Quality Management
ISO 9001:2008
▶ Voluntary participation in regular monitoring
DEKRA Certification
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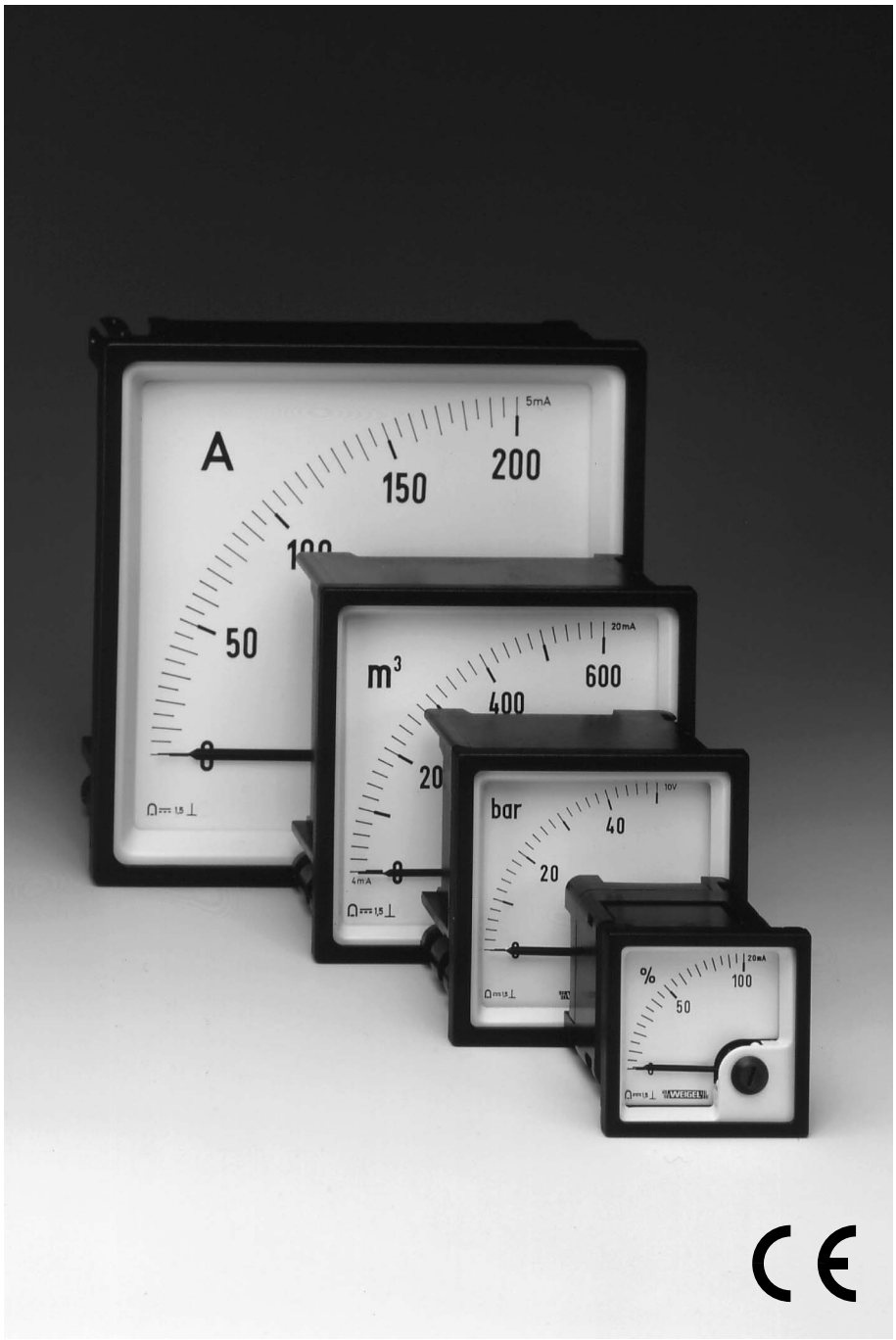
Data Sheet

K Series
410.D.101.12

Analog Meters with Moving-Coil Movement 90° Dial

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



with Slide-In Dial

WEIGEL

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 60 051-1	
continuously	1.2 times rated voltage / current
5 s max.	2 times rated voltage, 10 times rated current
measurement category	CAT III
operating voltage	refer to Measuring Ranges
pollution level	2
enclosure code	IP 52 case front side IP 00 for terminals without protection against accidental contact IP 20 for terminals protected against accidental contact ➧

➧ also refer to "Options"

Measuring Ranges

For mains use

DC current	voltage drop approx. PQ 48 K	PQ 72/96/144 K	**DC voltage >5V**	sensitivity[1] ➧
100 µA	270 mV	400 mV	6 V	1 kΩ/V
1 mA	30 mV	40 mV	10 V	1 kΩ/V
1.5 mA	90 mV	200 mV	15 V	1 kΩ/V
2.5 mA	90 mV	200 mV	25 V	1 kΩ/V
4 mA	90 mV	200 mV	40 V	1 kΩ/V
5 mA	100 mV	200 mV	60 V	1 kΩ/V
6 mA	100 mV	200 mV	100 V	1 kΩ/V
10 mA	100 mV	200 mV	150 V	1 kΩ/V
15 mA	15 mV	15 mV	250 V	1 kΩ/V
20 mA	60 mV	60 mV	400 V [2)3)]	1 kΩ/V
25 mA	60 mV	60 mV	500 V [2)3)]	1 kΩ/V
40 mA	60 mV	60 mV	600 V [2)3)]	1 kΩ/V
60 mA	60 mV	60 mV		
1 A	60 mV	60 mV		
1.5 A	60 mV	60 mV		
2.5 A	60 mV	60 mV		
4 A	60 mV	60 mV		
6 A	60 mV	60 mV		
10 A	60 mV	60 mV		
15 A	60 mV	60 mV		
25 A	60 mV	60 mV		
40 A [2)]	–	60 mV		
60 A [2)]	–	60 mV		
100 A [2)]	–	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

Not for mains use

DC voltage ≤5V	sensitivity[1] ➧
60 mV; 100 mV; 150 mV; 250 mV; 400 mV; 600 mV	1 kΩ/V
1 V; 1.5 V; 2.5 V; 4 V; 5 V	1 kΩ/V

for use on transducer ("live zero")

4 ... 20 mA	mechanically suppressed zero, without zero adjustment, voltage drop approx. 60 mV
0/4 ... 20 mA [2)]	electrically suppressed zero, with zero adjustment, voltage drop approx. 900 mV

Operating Voltages

measuring ranges operating voltage ➧

DC current	PQ 48 K	PQ 72 K	PQ 96 K	PQ 144 K
100 µA 1; 1.5; 2.5; 4; 5; 6; 10; 15; 20; 25; 40; 60 mA	150 V	150 V	150 V	150 V
1; 1.5; 2.5; 4; 6; 10; 15; 25 A	150 V	150 V	150 V	150 V
40; 60; 100 A [2)]	–	150 V	150 V	150 V
DC voltage	PQ 48 K	PQ 72 K	PQ 96 K	PQ 144 K
60; 100; 150; 250; 400; 600 mV	150 V	150 V	150 V	150 V
1; 1.5; 2.5; 4; 6; 10; 15; 25; 40; 60; 100 V	150 V	150 V	150 V	150 V
150 V	150 V	150 V	150 V	150 V
250 V	300 V	300 V	300 V	600 V
400; 500; 600 V [2)3)]	–	–	600 V	600 V

[1)] the resistance values are limited to a tolerance of ±20%
[2)] not for PQ 48 K
[3)] not for PQ 72 K

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Analog Meters with Moving-Coil Movement 90° Dial

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 60 051-1
reference conditions	
ambient temperature	23°C
position of use	nominal position ±1°
input	rated measuring value
others	DIN EN 60 051-1
influences	
ambient temperature	23°C±2K
position of use	nominal position ±5°
stray magnetic field	0.5 mT

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 43 718	Measurement and control; front-frames and frontpanels of measurement and control equipment; principal dimensions
DIN 43 802	Line scales and pointers for indicating electrical measuring instruments; general requirements
DIN 16 257	Nominal positions and position symbols used for measuring instruments
DIN EN 60 051	Direct acting indicating analogue electrical measuring instruments and their accessories
–1	Part 1: Definitions and general requirements common to all parts
–2	Part 2: Special requirements for ammeters and voltmeters
–9	Part 9: Recommended test methods
DIN EN 60 529	Enclosure codes by housings (IP-code)
DIN EN 61 010-1	Safety requirements for electrical measuring, control and laboratory equipment Part 1: General requirements
DIN EN 61 326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General requirements
DIN IEC 61 554	Panel mounted equipment – Electrical measuring instruments – Dimensions for panel mounting
VDE/VDI 3540 sheet 2	reliability of measuring and control equipment (classification of climates) (non-condensing)

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 PQ 48 K)
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
dial illumination	dial translucent
for PQ 72/96 K	1 lamps 6 V, 12 V, or 24 V
for PQ 144 K	2 lamps 6 V, 12 V, or 24 V
for PQ 72/96 K	1 pluggable LED 24 V DC / 0.4 W
for PQ 144 K	2 pluggable LEDs 24 V DC / 0.4 W
for PQ 48 K	internal LED 24 V DC
for PQ 72/96 K	internal LED 24 V DC
for PQ 144 K	internal LED 24 V DC 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
operating voltage	higher operating voltage on request

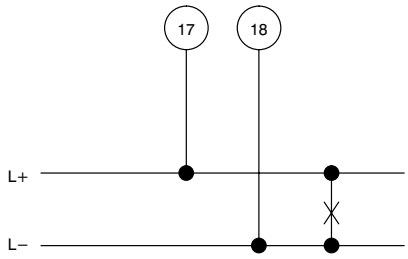
terminal protection against accidental contact

full-sized rear cover (not for directly connected ammeters >5 A),

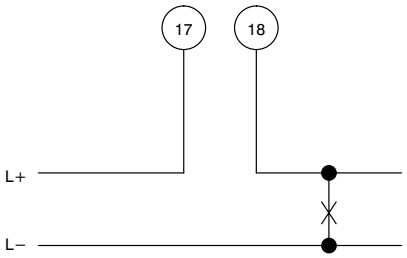
protective sleeves (for meters with hexagon studs and M4 screws with wire clamps)

Connections

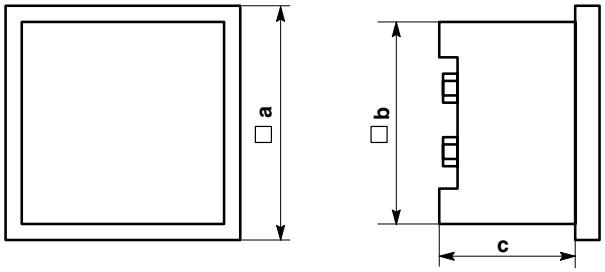
DC voltage



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 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

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
"live zero"	4 ... 20 mA mechan. suppressed zero [1] 0/4 ... 20 mA electric. suppressed zero [3]
window	glass [1] non-glaring glass
colour of bezel	black (similar to RAL 9005) [1] gray (similar to RAL 7037)
position of use	vertical [1] on request 15 ... 165˚ [2]
panel fixing	screw clamps [1] spring clamps (except PQ 144 K)
marine application	none [1] non-certified with approbation by "Germanischer Lloyd" (except PQ 48 K)
terminal protection	none [1] full-sized rear cover protective sleeves
index marking pointer	none [1] red, front adjustable
zero position	left hand zero position [1] centre or off-set zero position [2]
increased sensitivity	1 kΩ/V [1] 4 kΩ/V for voltmeters 1 ... 600 V 10 kΩ/V for voltmeters 1.5 ... 150 V
adjustment of resistance	±20% [1] to ±1% at 23˚C
dial	scale division & measuring range alike [1] no dial non-calibrated, with dial symbols blank dial scale division and figuring 0 ... 100% linear scale division [2] additional lettering on request [2] additional figuring on request [2] coloured mark red, green or blue [2] coloured sector red, green or blue [2]
dial illumination	none [1] refer to "Options"
logo	WEIGEL [1] none OEM logo [2]

[1]) Standard
[2]) Please clearly add the desired specifications.
[3]) not for PQ 48 K

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– specifications subject to change without notice; date of issue 08/15 –