Pictograms of the table head

Un — Raged voltage (V)

In — Rated current (A)

Pmax — Max. power

Ps — Starting power

Solid, strained, fine wire

mm² — Terminal capacity

H, L, W — Dimensions (L × W × H)

m — Weight

0014 ELECTRO-MECHANICAL — Meter with electromechanical display

LCD — Meter with LCD display

×digit — Display (number of digits)

batt — Power supply

n — Turns ratio

75mV — Shunt

Type of battery, sender

Type of battery, receiver

Width of rail (CT)

Cable diameter (CT)

DIRECT kWh — Direct meter

CT kWh — Meter with current transformer

imp/kWh S0 — Impulse output

Limp — Impulse width

IIN — Starting current

Ib (Imax) — Base current (max. current)

Capacitor groups

°F — Temperature measuring

A — Dimensions of frame

100, 0 — Measuring range

0 10 ha % — Accuracy class

Σ — Number of current transformers

Cutting size (mm)

Pictograms of the technical data

Vibration resistance

Ith 50×In — Rated thermal current

Fs 5 — Security factor

AUX 1×CO — Auxiliary contacts

MKEH -MH — Certified current transformer

rel % max. 95 — Relativ humidity

Utest 1min 4 kV — Impulse voltage withstand

IP 52 — Protection degree (installed, from the front side)

Idin 2,5×Ith — Rated dynamic current

000000 99999,9 — Display of elapsed hour counter

Changeable scale

Pm 4,5 VA — Self consumption

Ui 720 V — Rated insulation voltage

1h 1,2×Un Un — Continuous overload

Optical signal

imp out [mm²] 1,5-2,5 — Impulse output

Cam switch

1s 2×Un Un — Momentary overload

20 40 0 lin — Lineral scale

Not changeable scale

1h 1,2×In In — Continuous overload

AC V test — AC voltage measuring

low batt — Low battery display

+ VS − — Polarity display

1s 4×In In — Momentary overload

test — Diode test

BATTERY test — Battery test

60 100 20 log — Logarithmic scale

AC A test — AC current measuring

230/400 V AC — Raged voltage (V)

hFE test — Measuring of amplification factor of transistor

Seal-leadable

DC V test — DC voltage measuring

Ta -15..+50°C — Ambient temperature

35×7.5 — Can be install on mounting rail

DC A test — DC current measuring

Ω test — Resistance measuring

[mm²] 1-2,5 — Connectable cable

Ts -30..+65 °C — Storage temperature

°C/°F test — Temperature measuring

To 0-40 °C — Operation temperature

IP 20 — Protection of terminals (with protection cap)

ABS — Material: ABS

V1 UL94 — Flammability according to UL94

IP 20 — Protection degree

G — Impulse generator

NCV — Voltage detection without contact


AC voltage meters 2


Direct DC current meters 3


Indirect AC current meters with changeable dial plate 4

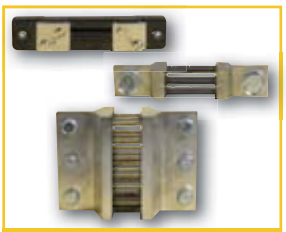

Indirect DC current meters with changeable dial plate 5


Power meters 6


Frequency meters 7


Power factor (cos φ) meters 7


Operating time counters 8


TSF shunt product family 8


Analogue voltage meters 9


Analogue ampere-meters for indirect measurement, DC 9


Analogue frequency meters 10


Power factor meters 10


Digital measuring instruments 10


Analogue power meters 11


Direct digital ammeter 12


Digital power factor meter 14


Digital multimeter 15


Power analyzer 17


Energy meters 18


Plug-in digital energy meter 20


Phase correctors 21


Low voltage current transformers 26


Calibrated current transformer 28


Digital multimeter 30


Digital clamp meter for EM420A device 31


Digital clamp meter 32


Metal searching device 33


Infrared thermometer 33


Pocket digital multimeter with search light 33


Voltage tester screwdriver 34


Voltage tester 34


Induction controlling instrument 34

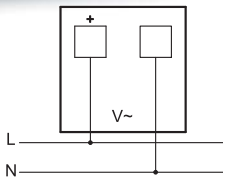

Voltage monitoring instrument 34

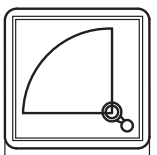

Motor vehicle testing lamp 35

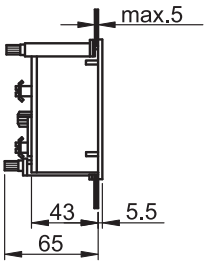
L

AC voltage meters

ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | Ta -25..+55°C | 100 60 20 log | 1h 1,5×Un Un | 1s 2×Un Un | V AC







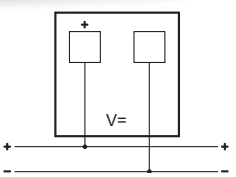
TRACON	□A	0-100	ha % 0-10	
ACVM96-30	96 × 96 mm	0-30 V	1,5 %	90 mm
ACVM96-120	96 × 96 mm	0-120 V	1,5 %	90 mm
ACVM96-250	96 × 96 mm	0-250 V	1,5 %	90 mm
ACVM96-450	96 × 96 mm	0-500 V	1,5 %	90 mm
ACVM96-600	96 × 96 mm	0-600 V	1,5 %	90 mm
ACVM72-30	72 × 72 mm	0-30 V	1,5 %	66 mm
ACVM72-120	72 × 72 mm	0-120 V	1,5 %	66 mm
ACVM72-250	72 × 72 mm	0-250 V	1,5 %	66 mm
ACVM72-450	72 × 72 mm	0-500 V	1,5 %	66 mm
ACVM72-600	72 × 72 mm	0-600 V	1,5 %	66 mm
ACVM48-30	48 × 48 mm	0-30 V	1,5 %	42 mm
ACVM48-120	48 × 48 mm	0-120 V	1,5 %	42 mm
ACVM48-250	48 × 48 mm	0-250 V	1,5 %	42 mm
ACVM48-450	48 × 48 mm	0-500 V	1,5 %	42 mm
ACVM48-600	48 × 48 mm	0-600 V	1,5 %	42 mm

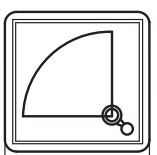
RELEVANT STANDARD
EN 60051

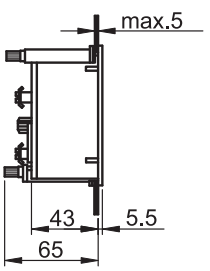
RELEVANT STANDARD
EN 61010

DC voltage meters

ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | Ta -25..+55°C | 40 20 0 lin | 1h 1,2×Un Un | 1s 2×Un Un | V DC







TRACON	□A	0-100	ha % 0-10	
DCVM96-30	96 × 96 mm	0-30 V	1,5 %	90 mm
DCVM96-120	96 × 96 mm	0-120 V	1,5 %	90 mm
DCVM96-250	96 × 96 mm	0-250 V	1,5 %	90 mm
DCVM96-400	96 × 96 mm	0-400 V	1,5 %	90 mm
DCVM96-600	96 × 96 mm	0-600 V	1,5 %	90 mm
DCVM72-30	72 × 72 mm	0-30 V	1,5 %	66 mm
DCVM72-120	72 × 72 mm	0-120 V	1,5 %	66 mm
DCVM72-250	72 × 72 mm	0-250 V	1,5 %	66 mm
DCVM72-400	72 × 72 mm	0-400 V	1,5 %	66 mm
DCVM72-600	72 × 72 mm	0-600 V	1,5 %	66 mm
DCVM48-30	48 × 48 mm	0-30 V	1,5 %	42 mm
DCVM48-120	48 × 48 mm	0-120 V	1,5 %	42 mm
DCVM48-250	48 × 48 mm	0-250 V	1,5 %	42 mm
DCVM48-400	48 × 48 mm	0-400 V	1,5 %	42 mm
DCVM48-600	48 × 48 mm	0-600 V	1,5 %	42 mm

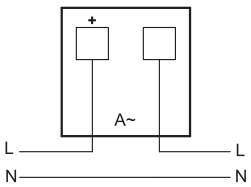
RELEVANT STANDARD
EN 60051

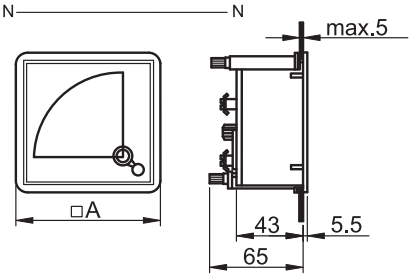
Pictograms **L/0**

Direct AC current meters

ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | -25..+55°C | 1,2×In | 4×In | A AC

TRACON				
ACAM96-5	96 × 96 mm	0-5 A	1,5 %	90 mm
ACAM96-10	96 × 96 mm	0-10 A	1,5 %	90 mm
ACAM96-30	96 × 96 mm	0-30 A	1,5 %	90 mm
ACAM96-50	96 × 96 mm	0-50 A	1,5 %	90 mm
ACAM96-75	96 × 96 mm	0-75 A	1,5 %	90 mm
ACAM96-105	96 × 96 mm	0-100 A	1,5 %	90 mm
ACAM72-5	72 × 72 mm	0-5 A	1,5 %	66 mm
ACAM72-10	72 × 72 mm	0-10 A	1,5 %	66 mm
ACAM72-30	72 × 72 mm	0-30 A	1,5 %	66 mm
ACAM72-50	72 × 72 mm	0-50 A	1,5 %	66 mm
ACAM72-75	72 × 72 mm	0-75 A	1,5 %	66 mm
ACAM48-5	48 × 48 mm	0-5 A	1,5 %	42 mm





RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

These meters are eligible to measure the TRMS of the alternate current in 0-100 A current range without any other accessories. The measuring unit is an iron pointer. On the logarithmic scale the maximal elongation means twice as much as the metering range.

Direct DC current meters

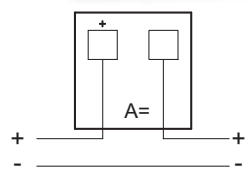
ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | -25..+55°C | 1,2×In | 4×In | A DC

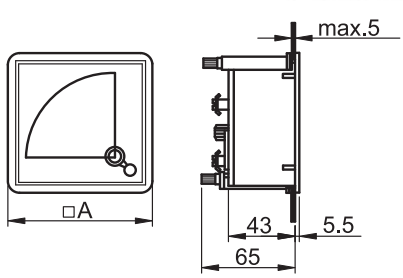
DC milliampere meters

TRACON				
DCAM96-0,02	96 × 96 mm	0-20 mA	1,5 %	90 mm
DCAM72-0,02	72 × 72 mm	0-20 mA	1,5 %	66 mm
DCAM48-0,02	48 × 48 mm	0-20 mA	1,5 %	42 mm

DC ampere meters

TRACON				
DCAM96-5	96 × 96 mm	0-5 A	1,5 %	90 mm
DCAM96-20	96 × 96 mm	0-20 A	1,5 %	90 mm
DCAM72-5	72 × 72 mm	0-5 A	1,5 %	66 mm
DCAM72-20	72 × 72 mm	0-20 A	1,5 %	66 mm
DCAM48-5	48 × 48 mm	0-5 A	1,5 %	42 mm
DCAM48-20	48 × 48 mm	0-20 A	1,5 %	42 mm



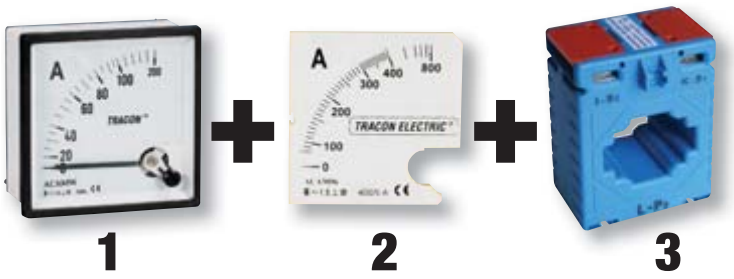


RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

Direct AC current meters with changeable dial plate

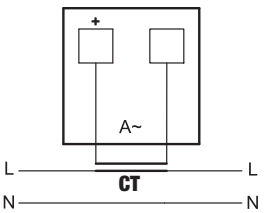
These meters are eligible to measure directly the current values of high current electric circuits. Suitable current transformers (CT) are used for extension of the measuring range. The basic instrument will be connected to the 5 A secondary coil of the CT. Changeable dial plates with 0 … X metering range can be ordered according to the table below.



(1) Basic AC instruments

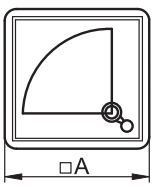
ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | Ta -25..+55°C | 60 100 =20 log | 1h In 1,2×In | 1s In 4×In | A AC

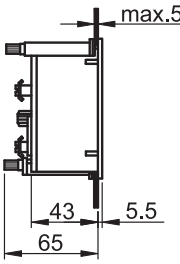
TRACON	□A	0 100	0 10 ha %	
ACAM96-5	96 × 96 mm	0-5 A	1,5 %	90 mm
ACAM72-5	72 × 72 mm	0-5 A	1,5 %	66 mm
ACAM48-5	48 × 48 mm	0-5 A	1,5 %	42 mm



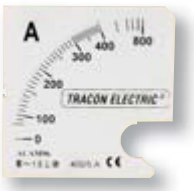
RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010





(2) Dial plates for ACAM... current meters



TRACON	□A	0 100
SCALE-AC96-X/5A	96 × 96 mm	0-X (A)
SCALE-AC72-X/5A	72 × 72 mm	0-X (A)
SCALE-AC48-X/5A	48 × 48 mm	0-X (A)

Please indicate the X value when ordering according to the desired measuring range.

(3) Harmonization table for current transformers and dial plates for indirect current metering

L/26

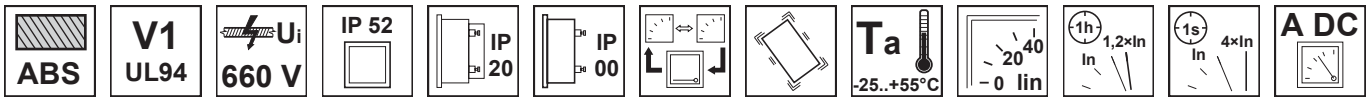
n	0 100 **0-X**	n	0 100 **0-X**	n	0 100 **0-X**	n	0 100 **0-X**
30/5	0-30 A	120/5	0-120 A	400/5	0-400 A	1500/5	0-1500 A
40/5	0-40 A	125/5	0-125 A	500/5	0-500 A	2000/5	0-2000 A
50/5	0-50 A	150/5	0-150 A	600/5	0-600 A	2500/5	0-2500 A
60/5	0-60 A	200/5	0-200 A	750/5	0-750 A	3000/5	0-3000 A
75/5	0-75 A	250/5	0-250 A	800/5	0-800 A	4000/5	0-4000 A
80/5	0-80 A	300/5	0-300 A	1000/5	0-1000 A	5000/5	0-5000 A
100/5	0-100 A						

Please remark the X value at ordering according to the wanted measuring range!

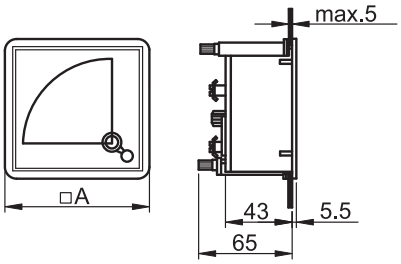
Direct DC current meters with changeable dial plate

These meters are eligible to measure directly the current values of high current electric circuits. The extension of the metering range happens with shunt; the basic meter with 0 ... 75 mV voltage range has to be connected to the measuring contact of the shunt. For basic DC current meter a changeable dial plate can be ordered with 0-X metering range, according to the following table.

(1) DC basic meters

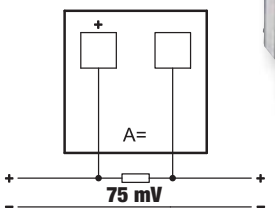


TRACON				
DCVM-96B	96 × 96 mm	0-75 mV	1,5 %	90 mm
DCVM-72B	72 × 72 mm	0-75 mV	1,5 %	66 mm
DCVM-48B	48 × 48 mm	0-75 mV	1,5 %	42 mm



RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010



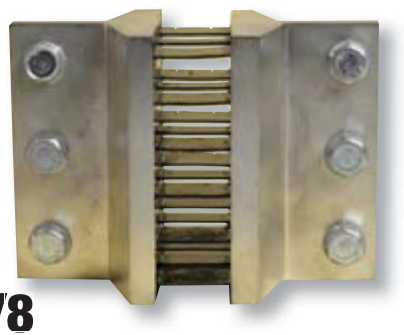
(2) Dial plates for DC current metering

TRACON		
SCALE-DC96-X/75mV	96 × 96 mm	0-X (A)
SCALE-DC72-X/75mV	72 × 72 mm	0-X (A)
SCALE-DC48-X/75mV	48 × 48 mm	0-X (A)

Please remark the X value at ordering according to the wanted measuring range!

(3) Harmonization table for shunts and dial plates for indirect current metering

75mV	0-X	75mV	0-X	75mV	0-X	75mV	0-X
TSF-30	0-30 A	**TSF-100**	0-100 A	**TSF-400**	0-400 A	**TSF-1000**	0-1000 A
TSF-40	0-40 A	**TSF-150**	0-150 A	**TSF-500**	0-500 A	**TSF-1500**	0-1500 A
TSF-50	0-50 A	**TSF-200**	0-200 A	**TSF-600**	0-600 A	**TSF-2000**	0-2000 A
TSF-75	0-75 A	**TSF-300**	0-300 A	**TSF-750**	0-750 A	**TSF-3000**	0-3000 A

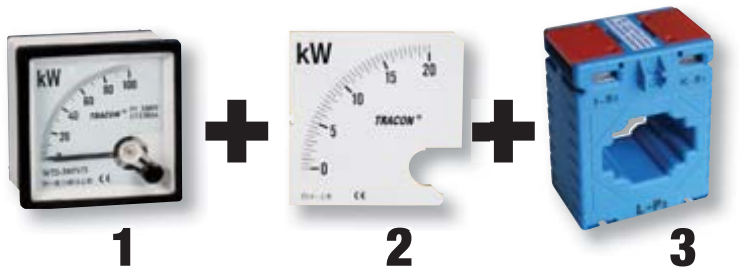


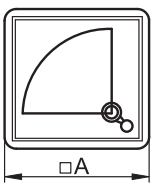
L/8

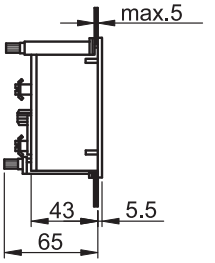
Please indicate the X value when ordering according to the desired measuring range.

Power meters

These power meters measure the active power of single or three phases loads. The metering range of the devices is determined according to the primary current (X) of the applied CT-s with 5 A secondary current. In panel meters of 96×96 mm frame size, the basic instrument and the plastic casing (box) of the measuring electronics are placed in the same unit, whereas with the meters of 72×72 mm frame size, the measuring electronics and the basic instrument are delivered separately and should be placed and wired separately in the control box as well. Dial plates can be done according to the table below.







(1) Power meters

TRACON	□A	100	Un	In	0 10 ha %		Σ	L1 L2 L3 PEN 3~
W96-400V/4	96 × 96 mm	0-100	400 V~	X/5 A	1,5 %	90 mm	× 3	L1, L2, L3, N
W72-400V/4	72 × 72 mm	0-100	400 V~	X/5 A	1,5 %	66 mm	× 3	L1, L2, L3, N

(2) Dial plates for power meters

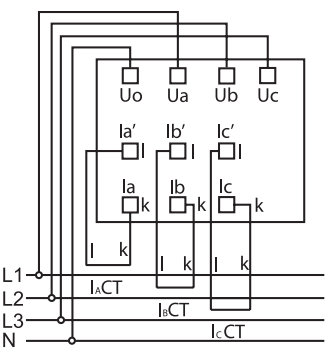
TRACON L1, L2, L3, N	□A	100
SCALE-W96/4-P	96 × 96 mm	0-P (kW)
SCALE-W72/4-P	72 × 72 mm	0-P (kW)

Please always indicate the X and P data when ordering.

(3) Harmonization table for current transformers and dial plates for single or three phase power metering

n	100 3~	n	100 3~	n	100 3~
30/5	24 kW	125/5	100 kW	750/5	600 kW
40/5	32 kW	150/5	120 kW	800/5	640 kW
50/5	40 kW	200/5	160 kW	1000/5	800 kW
60/5	48 kW	250/5	200 kW	1500/5	1200 kW
75/5	60 kW	300/5	240 kW	2000/5	1600 kW
80/5	64 kW	400/5	320 kW	2500/5	2000 kW
100/5	80 kW	500/5	400 kW	4000/5	3200 kW
120/5	96 kW	600/5	480 kW	5000/5	4000 kW

L/26



Legend

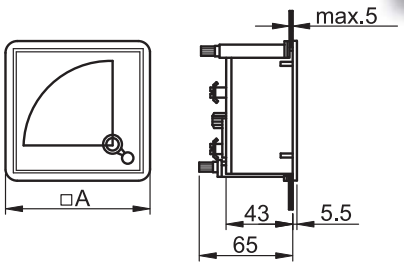
CT = current transformer
k,l = secondary terminals of CT

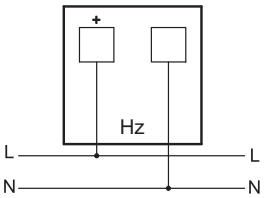
Frequency meters

ABS | V1 UL94 | Ui 660 V | IP 52 | IP 20 | IP 00 | Ta -25..+55°C | 20 40 0 lin | 1h 1,2×Un Un | 1s 2×Un Un | Hz

TRACON	□A	0 100	0 10 ha %	
F96-220/50	96 × 96 mm	45-55 (230 V)	1,5 %	90 mm
F72-220/50	72 × 72 mm	45-55 (230 V)	1,5 %	66 mm
F48-220/50	48 × 48 mm	45-65 (230 V)	2,5 %	42 mm

Used to measure the frequency of low voltage networks, in the 45 … 55 Hz range. Voltage has to be connected to the terminals of the device; the instrument displays the value of the frequency by help of a transformer enclosed within the unit.





RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

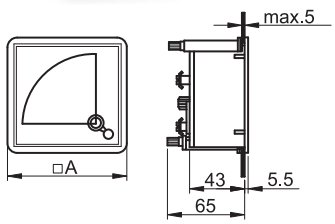
Power factor (cos φ) meters

ABS | V1 UL94 | Ui 660 V | IP 52 | IP 00 | Ta -25..+55°C | 60 100 = 20 log | 1h 1,2×In In | 1h 1,2×Un Un | 1s 4×In In | 1s 2×Un Un | COSφ

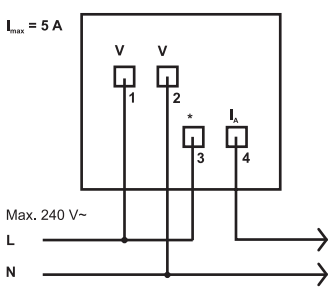
TRACON	□A	0 100	Un	In	0 10 ha %	
CF96-0,5/1	96 × 96 mm	0,5 cap-1-0,5 ind	240 V~	X/5 A	1,5 %	90 mm
CF72-0,5/1	72 × 72 mm	0,5 cap-1-0,5 ind	240 V~	X/5 A	1,5 %	66 mm
CF96-0,5/3	96 × 96 mm	0,5 cap-1-0,5 ind	400 V~	X/5 A	2,5 %	90 mm
CF72-0,5/3	72 × 72 mm	0,5 cap-1-0,5 ind	400 V~	X/5 A	2,5 %	66 mm

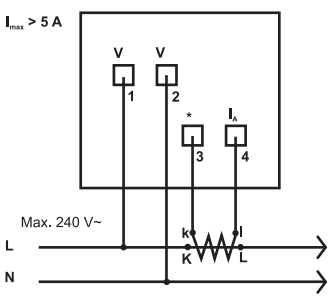
These devices are measuring the power factor of single or three phases systems in 0,5 capacitive – 0,5 inductive range. If the current is higher than 5 A, a secondary current transformer of 5 A shall be used. According to capacitive or inductive load of the system, the pointer moves to the left (capacitive) or to the right (inductive) side on the symmetrical scale. The metering changer is installed in the housing.

Art of load
Lead = capacitive,
Lag = inductive

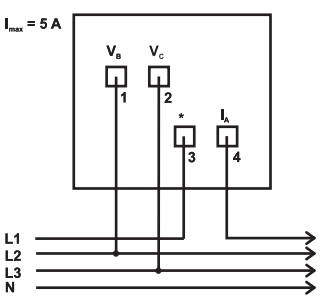


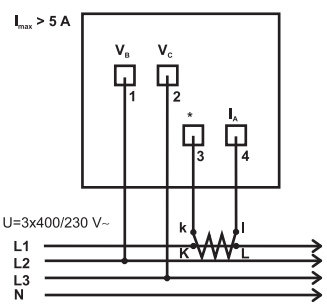
Wiring diagram for one phase system





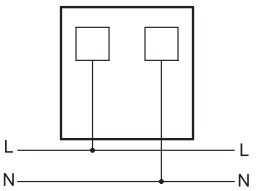
Wiring diagram for three phases system





Operating time counters

ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | IP 00 | Ta -25..+55°C | 0014 analog | 000000 99999,9 | Pictograms L/0



TRACON		
ISZ72-24	72 × 72 mm	66 mm
ISZ72-230	72 × 72 mm	66 mm
ISZ96-24	96 × 96 mm	90 mm
ISZ96-230	96 × 96 mm	90 mm

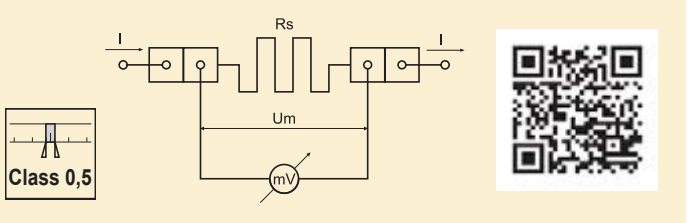
Displayed counting values cannot be reset!

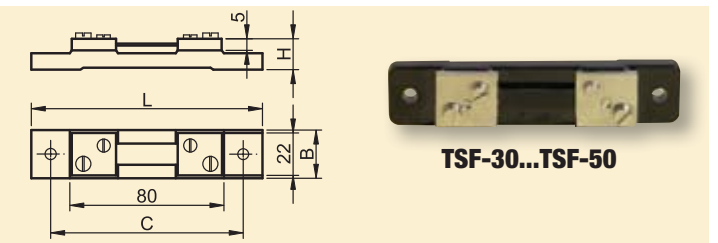
Shunts

TRACON		L (mm)	C (mm)	B (mm)	H (mm)	M (mm)
TSF-30	30A/75mV	120	102	25	15	-
TSF-40	40A/75mV	120	102	25	15	-
TSF-50	50A/75mV	120	102	25	15	-
TSF-75	75A/75mV	110	86	23	10	M8 × 35
TSF-100	100A/75mV	106	86	23	10	M8 × 35
TSF-150	150A/75mV	116	86	21	22	M8 × 35
TSF-200	200A/75mV	116	86	21	22	M8 × 35
TSF-300	300A/75mV	127	100	26	22	M10 × 35

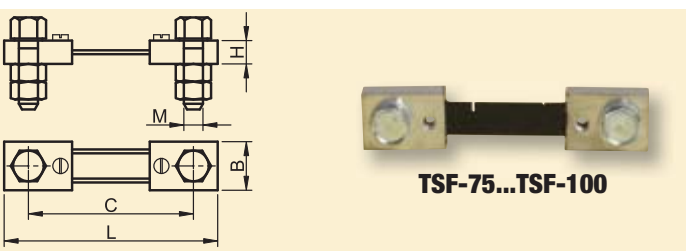
TRACON		L (mm)	C (mm)	B (mm)	H (mm)	M (mm)
TSF-400	400A/75mV	126	100	35	22	M10 × 35
TSF-500	500A/75mV	126	100	43	22	M10 × 35
TSF-600	600A/75mV	126	100	50	22	M10 × 35
TSF-750	750A/75mV	126	102	74	22	M10 × 35
TSF-1000	1000A/75mV	126	102	94	22	M12 × 60
TSF-1500	1500A/75mV	200	164	90	96	M12 × 60
TSF-2000	2000A/75mV	194	160	90	96	M12 × 60
TSF-3000	3000A/75mV	198	160	142	96	M12 × 60

The voltage drop between the two connectors of the shunt - induced by the current, flowing through the shunt - is proportional to the resistance of the shunt. Therefore, the intensity of the current flowing through the circuit can be determined in function of the voltage measured between the end-points of the shunt with known resistance value. The diagram illustrates the process of voltage drop (Um) in the shunt (Rs), measured with the instrument (mV). The current intensity value can be read directly on the dial scale in Ampere units.
The voltage drop between the measuring points of the available direct current shunts (TSF) is limited to max. 75 mV. Therefore, the measurement vaues of the attached basic instruments are also limited to 75 mV.

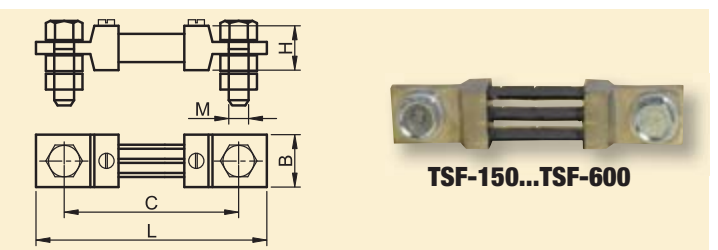




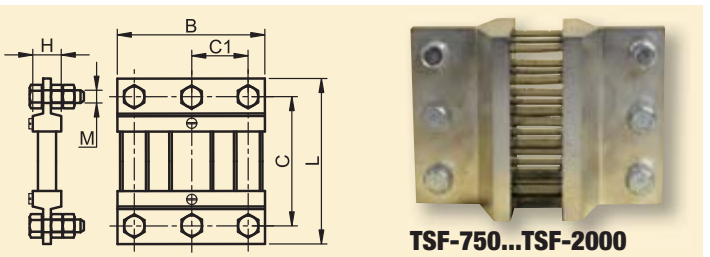
TSF-30...TSF-50



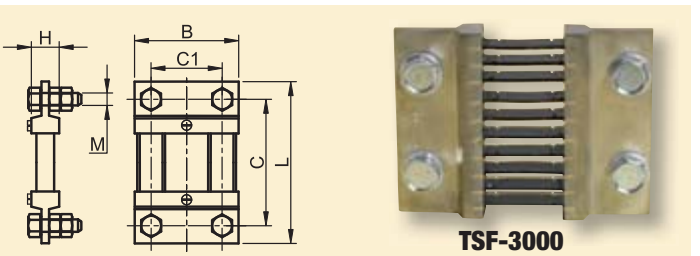
TSF-75...TSF-100



TSF-150...TSF-600



TSF-750...TSF-2000



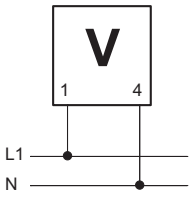
TSF-3000

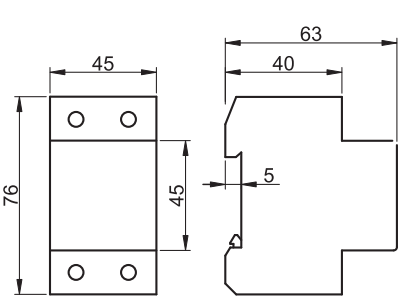
Analogue voltage meters

ABS | V1 UL94 | Ui 500 V | IP 40 | 35×7.5 | Ta +5..+40 °C

Pictograms L/0

TRACON			
ACVMS-25	V AC	0-25 V	1,5 %
ACVMS-100		0-100 V	1,5 %
ACVMS-450		0-450 V	1,5 %
DCVMS-100	V DC	0-100 V	1,5 %
DCVMS-250		0-250 V	1,5 %





RELEVANT STANDARD EN 60051

RELEVANT STANDARD EN 61010

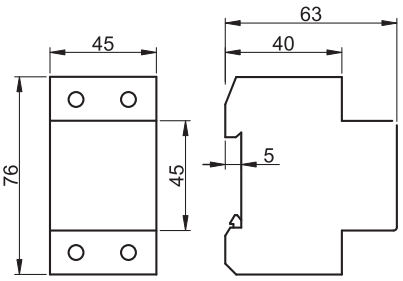
Analogue ampere-meters for direct measurement

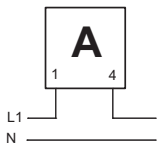
ABS | V1 UL94 | Ui 500 V | IP 40 | 35×7.5 | Ta +5..+40 °C

Pictograms L/0

TRACON			
ACAMS-5	A AC	0-5 A	1,5 %
DCAMS-20m*	V DC	0-20 mA	1,5 %
DCAMS-10		0-10 A	1,5 %

* The miliamper meters for direct current can be used to measure current values of electronic actuating and control circuits. For instrument, specific scales are also available after consulting our staff. In this way, the meter will be suitable to measure physical values after transforming it to electric values (e.g. temperature, rev).





Analogue ampere-meters for indirect measurement, DC

ABS | V1 UL94 | Ui 500 V | IP 40 | 35×7.5 | 20 40 0 lin | Ta +5..+40 °C

Pictograms L/0

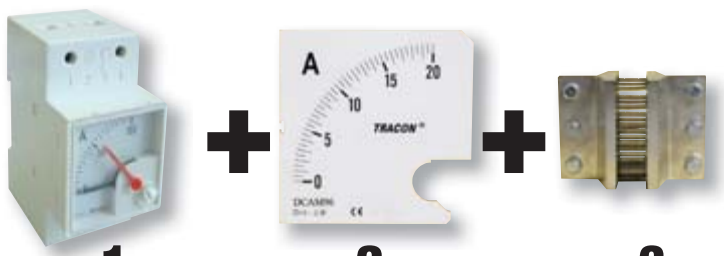
(1) DC basic meters

TRACON		
DCVMS-X/75	0-X A	1,5 %

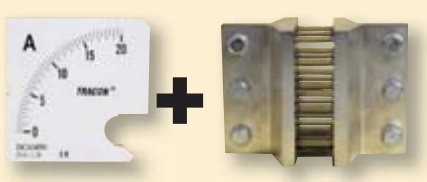
(2) Dial plates for DC current metering

TRACON	
SCALE-45 DC-X*	0-X (A)

* Please indicate the X value when ordering according to the desired measuring range.



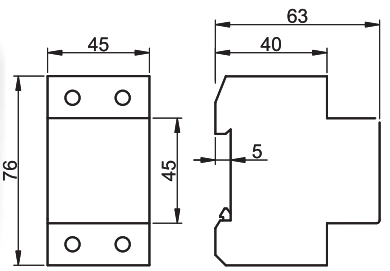
(3)



L/5

Analogue frequency meters

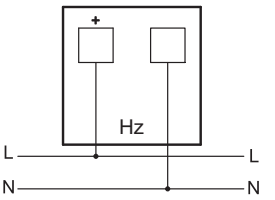
Pictograms L/0



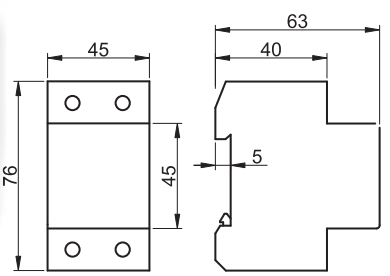
TRACON		
F45S-230/50	45-55Hz	1,0 %

RELEVANT STANDARD
EN 60051

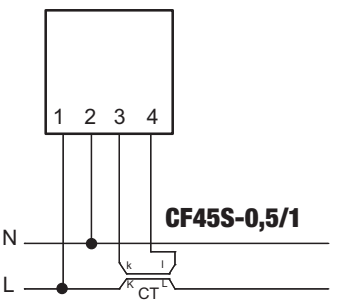
RELEVANT STANDARD
EN 61010

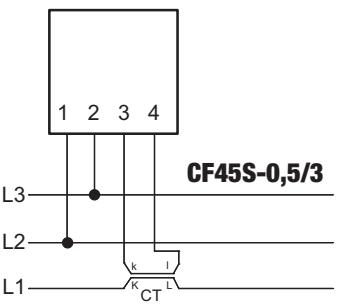


Power factor meters

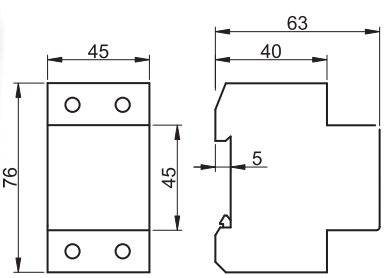


TRACON		
CF45S-0,5/1	5A/230V 1f ±0,5	2,5 %
CF45S-0,5/3	5A/400V 3f ±0,5	2,5 %

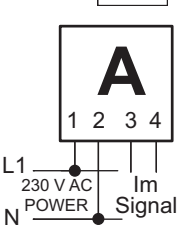


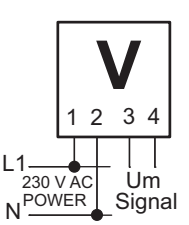


Digital measuring instruments



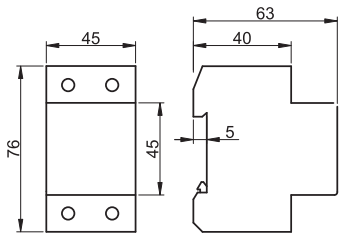
TRACON			×digit	
ACAMSD-10	A AC	0-10 A	×3	1,5 %
ACVMSD-500	V AC	0-500 V	×3	1,5 %

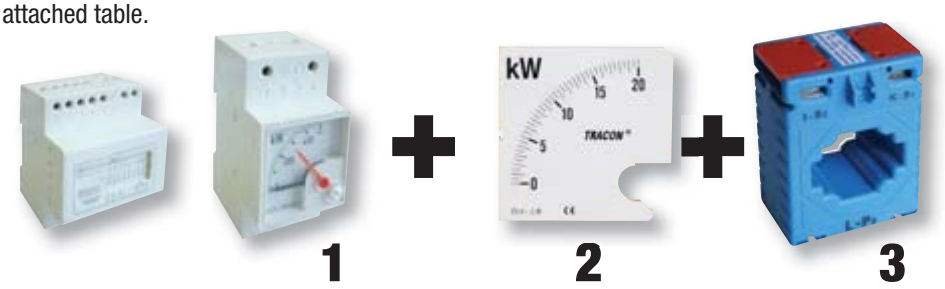




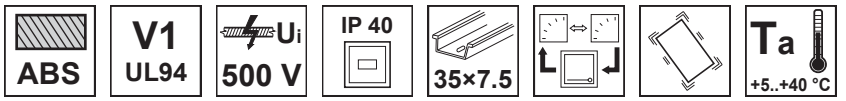
Modular analogue power meters

These devices are metering the effective power of one or three phase systems. The metering range is determined by the primary voltage (X) of current transformers with 5 A secondary current. The actuating electronic is delivered independently from device and it have to be placed in the controlling box independently as well.
Scales can be ordered for the meters according to the attached table.





(1) Power meters



Pictograms L/0

TRACON		Un	In			
W45S-230/1	0-100	240 V~	X/5 A	1,5 %	×1	L1
W45S-400/4	0-100	400 V~	X/5 A	1,5 %	×3	L1, L2, L3, N

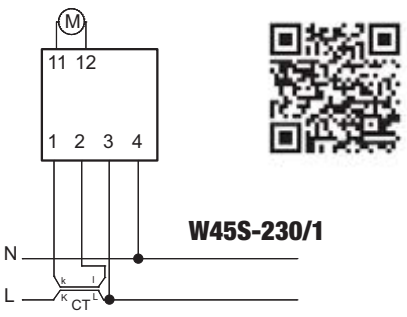
(2) Dial plates for power meters

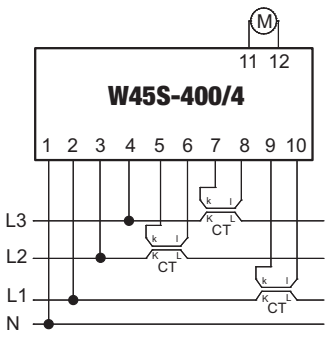
TRACON			
L1	**L1, L2, L3, N**		
SCALE-45 W/1-X	**SCALE-45 W/4-X**	0-P (kW)	1,5 %

Please always indicate the X and P data when ordering.

(3) Harmonization table for current transformers and dial plates for single or three phase power metering

n	1~	3~	n	1~	3~	n	1~	3~	n	1~	3~
30/5	7,5 kW	15 kW	120/5	30 kW	60 kW	400/5	100 kW	200 kW	1500/5	375 kW	750 kW
40/5	10 kW	20 kW	125/5	31,25 kW	62,5 kW	500/5	125 kW	250 kW	2000/5	500 kW	1000 kW
50/5	12,5 kW	25 kW	150/5	37,5 kW	75 kW	600/5	150 kW	300 kW	2500/5	625 kW	1250 kW
60/5	15 kW	30 kW	200/5	50 kW	100 kW	750/5	187,5 kW	375 kW	3000/5	750 kW	1500 kW
75/5	18,75 kW	37,5 kW	250/5	62,5 kW	125 kW	800/5	200 kW	400 kW	4000/5	1000 kW	2000 kW
80/5	20 kW	40 kW	300/5	75 kW	150 kW	1000/5	250 kW	500 kW	5000/5	1250 kW	2500 kW





SCAN THE QR CODE!

- Check our new products
- Be updated

Our range of products is continuously and quickly expanding. Our catalogue shows our products as of October 2017. Check our website to stay up-to-date.

Direct digital ammeter

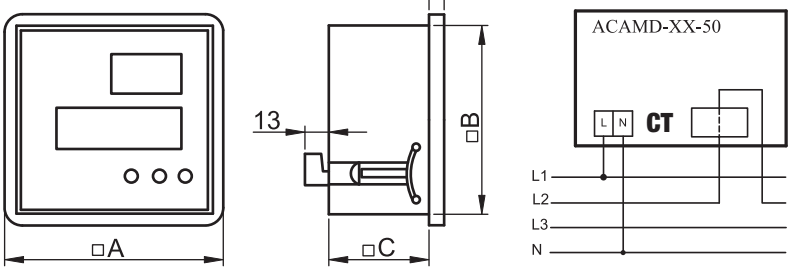
230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | A AC | Pictograms L/0

TRACON	□A	×digit	0-100	0-10 ha %		C (mm)	D (mm)	m
ACAMD-96-50	96 × 96 mm	×3	0-50 A AC	± 0,1 %	91 mm	67	8	445 g
ACAMD-72-50	72 × 72 mm	×3	0-50 A AC	± 0,1 %	68 mm	70	6	245 g

This device is able to directly measure current up to 50 A without any extra accessories. The pluggable terminals for power supply and metering are on the back side of the device. The output for current metering is one low-current transformer with 50/5A ratio also located at the back side of the device; the phase wire has to pass trough the CT. The meters are operating fully automatically and a three digit display gives information from the measured value.

RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010



Digital ammeter with adjustable CT transfer ratio (with relay output)

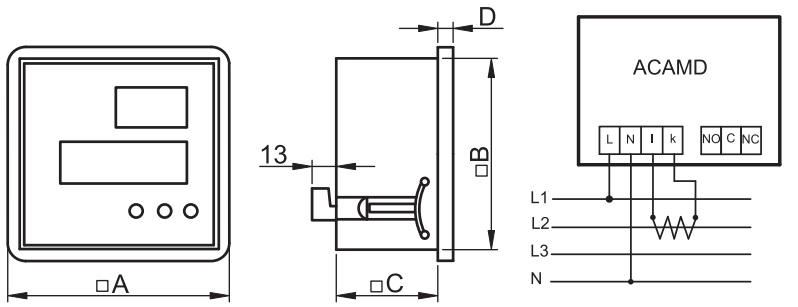
230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | AUX 1×CO | [mm²] 1-2,5 | A AC

TRACON	□A	×digit	0-100	0-10 ha %		C (mm)	D (mm)	m
ACAMD-96	96×96 mm	×4	0-9500 A AC	± 2 %	91 mm	67	8	305 g
ACAMD-72	72×72 mm	×4	0-9500 A AC	± 2 %	68 mm	70	6	250 g
ACAMD-P-96*	96×96 mm	×4	0-9500 A AC	± 2 %	91 mm	67	8	320 g
ACAMD-P-72*	72×72 mm	×4	0-9500 A AC	± 2 %	68 mm	70	6	265 g

* Programmable relay output

L/26

These meters are able to measure the effective value of alternate current, the CT-s transfer ratio is adjustable from 5/5 A to 10000/5 A. The device is programmable by front panel buttons. The microprocessor based programming enables the user to check the adjusted CT ratio, and define the critical current level for over-current alert via relay output. The ACAMD type meter is a version of ACAMD-P type without relay
output.



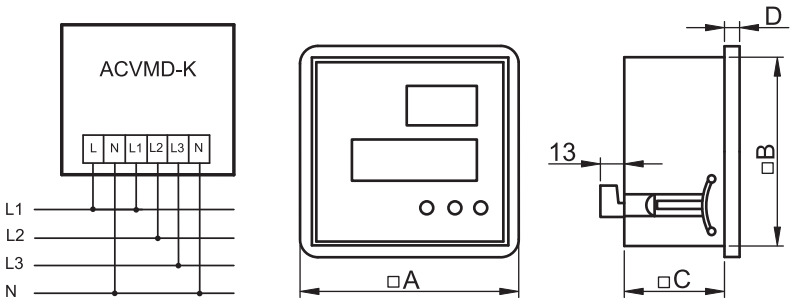
Digital voltmeter (with phase-selection)

230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | [mm²] 1-2,5 | V AC

TRACON	□A	×digit	Un	0-100	ha %		C (mm)	D (mm)	m
ACVMD-96-500	96 × 96 mm	×3	240 V~	0-500 V AC	± 1 %	91 mm	67	8	300 g
ACVMD-72-500	72 × 72 mm	×3	240 V~	0-500 V AC	± 1 %	68 mm	70	6	240 g
ACVMD-K-96-500*	96 × 96 mm	×3	400 V~	0-500 V AC	± 1 %	91 mm	67	8	305 g
ACVMD-K-72-500*	72 × 72 mm	×3	400 V~	0-500 V AC	± 1 %	68 mm	70	6	245 g

* The needed phase can be selected with a pushbutton on the device's front panel.

The device is suitable to measure the effective value of alternate voltage. The ACVMD-K-…-500 voltmeter is able to measure the effective value of three phase voltage; the result can be displayed to the user when desired. The power supply, the phase and the neutral wires can be mounted via plug-in terminals on the back of device. A three digit display gives information about the measured value.



RELEVANT STANDARD
EN 60051

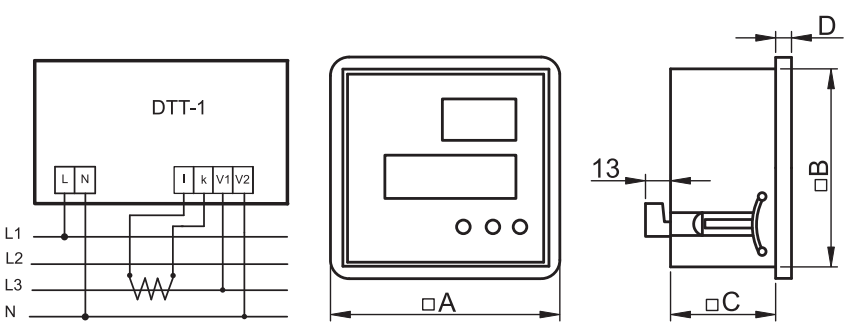
RELEVANT STANDARD
EN 61010

Digital ammeter and voltmeter with adjustable CT ratio

230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | [mm²] 1-2,5 | A AC | V AC

TRACON	□A	×digit	0-100	0-100	ha %		C (mm)	D (mm)	m
DTT-1-96	96×96 mm	×3/4	0-500 V AC	0-9500 A AC	± 1 %	91 mm	67	8	325 g
DTT-1-72	72×72 mm	×3/4	0-500 V AC	0-9500 A AC	± 1 %	68 mm	70	6	245 g

this microcontroller based device measures the connected line's current and voltage values. The current transformer (CT) ratio is adjustable from 5/5 A to 9500/5 A. The device measures the true effective (TRMS) values; the CT ratio is adjustable by front panel pushbuttons.
The pluggable terminals for power supply and metering are on the back side of the device. The voltage value is readable from the 3-digit display and the current value from the 4-digit LED one.



L/26

Digital frequency meter

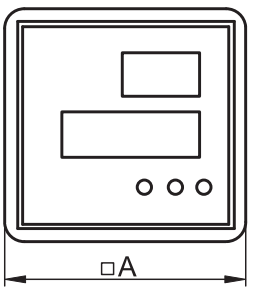
230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | [mm²] 1-2,5 | Hz

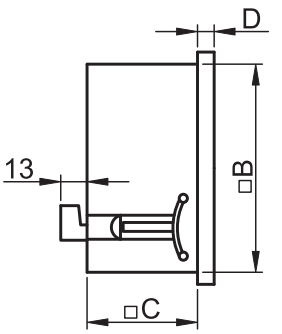
TRACON	A	×digit	0–100	ha % 0–10		C (mm)	D (mm)	m
FD-96	96 × 96 mm	×3	45-75 Hz	± 1 %	91 mm	67	8	445 g
FD-72	72 × 72 mm	×3	45-75 Hz	± 1 %	68 mm	70	6	245 g

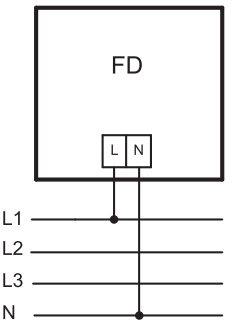
This sensitive and accurate microprocessor controlled meter is designed for metering the electric line's frequency. The measured value is readable from a 3 digits LED display. The pluggable terminals for power are on the back side of device.

RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010







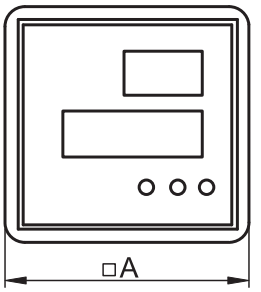
Digital power factor meter

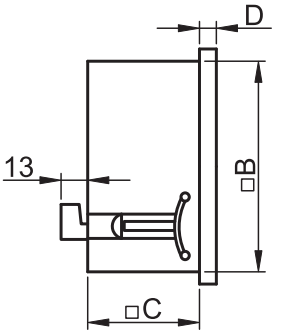
230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | [mm²] 1-2,5 | cosφ

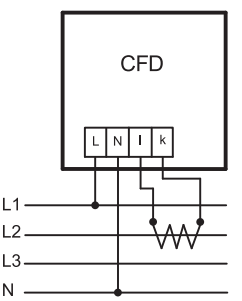
TRACON	A	×digit	0–100	ha % 0–10		C (mm)	D (mm)	m
CFD-96	96×96 mm	×3	0,1-0,99	± 1 %	91 mm	67	8	305 g
CFD-72	72×72 mm	×3	0,1-0,99	± 1 %	68 mm	70	6	250 g

This is a smart microprocessor-controlled instrument used for measuring power factors in single- and three-phase lines. The measured value is readable from a 3 digits LED display. The pluggable terminals for power are on the back side of device. Front panels LED-s are giving information about power factor's status.

L/26







Digital multimeter

230 V AC | ABS | V1 UL94 | Ui 660 V | IP 40 | IP 20 | (0,8-1,2)×Un | Ta -25..+65°C | AUX 1×CO | [mm²] 1-2,5 | V AC | A AC | Hz

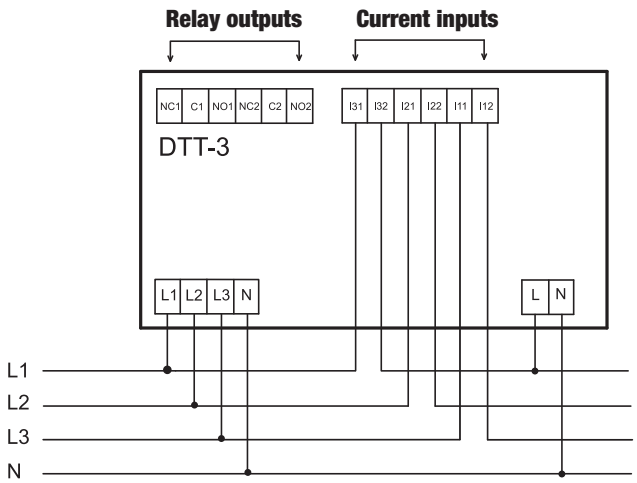
TRACON	A	×digit	L-N	L-L	A	Hz	ha %		m
DTT-2	96 × 96 mm	×4	0-300 V AC	0-500 V AC	0-9500 A AC	40-99,9 Hz	± 1 %	92 mm	470 g
DTT-3*	96 × 96 mm	×4	0-300 V AC	0-500 V AC	0-9500 A AC	40-99,9 Hz	± 1 %	92 mm	515 g

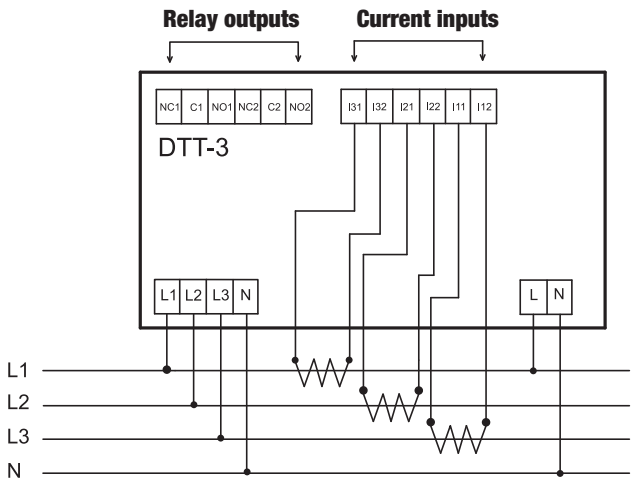
* Programmable relay output

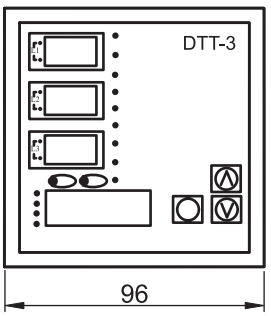
This microcontroller based device was designed to measure the true effective value (TRMS) of current and voltage in all three phases and the frequency of the system. The multimeter is able to store minimum and maximum values for both current and voltage, and is also capable to show these values to the user when desired.

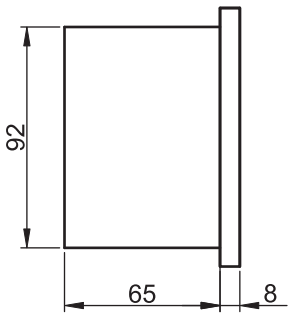
The DTT-3 type has also programmable features for under and over voltage limits, under and over current limits and delay time before producing contact output. The DTT-2 type is similar to the DTT-3 type but without relay output. The DTT-3 type has two different contact outputs for current and voltage fault. The connection for power supply and metering is available trough pluggable terminations on the back side of device.

The multimeter displays the momentary value of the current in all three phases and the frequency of the net. The line or phase voltage can be selected with the front panel pushbuttons and these momentary values are readable from the display. A LED lamp marks the selected phase. The current transformer (CT) ratio is also selectable with the front panel pushbuttons.





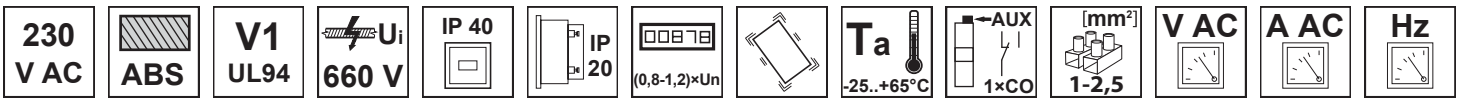




RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

DTT-5 detective multimeter

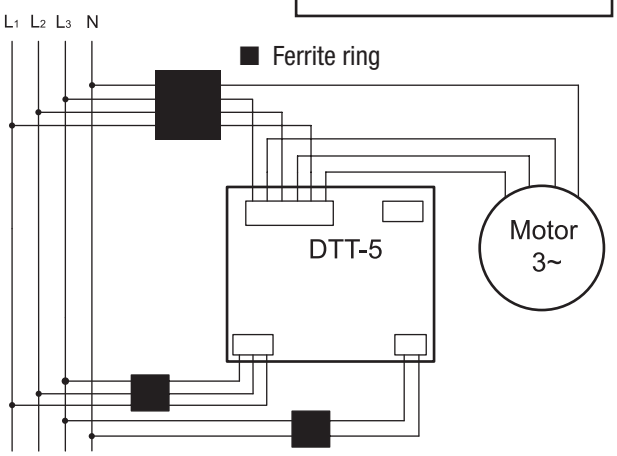


TRACON		×digit	L-N	L-L	A	Hz			
DTT-5	96 × 96 mm	×3	0-280 V AC	0-500 V AC	0-9500 A AC	45-70 Hz	± 0.1 %	92 mm	305 g

This device can measure current and voltage values and frequency of line on three phase systems. The detective multimeter was designed to sense, detect and inform impending mechanical and electrical failures in three phase motors. Modern detective multimeter technology with the capability of fault detection at early stage provides excellently reliable system monitoring advantages, a remarkable productivity of quality production, minimized maintenance and repair costs and extended life of machinery and equipment in use. The measured min/max current values are saved in memory and can be displayed by request. Moreover the device features adjustable over/under current and voltage protection limits with adjustable time delay settings prior to producing contact output for alert. The multimeter compares the stored values with the momentary values and switches on the alarm levels gradually according to deviation. The alarm output is a potential free changeover relay contact output what can work by voltage or current failure. Programming of the relay output allows for definition of the alarm level at which the relay shall react in case of abnormal current or voltage. The connection for power supply and metering is available through pluggable terminations on the back side of device. The three digit LED displays are giving information from momentary metered values. A LED lamp signs the selected value. The current transformer (CT) ratio is also selectable with front panel pushbuttons.

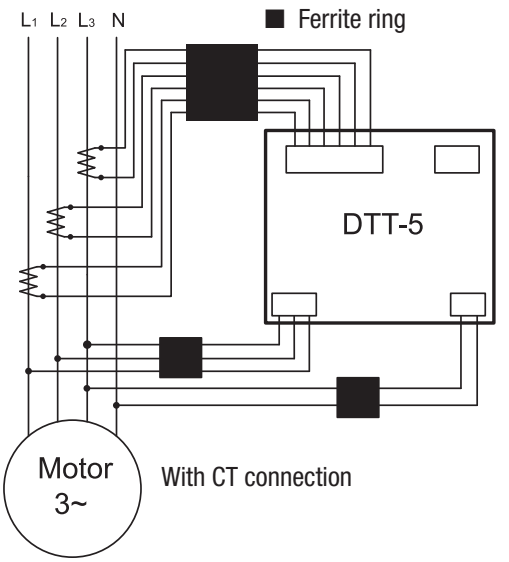
RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

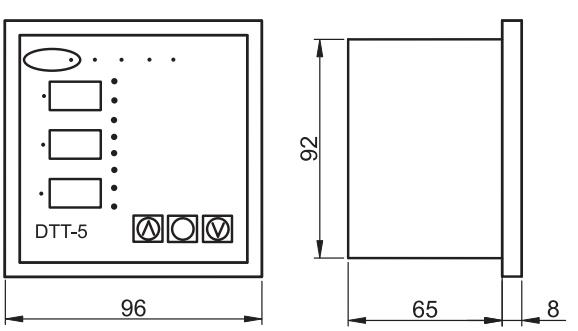


Direct connection

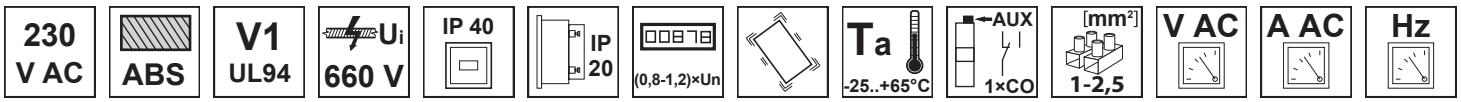
The terminal wires have to pass through ferrite rings as seen above in order to prevent electromagnetic disorder.



With CT connection

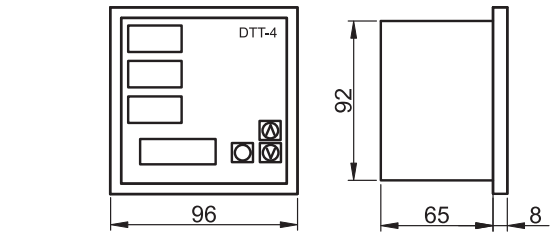


Power analyzer



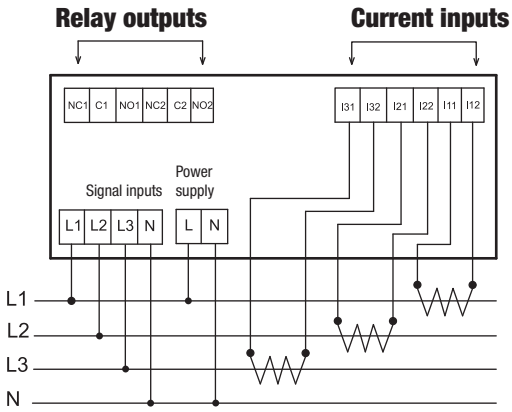
TRACON		×digit	L-N	L-L	A	Hz	I, U	P		
DTT-4	96 × 96 mm	×3/7	0-280 V AC	0-500 V AC	0-9500 A AC	45-70 Hz	± 1 %	± 2 %	92 mm	500 g

This device is ideal for measuring, monitoring and controling the network's electric parameters.
Furthermore, current, phase and line voltage frequency, power factor, real, apparent, reactive power and energy are measurable with the device which is also able to meter both current and voltage harmonics of network. The four LED displays show the needed values from 75 measurable parameters. The device meters the real effective values (TRMS), and has two potential free, independent programmable relay outputs, that change state by alarm according to user adjusted limits. A LED indicator marks the selected ones. The connection for power supply and metering is available trough pluggable terminations on the back side of device. The current transformer (CT) ratio, the programming and the displayable value are all selectable with front panel push-buttons.
The operation of the device is fully automatic; its application is an advantage in all places where the energy supply control of the quality is important next to metering of the electric values.



RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010



Remark	Measured value	Alarm	All	L1	L2	L3
VLN	Phase voltage (V)	✓	✓ (*)	✓	✓	✓
VLL	Line voltage (V)	✓	✓ (*)	✓	✓	✓
I	Phase current (A)	✓	✓	✓	✓	✓
FRQ	Frequency (Hz)	–	–	✓	–	–
PF	Power factor (cos φ)	–	✓ (*)	✓	✓	✓
kW	Real power (kW)	✓	✓	✓	✓	✓
kVAr	Reactive power (kVAr)	✓	✓	✓	✓	✓
kVA	Apparent power (kVA)	✓	✓	✓	✓	✓
kWh	Real energy (kWh)	–	✓	–	–	–
kVArh.IND	Inductive reactive energy (kVArh)	–	✓	–	–	–
kVArh.CAP	Capacitive reactive energy (kVArh)	–	✓	–	–	–
kVAh	Apparent energy (kVAh)	–	✓	–	–	–
V_{THD}	Total harmonics distortion of voltage (%)	–	–	✓	✓	✓
V_3 ... V_{13}	Voltage harmonics (THD; odd harmonics up to 13th)	–	–	✓	✓	✓
I_{THD}	Total harmonics distortion of current (%)	–	–	✓	✓	✓
I_3 ... I_{13}	Current harmonics (THD; odd harmonics up to 13th)	–	–	✓	✓	✓

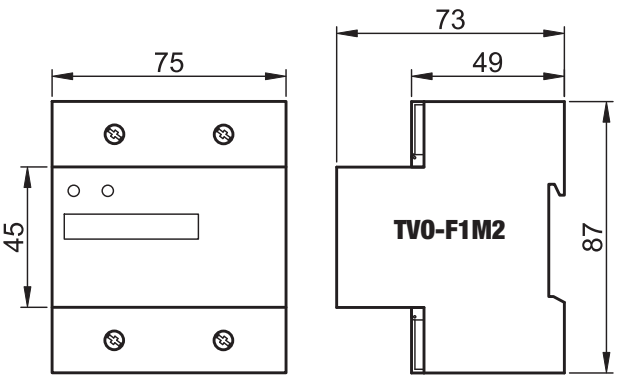
* Device signs the mean value of metered values in three phases.

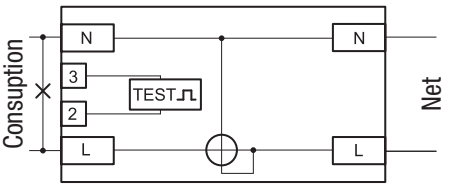
Energy meters, 1 phase

Pm 1 VA | V1 UL94 | Ui 660 V | IP 40 | IP 20 | 35×7.5 | % rH max. 95 | Ta -15..+50°C | Ts -30..+65 °C | 1h 1,2×In | imp out 1,5-2,5 | kWh

TRACON			Un	Ib (Imax)		imp/kWh S0	ha %	mm²		m
TVO-F1M2	DIRECT→kWh	0014 ELECTRO-MECHANICAL	220-240 V AC	20 (60) A	80 mA-60 A	1.600	2	25	16	200 g
TVO-F1MV	DIRECT→kWh	0014 ELECTRO-MECHANICAL	220-240 V AC	5 (30) A	20 mA-30 A	1.000	2	6	6	80 g
TVO-F1V	DIRECT→kWh	00878 LCD	220-240 V AC	5 (32) A	20 mA-32 A	1.000	2	6	6	80 g
TVO-F1M-04	DIRECT→kWh	0014 ELECTRO-MECHANICAL	220-240 V AC	5 (45) A	20 mA-45 A	1.000	1	6	6	120 g

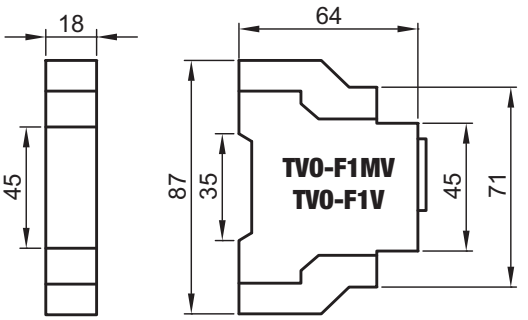
TVO-F1M2



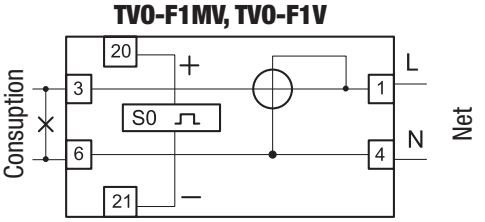


TVO-F1V **TVO-F1MV**

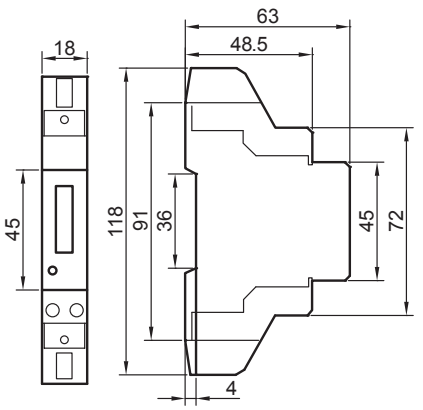
imp/kWh S0	Un	Limp	In
	min. 18 V, max. 27 V	>30 ms	max. 27 mA

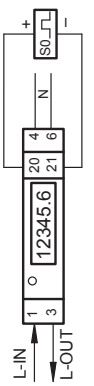


TVO-F1MV, TVO-F1V



TVO-F1M-04





imp/kWh S0	Un	Limp	In
	min. 12 V, max. 27 V	>30 ms	max. 27 mA

RELEVANT STANDARD EN 62053

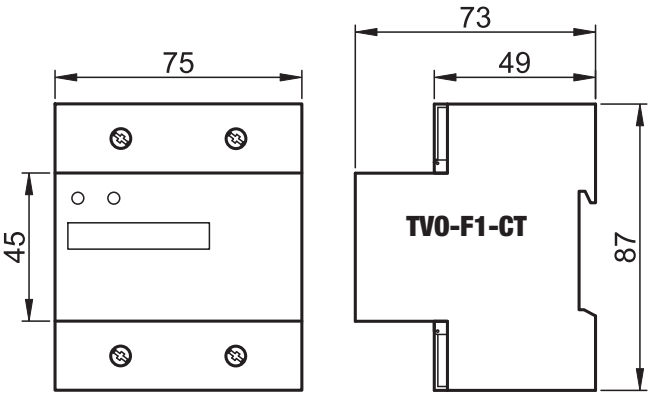
RELEVANT STANDARD IEC 61036

Energy meters, 1 phase

Pm 1 VA | V1 UL94 | Ui 660 V | IP 40 | IP 20 | 35×7.5 | % rH max. 95 | Ta -10..+50 °C | Ts -30..+65 °C | 1h 1,2×In | imp out 1,5-2,5 | kWh

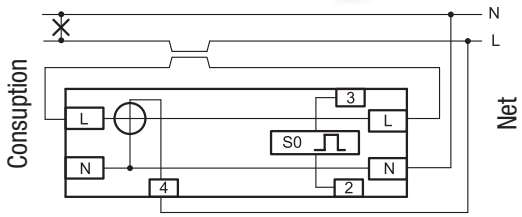
TRACON			Un	Ib (Imax)	100 0	imp/kWh S0	0 10 ha %	mm²	m
TVO-F1-CT	CT → kWh	LCD	220-240 V AC	5A/CT	0,002Ip-Ip	6.400	1	16 10	260 g

Ip – primary current of current transformer
CT – current transformer



RELEVANT STANDARD
IEC 61036

RELEVANT STANDARD
EN 62053

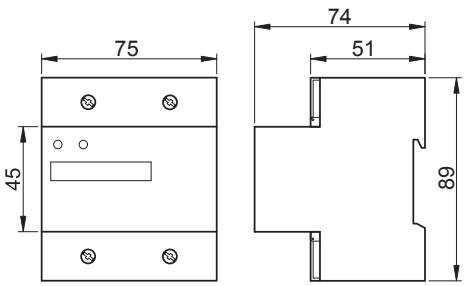


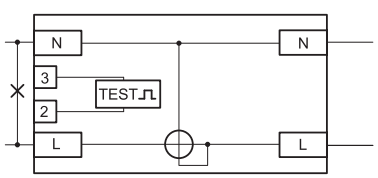
imp/kWh S0	Un	Limp	In
	min. 18 V, max. 27 V	>30 ms	max. 27 mA

Power meter, windows type, 1 phase

Pm 1 VA | V1 UL94 | Ui 660 V | IP 40 | IP 20 | 35×7.5 | % rH max. 95 | Ta -10..+50 °C | Ts -30..+65 °C | 1h 1,2×In | imp out 1,5-2,5 | kWh

TRACON			Un	Ib (Imax)	100 0	imp/kWh S0	0 10 ha %	mm²	m
TVO-F1-WT	DIRECT → kWh	LCD	220-240 V AC	30 (100) A	80 mA-100 A	800	1	25 16	200 g





The wire must be put through the window, after that the screw make the contact with the insulation cutting.
The reduction ring has been included for the thinner wires.

imp/kWh S0	Un	Limp	In
	min. 18 V, max. 27 V	>30 ms	max. 27 mA

RELEVANT STANDARD
IEC 61036

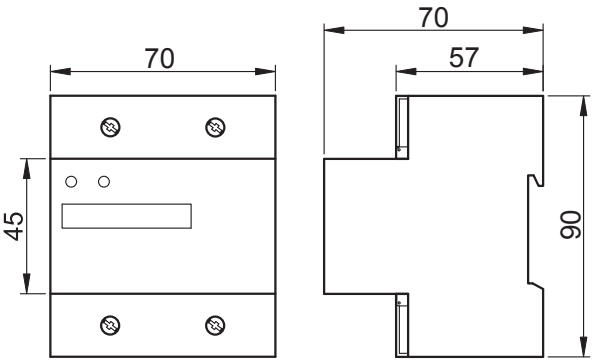
Energy meters, 3 phases

Pm 3 VA | V1 UL94 | Ui 660 V | IP 40 | IP 20 | 35×7.5 | % rH max. 95 | Ta -15..+50°C | Ts -30..+65 °C | 1h 1,2×In In | imp out [mm²] 1,5-2,5 | kWh

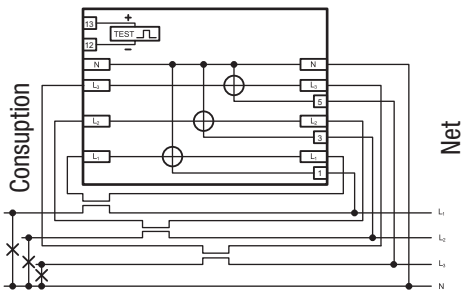
TRACON		Un	Ib (Imax)	100 0	imp/kWh S0	0 10 ha %	mm²		m
TVO-F3-4MCT CT → kWh	LCD	3×230/400 V	5A/CT	0,002Ip-Ip	1.600	1	16	10	370 g
TVO-F3-4M DIRECT → kWh	LCD	3×230/400 V	10 (100) A*	80 mA-100 A	200	2	25	16	450 g

* per phase

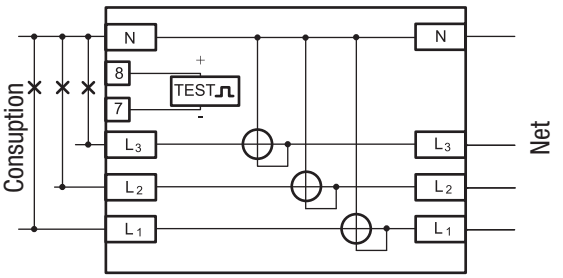
Ip – primary current of current transformer
CT – current transformer



TVO-F3-4MCT



TVO-F3-4M



RELEVANT STANDARD
IEC 61036

RELEVANT STANDARD
EN 62053

imp/kWh S0	Un	Limp	In
	min. 18 V, max. 27 V	>30 ms	max. 27 mA

Plug-in digital energy meter

Pm 1 VA | V1 UL94 | Ui 450 V | IP 20 | Ta 0..+40 °C | kWh

Pictograms **L/0**

TRACON			Un	In	0 10 ha %	Pmax	batt	m	
TVO-1D216F DIRECT → kWh	LCD		230 V AC	16 A	2	3.600 W	3×357 A	200 g	

The TVO-1D216.. type plug-in digital energy meter can display on its LCD the energy consumption in kWh and the energy costs of household or office devices plugged into its socket outlet.

Services:
- Overload-alarm (warning signal)
- Display of maximal value of current and power
- Display of operation time
- Clock
- Energy cost calculation

RELEVANT STANDARD
EN 62053

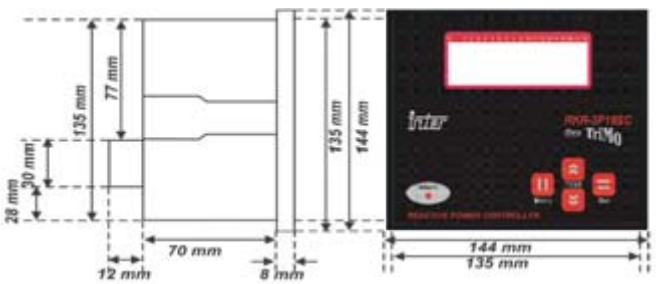
Phase corrector for three phase

230/400 V AC | Pm 10 VA | ABS | V0 UL94 | Ui 660 V | IP 54 | IP 20 | LCD | Ta -25..+55°C | [mm²] 1-2,5 | % rH max. 90

TRACON		×digit		°C	→IN			m
TFJA-08	144 × 144 mm	4×20	18+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	1030 g

RELEVANT STANDARD
EN 60051

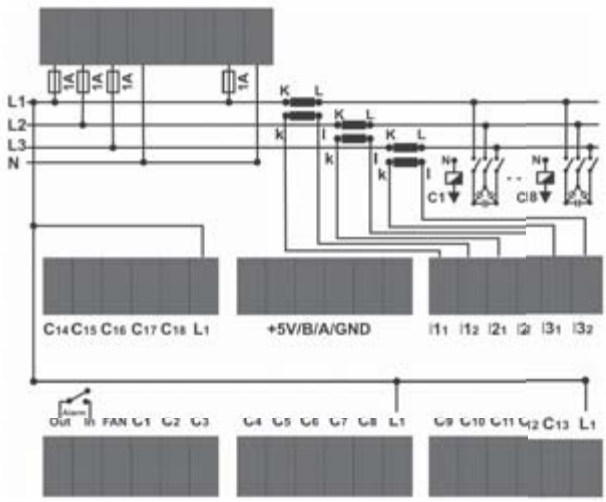
RELEVANT STANDARD
EN 61010



The hi-tech microprocessor based correctors with LCD display are suitable for setting 6×3 capacitor groups.These correctors are metering the parameters in one phase and the interference happens accordingly.
The power ratio value and style and the switched levels are displayed in automatic mode. In manual mode, the phase's current and voltage, the voltage harmonics, the active- reactive and blind power of network can also be measured and displayed; the user can control the number of capacitor groups too.
In automatic mode, the switching of capacitor groups takes place according to needed capacitor power and pre-adjusted parameters.
During rating process the switching of the levels follows a complex algorithm according to adjusted power factor value and level, protecting the capacitor groups and the switching contactors from run-down. The device has a potential free alarm output and it is programmable with its front panel pushbuttons.

Main functions

- 4 line LCD display, 20 digits / row
- Manual / automatic modes
- adjustable power ratio: cosφ 0,8 ind - 0,8 cap
- Adjustable overheat protection
- Adjustable harmonic protection
- Voltage and current measurement up to 21st harmonic
- Alarms with alarm outputs
- Three phases, with phase control
- Automatic load type identification
- Delayed ON / OFF switching
- Adjustable overvoltage protection
- Total harmonic display
- Voltage, current and power display
- Password protection



USB-485 converter for TFJA-08

IP 00 | Ta -25..+55°C | % rH max. 90

TRACON	°C	m
TFJA-08-RS485	-25 °C … +99 °C	90 g

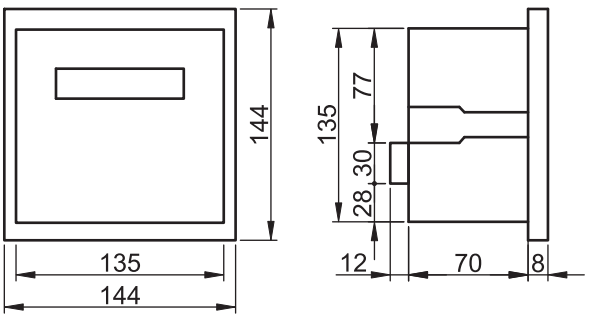
Correctors for one phase

230 V AC | ABS | V0 UL94 | Ui 660 V | IP 54 | IP 20 | LCD | Ta -25..+55°C | [mm²] 1-2,5 | Pictograms L/0

TRACON	A	×digit	CF	°C	→IN	n		m
TFJA-01	144 × 144 mm	2×16	7+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	1000 g
TFJA-02	144 × 144 mm	2×16	12+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	1050 g

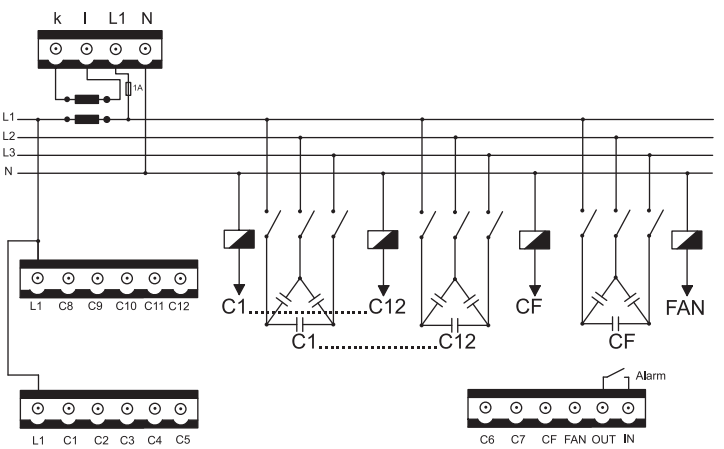
RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010



Hi-Tech, microprocessor based correctors with LCD display. They are suitable for setting 7 or 12 capacitor groups. These correctors are metering the parameters in one phase and the interference happens accordingly.
The value and the style of power ratio, the phase current and voltage, the voltage harmonics, the capacitor's temperature and the number of switched capacitor groups are displayable. On manual state the user can control the number of capacitor groups. During testing process the connected levels and the level's reactive power ratio is defined automatically. In automatic mode, the switching of capacitor groups takes place according to needed capacitor power and pre-adjusted parameters.
During rating process the switching of the levels follows a complex algorithm according to adjusted power factor value and level, protecting the capacitor groups and the switching contactors from run-down. The device has a potential free alarm output and it is programmable with front panel pushbuttons. The cooling is getting active according to pre-adjusted and memory stored level when the capacitor's temperature is rising up. The alarm output's active state is displayed by front panel LED.

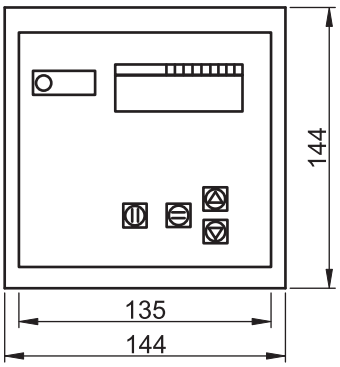
Main functions
- adjustable power ratio (cos φ) between 0,8 ind. – 1,0 cap;
- automatic and manual mode functions;
- exact initial capacitor power calculation;
- automatic current limit adjustment (C/k value);
- automatic polarity recognition on the CT terminals (k-l);
- adjustable overvoltage-overheat protection limit;
- alarm in case of over or under compensation;
- adjustable voltage-harmonics and overload protection limit;
- adjustable capacitor on and off switching time;
- power factor, phase voltage and current, frequency, temperature, voltage harmonics range metering, control, display;
- the art of failure and the switched number of levels also can be displayed.

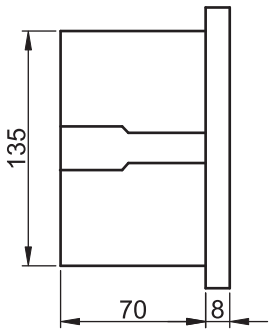


Correctors for three phases

Pm 10 VA | 230/400 V AC | ABS | V0 UL94 | Ui 660 V | IP 54 | IP 20 | LCD | Ta -25..+55°C | [mm²] 1-2,5 | % rH max. 90

TRACON		×digit		°C	→IN	n		m
TFJA-03	144 × 144 mm	2×16	7+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	1030 g
TFJA-04	144 × 144 mm	2×16	12+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	1030 g





RELEVANT STANDARD
EN 60051

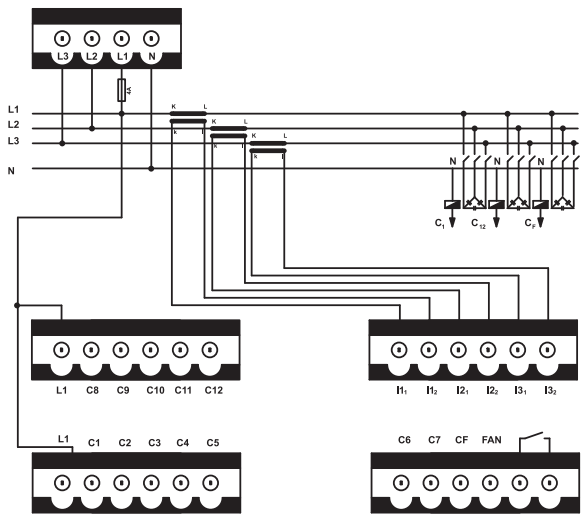
RELEVANT STANDARD
EN 61010

Hi-Tech, microprocessor based correctors with LCD display. They are suitable for setting 7 or 12 capacitor groups. These correctors are metering the parameters in all three phase and the interference happens accordingly.
The metering of values is on analyzer level, the different levels capacitor power can be adjusted independent. In manual mode the user can control the number of capacitor groups. In automatic mode, the switching of capacitor groups takes place according to needed capacitor power and pre-adjusted parameters.
During rating process the switching of the levels follows a complex algorithm according to adjusted power factor value and level, protecting the capacitor groups and the switching contactors from run-down. The device has a potential free alarm output and it is programmable with front panel pushbuttons. The cooling is getting active according to pre-adjusted and memory stored level when the capacitor's temperature is rising up. The alarm output's active state is displayed by front panel LED.

Main functions

- Adjustable cos φ range between 0,8 ind. and 0,9 cap. values;
- Automatic / manual mode;
- Independent adjustable capacitor power limits;
- Automatic current detection;
- Adjustable over voltage and overheat limit;
- Adjustable high harmonic level;
- Adjustable capacitor switching delay;
- Adjustable total harmonic distortion voltage level (V_{THD}; V_3; V_5…V_{13});
- Dimmable total harmonic distortion current level (I_{THD}; I_3; I_5…I_{13});
- Capacitor test mode;
- Real, inductive, capacitive energy metering;
- Voltage, current, cos φ, THD (total harmonic distortion) control on every phase;
- Capacitor power; temperature; frequency; total power factor control;
- Alarm in case of overvoltage, high temperature, high reactive and real energy rate, high harmonic ratio, with delay.

C/k adjustment:	automatic, manual
CT polarization:	automatic
A/D converter	10 bit
Sampling:	64 sample/period
Contact / alarm output:	250 V/5 A AC

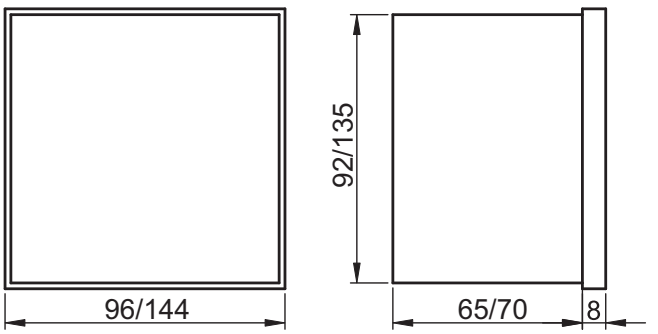


Pictograms L/0

Automatic or manual correctors

230 V AC | ABS | V0 UL94 | Ui 660 V | IP 54 | IP 20 | LCD | Ta -25..+55°C | [mm²] 1-2,5 | Pictograms L/0

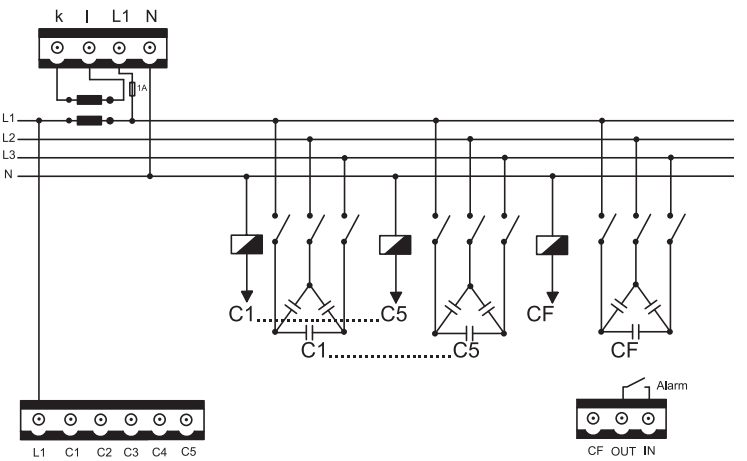
TRACON		×digit			→IN			
TFJA-05	144 × 144 mm	3×7	5+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	92 mm	1000 g
TFJA-06	96 × 96 mm	3×7	7+1 (fix)	-25 °C … +99 °C	0,02 A – 5,5 A	5/5 A…5000/5 A	135 mm	600 g



These devices are microprocessor based correctors with LCD display. They are suitable for setting 5 or 7 capacitor groups. These correctors are metering the parameters in one phase and the interference happens accordingly. The switching of capacitor groups is coordinated with the metered capacitor powers and the pre-adjusted full reactive power values. During rating process the switching of the levels follows a complex capacitor metering and power factor determine algorithm according to adjusted power factor value and level, protecting the capacitor groups and the switching contactors from run-down. The device has a potential free alarm output and it is programmable with front panel pushbuttons. The cooling is getting active according to pre-adjusted and memory stored level when the capacitor's temperature is rising up. The alarm output's active state is displayed by front panel LED.

Main functions

- Adjustable power ratio (cos φ) from 0,8 to 1;
- Automatic and manual mode;
- Capacitor power metering;
- Automatic Ck adjustment;
- Automatic current flow definition;
- Dimmable capacitor on/off time;
- Display of phase voltage and power factor values;
- In case of alarming the displaying happens with LED.



C/k adjustment: automatic
CT polarization: automatic
Contact output load: 250 V/5 A AC (TFJA-05), 250 V/3 A AC (TFJA-06)
Alarm output load: 250 V/5 A AC (TFJA-05), 250 V/3 A AC (TFJA-06)

RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

SCAN THE QR CODE!

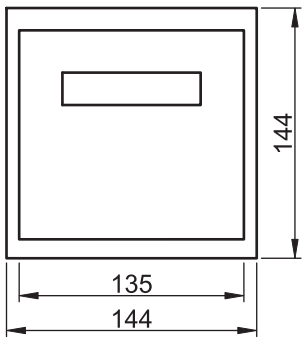
- **Check our new products**
- **Be updated**

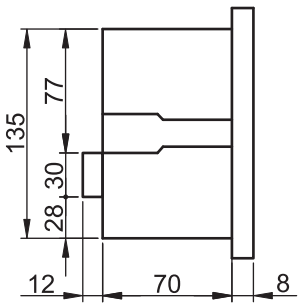
Our range of products is continuously and quickly expanding. Our catalogue shows our products as of October 2017. Check our website to stay up-to-date.

Automatic operated correctors

230 V AC | ABS | V0 UL94 | Ui 660 V | IP 30 | IP 20 | LCD | Ta -25..+55°C | [mm²] 1-2,5 | Pictograms L/0

TRACON		×digit							
TFJA-07	144 × 144 mm	3×7	5	-25 °C … +99 °C	5/5 A…5000/5 A	1 %	135 mm	1.200 g





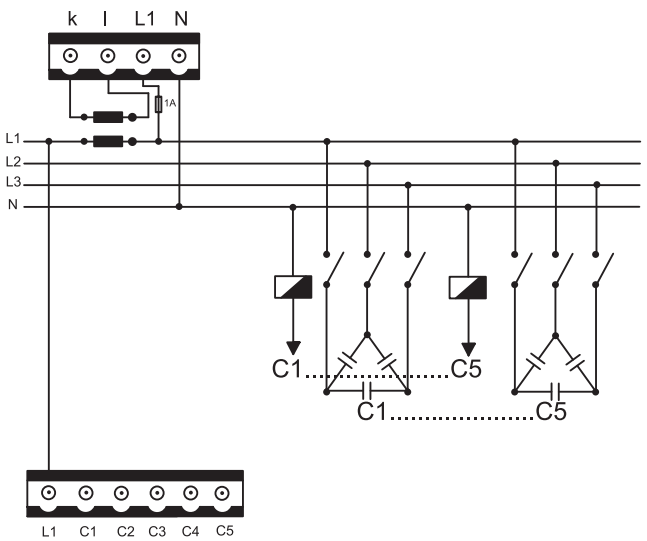
The TFJA-07 type reactive power corrector is fully automated and does not have any buttons on the front panel. The interference is happening according to the phase voltage and current in one phase. The device switches on the five capacitor groups in five steps by microcontroller based rating algorithm with contactors if the cos φ value is less than 0,95, and switches off the capacitors, when the cosφ value is more than 1. The switch on of capacitor groups happens in 14 seconds, the switch off happens with 5 seconds time delay. In load free or less load state, where cos φ value is not between 0,95 and 1, the first capacitor level works as a joker capacitor; it switches on/off the capacitors according to defined delay time. The lowest capacitor power group has to be connected to the first level. During the rating process the switching of the levels happens by a complex algorithm protecting the capacitor groups and the switching contactors from run-down. The power factor value is readable from the 3-digit front plate display. The front panel LED-s give information from the number of switched levels and the power ratio's style. The capacitor group's power and the distributions for levels can be made by the next table.

Capacitor outputs	1st level	2st level	3st level	4st level	5st level
Capacitor power	1 -1,5 kVAr	2,5 kVAr	5 kVAr	10 kVAr	20 kVAr

Input of voltage meter: L1, N
Sampling: 64 sample/period
Input of current meter: k, l
Max. load of current input: max. 7 A constant, 20 A / for 1 sec.
Contact / alarm output: 250 V/5 A AC

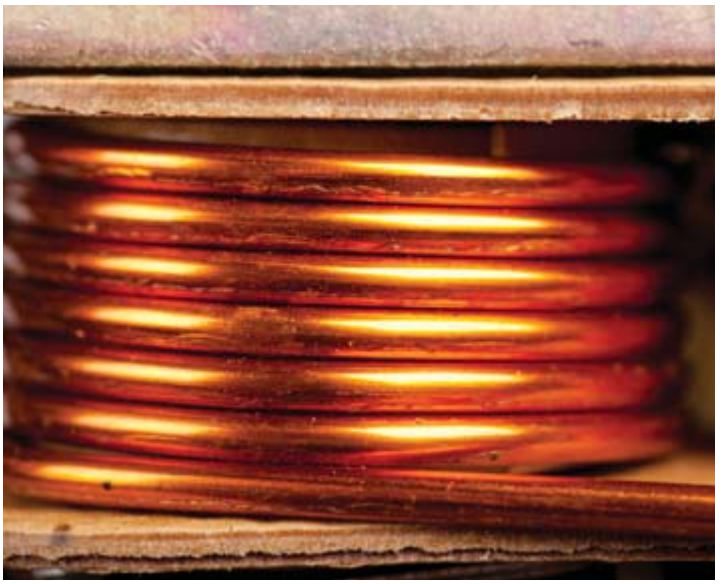
RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010



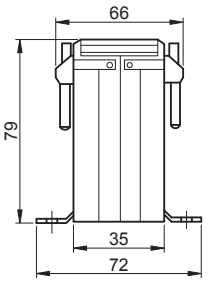
Low voltage current transformers

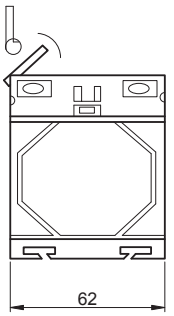
By using these devices, the measuring range of analogue or digital ammeters can be extended in the range of 5 - 3000 A. Similarly, the measuring range of the counters, power meters, multimeters, varmeters connected to the secondary contacts to the current transformers can also be extended.
Current transformers are made of a primary coil, a secondary coil and a ferromagnetic core. The primary coil is an actual coil built into the housing of the transformer or a cable or rail passing through the central hole of the transformer. In case of built-in primary coil or passed cable, the transformer has to be fixed by the kit delivered as accessory. In case of built in rail, the transformer shall be directly fastened to the rail.
The P1 end of the primary coil shall be connected to the network, the P2 end to the consumer. The S1 and S2 connectors shall be directly connected to the measuring instrument.



AVBS (5/5A-150/5A)

660 V AC | V0 UL94 | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 50×In | Idin 2,5×Ith | Pictograms L/0





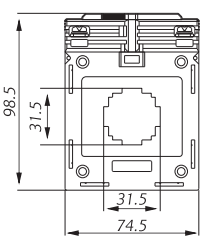
RELEVANT STANDARD
EN 61010

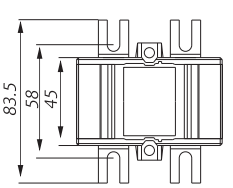
TRACON	n	Ps	0 10 ha %	m
AVBS-5	5/5 A	2,5 VA	0,5	370 g
AVBS-15	15/5 A	2,5 VA	0,5	380 g
AVBS-30	30/5 A	2,5 VA	0,5	400 g
AVBS-50	50/5 A	2,5 VA	0,5	420 g
AVBS-60	60/5 A	2,5 VA	0,5	430 g
AVBS-75	75/5 A	2,5 VA	0,5	450 g
AVBS-100	100/5 A	2,5 VA	0,5	480 g
AVBS-150	150/5 A	2,5 VA	0,5	510 g

Type with built-in primary rail

AV30..SH (50/5A-200/5A)

660 V AC | V0 UL94 | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 100×In | Idin 2,5×Ith





TRACON	n	Ps	0 10 ha %	m
AV3060SH	60/5 A	1,5 VA	0,5	500 g
AV3075SH	75/5 A	2,5 VA	0,5	500 g
AV30100SH	100/5 A	3,75 VA	0,5	500 g
AV30150SH	150/5 A	5 VA	0,5	500 g
AV30200SH	200/5 A	5 VA	0,5	500 g

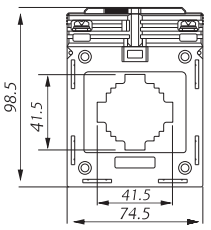
RELEVANT STANDARD
EN 60051

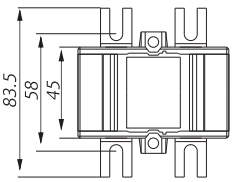
RELEVANT STANDARD
EN 61010

AV40..SH (100/5A-500/5A)

660 V AC | V0 UL94 | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 50×In | Idin 2,5×Ith | Pictograms L/0

TRACON	n	Ps	0 10 ha %	m
AV40100SH	100/5 A	2,5 VA	0,5	500 g
AV40150SH	150/5 A	5 VA	0,5	500 g
AV40200SH	200/5 A	5 VA	0,5	500 g
AV40250SH	250/5 A	5 VA	0,5	500 g
AV40300SH	300/5 A	5 VA	0,5	500 g
AV40400SH	400/5 A	5 VA	0,5	500 g
AV40500SH	500/5 A	5 VA	0,5	500 g

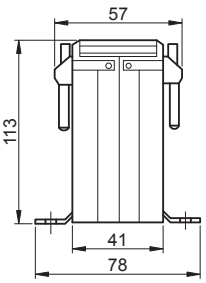


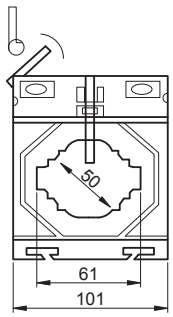


AV60..SH (600/5A-1200/5A)

660 V AC | V0 UL94 | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith max. 50kA$_{eff}$ | Idin 2,5×Ith

TRACON	n	Ps	0 10 ha %	m
AV60600SH	600/5 A	15 VA	0,5	450 g
AV60800SH	800/5 A	15 VA	0,5	480 g
AV601000SH	1000/5 A	15 VA	0,5	520 g
AV601200SH	1200/5 A	15 VA	0,5	520 g





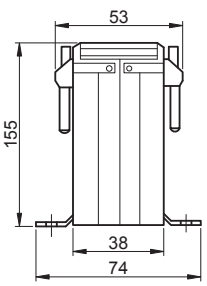
RELEVANT STANDARD
EN 60051

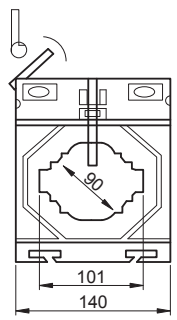
RELEVANT STANDARD
EN 61010

AV100..SH (1200/5A-3000/5A)

660 V AC | V0 UL94 | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith max. 50kA$_{eff}$ | Idin 2,5×Ith

TRACON	n	Ps	0 10 ha %	m
AV1001200SH	1200/5 A	15 VA	0,5	690 g
AV1001600SH	1600/5 A	15 VA	0,5	850 g
AV1002000SH	2000/5 A	15 VA	0,5	1.000 g
AV1002500SH	2500/5 A	15 VA	0,5	1.050 g
AV1003000SH	3000/5 A	15 VA	0,5	1.200 g





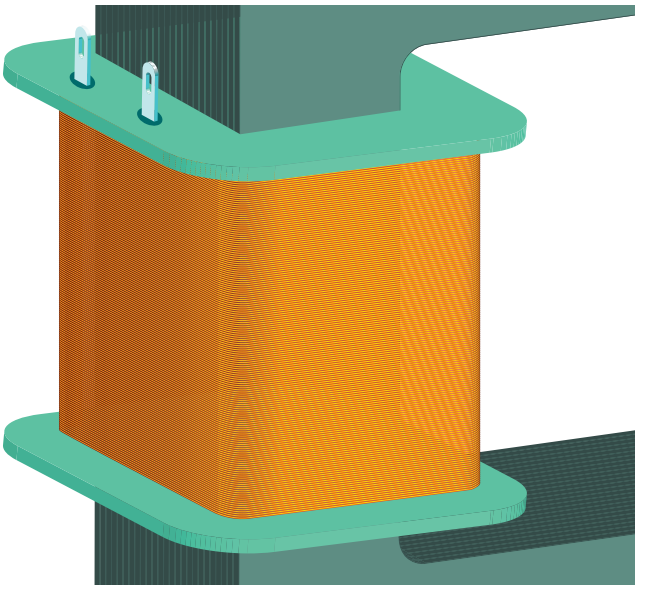
RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

Calibrated current transformer

These current transformers are fulfilling the requirements of EN 60044-1 standard and meeting the requirements of 0,5S accuracy class.

if the user wants to use them for account measuring, the current transformers have to be calibrated by the National Trade Licensing Office.

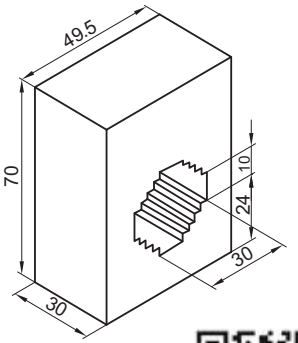


RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

EPSA30 (150/5A-400/5A) 1,5 VA

660 V AC | MKEH -MH | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 60×In | Idin 2,5×Ith | Pictograms L/0



20 mm 30 mm

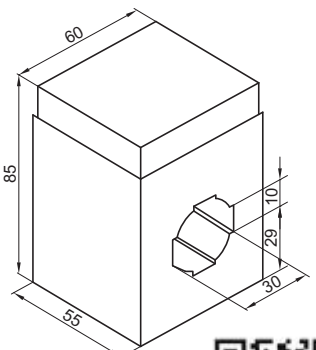
TRACON	n	Ps	0 10 ha %	m
EPSA30150-1,5	150/5 A	1,5 VA	0,5S	300 g
EPSA30200-1,5	200/5 A	1,5 VA	0,5S	300 g
EPSA30250-1,5	250/5 A	1,5 VA	0,5S	300 g
EPSA30300-1,5	300/5 A	1,5 VA	0,5S	300 g
EPSA30400-1,5	400/5 A	1,5 VA	0,5S	300 g

RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

EPSA30 (150/5A-500/5A) 2,5 VA

660 V AC | MKEH -MH | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 60×In | Idin 2,5×Ith



20 mm 30 mm

TRACON	n	Ps	0 10 ha %	m
EPSA30150-2,5	150/5 A	2,5 VA	0,5S	300 g
EPSA30200-2,5	200/5 A	2,5 VA	0,5S	300 g
EPSA30250-2,5	250/5 A	2,5 VA	0,5S	300 g
EPSA30300-2,5	300/5 A	2,5 VA	0,5S	300 g
EPSA30400-2,5	400/5 A	2,5 VA	0,5S	300 g
EPSA30500-2,5	500/5 A	2,5 VA	0,5S	300 g

RELEVANT STANDARD
EN 60051

RELEVANT STANDARD
EN 61010

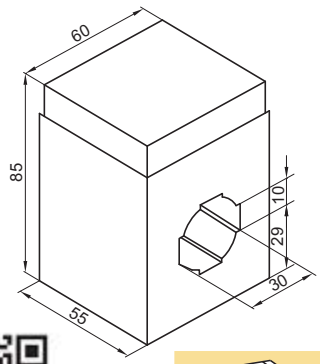
EPSA30 (150/5A-500/5A) 2,5 VA

660 V AC | MKEH -MH | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 60×In | Idin 2,5×Ith | Pictograms L/0

TRACON	n	Ps	0 10 ha %	m
EPSA30150-5	150/5 A	5 VA	0,5S	300 g
EPSA30200-5	200/5 A	5 VA	0,5S	300 g
EPSA30250-5	250/5 A	5 VA	0,5S	300 g
EPSA30300-5	300/5 A	5 VA	0,5S	300 g
EPSA30400-5	400/5 A	5 VA	0,5S	300 g
EPSA30500-5	500/5 A	5 VA	0,5S	300 g

RELEVANT STANDARD EN 60051

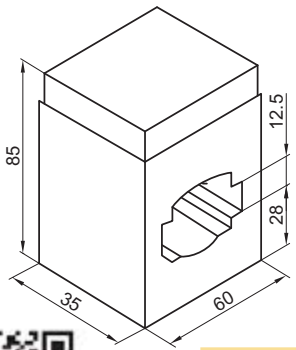
RELEVANT STANDARD EN 61010



EPSA40 (250/5A-500/5A) 2,5-5 VA

660 V AC | MKEH -MH | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 60×In | Idin 2,5×Ith

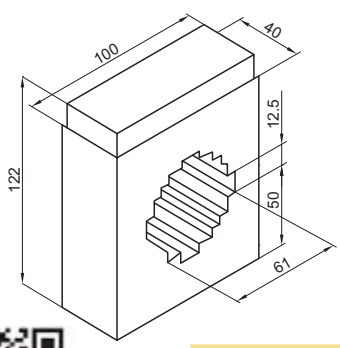
TRACON	n	Ps	0 10 ha %	m
EPSA40250-2,5	250/5 A	2,5 VA	0,5S	300 g
EPSA40300-2,5	300/5 A	2,5 VA	0,5S	300 g
EPSA40400-2,5	400/5 A	2,5 VA	0,5S	300 g
EPSA40500-2,5	500/5 A	2,5 VA	0,5S	300 g
EPSA40250-5	250/5 A	5 VA	0,5S	300 g
EPSA40300-5	300/5 A	5 VA	0,5S	300 g
EPSA40400-5	400/5 A	5 VA	0,5S	300 g
EPSA40500-5	500/5 A	5 VA	0,5S	300 g



EPSA60 (500/5A-1250/5A) 2,5-5 VA

660 V AC | MKEH -MH | Ui 720 V | Utest 1min 3 kV | Fs security 5 | 1h 1,2×In | Ta -5..+45 °C | Ith 60×In | Idin 2,5×Ith

TRACON	n	Ps	0 10 ha %	m
EPSA60500-2,5	500/5 A	2,5 VA	0,5S	400 g
EPSA60500-5	500/5 A	5 VA	0,5S	400 g
EPSA60600-5	600/5 A	5 VA	0,5S	400 g
EPSA60750-5	750/5 A	5 VA	0,5S	400 g
EPSA60800-5	800/5 A	5 VA	0,5S	400 g
EPSA601000-5	1000/5 A	5 VA	0,5S	400 g
EPSA601200-5	1200/5 A	5 VA	0,5S	400 g
EPSA601250-5	1250/5 A	5 VA	0,5S	400 g



Digital multimeter

To 0-40 °C | low batt | CAT III | G | 200mA

Pictograms L/0

TRACON	×digit	V	I	Ω	batt	H L W	m
A880L	× 3.5	±(2%+10d)	±(3%+5d)	±(2%+5d)	9 V 6F22	115×65×35 mm	170 g

Backlight

RELEVANT STANDARD
EN 61010

DC V test	200 mV, 2 V, 20 V, 200 V, 500 V
AC V test	200 V, 500 V
DC A test	200 µA, 2 mA, 20 mA, 200 mA, 10 A
Ω test	200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 20 MΩ
test	3 V / 1 mA
G	3 V / 50 HZ / 560 kΩ

Digital multimeter

To 0-40 °C | low batt | CAT III | G | NCV | 200mA | 10A

Pictograms L/0

TRACON	×digit	V	I	Ω	batt	H L W	m
HK36A	× 3.5	±(2%+10d)	±(3%+5d)	±(1,5%+2d)	9 V 6F22	150×75×50 mm	270 g

Backlight

RELEVANT STANDARD
EN 61010

DC V test	200 mV, 2 V, 20 V, 200 V, 500 V
AC V test	200 V, 500 V
DC A test	200 µA, 2 mA, 20 mA, 200 mA, 10 A
Ω test	200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 20 MΩ
test	2,5 V / 1 mA
G	5 V / 50 HZ / 560 kΩ

Digital multimeter

+ VS – | To 0-40 °C | low batt | AC V test | DC V test | AC A test | DC A test | Ω test | BATTERY test | test | Pictograms L/0

TRACON	×digit	V	I	Ω	°C	batt	H L W	m
EM420A	× 3,5	±(1,2%+5d)	±(3%+10d)	±(1,5%+5d)	±(5%+4d)	1,5 V, 3×AAA	158×75×35 mm	200 g

DC V test	aut. 0,2-2-20-200-600 V
AC V test	aut. 2-20-200-600 V
AC A DC A test	200µ-2m-20m-200m-2-10 A
Ω test	0,2-2-20-200-2000-20000 kΩ
°C/°F test	-20…1000 °C / -4…1832 °F
hFE test	2 µA / 1 V
BATTERY test	1,5-3 V / 30 mA 9 V / 12 mA
test	1,5 V
AUTO OFF	10 min.

RELEVANT STANDARD
EN 61010

Function buttons

button	ON-OFF switch
backlight	push ON-OFF for 2 sec
FUNC.	DC-AC and °C/ °F selector
RANGE	Measuring range selector
MAX	Holds the maximal measured value
DATA	Holds the momentary measured value

Digital clamp meter for EM420A device

To 0-40 °C | AC A test | DC A test

TRACON	I	batt	H L W	m
EM264	±(2,5%+3d)	9 V, 1×6F22	186×73×40 mm	350 g

The EM264 digital clamp meter is an auxiliary device for digital multimeters to measure AC/DC current without breaking the measured wire.

DC A test	40-400 A
AC A test	40-400 A
40 A	10 mV/A
400 A	1 mV/A

Function buttons

DC ZERO	zero adjust at DC measuring
IKON	Measuring range selector

Digital clamp meter

+ VS − | Ta 0..+40 °C | low batt | AC V test | DC V test | AC A test | Ω test | test | Pictograms L/0

TRACON	×digit	V	I	Ω	°C	batt	H L W	m
EM306B	× 3,5	±(1,2%+3d)	±(5%+5d)	±(1,5%+2d)	–	3 V, 3×CR2032	151×65×34 mm	127 g

DC V test	600 V
AC V test	600 V
AC A test	20-200-400 A
Ω test	2-200 kΩ
test	3 V

RELEVANT STANDARD
EN 61010

Function buttons
HOLD Holding the momentary value

Digital clamp meter

+ VS − | Ta 0..+40 °C | low batt | AC V test | DC V test | AC A test | Ω test | Pictograms L/0

TRACON	×digit	V	I	Ω	°C	batt	H L W	m
LF266	× 3,5	±(2%+5d)	±(2,5%+5d)	±(1,2%+5d)	–	9 V, 1×6LA61	240×90×40 mm	320 g

DC V test	1000 V
AC V test	750 V
AC A test	200-1000 A
Ω test	0,2-20 kΩ

RELEVANT STANDARD
EN 61010

Function buttons
HOLD Holding the momentary value

Tool to follow wires

TRACON			H L W	m
EM422A	1,5 V, 2×AAA	3 V, 4×LR44	151×65×34 mm	127 g

This tool is suitable to follow non active wires. It has two parts, a transmitter and a receiver. In case of ideal circumstances it can sense in 30 cm range. This range depends on the ambient circumstances like insulation, other wires etc.

Ta 0..+40 °C

LED

Transmitter
The transmitter has five adaptors to connect to the wire
- RJ-11 connector
- Koax connector
- Double crocodile clip
- Automotive fuse connector

The adaptors can be found under the front plate

Receiver
To activate the receiver please push and hold the **TEST** button so the receiver senses the signal of transmitter. Move the device towards the wire to sense. If the wire is continuous a ton signal appears and the light of **LED** increases. The sensitivity of receiver can be adjusted with the **Sensitivity button.**

RELEVANT STANDARD
EN 61010

Infrared thermometer

TRACON	batt	°C	°F	H L W	m
HM-01	9 V, 1×6F22	-20 °C ... +320 °C	-4 °F ... +608 °F	45×155×90 mm	150 g

- Temperature measurement without contact, °C/°F switchover
- Spot laser beam for precise positioning
- Clearly visible LCD display with blue background lighting
- Warning for low battery
- Data- Hold function; carrying bag

RELEVANT STANDARD
EN 61010

Pocket digital multimeter with search light

+ VS − | Ta 0..+40 °C | AC V test | DC V test | AC A test | DC A test | Ω test | test

Pictograms L/0

TRACON	×digit	V	I	Ω	batt	H L W	m
FV-03	× 3,5	± (1,5 % + 3 d)	± (1,2 % + 5 d)	± (2,0 % + 2 d)	3 V, 1×CR 2032	155×55×26 mm	130 g

DC V test	200 mV–2 V–20 V–200 V–600 V
AC V test	2 V–20 V–200 V–600 V
AC A DC A test	20 mA–200 mA
Ω test	200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 2 MΩ, 20 MΩ
test	1,5 V; 0,5 mA

RELEVANT STANDARD
EN 61010

Voltage tester screwdriver

Ta 0..+40 °C | Pictograms L/0

TRACON	batt	H, L, W	m
FK-10	–	190 × 18 × 18 mm	30 g

RELEVANT STANDARD
EN 61010

AC V test	0-250 V

Voltage tester

Ta 0..+40 °C | LED | NCV | Pictograms L/0

TRACON	batt	H, L, W	m
GK6A	1,5 V, 2 × AAA	153 × 36 × 24 mm	70 g

Function buttons
ON-OFF button
Light

AC V test	100-1000 V

Induction controlling instrument

Ta -10..+50 °C | LCD | Pictograms L/0

TRACON	batt	H, L, W	m
FV-01	–	130 × 18 × 15 mm	15 g

RELEVANT STANDARD
EN 61010

DC V test	12-36-55-110-230 V
AC V test	12-36-55-110-230 V

Voltage monitoring instrument

+ VS – | Ta -10..+50 °C | LED | NCV

TRACON	batt	H, L, W	m
FV-05	–	142 × 21 × 18 mm	30 g

This instrument is suitable to detect voltages from 200 V to 600 V without direct contact (e.g. in wires under surface). The color of the sensor edge changing to red (does not blink) means that there is a live line underneath.

AC V test	200-600 V

Motor vehicle testing lamp

Ta 0..+40 °C

Pictograms L/0

TRACON	batt	H, L, W	m
FV-06	–	118 × 11 × 11 mm	30 g
DC V test	6-24 V		

Operation time: max. 10 sec

TRACON APPLICATION

ANDROID APP ON Google play

Available on the App Store