600	0.5	40	TN60-1K6A5-0.5-40VA	TN60-1K6A1-0.5-40VA	1,00
2000	0.5	50	TN60-2K0A5-0.5-50VA	TN60-2K0A1-0.5-50VA	1,00
2500	0.5	50	TN60-2K5A5-0.5-50VA	TN60-2K5A1-0.5-50VA	1,00

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1200	5P5	20	TN60P-1K2A5-5P5-20VA	TN60P-1K2A1-5P5-20VA	1,00
1200	5P10	20	TN60P-1K2A5-5P10-20VA	TN60P-1K2A1-5P10-20VA	1,00
1200	5P15	20	TN60P-1K2A5-5P15-20VA	TN60P-1K2A1-5P15-20VA	1,00
1200	5P20	20	TN60P-1K2A5-5P20-20VA	TN60P-1K2A1-5P20-20VA	1,00
1500	5P5	20	TN60P-1K5A5-5P5-20VA	TN60P-1K5A1-5P5-20VA	1,00
1500	5P10	20	TN60P-1K5A5-5P10-20VA	TN60P-1K5A1-5P10-20VA	1,00
1500	5P15	20	TN60P-1K5A5-5P15-20VA	TN60P-1K5A1-5P15-20VA	1,00
1500	5P20	20	TN60P-1K5A5-5P20-20VA	TN60P-1K5A1-5P20-20VA	1,00
2000	5P5	20	TN60P-2K0A5-5P5-20VA	TN60P-2K0A1-5P5-20VA	1,00
2000	5P10	20	TN60P-2K0A5-5P10-20VA	TN60P-2K0A1-5P10-20VA	1,00
2000	5P15	20	TN60P-2K0A5-5P15-20VA	TN60P-2K0A1-5P15-20VA	1,00
2000	5P20	20	TN60P-2K0A5-5P20-20VA	TN60P-2K0A1-5P20-20VA	1,00
2500	5P5	20	TN60P-2K5A5-5P5-20VA	TN60P-2K5A1-5P5-20VA	1,00
2500	5P10	20	TN60P-2K5A5-5P10-20VA	TN60P-2K5A1-5P10-20VA	1,00
2500	5P15	20	TN60P-2K5A5-5P15-20VA	TN60P-2K5A1-5P15-20VA	1,00
2500	5P20	20	TN60P-2K5A5-5P20-20VA	TN60P-2K5A1-5P20-20VA	1,00
3000	5P5	20	TN60P-3K0A5-5P5-20VA	TN60P-3K0A1-5P5-20VA	1,00
3000	5P10	20	TN60P-3K0A5-5P10-20VA	TN60P-3K0A1-5P10-20VA	1,00
3000	5P15	20	TN60P-3K0A5-5P15-20VA	TN60P-3K0A1-5P15-20VA	1,00
3000	5P20	20	TN60P-3K0A5-5P20-20VA	TN60P-3K0A1-5P20-20VA	1,00

Transformer suitable for primary current by one / two cables with maximum diameter 40mm or horizontal bar 50X80, 40x100mm.


ACC-TN10-13


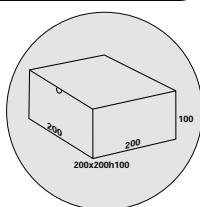
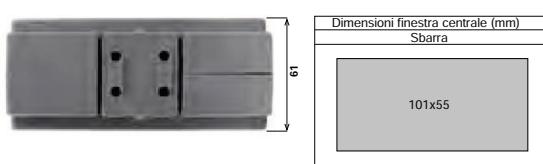
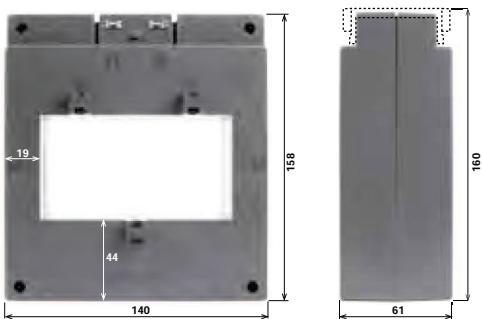
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
500	0,5	7	TN10-500A5-0.5-7VA	TN10-500A1-0.5-7VA	1,50
600	0,5	10	TN10-600A5-0.5-10VA	TN10-600A1-0.5-10VA	1,50
750	0,5	10	TN10-750A5-0.5-10VA	TN10-750A1-0.5-10VA	1,50
800	0,5	10	TN10-800A5-0.5-10VA	TN10-800A1-0.5-10VA	1,50
1000	0,5	10	TN10-1K0A5-0.5-10VA	TN10-1K0A1-0.5-10VA	1,50
1200	0,5	15	TN10-1K2A5-0.5-15VA	TN10-1K2A1-0.5-15VA	1,50
1250	0,5	20	TN10-1K25A5-0.5-20VA	TN10-1K25A1-0.5-20VA	1,50
1500	0,5	20	TN10-1K5A5-0.5-20VA	TN10-1K5A1-0.5-20VA	1,50
1600	0,5	30	TN10-1K6A5-0.5-30VA	TN10-1K6A1-0.5-30VA	1,50
2000	0,5	40	TN10-2K0A5-0.5-40VA	TN10-2K0A1-0.5-40VA	1,50
2500	0,5	40	TN10-2K5A5-0.5-40VA	TN10-2K5A1-0.5-40VA	1,50
3000	0,5	40	TN10-3K0A5-0.5-40VA	TN10-3K0A1-0.5-40VA	1,50
3200	0,5	40	TN10-3K2A5-0.5-40VA	TN10-3K2A1-0.5-40VA	1,50
4000	0,5	40	TN10-4K0A5-0.5-40VA	TN10-4K0A1-0.5-40VA	1,50

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
1200	5P5	20	TN10P-1K2A5-5P5-20VA	TN10P-1K2A1-5P5-20VA	1,50
1200	5P10	20	TN10P-1K2A5-5P10-20VA	TN10P-1K2A1-5P10-20VA	1,50
1200	5P15	20	TN10P-1K2A5-5P15-20VA	TN10P-1K2A1-5P15-20VA	1,50
1200	5P20	20	TN10P-1K2A5-5P20-20VA	TN10P-1K2A1-5P20-20VA	1,50
1500	5P5	20	TN10P-1K5A5-5P5-20VA	TN10P-1K5A1-5P5-20VA	1,50
1500	5P10	20	TN10P-1K5A5-5P10-20VA	TN10P-1K5A1-5P10-20VA	1,50
1500	5P15	20	TN10P-1K5A5-5P15-20VA	TN10P-1K5A1-5P15-20VA	1,50
1500	5P20	20	TN10P-1K5A5-5P20-20VA	TN10P-1K5A1-5P20-20VA	1,50
2000	5P5	20	TN10P-2K0A5-5P5-20VA	TN10P-2K0A1-5P5-20VA	1,50
2000	5P10	20	TN10P-2K0A5-5P10-20VA	TN10P-2K0A1-5P10-20VA	1,50
2000	5P15	20	TN10P-2K0A5-5P15-20VA	TN10P-2K0A1-5P15-20VA	1,50
2000	5P20	20	TN10P-2K0A5-5P20-20VA	TN10P-2K0A1-5P20-20VA	1,50
2500	5P5	20	TN10P-2K5A5-5P5-20VA	TN10P-2K5A1-5P5-20VA	1,50
2500	5P10	20	TN10P-2K5A5-5P10-20VA	TN10P-2K5A1-5P10-20VA	1,50
2500	5P15	20	TN10P-2K5A5-5P15-20VA	TN10P-2K5A1-5P15-20VA	1,50
2500	5P20	20	TN10P-2K5A5-5P20-20VA	TN10P-2K5A1-5P20-20VA	1,50
3000	5P5	20	TN10P-3K0A5-5P5-20VA	TN10P-3K0A1-5P5-20VA	1,50
3000	5P10	20	TN10P-3K0A5-5P10-20VA	TN10P-3K0A1-5P10-20VA	1,50
3000	5P15	20	TN10P-3K0A5-5P15-20VA	TN10P-3K0A1-5P15-20VA	1,50
3000	5P20	20	TN10P-3K0A5-5P20-20VA	TN10P-3K0A1-5P20-20VA	1,50
3200	5P5	20	TN10P-3K2A5-5P5-20VA	TN10P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN10P-3K2A5-5P10-20VA	TN10P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN10P-3K2A5-5P15-20VA	TN10P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN10P-3K2A5-5P20-20VA	TN10P-3K2A1-5P20-20VA	1,50
3200	5P5	20	TN10P-3K2A5-5P5-20VA	TN10P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN10P-3K2A5-5P10-20VA	TN10P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN10P-3K2A5-5P15-20VA	TN10P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN10P-3K2A5-5P20-20VA	TN10P-3K2A1-5P20-20VA	1,50
4000	5P5	20	TN10P-4K0A5-5P5-20VA	TN10P-4K0A1-5P5-20VA	1,50
4000	5P10	20	TN10P-4K0A5-5P10-20VA	TN10P-4K0A1-5P10-20VA	1,50
4000	5P15	20	TN10P-4K0A5-5P15-20VA	TN10P-4K0A1-5P15-20VA	1,50
4000	5P20	20	TN10P-4K0A5-5P20-20VA	TN10P-4K0A1-5P20-20VA	1,50

Transformer suitable for primary current by one / two cables with maximum diameter 50mm or horizontal bar 3x (100x10mm).



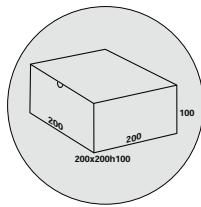
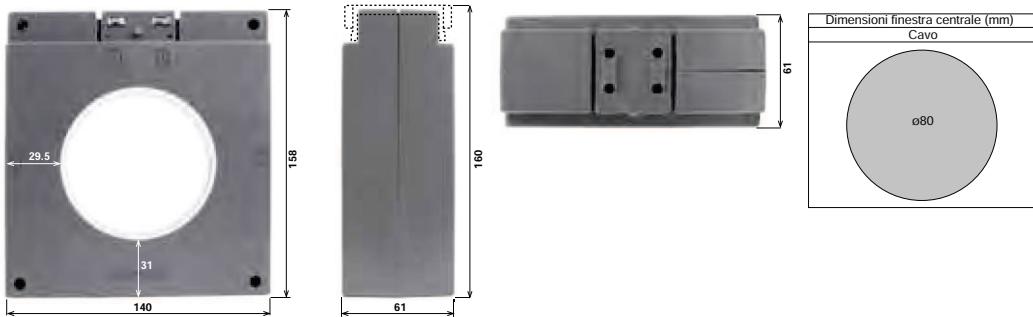
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
500	0,5	7	TN13-500A5-0,5-7VA	TN13-500A1-0,5-7VA	1,50
600	0,5	10	TN13-600A5-0,5-10VA	TN13-600A1-0,5-10VA	1,50
750	0,5	10	TN13-750A5-0,5-10VA	TN13-750A1-0,5-10VA	1,50
800	0,5	10	TN13-800A5-0,5-10VA	TN13-800A1-0,5-10VA	1,50
1000	0,5	10	TN13-1K0A5-0,5-10VA	TN13-1K0A1-0,5-10VA	1,50
1200	0,5	15	TN13-1K2A5-0,5-15VA	TN13-1K2A1-0,5-15VA	1,50
1250	0,5	20	TN13-1K25A5-0,5-20VA	TN13-1K25A1-0,5-20VA	1,50
1500	0,5	20	TN13-1K5A5-0,5-20VA	TN13-1K5A1-0,5-20VA	1,50
1600	0,5	20	TN13-1K6A5-0,5-20VA	TN13-1K6A1-0,5-20VA	1,50
2000	0,5	30	TN13-2K0A5-0,5-30VA	TN13-2K0A1-0,5-30VA	1,50
2500	0,5	40	TN13-2K5A5-0,5-40VA	TN13-2K5A1-0,5-40VA	1,50
3000	0,5	40	TN13-3K0A5-0,5-40VA	TN13-3K0A1-0,5-40VA	1,50
3200	0,5	40	TN13-3K2A5-0,5-40VA	TN13-3K2A1-0,5-40VA	1,50
4000	0,5	40	TN13-4K0A5-0,5-40VA	TN13-4K0A1-0,5-40VA	1,50

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1200	5P5	20	TN13P-1K2A5-5P5-20VA	TN13P-1K2A1-5P5-20VA	1,50
1200	5P10	20	TN13P-1K2A5-5P10-20VA	TN13P-1K2A1-5P10-20VA	1,50
1200	5P15	20	TN13P-1K2A5-5P15-20VA	TN13P-1K2A1-5P15-20VA	1,50
1200	5P20	20	TN13P-1K2A5-5P20-20VA	TN13P-1K2A1-5P20-20VA	1,50
1500	5P5	20	TN13P-1K5A5-5P5-20VA	TN13P-1K5A1-5P5-20VA	1,50
1500	5P10	20	TN13P-1K5A5-5P10-20VA	TN13P-1K5A1-5P10-20VA	1,50
1500	5P15	20	TN13P-1K5A5-5P15-20VA	TN13P-1K5A1-5P15-20VA	1,50
1500	5P20	20	TN13P-1K5A5-5P20-20VA	TN13P-1K5A1-5P20-20VA	1,50
2000	5P5	20	TN13P-2K0A5-5P5-20VA	TN13P-2K0A1-5P5-20VA	1,50
2000	5P10	20	TN13P-2K0A5-5P10-20VA	TN13P-2K0A1-5P10-20VA	1,50
2000	5P15	20	TN13P-2K0A5-5P15-20VA	TN13P-2K0A1-5P15-20VA	1,50
2000	5P20	20	TN13P-2K0A5-5P20-20VA	TN13P-2K0A1-5P20-20VA	1,50
2500	5P5	20	TN13P-2K5A5-5P5-20VA	TN13P-2K5A1-5P5-20VA	1,50
2500	5P10	20	TN13P-2K5A5-5P10-20VA	TN13P-2K5A1-5P10-20VA	1,50
2500	5P15	20	TN13P-2K5A5-5P15-20VA	TN13P-2K5A1-5P15-20VA	1,50
2500	5P20	20	TN13P-2K5A5-5P20-20VA	TN13P-2K5A1-5P20-20VA	1,50
3000	5P5	20	TN13P-3K0A5-5P5-20VA	TN13P-3K0A1-5P5-20VA	1,50
3000	5P10	20	TN13P-3K0A5-5P10-20VA	TN13P-3K0A1-5P10-20VA	1,50
3000	5P15	20	TN13P-3K0A5-5P15-20VA	TN13P-3K0A1-5P15-20VA	1,50
3000	5P20	20	TN13P-3K0A5-5P20-20VA	TN13P-3K0A1-5P20-20VA	1,50
3200	5P5	20	TN13P-3K2A5-5P5-20VA	TN13P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN13P-3K2A5-5P10-20VA	TN13P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN13P-3K2A5-5P15-20VA	TN13P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN13P-3K2A5-5P20-20VA	TN13P-3K2A1-5P20-20VA	1,50
3200	5P5	20	TN13P-3K2A5-5P5-20VA	TN13P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN13P-3K2A5-5P10-20VA	TN13P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN13P-3K2A5-5P15-20VA	TN13P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN13P-3K2A5-5P20-20VA	TN13P-3K2A1-5P20-20VA	1,50
4000	5P5	20	TN13P-4K0A5-5P5-20VA	TN13P-4K0A1-5P5-20VA	1,50
4000	5P10	20	TN13P-4K0A5-5P10-20VA	TN13P-4K0A1-5P10-20VA	1,50
4000	5P15	20	TN13P-4K0A5-5P15-20VA	TN13P-4K0A1-5P15-20VA	1,50
4000	5P20	20	TN13P-4K0A5-5P20-20VA	TN13P-4K0A1-5P20-20VA	1,50

Transformer suitable for primary current by cable with maximum diameter 80mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
500	0.5	7	TN18-500A5-0.5-7VA	TN18-500A1-0.5-7VA	1,50
600	0.5	10	TN18-600A5-0.5-10VA	TN18-600A1-0.5-10VA	1,50
750	0.5	10	TN18-750A5-0.5-10VA	TN18-750A1-0.5-10VA	1,50
800	0.5	10	TN18-800A5-0.5-10VA	TN18-800A1-0.5-10VA	1,50
1000	0.5	10	TN18-1K0A5-0.5-10VA	TN18-1K0A1-0.5-10VA	1,50
1200	0.5	15	TN18-1K2A5-0.5-15VA	TN18-1K2A1-0.5-15VA	1,50
1250	0.5	20	TN18-1K25A5-0.5-20VA	TN18-1K25A1-0.5-20VA	1,50
1500	0.5	20	TN18-1K5A5-0.5-20VA	TN18-1K5A1-0.5-20VA	1,50
1600	0.5	30	TN18-1K6A5-0.5-30VA	TN18-1K6A1-0.5-30VA	1,50
2000	0.5	40	TN18-2K0A5-0.5-40VA	TN18-2K0A1-0.5-40VA	1,50
2500	0.5	40	TN18-2K5A5-0.5-40VA	TN18-2K5A1-0.5-40VA	1,50
3000	0.5	40	TN18-3K0A5-0.5-40VA	TN18-3K0A1-0.5-40VA	1,50
3200	0.5	40	TN18-3K2A5-0.5-40VA	TN18-3K2A1-0.5-40VA	1,50
4000	0.5	40	TN18-4K0A5-0.5-40VA	TN18-4K0A1-0.5-40VA	1,50

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1200	5P5	20	TN18P-1K2A5-5P5-20VA	TN18P-1K2A1-5P5-20VA	1,50
1200	5P10	20	TN18P-1K2A5-5P10-20VA	TN18P-1K2A1-5P10-20VA	1,50
1200	5P15	20	TN18P-1K2A5-5P15-20VA	TN18P-1K2A1-5P15-20VA	1,50
1200	5P20	20	TN18P-1K2A5-5P20-20VA	TN18P-1K2A1-5P20-20VA	1,50
1500	5P5	20	TN18P-1K5A5-5P5-20VA	TN18P-1K5A1-5P5-20VA	1,50
1500	5P10	20	TN18P-1K5A5-5P10-20VA	TN18P-1K5A1-5P10-20VA	1,50
1500	5P15	20	TN18P-1K5A5-5P15-20VA	TN18P-1K5A1-5P15-20VA	1,50
1500	5P20	20	TN18P-1K5A5-5P20-20VA	TN18P-1K5A1-5P20-20VA	1,50
2000	5P5	20	TN18P-2K0A5-5P5-20VA	TN18P-2K0A1-5P5-20VA	1,50
2000	5P10	20	TN18P-2K0A5-5P10-20VA	TN18P-2K0A1-5P10-20VA	1,50
2000	5P15	20	TN18P-2K0A5-5P15-20VA	TN18P-2K0A1-5P15-20VA	1,50
2000	5P20	20	TN18P-2K0A5-5P20-20VA	TN18P-2K0A1-5P20-20VA	1,50
2500	5P5	20	TN18P-2K5A5-5P5-20VA	TN18P-2K5A1-5P5-20VA	1,50
2500	5P10	20	TN18P-2K5A5-5P10-20VA	TN18P-2K5A1-5P10-20VA	1,50
2500	5P15	20	TN18P-2K5A5-5P15-20VA	TN18P-2K5A1-5P15-20VA	1,50
2500	5P20	20	TN18P-2K5A5-5P20-20VA	TN18P-2K5A1-5P20-20VA	1,50
3000	5P5	20	TN18P-3K0A5-5P5-20VA	TN18P-3K0A1-5P5-20VA	1,50
3000	5P10	20	TN18P-3K0A5-5P10-20VA	TN18P-3K0A1-5P10-20VA	1,50
3000	5P15	20	TN18P-3K0A5-5P15-20VA	TN18P-3K0A1-5P15-20VA	1,50
3000	5P20	20	TN18P-3K0A5-5P20-20VA	TN18P-3K0A1-5P20-20VA	1,50
3200	5P5	20	TN18P-3K2A5-5P5-20VA	TN18P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN18P-3K2A5-5P10-20VA	TN18P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN18P-3K2A5-5P15-20VA	TN18P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN18P-3K2A5-5P20-20VA	TN18P-3K2A1-5P20-20VA	1,50
3200	5P5	20	TN18P-3K2A5-5P5-20VA	TN18P-3K2A1-5P5-20VA	1,50
3200	5P10	20	TN18P-3K2A5-5P10-20VA	TN18P-3K2A1-5P10-20VA	1,50
3200	5P15	20	TN18P-3K2A5-5P15-20VA	TN18P-3K2A1-5P15-20VA	1,50
3200	5P20	20	TN18P-3K2A5-5P20-20VA	TN18P-3K2A1-5P20-20VA	1,50
4000	5P5	20	TN18P-4K0A5-5P5-20VA	TN18P-4K0A1-5P5-20VA	1,50
4000	5P10	20	TN18P-4K0A5-5P10-20VA	TN18P-4K0A1-5P10-20VA	1,50
4000	5P15	20	TN18P-4K0A5-5P15-20VA	TN18P-4K0A1-5P15-20VA	1,50
4000	5P20	20	TN18P-4K0A5-5P20-20VA	TN18P-4K0A1-5P20-20VA	1,50

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS - SERIE TO

Range of transformers which, combined with the Earth Leakage Relay, can detect leakage currents towards ground caused by faults insulation on equipment or networks. The principle of operation is based on the fact that the active conductors, crossing the toroid, create a magnetic field proportional to their own current; the vector sum of these currents (and of the respective magnetic fluxes) is equal to zero, even with unbalanced load.

A ground fault downstream of the transformer on one or more conductors causes an unbalance in the vector sum with the value proportional to the leakage current; this imbalance is detected by the toroid and sent to the Earth Leakage Relay.

The choice of the transformer must be made in function of the leakage current to be detected and the diameter of the hole in which shall pass all the active conductors of the installation to be protected.

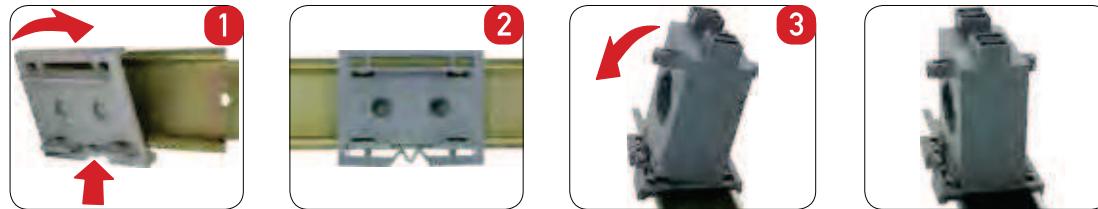
ASSEMBLY INSTRUCTIONS

With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations:

- The mounting on DIN rail EN 50022 is performed using the base ACC-TM1-3 or ACC-TM4-5
- The wall mounting using the two brackets or the basis mentioned above

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

DIN rail mounting for code TO30



Place the choice base on the bar and press as shown in figures (1-2)

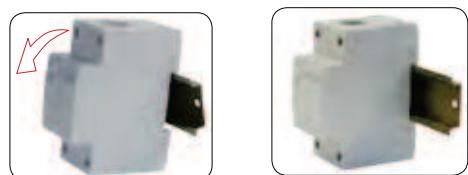
Position the transformer on the base previously assembled and press as shown in figure (3)

Wall fixing for code TO30

Secure the base to the wall with two screws (not supplied), then mount the transformer as shown in the previous figures.



DIN rail mounting for code TO15



Mounting on DIN rail EN 50022 must be carried out in the manner indicated in the figure; first insert the inelastic hook and then rotate the housing of the transformer until it locks. Proceed in reverse order of disassembly. No additional tools are required except for the release of the transformer having to remove it.

DIN rail mounting for the other codes

The mounting on DIN EN 50022 requires no accessories, but simply by pressing upon the transformer, thanks to the presence on the bottom of the transformer, the adequate fastening system.

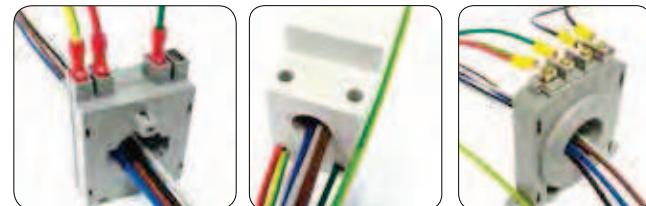


Wall mounting for the other codes

The wall mounting is done using the two brackets, directly present on toroid housing.



WIRING INSTRUCTION



Connect the Earth Leakage Relay to the terminals 1 and 2 of toroids, preferably with shielded cable in the following cases:

- Differential threshold lower than 100 mA.
- Toroid installed at distances longer than 10 m.
- Signal cable installed at less than 30 cm. from power cables.
- In the case it is impossible to use the shield, it is appropriate to:
 - Twist the connection cables toroid-relay.

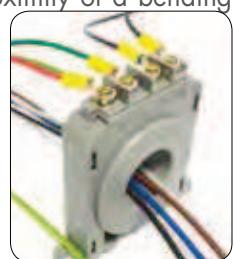
- That the cable section be not less than 1mm² and their length does not exceed 20m.
- That the cables be not installed in the vicinity of electromechanical components or power cables that may be cause of magnetic fields and perturbation of measurement signal.



In case you should also make the test of the toroid, this must be mentioned during the order; In fact, the transformer must also be provided of the terminals 3 and 4, suitable for the scope.

In order that the measurement of the toroid be real, it is necessary:

- Place the active cables as close to the center of the toroid, and the same should not be placed in proximity of a bending zone of the cables that pass through it.
- Use a toroid, which has an internal diameter at least twice the diameter of the cable, or the cable bundle.
- Install a sleeve of ferromagnetic material disposed around the conductors inside the toroid, in extremely critical cases.
- That the toroid is traversed in the same way by all the conductors of the line, including the neutral (when present), taking into account that the neutral must NOT be grounded downstream of the toroid.
- That, in case the protected line has a metallic armor, this must be connected to earth, downstream of the toroid.



In the case of use of split-core toroidal transformers, make sure, that before closing, the contact surfaces of the core be perfectly clean and adherent, and that the coupling screws be tight.

Model	TO35	TO60	TO80	TO110	TOA110	TO160	TO210	TOA210	TO30	TO15	TO1528	TO1735
Core	Closed	Closed	Closed	Closed	Split	Closed	Closed	Split	Closed	Closed	Closed	Closed
Internal diameter mm	35	60	80	110	110	160	210	210	23	15	281	351
Weight Kg.	0,17	0,22	0,29	0,45	0,75	0,65	0,75	1,20	0,30	0,20	1,52	2,00
Ratio								50/0,1A (optional 60/0,1A)				
Imin (A)	0,03	0,03	0,10	0,25	0,25	0,25	0,50	0,50	0,50	0,50	0,50	0,50
Inom (A)	55	80	150	230	230	260	360	360	40	35	400	430
Imax (A)	350	520	850	1400	1400	1600	2300	2300	260	250	3500	4000
Isolation									2,5kV			
Protection degree									IP20			

TOROIDI ADATTATORI - TOAD

Utilizzati per soluzionare il problema del collegamento di relè differenziali qualora problemi di isolamento o di dimensioni dei cavi/sbarre della linea da proteggere, non consentano l'impiego del trasformatore toroidale standard.

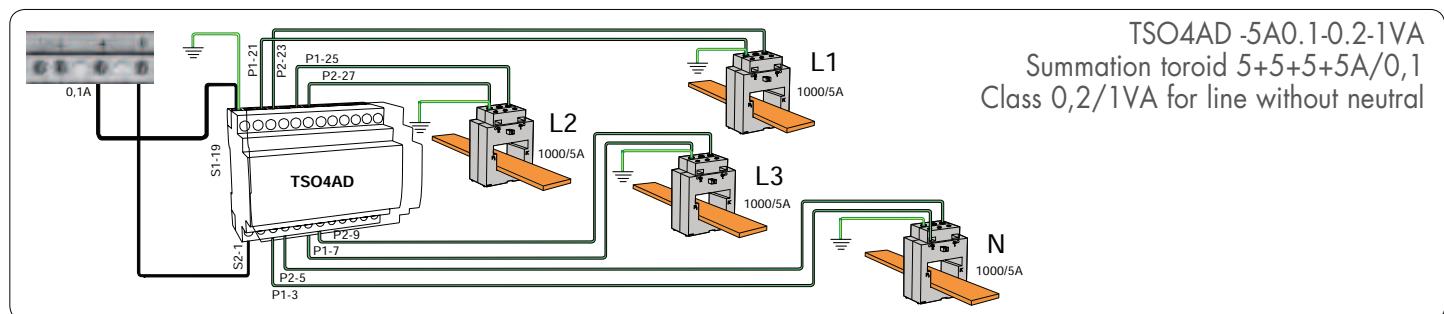
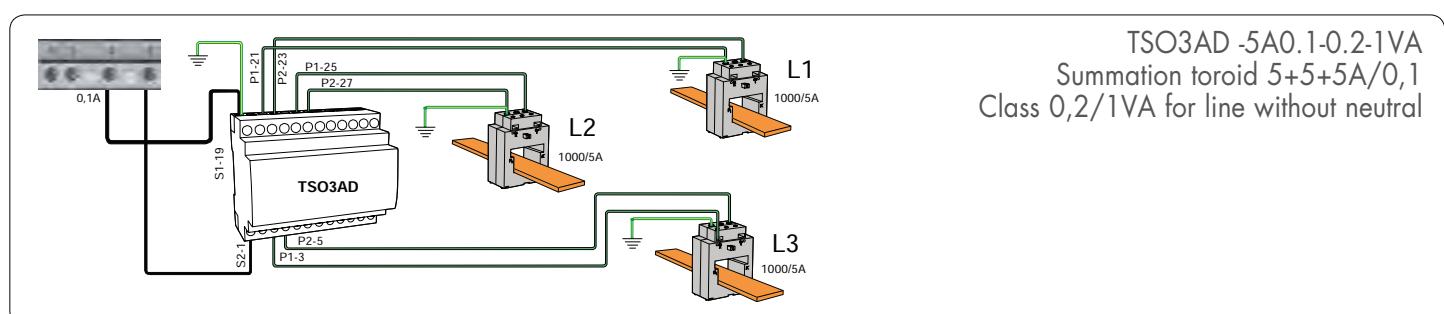
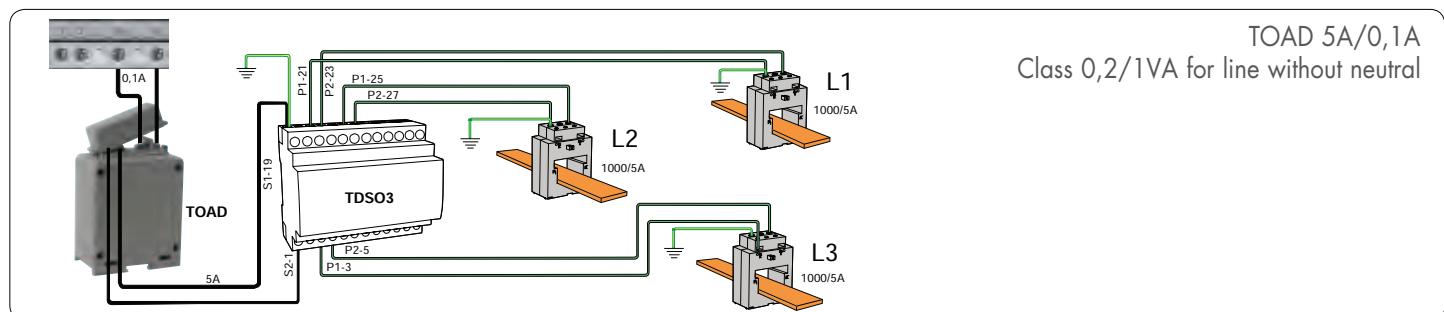


TABELLA DI CODIFICA TRASFORMATORI TOROIDALI

TO

60

-50

A

Family ID

Central window dimensions	15=diameter 15 mm 35=diameter 35 mm 80=diameter 80 mm A110=diameter 110 mm split 160=diameter 160 mm A210=diameter 210 mm split 1528=281x156 mm	30=diameter 23 mm 60=diameter 60 mm 110=diameter 110 mm 210=diameter 210 mm 1735=351x170 mm
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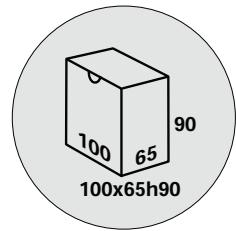
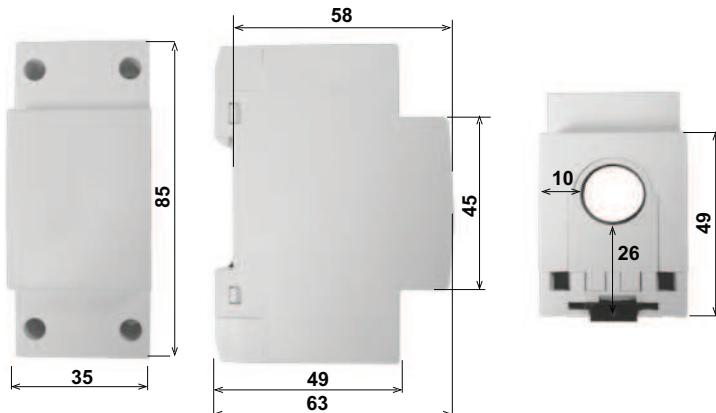
Primary current 50=50A; 60=60A

A Ampère

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO15

Modular toroidal transformer with central window 15mm diameter.

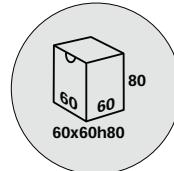
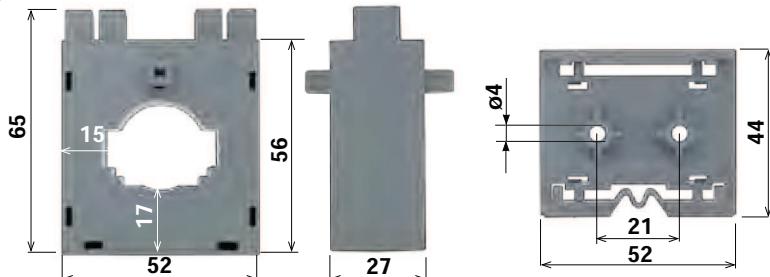


Primary current	Class	Power	Secondary current	Weight
A		VA	0,1A	Kg
50	1	0,1	TO15-50A	0,25
60	1	0,1	TO15-60A	0,25

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO30

Toroidal transformer with central window 23mm diameter.

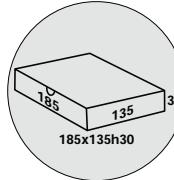
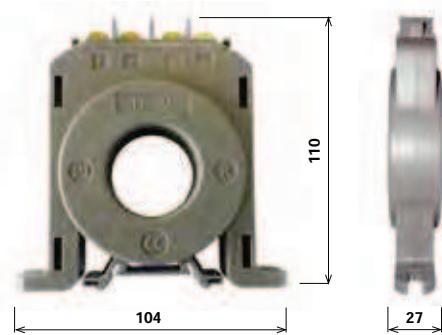


Primary current	Class	Power	Secondary current	Weight
A		VA	0,1A	Kg
50	1	0,1	TO30-50A	0,20
60	1	0,1	TO30-60A	0,20

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO35

Toroidal transformer with central window diameter 35mm. Fast-On terminals on request.

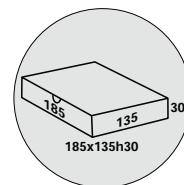
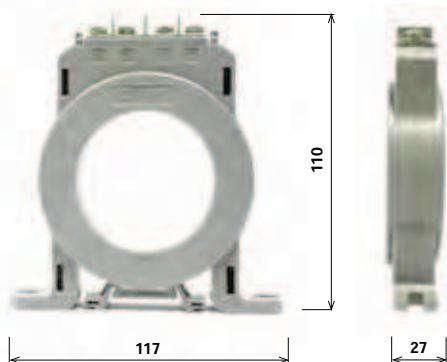


Primary current	Class	Power	Secondary current	Weight
A		VA	0,1A	Kg
50	1	0,1	TO35-50A	0,20
60	1	0,1	TO35-60A	0,20

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO60

Toroidal transformer with central window diameter 60mm. Fast-On terminals on request.

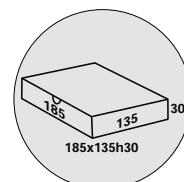
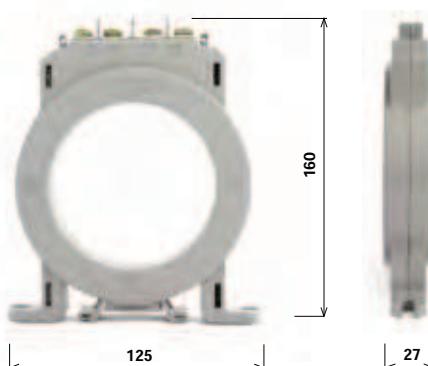


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO60-50A	0,22
60	1	0,1	TO60-60A	0,22

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO80

Toroidal transformer with central window diameter 80mm. Fast-On terminals on request.

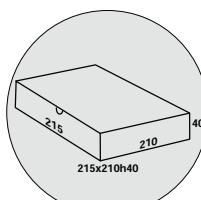
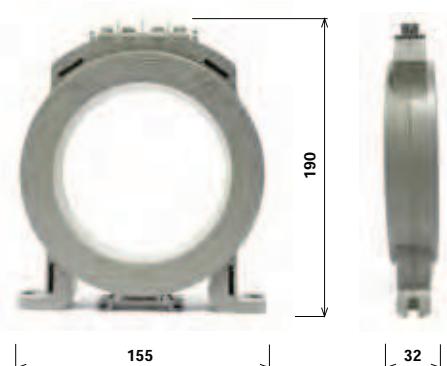


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO80-50A	0,22
60	1	0,1	TO80-60A	0,22

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO110

Toroidal transformer with central window diameter 110mm. Fast-On terminals on request.

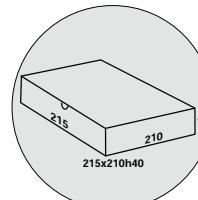
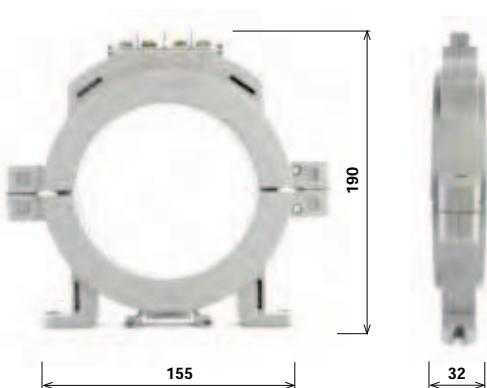


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO110-50A	0,45
60	1	0,1	TO110-60A	0,45

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TOA110

Toroidal transformer with central window diameter 110mm and split-core. Fast-On terminals on request.

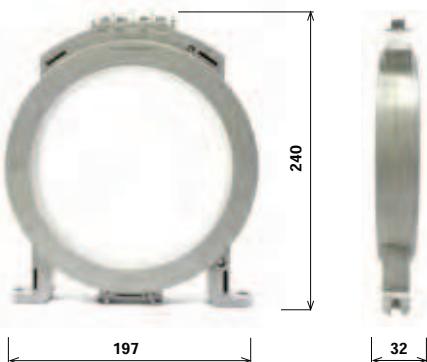


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TOA110-50A	0,75
60	1	0,1	TOA110-60A	0,75

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO160

Toroidal transformer with central window diameter 160mm. Fast-On terminals on request.

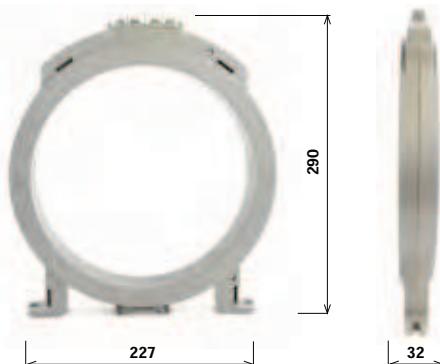


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO160-50A	0,65
60	1	0,1	TO160-60A	0,65

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO210

Toroidal transformer with central window diameter 210mm. Fast-On terminals on request.

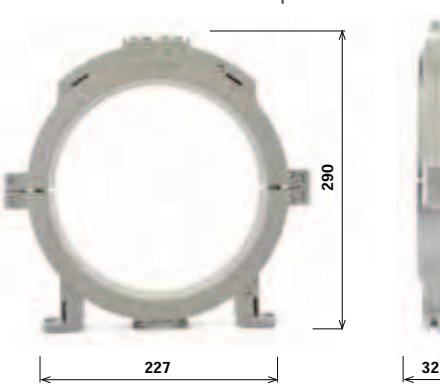


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO210-50A	0,75
60	1	0,1	TO210-60A	0,75

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TOA210

Toroidal transformer with central window diameter 210mm and split-core.
Fast-On terminals on request.

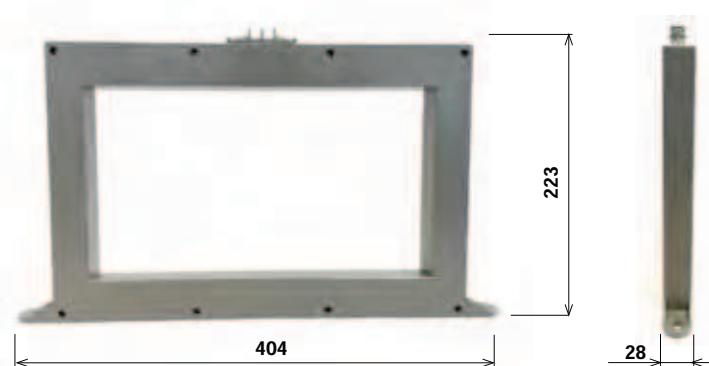


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TOA210-50A	1,20
60	1	0,1	TOA210-60A	1,20

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO1528

Toroidal transformer with central window 156x281mm.

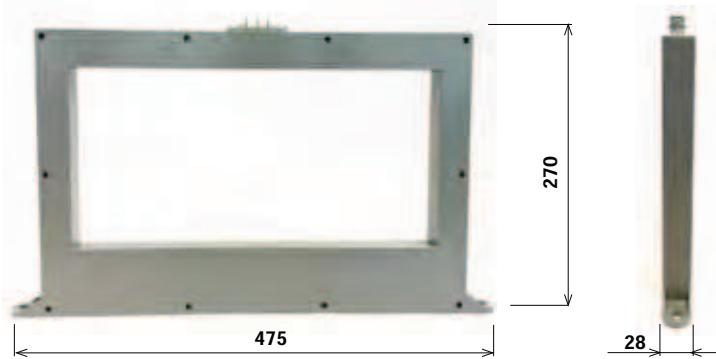


Primary current A	Class	Power VA	Secondary current 0,1A	Weight Kg
50	1	0,1	TO1528-50A	
60	1	0,1	TO1528-60A	

TOROIDAL TRANSFORMER FOR EARTH LEAKAGE RELAYS

TO1735

Toroidal transformer with central window 170x351mm.



Primary current A	Class	Power	Secondary current 0,1A	Weight Kg
50	1	0,1	TO1735-50A	
60	1	0,1	TO1735-60A	

CURRENT TRANSFORMERS – TR SERIES

PROTECTION CURRENT TRANSFORMERS – TR...P SERIES

DOUBLE RATIO CURRENT TRANSFORMERS – TRD SERIES

Range of transformers with standard dimensions in which the short circuit on terminals or the connection of grounding can be made using the double fast-on (present in the socket of accessories), or by wiring the two wires on the same terminal.

ASSEMBLY INSTRUCTIONS

With the transformer it is provided a socket containing a series of accessories that depending on the model, allow various types of fixations:

- The mounting on DIN rail EN 50022 is performed using the fork accessory
- The wall mounting using the two brackets
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

DIN rail-mounting



Place the transformer on a DIN rail, insert the fork in their seats and push it as shown in the figures

Wall fixing



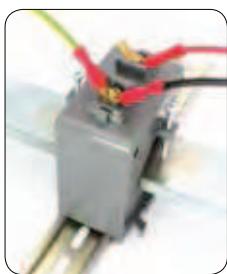
Insert the brackets into the proper places as shown in the figure, then secure them to the wall with two screws (not supplied)

Mounting on cable or primary busbar



Fixing possible for all codes, using the two screws supplied with the transformers, as shown in the figure. In this case, be sure to protect the tips to avoid the piercing of the primary cable.

WIRING INSTRUCTION



The cables of the secondary current must be connected to each of their terminal, S1 and S2. The cable/bar of the primary current must be inserted into the transformer paying attention to the flow direction of the current, which must always be in the direction P1 → P2.

The double fast-on terminals as accessory, allows you to make a short circuits when it is necessary to disconnect the load from the transformer, so as not to damage the transformer or the operator, or make the ground if you do not want to use the same terminal used for connection to the load.



DOUBLE RATIO CURRENT TRANSFORMERS

- Under request it is possible to produce current transformers with double ratio on secondary; this versatile range allows to save space inside the electrical panel having need.

S1-S2 is always to be considered as the lower ratio

S1-S3 is always to be considered as the higher ratio

Reports or technical data different from the proposed, can be made on request.

MEASURING TRANSFORMERS CODE TABLE

Family ID

Central window dimensions

P1E=wounded primary (primary and secondary on terminals)

P2E=wounded primary (primary on terminals and secondary on incorporated bar)

P1=w布布 wound primary (primary and secondary on terminals)

P2=w布布 wound primary (primary on terminals and secondary on incorporated bar)

0=15 mm diameter; 1=diameter 22 mm; 3=bar 30x10 mm

43=bar 30x10 mm; 4= bar 40x10 mm; 5=bar 50x20 mm

535=diameter 35 mm; 6=bar 60x20 mm; 8=bar 80x30 mm

827=diameter 27 mm; 12=bar 127x54 mm; 8V=vertical bar 30x80 mm

12V= vertical bar 30x120 mm

Primary current 001=1A; 005= 5A; 010=10A; 015=15A; 020=20A; 025=25A;
030=30A; 040=40A; 050=50A; 060=60A; 075=75A; 080=80A;
100=100A; 125=125A; 150=150A; 200=200A; 250=250A;
300=300A; 400=400A; 500=500A; 600=600A; 750=750A;
800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A;
1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A;
3k2=3200A; 3k5=3500A; 4k0=4000A

A Ampère

Secondary current 1=1A; 5=5A

Class 0.5; 1; 3

Power 1; 1.5; 2; 2.5; 3; 4; 5; 6; 10; 15; 20; 30; 40; 50

VA Volt - Ampère

Y Tropicalized version

R Resined anti vibrating version

T Version with housing resistant to high temperatures

X Anonymous version

Other possible data for a total of 30 characters. Example: value of FS

PROTECTION TRANSFORMERS CODE TABLE

Family ID

Central window dimensions

P1P=w布布 wound primary (primary and secondary on terminals)

P2P=w布布 wound primary (primary on terminals and secondary on incorporated bar)

5P=bar 50x20 mm; 535P=diameter 35 mm; 6P=bar 60x20 mm

8P=bar 80x30 mm; 827P=diameter 27 mm; 12P=bar 127x54 mm;

Primary current 001=1A; 005= 5A; 010=10A; 015=15A; 020=20A; 025=25A;
030=30A; 040=40A; 050=50A; 060=60A; 075=75A; 080=80A;
100=100A; 125=125A; 150=150A; 200=200A; 250=250A;
300=300A; 400=400A; 500=500A; 600=600A; 750=750A;
800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A;
1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A;
3k2=3200A; 3k5=3500A; 4k0=4000A

A Ampère

Secondary current 1=1A; 5=5A

Class 5P5; 5P10; 5P15; 5P20

Power 1; 1.2; 1.5; 2; 2.5; 3; 4; 5; 6; 10; 15; 20; 30; 40; 50

VA Volt - Ampère

Y Tropicalized version

R Resined anti vibrating version

T Version with housing resistant to high temperatures

X Anonymous version

Other possible data for a total of 30 characters. Example: value of FS

DOUBLE RATIO MEASURING TRANSFORMERS CODE TABLE

(THE CODE IS THE HIGHER RATIO)

Family ID

Central window dimensions

P2D=wounded primary (primary on terminals and secondary on incorporated bar)

1D= diameter 22 mm; 3D=bar 30x10 mm; 4D= bar 40x10 mm;

5D=bar 50x20 mm; 535D= diameter 35 mm; 6D=bar 60x20 mm;

8D= bar 80x30 mm; 827D=diameter 27 mm; 12D= bar 127x54 mm

Primary current 040=40A; 050=50A; 060=60A; 075=75A; 080=80A;
 100=100A; 125=125A; 150=150A; 200=200A; 250=250A;
 300=300A; 400=400A; 500=500A; 600=600A; 750=750A;
 800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A;
 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A;
 3k2=3200A; 3k5=3500A; 4k0=4000A

A Ampère

Secondary current 1=1A; 5=5A

Class 0.5; 1; 3

Power 1; 1.5; 2; 2.5; 3; 4; 5; 6; 10; 15; 20; 30; 40; 50

VA Volt - Ampère

Y Tropicalized version

R Resined anti vibrating version

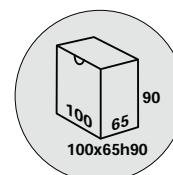
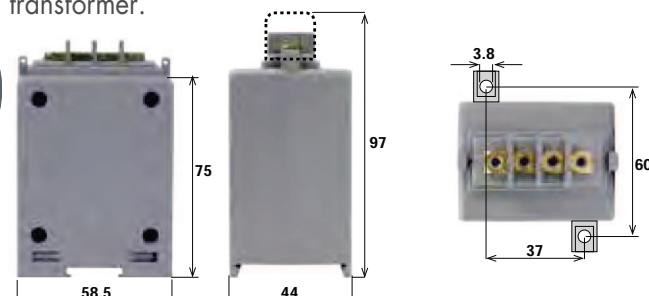
T Version with housing resistant to high temperatures

X Anonymous version

Other possible data for a total of 30 characters. Example: value of FS

TRP1E

Transformer with wounded primary where the primary and secondary currents are present on the terminals on top of the transformer.

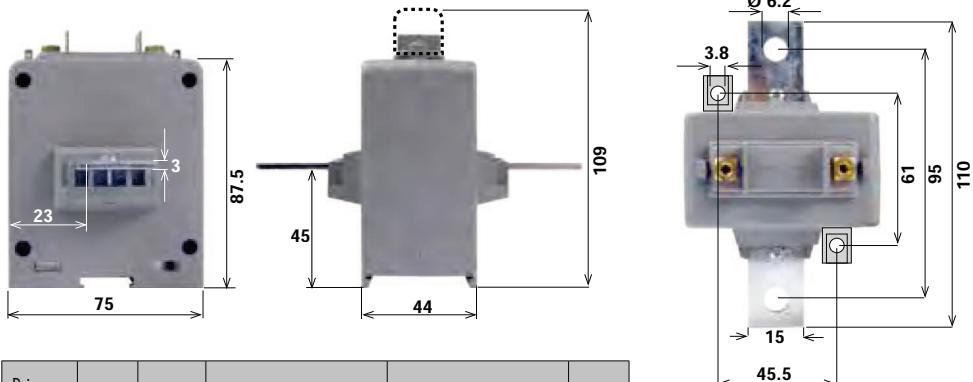


Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1	1	3	TRP1E-001A5-1-3VA	TRP1E-001A1-1-3VA	1,40
5	1	3	TRP1E-005A5-1-3VA	TRP1E-005A1-1-3VA	1,40
10	1	3	TRP1E-010A5-1-3VA	TRP1E-010A1-1-3VA	1,40
15	1	3	TRP1E-015A5-1-3VA	TRP1E-015A1-1-3VA	1,40
20	1	3	TRP1E-020A5-1-3VA	TRP1E-020A1-1-3VA	1,40
25	1	3	TRP1E-025A5-1-3VA	TRP1E-025A1-1-3VA	1,40
30	1	3	TRP1E-030A5-1-3VA	TRP1E-030A1-1-3VA	1,40
40	1	3	TRP1E-040A5-1-3VA	TRP1E-040A1-1-3VA	1,40

PRIMARY WOUNDED MEASURING CURRENT TRANSFORMERS

TRP2E

Transformer with primary wounded where the primary current is present on the central bar 15x3mm, incorporated In the transformer.

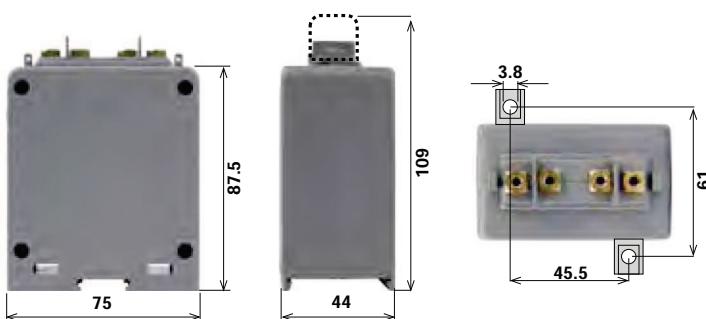


Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
50	1	3	TRP2E-050A5-1-3VA	TRP2E-050A1-1-3VA	0,50
60	1	3	TRP2E-060A5-1-3VA	TRP2E-060A1-1-3VA	0,50
75	1	3	TRP2E-075A5-1-3VA	TRP2E-075A1-1-3VA	0,50
80	1	3	TRP2E-080A5-1-3VA	TRP2E-080A1-1-3VA	0,50
100	1	3	TRP2E-100A5-1-3VA	TRP2E-100A1-1-3VA	0,50
120	1	3	TRP2E-120A5-1-3VA	TRP2E-120A1-1-3VA	0,50
125	1	3	TRP2E-125A5-1-3VA	TRP2E-125A1-1-3VA	0,50
150	1	3	TRP2E-150A5-1-3VA	TRP2E-150A1-1-3VA	0,50

PRIMARY WOUNDED PROTECTION CURRENT TRANSFORMERS

TRP1 / TRP1P

Transformer with primary wounded where the primary and secondary currents are present on the top terminals of transformer.

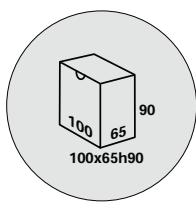


Measuring transformers

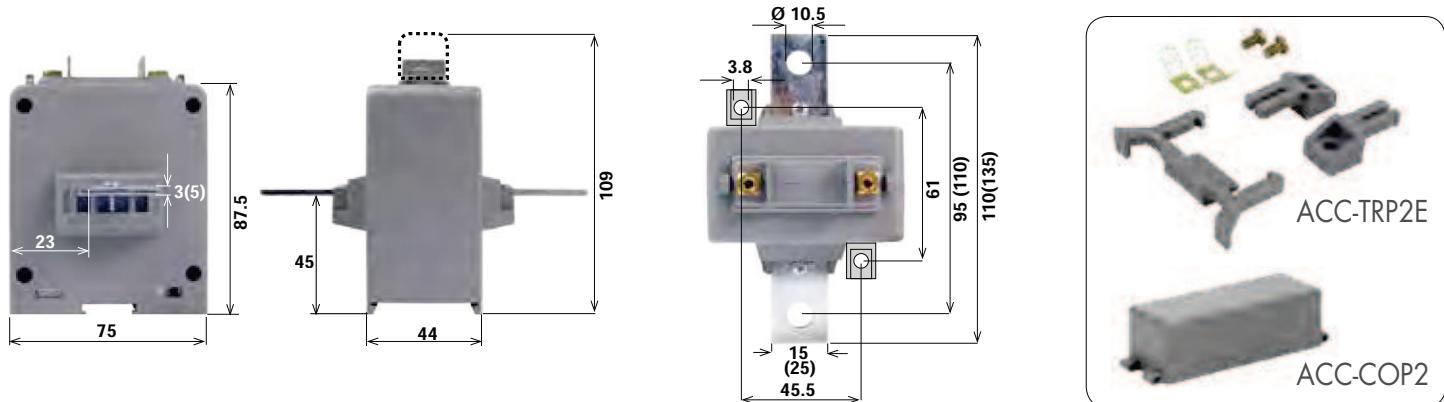
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1	0,5	6	TRP1-001A5-0,5-6VA	TRP1-001A1-0,5-6VA	0,40
5	0,5	6	TRP1-005A5-0,5-6VA	TRP1-005A1-0,5-6VA	0,40
10	0,5	6	TRP1-010A5-0,5-6VA	TRP1-010A1-0,5-6VA	0,40
15	0,5	6	TRP1-015A5-0,5-6VA	TRP1-015A1-0,5-6VA	0,40
20	0,5	6	TRP1-020A5-0,5-6VA	TRP1-020A1-0,5-6VA	0,40
25	0,5	6	TRP1-025A5-0,5-6VA	TRP1-025A1-0,5-6VA	0,40
30	0,5	6	TRP1-030A5-0,5-6VA	TRP1-030A1-0,5-6VA	0,40
40	0,5	6	TRP1-040A5-0,5-6VA	TRP1-040A1-0,5-6VA	0,40

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
5	5P5	4	TRP1P-005A5-5P5-4VA	TRP1P-005A1-5P5-4VA	0,40
5	5P10	2	TRP1P-005A5-5P10-2VA	TRP1P-005A1-5P10-2VA	0,40
10	5P5	4	TRP1P-010A5-5P5-4VA	TRP1P-010A1-5P5-4VA	0,40
10	5P10	2	TRP1P-010A5-5P10-2VA	TRP1P-010A1-5P10-2VA	0,40
15	5P5	4	TRP1P-015A5-5P5-4VA	TRP1P-015A1-5P5-4VA	0,40
15	5P10	2	TRP1P-015A5-5P10-2VA	TRP1P-015A1-5P10-2VA	0,40
20	5P5	4	TRP1P-020A5-5P5-4VA	TRP1P-020A1-5P5-4VA	0,40
20	5P10	2	TRP1P-020A5-5P10-2VA	TRP1P-020A1-5P10-2VA	0,40
25	5P5	4	TRP1P-025A5-5P5-4VA	TRP1P-025A1-5P5-4VA	0,40
25	5P10	2	TRP1P-025A5-5P10-2VA	TRP1P-025A1-5P10-2VA	0,40
30	5P5	4	TRP1P-030A5-5P5-4VA	TRP1P-030A1-5P5-4VA	0,40
30	5P10	2	TRP1P-030A5-5P10-2VA	TRP1P-030A1-5P10-2VA	0,40
40	5P5	4	TRP1P-040A5-5P5-4VA	TRP1P-040A1-5P5-4VA	0,40
40	5P10	2	TRP1P-040A5-5P10-2VA	TRP1P-040A1-5P10-2VA	0,40



Primary wounded Transformer where the primary current is present on the central bar incorporated in the transformer.
 -with primary current from 50A to 80A the central bar has 15x3x110mm dimensions and fixing holes 6mm diameter
 -with primary current from 100A to 300A the central bar has 25x3x135mm dimensions and fixing holes 10mm diameter
 -with primary current from 400A to 500A the central bar has 25x5x135mm dimensions and fixing holes 10mm diameter



Measuring transformers

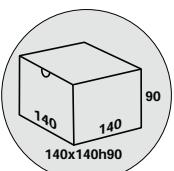
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
50	0,5	6	TRP2-050A5-0.5-6VA	TRP2-050A1-0.5-6VA	0,50
60	0,5	6	TRP2-060A5-0.5-6VA	TRP2-060A1-0.5-6VA	0,50
75	0,5	6	TRP2-075A5-0.5-6VA	TRP2-075A1-0.5-6VA	0,50
80	0,5	6	TRP2-080A5-0.5-6VA	TRP2-080A1-0.5-6VA	0,50
100	0,5	6	TRP2-100A5-0.5-6VA	TRP2-100A1-0.5-6VA	0,50
120	0,5	6	TRP2-120A5-0.5-6VA	TRP2-120A1-0.5-6VA	0,50
125	0,5	6	TRP2-125A5-0.5-6VA	TRP2-125A1-0.5-6VA	0,50
150	0,5	6	TRP2-150A5-0.5-6VA	TRP2-150A1-0.5-6VA	0,50
200	0,5	6	TRP2-200A5-0.5-6VA	TRP2-200A1-0.5-6VA	0,50
250	0,5	6	TRP2-250A5-0.5-6VA	TRP2-250A1-0.5-6VA	0,50
300	0,5	6	TRP2-300A5-0.5-6VA	TRP2-300A1-0.5-6VA	0,50
400	0,5	6	TRP2-400A5-0.5-6VA	TRP2-400A1-0.5-6VA	0,50
500	0,5	6	TRP2-500A5-0.5-6VA	TRP2-500A1-0.5-6VA	0,50

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
50	5P5	4	TRP2P-050A5-5P5-4VA	TRP2P-050A1-5P5-4VA	0,50
50	5P10	2	TRP2P-050A5-5P10-2VA	TRP2P-050A1-5P10-2VA	0,50
60	5P5	4	TRP2P-060A5-5P5-4VA	TRP2P-060A1-5P5-4VA	0,50
60	5P10	2	TRP2P-060A5-5P10-2VA	TRP2P-060A1-5P10-2VA	0,50
75	5P5	4	TRP2P-075A5-5P5-4VA	TRP2P-075A1-5P5-4VA	0,50
75	5P10	2	TRP2P-075A5-5P10-2VA	TRP2P-075A1-5P10-2VA	0,50
80	5P5	4	TRP2P-080A5-5P5-4VA	TRP2P-080A1-5P5-4VA	0,50
80	5P10	2	TRP2P-080A5-5P10-2VA	TRP2P-080A1-5P10-2VA	0,50
100	5P5	4	TRP2P-100A5-5P5-4VA	TRP2P-100A1-5P5-4VA	0,50
100	5P10	2	TRP2P-100A5-5P10-2VA	TRP2P-100A1-5P10-2VA	0,50
120	5P5	4	TRP2P-120A5-5P5-4VA	TRP2P-120A1-5P5-4VA	0,50
120	5P10	2	TRP2P-120A5-5P10-2VA	TRP2P-120A1-5P10-2VA	0,50
125	5P5	4	TRP2P-125A5-5P5-4VA	TRP2P-125A1-5P5-4VA	0,50
125	5P10	2	TRP2P-125A5-5P10-2VA	TRP2P-125A1-5P10-2VA	0,50
150	5P5	4	TRP2P-150A5-5P5-4VA	TRP2P-150A1-5P5-4VA	0,50
150	5P10	2	TRP2P-150A5-5P10-2VA	TRP2P-150A1-5P10-2VA	0,50

Double ratio transformers

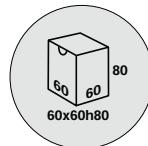
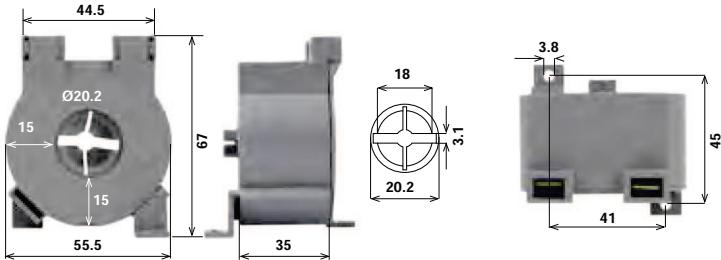
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
5-10	0,5	5-15	TRP2D-010A5-0.5-5VA15	TRP2D-010A1-0.5-5VA15	0,60
10-20	0,5	5-15	TRP2D-020A5-0.5-5VA15	TRP2D-020A1-0.5-5VA15	0,60
15-30	0,5	5-15	TRP2D-030A5-0.5-5VA15	TRP2D-030A1-0.5-5VA15	0,60
20-40	0,5	5-15	TRP2D-040A5-0.5-5VA15	TRP2D-040A1-0.5-5VA15	0,60
25-50	0,5	5-15	TRP2D-050A5-0.5-5VA15	TRP2D-050A1-0.5-5VA15	0,60
30-60	0,5	5-15	TRP2D-060A5-0.5-5VA15	TRP2D-060A1-0.5-5VA15	0,60
40-80	0,5	5-15	TRP2D-080A5-0.5-5VA15	TRP2D-080A1-0.5-5VA15	0,60
50-100	0,5	6-6	TRP2D-100A5-0.5-6VA6	TRP2D-100A1-0.5-6VA6	0,60
60-120	0,5	6-6	TRP2D-120A5-0.5-6VA6	TRP2D-120A1-0.5-6VA6	0,60
75-150	0,5	6-6	TRP2D-150A5-0.5-6VA6	TRP2D-150A1-0.5-6VA6	0,60
80-160	0,5	6-6	TRP2D-160A5-0.5-6VA6	TRP2D-160A1-0.5-6VA6	0,60
100-200	0,5	6-6	TRP2D-200A5-0.5-6VA6	TRP2D-200A1-0.5-6VA6	0,60
120-240	0,5	6-6	TRP2D-240A5-0.5-6VA6	TRP2D-240A1-0.5-6VA6	0,60
125-250	0,5	6-6	TRP2D-250A5-0.5-6VA6	TRP2D-250A1-0.5-6VA6	0,60
150-300	0,5	6-6	TRP2D-300A5-0.5-6VA6	TRP2D-300A1-0.5-6VA6	0,60
200-400	0,5	6-6	TRP2D-400A5-0.5-6VA6	TRP2D-400A1-0.5-6VA6	0,60
250-500	0,5	6-6	TRP2D-500A5-0.5-6VA6	TRP2D-500A1-0.5-6VA6	0,60



MEASURING CURRENT TRANSFORMERS

TR0

Transformer suitable for primary current by cable with maximum diameter 22mm.



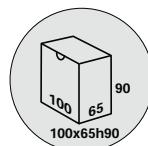
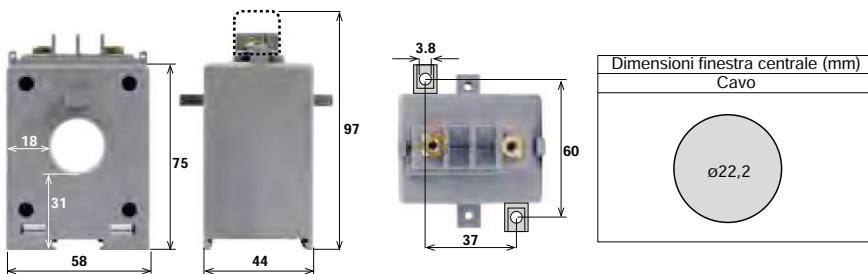
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	2	TR0-040A5-3-2VA	TR0-040A1-3-2VA	0,25
50	3	2	TR0-050A5-3-2VA	TR0-050A1-3-2VA	0,25
60	3	3	TR0-060A5-3-3VA	TR0-060A1-3-3VA	0,25
75	3	3	TR0-075A5-3-3VA	TR0-075A1-3-3VA	0,25
80	3	3	TR0-080A5-3-3VA	TR0-080A1-3-3VA	0,25
100	1	3	TR0-100A5-1-3VA	TR0-100A1-1-3VA	0,25
120	1	3	TR0-120A5-1-3VA	TR0-120A1-1-3VA	0,25
125	0.5	3	TR0-125A5-0.5-3VA	TR0-125A1-0.5-3VA	0,25
150	0.5	3	TR0-150A5-0.5-3VA	TR0-150A1-0.5-3VA	0,25
200	0.5	3	TR0-200A5-0.5-3VA	TR0-200A1-0.5-3VA	0,25
250	0.5	5	TR0-250A5-0.5-5VA	TR0-250A1-0.5-5VA	0,25

MEASURING CURRENT TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR1 / TR1D

Transformer suitable for primary current by cable with maximum diameter 20mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	2	TR1-040A5-3-2VA	TR1-040A1-3-2VA	0,30
50	3	2	TR1-050A5-3-2VA	TR1-050A1-3-2VA	0,30
60	3	3	TR1-060A5-3-3VA	TR1-060A1-3-3VA	0,30
75	3	3	TR1-075A5-3-3VA	TR1-075A1-3-3VA	0,30
80	3	3	TR1-080A5-3-3VA	TR1-080A1-3-3VA	0,30
100	1	3	TR1-100A5-1-3VA	TR1-100A1-1-3VA	0,30
120	1	3	TR1-120A5-1-3VA	TR1-120A1-1-3VA	0,30
125	0.5	2	TR1-125A5-0.5-2VA	TR1-125A1-0.5-2VA	0,30
150	0.5	3	TR1-150A5-0.5-3VA	TR1-150A1-0.5-3VA	0,30
200	0.5	3	TR1-200A5-0.5-3VA	TR1-200A1-0.5-3VA	0,30
250	0.5	5	TR1-250A5-0.5-5VA	TR1-250A1-0.5-5VA	0,30

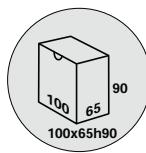
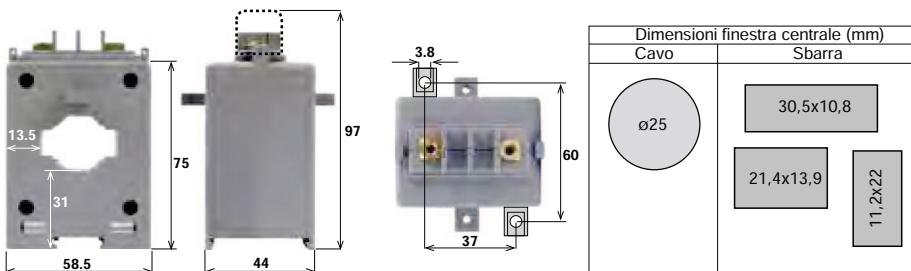
Double ratio transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40-80	3	2.3	TR1D-080A5-3-2VA3	TR1D-080A1-3-2VA3	0,60
50-100	3	2.3	TR1D-100A5-3-2VA3	TR1D-100A1-3-2VA3	0,60
60-120	3	3.3	TR1D-120A5-3-3VA3	TR1D-120A1-3-3VA3	0,60
75-150	3	3.3	TR1D-150A5-3-3VA3	TR1D-150A1-3-3VA3	0,60
80-160	3	3.3	TR1D-160A5-3-3VA3	TR1D-160A1-3-3VA3	0,60
100-200	1-0.5	3.3	TR1D-200A5-105-3VA3	TR1D-200A1-105-3VA3	0,60
120-240	1-0.5	3.3	TR1D-240A5-105-3VA3	TR1D-240A1-105-3VA3	0,60
125-250	0.5-0.5	2.5	TR1D-250A5-0505-2VA5	TR1D-250A1-0505-2VA5	0,60
150-300	0.5-0.5	3.5	TR1D-300A5-0505-3VA5	TR1D-300A1-0505-3VA5	0,60
200-400	0.5-0.5	3.5	TR1D-400A5-0505-3VA5	TR1D-400A1-0505-3VA5	0,60
250-500	0.5-0.5	5.5	TR1D-500A5-0505-5VA5	TR1D-500A1-0505-5VA5	0,60

MEASURING TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR3 / TR3D

Transformer suitable for primary current by cable with a maximum diameter of 21mm, by horizontal bar 20x10mm or vertical bar 10x20mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	1	TR3-040A5-3-1VA	TR3-040A1-3-1VA	0,30
50	3	1,5	TR3-050A5-3-1.5VA	TR3-050A1-3-1.5VA	0,30
60	3	2	TR3-060A5-3-2VA	TR3-060A1-3-2VA	0,30
75	3	2	TR3-075A5-3-2VA	TR3-075A1-3-2VA	0,30
80	3	2	TR3-080A5-3-2VA	TR3-080A1-3-2VA	0,30
100	1	2,5	TR3-100A5-1-2.5VA	TR3-100A1-1-2.5VA	0,30
120	1	2,5	TR3-120A5-1-2.5VA	TR3-120A1-1-2.5VA	0,30
125	1	3	TR3-125A5-1-3VA	TR3-125A1-1-3VA	0,30
150	0,5	2	TR3-150A5-0.5-2VA	TR3-150A1-0.5-2VA	0,30
200	0,5	3	TR3-200A5-0.5-3VA	TR3-200A1-0.5-3VA	0,30
250	0,5	4	TR3-250A5-0.5-4VA	TR3-250A1-0.5-4VA	0,30
300	0,5	5	TR3-300A5-0.5-5VA	TR3-300A1-0.5-5VA	0,30
400	0,5	6	TR3-400A5-0.5-6VA	TR3-400A1-0.5-6VA	0,30
500	0,5	6	TR3-500A5-0.5-6VA	TR3-500A1-0.5-6VA	0,30
600	0,5	6	TR3-600A5-0.5-6VA	TR3-600A1-0.5-6VA	0,30

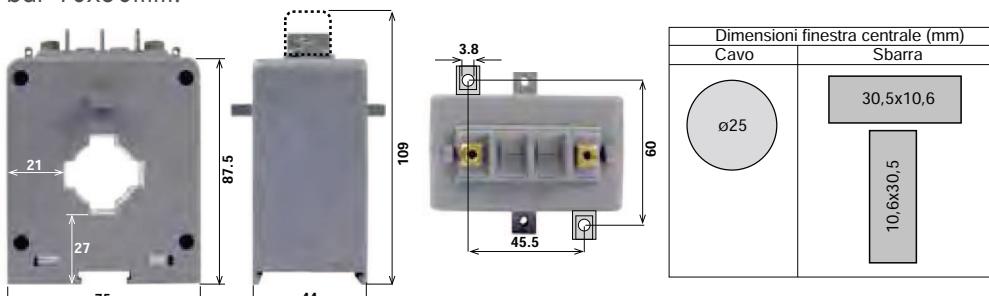
Double ratio transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100-200	1-0,5	2,5-3	TR3D-200A5-105-2.5VA3	TR3D-200A1-105-2.5VA3	0,60
120-240	1-0,5	2,5-4	TR3D-240A5-105-2.5VA4	TR3D-240A1-105-2.5VA4	0,60
125-250	1-0,5	3-4	TR3D-250A5-105-3VA4	TR3D-250A1-105-3VA4	0,60
150-300	0,5	2-5	TR3D-300A5-0.5-2VA5	TR3D-300A1-0.5-2VA5	0,60
200-400	0,5	3-6	TR3D-400A5-0.5-3VA6	TR3D-400A1-0.5-3VA6	0,60
250-500	0,5	4-6	TR3D-500A5-0.5-4VA6	TR3D-500A1-0.5-4VA6	0,60
300-600	0,5	5-6	TR3D-600A5-0.5-5VA6	TR3D-600A1-0.5-5VA6	0,60

MEASURING TRANSFORMERS

TR43

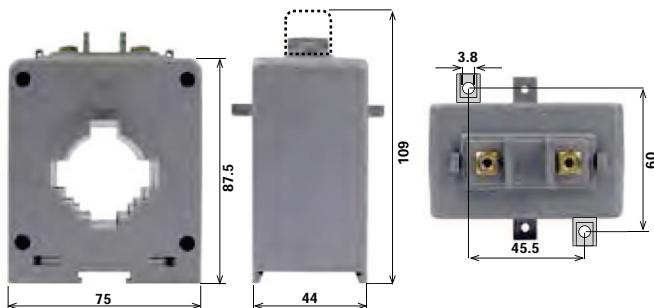
Transformer suitable for primary current by cable with a maximum diameter of 25mm, by horizontal bar 30x10mm or vertical bar 10x30mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	0,5	2,5	TR43-100A5-0.5-2.5VA	TR43-100A1-0.5-2.5VA	0,70
120	0,5	3	TR43-120A5-0.5-3VA	TR43-120A1-0.5-3VA	0,70
125	0,5	3	TR43-125A5-0.5-3VA	TR43-125A1-0.5-3VA	0,70
150	0,5	5	TR43-150A5-0.5-5VA	TR43-150A1-0.5-5VA	0,70
200	0,5	6	TR43-200A5-0.5-6VA	TR43-200A1-0.5-6VA	0,70
250	0,5	10	TR43-250A5-0.5-10VA	TR43-250A1-0.5-10VA	0,70
300	0,5	10	TR43-300A5-0.5-10VA	TR43-300A1-0.5-10VA	0,70
400	0,5	10	TR43-400A5-0.5-10VA	TR43-400A1-0.5-10VA	0,70
500	0,5	10	TR43-500A5-0.5-10VA	TR43-500A1-0.5-10VA	0,70
600	0,5	10	TR43-600A5-0.5-10VA	TR43-600A1-0.5-10VA	0,70

Transformer suitable for primary current by cable with a maximum diameter of 21mm, by horizontal bar 20x10mm or vertical bar 10x20mm.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
Ø32	40,7x11,2
	33x20
	25,8x25
	11,1x40,7
	20,9x30

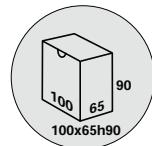


Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	3	TR4-100A5-1-3VA	TR4-100A1-1-3VA	0,50
120	1	3	TR4-120A5-1-3VA	TR4-120A1-1-3VA	0,50
125	1	3	TR4-125A5-1-3VA	TR4-125A1-1-3VA	0,50
150	1	3	TR4-150A5-1-3VA	TR4-150A1-1-3VA	0,50
200	1	4	TR4-200A5-1-4VA	TR4-200A1-1-4VA	0,50
250	1	6	TR4-250A5-1-6VA	TR4-250A1-1-6VA	0,50
300	0,5	6	TR4-300A5-0,5-6VA	TR4-300A1-0,5-6VA	0,50
400	0,5	10	TR4-400A5-0,5-10VA	TR4-400A1-0,5-10VA	0,50
500	0,5	10	TR4-500A5-0,5-10VA	TR4-500A1-0,5-10VA	0,50
600	0,5	10	TR4-600A5-0,5-10VA	TR4-600A1-0,5-10VA	0,50
750	0,5	10	TR4-750A5-0,5-10VA	TR4-750A1-0,5-10VA	0,50
800	0,5	10	TR4-800A5-0,5-10VA	TR4-800A1-0,5-10VA	0,50
1000	0,5	10	TR4-1K0A5-0,5-10VA	TR4-1K0A1-0,5-10VA	0,50

Double ratio transformers

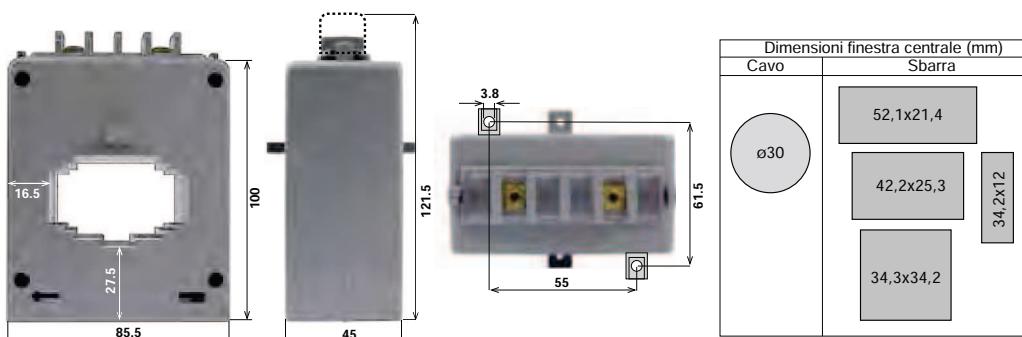
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100-200	1	3-4	TR4D-200A5-1-3VA4	TR4D-200A1-1-3VA4	0,70
120-240	1	3-6	TR4D-240A5-1-3VA6	TR4D-240A1-1-3VA6	0,70
125-250	1	3-6	TR4D-250A5-1-3VA6	TR4D-250A1-1-3VA6	0,70
150-300	1-0,5	3-6	TR4D-300A5-105-3VA6	TR4D-300A1-105-3VA6	0,70
200-400	1-0,5	4-10	TR4D-400A5-105-4VA10	TR4D-400A1-105-4VA10	0,70
250-500	1-0,5	6-10	TR4D-500A5-105-6VA10	TR4D-500A1-105-6VA10	0,70
300-600	0,5	6-10	TR4D-600A5-0,5-6VA10	TR4D-600A1-0,5-6VA10	0,70
400-800	0,5	10-10	TR4D-800A5-0,5-10VA10	TR4D-800A1-0,5-10VA10	0,70



MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR5 / TR5P / TR5D

Transformer suitable for primary current by cable with a maximum diameter of 30mm, by horizontal bar 30x30mm, 40x25mm, 50x20mm or vertical bar 30x30mm, 25x40mm, 20x50mm.



Measuring transformers

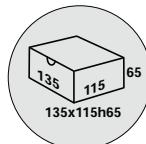
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	3	TR5-100A5-1-3VA	TR5-100A1-1-3VA	0,50
120	1	3	TR5-120A5-1-3VA	TR5-120A1-1-3VA	0,50
125	1	3	TR5-125A5-1-3VA	TR5-125A1-1-3VA	0,50
150	1	3	TR5-150A5-1-3VA	TR5-150A1-1-3VA	0,50
200	1	4	TR5-200A5-1-4VA	TR5-200A1-1-4VA	0,50
250	0,5	3	TR5-250A5-0,5-3VA	TR5-250A1-0,5-3VA	0,50
300	0,5	4	TR5-300A5-0,5-4VA	TR5-300A1-0,5-4VA	0,50
400	0,5	6	TR5-400A5-0,5-6VA	TR5-400A1-0,5-6VA	0,50
500	0,5	10	TR5-500A5-0,5-10VA	TR5-500A1-0,5-10VA	0,50
600	0,5	10	TR5-600A5-0,5-10VA	TR5-600A1-0,5-10VA	0,50
750	0,5	10	TR5-750A5-0,5-10VA	TR5-750A1-0,5-10VA	0,50
800	0,5	10	TR5-800A5-0,5-10VA	TR5-800A1-0,5-10VA	0,50
1000	0,5	10	TR5-1K0A5-0,5-10VA	TR5-1K0A1-0,5-10VA	0,50
1200	0,5	10	TR5-1K2A5-0,5-10VA	TR5-1K2A1-0,5-10VA	0,50
1250	0,5	10	TR5-1K25A5-0,5-10VA	TR5-1K25A1-0,5-10VA	0,50
1500	0,5	20	TR5-1K5A5-0,5-20VA	TR5-1K5A1-0,5-20VA	0,50
1600	0,5	20	TR5-1K6A5-0,5-20VA	TR5-1K6A1-0,5-20VA	0,50
2000	0,5	20	TR5-2K0A5-0,5-20VA	TR5-2K0A1-0,5-20VA	0,50

Protection transformers

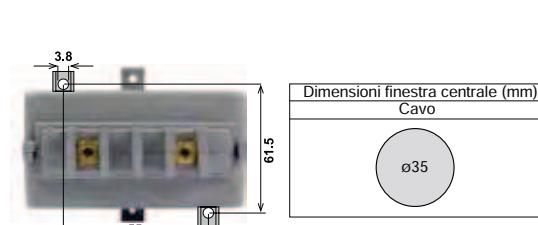
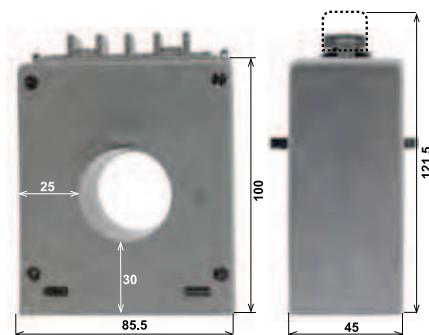
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
250	5P5	3	TR5P-250A5-5P5-3VA	TR5P-250A1-5P5-3VA	0,50
250	5P10	1	TR5P-250A5-5P10-1VA	TR5P-250A1-5P10-1VA	0,50
300	5P5	3	TR5P-300A5-5P5-3VA	TR5P-300A1-5P5-3VA	0,50
300	5P10	1	TR5P-300A5-5P10-1VA	TR5P-300A1-5P10-1VA	0,50
400	5P5	3,5	TR5P-400A5-5P5-3,5VA	TR5P-400A1-5P5-3,5VA	0,50
400	5P10	1	TR5P-400A5-5P10-1VA	TR5P-400A1-5P10-1VA	0,50
500	5P5	3,5	TR5P-500A5-5P5-3,5VA	TR5P-500A1-5P5-3,5VA	0,50
500	5P10	1	TR5P-500A5-5P10-1VA	TR5P-500A1-5P10-1VA	0,50
600	5P5	5	TR5P-600A5-5P5-5VA	TR5P-600A1-5P5-5VA	0,50
600	5P10	1	TR5P-600A5-5P10-1VA	TR5P-600A1-5P10-1VA	0,50
750	5P5	6	TR5P-750A5-5P5-6VA	TR5P-750A1-5P5-6VA	0,50
750	5P10	1	TR5P-750A5-5P10-1VA	TR5P-750A1-5P10-1VA	0,50
800	5P5	6	TR5P-800A5-5P5-6VA	TR5P-800A1-5P5-6VA	0,50
800	5P10	1	TR5P-800A5-5P10-1VA	TR5P-800A1-5P10-1VA	0,50
1000	5P5	8	TR5P-1K0A5-5P5-8VA	TR5P-1K0A1-5P5-8VA	0,50
1000	5P10	1	TR5P-1K0A5-5P10-1VA	TR5P-1K0A1-5P10-1VA	0,50

Double ratio transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200-400	1-0,5	4-6	TR5D-400A5-105-4VA6	TR5D-400A1-105-4VA6	0,70
250-500	0,5	3-10	TR5D-500A5-0,5-3VA10	TR5D-500A1-0,5-3VA10	0,70
300-600	0,5	4-10	TR5D-600A5-0,5-4VA10	TR5D-600A1-0,5-4VA10	0,70
400-800	0,5	6-10	TR5D-800A5-0,5-6VA10	TR5D-800A1-0,5-6VA10	0,70
500-1000	0,5	10-10	TR5D1K0A5-0,5-10VA10	TR5D1K0A1-0,5-10VA10	0,70

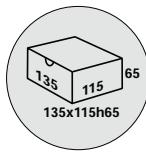


Transformer suitable for primary current by cable with a maximum diameter of 35mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
120	0.5	2.5	TR535-120A5-0.5-2.5VA	TR535-120A1-0.5-2.5VA	0,70
125	0.5	2.5	TR535-125A5-0.5-2.5VA	TR535-125A1-0.5-2.5VA	0,70
150	0.5	3	TR535-150A5-0.5-3VA	TR535-150A1-0.5-3VA	0,70
200	0.5	6	TR535-200A5-0.5-6VA	TR535-200A1-0.5-6VA	0,90
250	0.5	10	TR535-250A5-0.5-10VA	TR535-250A1-0.5-10VA	0,90
300	0.5	15	TR535-300A5-0.5-15VA	TR535-300A1-0.5-15VA	1,00
400	0.5	20	TR535-400A5-0.5-20VA	TR535-400A1-0.5-20VA	1,00
500	0.5	25	TR535-500A5-0.5-25VA	TR535-500A1-0.5-25VA	0,60
600	0.5	30	TR535-600A5-0.5-30VA	TR535-600A1-0.5-30VA	0,70
750	0.5	30	TR535-750A5-0.5-30VA	TR535-750A1-0.5-30VA	0,60
800	0.5	30	TR535-800A5-0.5-30VA	TR535-800A1-0.5-30VA	0,70
1000	0.5	30	TR535-1k0A5-0.5-30VA	TR535-1k0A1-0.5-30VA	0,50



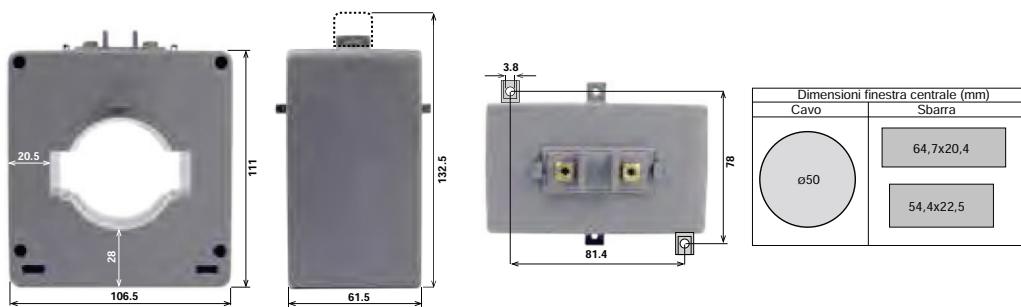
Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
150	5P5	4.5	TR535P-150A5-5P5-4.5VA	TR535P-150A1-5P5-4.5VA	0,70
150	5P10	1.75	TR535P-150A5-5P10-1.75VA	TR535P-150A1-5P10-1.75VA	0,70
150	5P15	1	TR535P-150A5-5P15-1VA	TR535P-150A1-5P15-1VA	0,70
200	5P5	6	TR535P-200A5-5P5-6VA	TR535P-200A1-5P5-6VA	0,90
200	5P10	2.5	TR535P-200A5-5P10-2.5VA	TR535P-200A1-5P10-2.5VA	0,90
200	5P15	1	TR535P-200A5-5P15-1VA	TR535P-200A1-5P15-1VA	0,90
250	5P5	8	TR535P-250A5-5P5-8VA	TR535P-250A1-5P5-8VA	0,90
250	5P10	3	TR535P-250A5-5P10-3VA	TR535P-250A1-5P10-3VA	0,90
250	5P15	1.5	TR535P-250A5-5P15-1.5VA	TR535P-250A1-5P15-1.5VA	0,90
300	5P5	10	TR535P-300A5-5P5-10VA	TR535P-300A1-5P5-10VA	1,00
300	5P10	3.5	TR535P-300A5-5P10-3.5VA	TR535P-300A1-5P10-3.5VA	1,00
300	5P15	2	TR535P-300A5-5P15-2VA	TR535P-300A1-5P15-2VA	1,00
400	5P5	13	TR535P-400A5-5P5-13VA	TR535P-400A1-5P5-13VA	1,00
400	5P10	5	TR535P-400A5-5P10-5VA	TR535P-400A1-5P10-5VA	1,00
400	5P15	2.5	TR535P-400A5-5P15-2.5VA	TR535P-400A1-5P15-2.5VA	1,00
500	5P5	8	TR535P-500A5-5P5-8VA	TR535P-500A1-5P5-8VA	0,60
500	5P10	2.5	TR535P-500A5-5P10-2.5VA	TR535P-500A1-5P10-2.5VA	0,60
600	5P5	10	TR535P-600A5-5P5-10VA	TR535P-600A1-5P5-10VA	0,70
600	5P10	3	TR535P-600A5-5P10-3VA	TR535P-600A1-5P10-3VA	0,70
750	5P5	10	TR535P-750A5-5P5-10VA	TR535P-750A1-5P5-10VA	0,60
750	5P10	3	TR535P-750A5-5P10-3VA	TR535P-750A1-5P10-3VA	0,60
800	5P5	10	TR535P-800A5-5P5-10VA	TR535P-800A1-5P5-10VA	0,70
800	5P10	3	TR535P-800A5-5P10-3VA	TR535P-800A1-5P10-3VA	0,70
1000	5P5	6	TR535P-1k0A5-5P5-6VA	TR535P-1k0A1-5P5-6VA	0,70
1000	5P10	2	TR535P-1k0A5-5P10-2VA	TR535P-1k0A1-5P10-2VA	0,70

MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR6 / TR6P / TR6D

Transformer suitable for primary current by cable with a maximum diameter of 50mm, by horizontal bar 50x20mm, 60x20mm or vertical bar 20x50mm, 20x60mm.



Measuring transformers

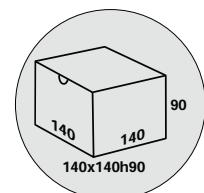
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200	0.5	3	TR6-200A5-0.5-3VA	TR6-200A1-0.5-3VA	1,00
250	0.5	5	TR6-250A5-0.5-5VA	TR6-250A1-0.5-5VA	1,00
300	0.5	5	TR6-300A5-0.5-5VA	TR6-300A1-0.5-5VA	1,00
400	0.5	6	TR6-400A5-0.5-6VA	TR6-400A1-0.5-6VA	1,00
500	0.5	6	TR6-500A5-0.5-6VA	TR6-500A1-0.5-6VA	1,00
600	0.5	10	TR6-600A5-0.5-10VA	TR6-600A1-0.5-10VA	0,70
750	0.5	10	TR6-750A5-0.5-10VA	TR6-750A1-0.5-10VA	0,70
800	0.5	10	TR6-800A5-0.5-10VA	TR6-800A1-0.5-10VA	0,70
1000	0.5	10	TR6-1K0A5-0.5-10VA	TR6-1K0A1-0.5-10VA	0,70
1200	0.5	15	TR6-1K2A5-0.5-15VA	TR6-1K2A1-0.5-15VA	0,70
1250	0.5	15	TR6-1K25A5-0.5-15VA	TR6-1K25A1-0.5-15VA	0,70
1500	0.5	20	TR6-1K5A5-0.5-20VA	TR6-1K5A1-0.5-20VA	0,80
1600	0.5	20	TR6-1K6A5-0.5-20VA	TR6-1K6A1-0.5-20VA	0,80
2000	0.5	20	TR6-2K0A5-0.5-20VA	TR6-2K0A1-0.5-20VA	0,80
2500	0.5	20	TR6-2K5A5-0.5-20VA	TR6-2K5A1-0.5-20VA	1,00

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
250	5P5	5	TR6P-250A5-5P5-5VA	TR6P-250A1-5P5-5VA	1,00
250	5P10	2	TR6P-250A5-5P10-2VA	TR6P-250A1-5P10-2VA	1,00
300	5P5	6	TR6P-300A5-5P5-6VA	TR6P-300A1-5P5-6VA	1,00
300	5P10	2,5	TR6P-300A5-5P10-2.5VA	TR6P-300A1-5P10-2.5VA	1,00
400	5P5	8	TR6P-400A5-5P5-8VA	TR6P-400A1-5P5-8VA	1,20
400	5P10	4	TR6P-400A5-5P10-4VA	TR6P-400A1-5P10-4VA	1,20
500	5P5	12	TR6P-500A5-5P5-12VA	TR6P-500A1-5P5-12VA	1,20
500	5P10	5	TR6P-500A5-5P10-5VA	TR6P-500A1-5P10-5VA	1,20
600	5P5	12	TR6P-600A5-5P5-12VA	TR6P-600A1-5P5-12VA	1,20
600	5P10	5	TR6P-600A5-5P10-5VA	TR6P-600A1-5P10-5VA	1,20
750	5P5	15	TR6P-750A5-5P5-15VA	TR6P-750A1-5P5-15VA	1,20
750	5P10	6	TR6P-750A5-5P10-6VA	TR6P-750A1-5P10-6VA	1,20
800	5P5	18	TR6P-800A5-5P5-18VA	TR6P-800A1-5P5-18VA	1,20
800	5P10	7	TR6P-800A5-5P10-7VA	TR6P-800A1-5P10-7VA	1,20
1000	5P5	20	TR6P-1K0A5-5P5-20VA	TR6P-1K0A1-5P5-20VA	1,40
1000	5P10	8	TR6P-1K0A5-5P10-8VA	TR6P-1K0A1-5P10-8VA	1,40
1200	5P5	25	TR6P-1K2A5-5P5-25VA	TR6P-1K2A1-5P5-25VA	1,40
1200	5P10	10	TR6P-1K2A5-5P10-10VA	TR6P-1K2A1-5P10-10VA	1,40
1250	5P5	20	TR6P-1K25A5-5P5-20VA	TR6P-1K25A1-5P5-20VA	1,40
1250	5P10	6	TR6P-1K25A5-5P10-6VA	TR6P-1K25A1-5P10-6VA	1,40
1500	5P5	30	TR6P-1K5A5-5P5-30VA	TR6P-1K5A1-5P5-30VA	1,40
1500	5P10	12	TR6P-1K5A5-5P10-12VA	TR6P-1K5A1-5P10-12VA	1,40

Double ratio transformers

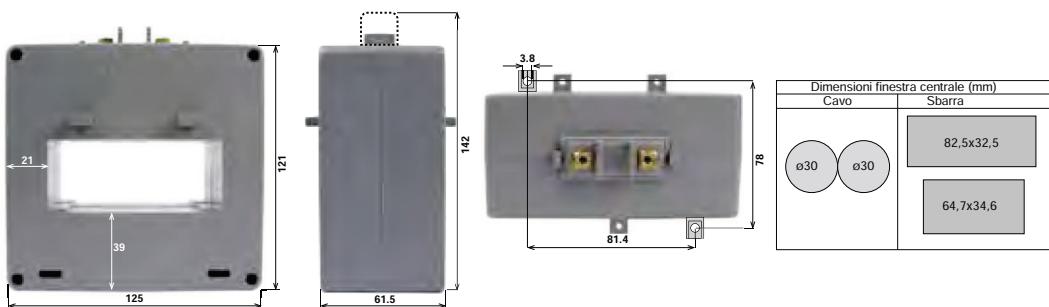
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
250-500	0.5	5-6	TR6D-500A5-0.5-5VA6	TR6D-500A1-0.5-5VA6	1,30
300-600	0.5	5-10	TR6D-600A5-0.5-5VA10	TR6D-600A1-0.5-5VA10	1,30
400-800	0.5	5-10	TR6D-800A5-0.5-5VA10	TR6D-800A1-0.5-5VA10	1,30
500-1000	0.5	10-20	TR6D-1K0A5-0.5-10VA20	TR6D-1K0A1-0.5-10VA20	1,30
600-1200	0.5	10-15	TR6D-1K2A5-0.5-10VA15	TR6D-1K2A1-0.5-10VA15	1,00
750-1500	0.5	10-20	TR6D-1K5A5-0.5-10VA20	TR6D-1K5A1-0.5-10VA20	1,00
800-1600	0.5	10-20	TR6D-1K6A5-0.5-10VA20	TR6D-1K6A1-0.5-10VA20	1,00
1000-2000	0.5	10-20	TR6D-2K0A5-0.5-10VA20	TR6D-2K0A1-0.5-10VA20	1,00



MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR8 / TR8P / TR8D

Transformer suitable for primary current by one or two cables with a maximum diameter of 53mm, by horizontal bar 60x30mm, 80x30mm or vertical bar 30x60mm, 30x80mm.



Measuring transformers

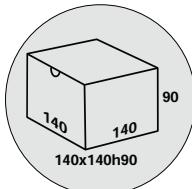
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
300	0,5	5	TR8-300A5-0.5-5VA	TR8-300A1-0.5-5VA	0,80
400	0,5	6	TR8-400A5-0.5-6VA	TR8-400A1-0.5-6VA	0,80
500	0,5	10	TR8-500A5-0.5-10VA	TR8-500A1-0.5-10VA	1,00
600	0,5	10	TR8-600A5-0.5-10VA	TR8-600A1-0.5-10VA	1,00
750	0,5	10	TR8-750A5-0.5-10VA	TR8-750A1-0.5-10VA	1,00
800	0,5	10	TR8-800A5-0.5-10VA	TR8-800A1-0.5-10VA	1,00
1000	0,5	10	TR8-1K0A5-0.5-10VA	TR8-1K0A1-0.5-10VA	0,70
1200	0,5	15	TR8-1K2A5-0.5-15VA	TR8-1K2A1-0.5-15VA	0,70
1250	0,5	10	TR8-1K25A5-0.5-10VA	TR8-1K25A1-0.5-10VA	0,70
1500	0,5	20	TR8-1K5A5-0.5-20VA	TR8-1K5A1-0.5-20VA	1,00
1600	0,5	20	TR8-1K6A5-0.5-20VA	TR8-1K6A1-0.5-20VA	1,00
2000	0,5	20	TR8-2K0A5-0.5-20VA	TR8-2K0A1-0.5-20VA	1,00
2500	0,5	20	TR8-2K5A5-0.5-20VA	TR8-2K5A1-0.5-20VA	1,00
3000	0,5	20	TR8-3K0A5-0.5-20VA	TR8-3K0A1-0.5-20VA	1,50
3200	0,5	20	TR8-3K2A5-0.5-20VA	TR8-3K2A1-0.5-20VA	1,50

Protection transformers

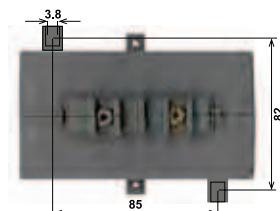
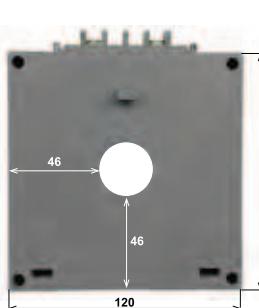
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
300	5P5	4	TR8P-300A5-5P5-4VA	TR8P-300A1-5P5-4VA	0,70
300	5P10	1	TR8P-300A5-5P10-1VA	TR8P-300A1-5P10-1VA	0,70
400	5P5	5	TR8P-400A5-5P5-5VA	TR8P-400A1-5P5-5VA	0,70
400	5P10	1,5	TR8P-400A5-5P10-1.5VA	TR8P-400A1-5P10-1.5VA	0,70
500	5P5	7	TR8P-500A5-5P5-7VA	TR8P-500A1-5P5-7VA	0,90
500	5P10	2	TR8P-500A5-5P10-2VA	TR8P-500A1-5P10-2VA	0,90
600	5P5	8	TR8P-600A5-5P5-8VA	TR8P-600A1-5P5-8VA	0,90
600	5P10	2,5	TR8P-600A5-5P10-2.5VA	TR8P-600A1-5P10-2.5VA	0,90
750	5P5	10	TR8P-750A5-5P5-10VA	TR8P-750A1-5P5-10VA	0,90
750	5P10	3	TR8P-750A5-5P10-3VA	TR8P-750A1-5P10-3VA	0,90
750	5P15	1	TR8P-750A5-5P15-1VA	TR8P-750A1-5P15-1VA	0,90
800	5P5	10	TR8P-800A5-5P5-10VA	TR8P-800A1-5P5-10VA	0,90
800	5P10	3,5	TR8P-800A5-5P10-3.5VA	TR8P-800A1-5P10-3.5VA	0,90
800	5P15	1	TR8P-800A5-5P15-1VA	TR8P-800A1-5P15-1VA	0,90
1000	5P5	13	TR8P-1K0A5-5P5-13VA	TR8P-1K0A1-5P5-13VA	0,70
1000	5P10	4,5	TR8P-1K0A5-5P10-4.5VA	TR8P-1K0A1-5P10-4.5VA	0,70
1000	5P15	1	TR8P-1K0A5-5P15-1VA	TR8P-1K0A1-5P15-1VA	0,70
1200	5P5	16	TR8P-1K2A5-5P5-16VA	TR8P-1K2A1-5P5-16VA	0,70
1200	5P10	5	TR8P-1K2A5-5P10-5VA	TR8P-1K2A1-5P10-5VA	0,70
1200	5P15	1	TR8P-1K2A5-5P15-1VA	TR8P-1K2A1-5P15-1VA	0,70
1250	5P5	17	TR8P-1K25A5-5P5-17VA	TR8P-1K25A1-5P5-17VA	0,70
1250	5P10	5	TR8P-1K25A5-5P10-5VA	TR8P-1K25A1-5P10-5VA	0,70
1250	5P15	1	TR8P-1K25A5-5P15-1VA	TR8P-1K25A1-5P15-1VA	0,70
1500	5P5	20	TR8P-1K5A5-5P5-20VA	TR8P-1K5A1-5P5-20VA	1,00
1500	5P10	6	TR8P-1K5A5-5P10-6VA	TR8P-1K5A1-5P10-6VA	1,00
1500	5P15	1	TR8P-1K5A5-5P15-1VA	TR8P-1K5A1-5P15-1VA	1,00
1600	5P5	22	TR8P-1K6A5-5P5-22VA	TR8P-1K6A1-5P5-22VA	1,00
1600	5P10	7	TR8P-1K6A5-5P10-7VA	TR8P-1K6A1-5P10-7VA	1,00
1600	5P15	1,5	TR8P-1K6A5-5P15-1.5VA	TR8P-1K6A1-5P15-1.5VA	1,00
2000	5P5	25	TR8P-2K0A5-5P5-25VA	TR8P-2K0A1-5P5-25VA	1,00
2000	5P10	8	TR8P-2K0A5-5P10-8VA	TR8P-2K0A1-5P10-8VA	1,00
2000	5P15	1,5	TR8P-2K0A5-5P15-1.5VA	TR8P-2K0A1-5P15-1.5VA	1,00
2500	5P5	30	TR8P-2K5A5-5P5-30VA	TR8P-2K5A1-5P5-30VA	1,20
2500	5P10	8	TR8P-2K5A5-5P10-8VA	TR8P-2K5A1-5P10-8VA	1,20

Double ratio transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
400-800	0,5	6-10	TR8D-800A5-0.5-6VA10	TR8D-800A1-0.5-6VA10	1,30
500-1000	0,5	10-10	TR8D-1K0A5-0.5-10VA10	TR8D-1K0A1-0.5-10VA10	1,30
600-1200	0,5	10-15	TR8D-1K2A5-0.5-10VA15	TR8D-1K2A1-0.5-10VA15	1,00
750-1500	0,5	10-20	TR8D-1K5A5-0.5-10VA20	TR8D-1K5A1-0.5-10VA20	1,00
800-1600	0,5	10-20	TR8D-1K6A5-0.5-10VA20	TR8D-1K6A1-0.5-10VA20	1,00
1000-2000	0,5	10-20	TR8D-2K0A5-0.5-10VA20	TR8D-2K0A1-0.5-10VA20	1,00
1200-2400	0,5	15-20	TR8D-2K4A5-0.5-15VA20	TR8D-2K4A1-0.5-15VA20	1,00
1500-3000	0,5	20-20	TR8D-3K0A5-0.5-20VA20	TR8D-3K0A1-0.5-20VA20	1,00



Transformer suitable for primary current by one or two cables with a maximum diameter of 27mm.

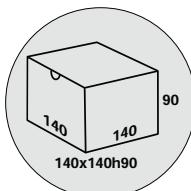


Dimensioni finestra centrale (mm)
Cavo
ø27



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	0.5	5	TR827-100A5-0.5-5VA	TR827-100A1-0.5-5VA	3,20
120	0.5	5	TR827-120A5-0.5-5VA	TR827-120A1-0.5-5VA	3,20
125	0.5	5	TR827-125A5-0.5-5VA	TR827-125A1-0.5-5VA	3,20
150	0.5	10	TR827-150A5-0.5-10VA	TR827-150A1-0.5-10VA	3,20
200	0.5	15	TR827-200A5-0.5-15VA	TR827-200A1-0.5-15VA	3,30
250	0.5	20	TR827-250A5-0.5-20VA	TR827-250A1-0.5-20VA	3,20



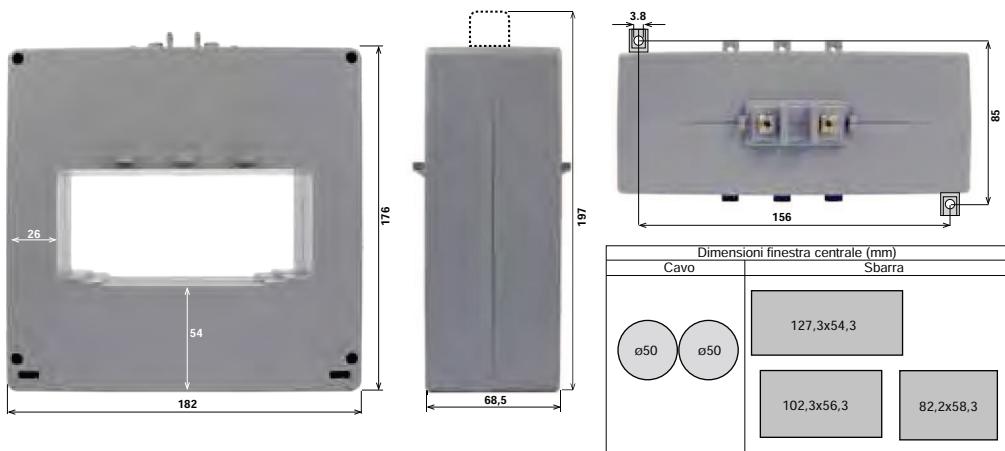
Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	5P5	10	TR827P-100A5-5P5-10VA	TR827P-100A1-5P5-10VA	2,60
100	5P10	4	TR827P-100A5-5P10-4VA	TR827P-100A1-5P10-4VA	2,60
100	5P15	2.5	TR827P-100A5-5P15-2.5VA	TR827P-100A1-5P15-2.5VA	2,60
100	5P20	1.5	TR827P-100A5-5P20-1.5VA	TR827P-100A1-5P20-1.5VA	2,60
120	5P5	10	TR827P-120A5-5P5-10VA	TR827P-120A1-5P5-10VA	2,60
120	5P10	4	TR827P-120A5-5P10-4VA	TR827P-120A1-5P10-4VA	2,60
120	5P15	2.5	TR827P-120A5-5P15-2.5VA	TR827P-120A1-5P15-2.5VA	2,60
120	5P20	1.5	TR827P-120A5-5P20-1.5VA	TR827P-120A1-5P20-1.5VA	2,60
125	5P5	10	TR827P-125A5-5P5-10VA	TR827P-125A1-5P5-10VA	2,60
125	5P10	4	TR827P-125A5-5P10-4VA	TR827P-125A1-5P10-4VA	2,60
125	5P15	2.5	TR827P-125A5-5P15-2.5VA	TR827P-125A1-5P15-2.5VA	2,60
125	5P20	1.5	TR827P-125A5-5P20-1.5VA	TR827P-125A1-5P20-1.5VA	2,60
150	5P5	15	TR827P-150A5-5P5-15VA	TR827P-150A1-5P5-15VA	2,60
150	5P10	7	TR827P-150A5-5P10-7VA	TR827P-150A1-5P10-7VA	2,60
150	5P15	4	TR827P-150A5-5P15-4VA	TR827P-150A1-5P15-4VA	2,60
150	5P20	2.5	TR827P-150A5-5P20-2.5VA	TR827P-150A1-5P20-2.5VA	2,60
200	5P5	20	TR827P-200A5-5P5-20VA	TR827P-200A1-5P5-20VA	2,60
200	5P10	10	TR827P-200A5-5P10-10VA	TR827P-200A1-5P10-10VA	2,70
200	5P15	5	TR827P-200A5-5P15-5VA	TR827P-200A1-5P15-5VA	2,70
200	5P20	3.5	TR827P-200A5-5P20-3.5VA	TR827P-200A1-5P20-3.5VA	2,70
250	5P5	25	TR827P-250A5-5P5-25VA	TR827P-250A1-5P5-25VA	2,70
250	5P10	12	TR827P-250A5-5P10-12VA	TR827P-250A1-5P10-12VA	2,70
250	5P15	7	TR827P-250A5-5P15-7VA	TR827P-250A1-5P15-7VA	2,70
250	5P20	5	TR827P-250A5-5P20-5VA	TR827P-250A1-5P20-5VA	2,70

MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS / DOUBLE RATIO TRANSFORMERS

TR12 / TR12P / TR12D

Transformer suitable for primary current by one, two or three cables with a maximum diameter of 50mm, by horizontal bar 80x50mm, 100x50mm, 125x50mm or vertical bar 50x80mm, 50x100mm, 50x125mm.

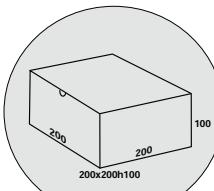


Measuring transformers

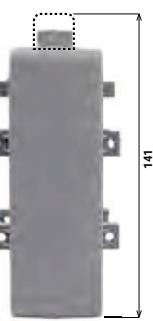
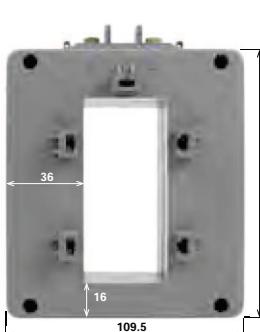
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
500	0,5	10	TR12-500A5-0.5-10VA	TR12-500A1-0.5-10VA	1,50
600	0,5	10	TR12-600A5-0.5-10VA	TR12-600A1-0.5-10VA	1,50
750	0,5	10	TR12-750A5-0.5-10VA	TR12-750A1-0.5-10VA	1,50
800	0,5	15	TR12-800A5-0.5-15VA	TR12-800A1-0.5-15VA	1,50
1000	0,5	20	TR12-1K0A5-0.5-20VA	TR12-1K0A1-0.5-20VA	1,50
1200	0,5	20	TR12-1K2A5-0.5-20VA	TR12-1K2A1-0.5-20VA	1,50
1250	0,5	20	TR12-1K25A5-0.5-20VA	TR12-1K25A1-0.5-20VA	1,50
1500	0,5	20	TR12-1K5A5-0.5-20VA	TR12-1K5A1-0.5-20VA	1,50
1600	0,5	20	TR12-1K6A5-0.5-20VA	TR12-1K6A1-0.5-20VA	1,50
2000	0,5	30	TR12-2K0A5-0.5-30VA	TR12-2K0A1-0.5-30VA	1,60
2500	0,5	40	TR12-2K5A5-0.5-40VA	TR12-2K5A1-0.5-40VA	1,60
3000	0,5	40	TR12-3K0A5-0.5-40VA	TR12-3K0A1-0.5-40VA	1,60
3200	0,5	40	TR12-3K2A5-0.5-40VA	TR12-3K2A1-0.5-40VA	1,60
3500	0,5	40	TR12-3K5A5-0.5-40VA	TR12-3K5A1-0.5-40VA	1,60
4000	0,5	50	TR12-4K0A5-0.5-50VA	TR12-4K0A1-0.5-50VA	2,00

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
400	5P5	10	TR12P-400A5-5P5-10VA	TR12P-400A1-5P5-10VA	2,00
400	5P10	4,5	TR12P-400A5-5P10-4,5VA	TR12P-400A1-5P10-4,5VA	2,00
400	5P15	2,5	TR12P-400A5-5P15-2,5VA	TR12P-400A1-5P15-2,5VA	2,00
400	5P20	1	TR12P-400A5-5P20-1VA	TR12P-400A1-5P20-1VA	2,00
500	5P5	15	TR12P-500A5-5P5-15VA	TR12P-500A1-5P5-15VA	2,00
500	5P10	6	TR12P-500A5-5P10-6VA	TR12P-500A1-5P10-6VA	2,00
500	5P15	3	TR12P-500A5-5P15-3VA	TR12P-500A1-5P15-3VA	2,00
500	5P20	2	TR12P-500A5-5P20-2VA	TR12P-500A1-5P20-2VA	2,00
600	5P5	16	TR12P-600A5-5P5-16VA	TR12P-600A1-5P5-16VA	2,20
600	5P10	7	TR12P-600A5-5P10-7VA	TR12P-600A1-5P10-7VA	2,20
600	5P15	4	TR12P-600A5-5P15-4VA	TR12P-600A1-5P15-4VA	2,20
600	5P20	2	TR12P-600A5-5P20-2VA	TR12P-600A1-5P20-2VA	2,20
750	5P5	20	TR12P-750A5-5P5-20VA	TR12P-750A1-5P5-20VA	2,20
750	5P10	8	TR12P-750A5-5P10-8VA	TR12P-750A1-5P10-8VA	2,20
750	5P15	4	TR12P-750A5-5P15-4VA	TR12P-750A1-5P15-4VA	2,20
750	5P20	2	TR12P-750A5-5P20-2VA	TR12P-750A1-5P20-2VA	2,20
800	5P5	20	TR12P-800A5-5P5-20VA	TR12P-800A1-5P5-20VA	2,20
800	5P10	8	TR12P-800A5-5P10-8VA	TR12P-800A1-5P10-8VA	2,20
800	5P15	6	TR12P-800A5-5P15-6VA	TR12P-800A1-5P15-6VA	2,20
800	5P20	3	TR12P-800A5-5P20-3VA	TR12P-800A1-5P20-3VA	2,20
1000	5P5	20	TR12P-1K0A5-5P5-20VA	TR12P-1K0A1-5P5-20VA	2,20
1000	5P10	12	TR12P-1K0A5-5P10-12VA	TR12P-1K0A1-5P10-12VA	2,20
1000	5P15	6	TR12P-1K0A5-5P15-6VA	TR12P-1K0A1-5P15-6VA	2,20
1000	5P20	2	TR12P-1K0A5-5P20-2VA	TR12P-1K0A1-5P20-2VA	2,20
1200	5P5	30	TR12P-1K2A5-5P5-30VA	TR12P-1K2A1-5P5-30VA	2,40
1200	5P10	15	TR12P-1K2A5-5P10-15VA	TR12P-1K2A1-5P10-15VA	2,40
1200	5P15	8	TR12P-1K2A5-5P15-8VA	TR12P-1K2A1-5P15-8VA	2,40
1200	5P20	4	TR12P-1K2A5-5P20-4VA	TR12P-1K2A1-5P20-4VA	2,40
1250	5P5	30	TR12P-1K25A5-5P5-30VA	TR12P-1K25A1-5P5-30VA	2,40
1250	5P10	15	TR12P-1K25A5-5P10-15VA	TR12P-1K25A1-5P10-15VA	2,40
1250	5P15	8	TR12P-1K25A5-5P15-8VA	TR12P-1K25A1-5P15-8VA	2,40
1250	5P20	4	TR12P-1K25A5-5P20-4VA	TR12P-1K25A1-5P20-4VA	2,40
1500	5P5	40	TR12P-1K5A5-5P5-40VA	TR12P-1K5A1-5P5-40VA	2,50
1500	5P10	18	TR12P-1K5A5-5P10-18VA	TR12P-1K5A1-5P10-18VA	2,50
1500	5P15	10	TR12P-1K5A5-5P15-10VA	TR12P-1K5A1-5P15-10VA	2,50
1500	5P20	5	TR12P-1K5A5-5P20-5VA	TR12P-1K5A1-5P20-5VA	2,50
1600	5P5	40	TR12P-1K6A5-5P5-40VA	TR12P-1K6A1-5P5-40VA	2,50
1600	5P10	18	TR12P-1K6A5-5P10-18VA	TR12P-1K6A1-5P10-18VA	2,50
1600	5P15	10	TR12P-1K6A5-5P15-10VA	TR12P-1K6A1-5P15-10VA	2,50
1600	5P20	5	TR12P-1K6A5-5P20-5VA	TR12P-1K6A1-5P20-5VA	2,50
2000	5P5	50	TR12P-2K0A5-5P5-50VA	TR12P-2K0A1-5P5-50VA	2,80
2000	5P10	25	TR12P-2K0A5-5P10-25VA	TR12P-2K0A1-5P10-25VA	2,80
2000	5P15	12	TR12P-2K0A5-5P15-12VA	TR12P-2K0A1-5P15-12VA	2,80
2000	5P20	6	TR12P-2K0A5-5P20-6VA	TR12P-2K0A1-5P20-6VA	2,80
2500	5P5	75	TR12P-2K5A5-5P5-75VA	TR12P-2K5A1-5P5-75VA	3,00
2500	5P10	30	TR12P-2K5A5-5P10-30VA	TR12P-2K5A1-5P10-30VA	3,00
2500	5P15	15	TR12P-2K5A5-5P15-15VA	TR12P-2K5A1-5P15-15VA	3,00
2500	5P20	8	TR12P-2K5A5-5P20-8VA	TR12P-2K5A1-5P20-8VA	3,00
3000	5P5	40	TR12P-3K0A5-5P5-40VA	TR12P-3K0A1-5P5-40VA	3,00
3000	5P10	20	TR12P-3K0A5-5P10-20VA	TR12P-3K0A1-5P10-20VA	3,00
3000	5P15	15	TR12P-3K0A5-5P15-15VA	TR12P-3K0A1-5P15-15VA	3,00
3000	5P20	10	TR12P-3K0A5-5P20-10VA	TR12P-3K0A1-5P20-10VA	3,00
4000	5P5	50	TR12P-4K0A5-5P5-50VA	TR12P-4K0A1-5P5-50VA	3,00
4000	5P10	25	TR12P-4K0A5-5P10-25VA	TR12P-4K0A1-5P10-25VA	3,00
4000	5P15	15	TR12P-4K0A5-5P15-15VA	TR12P-4K0A1-5P15-15VA	3,00
4000	5P20	12	TR12P-4K0A5-5P20-12VA	TR12P-4K0A1-5P20-12VA	3,00



Transformer suitable for primary current by one or two cables with a maximum diameter of 35mm or by vertical bar 30x80mm.

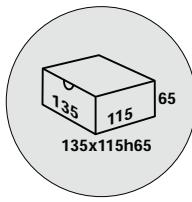


Dimensioni finestra centrale (mm)	
Cavo	Sbarra
ø35	
ø35	37,7x80,6

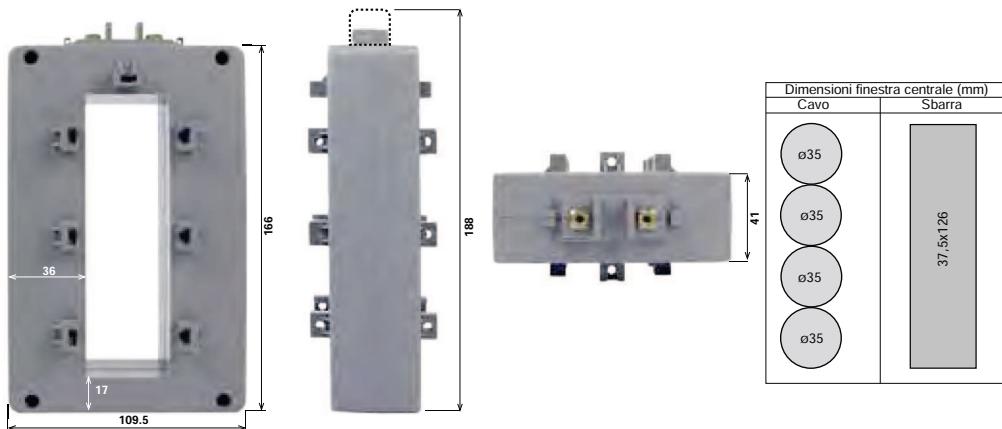


Measuring transformers

Primary current A	Class	Power VA	Secondary current 5A	Secondary current 1A	Weight Kg
400	0.5	6	TR8V-400A5-0.5-6VA	TR8V-400A1-0.5-6VA	0,70
500	0.5	10	TR8V-500A5-0.5-10VA	TR8V-500A1-0.5-10VA	0,70
600	0.5	10	TR8V-600A5-0.5-10VA	TR8V-600A1-0.5-10VA	0,70
750	0.5	10	TR8V-750A5-0.5-10VA	TR8V-750A1-0.5-10VA	0,70
800	0.5	10	TR8V-800A5-0.5-10VA	TR8V-800A1-0.5-10VA	0,70
1000	0.5	10	TR8V-1KO5A5-0.5-10VA	TR8V-1KO5A1-0.5-10VA	0,70
1200	0.5	10	TR8V-1K2A5-0.5-10VA	TR8V-1K2A1-0.5-10VA	0,70
1250	0.5	10	TR8V-1K25A5-0.5-10VA	TR8V-1K25A1-0.5-10VA	0,70
1500	0.5	10	TR8V-1K5A5-0.5-10VA	TR8V-1K5A1-0.5-10VA	0,70
1600	0.5	12	TR8V-1K6A5-0.5-12VA	TR8V-1K6A1-0.5-12VA	0,70
2000	0.5	20	TR8V-2KO5A5-0.5-20VA	TR8V-2KO5A1-0.5-20VA	0,70
2500	0.5	20	TR8V-2K5A5-0.5-20VA	TR8V-2K5A1-0.5-20VA	0,80

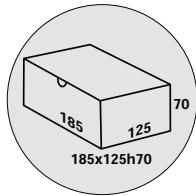


Transformer suitable for primary current by one, two, three or four cables with a maximum diameter of 35mm or by vertical bar 30x120mm.



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
800	0,5	10	TR12V-800A5-0.5-10VA	TR12V-800A1-0.5-10VA	0,70
1000	0,5	10	TR12V-1K0A5-0.5-10VA	TR12V-1K0A1-0.5-10VA	0,70
1200	0,5	10	TR12V-1K2A5-0.5-10VA	TR12V-1K2A1-0.5-10VA	0,70
1250	0,5	10	TR12V-1K25A5-0.5-10VA	TR12V-1K25A1-0.5-10VA	0,70
1500	0,5	12	TR12V-1K5A5-0.5-12VA	TR12V-1K5A1-0.5-12VA	0,70
1600	0,5	12	TR12V-1K6A5-0.5-12VA	TR12V-1K6A1-0.5-12VA	1,00
2000	0,5	15	TR12V-2K0A5-0.5-15VA	TR12V-2K0A1-0.5-15VA	1,00
2500	0,5	20	TR12V-2K5A5-0.5-20VA	TR12V-2K5A1-0.5-20VA	1,00
3000	0,5	20	TR12V-3K0A5-0.5-20VA	TR12V-3K0A1-0.5-20VA	1,00
3200	0,5	20	TR12V-3K2A5-0.5-20VA	TR12V-3K2A1-0.5-20VA	1,00
3500	0,5	20	TR12V-3K5A5-0.5-20VA	TR12V-3K5A1-0.5-20VA	1,00
4000	0,5	20	TR12V-4K0A5-0.5-20VA	TR12V-4K0A1-0.5-20VA	1,00



CURRENT TRANSFORMERS – TS SERIES

PROTECTION CURRENT TRANSFORMERS – TS...P SERIES

Range of transformers characterized by a very small dimensions, indicated in all those installations where space has considerable importance, and by a double terminals in opposition.

ASSEMBLY INSTRUCTIONS

With the transformer it is provided a socket containing a series of accessories that depending on the model, allow various types of fixations:

- The mounting on DIN rail EN 50022 requires no accessories, but simply by pressing upon the transformer, thanks to the presence on the bottom side a suitable fixing system.
- The wall mounting using the two brackets
- The direct mounting on the cable or on the bar, using screws

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

DIN rail-mounting



Position the transformer on the DIN rail and press as shown in Figures 1 and 2.

Wall fixing



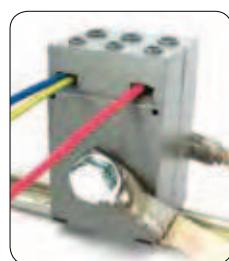
Insert the brackets into the proper places as shown in the figure, then secure them to the wall with two screws (not supplied).

Mounting on cable or primary busbar



Fixing possible for all codes, using the two screws supplied with the transformers, as shown in the figure. In this case, be sure to protect the tips to avoid the piercing of the primary cable.

WIRING INSTRUCTION



Connect the cable S1 in one of the two terminals of the corresponding side; and the cable S2 in one of the two terminals of the opposite side. The selected terminal is irrelevant since the two terminals in opposition are internally connected. The cable /busbar of the primary current must be inserted into the transformer paying attention to the flow direction of the current, which must always be in the direction P1 → P2.



The double terminal lets you make a short-circuit when it is necessary to disconnect the load from the transformer, so as not to damage the transformer or the operator.

It is also possible to ground it if you do not want to use the same terminal used for connection to the load.



ACC-COP5



ACC-COP6

The terminals of this range have been designed with a suitable protection degree against accidental contact. Is available on request, however, the sealable terminal cover ACC-ACC-COP5 and COP6.

PROTECTION TRANSFORMERS

The current transformer used as a current generator for protection relays, has characteristics different from those of the measurement transformer. In fact to this range it is required a saturation of the magnetic circuit with primary currents $5xI_n$, whereas for the protection transformer is necessary that the value of the secondary current follows the increasing of the primary current up to 10, 15 or 20 times the I_n , guaranteeing thus the intervention of the relay to the provided fault current. It is important to do not load the transformer with a performance P, higher than the stated, in order to do not change the saturation of transformer, and keep unchanged the following formula:

$$P = RxI^2 \text{ where } P = \text{load on CT; } R = \text{resistance of the relay + resistance of the cables; } I = \text{rated secondary current of the C.}$$

Ratio or technical data different from those proposed can be made on request.

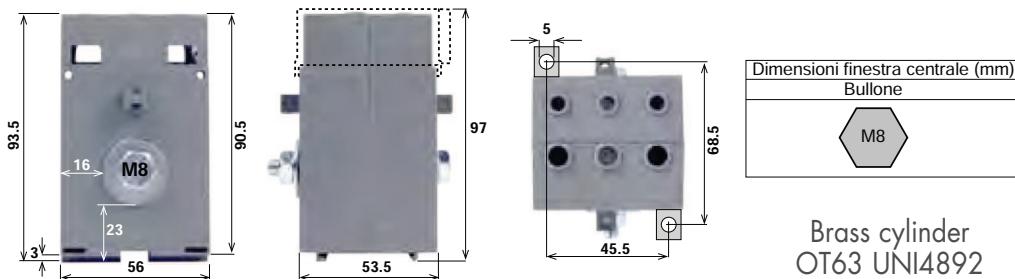
MEASURING TRANSFORMERS CODE TABLE

Family ID	TS	16	-150	A	5	-1	-5	VA	-Y	-R	-T	-X	-	
Central window dimensions														
O8= primario avvolto (primario su bullone centrale M8 e secondario sui morsetti)														
O12= primario avvolto (primario su bullone centrale M12 e secondario sui morsetti)														
13= diameter 13 mm; 16= diameter 11 mm e horizontal bar 15x5 mm														
18= diameter 18 mm; 25= diameter 25 mm														
26= horizontal bar 26x8 mm, 20x10 mm / vertical bar 10x20 mm														
32= diameter 32 mm														
33= horizontal bar 32x19, 26x21, 21x23 mm / vertical bar 11x32 mm														
64= horizontal bar 64x16, 51x31 mm / vertical bar 21x50, 15x55 mm														
67= horizontal bar 64x16, 51x31 mm / vertical bar 47x51 mm														
28= horizontal bar 120x10 mm / vertical bar 10x100 mm														
20= horizontal bar 120x10 mm / vertical bar 10x100 mm														
65V= vertical bar 20x65 mm; 126V= vertical bar 52x126 mm														
166V= vertical bar 55x166 mm														
Primary current	040=40A; 050=50A; 060=60A; 075=75A; 080=80A; 100=100A; 125=125A; 150=150A; 200=200A; 250=250A; 300=300A; 400=400A; 500=500A; 600=600A; 750=750A; 800=800A; 1k0=1000A; 1k2=1200A; 1k25=1250A; 1k5=1500A; 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A; 3k2=3200A; 3k5=3500A; 4k0=4000A; 5k0=5000A; 6k0=6000A													
A	Ampère													
Secondary current	1=1A; 5=5A													
Class	0.5; 1; 3													
Power	3; 4; 5; 6; 10; 15; 20; 30													
VA	Volt - Ampère													
Y	Tropicalized version													
R	Resined anti vibrating version													
T	Version with housing resistant to high temperatures													
X	Anonymous version													
Other possible data for a total of 30 characters. Example: value of FS														

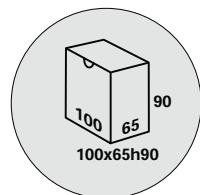
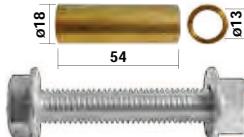
PROTECTION TRANSFORMERS CODE TABLE

Family ID	TS	28P	-1K5	A	5	-5P5	-20	VA	-Y	-R	-T	-X	-	
Central window dimensions														
28= horizontal bar 120x10 mm / vertical bar 10x100 mm														
Primary current	1k5=1500A; 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A; 3k2=3200A; 3k5=3500A; 4k0=4000A													
A	Ampère													
Secondary current	1=1A; 5=5A													
Class	5P5; 5P10; 5P15													
Power	2; 2.5; 3; 4; 5; 6; 8; 10; 12; 15; 20; 25; 30; 35													
VA	Volt - Ampère													
Y	Tropicalized version													
R	Resined anti vibrating version													
T	Version with housing resistant to high temperatures													
X	Anonymous version													
Other possible data for a total of 30 characters. Example: value of FS														

Transformer suitable for primary current by central cylinder with bolt M8.
On request terminal cover code ACC-COP6.



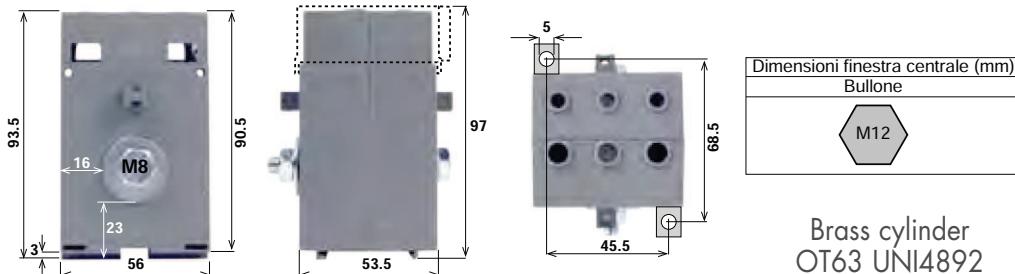
ACC-TSO8

Brass cylinder
OT63 UNI4892Bolt M8 + Nut steel UNI5727
Class 4,6**Measuring transformers**

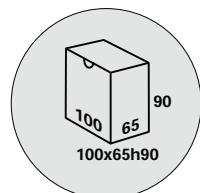
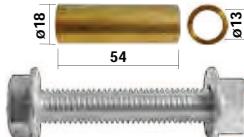
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
40	3	3	TSO8-040A5-3-3VA	TSO8-040A1-3-3VA	0,60
50	3	4	TSO8-050A5-3-4VA	TSO8-050A1-3-4VA	0,60
60	3	5	TSO8-060A5-3-5VA	TSO8-060A1-3-5VA	0,60
75	1	5	TSO8-075A5-1-5VA	TSO8-075A1-1-5VA	0,60
80	1	5	TSO8-080A5-1-5VA	TSO8-080A1-1-5VA	0,60
100	1	5	TSO8-100A5-1-5VA	TSO8-100A1-1-5VA	0,60
120	1	5	TSO8-120A5-1-5VA	TSO8-120A1-1-5VA	0,60
125	1	5	TSO8-125A5-1-5VA	TSO8-125A1-1-5VA	0,60
150	1	5	TSO8-150A5-1-5VA	TSO8-150A1-1-5VA	0,60

MEASURING TRANSFORMERS**TSO12**

Transformer suitable for primary current by central cylinder with bolt M12.
On request terminal cover code ACC-COP6.

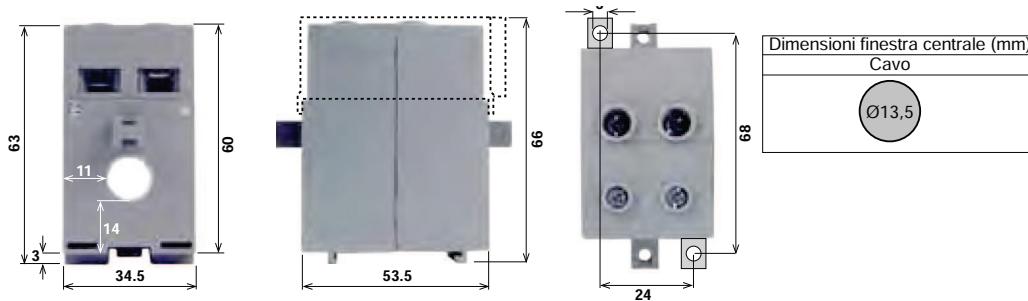


ACC-TSO12

Brass cylinder
OT63 UNI4892Bolt M12 + Nut steel
UNI5727 Class 4,6**Measuring transformers**

Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
200	0,5	5	TSO12-200A5-0.5-5VA	TSO12-200A1-0.5-5VA	0,70
250	0,5	10	TSO12-250A5-0.5-10VA	TSO12-250A1-0.5-10VA	0,70
300	0,5	10	TSO12-300A5-0.5-10VA	TSO12-300A1-0.5-10VA	0,70
400	0,5	10	TSO12-400A5-0.5-10VA	TSO12-400A1-0.5-10VA	0,70
500	0,5	10	TSO12-500A5-0.5-10VA	TSO12-500A1-0.5-10VA	0,70
600	0,5	10	TSO12-600A5-0.5-10VA	TSO12-600A1-0.5-10VA	0,70

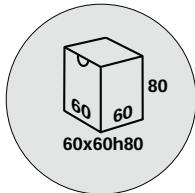
Transformer suitable for primary current by cable with a maximum diameter 13mm.
Sealable terminals cover ACC-COP5 on request.



ABS screws M4x40



ACC-TS13-67

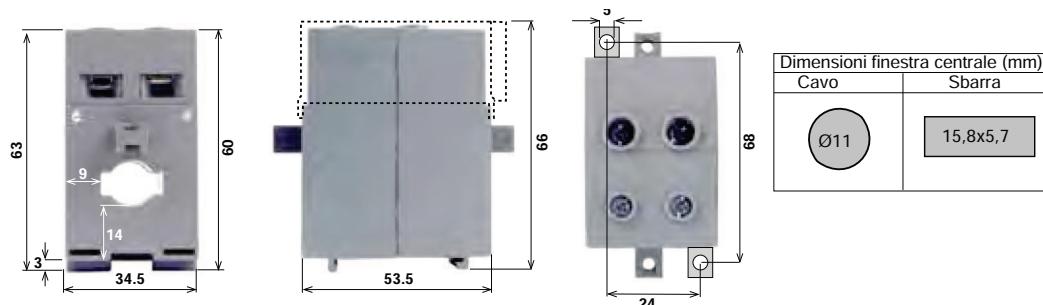


Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	2	TS13-040A5-3-2VA	TS13-040A1-3-2VA	0,22
50	3	2	TS13-050A5-3-2VA	TS13-050A1-3-2VA	0,22
60	3	3	TS13-060A5-3-3VA	TS13-060A1-3-3VA	0,22
75	3	3	TS13-075A5-3-3VA	TS13-075A1-3-3VA	0,22
80	3	3	TS13-080A5-3-3VA	TS13-080A1-3-3VA	0,22
100	1	3	TS13-100A5-1-3VA	TS13-100A1-1-3VA	0,22
120	1	5	TS13-120A5-1-5VA	TS13-120A1-1-5VA	0,22
125	1	5	TS13-125A5-1-5VA	TS13-125A1-1-5VA	0,22
150	1	5	TS13-150A5-1-5VA	TS13-150A1-1-5VA	0,22

MEASURING TRANSFORMERS

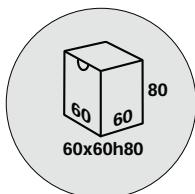
Transformer suitable for primary current by cable with a maximum diameter 11mm or by horizontal bar 15x5m.
Sealable terminals cover ACC-COP5 on request.



ABS screws M4x40



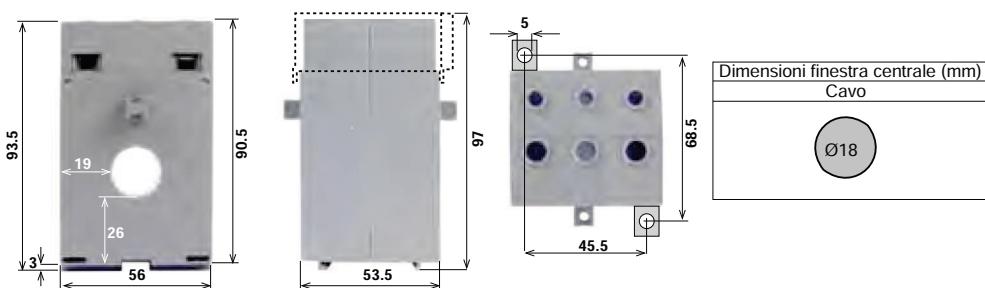
ACC-TS13-67



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
60	3	3	TS16-060A5-3-3VA	TS16-060A1-3-3VA	0,22
75	3	3	TS16-075A5-3-3VA	TS16-075A1-3-3VA	0,22
80	3	3	TS16-080A5-3-3VA	TS16-080A1-3-3VA	0,22
100	1	3	TS16-100A5-1-3VA	TS16-100A1-1-3VA	0,22
120	1	5	TS16-120A5-1-5VA	TS16-120A1-1-5VA	0,22
125	1	5	TS16-125A5-1-5VA	TS16-125A1-1-5VA	0,22
150	1	5	TS16-150A5-1-5VA	TS16-150A1-1-5VA	0,22

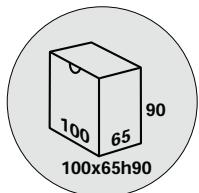
Transformer suitable for primary current by cable with a maximum diameter 18mm.
Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40



ACC-TS13-67



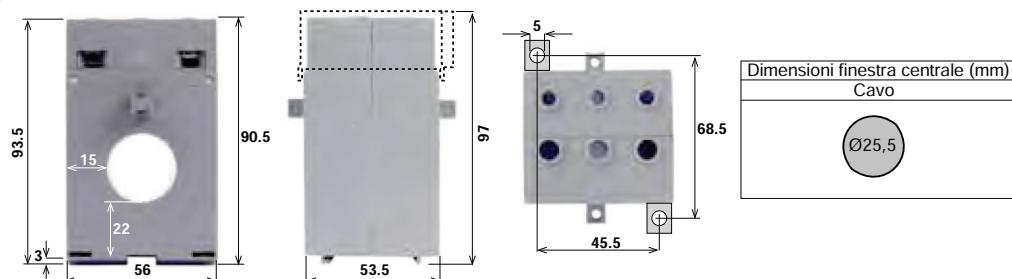
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	1,5	TS18-040A5-3-1.5VA	TS18-040A1-3-1.5VA	0,50
50	3	3	TS18-050A5-3-3VA	TS18-050A1-3-3VA	0,50
60	3	3	TS18-060A5-3-3VA	TS18-060A1-3-3VA	0,50
75	3	3	TS18-075A5-3-3VA	TS18-075A1-3-3VA	0,50
80	3	5	TS18-080A5-3-5VA	TS18-080A1-3-5VA	0,50
100	1	2,5	TS18-100A5-1-2.5VA	TS18-100A1-1-2.5VA	0,50
120	1	3	TS18-120A5-1-3VA	TS18-120A1-1-3VA	0,50
125	1	3	TS18-125A5-1-3VA	TS18-125A1-1-3VA	0,50
150	0,5	3,5	TS18-150A5-0.5-3.5VA	TS18-150A1-0.5-3.5VA	0,50
200	0,5	5	TS18-200A5-0.5-5VA	TS18-200A1-0.5-5VA	0,50
250	0,5	5	TS18-250A5-0.5-5VA	TS18-250A1-0.5-5VA	0,50
300	0,5	5	TS18-300A5-0.5-5VA	TS18-300A1-0.5-5VA	0,50

MEASURING TRANSFORMERS

TS25

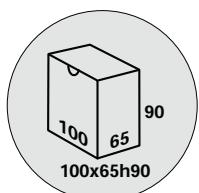
Transformer suitable for primary current by cable with a maximum diameter 25mm.
Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40



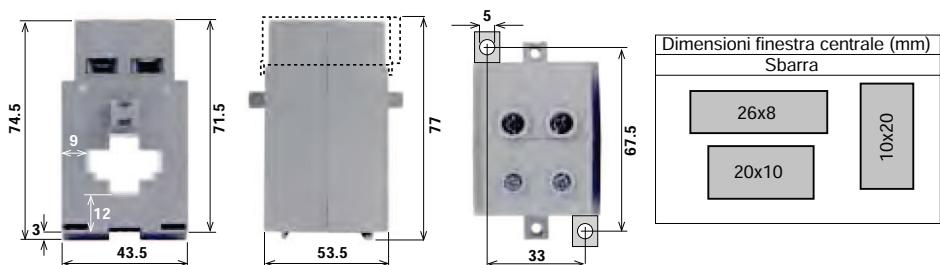
ACC-TS13-67



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
40	3	1,5	TS25-040A5-3-1.5VA	TS25-040A1-3-1.5VA	0,40
50	3	3	TS25-050A5-3-3VA	TS25-050A1-3-3VA	0,40
60	3	3	TS25-060A5-3-3VA	TS25-060A1-3-3VA	0,40
75	3	3	TS25-075A5-3-3VA	TS25-075A1-3-3VA	0,40
80	3	5	TS25-080A5-3-5VA	TS25-080A1-3-5VA	0,40
100	1	2,5	TS25-100A5-1-2.5VA	TS25-100A1-1-2.5VA	0,40
120	1	3	TS25-120A5-1-3VA	TS25-120A1-1-3VA	0,40
125	1	3	TS25-125A5-1-3VA	TS25-125A1-1-3VA	0,40
150	0,5	3,5	TS25-150A5-0.5-3.5VA	TS25-150A1-0.5-3.5VA	0,40
200	0,5	5	TS25-200A5-0.5-5VA	TS25-200A1-0.5-5VA	0,40
250	0,5	6	TS25-250A5-0.5-6VA	TS25-250A1-0.5-6VA	0,40
300	0,5	6	TS25-300A5-0.5-6VA	TS25-300A1-0.5-6VA	0,40
400	0,5	10	TS25-400A5-0.5-10VA	TS25-400A1-0.5-10VA	0,40

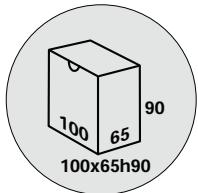
Transformer suitable for primary current by horizontal bar 26x8mm, 20x10mm or vertical bar 10x20mm.
Sealable terminals cover ACC-COP5 on request.



ABS screws M4x40



ACC-TS13-67

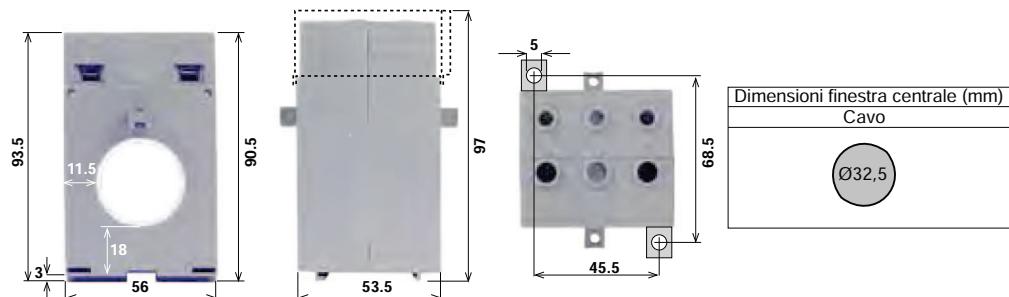


Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	3	TS26-100A5-1-3VA	TS26-100A1-1-3VA	0,25
120	1	5	TS26-120A5-1-5VA	TS26-120A1-1-5VA	0,25
125	1	5	TS26-125A5-1-5VA	TS26-125A1-1-5VA	0,25
150	1	5	TS26-150A5-1-5VA	TS26-150A1-1-5VA	0,25
200	1	5	TS26-200A5-1-5VA	TS26-200A1-1-5VA	0,25
250	1	5	TS26-250A5-1-5VA	TS26-250A1-1-5VA	0,25
300	0,5	5	TS26-300A5-0.5-5VA	TS26-300A1-0.5-5VA	0,25

MEASURING TRANSFORMERS

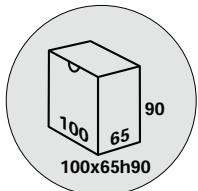
Transformer suitable for primary current by cable with a maximum diameter 32mm.
Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40



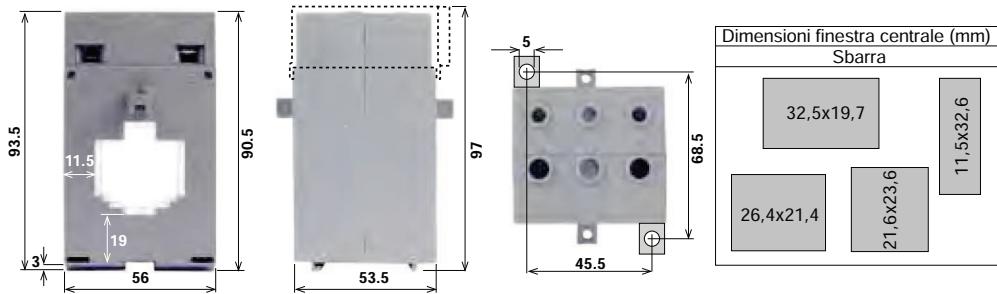
ACC-TS13-67



Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	3	TS32-100A5-1-3VA	TS32-100A1-1-3VA	0,30
120	1	3	TS32-120A5-1-3VA	TS32-120A1-1-3VA	0,30
125	1	3	TS32-125A5-1-3VA	TS32-125A1-1-3VA	0,30
150	1	3	TS32-150A5-1-3VA	TS32-150A1-1-3VA	0,30
200	0,5	5	TS32-200A5-0.5-5VA	TS32-200A1-0.5-5VA	0,30
250	0,5	5	TS32-250A5-0.5-5VA	TS32-250A1-0.5-5VA	0,30
300	0,5	5	TS32-300A5-0.5-5VA	TS32-300A1-0.5-5VA	0,30
400	0,5	6	TS32-400A5-0.5-6VA	TS32-400A1-0.5-6VA	0,30
500	0,5	10	TS32-500A5-0.5-10VA	TS32-500A1-0.5-10VA	0,30
600	0,5	10	TS32-600A5-0.5-10VA	TS32-600A1-0.5-10VA	0,30

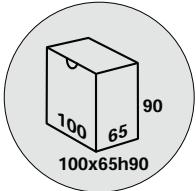
Transformer suitable for primary current by horizontal bar 32.5x19.7mm, 26.4x21.4mm, 21.6x23.6mm or vertical bar 11.5x32.6mm. Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40



ACC-TS13-67

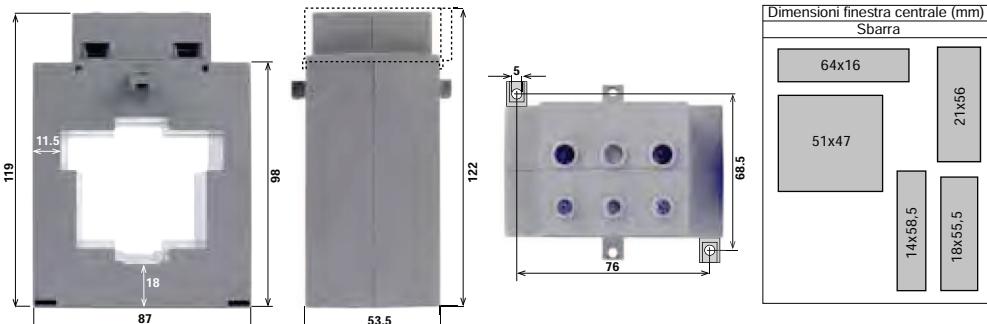
**Measuring transformers**

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	1	1,5	TS33-100A5-1-1.5VA	TS33-100A1-1-1.5VA	0,30
120	1	1,5	TS33-120A5-1-1.5VA	TS33-120A1-1-1.5VA	0,30
125	1	1,5	TS33-125A5-1-1.5VA	TS33-125A1-1-1.5VA	0,30
150	1	2	TS33-150A5-1-2VA	TS33-150A1-1-2VA	0,30
200	1	3	TS33-200A5-1-3VA	TS33-200A1-1-3VA	0,30
250	1	3,75	TS33-250A5-1-3.75VA	TS33-250A1-1-3.75VA	0,30
300	0,5	3,5	TS33-300A5-0.5-3.5VA	TS33-300A1-0.5-3.5VA	0,30
400	0,5	3,5	TS33-400A5-0.5-3.5VA	TS33-400A1-0.5-3.5VA	0,30
500	0,5	5	TS33-500A5-0.5-5VA	TS33-500A1-0.5-5VA	0,30
600	0,5	5	TS33-600A5-0.5-5VA	TS33-600A1-0.5-5VA	0,30

MEASURING TRANSFORMERS

TS64

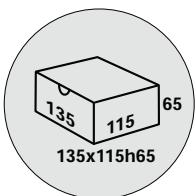
Transformer suitable for primary current by horizontal bar 64x16mm, 51x47mm, 51x31mm or vertical bar 21x50mm, 15x55mm, 14x58.5mm. Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40

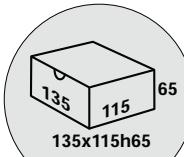
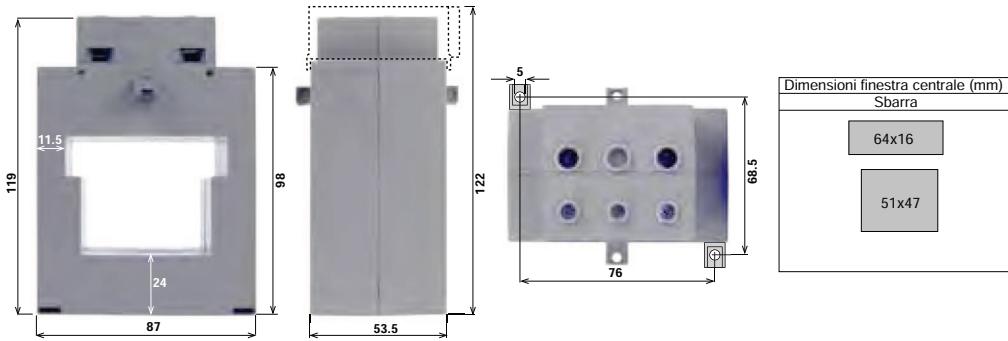


ACC-TS13-67

**Measuring transformers**

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200	1	2	TS64-200A5-1-2VA	TS64-200A1-1-2VA	0,50
250	1	5	TS64-250A5-1-5VA	TS64-250A1-1-5VA	0,50
300	1	5	TS64-300A5-1-5VA	TS64-300A1-1-5VA	0,50
400	0,5	5	TS64-400A5-0.5-5VA	TS64-400A1-0.5-5VA	0,50
500	0,5	10	TS64-500A5-0.5-10VA	TS64-500A1-0.5-10VA	0,50
600	0,5	10	TS64-600A5-0.5-10VA	TS64-600A1-0.5-10VA	0,50
750	0,5	10	TS64-750A5-0.5-10VA	TS64-750A1-0.5-10VA	0,50
800	0,5	10	TS64-800A5-0.5-10VA	TS64-800A1-0.5-10VA	0,50
1000	0,5	15	TS64-1K0A5-0.5-15VA	TS64-1K0A1-0.5-15VA	0,50
1200	0,5	15	TS64-1K2A5-0.5-15VA	TS64-1K2A1-0.5-15VA	0,50
1250	0,5	15	TS64-1K25A5-0.5-15VA	TS64-1K25A1-0.5-15VA	0,50

Transformer suitable for primary current by horizontal bar 64x16mm, 51x47mm, and 51x31mm or vertical bar 51x47mm. Sealable terminals cover ACC-COP6 on request.



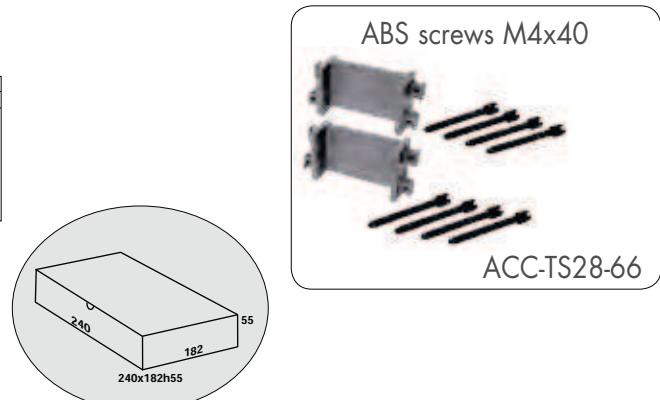
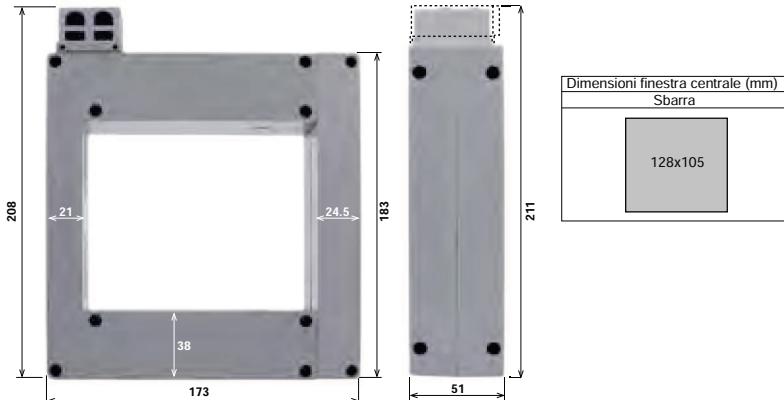
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200	1	5	TS67-200A5-1-5VA	TS67-200A1-1-5VA	0,60
250	1	5	TS67-250A5-1-5VA	TS67-250A1-1-5VA	0,60
300	1	5	TS67-300A5-1-5VA	TS67-300A1-1-5VA	0,60
400	0,5	5	TS67-400A5-0.5-5VA	TS67-400A1-0.5-5VA	0,60
500	0,5	7,5	TS67-500A5-0.5-7.5VA	TS67-500A1-0.5-7.5VA	0,60
600	0,5	7,5	TS67-600A5-0.5-7.5VA	TS67-600A1-0.5-7.5VA	0,60
750	0,5	7,5	TS67-750A5-0.5-7.5VA	TS67-750A1-0.5-7.5VA	0,60
800	0,5	10	TS67-800A5-0.5-10VA	TS67-800A1-0.5-10VA	0,60
1000	0,5	15	TS67-1K0A5-0.5-15VA	TS67-1K0A1-0.5-15VA	0,60
1200	0,5	15	TS67-1K2A5-0.5-15VA	TS67-1K2A1-0.5-15VA	0,60
1250	0,5	15	TS67-1K25A5-0.5-15VA	TS67-1K25A1-0.5-15VA	0,60
1500	0,5	15	TS67-1K5A5-0.5-15VA	TS67-1K5A1-0.5-15VA	0,60

MEASURING TRANSFORMERS / PROTECTION TRANSFORMERS

TS28 / TS28P

Transformer suitable for primary current by horizontal bar 120x10mm, 2x120x10mm, 3x120x10mm or vertical bar 10x100mm, 2x0x100mm, 3x10x100mm. Sealable terminals cover ACC-COP6 on request.



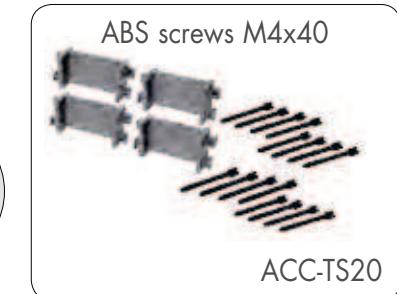
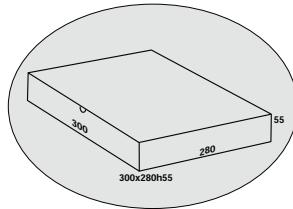
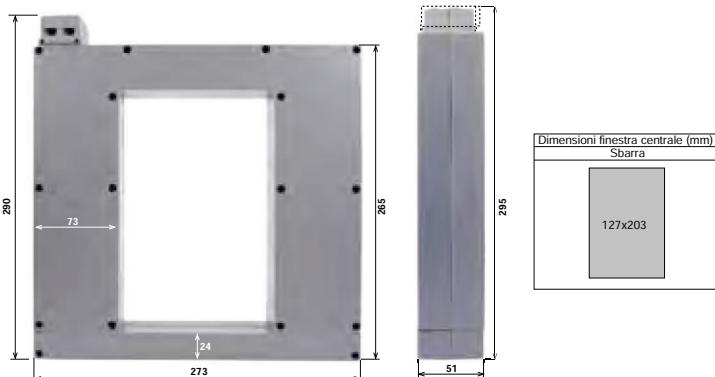
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1000	0,5	10	TS28-1K0A5-0.5-10VA	TS28-1K0A1-0.5-10VA	1,00
1200	0,5	10	TS28-1K2A5-0.5-10VA	TS28-1K2A1-0.5-10VA	1,00
1250	0,5	10	TS28-1K25A5-0.5-10VA	TS28-1K25A1-0.5-10VA	1,00
1500	0,5	15	TS28-1K5A5-0.5-15VA	TS28-1K5A1-0.5-15VA	1,00
1600	0,5	15	TS28-1K6A5-0.5-15VA	TS28-1K6A1-0.5-15VA	1,00
2000	0,5	15	TS28-2K0A5-0.5-15VA	TS28-2K0A1-0.5-15VA	1,00
2500	0,5	15	TS28-2K5A5-0.5-15VA	TS28-2K5A1-0.5-15VA	1,00

Protection transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1500	5P5	20	TS28P-1K5A5-5P5-20VA	TS28P-1K5A1-5P5-20VA	1,00
1500	5P10	8	TS28P-1K5A5-5P10-8VA	TS28P-1K5A1-5P10-8VA	1,00
1500	5P15	3	TS28P-1K5A5-5P15-3VA	TS28P-1K5A1-5P15-3VA	1,00
1600	5P5	20	TS28P-1K6A5-5P5-20VA	TS28P-1K6A1-5P5-20VA	1,00
1600	5P10	8	TS28P-1K6A5-5P10-8VA	TS28P-1K6A1-5P10-8VA	1,00
1600	5P15	3	TS28P-1K6A5-5P15-3VA	TS28P-1K6A1-5P15-3VA	1,00
2000	5P5	25	TS28P-2K0A5-5P5-25VA	TS28P-2K0A1-5P5-25VA	1,00
2000	5P10	10	TS28P-2K0A5-5P10-10VA	TS28P-2K0A1-5P10-10VA	1,00
2000	5P15	3	TS28P-2K0A5-5P15-3VA	TS28P-2K0A1-5P15-3VA	1,00
2500	5P5	30	TS28P-2K5A5-5P5-30VA	TS28P-2K5A1-5P5-30VA	1,00
2500	5P10	12	TS28P-2K5A5-5P10-12VA	TS28P-2K5A1-5P10-12VA	1,00
2500	5P15	4	TS28P-2K5A5-5P15-4VA	TS28P-2K5A1-5P15-4VA	1,00
3000	5P5	35	TS28P-3K0A5-5P5-35VA	TS28P-3K0A1-5P5-35VA	1,00
3000	5P10	12	TS28P-3K0A5-5P10-12VA	TS28P-3K0A1-5P10-12VA	1,00
3000	5P15	2	TS28P-3K0A5-5P15-2VA	TS28P-3K0A1-5P15-2VA	1,00
4000	5P5	35	TS28P-4K0A5-5P5-35VA	TS28P-4K0A1-5P5-35VA	1,00
4000	5P10	8	TS28P-4K0A5-5P10-8VA	TS28P-4K0A1-5P10-8VA	1,00

Transformer suitable for primary current by horizontal bar 120x10mm, 2x120x10mm, 3x120x10mm or vertical bar 10x100mm, 2x0x100mm, 3x10x100mm. Sealable terminals cover ACC-COP6 on request.



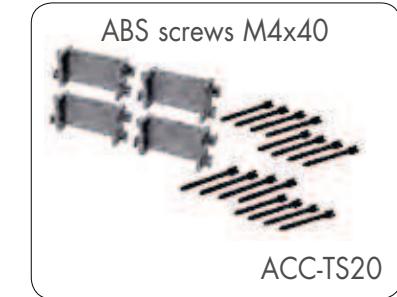
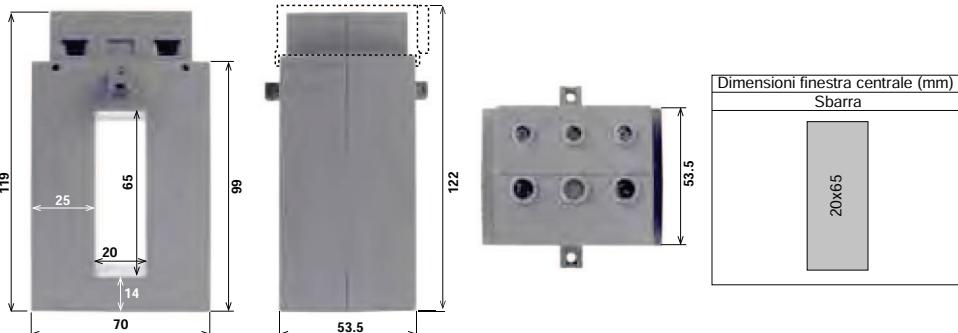
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1000	0,5	10	TS20-1K0A5-0.5-10VA	TS20-1K0A1-0.5-10VA	1,60
1200	0,5	15	TS20-1K2A5-0.5-15VA	TS20-1K2A1-0.5-15VA	1,60
1250	0,5	15	TS20-1K25A5-0.5-15VA	TS20-1K25A1-0.5-15VA	1,60
1500	0,5	15	TS20-1K5A5-0.5-15VA	TS20-1K5A1-0.5-15VA	1,60
1600	0,5	15	TS20-1K6A5-0.5-15VA	TS20-1K6A1-0.5-15VA	1,60
2000	0,5	20	TS20-2K0A5-0.5-20VA	TS20-2K0A1-0.5-20VA	1,60
2500	0,5	30	TS20-2K5A5-0.5-30VA	TS20-2K5A1-0.5-30VA	1,60
3000	0,5	30	TS20-3K0A5-0.5-30VA	TS20-3K0A1-0.5-30VA	1,60
3200	0,5	30	TS20-3K2A5-0.5-30VA	TS20-3K2A1-0.5-30VA	1,60
4000	0,5	30	TS20-4K0A5-0.5-30VA	TS20-4K0A1-0.5-30VA	1,60
5000	0,5	30	TS20-5K0A5-0.5-30VA	TS20-5K0A1-0.5-30VA	1,60
6000	0,5	30	TS20-6K0A5-0.5-30VA	TS20-6K0A1-0.5-30VA	1,60

MEASURING TRANSFORMERS

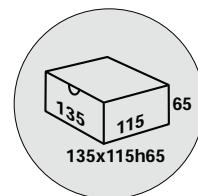
TS65V

Transformer suitable for primary current by vertical bar 20x65mm. Sealable terminals cover ACC-COP6 on request.



Measuring transformers

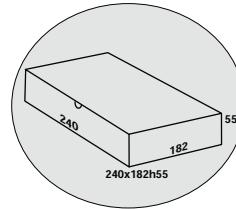
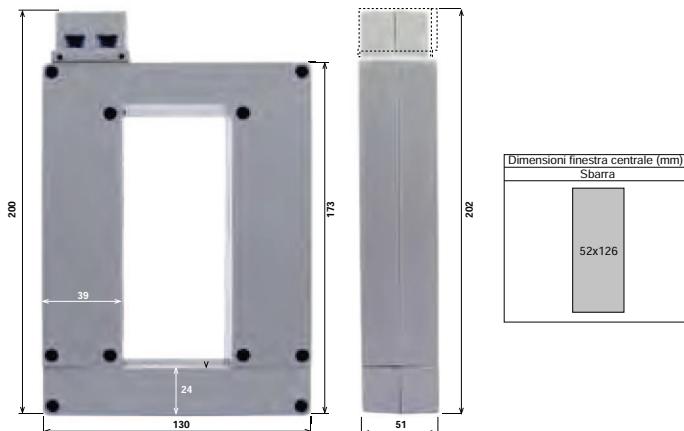
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200	0,5	1	TS65V-200A5-0.5-1VA	TS65V-200A1-0.5-1VA	0,50
250	0,5	1	TS65V-250A5-0.5-1VA	TS65V-250A1-0.5-1VA	0,50
300	0,5	3	TS65V-300A5-0.5-3VA	TS65V-300A1-0.5-3VA	0,50
400	0,5	5	TS65V-400A5-0.5-5VA	TS65V-400A1-0.5-5VA	0,50
500	0,5	10	TS65V-500A5-0.5-10VA	TS65V-500A1-0.5-10VA	0,50
600	0,5	10	TS65V-600A5-0.5-10VA	TS65V-600A1-0.5-10VA	0,50
750	0,5	10	TS65V-750A5-0.5-10VA	TS65V-750A1-0.5-10VA	0,50
800	0,5	15	TS65V-800A5-0.5-15VA	TS65V-800A1-0.5-15VA	0,50
1000	0,5	15	TS65V-1K0A5-0.5-15VA	TS65V-1K0A1-0.5-15VA	0,50
1200	0,5	15	TS65V-1K2A5-0.5-15VA	TS65V-1K2A1-0.5-15VA	0,50
1250	0,5	15	TS65V-1K25A5-0.5-15VA	TS65V-1K25A1-0.5-15VA	0,50



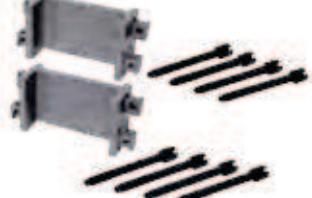
MEASURING TRANSFORMERS

TS26V

Transformer suitable for primary current by vertical bar 52x126mm. Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40



ACC-TS26V

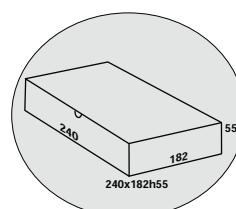
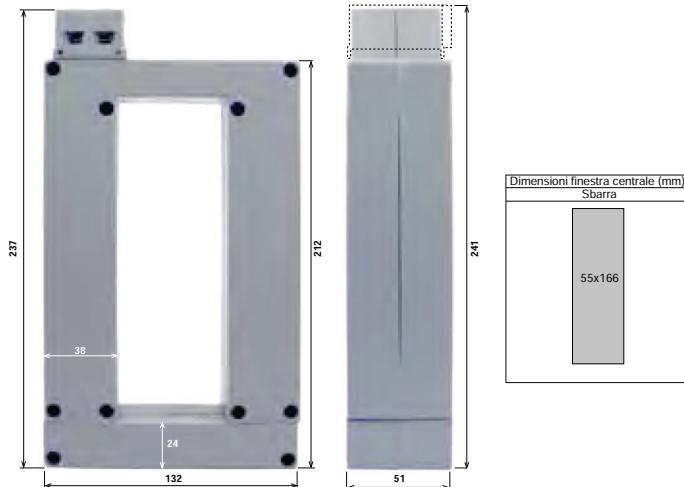
Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
400	0,5	5	TS26V-400A5-0.5-5VA	TS26V-400A1-0.5-5VA	0,50
500	0,5	10	TS26V-500A5-0.5-10VA	TS26V-500A1-0.5-10VA	0,50
600	0,5	10	TS26V-600A5-0.5-10VA	TS26V-600A1-0.5-10VA	0,50
750	0,5	10	TS26V-750A5-0.5-10VA	TS26V-750A1-0.5-10VA	0,50
800	0,5	10	TS26V-800A5-0.5-10VA	TS26V-800A1-0.5-10VA	0,50
1000	0,5	15	TS26V-1K0A5-0.5-15VA	TS26V-1K0A1-0.5-15VA	0,50
1200	0,5	15	TS26V-1K2A5-0.5-15VA	TS26V-1K2A1-0.5-15VA	0,50
1250	0,5	15	TS26V-1K25A5-0.5-15VA	TS26V-1K25A1-0.5-15VA	0,50
1500	0,5	20	TS26V-1K5A5-0.5-20VA	TS26V-1K5A1-0.5-20VA	0,50
1600	0,5	20	TS26V-1K6A5-0.5-20VA	TS26V-1K6A1-0.5-20VA	0,50
2000	0,5	20	TS26V-2K0A5-0.5-20VA	TS26V-2K0A1-0.5-20VA	0,50
2500	0,5	20	TS26V-2K5A5-0.5-20VA	TS26V-2K5A1-0.5-20VA	0,50

MEASURING TRANSFORMERS

TS66V

Transformer suitable for primary current by vertical bar 55x166mm. Sealable terminals cover ACC-COP6 on request.



ABS screws M4x40

ACC-TS66V

Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1200	0,5	20	TS66V-1K2A5-0.5-20VA	TS66V-1K2A1-0.5-20VA	1,30
1250	0,5	20	TS66V-1K25A5-0.5-20VA	TS66V-1K25A1-0.5-20VA	1,30
1500	0,5	20	TS66V-1K5A5-0.5-20VA	TS66V-1K5A1-0.5-20VA	1,30
1600	0,5	20	TS66V-1K6A5-0.5-20VA	TS66V-1K6A1-0.5-20VA	1,30
2000	0,5	20	TS66V-2K0A5-0.5-20VA	TS66V-2K0A1-0.5-20VA	1,30
2500	0,5	20	TS66V-2K5A5-0.5-20VA	TS66V-2K5A1-0.5-20VA	1,30
3000	0,5	20	TS66V-3K0A5-0.5-20VA	TS66V-3K0A1-0.5-20VA	1,30
3200	0,5	20	TS66V-3K2A5-0.5-20VA	TS66V-3K2A1-0.5-20VA	1,30
4000	0,5	30	TS66V-4K0A5-0.5-30VA	TS66V-4K0A1-0.5-30VA	1,30
5000	0,5	30	TS66V-5K0A5-0.5-30VA	TS66V-5K0A1-0.5-30VA	1,30

SUMMATION CURRENT TRANSFORMERS - TSO / TDSO SERIES

Range of transformers suitable to obtain the vector sum of the currents on multiple lines of a single voltage system.
Highest voltage for insulation: 0.72kV / 3 kV.

If the primary currents are different each other, specify the relative ratio when ordering.

ASSEMBLY INSTRUCTIONS

Together with the transformer it is provided a socket containing a series of accessories, which depending on the model allow various types of fixation:

- The mounting on DIN rail EN 50022 do not requires accessories, but simply by pressing it upon the transformer, thanks to the presence on the bottom of the transformer a suitable fixing system.

- Wall mounting using the two brackets (feet).

These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer, having to remove it.

DIN rail-mounting



Position the transformer on the bar and press as shown in Figures 1 and 2.

Wall fixing

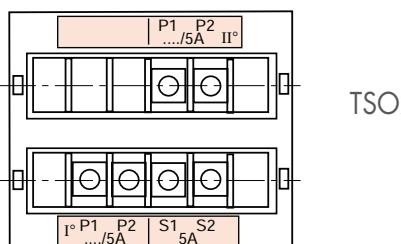
Using the two brackets supplied. Insert the brackets into the proper places as shown in figure; then secure them to the wall with two screws (not supplied).



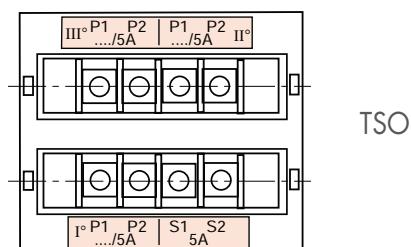
82

WIRING INSTRUCTION

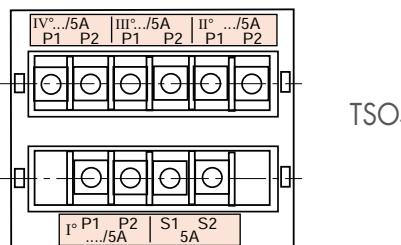
Connect the wires in the respective terminals as shown on figures.



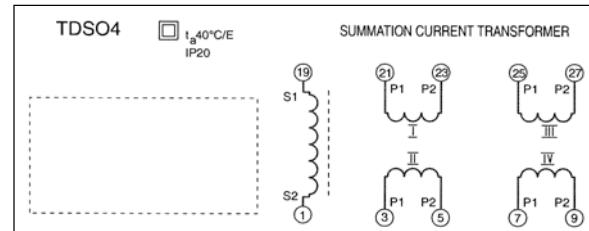
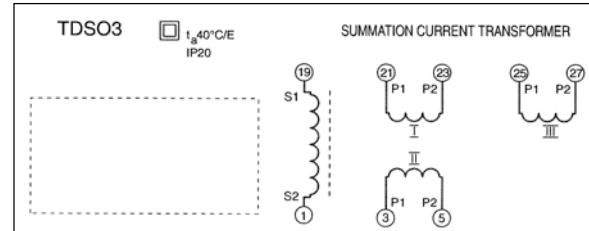
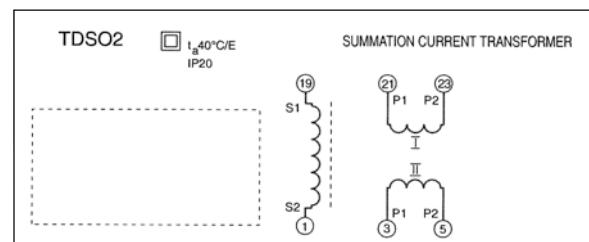
TSO2



TSO3



TSO4



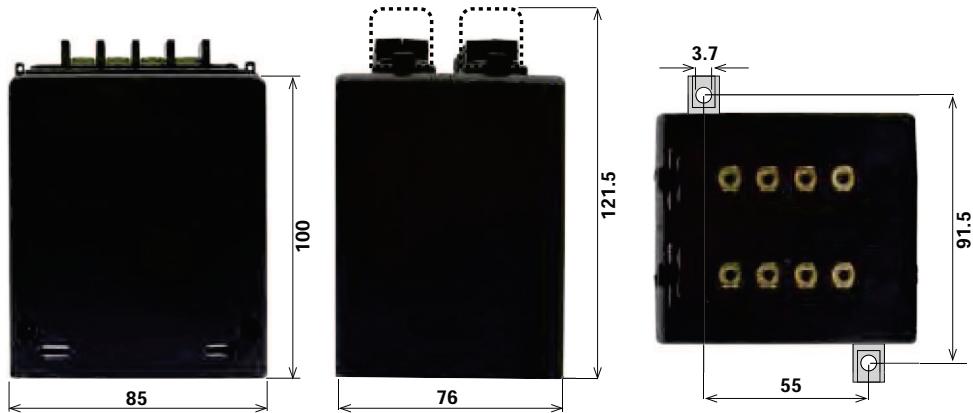
These schemes refer to the connection to one ammeter phase.

In case of a connection with two systems (ARON) scheme, use two current summation transformers and two current transformer for each phase (one for phase L1 and one for the L3 phase).

In case of a connection with three systems scheme, use three current summation transformers and three current transformers for each phase (one for phase L1, one for the L2 phase and one for the L3 phase)

MEASURING SUMMATION CURRENT TRANSFORMERS

Fixing to wall by brackets supplied with the transformer. Power 10VA.

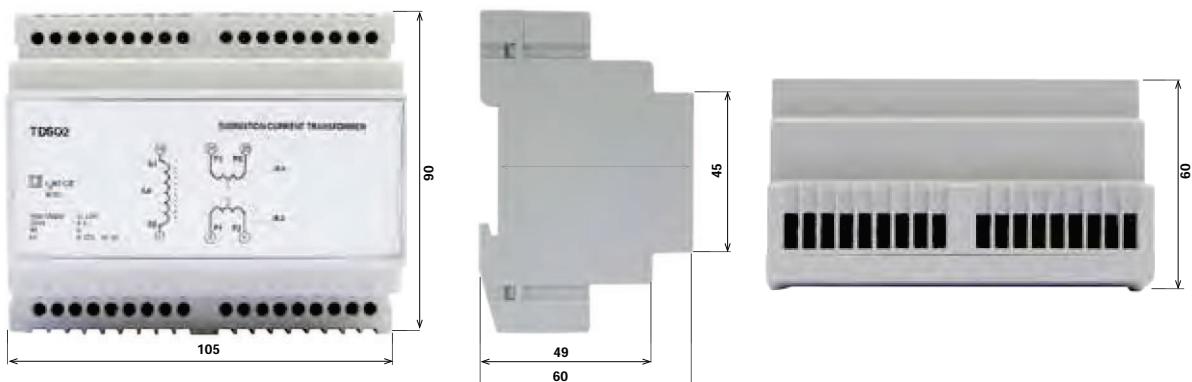


Measuring transformers

Power VA	Secondary current 5A - Class 0,5	Secondary current 1A - Class 0,5	Weight Kg
10	TSO2-5A5-0.5-10VA (Primary 5+5A - Secondary 5A)	TSO2-1A1-0.5-10VA (Primary 1+1A - Secondary 1A)	1,00
10	TSO3-5A5-0.5-10VA (Primary 5+5+5A - Secondary 5A)	TSO3-1A1-0.5-10VA (Primary 1+1+1A - Secondary 1A)	1,00
10	TSO4-5A5-0.5-10VA (Primary 5+5+5+5A - Secondary 5A)	TSO4-1A1-0.5-10VA (Primary 1+1+1+1A - Secondary 1A)	1,00

MEASURING SUMMATION CURRENT TRANSFORMERS

DIN rail fixing, dimensions 6 modules. Power 10VA.



Measuring transformers

Power VA	Secondary current 5A - Class 0,5	Secondary current 1A - Class 0,5	Weight Kg
6	TDSO2-5A5-0.5-6VA (Primary 5+5A - Secondary 5A)	TDSO2-1A1-0.5-6VA (Primary 1+1A - Secondary 1A)	1,00
6	TDSO3-5A5-0.5-6VA (Primary 5+5+5A - Secondary 5A)	TDSO3-1A1-0.5-6VA (Primary 1+1+1A - Secondary 1A)	1,00
6	TDSO4-5A5-0.5-6VA (Primary 5+5+5+5A - Secondary 5A)	TDSO4-1A1-0.5-6VA (Primary 1+1+1+1A - Secondary 1A)	1,00

VOLTAGE TRANSFORMERS – TV SERIES

Construction according to CEI EN 61869-1; CEI EN 61869-3.

Case in ABS-V0 and air insulation for the types TV6 and TV2; resin insulation ISEPOX for types TV10, TV12 and TV15. Highest voltage for insulation: 0.72 kV; 1.2kV under request where possible.

Test voltage: 3 kV. Optional 6 kV where possible.

Standard secondary voltages: 100V - 100V: $\sqrt{3}$ - 110V - 110V: $\sqrt{3}$ (different voltages can be made on request) primary voltages different than those in the table can be made on request.

When ordering, specify exactly the primary and secondary voltage, power, class, frequency of use and the overvoltage required when specific use is necessary and if different from that proposed.

Regarding the overvoltage (voltage factor FT) remember that:

is 1.2V_n continuous use for all VTs with connection phase-to-phase

is 1.2V_n continuous use and 1.9x8h for all VTs with connection phase-to-neutral

ASSEMBLY INSTRUCTIONS

Together with the transformer, it is provided a socket containing a series of accessories, which depending on the model allow various types of fixing:

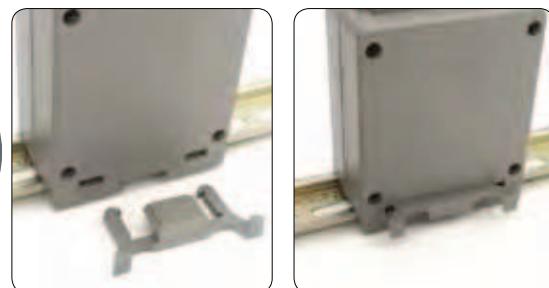
DIN rail EN 50022 fixing is performed using the appropriate accessory for type TV2.

Wall mounting, using the two brackets for type TV6.

Wall mounting for types TV10, TV12 and TV15 is carried out using three screws (not supplied) which must be placed on the brackets obtained directly on the mold.

These fixings must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer, having to remove it.

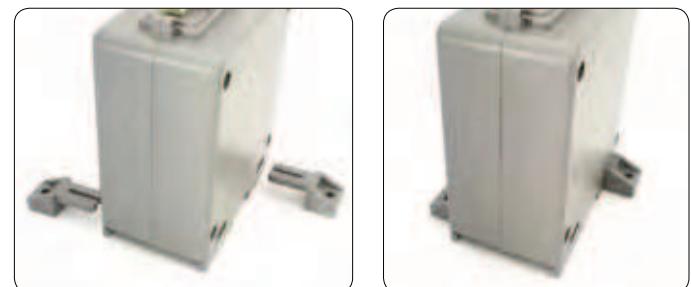
DIN rail mounting for type TV2



Position the transformer on the DIN rail and press as shown in Figures 1 and 2.

Wall mounting for types TV2 and TV6

Using the two brackets supplied. Insert the brackets into proper places as shown in figure; then secure them to the wall with two screws (not supplied).



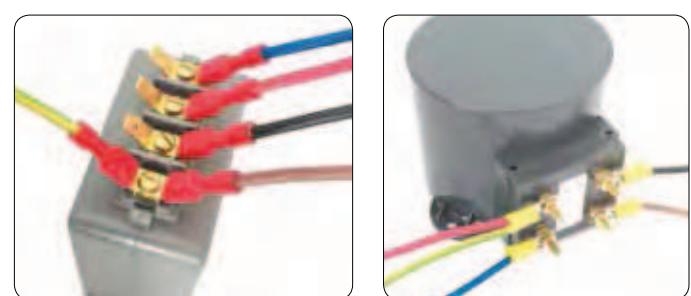
Wall mounting for types TV10, TV12 and TV15

Using three screws (not supplied) to be placed into the brackets obtained directly from the mold.

WIRING INSTRUCTION

Connect the wires in the respective terminals as shown on figures. The cables of the primary voltage must be inserted in the transformer paying attention to the direction of the flow voltage, which must always be in the direction A → B. In the cables of the secondary voltage, the direction of flow must always be in direction a → b.

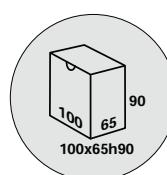
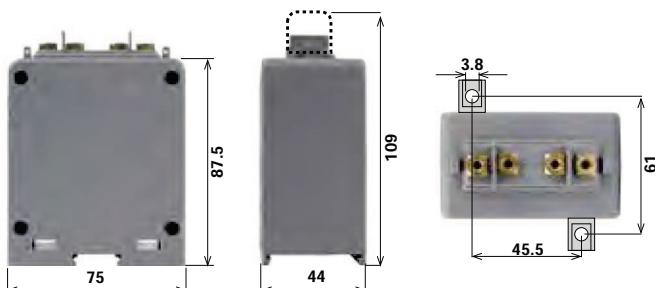
The terminal covers are supplied together with the transformers.



VOLTAGE TRANSFORMER

TV2

Transformer with small dimensions, 2 VA. Voltage factor FT = 1,2Vn continuous use.



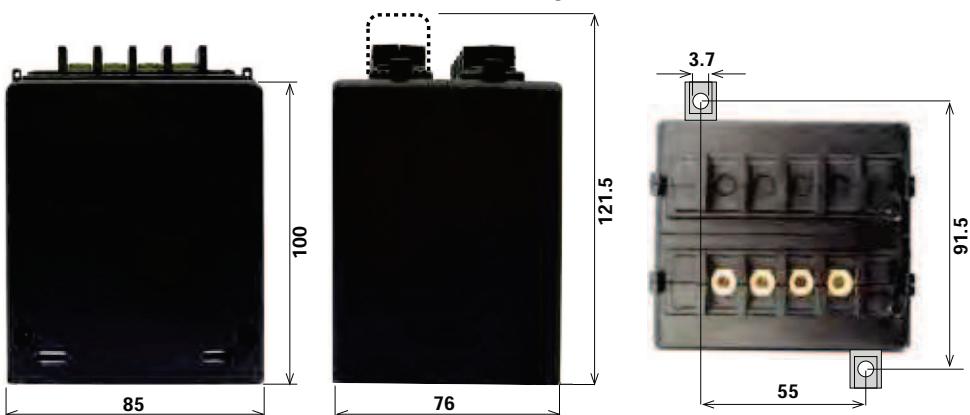
Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V	110V	Kg
100	1	2	TV2-100V100V-1-2VA	TV2-100V110V-1-2VA	1,50
120	1	2	TV2-120V100V-1-2VA	TV2-120V110V-1-2VA	1,50
230	1	2	TV2-230V100V-1-2VA	TV2-230V110V-1-2VA	1,50
380	1	2	TV2-380V100V-1-2VA	TV2-380V110V-1-2VA	1,50
400	1	2	TV2-400V100V-1-2VA	TV2-400V110V-1-2VA	1,50
500	1	2	TV2-500V100V-1-2VA	TV2-500V110V-1-2VA	1,50
600	1	2	TV2-600V100V-1-2VA	TV2-600V110V-1-2VA	1,50

Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V:$\sqrt{3}$	110V:$\sqrt{3}$	Kg
100: $\sqrt{3}$	1	2	TV2-100R3V100R3-1-2VA	TV2-100R3V110R3-1-2VA	1,50
120: $\sqrt{3}$	1	2	TV2-120R3V100R3-1-2VA	TV2-120R3V110R3-1-2VA	1,50
230: $\sqrt{3}$	1	2	TV2-230R3V100R3-1-2VA	TV2-230R3V110R3-1-2VA	1,50
380: $\sqrt{3}$	1	2	TV2-380R3V100R3-1-2VA	TV2-380R3V110R3-1-2VA	1,50
400: $\sqrt{3}$	1	2	TV2-400R3V100R3-1-2VA	TV2-400R3V110R3-1-2VA	1,50
500: $\sqrt{3}$	1	2	TV2-500R3V100R3-1-2VA	TV2-500R3V110R3-1-2VA	1,50
600: $\sqrt{3}$	1	2	TV2-600R3V100R3-1-2VA	TV2-600R3V110R3-1-2VA	1,50

VOLTAGE TRANSFORMER

TV6

Transformer with small dimensions, 2 VA. Voltage factor FT = 1,2Vn continuous use.



Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V	110V	Kg
100	0,5	6	TV6-100V100V-0.5-6VA	TV6-100V110V-0.5-6VA	2,00
120	0,5	6	TV6-120V100V-0.5-6VA	TV6-120V110V-0.5-6VA	2,00
230	0,5	6	TV6-230V100V-0.5-6VA	TV6-230V110V-0.5-6VA	2,00
380	0,5	6	TV6-380V100V-0.5-6VA	TV6-380V110V-0.5-6VA	2,00
400	0,5	6	TV6-400V100V-0.5-6VA	TV6-400V110V-0.5-6VA	2,00
500	0,5	6	TV6-500V100V-0.5-6VA	TV6-500V110V-0.5-6VA	2,00
600	0,5	6	TV6-600V100V-0.5-6VA	TV6-600V110V-0.5-6VA	2,00
690	0,5	6	TV6-690V100V-0.5-6VA	TV6-690V110V-0.5-6VA	2,00
800	0,5	6	TV6-800V100V-0.5-6VA	TV6-800V110V-0.5-6VA	2,00

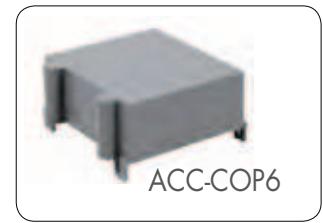
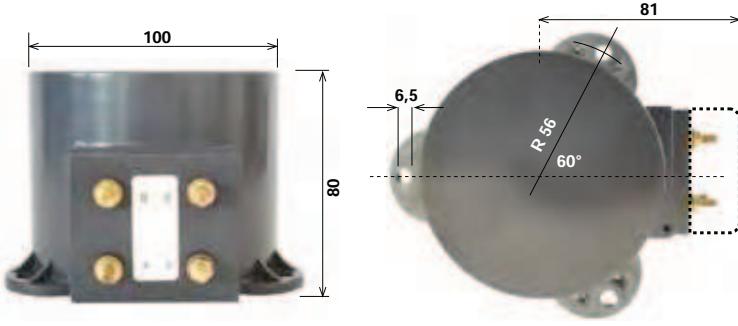
VOLTAGE TRANSFORMER

TV10

Transformer with external diameter 100mm. Regarding the overvoltage (voltage factor FT) remember that:

is 1.2Vn continuous use for all VTs with connection phase-to-phase (... /100V - .../110V)

is 1.2Vn continuous use and 1.9x8h for all VTs with connection phase-to-neutral (... : $\sqrt{3}$ /100V: $\sqrt{3}$ - ... : $\sqrt{3}$ /110V: $\sqrt{3}$)



Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V	110V	Kg
100	0,5	6	TV10-100V100V-0.5-6VA	TV10-100V110V-0.5-6VA	2,50
100	0,5	10	TV10-100V100V-0.5-10VA	TV10-100V110V-0.5-10VA	2,50
120	0,5	6	TV10-120V100V-0.5-6VA	TV10-120V110V-0.5-6VA	2,50
120	0,5	10	TV10-120V100V-0.5-10VA	TV10-120V110V-0.5-10VA	2,50
230	0,5	6	TV10-230V100V-0.5-6VA	TV10-230V110V-0.5-6VA	2,50
230	0,5	10	TV10-230V100V-0.5-10VA	TV10-230V110V-0.5-10VA	2,50
380	0,5	6	TV10-380V100V-0.5-6VA	TV10-380V110V-0.5-6VA	2,50
380	0,5	10	TV10-380V100V-0.5-10VA	TV10-380V110V-0.5-10VA	2,50
400	0,5	6	TV10-400V100V-0.5-6VA	TV10-400V110V-0.5-6VA	2,50
400	0,5	10	TV10-400V100V-0.5-10VA	TV10-400V110V-0.5-10VA	2,50
500	0,5	6	TV10-500V100V-0.5-6VA	TV10-500V110V-0.5-6VA	2,50
500	0,5	10	TV10-500V100V-0.5-10VA	TV10-500V110V-0.5-10VA	2,50
600	0,5	6	TV10-600V100V-0.5-6VA	TV10-600V110V-0.5-6VA	2,50
600	0,5	10	TV10-600V100V-0.5-10VA	TV10-600V110V-0.5-10VA	2,50
690	0,5	6	TV10-690V100V-0.5-6VA	TV10-690V110V-0.5-6VA	2,50
690	0,5	10	TV10-690V100V-0.5-10VA	TV10-690V110V-0.5-10VA	2,50
800	0,5	6	TV10-800V100V-0.5-6VA	TV10-800V110V-0.5-6VA	2,50
800	0,5	10	TV10-800V100V-0.5-10VA	TV10-800V110V-0.5-10VA	2,50

Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V: $\sqrt{3}$	110V: $\sqrt{3}$	Kg
100: $\sqrt{3}$	0,5	6	TV10-100R3V100R3-0.5-6VA	TV10-100R3V110R3-0.5-6VA	2,50
100: $\sqrt{3}$	0,5	10	TV10-100R3V100R3-0.5-10VA	TV10-100R3V110R3-0.5-10VA	2,50
120: $\sqrt{3}$	0,5	6	TV10-120R3V100R3-0.5-6VA	TV10-120R3V110R3-0.5-6VA	2,50
120: $\sqrt{3}$	0,5	10	TV10-120R3V100R3-0.5-10VA	TV10-120R3V110R3-0.5-10VA	2,50
230: $\sqrt{3}$	0,5	6	TV10-230R3V100R3-0.5-6VA	TV10-230R3V110R3-0.5-6VA	2,50
230: $\sqrt{3}$	0,5	10	TV10-230R3V100R3-0.5-10VA	TV10-230R3V110R3-0.5-10VA	2,50
380: $\sqrt{3}$	0,5	6	TV10-380R3V100R3-0.5-6VA	TV10-380R3V110R3-0.5-6VA	2,50
380: $\sqrt{3}$	0,5	10	TV10-380R3V100R3-0.5-10VA	TV10-380R3V110R3-0.5-10VA	2,50
400: $\sqrt{3}$	0,5	6	TV10-400R3V100R3-0.5-6VA	TV10-400R3V110R3-0.5-6VA	2,50
400: $\sqrt{3}$	0,5	10	TV10-400R3V100R3-0.5-10VA	TV10-400R3V110R3-0.5-10VA	2,50
500: $\sqrt{3}$	0,5	6	TV10-500R3V100R3-0.5-6VA	TV10-500R3V110R3-0.5-6VA	2,50
500: $\sqrt{3}$	0,5	10	TV10-500R3V100R3-0.5-10VA	TV10-500R3V110R3-0.5-10VA	2,50
600: $\sqrt{3}$	0,5	6	TV10-600R3V100R3-0.5-6VA	TV10-600R3V110R3-0.5-6VA	2,50
600: $\sqrt{3}$	0,5	10	TV10-600R3V100R3-0.5-10VA	TV10-600R3V110R3-0.5-10VA	2,50
690: $\sqrt{3}$	0,5	6	TV10-690R3V100R3-0.5-6VA	TV10-690R3V110R3-0.5-6VA	2,50
690: $\sqrt{3}$	0,5	10	TV10-690R3V100R3-0.5-10VA	TV10-690R3V110R3-0.5-10VA	2,50

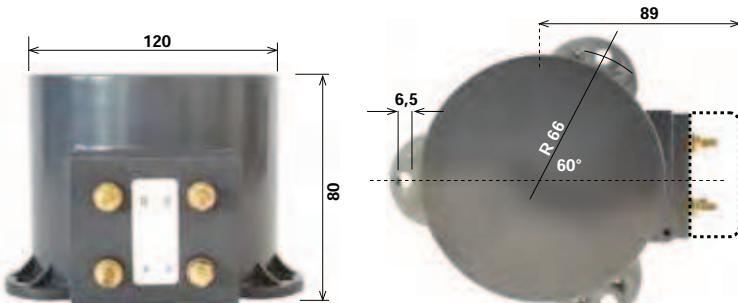
VOLTAGE TRANSFORMER

TV12

Transformer with external diameter 120mm. Regarding the overvoltage (voltage factor FT) remember that:

is 1.2Vn continuous use for all VTs with connection phase-to-phase (... /100V - .../110V)

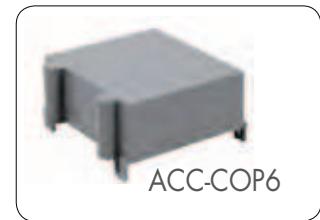
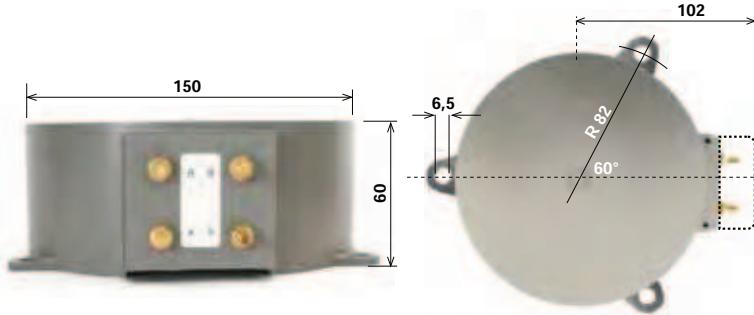
is 1.2Vn continuous use and 1.9x8h for all VTs with connection phase-to-neutral (... : $\sqrt{3}$ /100V: $\sqrt{3}$ - ... : $\sqrt{3}$ /110V: $\sqrt{3}$)



Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V	110V	Kg
100	0,5	15	TV12-100V100V-0.5-15VA	TV12-100V110V-0.5-15VA	2,50
100	0,5	20	TV12-100V100V-0.5-20VA	TV12-100V110V-0.5-20VA	2,50
120	0,5	15	TV12-120V100V-0.5-15VA	TV12-120V110V-0.5-15VA	2,50
120	0,5	20	TV12-120V100V-0.5-20VA	TV12-120V110V-0.5-20VA	2,50
230	0,5	15	TV12-230V100V-0.5-15VA	TV12-230V110V-0.5-15VA	2,50
230	0,5	20	TV12-230V100V-0.5-20VA	TV12-230V110V-0.5-20VA	2,50
380	0,5	15	TV12-380V100V-0.5-15VA	TV12-380V110V-0.5-15VA	2,50
380	0,5	20	TV12-380V100V-0.5-20VA	TV12-380V110V-0.5-20VA	2,50
400	0,5	15	TV12-400V100V-0.5-15VA	TV12-400V110V-0.5-15VA	2,50
400	0,5	20	TV12-400V100V-0.5-20VA	TV12-400V110V-0.5-20VA	2,50
500	0,5	15	TV12-500V100V-0.5-15VA	TV12-500V110V-0.5-15VA	2,50
500	0,5	20	TV12-500V100V-0.5-20VA	TV12-500V110V-0.5-20VA	2,50
600	0,5	15	TV12-600V100V-0.5-15VA	TV12-600V110V-0.5-15VA	2,50
600	0,5	20	TV12-600V100V-0.5-20VA	TV12-600V110V-0.5-20VA	2,50
690	0,5	15	TV12-690V100V-0.5-15VA	TV12-690V110V-0.5-15VA	2,50
690	0,5	20	TV12-690V100V-0.5-20VA	TV12-690V110V-0.5-20VA	2,50
800	0,5	15	TV12-800V100V-0.5-15VA	TV12-800V110V-0.5-15VA	2,50
800	0,5	20	TV12-800V100V-0.5-20VA	TV12-800V110V-0.5-20VA	2,50

Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V: $\sqrt{3}$	110V: $\sqrt{3}$	Kg
100: $\sqrt{3}$	0,5	15	TV12-100R3V100R3-0.5-15VA	TV12-100R3V110R3-0.5-15VA	2,50
100: $\sqrt{3}$	0,5	20	TV12-100R3V100R3-0.5-20VA	TV12-100R3V110R3-0.5-20VA	2,50
120: $\sqrt{3}$	0,5	15	TV12-120R3V100R3-0.5-15VA	TV12-120R3V110R3-0.5-15VA	2,50
120: $\sqrt{3}$	0,5	20	TV12-120R3V100R3-0.5-20VA	TV12-120R3V110R3-0.5-20VA	2,50
230: $\sqrt{3}$	0,5	15	TV12-230R3V100R3-0.5-15VA	TV12-230R3V110R3-0.5-15VA	2,50
230: $\sqrt{3}$	0,5	20	TV12-230R3V100R3-0.5-20VA	TV12-230R3V110R3-0.5-20VA	2,50
380: $\sqrt{3}$	0,5	6	TV12-380R3V100R3-0.5-15VA	TV12-380R3V110R3-0.5-15VA	2,50
380: $\sqrt{3}$	0,5	10	TV12-380R3V100R3-0.5-20VA	TV12-380R3V110R3-0.5-20VA	2,50
400: $\sqrt{3}$	0,5	6	TV12-400R3V100R3-0.5-15VA	TV12-400R3V110R3-0.5-15VA	2,50
400: $\sqrt{3}$	0,5	10	TV12-400R3V100R3-0.5-20VA	TV12-400R3V110R3-0.5-20VA	2,50
500: $\sqrt{3}$	0,5	6	TV12-500R3V100R3-0.5-15VA	TV12-500R3V110R3-0.5-15VA	2,50
500: $\sqrt{3}$	0,5	10	TV12-500R3V100R3-0.5-20VA	TV12-500R3V110R3-0.5-20VA	2,50
600: $\sqrt{3}$	0,5	6	TV12-600R3V100R3-0.5-15VA	TV12-600R3V110R3-0.5-15VA	2,50
600: $\sqrt{3}$	0,5	10	TV12-600R3V100R3-0.5-20VA	TV12-600R3V110R3-0.5-20VA	2,50
690: $\sqrt{3}$	0,5	6	TV12-690R3V100R3-0.5-15VA	TV12-690R3V110R3-0.5-15VA	2,50
690: $\sqrt{3}$	0,5	10	TV12-690R3V100R3-0.5-20VA	TV12-690R3V110R3-0.5-20VA	2,50

Transformer with external diameter 150mm. Regarding the overvoltage (voltage factor FT) remember that:
 is 1.2Vn continuous use for all VTs with connection phase-to-phase (... /100V - .../110V)
 is 1.2Vn continuous use and 1.9x8h for all VTs with connection phase-to-neutral (... : $\sqrt{3}$ /100V: $\sqrt{3}$ - ... : $\sqrt{3}$ /110V: $\sqrt{3}$)



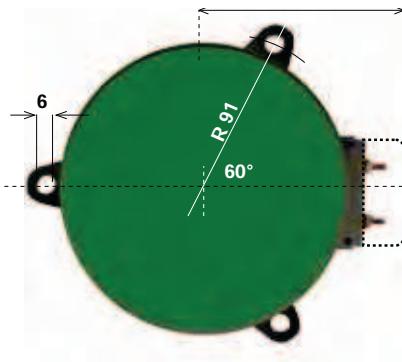
Primary voltage V	Class	Power VA	Secondary voltage		Weight Kg
			100V	110V	
100	0,5	20	TV15-100V100V-0.5-20VA	TV15-100V110V-0.5-20VA	4,30
100	0,5	30	TV15-100V100V-0.5-30VA	TV15-100V110V-0.5-30VA	4,30
100	0,5	40	TV15-100V100V-0.5-40VA	TV15-100V110V-0.5-40VA	4,30
100	0,5	50	TV15-100V100V-0.5-50VA	TV15-100V110V-0.5-50VA	4,30
120	0,5	20	TV15-120V100V-0.5-20VA	TV15-120V110V-0.5-20VA	4,30
120	0,5	30	TV15-120V100V-0.5-30VA	TV15-120V110V-0.5-30VA	4,30
120	0,5	40	TV15-120V100V-0.5-40VA	TV15-120V110V-0.5-40VA	4,30
120	0,5	50	TV15-120V100V-0.5-50VA	TV15-120V110V-0.5-50VA	4,30
230	0,5	20	TV15-230V100V-0.5-20VA	TV15-230V110V-0.5-20VA	4,30
230	0,5	30	TV15-230V100V-0.5-30VA	TV15-230V110V-0.5-30VA	4,30
230	0,5	40	TV15-230V100V-0.5-40VA	TV15-230V110V-0.5-40VA	4,30
230	0,5	50	TV15-230V100V-0.5-50VA	TV15-230V110V-0.5-50VA	4,30
380	0,5	20	TV15-380V100V-0.5-20VA	TV15-380V110V-0.5-20VA	4,30
380	0,5	30	TV15-380V100V-0.5-30VA	TV15-380V110V-0.5-30VA	4,30
380	0,5	40	TV15-380V100V-0.5-40VA	TV15-380V110V-0.5-40VA	4,30
380	0,5	50	TV15-380V100V-0.5-50VA	TV15-380V110V-0.5-50VA	4,30
400	0,5	20	TV15-400V100V-0.5-20VA	TV15-400V110V-0.5-20VA	4,30
400	0,5	30	TV15-400V100V-0.5-30VA	TV15-400V110V-0.5-30VA	4,30
400	0,5	40	TV15-400V100V-0.5-40VA	TV15-400V110V-0.5-40VA	4,30
400	0,5	50	TV15-400V100V-0.5-50VA	TV15-400V110V-0.5-50VA	4,30
500	0,5	20	TV15-500V100V-0.5-20VA	TV15-500V110V-0.5-20VA	4,30
500	0,5	30	TV15-500V100V-0.5-30VA	TV15-500V110V-0.5-30VA	4,30
500	0,5	40	TV15-500V100V-0.5-40VA	TV15-500V110V-0.5-40VA	4,30
500	0,5	50	TV15-500V100V-0.5-50VA	TV15-500V110V-0.5-50VA	4,30
600	0,5	20	TV15-600V100V-0.5-20VA	TV15-600V110V-0.5-20VA	4,30
600	0,5	30	TV15-600V100V-0.5-30VA	TV15-600V110V-0.5-30VA	4,30
600	0,5	40	TV15-600V100V-0.5-40VA	TV15-600V110V-0.5-40VA	4,30
600	0,5	50	TV15-600V100V-0.5-50VA	TV15-600V110V-0.5-50VA	4,30
690	0,5	20	TV15-690V100V-0.5-20VA	TV15-690V110V-0.5-20VA	4,30
690	0,5	30	TV15-690V100V-0.5-30VA	TV15-690V110V-0.5-30VA	4,30
690	0,5	40	TV15-690V100V-0.5-40VA	TV15-690V110V-0.5-40VA	4,30
690	0,5	50	TV15-690V100V-0.5-50VA	TV15-690V110V-0.5-50VA	4,30
800	0,5	20	TV15-800V100V-0.5-20VA	TV15-800V110V-0.5-20VA	4,30
800	0,5	30	TV15-800V100V-0.5-30VA	TV15-800V110V-0.5-30VA	4,30
800	0,5	40	TV15-800V100V-0.5-40VA	TV15-800V110V-0.5-40VA	4,30
800	0,5	50	TV15-800V100V-0.5-50VA	TV15-800V110V-0.5-50VA	4,30

Primary voltage V	Class	Power VA	Secondary voltage		Weight Kg
			100V:$\sqrt{3}$	110V:$\sqrt{3}$	
100: $\sqrt{3}$	0,5	20	TV15-100R3V100R3-0.5-20VA	TV15-100R3V110R3-0.5-20VA	4,30
100: $\sqrt{3}$	0,5	30	TV15-100R3V100R3-0.5-30VA	TV15-100R3V110R3-0.5-30VA	4,30
120: $\sqrt{3}$	0,5	20	TV15-120R3V100R3-0.5-20VA	TV15-120R3V110R3-0.5-20VA	4,30
120: $\sqrt{3}$	0,5	30	TV15-120R3V100R3-0.5-30VA	TV15-120R3V110R3-0.5-30VA	4,30
230: $\sqrt{3}$	0,5	20	TV15-230R3V100R3-0.5-20VA	TV15-230R3V110R3-0.5-20VA	4,30
230: $\sqrt{3}$	0,5	30	TV15-230R3V100R3-0.5-30VA	TV15-230R3V110R3-0.5-30VA	4,30
380: $\sqrt{3}$	0,5	20	TV15-380R3V100R3-0.5-20VA	TV15-380R3V110R3-0.5-20VA	4,30
380: $\sqrt{3}$	0,5	30	TV15-380R3V100R3-0.5-30VA	TV15-380R3V110R3-0.5-30VA	4,30
400: $\sqrt{3}$	0,5	20	TV15-400R3V100R3-0.5-20VA	TV15-400R3V110R3-0.5-20VA	4,30
400: $\sqrt{3}$	0,5	30	TV15-400R3V100R3-0.5-30VA	TV15-400R3V110R3-0.5-30VA	4,30
500: $\sqrt{3}$	0,5	20	TV15-500R3V100R3-0.5-20VA	TV15-500R3V110R3-0.5-20VA	4,30
500: $\sqrt{3}$	0,5	30	TV15-500R3V100R3-0.5-30VA	TV15-500R3V110R3-0.5-30VA	4,30
600: $\sqrt{3}$	0,5	20	TV15-600R3V100R3-0.5-20VA	TV15-600R3V110R3-0.5-20VA	4,30
600: $\sqrt{3}$	0,5	30	TV15-600R3V100R3-0.5-30VA	TV15-600R3V110R3-0.5-30VA	4,30
690: $\sqrt{3}$	0,5	20	TV15-690R3V100R3-0.5-20VA	TV15-690R3V110R3-0.5-20VA	4,30
690: $\sqrt{3}$	0,5	30	TV15-690R3V100R3-0.5-30VA	TV15-690R3V110R3-0.5-30VA	4,30

Trasformatore con diameter esterno 170mm.

Fattore di tensione FT è di 1,2 Vn continua e 1.9 Vn x 8h

VA superiori a 50 possono essere realizzati su richiesta



Primary voltage V	Class	Power VA	Secondary voltage	Secondary voltage	Weight Kg
			100V:$\sqrt{3}$	110V:$\sqrt{3}$	
100: $\sqrt{3}$	0,5	40	TV17-100R3V100R3-0.5-40VA	TV17-100R3V110R3-0.5-40VA	5,00
100: $\sqrt{3}$	0,5	50	TV17-100R3V100R3-0.5-50VA	TV17-100R3V110R3-0.5-50VA	5,00
120: $\sqrt{3}$	0,5	40	TV17-120R3V100R3-0.5-40VA	TV17-120R3V110R3-0.5-40VA	5,00
120: $\sqrt{3}$	0,5	50	TV17-120R3V100R3-0.5-50VA	TV17-120R3V110R3-0.5-50VA	5,00
230: $\sqrt{3}$	0,5	40	TV17-230R3V100R3-0.5-40VA	TV17-230R3V110R3-0.5-40VA	5,00
230: $\sqrt{3}$	0,5	50	TV17-230R3V100R3-0.5-50VA	TV17-230R3V110R3-0.5-50VA	5,00
380: $\sqrt{3}$	0,5	40	TV17-380R3V100R3-0.5-40VA	TV17-380R3V110R3-0.5-40VA	5,00
380: $\sqrt{3}$	0,5	50	TV17-380R3V100R3-0.5-50VA	TV17-380R3V110R3-0.5-50VA	5,00
400: $\sqrt{3}$	0,5	40	TV17-400R3V100R3-0.5-40VA	TV17-400R3V110R3-0.5-40VA	5,00
400: $\sqrt{3}$	0,5	50	TV17-400R3V100R3-0.5-50VA	TV17-400R3V110R3-0.5-50VA	5,00
500: $\sqrt{3}$	0,5	40	TV17-500R3V100R3-0.5-40VA	TV17-500R3V110R3-0.5-40VA	5,00
500: $\sqrt{3}$	0,5	50	TV17-500R3V100R3-0.5-50VA	TV17-500R3V110R3-0.5-50VA	5,00
600: $\sqrt{3}$	0,5	40	TV17-600R3V100R3-0.5-40VA	TV17-600R3V110R3-0.5-40VA	5,00
600: $\sqrt{3}$	0,5	50	TV17-600R3V100R3-0.5-50VA	TV17-600R3V110R3-0.5-50VA	5,00
690: $\sqrt{3}$	0,5	40	TV17-690R3V100R3-0.5-40VA	TV17-690R3V110R3-0.5-40VA	5,00
690: $\sqrt{3}$	0,5	50	TV17-690R3V100R3-0.5-50VA	TV17-690R3V110R3-0.5-50VA	5,00

CERTIFICATES AND AWARDS



CERTIFICATO N.
CERTIFICATE N. 9105.AE2S

SI CERTIFICA CHE IL SISTEMA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY SYSTEM OPERATED BY

AE2 SRL

VIA GUIDO ROSSA 14 - 20845 SOVICO (MB)

UNITA' OPERATIVE
OPERATIVE UNITS

VIA GUIDO ROSSA 14 - 20845 SOVICO (MB)

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

ISO 9001:2008

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

Progettazione, produzione di trasformatori per bassa tensione e
commercializzazione di strumenti analogici di misura elettrica
*Design and production of low voltage current transformers (CT) and voltage
transformers (VT) for industrial sector. Trading of electrical measurement instruments*

Riferirsi al manuale della qualità per l'applicabilità dei requisiti della norma ISO 9001:2008
Refer to quality manual for details of applications to ISO 9001:2008 requirements

IL PRESENTE CERTIFICATO E' SOGGETTO AL RISPETTO DEL
REGOLAMENTO PER LA CERTIFICAZIONE DEI SISTEMI DI GESTIONE

THE USE AND THE VALIDITY OF THE CERTIFICATE SHALL SATISFY THE
REQUIREMENTS OF THE RULES FOR CERTIFICATION OF MANAGEMENT SYSTEMS

DATE:	PRIMA CERTIFICAZIONE FIRST CERTIFICATION	EMISSIONE CORRENTE CURRENT ISSUE	SCADENZA EXPIRY
	2014-11-04	2014-11-04	2017-11-03

IMQ S.p.A. - VIA QUINTILIANO, 43 - 20138 MILANO ITALY

CISQ è la Federazione Italiana di
Organismi di Certificazione dei
sistemi di gestione aziendale.

CISQ is the Italian Federation
of management system
Certification Bodies.



IAF: 19

992/N/004, 01/09/2010, SCR N/0059
995/N/0030, FSA N/0001, SGS N/0009
EMAS N/0009, OHS N/0010, PRO N/0019
FRS N/0030, IFS N/0016, L2B N/0021
LAT N/0023

Numero d'iscrizione Accredia: 00000000000000000000000000000000

La validità del certificato è subordinata a sorveglianza annuale e rinnovo completo del Sistema di Gestione con periodicità triennale.
The validity of the certificate is subject to annual audit and a reassessment of the entire Management System within three years.

®



THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and its partner
CISQ/IMQ-CSQ
hereby certify that the organization

AE2 SRL
VIA GUIDO ROSSA 14 - 20845 SOVICO (MB)

for the following field of activities

*Design and production of low voltage current transformers (CT) and voltage
transformers (VT) for industrial sector. Trading of electrical measurement instruments
Refer to quality manual for details of applications to ISO 9001:2008 requirements*

has implemented and maintains a

Quality Management System
which fulfills the requirements of the following standard

ISO 9001:2008

Issued on: 2014 - 11 - 04

Expiry date: 2017 - 11 - 03

Registration Number: **IT - 96956**

The status of validity of the certificate can be verified at <http://www.cisq.com> or by e-mail to fecdscsq@cisq.com



P. Drechsel

Michael Drechsel

President of IQNET



Ing. Claudio Provetti

President of CISQ

IQNet Partners:*

AENOR Spain AFNOR Certification France AIB-Vinotte International Belgium ANCE-SIGE Mexico APCER Portugal CCC Cyprus
CISQ Italy CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany
FCAV Brazil FONDONORMA Venezuela ICONTEC Colombia IMNC Mexico Inspecta Certification Finland IRAM Argentina
JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland PCBC Poland
Quality Austria Austria RR Russia SII Israel SIQ Slovenia SIRIM QAS International Malaysia
SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey YUQS Serbia

** IQNet is represented in the USA by: AFNOR Certification, CISQ, DQS Holding GmbH and NSAI Inc.*

** The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com*



DECLARATION OF CONFORMITY

AE2 srl

(name)

Via Guido Rossa, 14 - 20845 Sovico (MB) - ITALY

(indirizzo)

declares under own responsibility that the products:

Current transformer

(name, type of model, lot, batch or serial number; possibly sources and numbers of items) to which this declaration relates complies with the following standards

CEI EN 61869-1 2009-09
CEI EN 61869-2 2012-11
For which the Ith is: 40lpm for 1second and Idyn is: 2,5 lth for 1second.
Maximum service voltage for insulation is: 0,72 kV.
Maximum testing voltage is: 3kV at 50 Hz for 1 minute.

(title and/or number and date of issue of the standard(s))

following the provisions of CEE Directives

E.M.C.2004/108EC L.V. 2006/95/EG

Routine Tests:

- Verification of terminals markings (see 7.3.6)
- Power-frequency tests on primary windings (see 7.3.1)
- Power-frequency tests on secondary windings (see 7.3.4)
- Over voltage inter - turn tests (see 7.3.204 procedure A)
- Tests of accuracy (see 7.3.5)

In conformity with IEC 61869-1 / 61869-2

- Are manufactured in Italy

AE2 s.r.l.
Stefano Merlo
Quality Manager

(timbro, nome e firma della persona autorizzata)

Sovico (MB) 25 June 2014

(place and date of issue)

AE2 srl - Via Guido Rossa, 14 - 20845 SOVICO (MB) - ITALY Tel. +39 039 2012676 - Fax +39 039 8900061

E-mail: info@ae2.it - www.ae2.it



DECLARATION OF CONFORMITY

AE2 srl

(supplier's name)

Via Guido Rossa, 14 - 20845 Sovico (MB) - ITALY

(address)

declares under own responsibility that the products:

Voltage Transformer

(name, type of model, lot, batch or serial number; possibly sources and numbers of items) to which this declaration relates complies with the following standards

CEI EN 61869-1 2009-09
CEI EN 61869-3 2011-07
Maximum service voltage for insulation is: 0,72 kV.
Maximum testing voltage is: 3kV at 50 Hz for 1 minute.
Umax=1,2 Un

(title and/or number and date of issue of the standard(s))

following the provisions of CEE Directives

E.M.C.2004/108EC L.V. 2006/95/EG

Routine Tests:

- Verification of terminals markings (see 7.3.6)
- Power-frequency tests on primary windings (see 7.3.1)
- Power-frequency tests on secondary windings (see 7.3.4)
- Over voltage inter - turn tests (see 7.3.204 procedure A)
- Tests of accuracy (see 7.3.5)

In conformity with IEC 61869-1 / 61869-3

- Are manufactured in Italy

AE2 s.r.l.
Stefano Merlo
Quality Manager

Sovico (MB) 25 June 2014

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E-mail: info@ae2.it

Esempi di Test Report



CERTIFICATION TEST REPORT



CURRENT TRANSFORMER

Serial N.	Model	TM3-400A5-0,5-3VA
3014-A02586	Operator	Molteni Gabriele
Date 25/07/2014	Customer	Order N.

Page 1 of 2

Summary:

Freq.: 50 Hz	CosPhi: 0,8	Test Voltage: 0,72/3 kV
Coil	Core	Ratio
S1-S2	1	400/5

Page 1 of 2

Test equipments:

Description	Type	Serial N.	Manufacturer	Certificate N.
Sample CT	TAKT	240705	AE2	IEN n° 09-0648-01
Burden	CFTA400	241620	AE2	
Digital multimeter	8846A	9721006	Fluke	LAT 046 N° 343032
Digital multimeter	34401A	MY41028165	Agilent Tech.	SIT n° 329593
Burden	CFTV400	36512	AE2	
Dielectric test	M.R.E.	241727	AE2	
Transformer test	G803	1012	AE2	RTR n° 255140

Notes:

The simmetrical measurement uncertainties, related to the measurement values are:

ratio errors : + / - 0,02%
phase errors: + / - 0,05%
secondary current: 1%
frequency: 0,5%
burden: 3%

The measurement uncertainties related to the digital multimeters are:

resistance: 0,2%
voltage: 0,2%
current: 0,2%

ROUTINE TESTS:

Verification of terminal markings (see 7.3.6)
Power-frequency tests on secondary windings (see 7.3.4)
Over - voltage inter - turn tests (see 7.3.204 procedure A)
Tests of accuracy (see 7.3.5)
In conformity with IEC 61869-1 / 61869-2

Signatures:

Operator	Laboratory responsible

AE2 s.r.l. via Guido Rossa, 14 - 20845 Sovico (MB) Italy
tel.+39 039 2012676 - Fax +39 039 8900061 E-mail: info@ae2.it



CERTIFICATION TEST REPORT



CURRENT TRANSFORMER

Serial N.	Model	TM3-400A5-0,5-3VA
3014-A02586	Operator	Molteni Gabriele
Date 25/07/2014	Customer	Order N.

Page 2 of 2

Accuracy test:

Core: 1

Coil:	s1-S2	Ratio:	400/5	Burden:	3 VA	Class:	0,5
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Measured at 100% of Nom Burden

Nom %	Real %	Ratio Err %	Limit	Ph.Err,crad	Limit	Ph.Err. min	VA Burden
120	119,90	0,019	0,500	0,379	0,900	12,99	3,11
100	101,20	0,058	0,500	0,283	0,900	9,70	3,11
20	20,78	-0,001	0,750	0,542	1,350	18,59	3,11
5	5,29	-0,077	1,500	1,001	2,700	34,33	3,11

Measured at 25% of Nom Burden

Nom %	Real %	Ratio Err %	Limit	Ph.Err,crad	Limit	Ph.Err. min	VA Burden
120	119,70	0,198	0,500	0,248	0,900	8,50	1,56
100	99,40	0,196	0,500	0,259	0,900	8,88	1,56
20	20,97	0,117	0,750	0,503	1,350	17,25	1,56
5	5,43	0,025	1,500	0,844	2,700	28,94	1,56

Signatures:

Operator	Laboratory responsible

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tel.+39 039 2012676 - Fax +39 039 8900061 E-mail: info@ae2.it

	CERTIFICATION TEST REPORT		
CURRENT TRANSFORMER			
Model TDSO2-5A5-0,5-6VA			
Serial N. 3014-A02598	Operator Molteni Gabriele		

Date 25/07/2014 Customer Order N.

Page 1 of 2

Summary:

Freq.: 50 Hz	CosPhi: 0,8	Test Voltage: 0,72/3 kV
Coil	Core	Ratio
P1-P2 S1-S2	1	5+5/5

Test equipments:

Description	Type	Serial N.	Manufacturer	Certificate N.
Sample CT	TAKT	240705	AE2	IEN n° 09-0648-01
Burden	CFTA400	241620	AE2	
Digital multimeter	8846A	9721006	Fluke	LAT 046 N°343032
Digital multimeter	34401A	MY41028165	Agilent Tech.	SIT n° 329593
Burden	CFTV400	36512	AE2	
Dielectric test	M.R.E.	241727	AE2	
Transformer test	G803	1012	AE2	RTR n° 255140

Notes:

The symmetrical measurement uncertainties, related to the measurement values are:

ratio errors : + / - 0,02%
 phase errors: + / - 0,05%
 secondary current: 1%
 frequency: 0,5%
 burden: 3%

The measurement uncertainties related to the digital multimeters are:

resistance: 0,2%
 voltage: 0,2%
 current: 0,2%

ROUTINE TESTS:

Verification of terminal markings (see 7.3.6)
 Power-frequency tests on secondary windings (see 7.3.4)
 Over - voltage inter - turn tests (see 7.3.204 procedure A)
 Tests of accuracy (see 7.3.5)
 In conformity with IEC 61869-1 / 61869-2

	CERTIFICATION TEST REPORT		
CURRENT TRANSFORMER			
Model TDSO2-5A5-0,5-6VA			
Serial N. 3014-A02598	Operator Molteni Gabriele		

Date 25/07/2014 Customer Order N.

Page 2 of 2

Accuracy test:

Core: 1

Coil:	P1-P2 S1-S2	Ratio:	5+5/5	Burden:	6 VA	Class:	0,5
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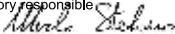
Measured at 100% of Nom Burden

Nom %	Real %	Ratio Err %	Limit	Ph.Err,crad	Limit	Ph.Err. min	VA Burden
120	120,70	0,117	0,500	0,013	0,900	0,44	6,15
100	100,20	0,136	0,500	-0,020	0,900	-0,68	6,15
20	20,11	0,013	0,750	0,165	1,350	5,65	6,15
5	5,30	-0,131	1,500	0,222	2,700	7,61	6,15

Measured at 25% of Nom Burden

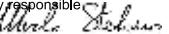
Nom %	Real %	Ratio Err %	Limit	Ph.Err,crad	Limit	Ph.Err. min	VA Burden
120	119,70	0,349	0,500	0,057	0,900	1,95	1,39
100	99,70	0,343	0,500	0,076	0,900	2,60	1,39
20	19,30	0,305	0,750	0,179	1,350	6,13	1,39
5	5,79	0,267	1,500	0,248	2,700	8,50	1,39

Signatures:

Operator 	Laboratory responsible 
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