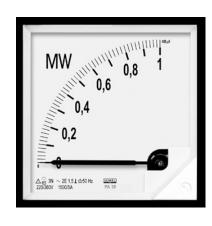


PANEL POWER METERS PA39 TYPE



 ϵ

APPLICATION

The PA39 power meter is a mowing-coil meter with a built-in measuring transducer. It is destined to measure active or reactive power in a.c. power networks. The measured power is indicated by a magnetoe-lectric (moving-coil) measuring system.

These meters are delivered in following versions:

- for measuring the active power in single-phase systems,
- for measuring the active or reactive power in three-phase three-wire or four-wire symmetrically or asymmetrically loaded systems,
- with the zero graduation on the left side of the scale for measuring the unidirectional power flow,
- with the zero graduation in the middle of the scale for measuring the bidirectional power flow.

TECHNICAL DATA

Measuring

ranges acc. the series 1, 1.2, 1.5, 2, 2.5, 3, 4, 5, 6, 7.5, 8,

or the decimal multiplication of one of these numbers

Input voltage $100 \sqrt{3} (x/100/\sqrt{3}),100 (x/100),$

133, 230, 280, 400, 500, 690 V

Input current1 A (x/1 A), 5 A (x/5 A)Active power factor $\cos \varphi$: $-0.5 \exp...1...0.5 \text{ ind}$ Reactive power factor $\sin \varphi$: $-0.5 \exp...1...0.5 \text{ ind}$

Accuracy class 1.5

Rated operating conditions:

- ambient temperature 5...23...40°C

5...<u>35</u>...55°C (on request,

tropical execution)

- relative humidity 25...85%

- frequency of the

input quantities acc. order (table 1) - working position acc. order \pm 5° (table 2)

- external magnetic field ≤ 400 A/m

Additional errors acc. EN 60051-1 standard

Power consumption:

- voltage circuit \leq 3 VA - current circuit \leq 0.25 VA

Protection Grade acc. to EN60529

• Front protection grade:

- IP 50 for PA39 meters

- IP 65 for PA39 meters (on request):

• IP20 terminal protection (with a terminal protection cover)

Electromagnetic compatibility:

- emission acc. EN 61000-6-4 standard - immunity acc. EN 61000-6-2 standard

The meter fulfils CE mark requirements.

Safety requirements acc. EN 61010-1:

- installation category III - level of pollution 2

working voltage

in relation to the earth 600 V a.c. Weight 400 g

ACCESSORIES

We deliver with the meter:

- screw holders (IP50 option)	2	pcs
- screw holders (IP65 option)	4	pcs
- terminal protection cover	1	рс
- user's manual	1	рс
- guarantee certificate	1	рс

CHOICE OF MEASURING RANGE

1. Calculate the power from the formulas:

P = U x I for single-phase networks

 $P = \sqrt{3} \times U_n \times I_n \text{ for three-phase networks}$

U_n - network rated voltage:

- for three-phase networks phase-to-phase voltage,
- when connected through transformers-primary rated voltage.

I - rated current:

• 5 A or 1 A,

where:

- when connected through transformers-primary rated voltage.
- 2. Round the calculated power value to the nearest value from the given sequence of numbers for the measuring range.
- 3. Example of measuring range choice.

Three-phase network; rated values of transformers:

15 000/100 V and 400/5 A

 $P = \sqrt{3} \times 15\,000 \text{ V} \times 400 \text{ A} = 10,39 \text{ MW (Mvar)}$

Selected measuring range: 10 MW (Mvar)



EXTERNAL DIMENSIONS OF PA39 METER FOR IP 50 PROTECTION GRADE

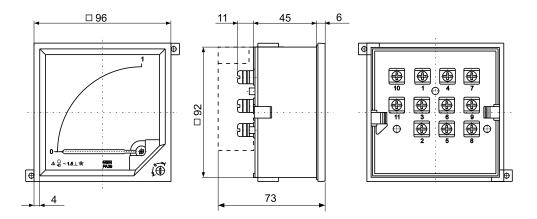
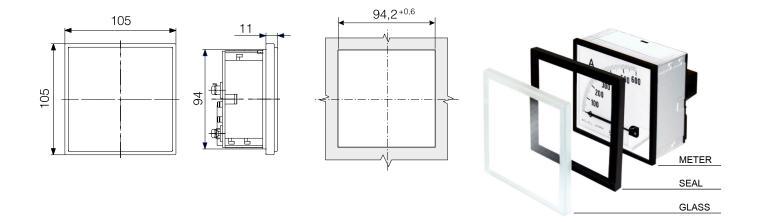


Fig.1. PA39 meter outline drawing.

EXTERNAL DIMENSIONS OF PA39 METER FOR IP 65 PROTECTION GRADE



FIXATION ON THE PANEL

One should prepare in the panel a hole at dimensions: $92^{+0.8} \times 92^{+0.8}$ mm. The thickness of the material of which the panel is made, cannot exceed 15 mm.

The meter is fixed in the panel by two screw holders situated on arbitrary opposite corners of the case.

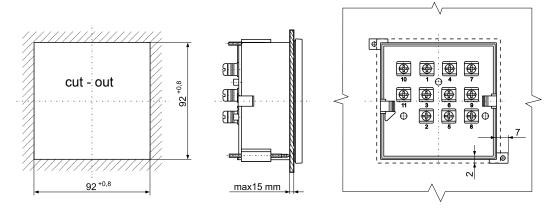


Fig.2. Way of the meter fixation on the panel.



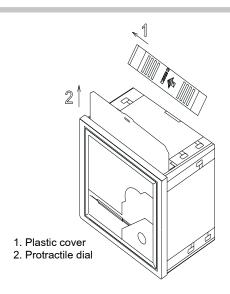
DIAL EXCHANGE

Dials with graduated scales can be interchanged in all PA39 power meters. This is especially convenient for meters destined to co-operate with measuring transformers. In order to exchange the dial, one can take off the plastic cover (1) placed on the upper part of the case and draw out the dial (2) with a suitable tool Introduced in the dial perforation. When replacing the new dial, carefully close the slot of the case with the plastic cover (see fig. 1).



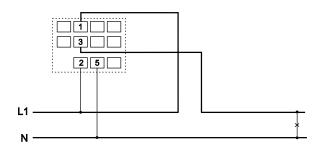


When changing the standard rated ranges of PA39 power meters and choosing **Un** or **In** quantities inconsistently with values included in the table 3 (measuring ranges), one must recalibrate these power meters acc. calibration instructions given by the manufacturer in the **Calibration Service Manual** (if ordered).

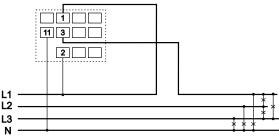


CONNECTION DIAGRAMS OF EXTERNAL CIRCUITS

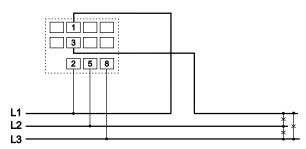
Measurement of active power in a single-phase network.



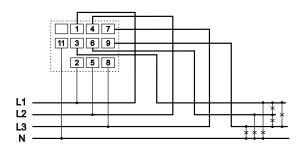
Measurement of active power in a three-phase four-wire symmetrically loaded network.



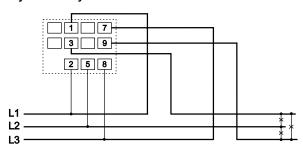
Measurement of active power in a three-phase three-wire symmetrically loaded network.



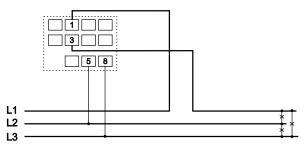
Measurement of active power in a three-phase four-wire asymmetrically loaded network.



Measurement of active power in a three-phase three-wire asymmetrically loaded network.

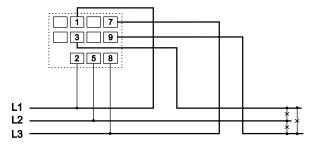


Measurement of reactive power in a three-phase three-wire symmetrically loaded network.

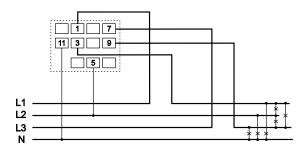




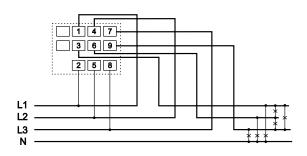
Measurement of reactive power in a three-phase three-wire asymmetrically loaded network.



Measurement of reactive power in a three-phase four-wire symmetrically loaded network.



Measurement of reactive power in a three-phase four-wire asymmetrically loaded network.



ORDERING PROCEDURE

Table 2 Code Position 0 сЗ Α с1 В c2, α = 15° С c2, α = 30° D c2, α = 45° c2, α = 60° Ε F c2, α = 75° Н c4, α = 105° c4, α = 120°

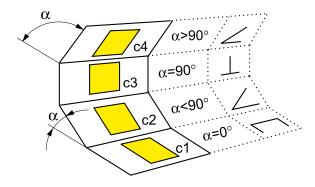


Fig.3. Codes and markings concerning the working position.



MEASURING RANGES Table 3

	Single p			A	<u>100</u> √3	100	230	280	400															
	3-phase active p symme	ower		В						220	400	500	600	3000	6000	10000	15000	20000	30000	40000	60000	110000	220000	400000
	3-phase active p asymm	ower		c						230	400	500	690	100	100	100	100	100	100	100	100	100	100	100
	3-phase active p symme	ower		D						133	230	280	400	3000	6000	10000	15000	20000	30000	40000	60000	110000	220000	400000
Un	3-phase active p asymm	ower		E						230	400	500	690	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3
[V]	3-phase reactive symme	e power	•	F						230	400	500	690	3000	6000	10000	15000	20000	30000	40000	60000	110000	220000	400000
	3-phase reactive asymm	e power	•	G						230	400	300	090	100	100	100	100	100	100	100	100	100	100	100
	3-phase reactive symme	e power	•	н						<u>133</u>	<u>230</u>	<u>280</u>	<u>400</u>	3000	6000									400000
	3-phase reactive asymm	e power	΄,	K						230	400	500	690	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3	100√3
	n/x	IN C	ode	Power unit										Uı	n Code)								
		x=5	x=1	Po	Т	U	Α	٧	W	В	С	D	Е	F	G	Н	ı	K	L	М	N	Р	R	S
						400	000	0=0	400	400	600	800	1.2	-	40	4.5	0.5	20	E0.	00	400	000	400	000
	1	_	A1		50	100	200		400	400	600	800	1.2	5	10	15	25	30	50	80	100	200	400	800
ļ	5; 5/x	_ В5	В1	W	250	500	1	1.2	2	2	3	4	6	25	50	60	120	150	250	400	500	1	2	4
į	5; 5/x 10/x	C5	B1 C1	W	250 500	500 1	1	1.2 2.5	2	2	3	4 8	6 12	25 50	50 100	60 150	120 250	150 300	250 500	400 800	500 1	1 2	2 4	4 8
	5; 5/x 10/x 15/x	C5 D5	B1 C1 D1	W	250 500 800	500 1 1.5	1 2 3	1.2 2.5 4	2 4 6	2 4 8	3 6 10	4 8 12	6 12 15	25 50 80	50 100 150	60 150 250	120 250 400	150 300 500	250 500 800	400 800 1.2	500 1 1.5	1 2 2.5	2 4 5	4 8 12
	5; 5/x 10/x 15/x 20/x	C5 D5 E5	B1 C1 D1 E1	W	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8	3 6 10 12	4 8 12 15	6 12 15 20	25 50 80 100	50 100 150 200	60 150 250 300	120 250 400 500	150 300 500 600	250 500 800	400 800 1.2 1.5	500 1 1.5 2	1 2 2.5 4	2 4 5 8	4 8 12 15
	5; 5/x 10/x 15/x	C5 D5 E5 F5	B1 C1 D1 E1 F1	W	250 500 800	500 1 1.5	1 2 3	1.2 2.5 4	2 4 6	2 4 8 8 12	3 6 10 12 20	4 8 12 15 25	6 12 15 20 30	25 50 80 100 150	50 100 150 200 300	60 150 250 300 500	120 250 400 500 800	150 300 500 600	250 500 800 1 1.5	400 800 1.2 1.5 2	500 1 1.5 2 3	1 2 2.5 4 5	2 4 5 8 10	4 8 12 15 20
ţ	5; 5/x 10/x 15/x 20/x 30/x	C5 D5 E5	B1 C1 D1 E1	W	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8	3 6 10 12	4 8 12 15	6 12 15 20	25 50 80 100	50 100 150 200	60 150 250 300	120 250 400 500	150 300 500 600	250 500 800	400 800 1.2 1.5	500 1 1.5 2	1 2 2.5 4	2 4 5 8	4 8 12 15
	5; 5/x 10/x 15/x 20/x 30/x 50/x	C5 D5 E5 F5 G5	B1 C1 D1 E1 F1 G1	W	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20	3 6 10 12 20 30	4 8 12 15 25 40	6 12 15 20 30 50	25 50 80 100 150 250	50 100 150 200 300 500	60 150 250 300 500 800	120 250 400 500 800	150 300 500 600 1 1.5	250 500 800 1 1.5 2.5	400 800 1.2 1.5 2 4	500 1 1.5 2 3 5	1 2 2.5 4 5	2 4 5 8 10 20	4 8 12 15 20 40
	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x	C5 D5 E5 F5 G5 H5	B1 C1 D1 E1 F1 G1 H1		250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30	3 6 10 12 20 30 50	4 8 12 15 25 40 60 80	6 12 15 20 30 50 80 100	25 50 80 100 150 250 400	50 100 150 200 300 500 800	60 150 250 300 500 800	120 250 400 500 800 1.2	150 300 500 600 1 1.5 2.5	250 500 800 1 1.5 2.5 4	400 800 1.2 1.5 2 4 5	500 1 1.5 2 3 5	1 2 2.5 4 5 10	2 4 5 8 10 20 25	4 8 12 15 20 40 50
	5, 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x	C5 D5 E5 F5 G5 H5 I5 K5	B1 C1 D1 E1 F1 G1 H1 J1 K1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40	3 6 10 12 20 30 50 60	4 8 12 15 25 40 60 80 120	6 12 15 20 30 50 80 100 150	25 50 80 100 150 250 400 500 800	50 100 150 200 300 500 800	60 150 250 300 500 800 1.2 1.5	120 250 400 500 800 1.2 2 2.5	150 300 500 600 1 1.5 2.5 3	250 500 800 1 1.5 2.5 4 5	400 800 1.2 1.5 2 4 5	500 1 1.5 2 3 5 8 10	1 2 2.5 4 5 10 15 20	2 4 5 8 10 20 25 40	4 8 12 15 20 40 50 80
	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x	C5 D5 E5 F5 G5 H5 J5	B1 C1 D1 E1 F1 G1 H1 J1		250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120	3 6 10 12 20 30 50 60 100 120 200	4 8 12 15 25 40 60 80 120 150 250	6 12 15 20 30 50 80 100 150 200 300	25 50 80 100 150 250 400 500 800 1	50 100 150 200 300 500 800 1 1.5	60 150 250 300 500 800 1.2 1.5 2.5	120 250 400 500 800 1.2 2 2.5 4	150 300 500 600 1 1.5 2.5 3	250 500 800 1 1.5 2.5 4 5	400 800 1.2 1.5 2 4 5 8	500 1 1.5 2 3 5 8 10 15	1 2 2.5 4 5 10 15 20	2 4 5 8 10 20 25 40	4 8 12 15 20 40 50 80 120
	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x	C5 D5 E5 F5 G5 H5 J5 K5 L5 M5	B1 C1 D1 E1 F1 G1 H1 I1 J1 K1 L1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 150	3 6 10 12 20 30 50 60 100 120 200 250	4 8 12 15 25 40 60 80 120 150 250 300	6 12 15 20 50 80 100 150 200 300 400	25 50 80 100 150 250 400 500 800 1 1.5	50 100 150 200 300 500 800 1 1.5 2 3	60 150 250 300 500 800 1.2 1.5 2.5 3 5	120 250 400 500 800 1.2 2 2.5 4 5 8	150 300 500 600 1 1.5 2.5 3 5 6 10	250 500 800 1 1.5 2.5 4 5 8 10 15 20	400 800 1.2 1.5 2 4 5 8 12 15 20 30	500 1 1.5 2 3 5 8 10 15 20 30 40	1 2 2.5 4 5 10 15 20 25 40 50 80	2 4 5 8 10 20 25 40 50 80 100	4 8 12 15 20 40 50 80 120 150 200 300
	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 400/x	C5 D5 E5 F5 G5 H5 I5 K5 L5 M5 N5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 150 200	3 6 10 12 20 30 50 60 100 120 200 250 400	4 8 12 15 25 40 60 80 120 150 250 300 500	6 12 15 20 30 50 80 100 150 200 300 400 600	25 50 80 100 150 250 400 500 800 1 1.5 2	50 100 150 200 300 500 800 1 1.5 2 3 4	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6	120 250 400 500 800 1.2 2 2.5 4 5 8 10	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40	500 1 1.5 2 3 5 8 10 15 20 30 40 60	1 2 2.5 4 5 10 15 20 25 40 50 80	2 4 5 8 10 20 25 40 50 80 100 150 200	4 8 12 15 20 40 50 80 120 150 200 300 400
2 ()	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x	C5 D5 E5 F5 G5 H5 J5 K5 L5 M5 N5 P5	B1 C1 D1 E1 F1 G1 H1 I1 J1 K1 L1 M1 N1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300	3 6 10 12 20 30 50 60 100 120 200 250 400 500	4 8 12 15 25 40 60 80 120 150 250 300 500 600	6 12 15 20 30 50 80 100 150 200 300 400 600 800	25 50 80 100 150 250 400 500 800 1 1.5 2 3	50 100 150 200 300 500 800 1 1.5 2 3 4 6	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150	2 4 5 8 10 20 25 40 50 80 100 150 200 300	4 8 12 15 20 40 50 80 120 150 200 300 400 600
2 2 4 6 8 10	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 800/x 400/x 600/x 800/x 800/x	C5 D5 E5 F5 G5 H5 I5 J5 K5 L5 M5 P5 R5	B1 C1 D1 E1 F1 G1 H1 I1 J1 K1 L1 M1 N1 P1 R1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300 400	3 6 10 12 20 30 50 60 120 200 250 400 500 600	4 8 12 15 25 40 60 80 120 250 250 500 600 800	6 12 15 20 30 50 80 100 150 200 300 400 600 800	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800
2 2 3 4 6 8 10 12	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x	C5 D5 E5 F5 G5 H5 J5 K5 L5 M5 N5 P5	B1 C1 D1 E1 F1 G1 H1 I1 J1 K1 L1 M1 N1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300 400	3 6 10 12 20 30 50 60 120 200 250 400 500 600 800	4 8 12 15 25 40 60 80 120 250 250 500 600 800	6 12 15 20 30 50 80 100 150 200 300 400 600 800	25 50 80 100 150 250 400 500 800 1 1.5 2 3	50 100 150 200 300 500 800 1 1.5 2 3 4 6	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150	2 4 5 8 10 20 25 40 50 80 100 150 200 300	4 8 12 15 20 40 50 80 120 150 200 300 400 600
() () () () () () () () () ()	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x 300/x 400/x 300/x 300/x 300/x 300/x	C5 D5 E5 F5 G5 H5 I5 J5 K5 L5 M5 N5 P5 R5 S5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1 N1 P1 R1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300 400 500	3 6 10 12 20 50 60 100 250 400 500 600 800	4 8 12 15 25 40 60 80 120 250 300 500 600 800	6 12 15 20 30 50 80 100 150 200 300 400 600 800 1	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4 5	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8 10	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12 15 20	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20 25 30	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30 40	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50 60	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80 100	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100 120	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200 250	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400 500	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800
2 2 4 6 8 10 11 11 11 11 11 11 11 11 11 11 11 11	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x 300/x 300/x 300/x 300/x 300/x 300/x 300/x	C5 D5 E5 F5 G5 H5 I5 K5 L5 M5 R5 R5 R5 S5 T5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1 N1 P1 R1	. KW; kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300 400 500 600	3 6 10 12 20 50 60 100 250 400 500 600 800	4 8 12 15 25 40 60 80 120 250 300 600 800 1 1.2	6 12 15 20 30 50 80 100 150 200 300 400 600 800 1.2 1.5	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4 5 6 8	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8 10 12	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12 15 20 25	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20 25 30 40	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30 40	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50 60 80	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80 100	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100 120 150	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200 250 300	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400 500 600	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800
2 6 8 10 11 15 20 30 40	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x 300/x 400/x 300/x	C5 D5 E5 F5 G5 H5 I5 J5 K5 L5 M5 N5 F5 R5 C5 T5 U5 V5 W5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1 N1 P1 R1 S1 T1 U1	. KW; kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 300 400 500 600 800 1.2 1.5	3 6 10 12 20 30 50 60 120 250 400 500 600 800 1 1.2 2 2.5	4 8 12 15 25 40 60 80 120 250 300 500 600 800 1 1.2 1.5 2.5 3	6 12 15 20 30 50 80 100 150 200 400 600 800 1 1.2 1.5 2 3	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4 5 6 8 10 15 2	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8 10 12 15 20 30 40	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12 15 20 25 30 50 60	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20 25 30 40 50 80 100	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30 40 50 60 100 120	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50 60 80 100 150 200	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80 100 120 150 200 300	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100 120 150 200 300 400	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200 250 300 400 600 800	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400 500 600 800	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800
2 6 8 10 12 15 20 30 40 60	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x 300/x 400/x 300/x 300/x 400/x 300/x	C5 D5 E5 F5 G5 H5 I5 J5 K5 L5 M5 R5 R5 R5 S5 T5 U5 V5 X5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1 N1 P1 R1 S1 T1 U1 V1 X1	. KW; kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 200 300 400 500 600 800 1.2 1.5 2	3 6 10 12 20 30 60 100 120 250 400 500 600 800 1 1.2 2 2.5 4	4 8 12 15 25 40 60 80 120 250 300 500 600 800 1 1.2 1.5 2.5 3 5	6 12 15 20 30 50 80 100 150 200 400 600 800 1 1.2 1.5 2 3 20 6	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4 5 6 8 10 15 20 30	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8 10 12 15 20 30 40 60	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12 15 20 25 30 50 60	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20 25 30 40 50 80 100 150	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30 40 50 60 100 120 200	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50 60 80 100 150 200 300	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80 100 120 150 200 300 400	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100 120 150 200 300 400 600	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200 250 300 400 600	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400 500 600 800	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800
2 3 4 10 12 3 3 4 4 6 6 10 10	5; 5/x 10/x 15/x 20/x 30/x 50/x 75/x 100/x 150/x 200/x 300/x 400/x 300/x 300/x 400/x 300/x	C5 D5 E5 F5 G5 H5 I5 J5 K5 L5 M5 N5 F5 R5 C5 T5 U5 V5 W5	B1 C1 D1 E1 F1 G1 H1 J1 K1 L1 M1 N1 P1 R1 S1 T1 U1	kvar	250 500 800 1.2	500 1 1.5 2	1 2 3 4	1.2 2.5 4 6	2 4 6 8	2 4 8 8 12 20 30 40 60 80 120 300 400 500 600 800 1.2 1.5	3 6 10 12 20 30 50 60 120 250 400 500 600 800 1 1.2 2 2.5	4 8 12 15 25 40 60 80 120 250 300 500 600 800 1 1.2 1.5 2.5 3	6 12 15 20 30 50 80 100 150 200 400 600 800 1 1.2 1.5 2 3	25 50 80 100 150 250 400 500 800 1 1.5 2 3 4 5 6 8 10 15 2	50 100 150 200 300 500 800 1 1.5 2 3 4 6 8 10 12 15 20 30 40	60 150 250 300 500 800 1.2 1.5 2.5 3 5 6 10 12 15 20 25 30 50 60	120 250 400 500 800 1.2 2 2.5 4 5 8 10 15 20 25 30 40 50 80 100	150 300 500 600 1 1.5 2.5 3 5 6 10 12 20 25 30 40 50 60 100 120	250 500 800 1 1.5 2.5 4 5 8 10 15 20 30 40 50 60 80 100 150 200	400 800 1.2 1.5 2 4 5 8 12 15 20 30 40 60 80 100 120 150 200 300 400 800	500 1 1.5 2 3 5 8 10 15 20 30 40 60 80 100 120 150 200 300 400	1 2 2.5 4 5 10 15 20 25 40 50 80 100 150 200 250 300 400 600 800	2 4 5 8 10 20 25 40 50 80 100 150 200 300 400 500 600 800	4 8 12 15 20 40 50 80 120 150 200 300 400 600 800



ORDERING CODES Table 4

PANEL POWER METER - PA39	Х	Х	Х	XX	Х	Х	XX	Х
Kind of measured power and measuring system:	Ī							
Measurement of active power in a single-phase network	А							
Measurement of active power in a 3-phase 3-wire symmetrically loaded network	В							
Measurement of active power in a 3-phase 3-wire asymmetrically loaded network	с							
Measurement of active power in a 3-phase 4-wire symmetrically loaded network	D							
Measurement of active power in a 3-phase 4-wire asymmetrically loaded network	Е							
Measurement of reactive power in a 3-phase 3-wire symmetrically loaded network	F							
Measurement of reactive power in a 3-phase 3-wire asymmetrically loaded network	G							
Measurement of reactive power in a 3-phase 4-wire symmetrically loaded network	н							
Measurement of reactive power in a 3-phase 4-wire asymmetrically loaded network	K							
Input voltage								
write in the Un range code from the table 3		x						
Frequency of the input voltage								
write in the frequency code from the table 1			X					
Input current write in the In range code from the table 3				XX				
Flow direction of the power					'			
unidirectional, zero on the left side of the scale					0			
bidirectional, zero in the middle of the scale					1			
Norking position								
write in the working position from the table 2						X		
Versions:								
catalogue							00	
custom-made ¹⁾							xx	
Acceptance tests:								•
without additional requirements								8
with a quality inspection certificate								7
other requirements 2)								X

¹⁾ The ordering code is given by the manufacturer after agreement.

ORDERING WAY

In any order one must specify the name and the ordering code of the power meter using the tables: 1, 2, 3, and 4.

Order example: PA39 - H - F - O - L5 - 0 - O - 00 - 8, means:

- H Reactive PA39 power meter adapted to a three-phase four-wire symmetrically loaded network.
- Network rated voltage: 3000 V (from table 3).
- O Frequency of the input voltage: 50 Hz (from table 1). L5 Network rated current: 300 A (from table 3).
- 0 Unidirectional power flow.
- O Working position: C3, vertical (from table 2).
- 00 Catalogue version.
- 8 without additional requirements concerning acceptance tests.

This power meter is destined to co-operate with 300 A/5 A transformers and a 3000 V/100/ $\sqrt{3}$ V voltage transformers.

Note: concerning casing protection grade IP. When ordering, please precise the required grade option: IP50 or IP65

²⁾ The number code is given acc. customer's agreement.