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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 <sup>2</sup>	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
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							
					Minutes				Centiradians			
	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 ln a 1,2 ln ± 3				no prescription							

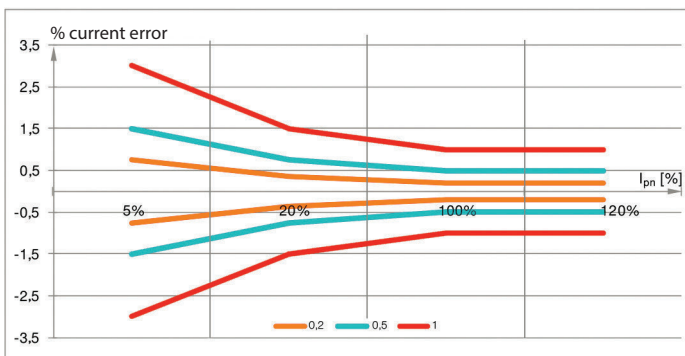
In many systems, the application requires transformers class 0.2S or 0.5S.

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

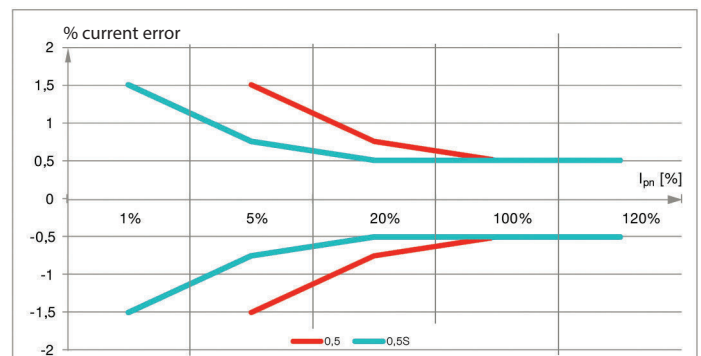
Accuracy class	Current error (ratio) in percent (+/-) of the rated current under specified					Angle error (+/-) as a percentage of rated current shown below									
						Minutes					Centiradians				
	1	5	20	100	120	1	5	20	100	120	1	5	20	100	120
0,2S	0,75	0,35	0,2	0,2	0,2	30	15	10	10	10	0,9	0,45	0,3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

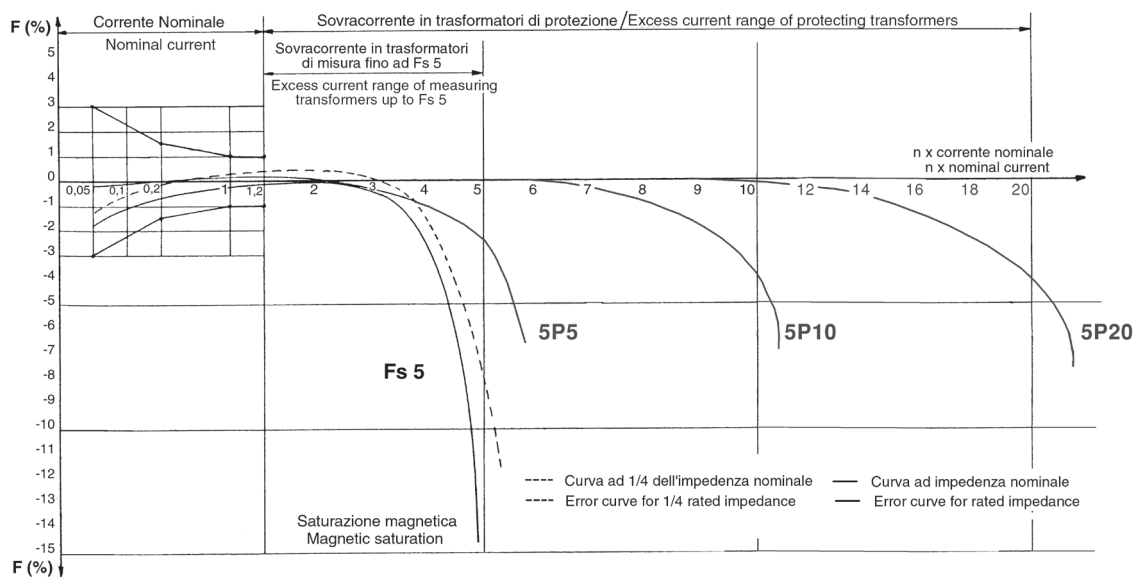
Under the current rules, the limits of current error and the error limits of the phase angle of each transformer must be included between the data in the table:

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: 1/600 (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.

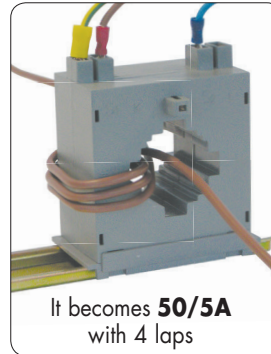
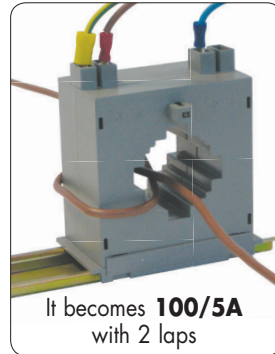
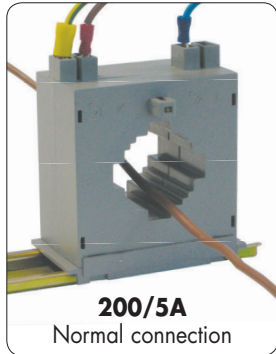
- Class 0.5 is required for the energy meters.
- Class 1 is required for measures and unofficial energy counters.

## HOW TO CALCULATE THE DIAMETER OF A CABLE

To go back to the diameter of a cable (for example) of 95 mm<sup>2</sup>, reference should be made to the following formula: Section  $r \times r = 3.14$  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,  $\varnothing$  total about 20 mm)

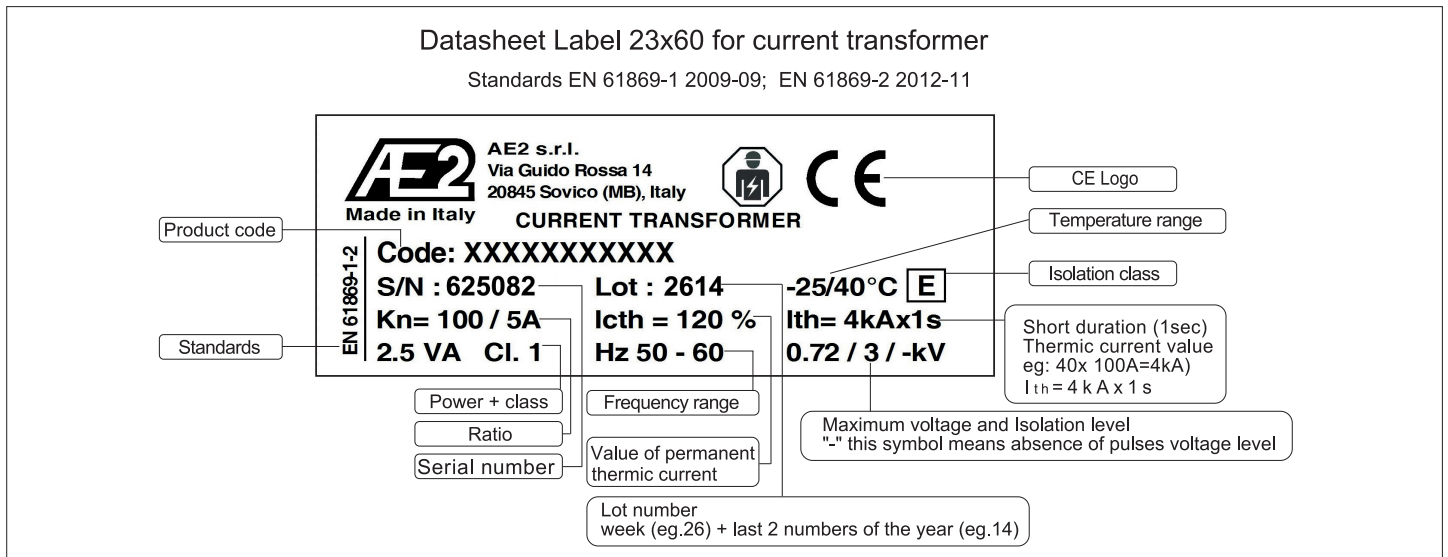
## USING THE SAME TRANSFORMER, FOR DIFFERENT CAPACITIES

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 SYMBOLOGY

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 ( $I_{pn}$ )	1A ..6000A to be specified
Rated secondary current ( $I_{sn}$ )	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 ( $I_{cth}$ )	120%
Rated thermal short circuit ( $I_{th}$ )	$40I_n/1s$
Rated dynamic current ( $I_{dyn}$ )	$2,5 \times I_{th}$
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  $K = 75^\circ \text{C}$

Resin insulation on request  
0,72kV (1,2 kV on request)  
3kV (6 kV on request)

Maximum operating voltage ( $U_m$ )

Test voltage

## ENVIRONMENTAL CONDITIONS

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

Reference temperature	+20°C +/-1%
Operating temperature	-20°C ...+40°C
Storage temperature	-40°C ...+80°C
Relative Humidity	≤ 85%

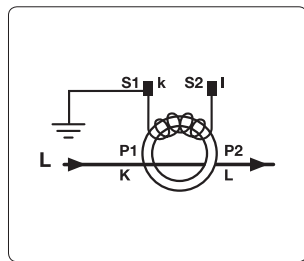
## HOUSING

Polycarbonate self-extinguishing material	ABS, UL94-V0
Protection degree	IP30

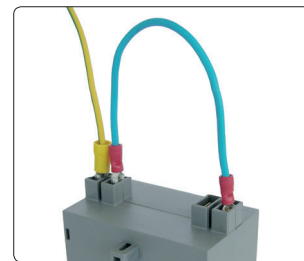
## TERMINALS

Protection degree	IP00 (IP40 with the use of the sealable terminal cover)
Material	Brass CuZn37
Value of torque for screws M4x6	1,9Nm
Value of torque for nuts M4	1,0Nm
Value of traction for M4x6 screws	440 N/mm2
Limit of elasticity for M4x6 screws	340 N/mm2
Marking terminals	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 (I<sub>pn</sub>)
- Secondary current (I<sub>sn</sub>)
- 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.

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.



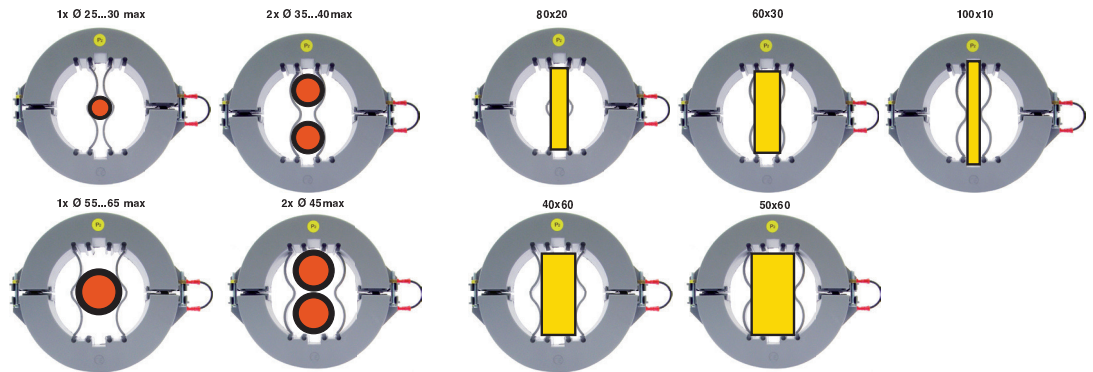
### WIRING INSTRUCTIONS TA10

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

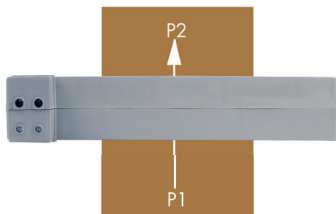
### ASSEMBLY INSTRUCTIONS TA10

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



After you have properly installed the transformer around the cable / busbar (paying attention to the flow direction of the current), connect to the load using the clamps on top of the CT. The electrical connection may be made using various types of head-string as evidenced by the following pictures:



Tip head-string from P2 side of case



Without head-string from P2 side of case



Fork head-string from P1 side of case

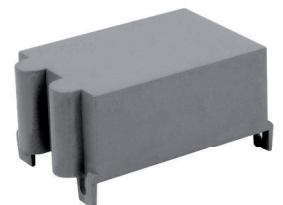


Fast-on head-string (6.3 mm) P1 side of case

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 55PSATCS1C is not supplied with the transformer, but only on request, being the terminals sufficiently protected against accidental contacts.

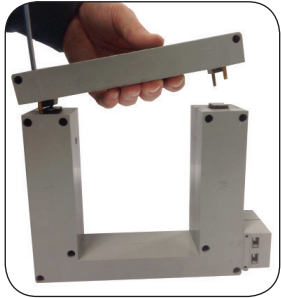
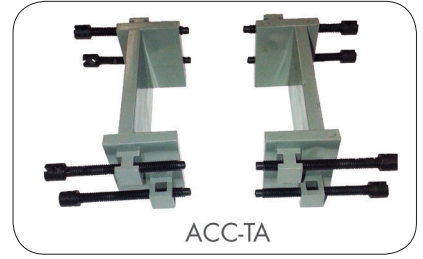


# SPLIT-CORE CURRENT TRANSFORMERS - TA SERIES

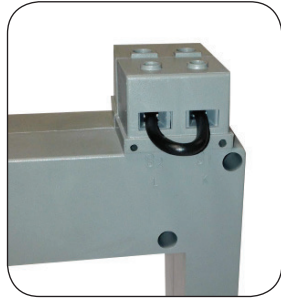


## ASSEMBLY INSTRUCTIONS TA28-TA26V-TA66V-TA20

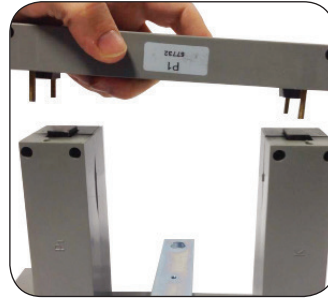
The fixing of the bar is made using the accessories ACC-TA supplied with the transformer, to be positioned as shown in the picture.



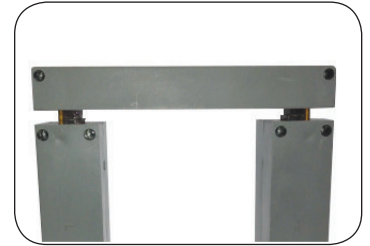
1) Unscrew the four screws M4



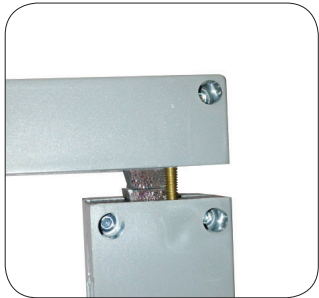
2) Make a short circuit on the secondary winding (S1-S2) of the transformer.



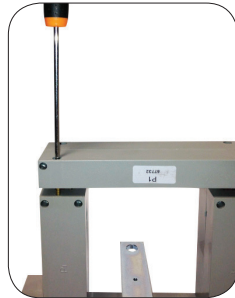
3) Place the transformer on the bar or cable.  
4) Pay attention to the position: the P1 side of the transformer must match the P1 side of the opening section of the core



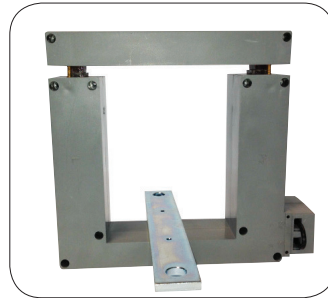
5) For a better contact, put a conductor grease between the surfaces of the core. Be sure to match the two faces of the core, tightening uniformly the four M4 screws.



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

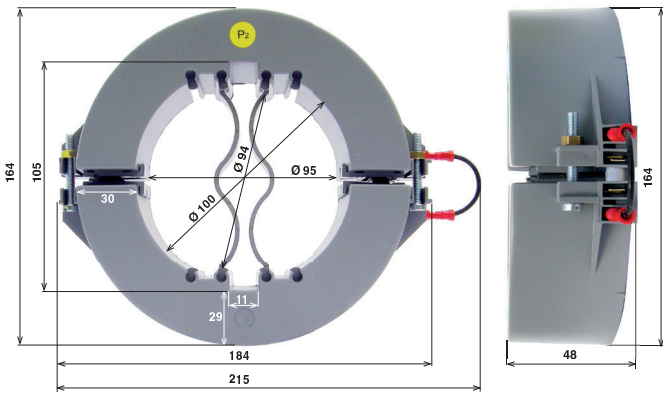
Family ID	TA = split core transformer	TA	10	-4k0	A	5-	0.5	-30	VA	-Y	-R	-T	-X	-
Dimensions central window	10=Ø100 mm 20=125x200 mm; 28=125x200 mm horizontal bar 26V=50x130 mm; 66V=50x160 mm vertical bar													
Primary current	500=500A; 600=600A; 800=800A; 1k0=1000A 1k2=1200A; 1k25=1250A; 1k5=1500A; 2k0=2000A 2k5=2500A; 3k0=3000A; 4k0=4000A; 5k0=5000A; 6k0=6000A													
A	Ampère													
Secondary Current	1=1A; 5=5A													
Class	0.5													
Power	5; 8; 10; 15; 20; 30; 40													
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														



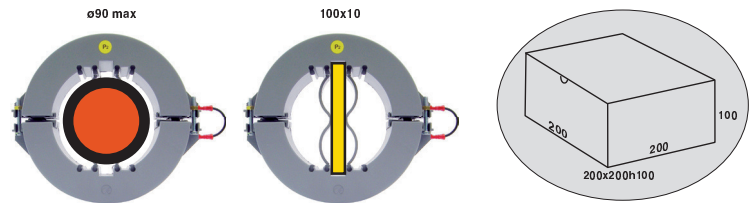
## MEASURING SPLIT-CORE TRANSFORMERS

TA10

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



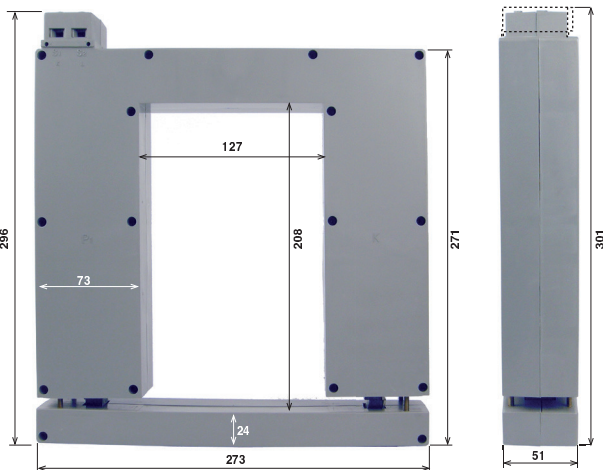
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
500	0.5	5	TA10-500A5-0.5-5VA	TA10-500A1-0.5-5VA	1,10
600	0.5	5	TA10-600A5-0.5-5VA	TA10-600A1-0.5-5VA	1,10
750	0.5	5	TA10-750A5-0.5-8VA	TA10-750A1-0.5-8VA	1,10
800	0.5	8	TA10-800A5-0.5-8VA	TA10-800A1-0.5-8VA	1,10
1000	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



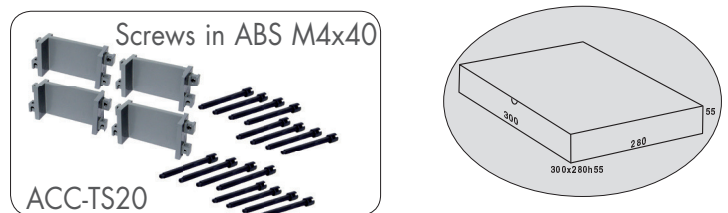
## MEASURING SPLIT-CORE TRANSFORMERS

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.



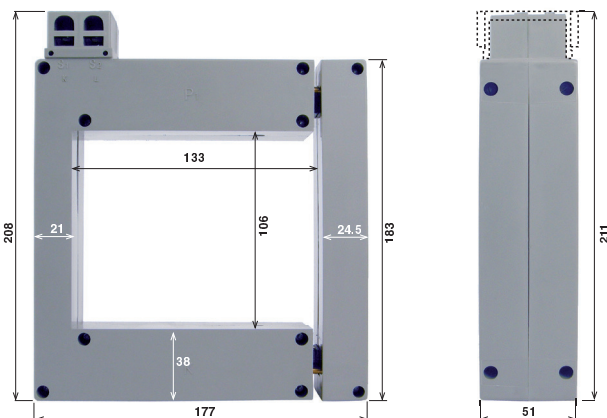
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1000	0.5	10	TA20-1K0A5-0.5-10VA	TA20-1K0A1-0.5-10VA	2,00
1200	0.5	10	TA20-1K2A5-0.5-10VA	TA20-1K2A1-0.5-10VA	2,00
1250	0.5	10	TA20-1K25A5-0.5-10VA	TA20-1K25A1-0.5-10VA	2,00
1500	0.5	10	TA20-1K5A5-0.5-10VA	TA20-1K5A1-0.5-10VA	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.



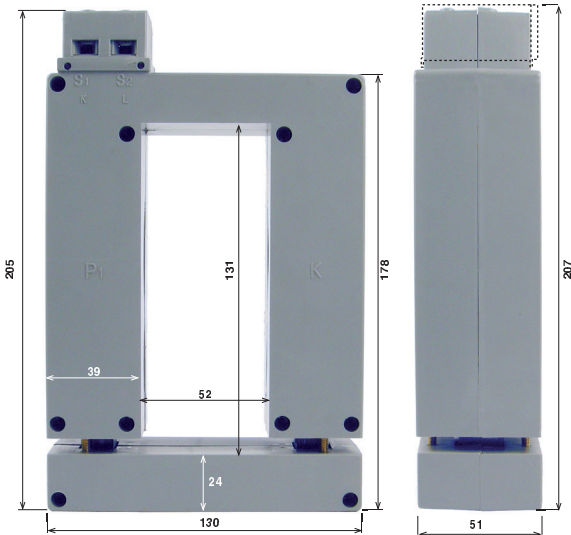
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1000	0.5	10	TA28-1K0A5-0.5-10VA	TA28-1K0A1-0.5-10VA	1,50
1200	0.5	10	TA28-1K2A5-0.5-10VA	TA28-1K2A1-0.5-10VA	1,50
1250	0.5	10	TA28-1K25A5-0.5-10VA	TA28-1K25A1-0.5-10VA	1,50
1500	0.5	10	TA28-1K5A5-0.5-10VA	TA28-1K5A1-0.5-10VA	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



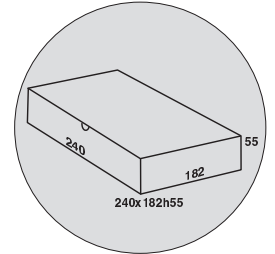
## MEASURING SPLIT-CORE TRANSFORMERS

**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.



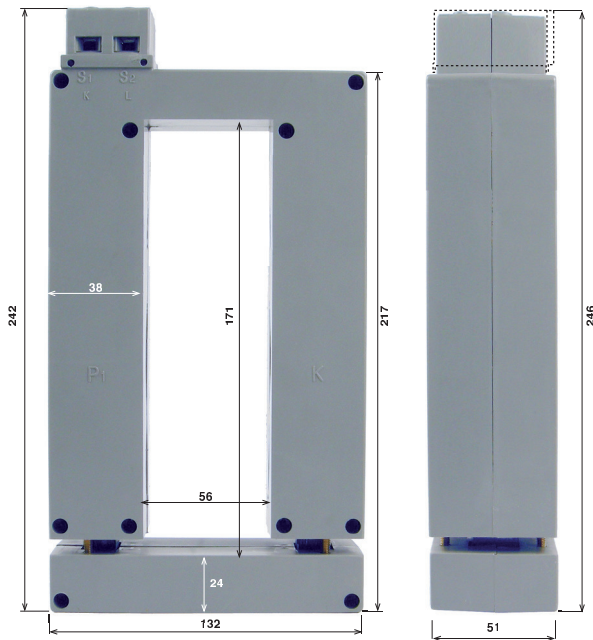
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1200	0.5	20	TA26V-1K2A5-0.5-20VA	TA26V-1K2A1-0.5-20VA	1,50
1250	0.5	20	TA26V-1K25A5-0.5-20VA	TA26V-1K25A1-0.5-20VA	1,50
1500	0.5	20	TA26V-1K5A5-0.5-20VA	TA26V-1K5A1-0.5-20VA	1,50
1600	0.5	20	TA26V-1K6A5-0.5-20VA	TA26V-1K6A1-0.5-20VA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



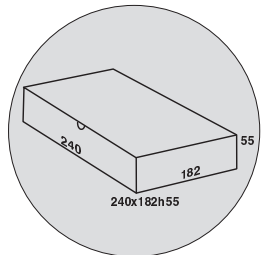
## MEASURING SPLIT-CORE TRANSFORMERS

**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	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	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  $-25^{\circ}\text{C}$  .....  $+40^{\circ}\text{C}$ ; if the transformers are immersed in oil, the maximum temperature of use rises to  $130^{\circ}\text{C}$ .

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.

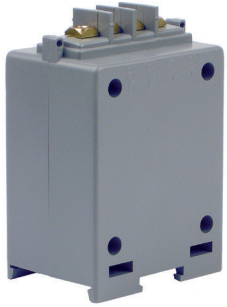
# CURRENT TRANSFORMERS WITH BUILT-IN TRANSDUCER - TC SERIES

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 voltmtric 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



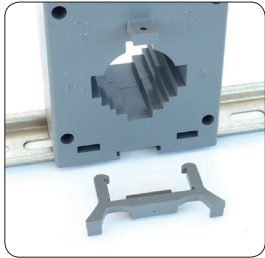
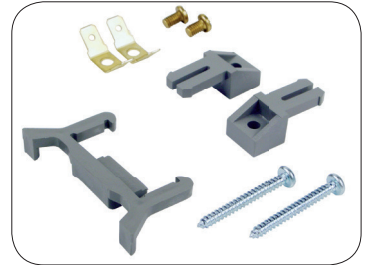
With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

- The mounting on DIN rail EN 50022 is performed using the fork accessory

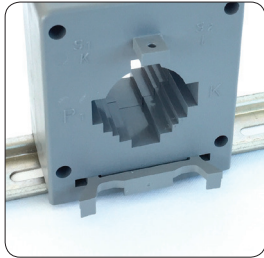
- The wall mounting using the two brackets

- The direct mounting on the cable or on the bar, using screws

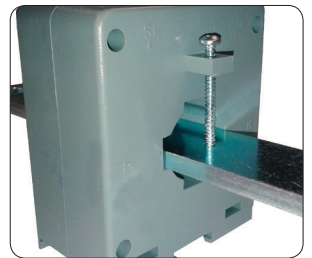
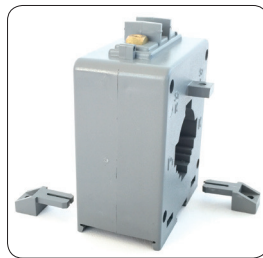
These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



DIN rail mounting



Wall mounting



Mounting on cable or primary busbar

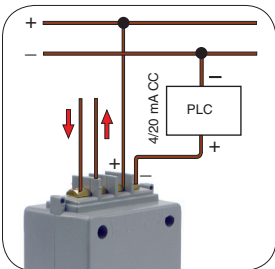
## WIRING INSTRUCTIONS TC OUTPUT 4 / 20mA self-supplied

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

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

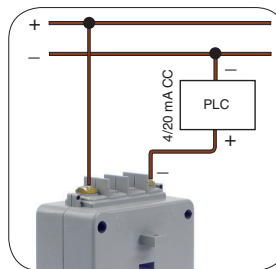
Response time 500ms - Resistive load 300 maximum at 24 VDC - Operating frequency 50 / 60Hz Different characteristics can be made on request.

Connect the cables as shown on figure



TC1A

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.

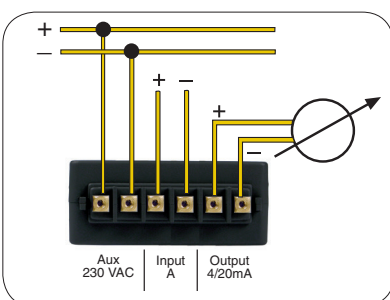
Pay attention to the flow direction of the current which must be always in direction P1->P2

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

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

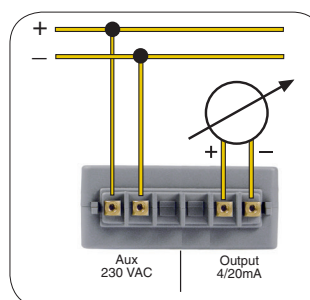
Response time 500ms - Resistive load 300 max 24 VDC - Operating frequency 50 / 60Hz Power Different characteristics can be made on request.

Connect the cables as shown on figure



TC1A

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...A 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

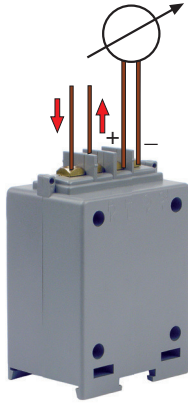
## WIRING INSTRUCTIONS TC OUTPUT 20mA and 10V DC

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

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

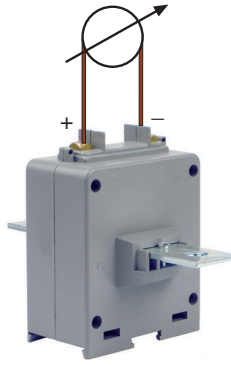
Resistive load: 300 max for models with 20mA output; > 10k maximum for models with output 10V. Different features can be made on request.

Connect the cables as shown on figure



TCPIA

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.



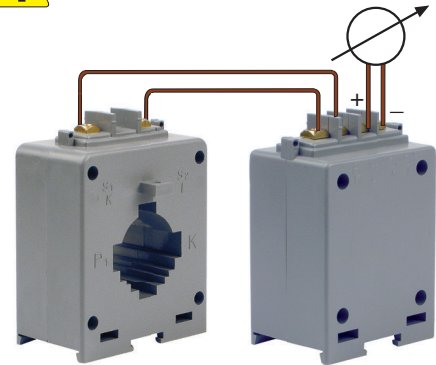
OTHER TC CODES

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....

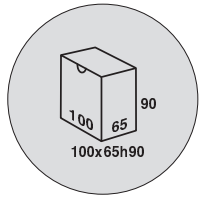
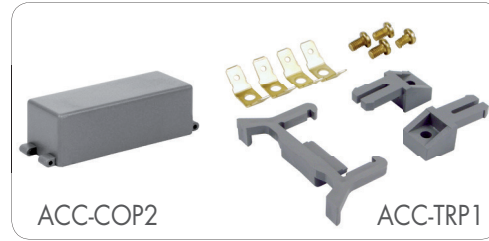
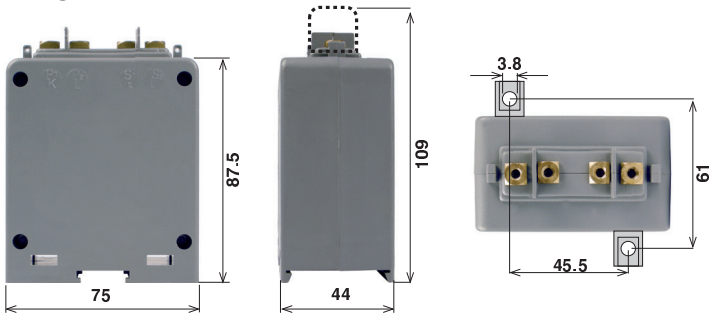
TCPIA-005A-20MA-1

## TABLE OF CODES

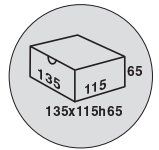
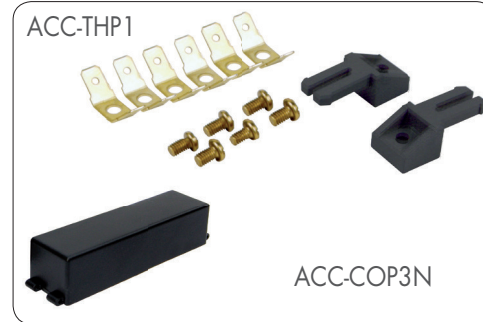
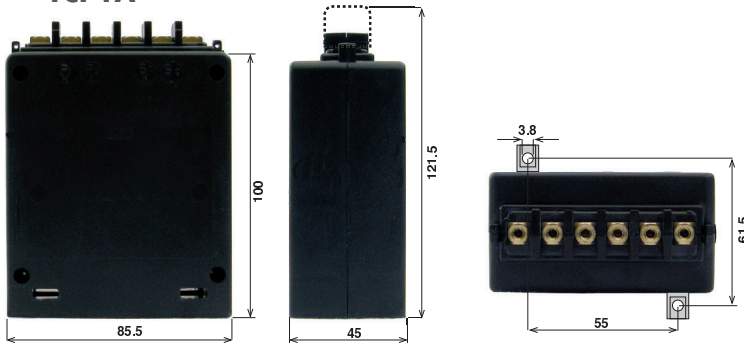
Family ID	TC = Transformer with built-in transducer	P1A	-4k0	A	420	MA	-1	-Y	-R	-T	-X	-
TCPIA	TC = Transformer with built-in transducer	P1A= Primary and Secondary on terminals with auxiliary power supply										
		P1= Primary and Secondary on terminals self-supplied										
		P2A= Primary on terminals and Secondary on busbar with auxiliary power supply										
		P2= Primary on terminals and Secondary on busbar self-supplied										
		43A= central window 30x10mm with auxiliary power supply										
		43= central window 30x10mm self-supplied										
		5A= central window 50x20mm with auxiliary power supply										
		5= central window 50x20mm self-supplied										
		6A= central window 60x20mm with auxiliary power supply										
		6= central window 60x20mm self-supplied										
		8A= central window 80x30mm with auxiliary power supply										
		8= central window 80x30mm self-supplied										
		12A= central window 125x50mm with auxiliary power supply										
		12= central window 125x50mm self-supplied										
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 or auxiliary power supply (230VCA, 12VCC, 24VCC, 48VCC)												

Wounded primary current transformer with primary and secondary current on terminals

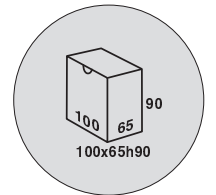
TCP1



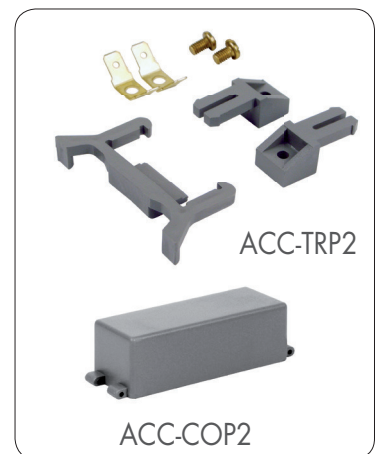
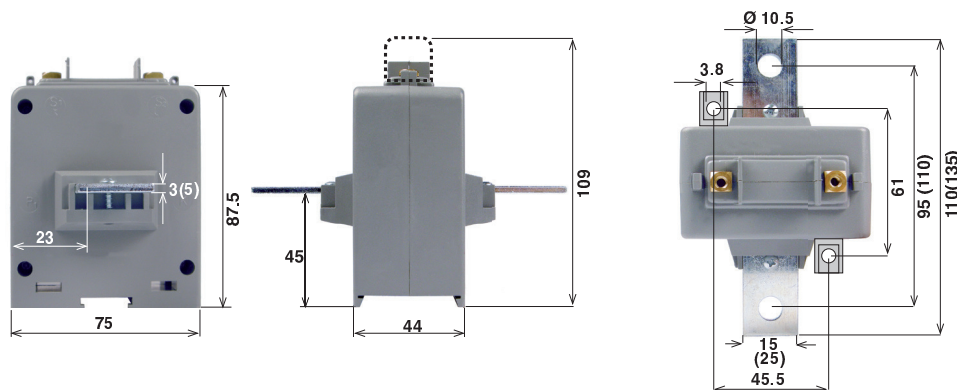
TCP1A



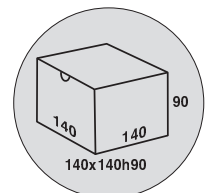
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
<b>A</b>		<b>4/20mA</b>	<b>4/20mA</b>	<b>20mA</b>	<b>10V</b>	<b>Kg</b>
1	1	TCP1A-001A-420MA-1	TCP1A-001A-420MA-1-230	TCP1-001A-20MA-1	TCP1-001A-10V-1	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



Wounded primary current transformer with secondary current on terminals.



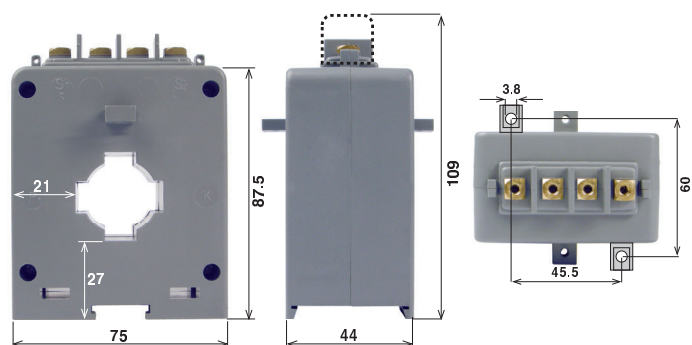
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
<b>A</b>		<b>4/20mA</b>	<b>4/20mA</b>	<b>20mA</b>	<b>10V</b>	<b>Kg</b>
50	1	TCP2A-050A-420MA-1	TCP2A-050A-420MA-1-230	TCP2-050A-20MA-1	TCP2-050A-10V-1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



## MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC43...

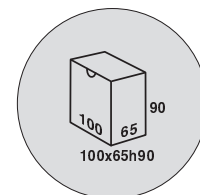
Transformer suitable for primary current by cable with a maximum diameter of 25mm; by vertical or horizontal bar with a maximum size of 30x10mm. and secondary current on terminals.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 25$	 30,5x10,6 30,5x10,6



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
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

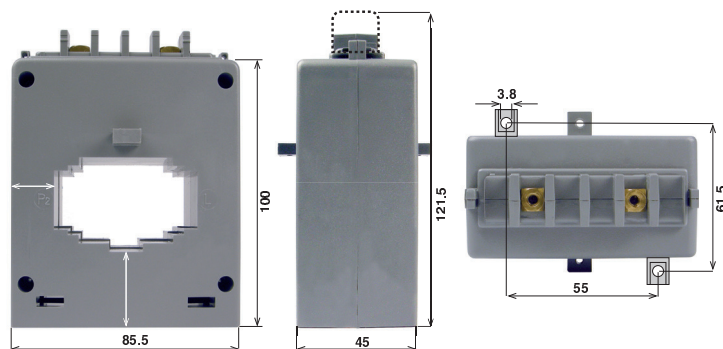


The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR43 (5A secondary) with corresponding primary current (eg. TR43-200A -...). See wiring diagram on page 25.

## MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

TC5...

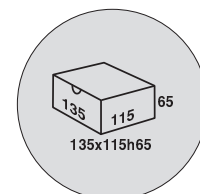
Transformer suitable for primary current by cable with a maximum diameter of 30mm; by horizontal bar with a maximum size of 30x30mm, 40x25mm, 50x20mm; by vertical bar with maximum dimensions of 30x10mm. and secondary current on terminals.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 30$	 52,1x21,4 42,2x25,3 34,3x34,2 34,2x12



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	TC5-150A-20MA-1	TC5-150A-10V-1	0,7
200	1	TC5A-200A-420MA-1	TC5A-200A-420MA-1-230	TC5-200A-20MA-1	TC5-200A-10V-1	0,7
250	1	TC5A-250A-420MA-1	TC5A-250A-420MA-1-230	TC5-250A-20MA-1	TC5-250A-10V-1	0,7
300	1	TC5A-300A-420MA-1	TC5A-300A-420MA-1-230	TC5-300A-20MA-1	TC5-300A-10V-1	0,7
400	1	TC5A-400A-420MA-1	TC5A-400A-420MA-1-230	TC5-400A-20MA-1	TC5-400A-10V-1	0,7
500	1	TC5A-500A-420MA-1	TC5A-500A-420MA-1-230	TC5-500A-20MA-1	TC5-500A-10V-1	0,7
600	1	TC5A-600A-420MA-1	TC5A-600A-420MA-1-230	TC5-600A-20MA-1	TC5-600A-10V-1	0,7
750	1	TC5A-750A-420MA-1	TC5A-750A-420MA-1-230	TC5-750A-20MA-1	TC5-750A-10V-1	0,7
800	1	TC5A-800A-420MA-1	TC5A-800A-420MA-1-230	TC5-800A-20MA-1	TC5-800A-10V-1	0,7
1000	1	TC5A-1K0A-420MA-1	TC5A-1K0A-420MA-1-230	TC5-1K0A-20MA-1	TC5-1K0A-10V-1	0,7
1200	1	TC5A-1K2A-420MA-1	TC5A-1K2A-420MA-1-230	TC5-1K2A-20MA-1	TC5-1K2A-10V-1	0,7
1250	1	TC5A-1K25A-420MA-1	TC5A-1K25A-420MA-1-230	TC5-1K25A-20MA-1	TC5-1K25A-10V-1	0,7
1500	1	TC5A-1K5A-420MA-1	TC5A-1K5A-420MA-1-230	TC5-1K5A-20MA-1	TC5-1K5A-10V-1	0,7

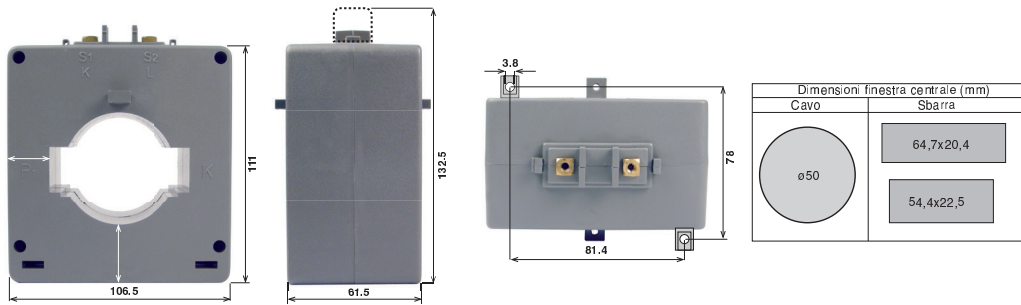


The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR5 (5A secondary) with corresponding primary current (eg. TR5-600A -...). See wiring diagram on page 25.

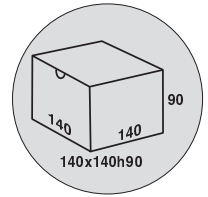
## MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

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.



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	TC6-250A-20MA-1	TC6-250A-10V-1	1
300	1	TC6A-300A-420MA-1	TC6A-300A-420MA-1-230	TC6-300A-20MA-1	TC6-300A-10V-1	1
400	1	TC6A-400A-420MA-1	TC6A-400A-420MA-1-230	TC6-400A-20MA-1	TC6-400A-10V-1	1
500	1	TC6A-500A-420MA-1	TC6A-500A-420MA-1-230	TC6-500A-20MA-1	TC6-500A-10V-1	1
600	1	TC6A-600A-420MA-1	TC6A-600A-420MA-1-230	TC6-600A-20MA-1	TC6-600A-10V-1	0,7
750	1	TC6A-750A-420MA-1	TC6A-750A-420MA-1-230	TC6-750A-20MA-1	TC6-750A-10V-1	0,7
800	1	TC6A-800A-420MA-1	TC6A-800A-420MA-1-230	TC6-800A-20MA-1	TC6-800A-10V-1	0,7
1000	1	TC6A-1K0A-420MA-1	TC6A-1K0A-420MA-1-230	TC6-1K0A-20MA-1	TC6-1K0A-10V-1	0,7
1200	1	TC6A-1K2A-420MA-1	TC6A-1K2A-420MA-1-230	TC6-1K2A-20MA-1	TC6-1K2A-10V-1	0,7
1250	1	TC6A-1K25A-420MA-1	TC6A-1K25A-420MA-1-230	TC6-1K25A-20MA-1	TC6-1K25A-10V-1	0,8
1500	1	TC6A-1K5A-420MA-1	TC6A-1K5A-420MA-1-230	TC6-1K5A-20MA-1	TC6-1K5A-10V-1	0,8
1600	1	TC6A-1K6A-420MA-1	TC6A-1K6A-420MA-1-230	TC6-1K6A-20MA-1	TC6-1K6A-10V-1	0,8
2000	1	TC6A-2K0A-420MA-1	TC6A-2K0A-420MA-1-230	TC6-2K0A-20MA-1	TC6-2K0A-10V-1	0,8
2500	1	TC6A-2K5A-420MA-1	TC6A-2K5A-420MA-1-230	TC6-2K5A-20MA-1	TC6-2K5A-10V-1	1

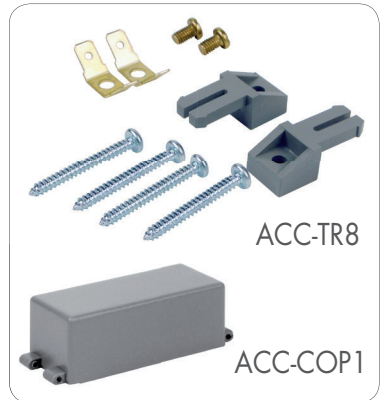
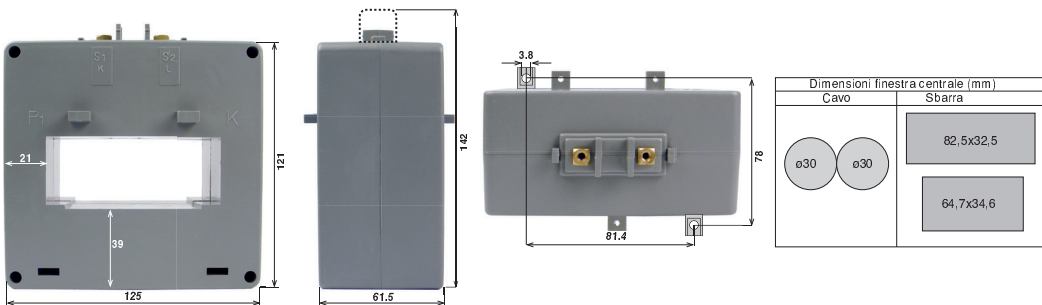


The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR6 (5A secondary) with corresponding primary current (eg. TR6-800A -....). See wiring diagram on page 25.

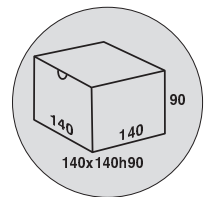
## MEASURING TRANSFORMERS WITH BUILT-IN TRANSDUCER

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.



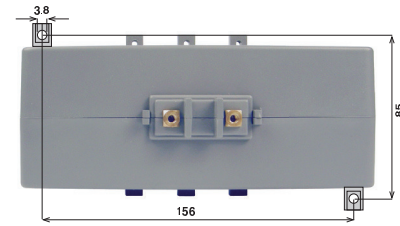
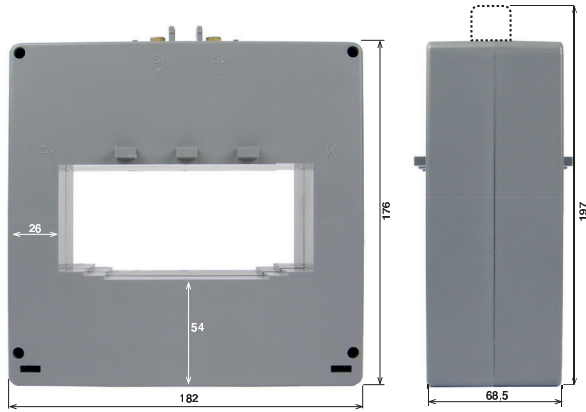
Primary current	Class	Secondary current (self-powered)	Secondary current (powered 230V)	Secondary current (self-powered)	Secondary voltage (self-powered)	Weight
A		4/20mA	4/20mA	20mA	10V	Kg
400	1	TC8A-400A-420MA-1	TC8A-400A-420MA-1-230	TC8-400A-20MA-1	TC8-400A-10V-1	0,8
500	1	TC8A-500A-420MA-1	TC8A-500A-420MA-1-230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



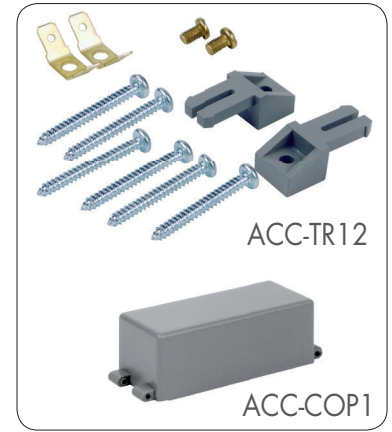
The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR8 (5A secondary) with corresponding primary current (eg. TR8-800A -....). See wiring diagram on page 25.



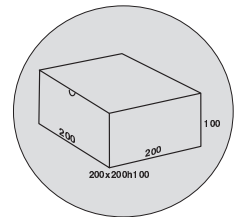
Transformer suitable for primary current by one or two cables with a maximum diameter of 50mm; by horizontal bar with a maximum size 80x50mm, 100x50mm, 125x50mm and secondary current on terminals.  
With separate power supply, an auxiliary 2-pole terminal is mounted.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 ø50    ø50	127,3x54,3
	102,3x56,3    82,2x58,3



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



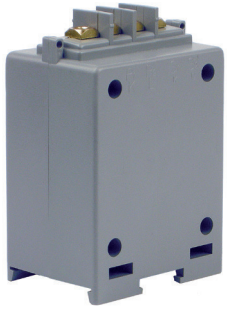
The codes present in the yellow area are made using the external electronic accessory TCP1-005A-20MA-1 connected with the model TR12 (5A secondary) with corresponding primary current (eg. TR12-750A -...). See wiring diagram on page 25.

# 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.

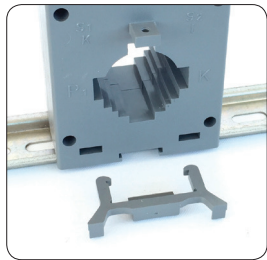
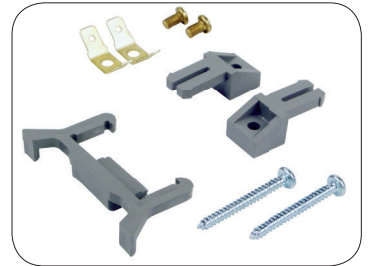
When ordering, specify the exact value of the primary and secondary current.

## ASSEMBLY INSTRUCTIONS

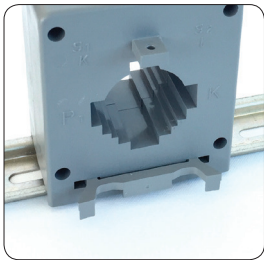


With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

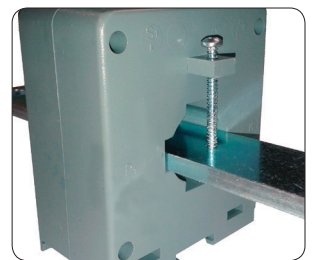
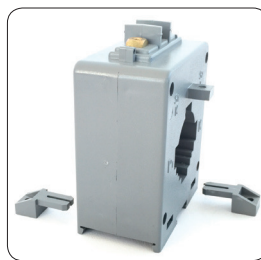
- The mounting on DIN rail EN 50022 is performed using the fork accessory
  - The wall mounting using the two brackets
  - The direct mounting on the cable or on the bar, using screws
- These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



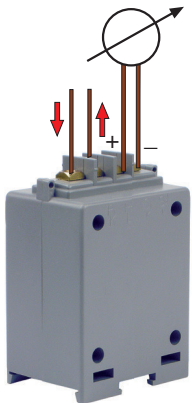
DIN rail mounting



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.

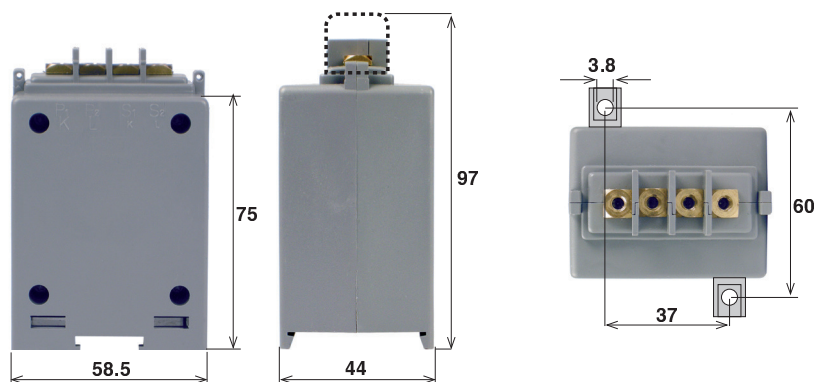
## TABLE OF CODES

	TCR	P1	-37.5	A	2	0.5	10	VA	-Y	-R	-T	-X	-
Family ID													
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

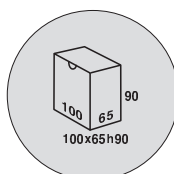
TCRP1E

Wounded primary current transformer with primary and secondary on terminals



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

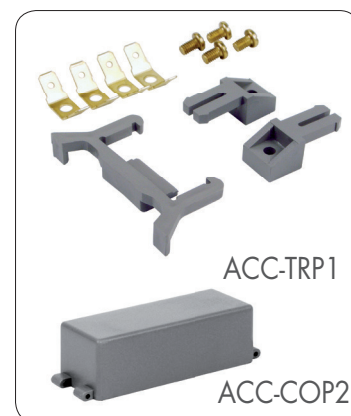
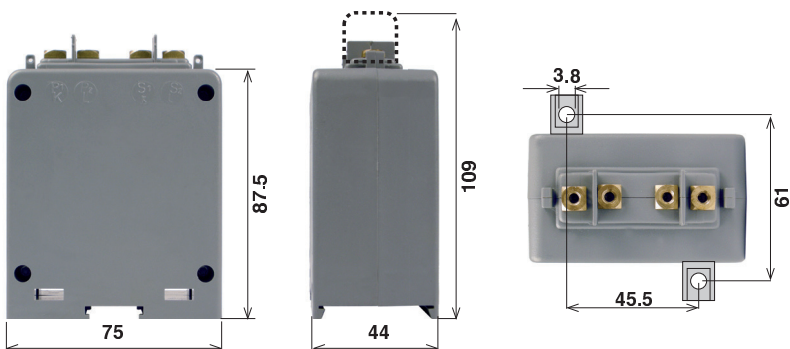
Example: TCRP1E-0.25A1-0.5-2VA



## RATIO CORRECTION MEASURING TRANSFORMERS

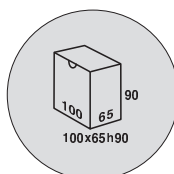
TCRP1

Wounded primary current transformer with primary and secondary on terminals



Primary current	Secondary current	Class	Power	Weight
<b>A</b>	<b>A</b>		<b>VA</b>	<b>Kg</b>
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

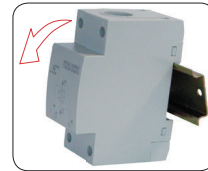


# MODULAR CURRENT TRANSFORMERS - TD SERIES

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

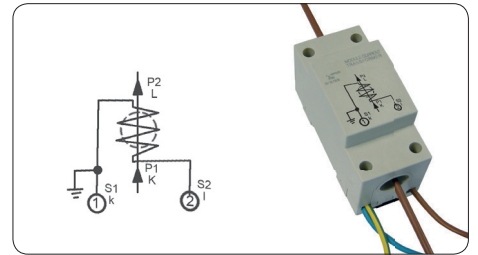
## ASSEMBLY INSTRUCTIONS

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.



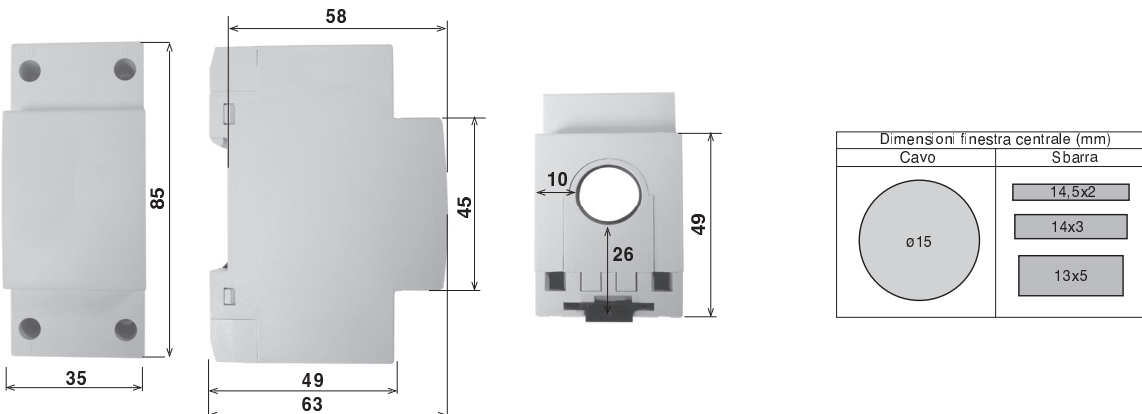
## TABLE OF CODES

	TD	15	-150	A	5	-1	-5	VA	-Y	-T	-X	-
Family ID	TD = DIN rail mounting transformer											
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												

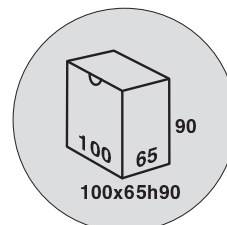
## MEASURING TRANSFORMERS

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



# 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.



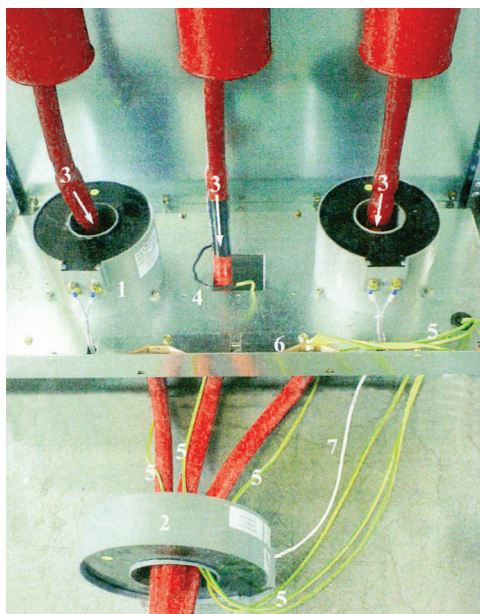
## ASSEMBLY INSTRUCTIONS

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.

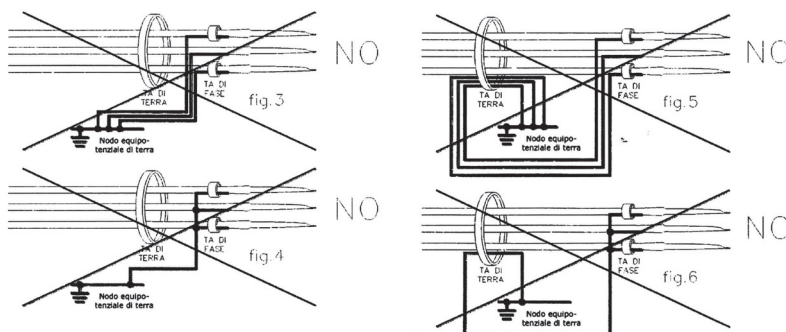
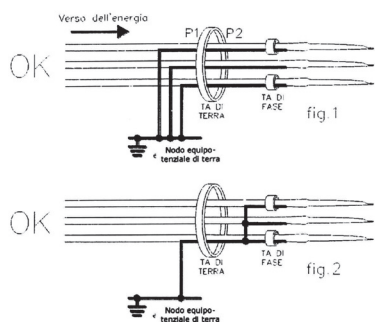
## WIRING INSTRUCTIONS

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													

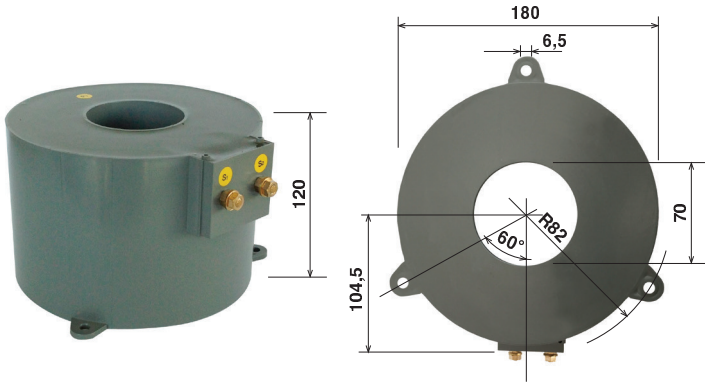
## TECHNICAL DATA

Nominal primary current:	from 40A to 6000A, to communicate when ordering
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:	50/60Hz
Test voltage:	3kV/1minuto
Insulation:	Class E
Permanent overload:	120%
Thermal short-circuit current (I <sub>th</sub> ):	fino a 40kA/1secondo
Dynamic short circuit current(I <sub>dyn</sub> ):	2,5 x I <sub>th</sub>
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)

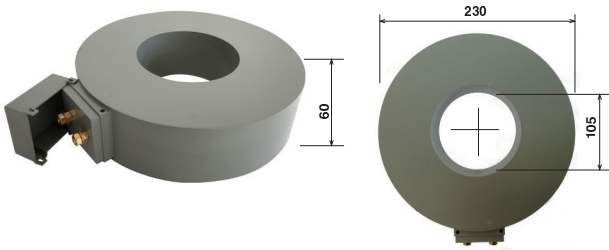
MEASURING AND PROTECTION TRANSFORMERS

TE070



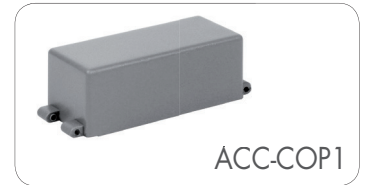
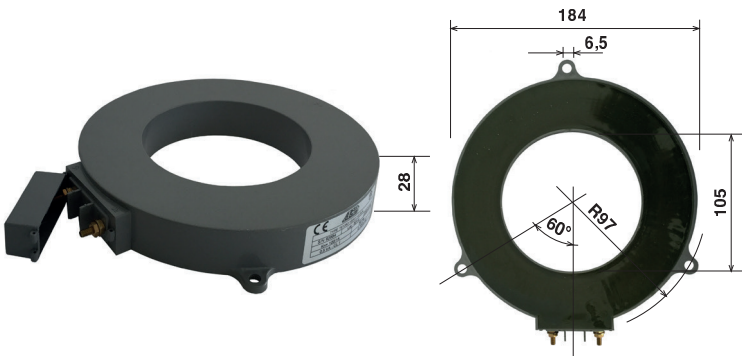
MEASURING AND PROTECTION TRANSFORMERS

TE105



MEASURING AND PROTECTION TRANSFORMERS

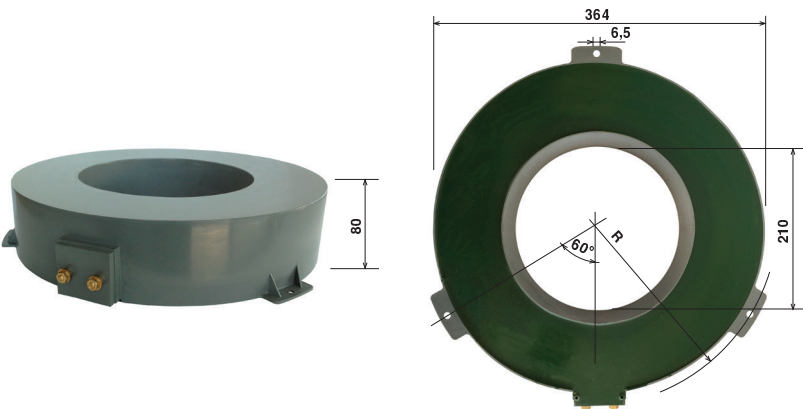
TE105D



34

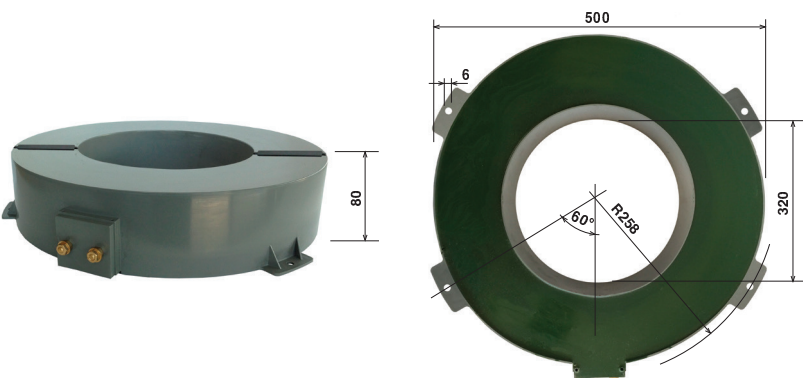
MEASURING AND PROTECTION TRANSFORMERS

TE210



MEASURING AND PROTECTION TRANSFORMERS

TE320



# CURRENT TRANSFORMERS IN COMPLIANCE WITH THE STANDARD CEI 0-16

## PROTECTION TRANSFORMERS

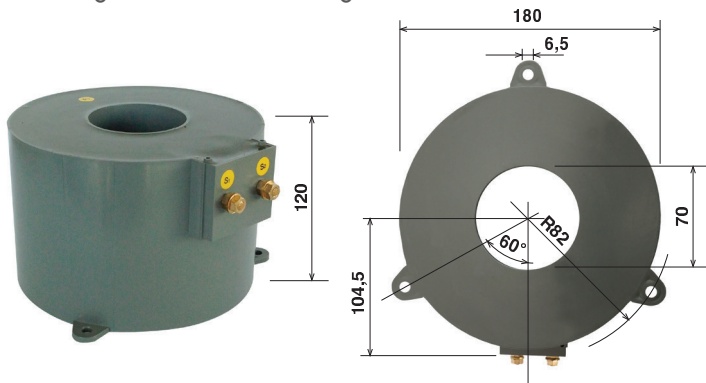
TE070

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 I <sub>pn</sub>
Short-circuit thermal current (I <sub>th</sub> ):	12,5/16kA/1second	Nominal dynamic current:	31,5/40kA pk
Test voltage:	3kV/1minute	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.

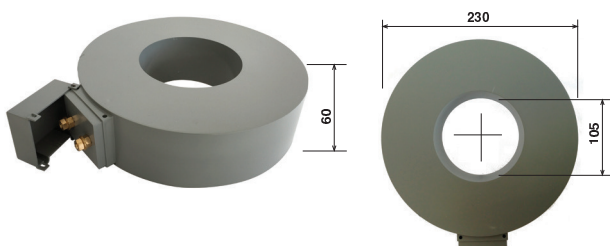
### TECHNICAL DATA

Insulation class:	II	Nominal continuous thermal current	800A
Short-circuit thermal current (I <sub>th</sub> ):	12,5/16kA/1second	Nominal dynamic current:	31,5/40kA pk
Test voltage:	3kV/1minute	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 <sub>n</sub> ]	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		1A	Kg
100		2	TE105-100A1-5P20-2VA-AI	9



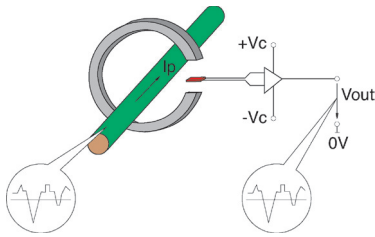
TE105



# "HALL EFFECT" DC CURRENT TRANSFORMERS - TH SERIES

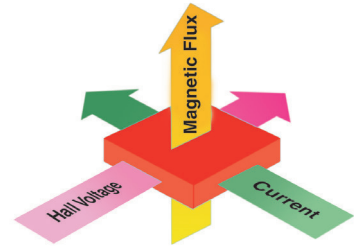
Range of transformers used in alternative to Shunts, when high voltages are present in the system and therefore higher galvanic separations are required. Standard auxiliary power supply 230VAC, others on request - Response time : 500 ms  
 Resistive load: 300Ω max. for transformer with output 4-20mA and 20mA; >10kΩ for transformer with output 10V  
 - 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



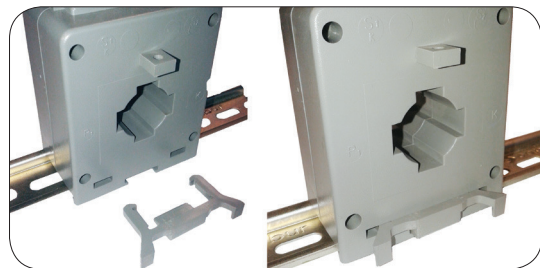
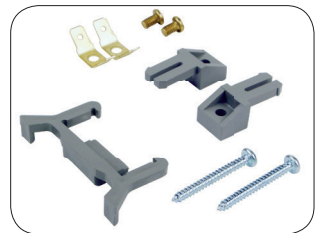
The function of the sensor is based on the "Hall effect" galvano-magnetic principle, named after the discovery of the American physicist Edwin Herbert Hall; namely the formation of a difference of potential on the opposite faces of the electrical conductor, due to a magnetic field perpendicular to the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

## ASSEMBLY INSTRUCTIONS

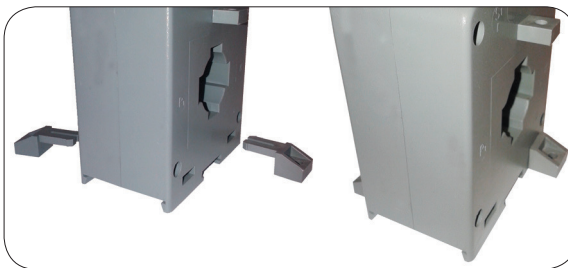
With the transformer it is provided a sachet containing a series of accessories that depending on the model, allow various types of fixations;

- 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

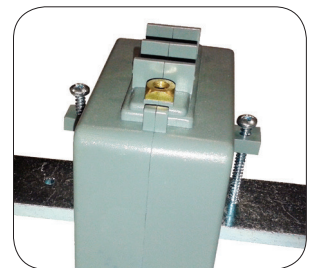
These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.



DIN rail mounting



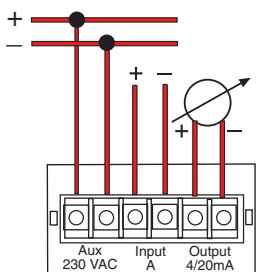
Wall mounting



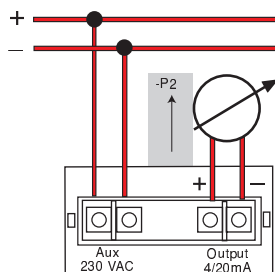
Mounting on cable or primary busbar

## WIRING INSTRUCTIONS

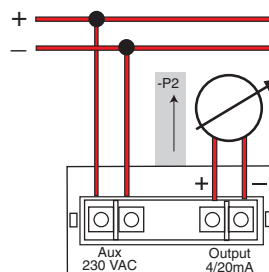
Connect the cables as in figure, depending of the type in use



THP1



THP2



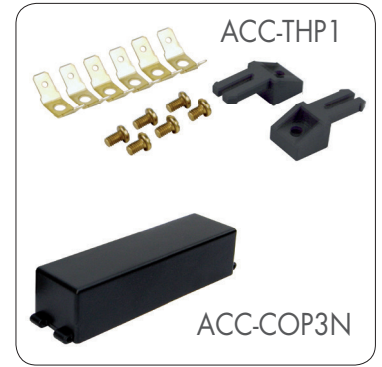
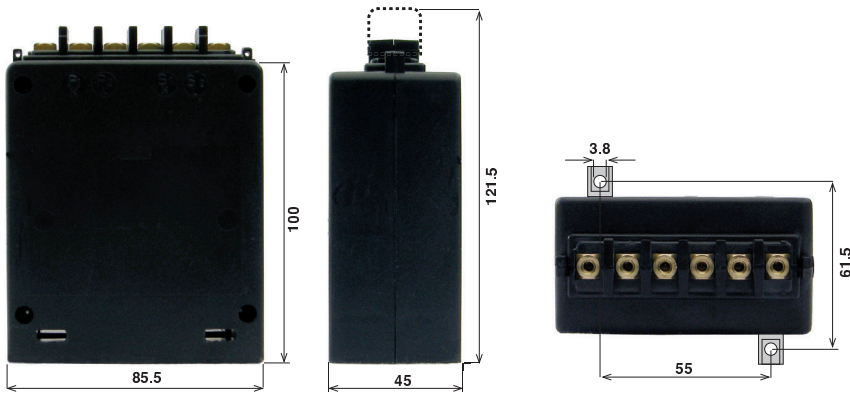
TH43  
TH5

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 wound primary models.

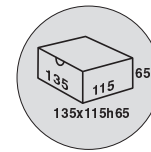
## "HALL EFFECT" DC CURRENT TRANSFORMERS

THP1

Primary wound 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

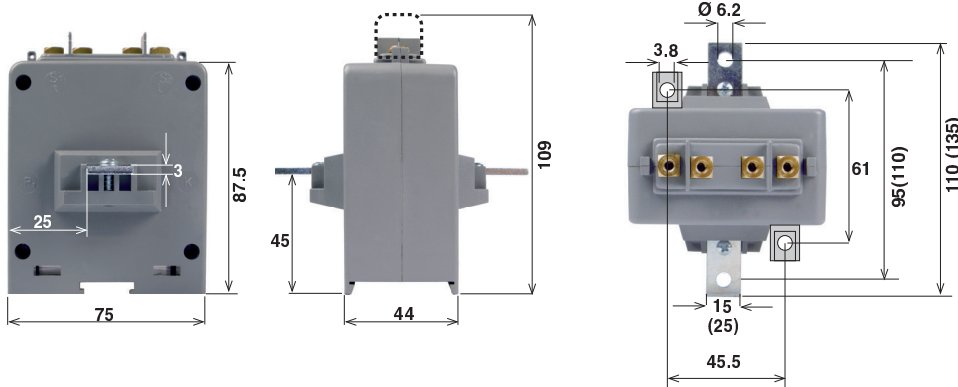


## "HALL EFFECT" DC CURRENT TRANSFORMERS

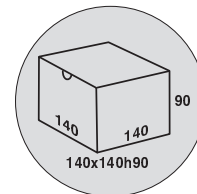
THP2

Primary wound 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



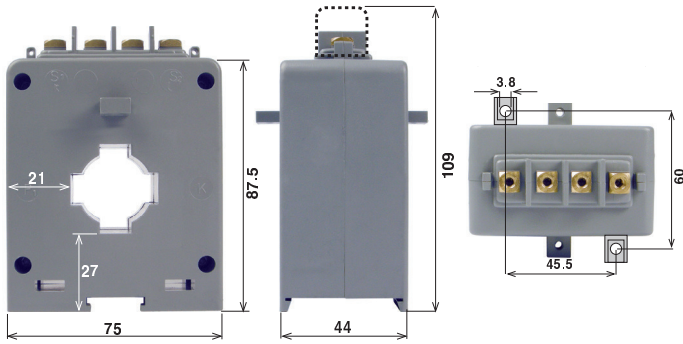
Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
50	1	THP2-50/420MA-1-230V	THP2-50/20MA-1-230V	THP2-50/10V-1-230V	0,5
60	1	THP2-60/420MA-1-230V	THP2-60/20MA-1-230V	THP2-60/10V-1-230V	0,5
75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



## "HALL EFFECT" DC CURRENT TRANSFORMERS

TH43

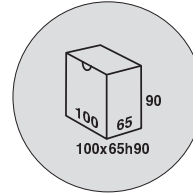
Transformer suitable for primary current by cable with a maximum diameter of 25mm; by vertical or horizontal bar with a maximum size of 30x10mm., and secondary current on terminals.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 25$	 30,5x10,6
	 30,5x10,6



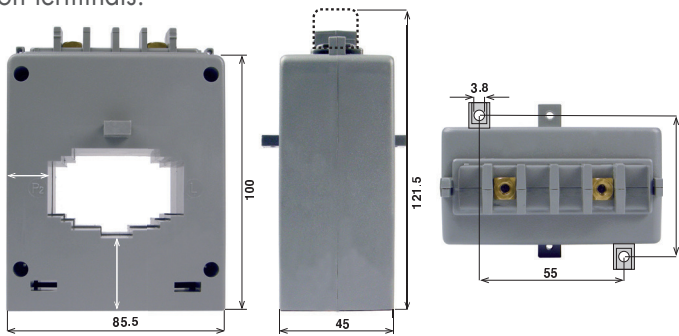
Primary current	Class	Secondary current aux. supply 230VAC	Secondary current aux. supply 230VAC	Secondary voltage aux. supply 230VAC	Weight
A		4/20mA	20mA	10V	Kg
50	1	TH43-50/420MA-1-230V	TH43-50/20MA-1-230V	TH43-50/10V-1-230V	0,5
60	1	TH43-60/420MA-1-230V	TH43-60/20MA-1-230V	TH43-60/10V-1-230V	0,5
75	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

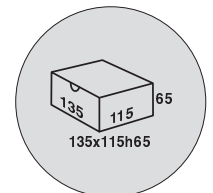
Transformer suitable for primary current by cable with a maximum diameter of 30mm; by horizontal bar with a maximum size of 30x30mm, 40x25mm, 50x20mm; by vertical bar with maximum dimensions of 30x10mm., and secondary current on terminals.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 30$	 52,1x21,4
	 42,2x25,3
	 34,3x34,2
	 34,2x12



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

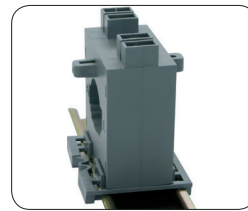
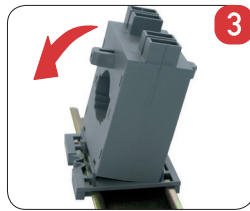
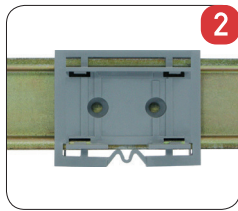
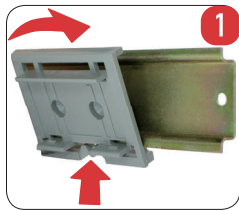
With the transformer it is provided a sacket containing a series of accessories that depending on the model, allow various types of fixations;

- 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



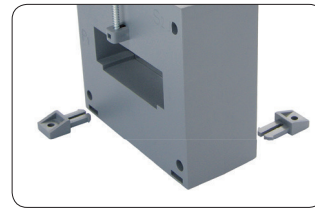
Place the choice base on the bar and press as shown in figures (1-2)

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

#### Wall fixing

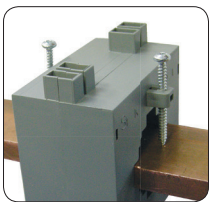


For codes TM1-TM3-TM4-TM5  
Secure the base to the wall with two screws (not supplied), then attach the transformer as shown in the previous figures.



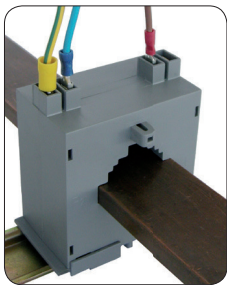
For the code TM6.  
Insert the brackets into the proper places as shown in the figure and fasten them to the wall with two screws (not supplied).

#### 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.

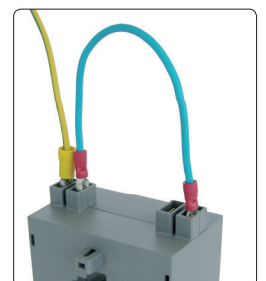
### WIRING INSTRUCTIONS



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 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 .

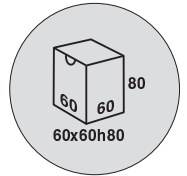
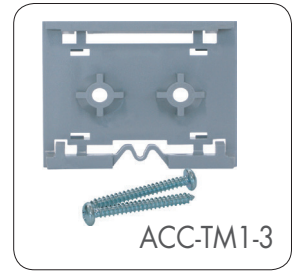
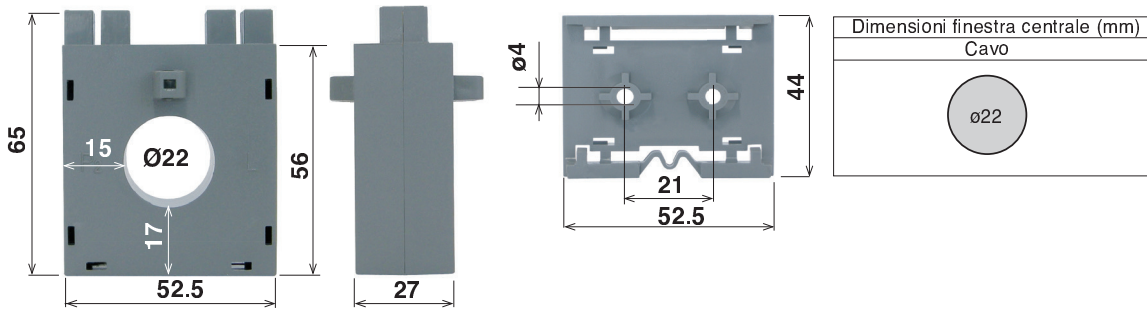
### MEASURING TRANSFORMERS CODE TABLE

Family ID	TM	3	-150	A	5	-1	-5	VA	-Y	-T	-X	-
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

Family ID	TM	3EL	-100	A	0.2	-1	-5	VA	-Y	-T	-X	-
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												

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



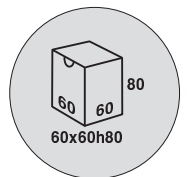
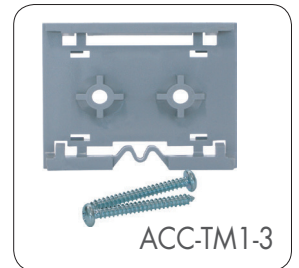
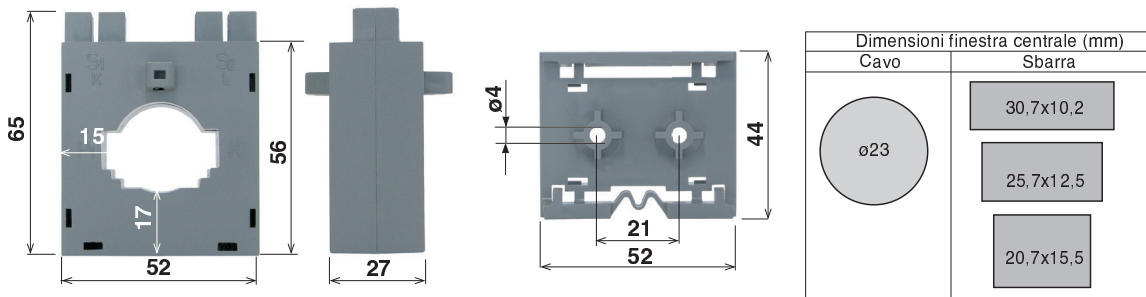
Measuring transformers

Transformers for electronic use

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

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

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



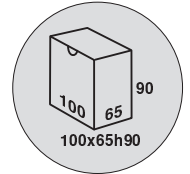
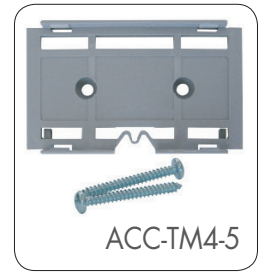
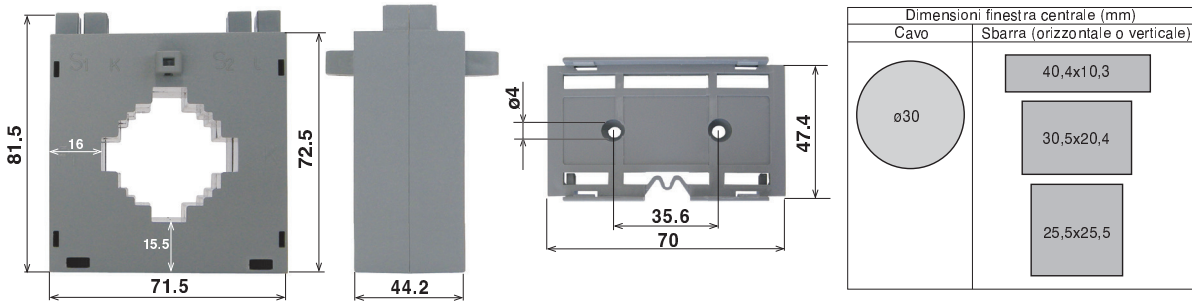
Measuring transformers

Transformers for electronic use

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

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

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



Measuring transformers

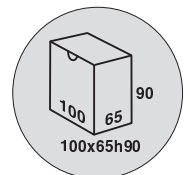
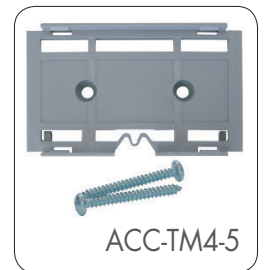
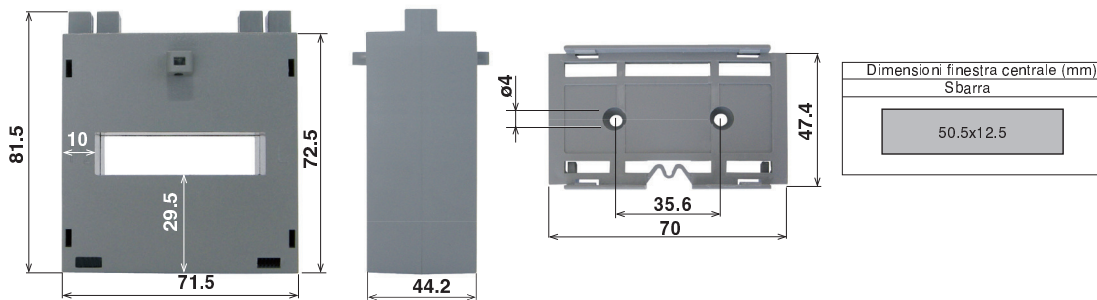
Transformers for electronic use

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

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

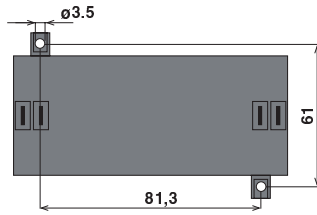
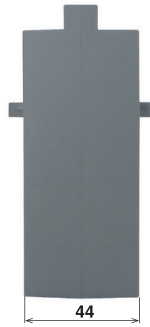
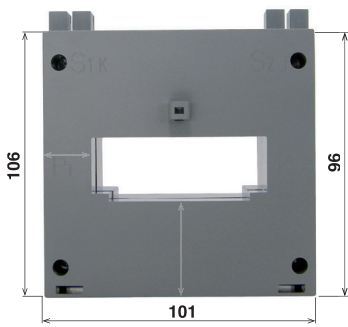
-T = Housing resistant to high temperatures

Transformer suitable for primary current by horizontal bar 50x10mm.

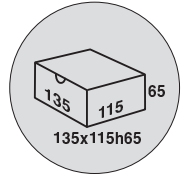


Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
150	1	2	TM5-150A5-1-2VA	TM5-150A1-1-2VA	0,40
200	1	2	TM5-200A5-1-2VA	TM5-200A1-1-2VA	0,40
250	1	3	TM5-250A5-1-3VA	TM5-250A1-1-3VA	0,40
300	0.5	3	TM5-300A5-0.5-3VA	TM5-300A1-0.5-3VA	0,40
400	0.5	4	TM5-400A5-0.5-4VA	TM5-400A1-0.5-4VA	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
$\phi 22$ $\phi 22$	63,8x20,5
	51,3x23,3



Measuring transformers

Transformers for electronic use

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

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

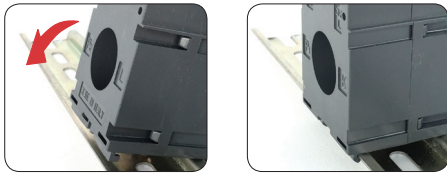
Together with the transformer it is provided a sachet containing a series of accessories, which depending on the model allow various types of fixing:

- 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

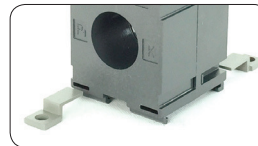
Place the transformer on the DIN rail and press it as shown in figures.



#### 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.



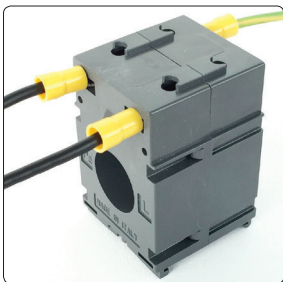
Using the two brackets for the code TN22. Insert the brackets into the proper place as shown in the figure and fasten them to the wall with two screws (not supplied).

#### Mounting on cable or primary busbar



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

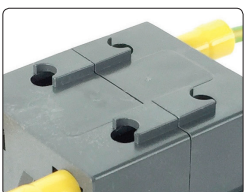
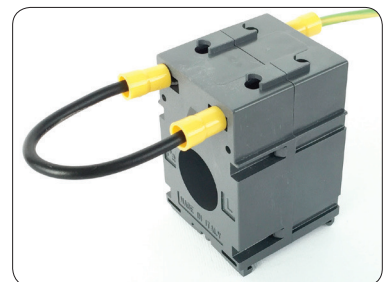
### WIRING INSTRUCTIONS



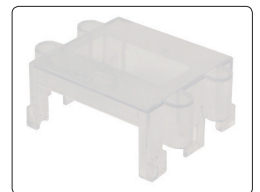
Connect the cable S1 in one of the two terminals of the corresponding side; and the cable S2 in one of the two terminals of the opposite side. The selected terminal is irrelevant since the two terminals in opposition are internally connected.

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 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.



The terminals of this range have been designed with a sufficient protection degree against accidental contact. Is available on request, however, the 55PSATCS3C 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  $5xI_n$ , 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:

$P = R \cdot I^2$  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	TN	60	-1k25	A	5	-0.5	-1	VA	-Y	-R	-T	-X	-
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	Ampère												
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 - 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													

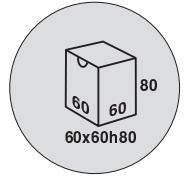
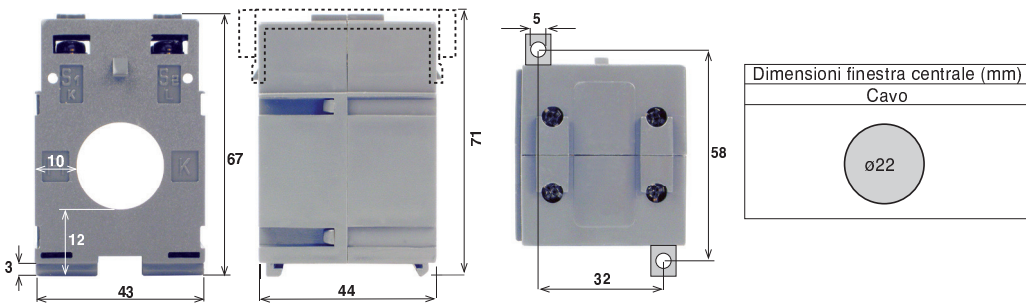
### PROTECTION TRANSFORMERS CODE TABLE

Family ID	TN	60P	-1k25	A	5	-5P5	-1	VA	-Y	-R	-T	-X	-
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	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													

## MEASURING TRANSFORMER

TN22

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

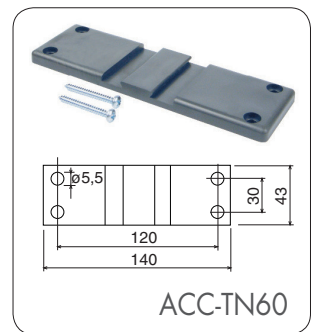
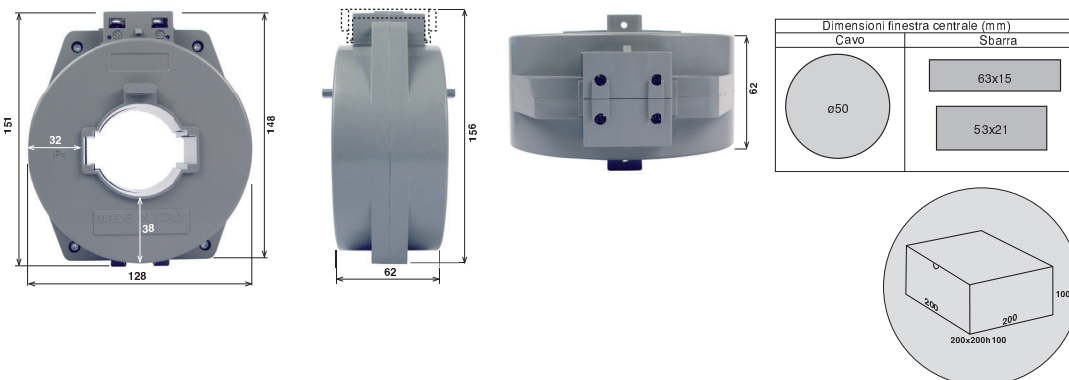


Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
40	3	1	TN22-040A5-3-1VA	TN22-040A1-3-1VA	
50	3	1	TN22-050A5-3-1VA	TN22-050A1-3-1VA	
60	1	1	TN22-060A5-1-1VA	TN22-060A1-1-1VA	
75	1	1.2	TN22-075A5-1-1.2VA	TN22-075A1-1-1.2VA	
80	1	1.5	TN22-080A5-1-1.5VA	TN22-080A1-1-1.5VA	
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.



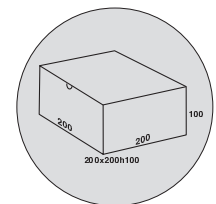
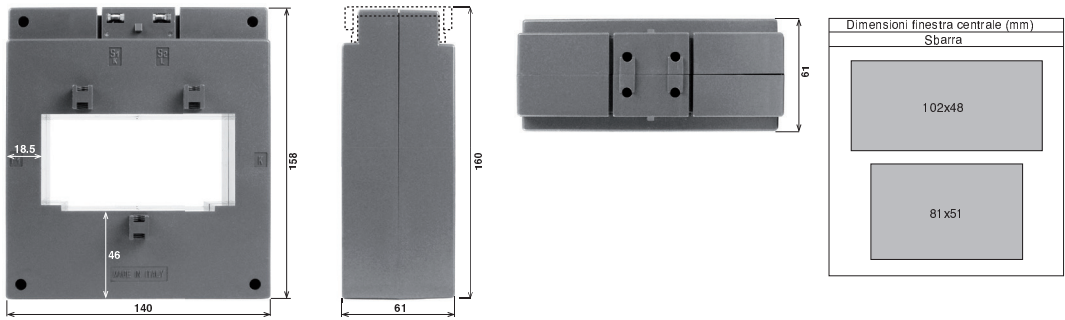
### Measuring transformers

### Protection 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

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.



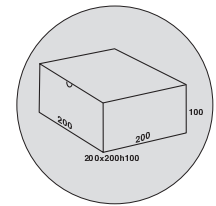
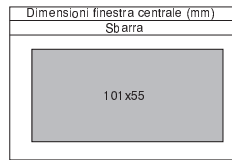
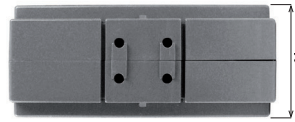
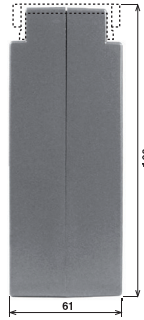
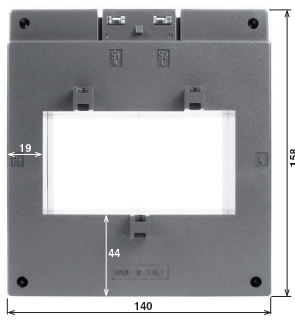
Measuring transformers

Protection 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

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
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).



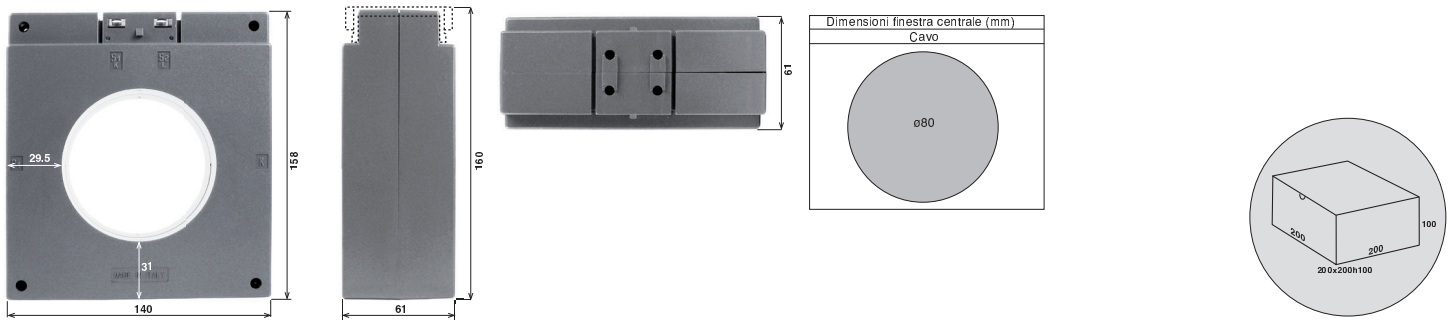
Measuring transformers

Protection 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

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
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

Protection 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

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
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

# 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 sacket of accessories), or by wiring the two wires on the same terminal.

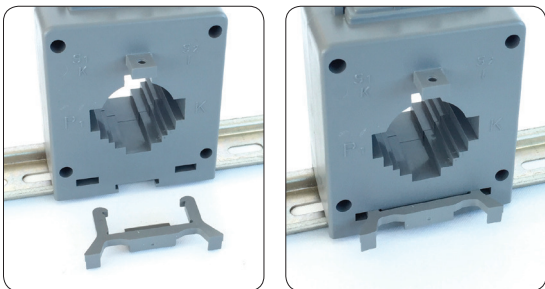
#### ASSEMBLY INSTRUCTIONS

With the transformer it is provided a sacket 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

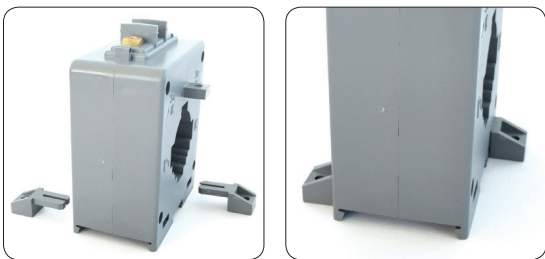
These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

#### DIN rail-mounting



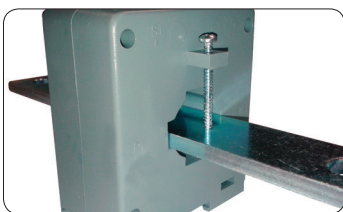
Place the transformer on a DIN rail, insert the fork in their seats and push it as shown in the figures

#### Wall fixing



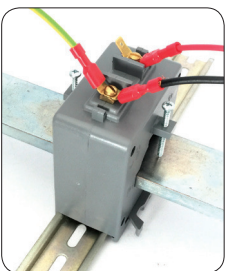
Insert the brackets into the proper places as shown in the figure, then secure them to the wall with two screws (not supplied)

#### Mounting on cable or primary busbar



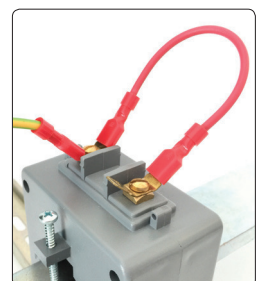
Fixing possible for all codes, using the two screws supplied with the transformers, as shown in the figure. In this case, be sure to protect the tips to avoid the piercing of the primary cable.

#### 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 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

TR	0	-040	A	5	-3	-2	VA	-Y	-R	-T	-X	-
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=wounded primary (primary and secondary on terminals)												
P2=wounded 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

TR	5P	-500	A	5	-5P5	-4	VA	-Y	-R	-T	-X	-
Family ID												
Central window dimensions												
P1P=wounded primary (primary and secondary on terminals)												
P2P=wounded 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

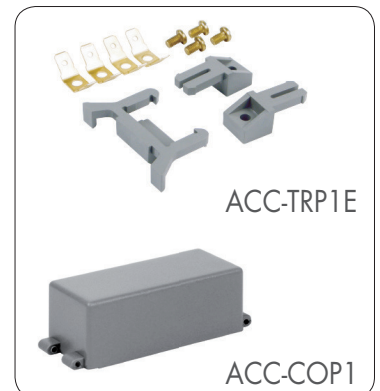
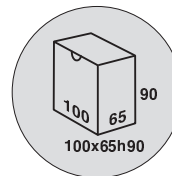
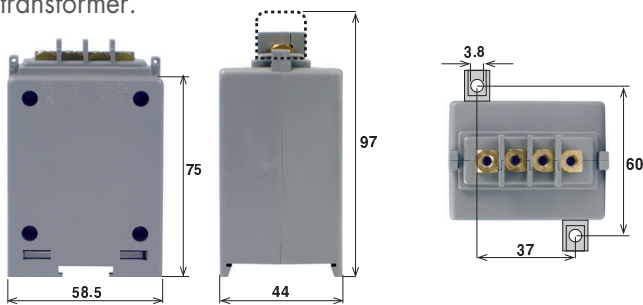
(THE CODE IS THE HIGHER RATIO)

Family ID	TR	4D	-600	A	5	-0.5	-6VA10	-Y	-R	-T	-X	-
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												

## PRIMARY WOUNDED MEASURING CURRENT TRANSFORMERS

TRP1E

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

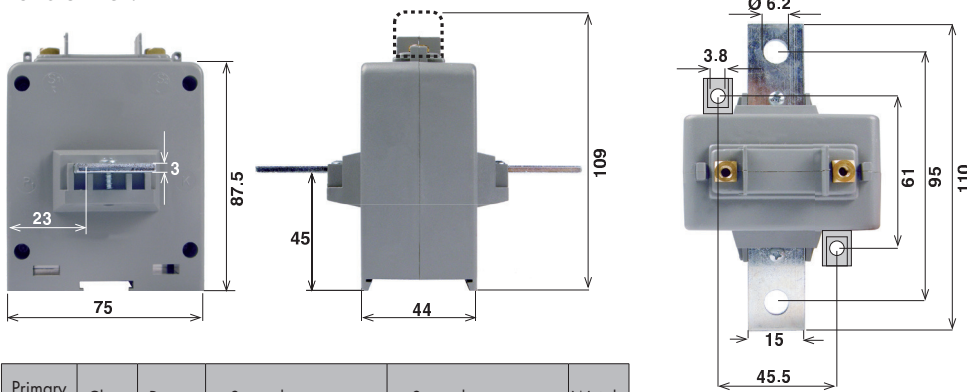


Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	VA	5A	1A	Kg
1	1	3	TRP1E-001A5-1-3VA	TRP1E-001A1-1-3VA	0,40
5	1	3	TRP1E-005A5-1-3VA	TRP1E-005A1-1-3VA	0,40
10	1	3	TRP1E-010A5-1-3VA	TRP1E-010A1-1-3VA	0,40
15	1	3	TRP1E-015A5-1-3VA	TRP1E-015A1-1-3VA	0,40
20	1	3	TRP1E-020A5-1-3VA	TRP1E-020A1-1-3VA	0,40
25	1	3	TRP1E-025A5-1-3VA	TRP1E-025A1-1-3VA	0,40
30	1	3	TRP1E-030A5-1-3VA	TRP1E-030A1-1-3VA	0,40
40	1	3	TRP1E-040A5-1-3VA	TRP1E-040A1-1-3VA	0,40

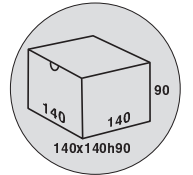
## PRIMARY WOUNDED MEASURING CURRENT TRANSFORMERS

TRP2E

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



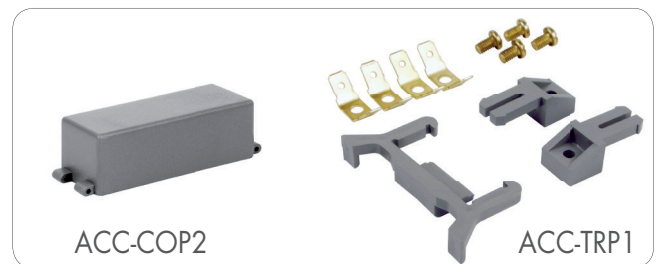
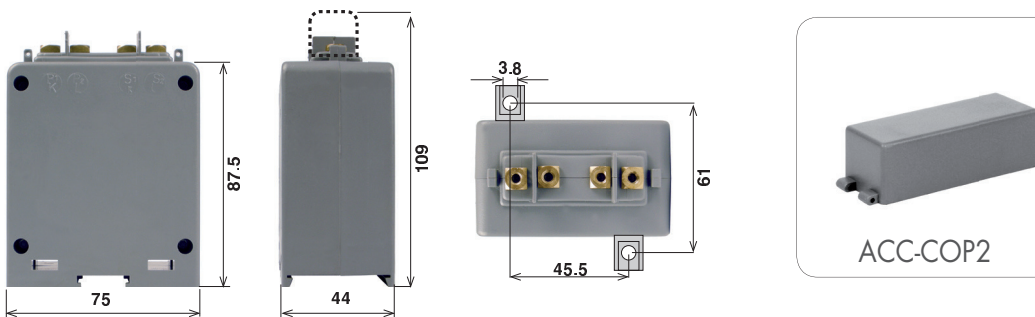
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
50	1	3	TRP2E-050A5-1-3VA	TRP2E-050A1-1-3VA	0,50
60	1	3	TRP2E-060A5-1-3VA	TRP2E-060A1-1-3VA	0,50
75	1	3	TRP2E-075A5-1-3VA	TRP2E-075A1-1-3VA	0,50
80	1	3	TRP2E-080A5-1-3VA	TRP2E-080A1-1-3VA	0,50
100	1	3	TRP2E-100A5-1-3VA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

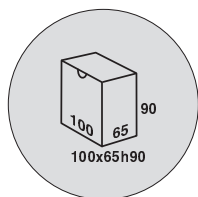
TRP1 / TRP1P

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



### Measuring transformers

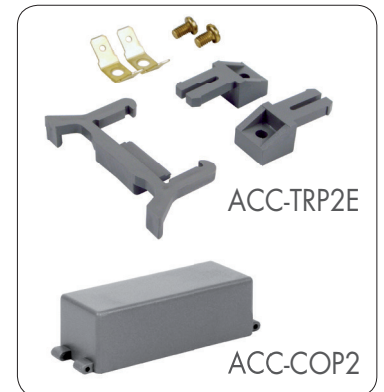
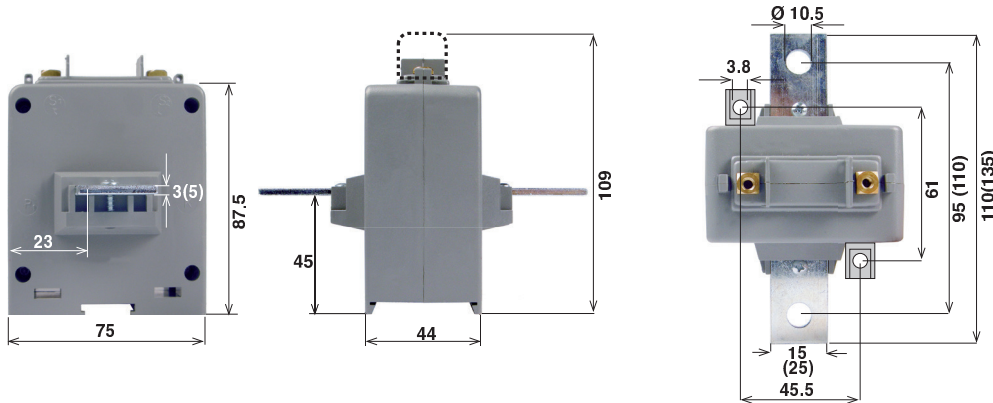
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
1	0.5	6	TRP1-001A5-0.5-6VA	TRP1-001A1-0.5-6VA	0,40
5	0.5	6	TRP1-005A5-0.5-6VA	TRP1-005A1-0.5-6VA	0,40
10	0.5	6	TRP1-010A5-0.5-6VA	TRP1-010A1-0.5-6VA	0,40
15	0.5	6	TRP1-015A5-0.5-6VA	TRP1-015A1-0.5-6VA	0,40
20	0.5	6	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**

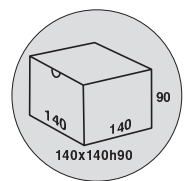
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
50	0.5	6	TRP2-050A5-0.5-6VA	TRP2-050A1-0.5-6VA	0,50
60	0.5	6	TRP2-060A5-0.5-6VA	TRP2-060A1-0.5-6VA	0,50
75	0.5	6	TRP2-075A5-0.5-6VA	TRP2-075A1-0.5-6VA	0,50
80	0.5	6	TRP2-080A5-0.5-6VA	TRP2-080A1-0.5-6VA	0,50
100	0.5	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**

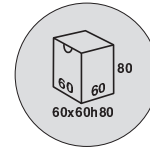
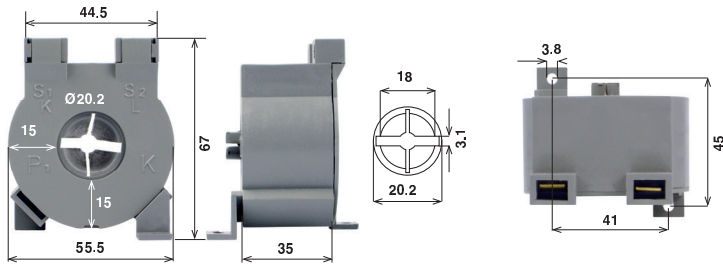
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
5-10	0.5	5-15	TRP2D-010A5-0.5-5VA15	TRP2D-010A1-0.5-5VA15	0,60
10-20	0.5	5-15	TRP2D-020A5-0.5-5VA15	TRP2D-020A1-0.5-5VA15	0,60
15-30	0.5	5-15	TRP2D-030A5-0.5-5VA15	TRP2D-030A1-0.5-5VA15	0,60
20-40	0.5	5-15	TRP2D-040A5-0.5-5VA15	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.



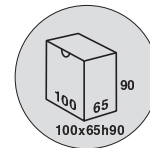
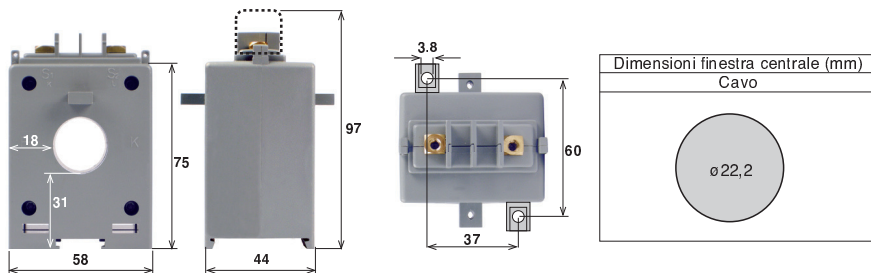
### Measuring transformers

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.



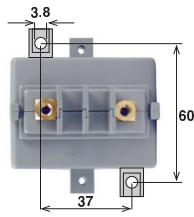
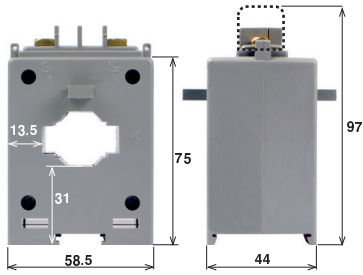
### Measuring transformers

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

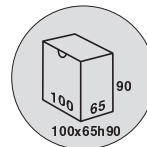
### Double ratio transformers

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

Transformer suitable for primary current by cable with a maximum diameter of 21 mm, by horizontal bar 30x10mm or vertical bar 10x20mm.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 25$	 30,5x10,8  21,4x13,9 11,2x22



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

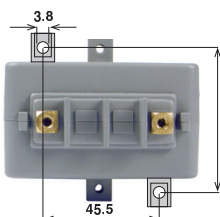
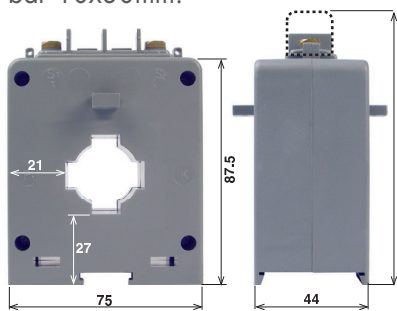
Double ratio transformers

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

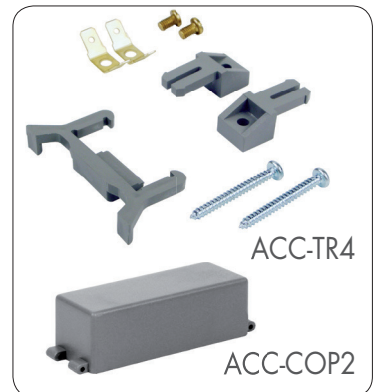
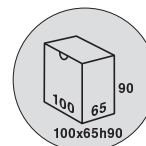
MEASURING TRANSFORMERS

TR43

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



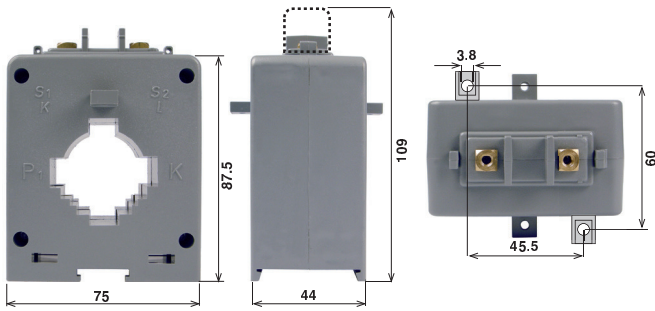
Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\varnothing 25$	 30,5x10,6  10,6x30,5



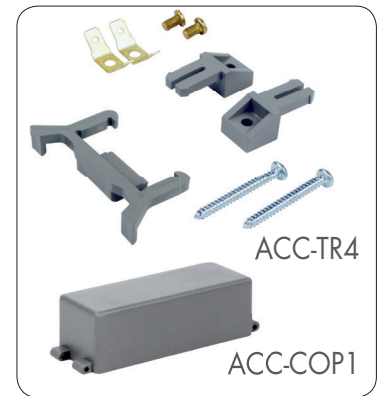
Measuring transformers

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 21 mm, by horizontal bar 20x10mm or vertical bar 10x20mm.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 $\phi 32$	 40,7x11,2
	 33x20
	 25,8x25
	 11,1x40,7
	 20,9x30

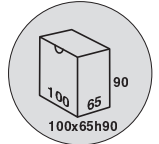


Measuring transformers

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

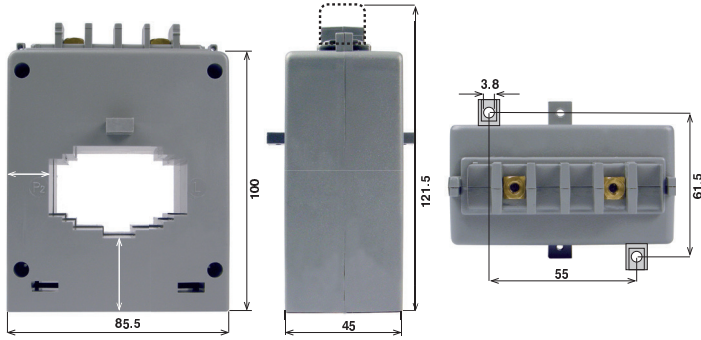
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100-200	1	3-4	TR4D-200A5-1-3VA4	TR4D-200A1-1-3VA4	0,70
120-240	1	3-6	TR4D-240A5-1-3VA6	TR4D-240A1-1-3VA6	0,70
125-250	1	3-6	TR4D-250A5-1-3VA6	TR4D-250A1-1-3VA6	0,70
150-300	1-0.5	3-6	TR4D-300A5-105-3VA6	TR4D-300A1-105-3VA6	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.



Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 ø30	52,1x21,4 42,2x25,3 34,2x12 34,3x34,2



## Measuring transformers

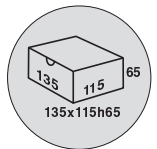
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
100	1	3	TR5-100A5-1-3VA	TR5-100A1-1-3VA	0,50
120	1	3	TR5-120A5-1-3VA	TR5-120A1-1-3VA	0,50
125	1	3	TR5-125A5-1-3VA	TR5-125A1-1-3VA	0,50
150	1	3	TR5-150A5-1-3VA	TR5-150A1-1-3VA	0,50
200	1	4	TR5-200A5-1-4VA	TR5-200A1-1-4VA	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

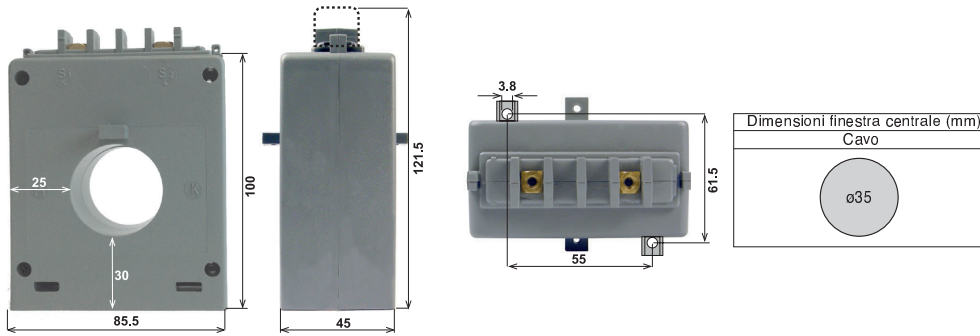
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
250	5P5	3	TR5P-250A5-5P5-3VA	TR5P-250A1-5P5-3VA	0,50
250	5P10	1	TR5P-250A5-5P10-1VA	TR5P-250A1-5P10-1VA	0,50
300	5P5	3	TR5P-300A5-5P5-3VA	TR5P-300A1-5P5-3VA	0,50
300	5P10	1	TR5P-300A5-5P10-1VA	TR5P-300A1-5P10-1VA	0,50
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

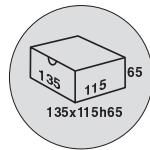


Transformer suitable for primary current by cable with a maximum diameter of 35mm.



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

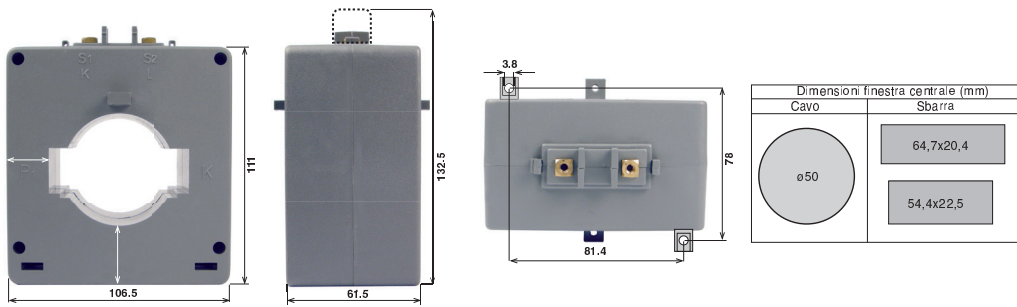


Protection transformers

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



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**

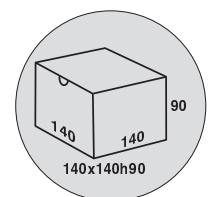
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
200	0.5	3	TR6-200A5-0.5-3VA	TR6-200A1-0.5-3VA	1,00
250	0.5	5	TR6-250A5-0.5-5VA	TR6-250A1-0.5-5VA	1,00
300	0.5	5	TR6-300A5-0.5-5VA	TR6-300A1-0.5-5VA	1,00
400	0.5	6	TR6-400A5-0.5-6VA	TR6-400A1-0.5-6VA	1,00
500	0.5	6	TR6-500A5-0.5-6VA	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**

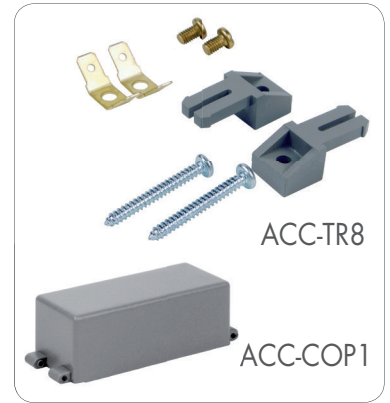
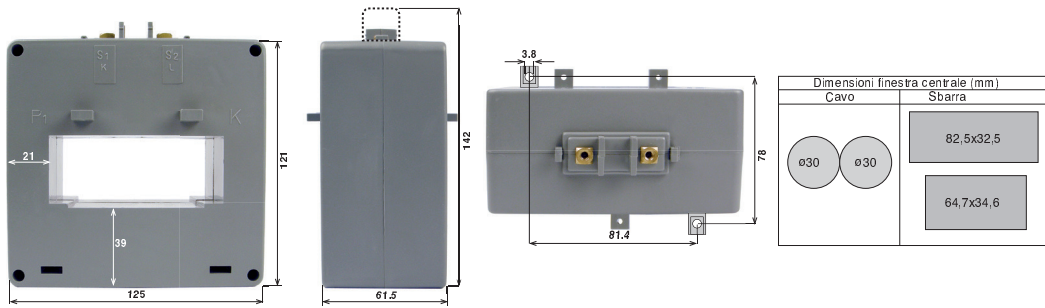
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
250	5P5	5	TR6P-250A5-5P5-5VA	TR6P-250A1-5P5-5VA	1,00
250	5P10	2	TR6P-250A5-5P10-2VA	TR6P-250A1-5P10-2VA	1,00
300	5P5	6	TR6P-300A5-5P5-6VA	TR6P-300A1-5P5-6VA	1,00
300	5P10	2,5	TR6P-300A5-5P10-2.5VA	TR6P-300A1-5P10-2.5VA	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



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**

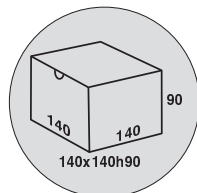
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
300	0.5	5	TR8-300A5-0.5-5VA	TR8-300A1-0.5-5VA	0,80
400	0.5	6	TR8-400A5-0.5-6VA	TR8-400A1-0.5-6VA	0,80
500	0.5	10	TR8-500A5-0.5-10VA	TR8-500A1-0.5-10VA	1,00
600	0.5	10	TR8-600A5-0.5-10VA	TR8-600A1-0.5-10VA	1,00
750	0.5	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	15	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**

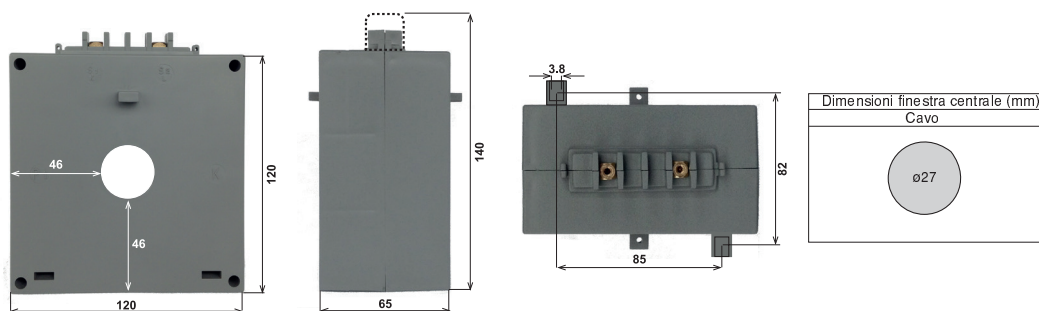
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
300	5P5	4	TR8P-300A5-5P5-4VA	TR8P-300A1-5P5-4VA	0,70
300	5P10	1	TR8P-300A5-5P10-1VA	TR8P-300A1-5P10-1VA	0,70
400	5P5	5	TR8P-400A5-5P5-5VA	TR8P-400A1-5P5-5VA	0,70
400	5P10	1,5	TR8P-400A5-5P10-1.5VA	TR8P-400A1-5P10-1.5VA	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.

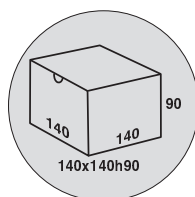


Measuring transformers

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

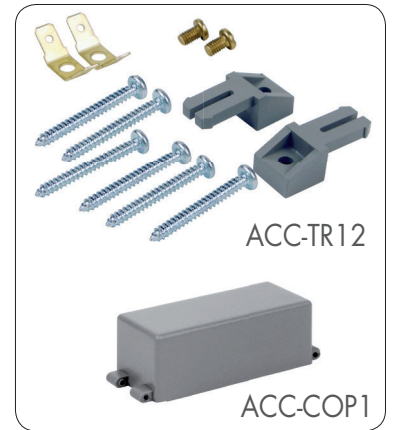
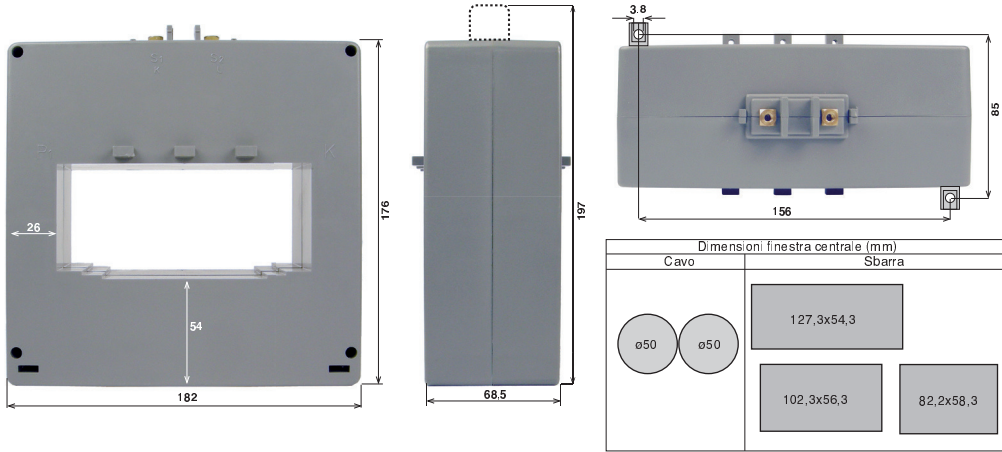
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
100	5P5	10	TR827P-100A5-5P5-10VA	TR827P-100A1-5P5-10VA	2,60
100	5P10	4	TR827P-100A5-5P10-4VA	TR827P-100A1-5P10-4VA	2,60
100	5P15	2.5	TR827P-100A5-5P15-2.5VA	TR827P-100A1-5P15-2.5VA	2,60
100	5P20	1.5	TR827P-100A5-5P20-1.5VA	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

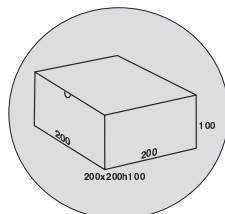
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
500	0.5	10	TR12-500A5-0.5-10VA	TR12-500A1-0.5-10VA	1,50
600	0.5	10	TR12-600A5-0.5-10VA	TR12-600A1-0.5-10VA	1,50
750	0.5	10	TR12-750A5-0.5-10VA	TR12-750A1-0.5-10VA	1,50
800	0.5	15	TR12-800A5-0.5-15VA	TR12-800A1-0.5-15VA	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

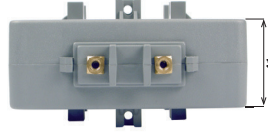
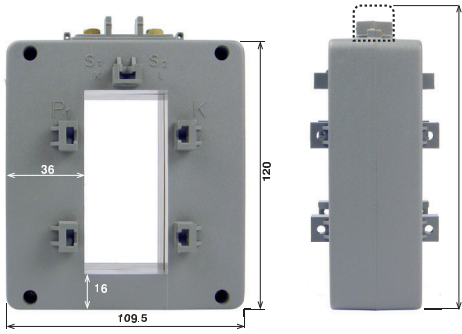
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
400	5P5	10	TR12P-400A5-5P5-10VA	TR12P-400A1-5P5-10VA	2,00
400	5P10	4,5	TR12P-400A5-5P10-4.5VA	TR12P-400A1-5P10-4.5VA	2,00
400	5P15	2,5	TR12P-400A5-5P15-2.5VA	TR12P-400A1-5P15-2.5VA	2,00
400	5P20	1	TR12P-400A5-5P20-1VA	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

## Double ratio transformers

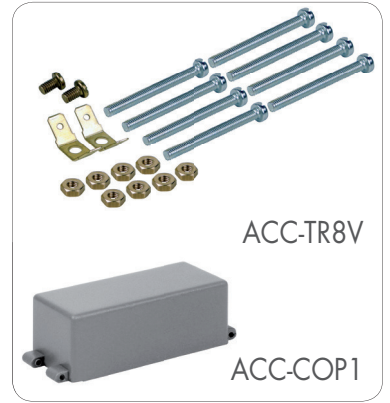
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA		5A	1A	Kg
800-1600	0.5	15-20	TR12D-1K6A5-0.5-15VA20	TR12D-1K6A1-0.5-15VA20	1,50
1000-2000	0.5	20-30	TR12D-2K0A5-0.5-20VA30	TR12D-2K0A1-0.5-20VA30	1,50
1200-2400	0.5	20-40	TR12D-2K4A5-0.5-20VA40	TR12D-2K4A1-0.5-20VA40	1,50
1250-2500	0.5	20-40	TR12D-2K25A5-0.5-20VA40	TR12D-2K25A1-0.5-20VA40	1,50
1500-3000	0.5	20-40	TR12D-3K0A5-0.5-20VA40	TR12D-3K0A1-0.5-20VA40	2,00
2000-4000	0.5	30-50	TR12D-4K0A5-0.5-30VA50	TR12D-4K0A1-0.5-30VA50	2,00



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

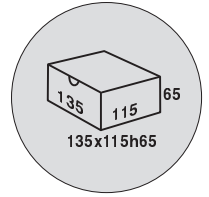


Dimensioni finestra centrale (mm)	
Cavo	Sbarra
 ø35 ø35	 37.7x80.6

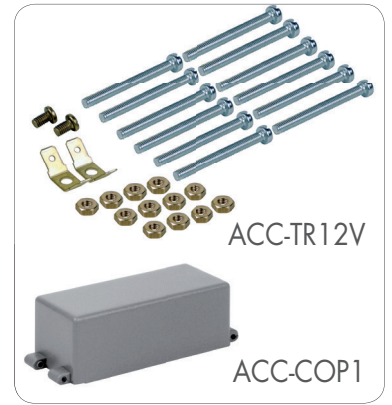
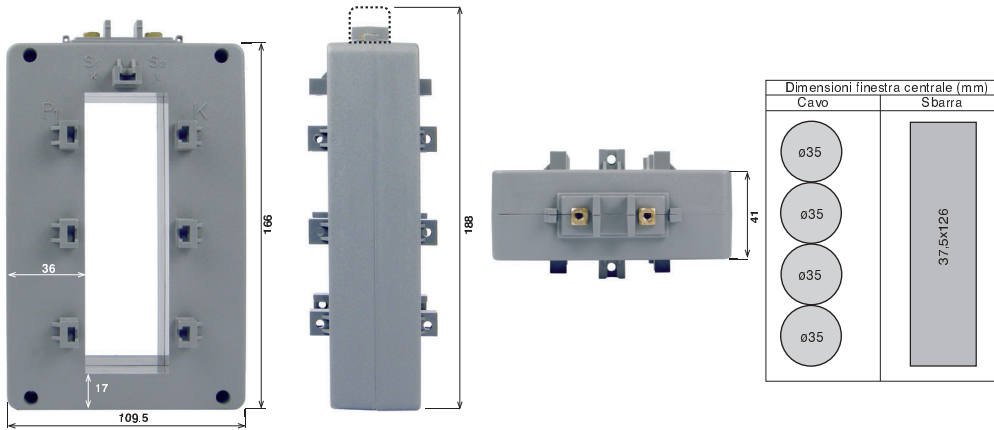


Measuring transformers

Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	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-1K0A5-0.5-10VA	TR8V-1K0A1-0.5-10VA	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-2K0A5-0.5-20VA	TR8V-2K0A1-0.5-20VA	0,70
2500	0.5	20	TR8V-2K5A5-0.5-20VA	TR8V-2K5A1-0.5-20VA	0,80



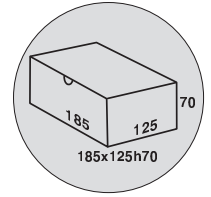
Transformer suitable for primary current by one, two, three or four cables with a maximum diameter of 35mm or by vertical bar 30x120mm.



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

Insulation class B



# 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.

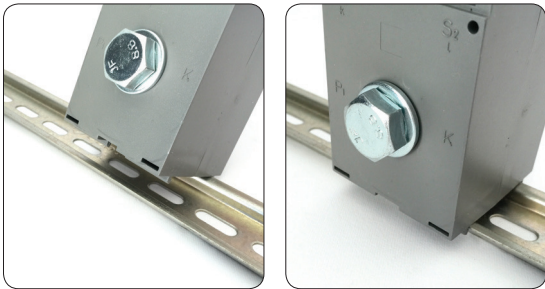
### ASSEMBLY INSTRUCTIONS

With the transformer it is provided a sacket 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

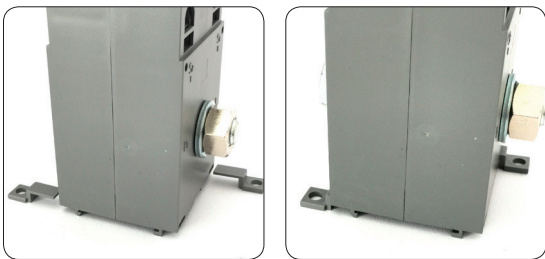
These fixations must be made in the manner indicated in the figure; no special tools are required even for the release of the transformer having to remove it.

#### DIN rail-mounting



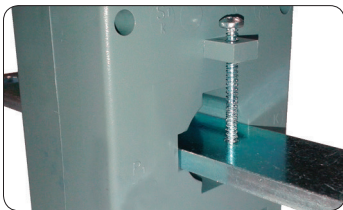
Position the transformer on the DIN rail and press as shown in Figures 1 and 2.

#### Wall fixing



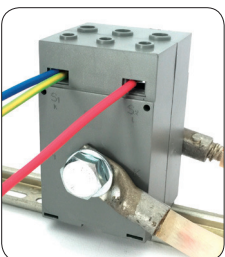
Insert the brackets into the proper places as shown in the figure, then secure them to the wall with two screws (not supplied).

#### Mounting on cable or primary busbar

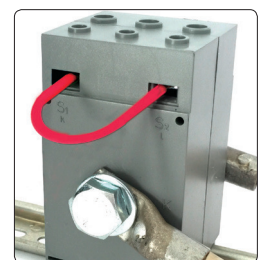


Fixing possible for all codes, using the two screws supplied with the transformers, as shown in the figure. In this case, be sure to protect the tips to avoid the piercing of the primary cable.

### 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.



55PSATCS1C



55PSATCS2C

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 55PSATCS1C and 55PSATCS2C.

## 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:

$P = R \cdot I^2$  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

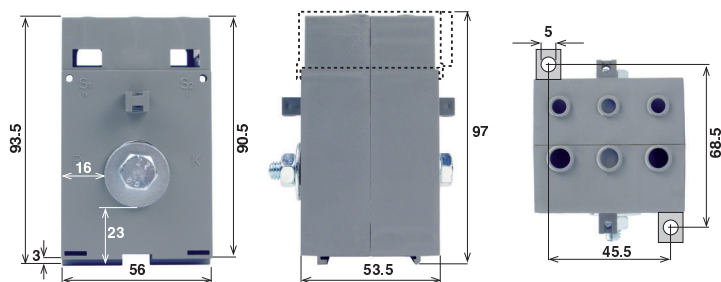
TS	16	-150	A	5	-1	-5	VA	-Y	-R	-T	-X	-
Family ID												
Central window dimensions												
O8= primario avvolto (primario su bullone centrale M8 e secondario sui morsetti)												
O12= primario avvolto (primario su bullone centrale M12 e secondario sui morsetti)												
13= diameter 13 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

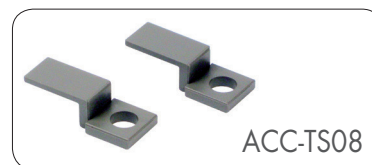
TS	28P	-1K5	A	5	-5P5	-20	VA	-Y	-R	-T	-X	-
Family ID												
Central window dimensions												
28= horizontal bar 120x10 mm / vertical bar 10x100 mm												
Primary current 1k5=1500A; 1k6=1600A; 2k0=2000A; 2k5=2500A; 3k0=3000A; 3k2=3200A; 3k5=3500A; 4k0=4000A												
A	Ampère											
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												



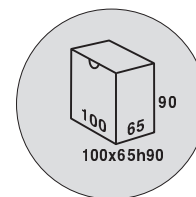
Transformer suitable for primary current by central cylinder with bolt M8.  
On request terminal cover code 55PSATCS2C.



Dimensioni finestra centrale (mm)	
Bullone	
M8	



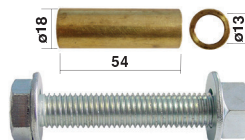
ACC-TS08



Measuring transformers

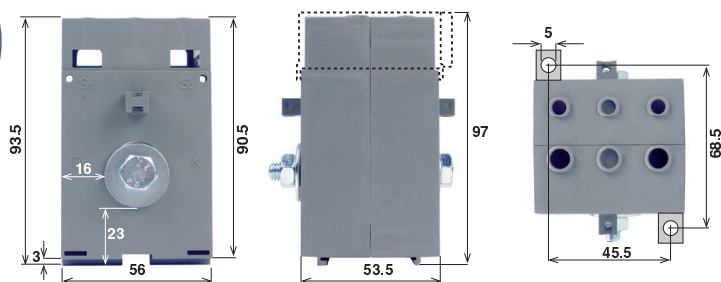
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
40	3	3	TS08-040A5-3-3VA	TS08-040A1-3-3VA	0,60
50	3	4	TS08-050A5-3-4VA	TS08-050A1-3-4VA	0,60
60	3	5	TS08-060A5-3-5VA	TS08-060A1-3-5VA	0,60
75	1	5	TS08-075A5-1-5VA	TS08-075A1-1-5VA	0,60
80	1	5	TS08-080A5-1-5VA	TS08-080A1-1-5VA	0,60
100	1	5	TS08-100A5-1-5VA	TS08-100A1-1-5VA	0,60
120	1	5	TS08-120A5-1-5VA	TS08-120A1-1-5VA	0,60
125	1	5	TS08-125A5-1-5VA	TS08-125A1-1-5VA	0,60
150	1	5	TS08-150A5-1-5VA	TS08-150A1-1-5VA	0,60

Brass cylinder  
OT63 UNI4892

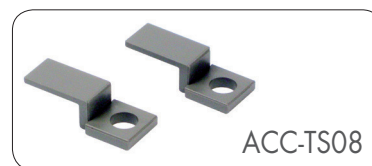


Bolt M8 + Nut steel UNI5727  
Class 4,6

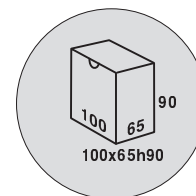
Transformer suitable for primary current by central cylinder with bolt M12.  
On request terminal cover code 55PSATCS2C.



Dimensioni finestra centrale (mm)	
Bullone	
M12	



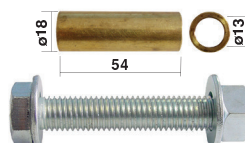
ACC-TS08



Measuring transformers

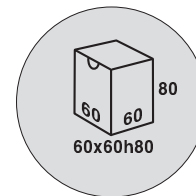
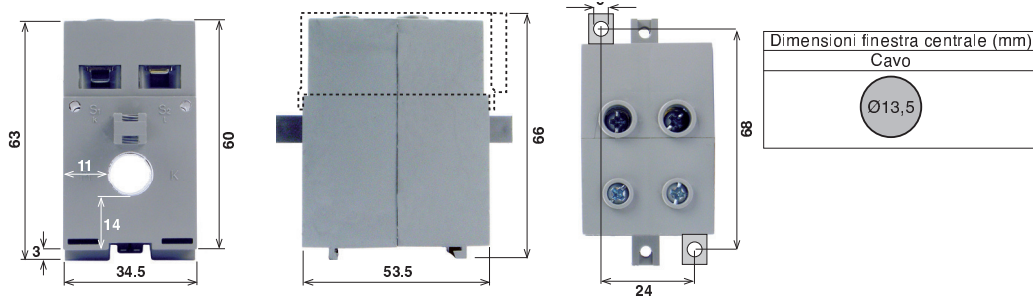
Primary current	Class	Power	Secondary current	Secondary current	Weight
A	VA	5A	1A	Kg	
200	0,5	5	TS12-200A5-0.5-5VA	TS12-200A1-0.5-5VA	0,70
250	0,5	10	TS12-250A5-0.5-10VA	TS12-250A1-0.5-10VA	0,70
300	0,5	10	TS12-300A5-0.5-10VA	TS12-300A1-0.5-10VA	0,70
400	0,5	10	TS12-400A5-0.5-10VA	TS12-400A1-0.5-10VA	0,70
500	0,5	10	TS12-500A5-0.5-10VA	TS12-500A1-0.5-10VA	0,70
600	0,5	10	TS12-600A5-0.5-10VA	TS12-600A1-0.5-10VA	0,70

Brass cylinder  
OT63 UNI4892



Bolt M12 + Nut steel  
UNI5727 Class 4,6

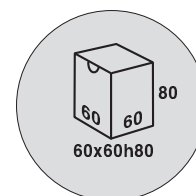
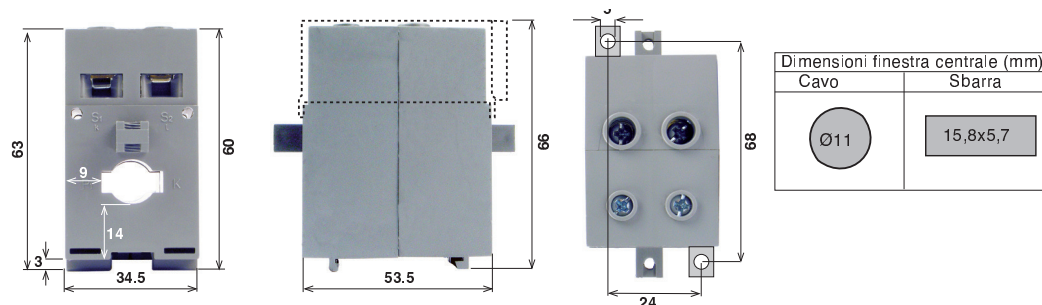
Transformer suitable for primary current by cable with a maximum diameter 13mm.  
Sealable terminals cover 55PSATCS1C on request.



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

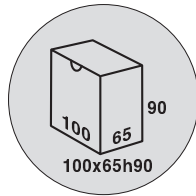
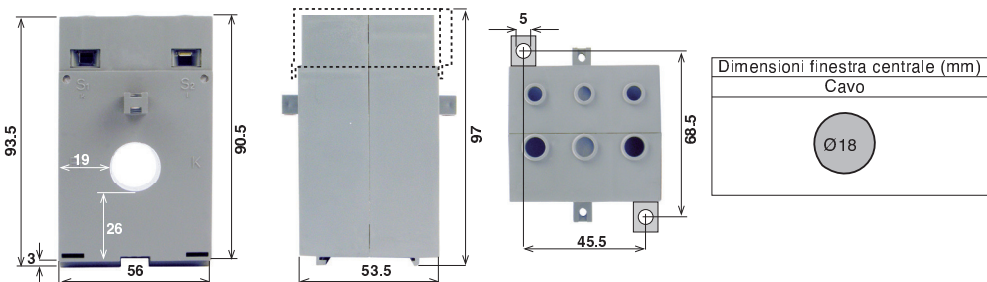
Transformer suitable for primary current by cable with a maximum diameter 11mm or by horizontal bar 15x5mm.  
Sealable terminals cover 55PSATCS1C on request.



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

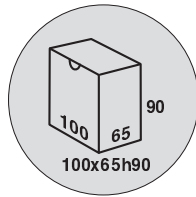
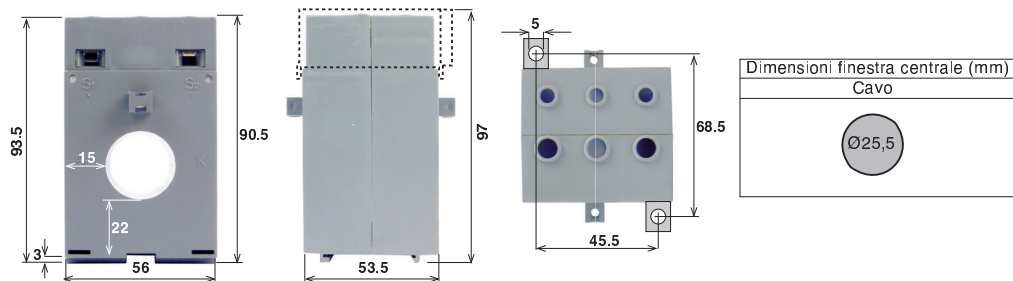
Transformer suitable for primary current by cable with a maximum diameter 18mm.  
Sealable terminals cover 55PSATCS2C on request.



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

Transformer suitable for primary current by cable with a maximum diameter 25mm.  
Sealable terminals cover 55PSATCS2C on request.



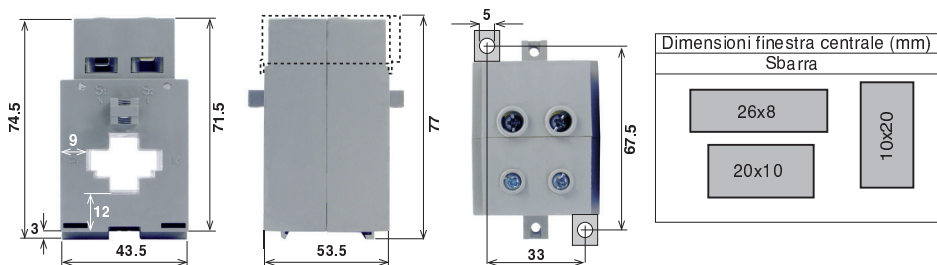
Measuring transformers

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

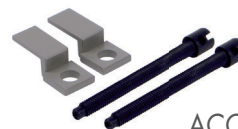
## MEASURING TRANSFORMERS

TS26

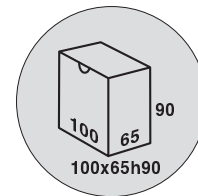
Transformer suitable for primary current by horizontal bar 26x8mm, 20x10mm or vertical bar 10x20mm.  
Sealable terminals cover 55PSATCS1C on request.



ABS screws M4x40



ACC-TS13-67



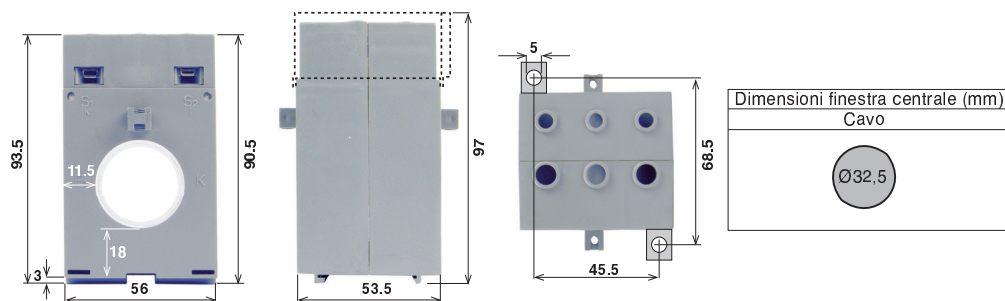
### Measuring transformers

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

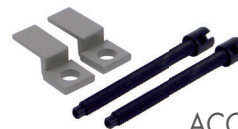
## MEASURING TRANSFORMERS

TS32

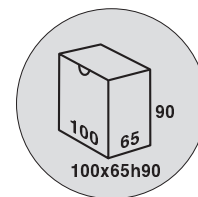
Transformer suitable for primary current by cable with a maximum diameter 32mm.  
Sealable terminals cover 55PSATCS2C on request.



ABS screws M4x40



ACC-TS13-67



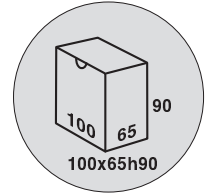
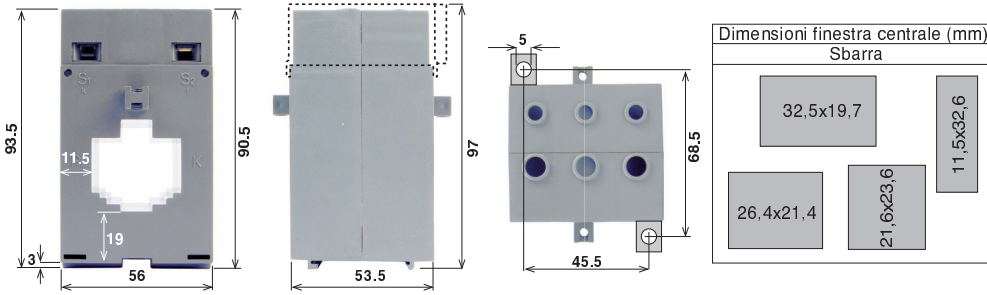
### Measuring transformers

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

## MEASURING TRANSFORMERS

TS33

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 55PSATCS2C on request.



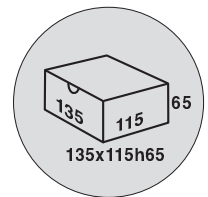
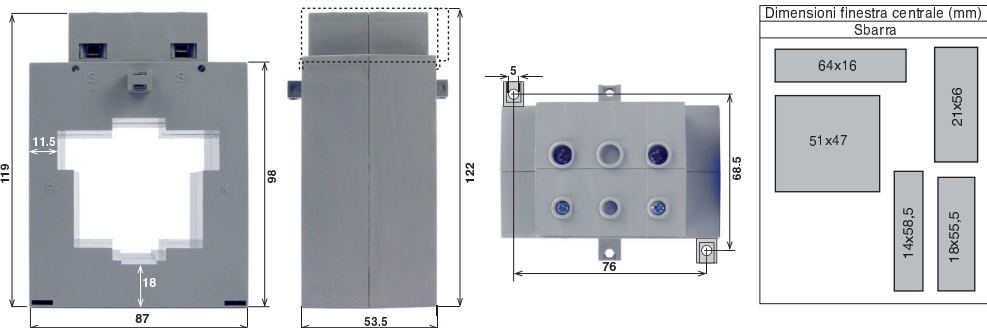
### Measuring transformers

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

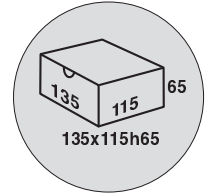
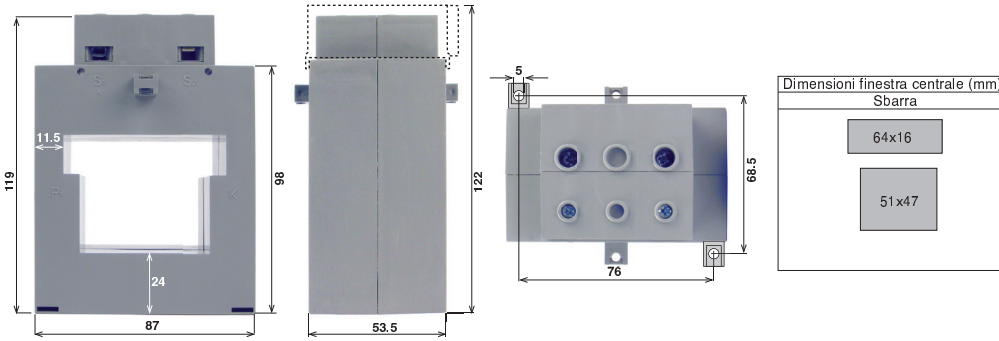
Transformer suitable for primary current by horizontal bar 64x16mm, 51x47mm, 51x31mm or vertical bar 21x50mm, 15x55mm, 14x58.5mm. Sealable terminals cover 55PSATCS2C on request.



### 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 55PSATCS2C on request.

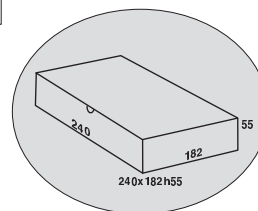
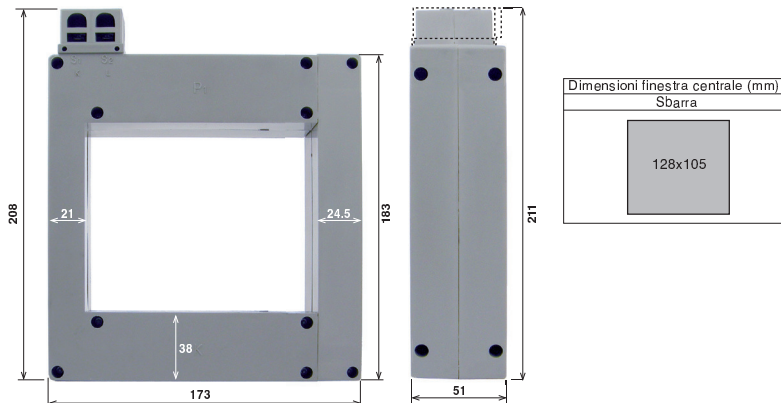


Measuring transformers

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

Transformer suitable for primary current by horizontal bar 120x10mm, 2x120x10mm, 3x120x10mm or vertical bar 10x100mm, 2x0x100mm, 3x10x100mm. Sealable terminals cover 55PSATCS1C on request.



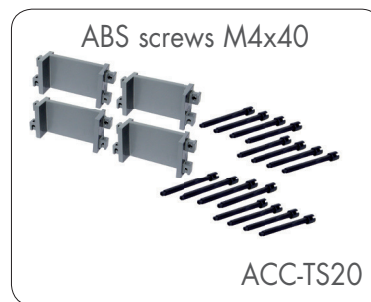
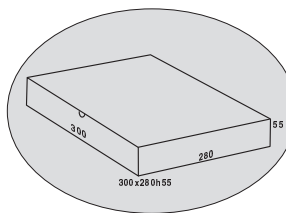
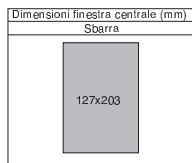
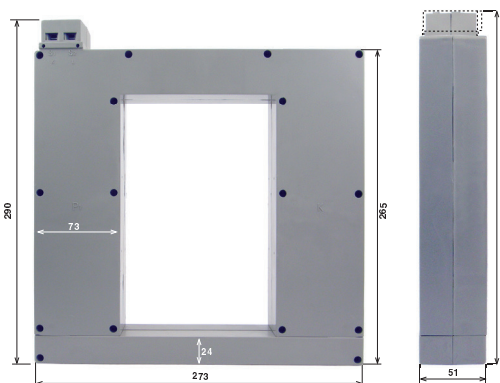
Measuring transformers

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

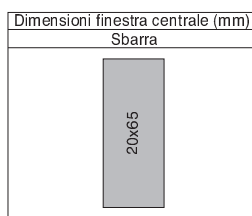
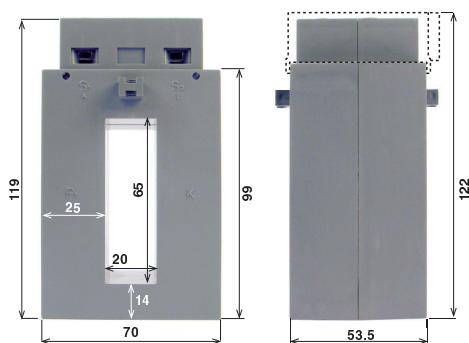
Transformer suitable for primary current by horizontal bar 120x10mm, 2x120x10mm, 3x120x10mm or vertical bar 10x100mm, 2x0x100mm, 3x10x100mm. Sealable terminals cover 55PSATCS1C on request.



Measuring transformers

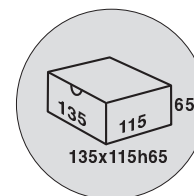
Primary current	Class	Power	Secondary current	Secondary current	Weight
A		VA	5A	1A	Kg
1000	0,5	10	TS20-1K0A5-0.5-10VA	TS20-1K0A1-0.5-10VA	1,60
1200	0,5	15	TS20-1K2A5-0.5-15VA	TS20-1K2A1-0.5-15VA	1,60
1250	0,5	15	TS20-1K25A5-0.5-15VA	TS20-1K25A1-0.5-15VA	1,60
1500	0,5	15	TS20-1K5A5-0.5-15VA	TS20-1K5A1-0.5-15VA	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

Transformer suitable for primary current by vertical bar 20x65mm. Sealable terminals cover 55PSATCS2C on request.

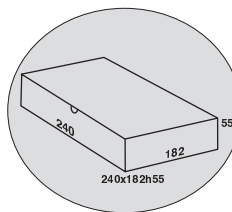
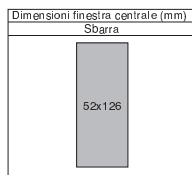
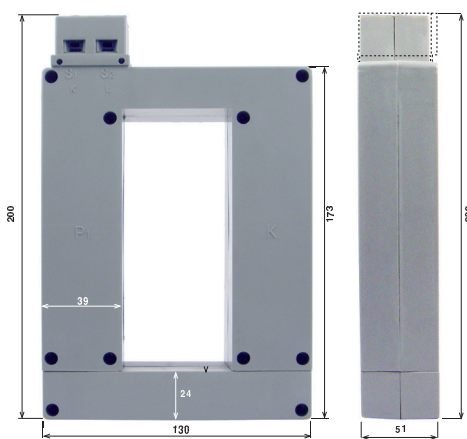


Measuring transformers

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



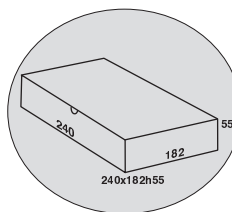
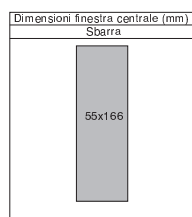
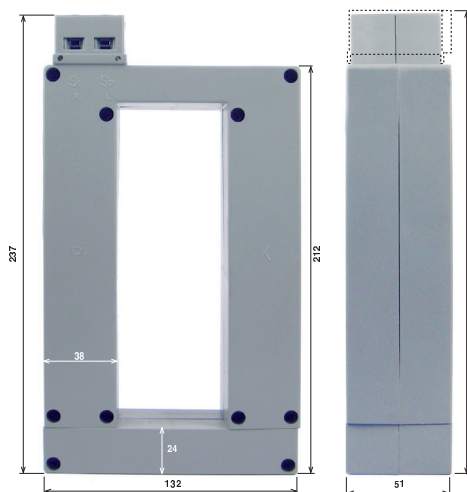
Transformer suitable for primary current by vertical bar 52x126mm. Sealable terminals cover 55PSATCS1C on request.



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

Transformer suitable for primary current by vertical bar 55x166mm. Sealable terminals cover 55PSATCS1C on request.



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

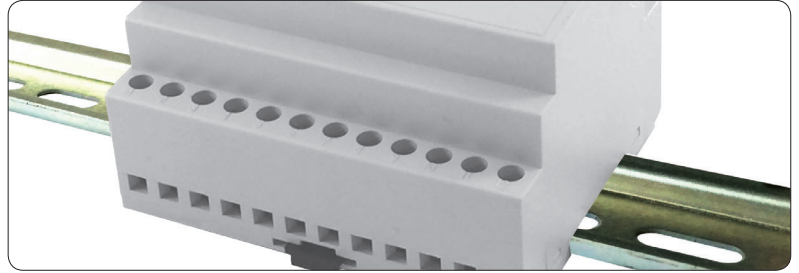
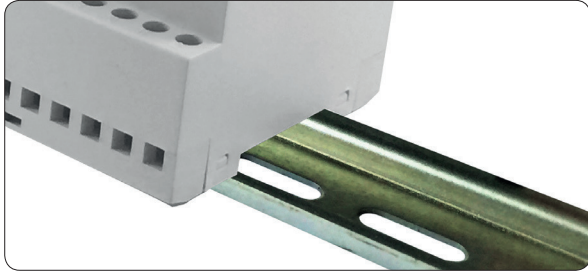
Together with the transformer it is provided a sacket containing a series of accessories, which depending on the model allow various types of fixation:

- 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.

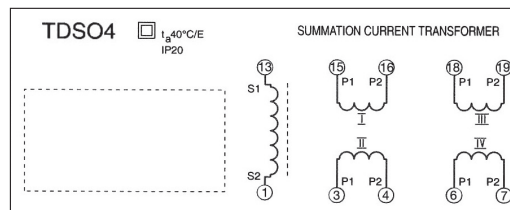
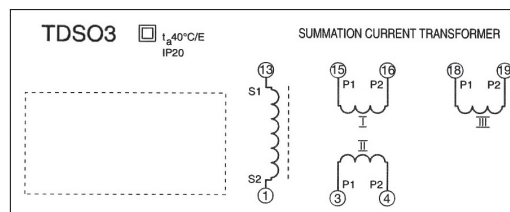
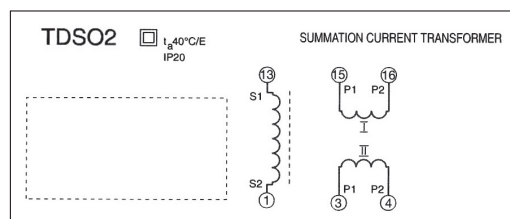
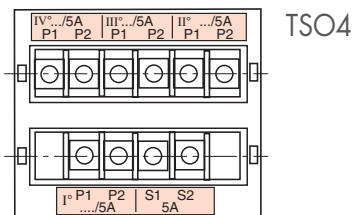
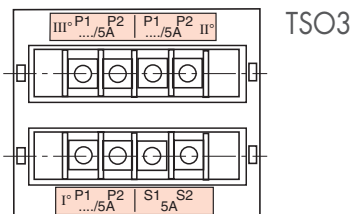
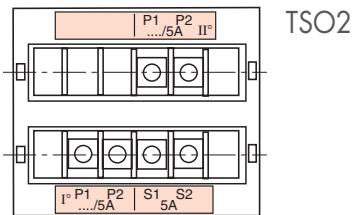
### Wall fixing



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).

## WIRING INSTRUCTION

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



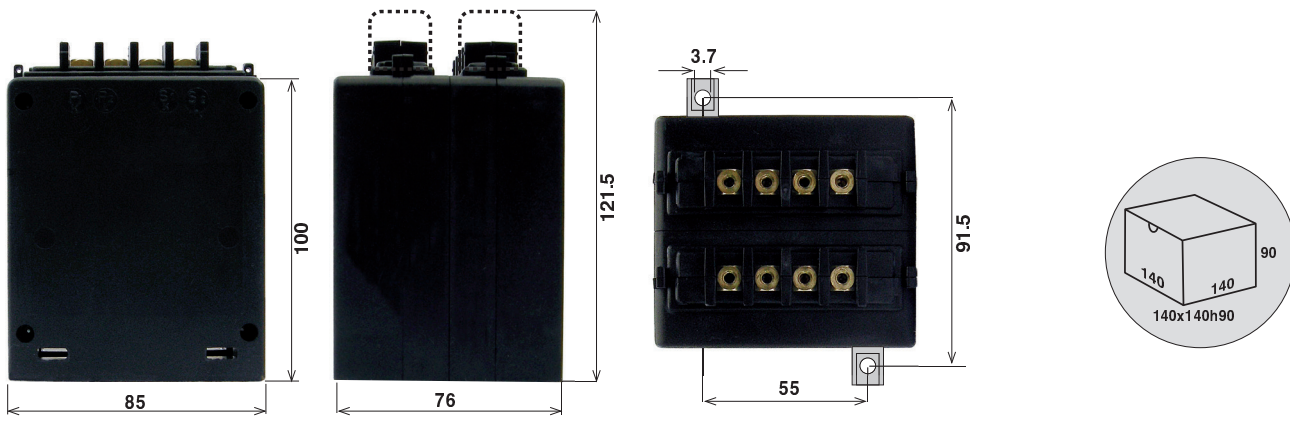
These schemes refer to the connection to one ammeter phase.

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.

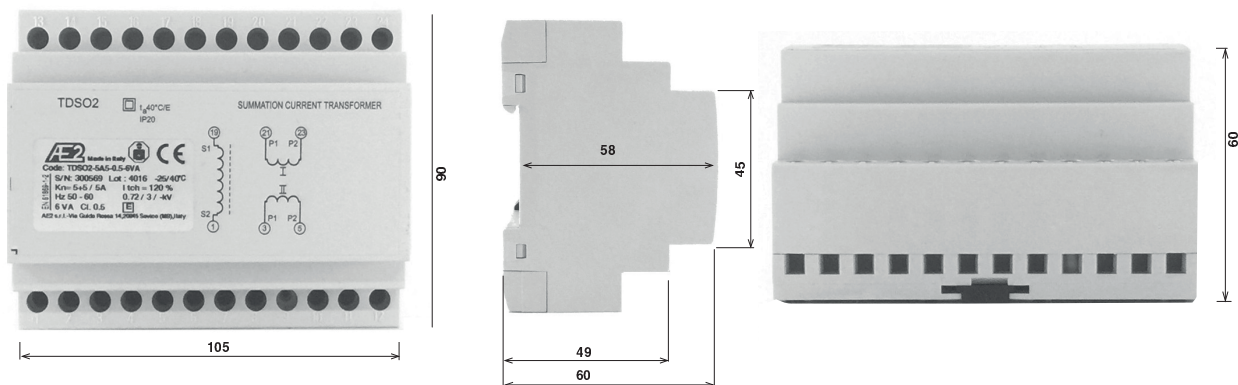


### Measuring transformers

Power	Secondary current	Secondary current	Weight
VA	5A - Class 0,5	1A - Class 0,5	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

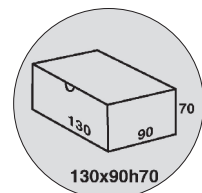
## MEASURING SUMMATION CURRENT TRANSFORMERS

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



### Measuring transformers

Power	Secondary current	Secondary current	Weight
VA	5A - Class 0,5	1A - Class 0,5	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 1.2Vn continuous use for all VTs with connection phase-to-phase

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

## ASSEMBLY INSTRUCTIONS

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

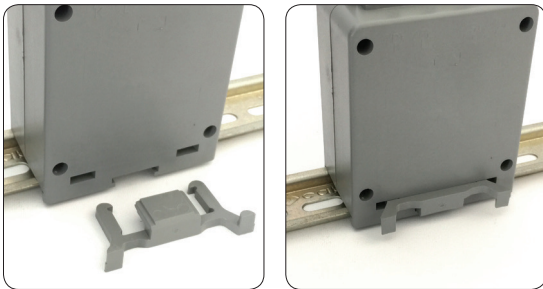
DIN rail EN 50022 fixing is performed using the appropriate accessory for type TV2.

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).



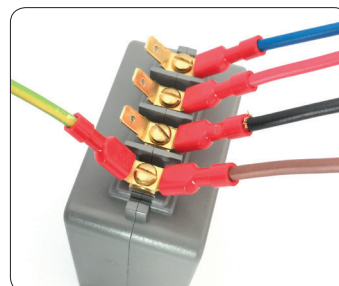
### Wall mounting for types TV10, TV12 and TV15

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.

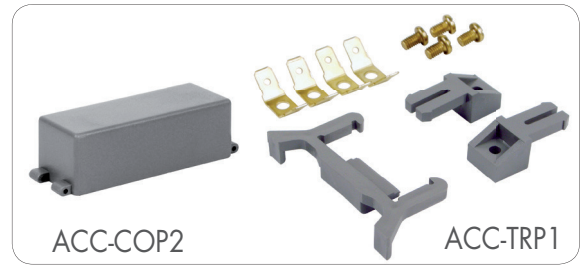
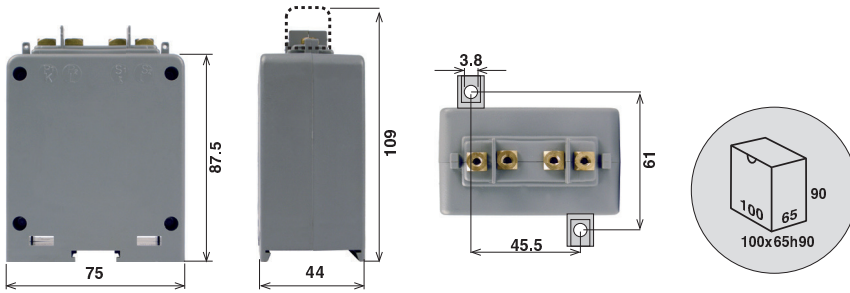
The terminal covers are supplied together with the transformers.



## VOLTAGE TRANSFORMER

TV2

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



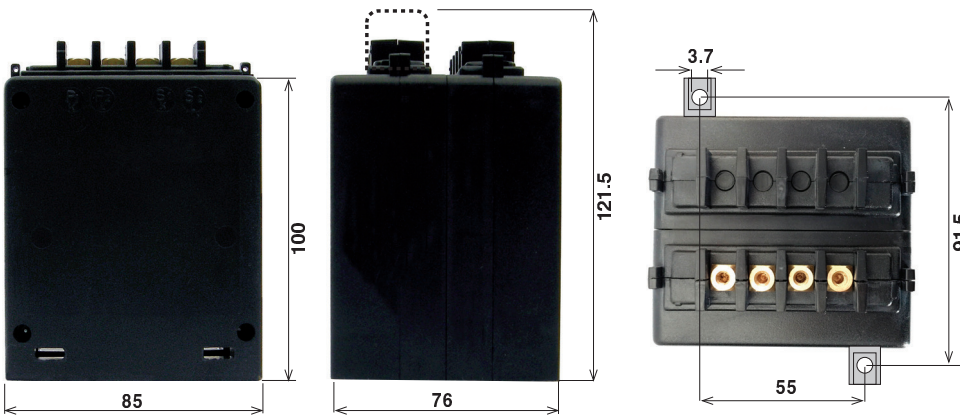
Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V	VA		100V	110V	Kg
100	1	2	TV2-100V100V-1-2VA	TV2-100V110V-1-2VA	1,50
120	1	2	TV2-120V100V-1-2VA	TV2-120V110V-1-2VA	1,50
230	1	2	TV2-230V100V-1-2VA	TV2-230V110V-1-2VA	1,50
380	1	2	TV2-380V100V-1-2VA	TV2-380V110V-1-2VA	1,50
400	1	2	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:√3	110V:√3	Kg
100:√3	1	2	TV2-100R3V100R3-1-2VA	TV2-100R3V110R3-1-2VA	1,50
120:√3	1	2	TV2-120R3V100R3-1-2VA	TV2-120R3V110R3-1-2VA	1,50
230:√3	1	2	TV2-230R3V100R3-1-2VA	TV2-230R3V110R3-1-2VA	1,50
380:√3	1	2	TV2-380R3V100R3-1-2VA	TV2-380R3V110R3-1-2VA	1,50
400:√3	1	2	TV2-400R3V100R3-1-2VA	TV2-400R3V110R3-1-2VA	1,50
500:√3	1	2	TV2-500R3V100R3-1-2VA	TV2-500R3V110R3-1-2VA	1,50
600:√3	1	2	TV2-600R3V100R3-1-2VA	TV2-600R3V110R3-1-2VA	1,50

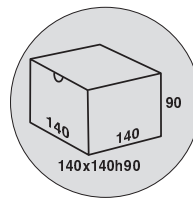
## VOLTAGE TRANSFORMER

TV6

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



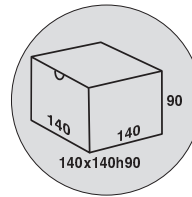
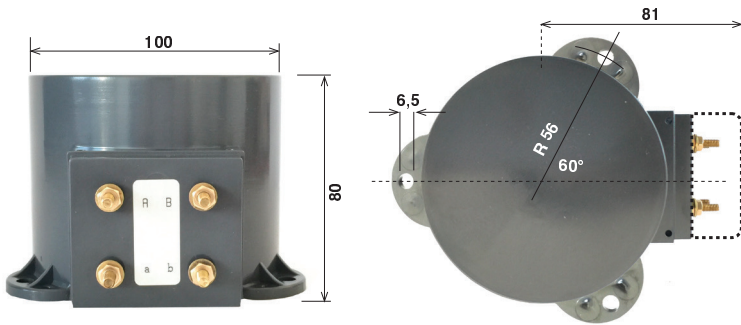
Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V	VA		100V	110V	Kg
100	0,5	6	TV6-100V100V-0.5-6VA	TV6-100V110V-0.5-6VA	2,00
120	0,5	6	TV6-120V100V-0.5-6VA	TV6-120V110V-0.5-6VA	2,00
230	0,5	6	TV6-230V100V-0.5-6VA	TV6-230V110V-0.5-6VA	2,00
380	0,5	6	TV6-380V100V-0.5-6VA	TV6-380V110V-0.5-6VA	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 (... :√3/100V:√3 - ... :√3/110V:√3)



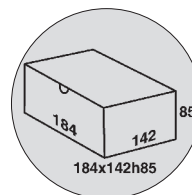
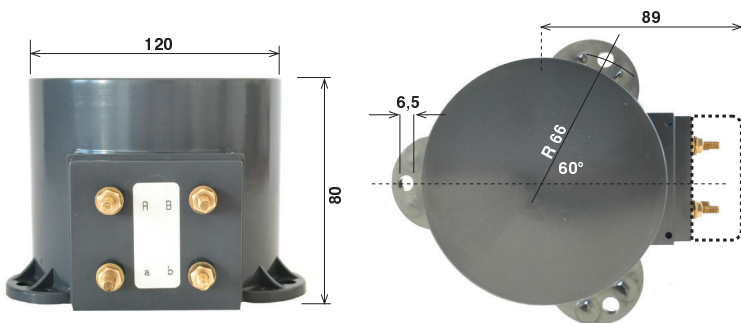
Primary voltage	Class	Power	Secondary voltage	Secondary voltage	Weight
V		VA	100V	110V	Kg
100	0,5	6	TV10-100V100V-0.5-6VA	TV10-100V110V-0.5-6VA	2,50
100	0,5	10	TV10-100V100V-0.5-10VA	TV10-100V110V-0.5-10VA	2,50
120	0,5	6	TV10-120V100V-0.5-6VA	TV10-120V110V-0.5-6VA	2,50
120	0,5	10	TV10-120V100V-0.5-10VA	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:√3	110V:√3	Kg
100:√3	0,5	6	TV10-100R3V100R3-0.5-6VA	TV10-100R3V110R3-0.5-6VA	2,50
100:√3	0,5	10	TV10-100R3V100R3-0.5-10VA	TV10-100R3V110R3-0.5-10VA	2,50
120:√3	0,5	6	TV10-120R3V100R3-0.5-6VA	TV10-120R3V110R3-0.5-6VA	2,50
120:√3	0,5	10	TV10-120R3V100R3-0.5-10VA	TV10-120R3V110R3-0.5-10VA	2,50
230:√3	0,5	6	TV10-230R3V100R3-0.5-6VA	TV10-230R3V110R3-0.5-6VA	2,50
230:√3	0,5	10	TV10-230R3V100R3-0.5-10VA	TV10-230R3V110R3-0.5-10VA	2,50
380:√3	0,5	6	TV10-380R3V100R3-0.5-6VA	TV10-380R3V110R3-0.5-6VA	2,50
380:√3	0,5	10	TV10-380R3V100R3-0.5-10VA	TV10-380R3V110R3-0.5-10VA	2,50
400:√3	0,5	6	TV10-400R3V100R3-0.5-6VA	TV10-400R3V110R3-0.5-6VA	2,50
400:√3	0,5	10	TV10-400R3V100R3-0.5-10VA	TV10-400R3V110R3-0.5-10VA	2,50
500:√3	0,5	6	TV10-500R3V100R3-0.5-6VA	TV10-500R3V110R3-0.5-6VA	2,50
500:√3	0,5	10	TV10-500R3V100R3-0.5-10VA	TV10-500R3V110R3-0.5-10VA	2,50
600:√3	0,5	6	TV10-600R3V100R3-0.5-6VA	TV10-600R3V110R3-0.5-6VA	2,50
600:√3	0,5	10	TV10-600R3V100R3-0.5-10VA	TV10-600R3V110R3-0.5-10VA	2,50
690:√3	0,5	6	TV10-690R3V100R3-0.5-6VA	TV10-690R3V110R3-0.5-6VA	2,50
690:√3	0,5	10	TV10-690R3V100R3-0.5-10VA	TV10-690R3V110R3-0.5-10VA	2,50

## VOLTAGE TRANSFORMER

TV12

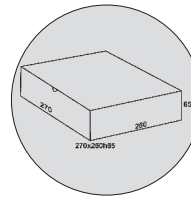
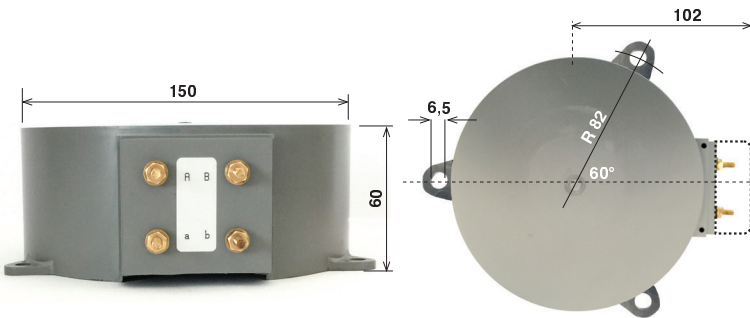
Transformer with external diameter 120mm. Regarding the overvoltage (voltage factor FT) remember that:  
 is 1.2Vn continuous use for all VTs with connection phase-to-phase (... /100V - .../110V)  
 is 1.2Vn continuous use and 1.9x8h for all VTs with connection phase-to-neutral (... :√3/100V:√3 - ... :√3/110V:√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:√3	110V:√3	Kg
100:√3	0,5	15	TV12-100R3V100R3-0.5-15VA	TV12-100R3V110R3-0.5-15VA	2,50
100:√3	0,5	20	TV12-100R3V100R3-0.5-20VA	TV12-100R3V110R3-0.5-20VA	2,50
120:√3	0,5	15	TV12-120R3V100R3-0.5-15VA	TV12-120R3V110R3-0.5-15VA	2,50
120:√3	0,5	20	TV12-120R3V100R3-0.5-20VA	TV12-120R3V110R3-0.5-20VA	2,50
230:√3	0,5	15	TV12-230R3V100R3-0.5-15VA	TV12-230R3V110R3-0.5-15VA	2,50
230:√3	0,5	20	TV12-230R3V100R3-0.5-20VA	TV12-230R3V110R3-0.5-20VA	2,50
380:√3	0,5	6	TV12-380R3V100R3-0.5-15VA	TV12-380R3V110R3-0.5-15VA	2,50
380:√3	0,5	10	TV12-380R3V100R3-0.5-20VA	TV12-380R3V110R3-0.5-20VA	2,50
400:√3	0,5	6	TV12-400R3V100R3-0.5-15VA	TV12-400R3V110R3-0.5-15VA	2,50
400:√3	0,5	10	TV12-400R3V100R3-0.5-20VA	TV12-400R3V110R3-0.5-20VA	2,50
500:√3	0,5	6	TV12-500R3V100R3-0.5-15VA	TV12-500R3V110R3-0.5-15VA	2,50
500:√3	0,5	10	TV12-500R3V100R3-0.5-20VA	TV12-500R3V110R3-0.5-20VA	2,50
600:√3	0,5	6	TV12-600R3V100R3-0.5-15VA	TV12-600R3V110R3-0.5-15VA	2,50
600:√3	0,5	10	TV12-600R3V100R3-0.5-20VA	TV12-600R3V110R3-0.5-20VA	2,50
690:√3	0,5	6	TV12-690R3V100R3-0.5-15VA	TV12-690R3V110R3-0.5-15VA	2,50
690:√3	0,5	10	TV12-690R3V100R3-0.5-20VA	TV12-690R3V110R3-0.5-20VA	2,50

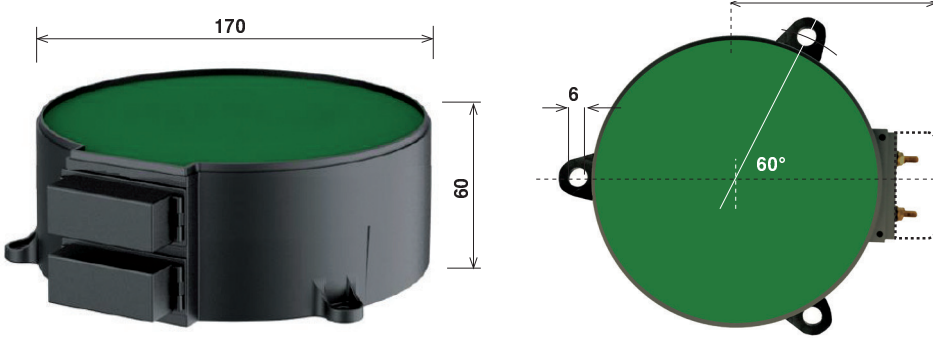
Transformer with external diameter 150mm. Regarding the overvoltage (voltage factor FT) remember that:  
 is 1.2Vn continuous use for all VTs with connection phase-to-phase (... /100V - .../110V)  
 is 1.2Vn continuous use and 1.9x8h for all VTs with connection phase-to-neutral (... :√3/100V:√3 - ...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



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

Transformer with external diameter 170mm. Regarding the overvoltage (voltage factor FT) remember that is 1.2Vn continuous use and 1.9x8h. Powers more than 50 VA can be produced under request.



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

