

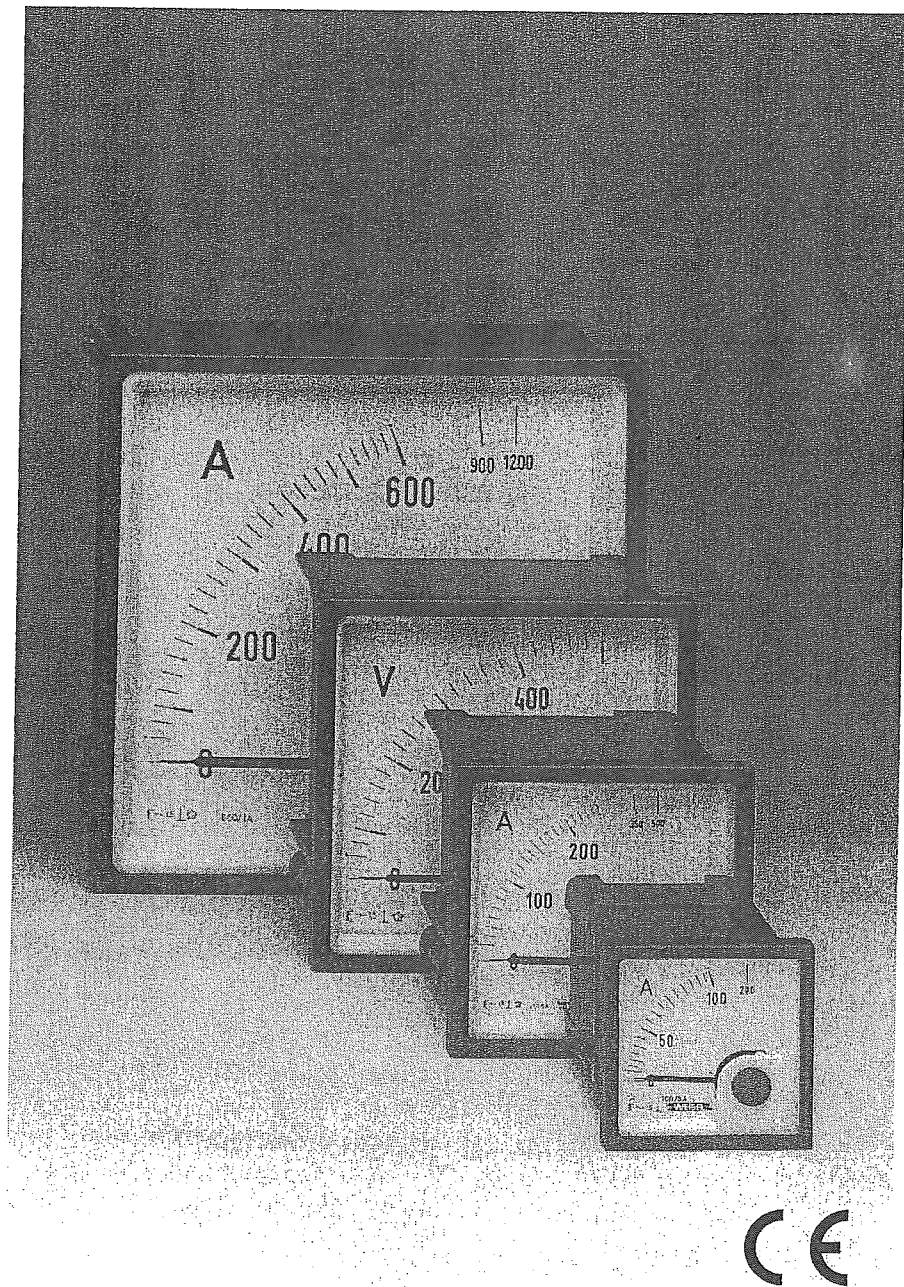
Data Sheet

K Series
420.D.101.04

Analog Meters with Moving-Iron Movement 90° – Dial

EQ 48 K
EQ 72 K
EQ 96 K
EQ 144 K

with Slide-In-Dial



WEIGEL

Application

The moving—iron panel meters EQ 48/72/96/144 K (K series) housed in moulded thermoplastic cases are mainly used for the measurement of AC currents and voltages in the usual technical frequency range of $16\frac{2}{3}$... 100 Hz.

Moving—iron meters indicate rms—values practically independent of wave form even of high harmonics. Error of indication may occur for extreme wave forms (e.g. phase gating controls) and / or frequencies above 100 Hz.

These meters are **not** suitable for use with shunts or tachogenerators due to their high power consumption.

The K—series meters offer application—oriented advantages in switch-board and generating set production, also suitable for mosaic panel mounting. The bezel, the glass window and the dial can be easily exchanged on site.

Movements

Moving—iron movement with pivot suspension, spring loaded shock absorbing jewel bearings and silicon oil damping.

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 $\pm 5^\circ$ ♦ | | | |
| panel fixing | screw clamps or spring clamps (except EQ 144 K) | | | |
| mounting | stackable next to each other | | | |
| panel thickness | ≤ 40 mm | | | |
| terminals | | | | |
| voltmeters and ammeters < 25 A | hexagon studs, M4 screws and wire clamps E3 | | | |
| ammeters ≥ 25 A | threaded studs M6 with nuts | | | |
| ammeters ≥ 60 A | threaded studs M8 with nuts | | | |
| dimensions (in mm) | EQ 48 K | EQ 72 K | EQ 96 K | EQ 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. | 0.1 kg | 0.15 kg | 0.2 kg | 0.25 kg |

Electrical Data

| | | |
|---|---|-----------------------|
| measuring unit | AC voltage / current | |
| frequency range | $16\frac{2}{3}$... 100 Hz | |
| power consumption | | |
| voltmeters | < 4.5 VA | |
| ammeters ≤ 15 A | < 0.5 VA | |
| ammeters > 15 A | < 0.8 VA | |
| overload capacity (acc. to DIN EN 60 051) | 1.2 times rated voltage / current | |
| continuously | | |
| voltmeters | | |
| 5 s max. | 2 times, 1000 V max. | |
| ammeters | EQ 48 K | EQ 72/96/144 K |
| 5 s max. | 10 times, 200 A max. | 10 times |
| 1 s max. | — | 40 times, up to 250 A |
| pollution level | 2 | |
| operating voltage | 600 V ♦ | |
| excess voltage | CAT II ♦ | |
| category | | |
| enclosure code | IP 52 case | |
| | IP 00 for terminals without protection against accidental contact | |
| | IP 20 for terminals protected against accidental contact ♦ | |

Measuring Ranges

| AC current | AC voltage |
|--|--|
| 1 A | 60 V |
| 1.5 A | 100 V |
| 2.5 A | 150 V |
| 4 A | 250 V |
| 5 A | 400 V |
| 6 A | 500 V |
| 10 A | 600 V |
| 15 A | higher measuring ranges |
| 25 A | on request |
| 40 A (except EQ 48 K) | |
| 60 A (except EQ 48 K) | |
| 100 A (except EQ 48 K) | |
| for use on current transformer ¹⁾ | for use on voltage transformer ²⁾ |
| N/1 A | 100 V sec. |
| N/5 A | 110 V sec. |

Please state transformer ratio when ordering.

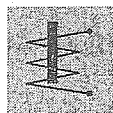
1) full scale value = 2 times rated value (overload scaling) ♦

2) full scale value = 1.2 times rated value (— " —)

Scaling

| | | | | |
|--|--|---------|---------|----------|
| pointer | bar / knife—edge pointer | | | |
| pointer deflection | 0 ... 90° | | | |
| scale characteristics | practically linear above 10% of rated full—scale value | | | |
| scale division | coarse—fine | | | |
| scale length | EQ 48 K | EQ 72 K | EQ 96 K | EQ 144 K |
| | 41 mm | 61 mm | 97 mm | 146 mm |
| overload scaling | | | | |
| ammeters | 2 times rated current ♦ | | | |
| voltmeters for use on voltage transformers | 1.2 times rated voltage | | | |

♦ also refer to "Options"



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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 |
| wave form | sinusoidal, distortion factor ≤ 5% |
| frequency | 45 ... 65 Hz |
| others | DIN EN 60 051 |

influences

| | |
|----------------------|--|
| ambient temperature | -10°C ... +23°C ... +55°C |
| position of use | nominal position ± 5° |
| frequency | 15 ... 100 Hz (voltage) 15 ... 400 Hz (current) |
| 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 43 700 | 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 | up to CAT III |
| category | |

terminal safety protection

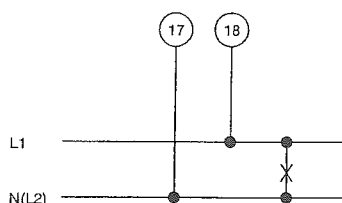
full-sized rear cover (except direct-connected ammeters > 25 A), protective sleeves to go on hexagon studs and M4 screws with wire clamps E3
protection against accidental contact (hand and fingers)
acc. to VBG 4 / DIN 57 106, sec. 100

dial

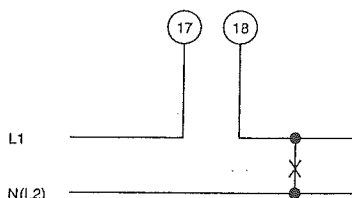
| | |
|-----------------------------|---|
| non-calibrated | with dial symbols |
| blank dial | pencil-marked on initial and end values |
| scale division and figuring | 0 ... 100% |
| linear scale division | non-standard captions on request |
| additional lettering | on request e.g. "generator" |
| 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 |
| overload scaling (ammeters) | no overload range or overload range 5 times rated current |

Connections

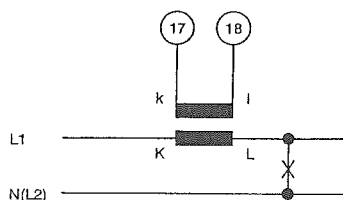
AC voltage (direct-connected)



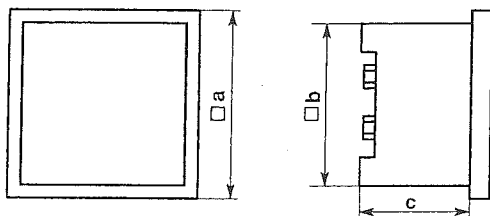
AC current (direct-connected)



AC current (for use on current transformer)



Dimensions



| dimensions (in mm) | EQ 48 K | EQ 72 K | EQ 96 K | EQ 144 K |
|--------------------|---------|---------|---------|----------|
| a | 48 | 72 | 96 | 144 |
| b | 42.5 | 66 | 90 | 136 |
| c | 53 | 53 | 53 | 53 |

Ordering Information

| | |
|--------------------------------|--|
| type EQ | moving – iron panel meter |
| front dimensions | |
| 48 K | 48 mm x 48 mm |
| 72 K | 72 mm x 72 mm |
| 96 K | 96 mm x 96 mm |
| 144 K | 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) |
| index marking pointer | none *) red, front adjustable |
| position of use | vertical *) on request 15 ... 165° **) |
| marine application | none *) non – certified with approbation by "Germanischer Lloyd" (except EQ 48 K) |
| panel fixing | screw clamps *) spring clamps (except EQ 144 K) |
| terminal safety protection | none *) full – sized rear cover protective sleeves |
| dial | according to measuring range resp. standard series for use on transformers *) non – calibrated, with dial symbols blank dial scale division and figuring 0 ... 100% according to standard series additional lettering on request **) additional figuring on request **) coloured marks red, green or blue **) coloured sector red, green or blue **) |
| overload scaling (ammeters) | no overload range 2 times rated current *) 5 times rated current |
| logo | WEIGEL *) none OEM logo **) |

*) standard

**) Please clearly add the desired specifications.

ordering example

EQ 72 K, measuring range 0 ... 150 V, window non – glaring glass,
dial 0 ... 100%, no logo

– specifications subject to change without notice; date of issue 03/05 –

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