

Tillquist measuring transducers

PQ300 Combined transducer for active and reactive power

The measuring transducers PQ300 are used for simultaneously measuring of active and reactive power in balanced three phase, three wire systems. The transducers are connected to the mains directly or via measuring transformers.

Transducers in plastic case are mounted directly on profiled bars TS35. Connection to selfopening clamps for max 6 mm² wires.

The transducers are manufactured according to standard IEC 688.

Design

The transducer is operating with the principle of pulse duration modulation (TDM-principle). Transformers on the input take care of the isolation of the current and voltage inputs from the electronics and also transform the input signals to proper levels.

In the multiplier unit current and voltage signals are multiplied to form signals proportional to the active and reactive power. These signals are taken to two separate output amplifiers to get the wanted output signal and to reach the galvanic separation between the two output signals.

The power supply feeds the electronics and is in case of AC power galvanically isolated via a transformer. In case of DC power a switched unit is used which gives galvanic separation and covers the whole span 24 och 110 VDC.



	Case
Three phase balanced load	PQ300-05**

** Add the last two figures in the type-form. See table below for output values. Example: Transducer for active/reactive power in a balanced loaded three phase system, active output 0-10 mA, PQ300-0522.

Output mA	Ext. resistance load Ω	*End figures
0-5 or ± 5	0-3000	1
0-10 or ± 10	0-1500	2
0-20 or ± 20	0-750	3
4-20	0-750	4

Input

Voltage any value between 60 och 500V.

Consumption (burden) $U_{in} \times 1\text{mA}$ per phase.

Current any value between 0,5 och 5A.

Consumption (burden) $< 5 \times 10^{-2}\text{VA}$ per phase.

Permissible measuring range any value between 0,75-1,3 x apparent power.

Other values on request.

Apparent power at 1-fas $U_{in} \times I_{in}$
at 3-fas $U_{in} \times I_{in} \times \sqrt{3}$

When measuring transformer is used calculate upon primary values for U_{in} och I_{in} . By measuring ranges in both directions, e.g. 10-0-100MW, calculate the factor on the largest part, i.e. on 100MW.

Frequency 50 eller 60Hz.

Overload:

Current $2 \times I_{in}$ continuously,

$10 \times I_{in}$ during 15 s,

$40 \times I_{in}$ during 1 s but 200A max.

Voltage $1,5 \times U_{in}$ continuously,

$2 \times U_{in}$ during 10 s.

Technical data

Accuracy class 0,5 to IEC688.

Linearity error $\pm 0,1\%$

Temperature error $\pm 0,2/10^\circ\text{C}$.

Temperature range -25 to $+60^\circ\text{C}$.

Time constant T_{63} 60ms.

Ripple 1% p.p.

Test voltage 5,6 kV 50Hz 1 min.

Current limitation max ca 25mA,

Power supply 110 or 230 V AC, 3 VA

24-130 V DC, 3 W

Interference environment IEC 255-4, -5.

Imp. voltage 5kV, 1,2/50μs, 0,5Ws.

Spark test 8kV.

Order from

Measuring transducer PQ300 - 0522

for active/reactive power,

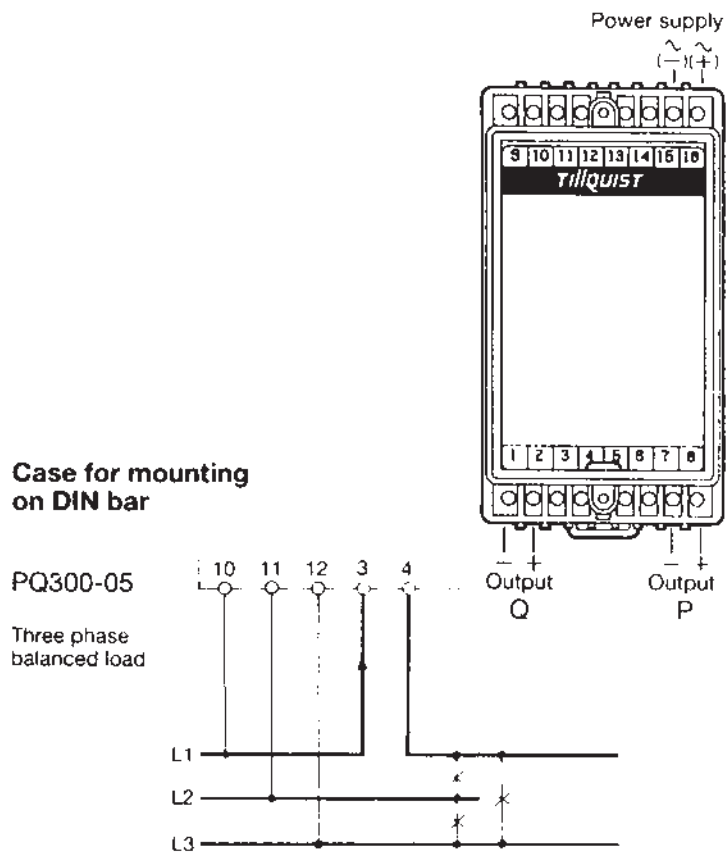
balanced loaded three phase system.

Connected to 11000/110V, 500/5A, 50Hz.

Measuring range - 10 ... 0 ... + 10MW
resp. - 10 ... 0 ... + 10Mvar.

Output - 10 ... 0 ... + 10mA.

Power supply 110V, 50Hz



The same connection diagrams for connection via current resp. voltage transformer.

Dimensions in mm

