

T37...

Three-Phase Meter



The electricity meter type T37.. is suitable for measuring active energy for direct connection in three-phase three- or four-wire networks at balanced or unbalanced load.

The measuring and technical qualities of the meter T37.. comply to International Standards IEC 62053-11, IEC 62052-11, IEC 60521 (IEC 521), and other national standards that are taken over upon International Standards.

Their construction and mechanical dimensions comply with DIN 43857 and all respective DIN dimensional standards.

Its construction enables adaptation to various requests in the measuring and technical qualities. The accuracy class is 2.

Meter case

The meter case is made of bakelite, highly resistant to creep current. Degree of protection complies with IEC 60529 – IP 53.

The meter cover is made of bakelite and is provided with a glass window through which a name plate, a register and a disc edge are visible. As option, it can be also made of transparent thermoplastic material. The cover is fastened to the base with two sealing screws, which enables sealing irrespective of the position of the terminal block cover.

A suspension hook and a holding stirrup, which are intended for mounting the meter, are fastened to the base.

Terminal block

The terminal block is fastened to the base with a pin. Terminals are embedded in a bakelite framework. For main circuits, the terminal holes have a dia. 8.5, 9.5 or 10.5 mm, which is enough for connection of outer wires of 50 mm². The auxiliary terminals for connection of external circuits have the holes of 3.2 mm dia. The flashover and creep distances in the bakelite framework, between the metal parts of individual circuits on one hand, and terminals and outside contact parts on the other, are large enough to assure high breakdown strength.

The terminal block cover is made of solid, self-extinguishable, thermoplastic material or thermoset. It can be supplied in short, extended or middle version.

Measuring system

The meter employs three similar electromagnet elements which are mounted on a robust die-cast frame. Two elements drive the lower disc and one the upper disc on which the brake magnet also operates.

The two-disc rotor is made of aluminium sheet which is selected for its conductivity and purity. The brake magnet is made of AlNiCo alloy, and sealed in a SiAl casting.

The rotor upper bearing consists of a steel needle guide with a sintered graphite pivot. No lubrication is necessary. The lower bearing can be two-cup, ball or magnetic type.

The voltage electromagnet of each element has a double magnetic circuit and the U-shape current electromagnet is used.

Electromagnetic sheet of a corresponding initial permeability in current cores assures specified error curves with respect to the load, either at small loads or overloads.

Register

The register can be single-rate or two-rate type. It consists of six or seven graduated drums. The rear register circumference is divided in to 100 sections.

A single-rate register can be provided with a standard digit drum with the size of numbers 4.7 x 2.3 mm, and with a larger digit drum with the size of numbers 6.9 x 3.65 mm. No lubrication of bearings is necessary.

The two-rate register is available only in a standard digit drum version. The tariff switch-over is enabled by a change-over relay functioning via a differential gear.

The change-over relay is a D.C. version and is supplied via the incorporated rectifier and the protective resistor.

Reverse running stop

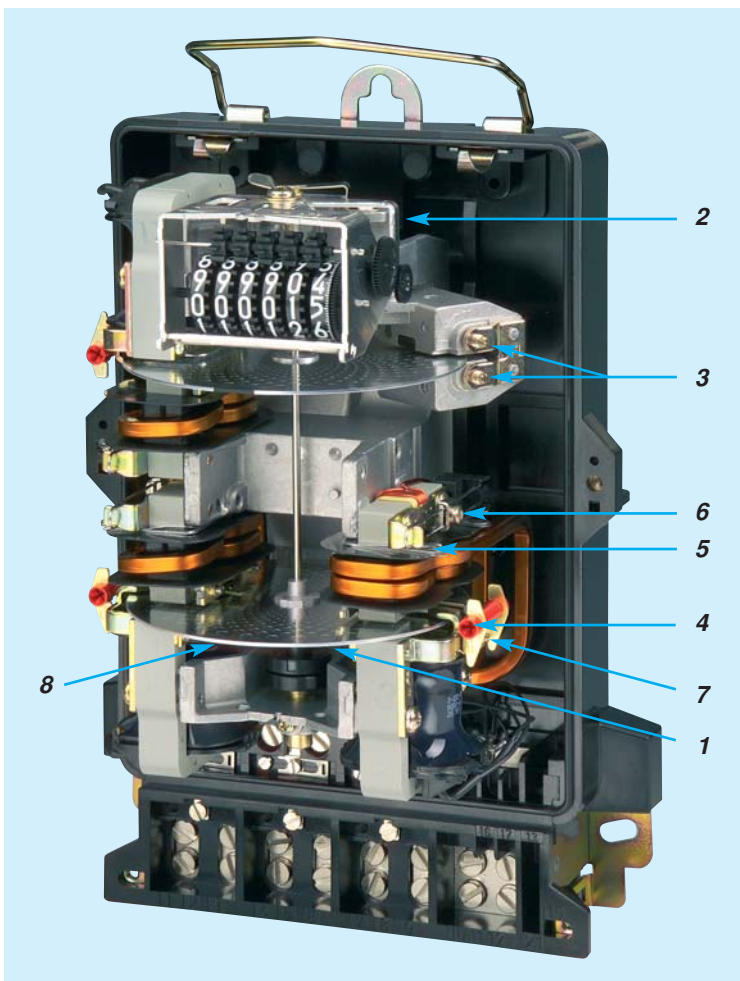
A four-part stop is mounted beside the upper bearing and functions to the gear part of the upper bearing sleeve with a worm. The stop friction can be neglected. It does not influence in the meter accuracy and the start-up. If the impulse transmitter is built in the meter, a 24-part stop is mounted in the device. It can be incorporated on special request only.

Impulse output

Impulse transmitters (inductive type – 5 and opto-electronic type – 9) are built into three-phase reactive electricity meters. The impulse transmitters can be supplied with SO (DIN 43 864) or a relay impulse output. The electromagnetic compatibility complies with IEC 1036, Articles 5.5.2. to 5.5.5.;

Impulse frequency is proportional to meter rotor speed as well as to electric energy consumption.

Transmission of pulses from the meter to the central unit is performed through special two-wire lines.



CALIBRATION ELEMENTS

- 1 – Starting adjustment
- 2 – Coarse Load (FL) adjustment
- 3 – Fine FL adjustment
- 4 – Low Load adjustment
- 5 – Coarse PF adjustment
- 6 – Fine PF adjustment
- 7 – Torque balance adjustment
- 8 – Reverse phase sequence adjustment

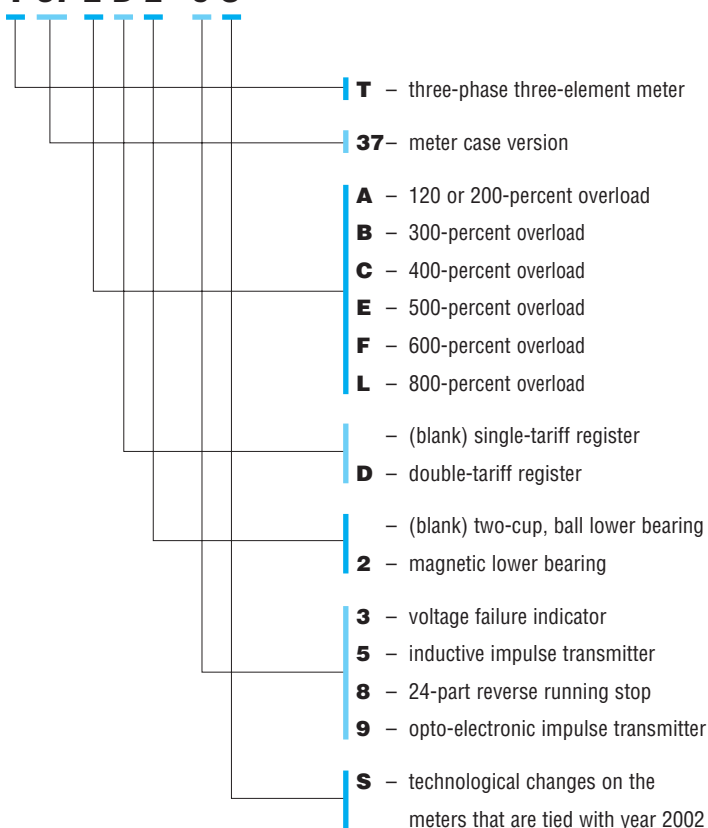
TECHNICAL DATA

Type	T37F	T37L	T37C	T37B	T37E	T37E	T37F	T37C
Ref. voltage U_r (V)	3 x 230/400							
Ref. frequency (Hz)	50							
Basic current I_b (A)	10	10	20	30	20	40	20	40
Max. current I_{max} (A)	60	80	80	90	100	100	120	160
Thermal current (A)	72	96	96	108	120	120	144	192
Losses in voltage coils at the rated voltage (W)	3 x 0.95							
(VA)	3 x 3.2 to 3.6							
Losses in current coils at the basic current (W)	3 x 0.10	3 x 0.05	3 x 0.28	3 x 0.50	3 x 0.23	3 x 0.65	3 x 0.23	3 x 0.53
(VA)	3 x 0.12	3 x 0.06	3 x 0.32	3 x 0.55	3 x 0.25	3 x 0.8	3 x 0.25	3 x 0.6
Torque at basic load ($\times 10^{-4}$ Nm)	6.7	5.7	10.1	14.2	9.8	20	7.6	12
Meter constant (revs/kWh)	75	60	48	48	37.5	37.5	37.5	24
Rated number of revolutions at basic load (r.p.m.)	8.625	6.9	11.04	16.56	8.625	17.25	8.625	11.04
No-load running	Rotor does not run when the current circuit is open, and if the voltage varies from 80% to 110% U_{ref} .							
Starting current at U.P.f	< 0.5 % I_b							
Dielectric strength	Between the parts at load and inner meter's metal parts: 2000Vef. Between the parts at load and outer touching metal parts: 4000Vef.							
Surge voltage strength (1.2/50 μ s)	7 kV (up to 12 kV on special request)							
Weight of the rotor (g)	approx. 52 with two-cup bearing, and 55 with magnetic bearing							
Weight of the meter (kg)	approx. 3.2 to 3.5							

Other rated voltages up to 500 V and currents (5/20, 10/20, 5/30, 10/30, 5/40, 10/40, 15/60, 20/60, 50/100, 30/120, 80/160 A, ...) are also available on special request.

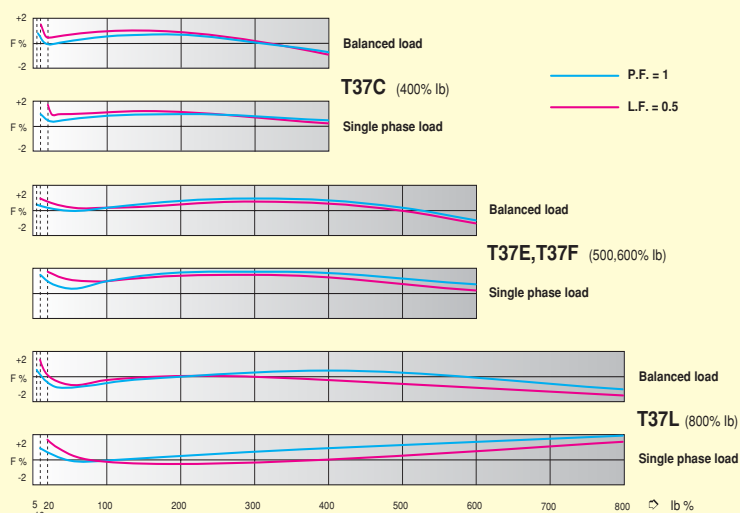
METER TYPE DESIGNATION

T 37 E D 2 - 9 S

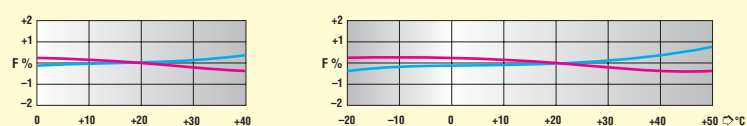


TYPICAL PERFORMANCE CHARACTERISTICS

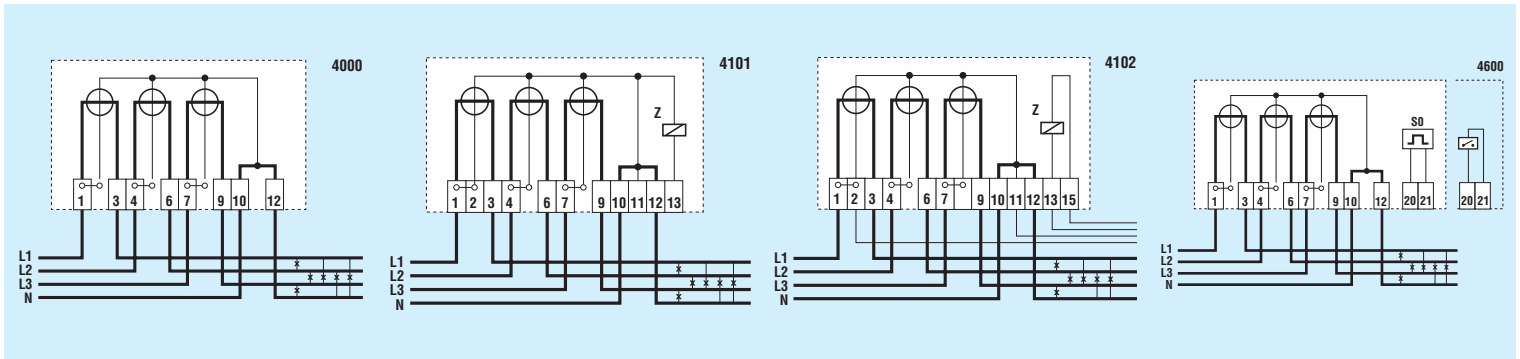
Load curves



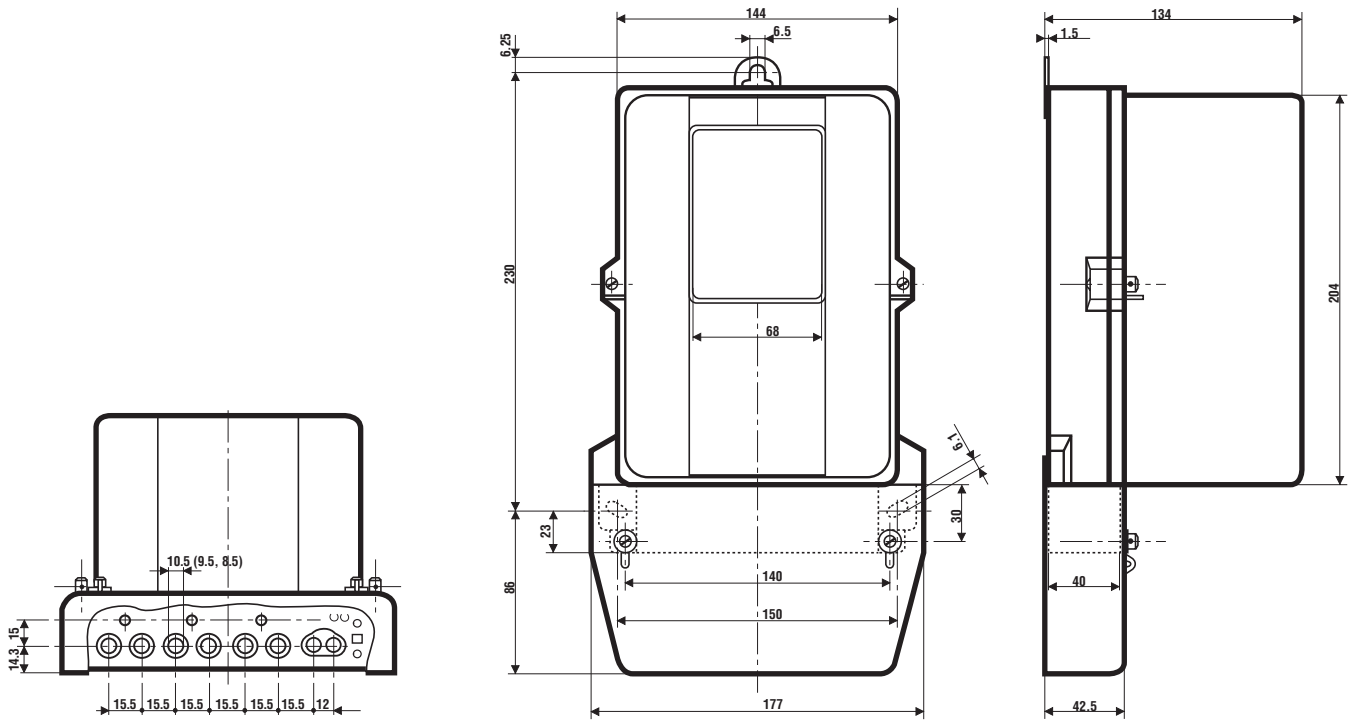
Error due to temperature variation



CONNECTION DIAGRAMS



OVERALL AND FIXING DIMENSIONS



Owing to periodical improvements of our products the supplied products can differ in some details from the data stated in the prospectus material.