DIN EN ISO 9001
Certificate: 01 100 80407

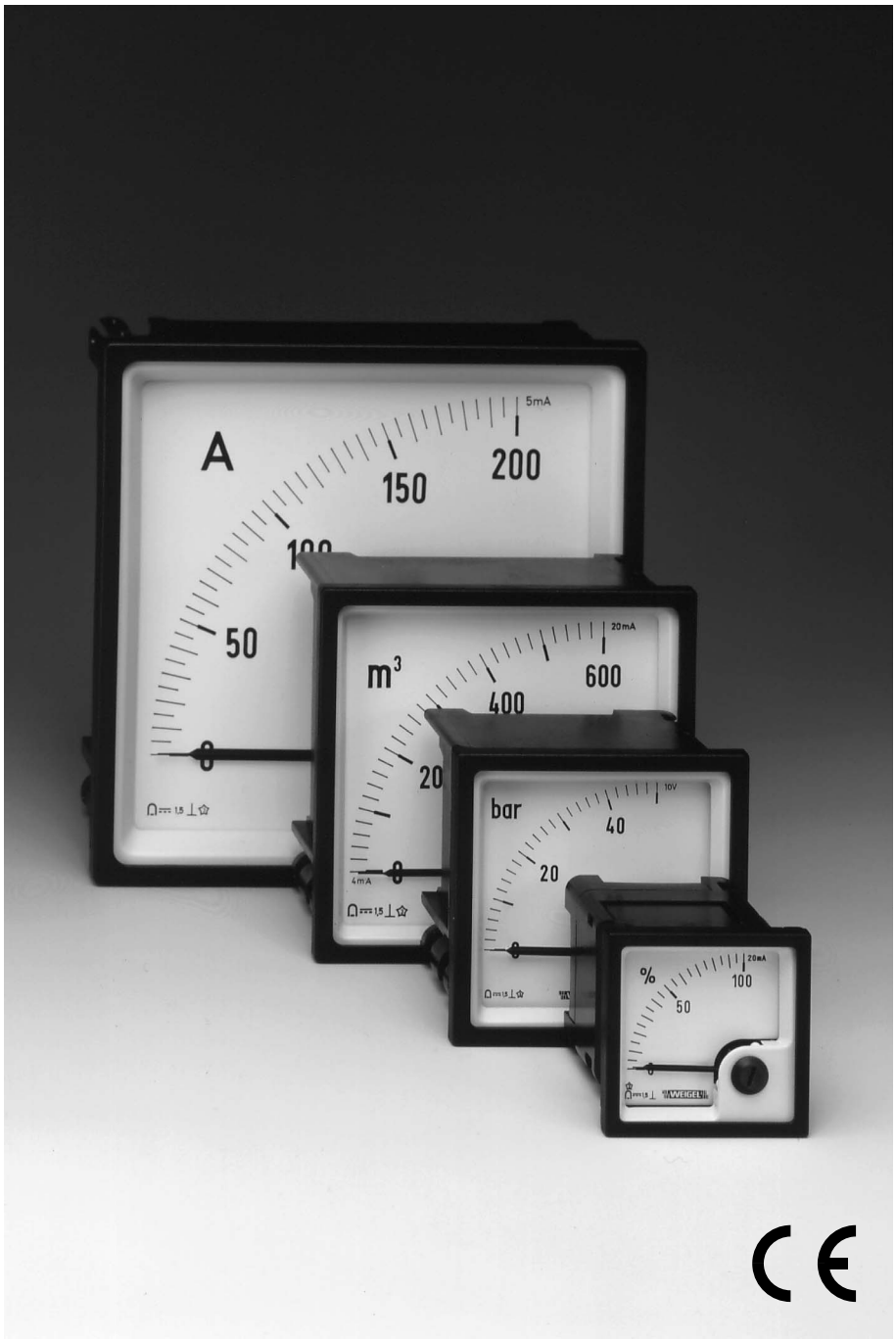
Data Sheet

K Series
410.D.101.06

Analog Meters with Moving-Coil Movement 90° – Dial

PQ 48 K
PQ 72 K
PQ 96 K
PQ 144 K

with Slide-In-Dial



CE

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Application

The moving–coil panel meters **PQ 48**/**72**/**96**/**144 K** (K series) housed in moulded thermoplastic cases are suitable for the measurement of DC currents and voltages.

The instruments are suitable to be mounted in switchboards, control panels, machine tool consoles and mosaic panels. The bezel, the glass window and the dial can be easily exchanged on–site.

Movements

Self–shielding moving–coil movements with core–type magnet and pivot suspension. Spring loaded jewel bearings for vibration and shock resistance.

Mechanical Data

case details	moulded square case suitable to be mounted in control / switchgear panels, machine tool consoles or mosaic panels, stackable
material of case	polycarbonate thermoplastics, flame retardant with UL rating of 94 V – 0
material of window	glass ◗
colour of bezel	black (similar to RAL 9005) ◗
position of use	vertical ±5° ◗
panel fixing	screw clamps or spring clamps (except PQ 144 K)
mounting	stackable next to each other
panel thickness	≤ 40 mm
terminals	
voltmeters and ammeters ≤ 4 A	hexagon studs, M4 screws and wire clamps E3
ammeters ≤ 60 A	threaded studs M6 with nuts
ammeters 100 A	threaded studs M8 with nuts

dimensions (in mm)	**PQ 48 K**	**PQ 72 K**	**PQ 96 K**	**PQ 144 K**
bezel	□ 48	□ 72	□ 96	□ 144
case	□ 42.5	□ 66	□ 90	□ 136
depth	53	53	53	53
panel cutout	□ $45^{+0.6}$	□ $68^{+0.7}$	□ $92^{+0.8}$	□ 138^{+1}
weight approx.	0.11 kg	0.15 kg	0.2 kg	0.25 kg

Electrical Data

measuring unit	DC voltage or current
overload capacity (acc. to DIN EN 60 051)	
continuously	1.2 times rated voltage / current
5 s max.	2 times rated voltage, 10 times rated current
pollution level	2
operating voltage	600 V ◗
excess voltage category	CAT II ◗
enclosure code	IP 52 case IP 00 for terminals without protection against accidental contact IP 20 for terminals protected against accidental contact ◗

◗ also refer to "Options"

Measuring Ranges

DC current	voltage drop approx. PQ 48 K	PQ 72/96/144 K	**DC voltage**	sensitivity*)
100 µA	270 mV	400 mV	60 mV	1 kΩ/V
1 mA	30 mV	40 mV	100 mV	1 kΩ/V
1.5 mA	90 mV	200 mV	150 mV	1 kΩ/V
2.5 mA	90 mV	200 mV	250 mV	1 kΩ/V
4 mA	90 mV	200 mV	400 mV	1 kΩ/V
5 mA	100 mV	200 mV	600 mV	1 kΩ/V
6 mA	100 mV	200 mV	1 V	1 kΩ/V
10 mA	100 mV	200 mV	1.5 V	1 kΩ/V
15 mA	15 mV	15 mV	2.5 V	1 kΩ/V
20 mA	60 mV	60 mV	4 V	1 kΩ/V
25 mA	60 mV	60 mV	6 V	1 kΩ/V
40 mA	60 mV	60 mV	10 V	1 kΩ/V
60 mA	60 mV	60 mV	15 V	1 kΩ/V
1 A	60 mV	60 mV	25 V	1 kΩ/V
1.5 A	60 mV	60 mV	40 V	1 kΩ/V
2.5 A	60 mV	60 mV	60 V	1 kΩ/V
4 A	60 mV	60 mV	100 V	1 kΩ/V
6 A	60 mV	60 mV	150 V	1 kΩ/V
10 A	60 mV	60 mV	250 V	1 kΩ/V
15 A	60 mV	60 mV	400 V	1 kΩ/V
25 A	60 mV	60 mV	500 V	1 kΩ/V
40 A**)	–	60 mV	600 V	1 kΩ/V
60 A**)	–	60 mV		◗
100 A**)	–	60 mV		

for use with external shunt

60 mV / 150 mV current consumption 15 mA approximately, a total lead resistance of 0.035 Ω is considered in the calibration of the indicator for interconnecting leads 1 m, 2x 1 mm^2

for use on transducer

4 ... 20 mA mechanically suppressed zero, without zero adjustment, voltage drop approx. 60 mV

*) the resistance values are limited to a tolerance of ±20%
**) not for PQ 48 K

Scaling

pointer	bar / knife–edge pointer			
pointer deflection	0 ... 90°			
scale characteristics	linear			
scale division	coarse–fine			
scale length	PQ 48 K 41 mm	PQ 72 K 61 mm	PQ 96 K 97 mm	PQ 144 K 146 mm

Accuracy at Reference Conditions

accuracy class	1.5 according to DIN EN 60 051
reference conditions	
ambient temperature	23°C±1K
position of use	nominal position ±1° ◗
input	rated measuring value
others	DIN EN 60 051
influences	
ambient temperature	–10°C ... +23°C ... +55°C
position of use	nominal position ±5°
stray magnetic field	0.5 mT

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Analog Meters with Moving-Coil Movement 90˚ – Dial

Environmental

climatic suitability	climatic class 3 acc. to VDE/VDI 3540 sheet 2
operating temperature range	−10 ... +55˚C
storage temperature range	−25 ... +65˚C
relative humidity	≤ 75% annual average, non−condensing
shock resistance	15 g, 11 ms
vibration resistance	2.5 g, 5 ... 55 Hz

Rules and Standards

DIN 43 700	measuring and control instruments for panel mounting; nominal case and cutout dimensions
DIN 43 701	electrical switchboard instruments
DIN 43 718	bezels and front panels
DIN 43 802	scales and pointers for electrical measuring instruments
DIN 16 257	nominal position of use and position symbols applicable for measuring instruments
DIN 40 050	enclosure codes; protection of electrical equipment against ingress of solid foreign bodies and of water
DIN EN 60 051	direct acting indicating electrical measuring instruments and their accessories
DIN EN 61 010	safety requirements for electrically operated measuring, control and laboratory equipment
VDE/VDI 3540 sheet 2	reliability of measuring and control equipment (classification of climates)

Options

case

window	non−glaring glass
colour of bezel	gray (similar to RAL 7037)
index marking pointer	red, front adjustable
position of use	on request 15˚...165˚
marine application	non−certified or with approbation by ”Germanischer Lloyd” (except EQ 48 K)

electrical data

operating voltage	up to 1000 V
excess voltage category	up to CAT III

dial

non−calibrated	with dial symbols
blank dial	pencil−marked on initial and end values
scale division and figuring	0 ... 100%
linear scale division	non−standard captions on request
additional lettering	on request e.g. ”generator”
additional figuring	on request
coloured marks	red, green or blue for important scale values
coloured sector	red, green or blue within scale division
logo on the dial	none or on request

others

zero position	centre zero or off−set zero
increased sensitivity	4 kΩ/V for voltmeters 1 ... 600 V 10 kΩ/V for voltmeters 1.5 ... 150 V
adjustment of resistance	to ±1% at 23˚C

terminal protection against accidental contact

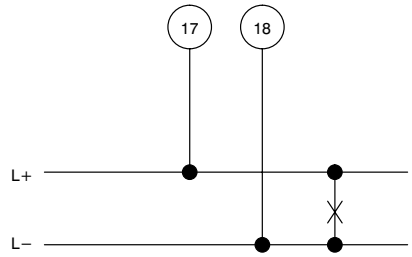
full−sized rear cover (except direct−connected ammeters > 5 A),

protective sleeves to go on hexagon studs and M4 screws with wire clamps

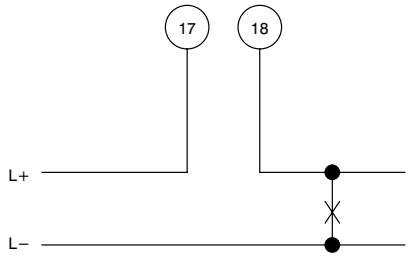
protection against accidental contact (hand and fingers) acc. to VBG 4 / DIN 57 106, sec. 100

Connections

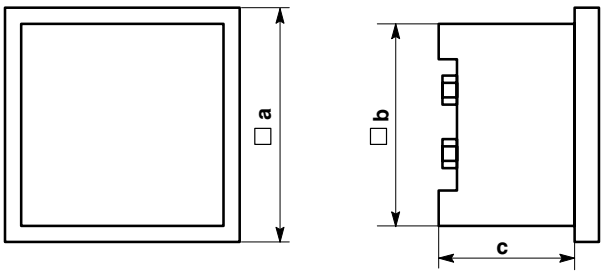
DC voltage



DC current



Dimensions



dimensions (in mm)	**PQ 48 K**	**PQ 72 K**	**PQ 96 K**	**PQ 144 K**
a	48	72	96	144
b	42.5	66	90	136
c	53	53	53	53

Ordering Information

type **PQ**	 moving−coil panel meter
front dimensions **48 K** **72 K** **96 K** **144 K**	 48 mm x 48 mm 72 mm x 72 mm 96 mm x 96 mm 144 mm x 144 mm
measuring ranges	refer to preceding table
window	glass *) non−glaring glass
colour of bezel	black (similar to RAL 9005) *) gray (similar to RAL 7037)
position of use	vertical *) on request 15 ... 165° **)
panel fixing	screw clamps *) spring clamps (except PQ 144 K)
marine application	none *) non−certified with approbation by "Germanischer Lloyd" (except PQ 48 K)
terminal protection	none *) full−sized rear cover protective sleeves
index marking pointer	none *) red, front adjustable
zero position	left hand zero *) centre or off−set zero **)
increased sensitivity	1 kΩ/V *) 4 kΩ/V for voltmeters 1 ... 600 V 10 kΩ/V for voltmeters 1.5 ... 150 V
adjustment of resistance	±20% *) to ±1% at 23°C
dial	scale division & measuring range alike *) no dial non−calibrated, with dial symbols blank dial scale division and figuring 0 ... 100% linear scale division **) additional lettering on request **) additional figuring on request **) coloured mark red, green or blue **) coloured sector red, green or blue **)
logo	WEIGEL *) none OEM logo **)

*) standard
**) Please clearly add the desired specifications.

ordering example

PQ 72 K, measuring range 0 ... 20 mA, window non−glaring glass, dial with linear scale division 0 ... 100°C, red mark at 37°C, no logo

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