



Data Sheet

010.D.981.01

Analog Meters clamping to DIN Rails

W 35
P 35
LSP 35



WEIGEL

Application

The analog meters W 35, P 35, LSP 35 designed for clamping to DIN rails are used for the measurement of current and voltage in distribution installations which utilize 35 mm DIN rails for equipment mounting. The mounting width of 52.5 mm is equal to 3 sectional units.

A cover to protect the meter terminals against accidental contact will be supplied on special order.

The meters can also be surface mounted besides clamping to a DIN rail.

Functional Principle

W 35 moving-iron movement with shell-type system, silicon oil damping and spring loaded jewel bearings, pivot suspension.

P 35 moving-coil movement with core-type magnetic system, dual spring loaded jewel bearings, pivot suspension.

LSP 35 moving-coil movement with swivel-coil system, dual spring loaded jewel bearings, pivot suspension.

Mechanical Data

| | | | |
|--------------------|--|--------|--------|
| case details | projecting case clamping to 35 mm mounting rail complying with DIN EN 50 022 | | |
| material of case | thermoplastics, self-extinguishing | | |
| colour of case | gray (similar to RAL 7035) | | |
| material of window | polycarbonate | | |
| position of use | vertical $\pm 5^\circ$ | | |
| terminals | screw terminals (up to 5 mm ²) | | |
| dimensions LxWxH | 95 mm x 52.5 mm x 63 mm | | |
| weight approx. | W 35 | P 35 | LSP 35 |
| | 0.1 kg | 0.1 kg | 0.2 kg |

Electrical Data

| | | |
|---|---|--------------------------|
| measuring unit | W 35 | AC voltage or AC current |
| | P 35 | DC voltage or DC current |
| | LSP 35 | DC voltage or DC current |
| overload capacity (acc. to DIN EN 60 051) | continuously 1.2 times rated voltage / current | |
| | 5 s max. | |
| voltmeters | 2 times rated voltage | |
| ammeters | 10 times rated current | |
| power consumption W 35 | | |
| voltmeters | approx. 1.5 ... 3 VA | |
| ammeters | approx. 0.5 ... 1 VA | |
| frequency range W 35 | 16 ^{2/3} ... 100 Hz \blacktriangleright | |
| protection class | I | |
| enclosure code | IP 52 case | |
| | IP 00 for terminals without protection against accidental contact | |
| | IP 20 for terminals protected against accidental contact | |
| insulation class | group A according to VDE 0110 | |
| rated insulation voltage | 660 V | |
| dielectric test | 2 kV | |
| | based on 50 Hz, 1 min acc. to DIN 57 410 | |

\blacktriangleright also refer to "Options"

Measuring Ranges

| AC current | W 35 | AC voltage | W 35 |
|--|------|--|------|
| 40 mA | | 6 V | |
| 60 mA | | 10 V | |
| 100 mA | | 15 V | |
| 150 mA | | 25 V | |
| 250 mA | | 40 V | |
| 400 mA | | 60 V | |
| 600 mA | | 100 V | |
| 1 A | | 150 V | |
| 1.5 A | | 250 V | |
| 2.5 A | | 400 V | |
| 4 A | | 500 V | |
| 5 A | | 600 V | |
| 6 A | | | |
| 10 A | | | |
| 15 A | | | |
| 25 A | | | |
| \blacktriangleright | | | |
| 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 current (overload scaling) \blacktriangleright

2) full scale value = 1.2 times rated voltage (- " -)

| DC current | internal resistance*) / voltage drop approx. | | DC voltage sensitivity*) | | |
|------------------------------------|--|--------------|--------------------------|-----------------|-----------------|
| | P 35 | LSP 35 | P 35 | LSP 35 | |
| 1 mA | 60 mV | 270 Ω | 100 mV | 1000 Ω/V | 200 Ω/V |
| 1.5 mA | 60 mV | 225 Ω | 150 mV | 1000 Ω/V | 200 Ω/V |
| 2.5 mA | 60 mV | 135 Ω | 250 mV | 1000 Ω/V | 200 Ω/V |
| 4 mA | 60 mV | 85 Ω | 400 mV | 1000 Ω/V | 1000 Ω/V |
| 5 mA | 60 mV | 60 mV | 600 mV | 1000 Ω/V | 1000 Ω/V |
| 6 mA | 60 mV | 60 mV | 1 V | 1000 Ω/V | 1000 Ω/V |
| 10 mA | 60 mV | 60 mV | 1.5 V | 1000 Ω/V | 1000 Ω/V |
| 15 mA | 60 mV | 60 mV | 2.5 V | 1000 Ω/V | 1000 Ω/V |
| 20 mA | 60 mV | 60 mV | 4 V | 1000 Ω/V | 1000 Ω/V |
| 25 mA | 60 mV | 60 mV | 6 V | 1000 Ω/V | 1000 Ω/V |
| 40 mA | 60 mV | 60 mV | 10 V | 1000 Ω/V | 1000 Ω/V |
| 60 mA | 60 mV | 60 mV | 15 V | 1000 Ω/V | 1000 Ω/V |
| 100 mA | 60 mV | 60 mV | 25 V | 1000 Ω/V | 1000 Ω/V |
| 150 mA | 60 mV | 60 mV | 40 V | 1000 Ω/V | 1000 Ω/V |
| 250 mA | 60 mV | 60 mV | 60 V | 1000 Ω/V | 1000 Ω/V |
| 400 mA | 60 mV | 60 mV | 100 V | 1000 Ω/V | 1000 Ω/V |
| 600 mA | 60 mV | 60 mV | 150 V | 1000 Ω/V | 1000 Ω/V |
| 1 A | 60 mV | 60 mV | 250 V | 1000 Ω/V | 1000 Ω/V |
| 1.5 A | 60 mV | 60 mV | 400 V | 1000 Ω/V | 1000 Ω/V |
| 2.5 A | 60 mV | 60 mV | 500 V | 1000 Ω/V | 1000 Ω/V |
| 4 A | 60 mV | 60 mV | 600 V | 1000 Ω/V | 1000 Ω/V |
| 6 A | 60 mV | 60 mV | | | |
| \blacktriangleright | | | | | |
| for use with external shunt | | | sensitivity*) | | |
| | | | P 35 | LSP 35 | |
| | 60 mV | | 1000 Ω/V | 200 Ω/V | |
| | 150 mV | | 1000 Ω/V | 200 Ω/V | |

a total lead resistance of 0.05 Ω is considered in the calibration of the indicator for connecting leads 1 m, 2 x 0.75 mm² \blacktriangleright

*) the resistance values are limited to a tolerance of $\pm 20\%$ \blacktriangleright



Analog Meters clamping to DIN Rails

Scaling

| | | |
|-----------------------|---|--|
| pointer | W 35, P 35 LSP 35 | bar / knife-edge pointer bold bar pointer |
| dial | LSP 35 | platform dial |
| pointer deflection | W 35 0 ... 90° | P 35 0 ... 90° |
| | | LSP 35 0 ... 240° |
| scale characteristics | W 35 P 35, LSP 35 | initial scale compressed, calibrated down to 1/5 th of rated full-scale value linear |
| scale division | | coarse-fine |
| scale length | W 35 44 mm | P 35 44 mm |
| | | LSP 35 72 mm |
| overload scaling | W 35 ammeters | 2 times rated current ↗ |
| | voltmeters for use on voltage transformers | 1.2 times rated voltage |

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 quantity | rated measuring value |
| frequency | W 35 45 ... 65 Hz |
| wave form | W 35 sinusoidal, distortion factor < 5% |
| others | DIN EN 60 051 |
| influences | |
| ambient temperature | -25 °C ... +23 °C ... +40 °C |
| position of use | nominal position ± 5° |
| frequency | W 35 15 ... 100 Hz (voltage) 15 ... 400 Hz (current) |
| stray magnetic field | 0.5 mT |

Environmental

| | |
|-----------------------------|--|
| climatic suitability | climatic class 2 according to VDE/VDI 3540 ↗ |
| operating temperature range | -25 ... +40 °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 57 410 / VDE 0410 | safety requirements for electrically operated measuring, control and laboratory equipment |

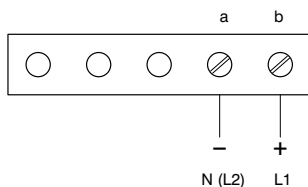
↗ also refer to "Options"

| | |
|----------------------|--|
| DIN EN 50 022 | mounting rails |
| DIN EN 60 051 | direct acting indicating electrical measuring instruments and their accessories |
| DIN VDE 0110 | dimensioning of clearances and creepage distances |
| DIN VDE 0411 | protective measures for electronically operated measuring equipment |
| DIN 40 050 | enclosure codes; protection of electrical equipment against ingress of solid foreign bodies and of water |
| VDE/VDI 3540 sheet 2 | reliability of measuring and control equipment (classification of climates) |

Options

| | |
|----------------------------------|---|
| measuring range | |
| special measuring range | deviating from standard |
| adjustment | of internal resistance to ± 1% at 23 °C |
| P 35, LSP 35 | |
| lead resistance | calibration to > 0.05 Ω |
| P 35, LSP 35 | |
| calibration | to a definite frequency between 100 ... 1000 Hz |
| W 35 | |
| zero position | mechanically suppressed zero, no zero adjustment, |
| W 35, P 35 | W 35 max. 30% of full-scale value P 35 max. 40% of full-scale value |
| performance | |
| increased mechanical loads | shock 30 g, 11 ms vibration 5 g, 5 ... 55 Hz |
| climatic suitability | limited use in the tropics climatic class 3 according to VDE/VDI 3540 |
| with operating temperature range | -10 ... +55 °C |
| dielectric test | 3 kV based on 50 Hz, 1 min acc. to DIN 57 410 |
| dial | |
| blank dial | pencil marked initial and end values |
| scale division and figuring | 0 ... 100%, linear, full-scale values acc. to DIN series (1 - 1.5 - 2.5 - 4 - 6 and any decimal multi- ple |
| P 35, LSP 35 | of these numbers e.g. 150 m ³ /h) or deviating from DIN series; special calibration from customer's non-linear graph or chart; scaling of voltmeters in ohms; captions optional |
| additional lettering | to be specified e.g. "generator" |
| additional figuring | to be specified |
| 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 to be specified |
| overload scaling W 35 | no overload range |

Terminal Board

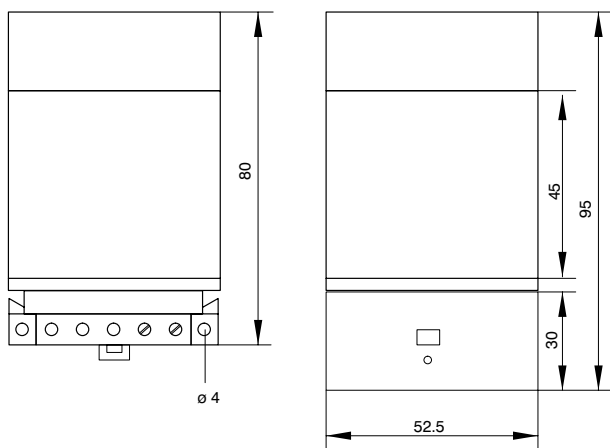


Dimensions

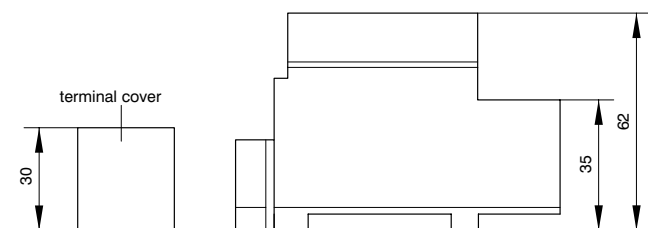
front view

without terminal cover

including terminal cover



side view



(dimensions in mm)

Ordering Information

| | |
|--------------------------------|--|
| type | analog instrument clamping to DIN rail |
| W 35 | for AC voltage or AC current, 90° |
| P 35 | for DC voltage or DC current, 90° |
| LSP 35 | for DC voltage or DC current, 240° |
| measuring ranges | refer to preceding table |
| special measuring range | to special order **) |
| adjustment | internal resistance $\pm 20\%$ *) |
| P 35, LSP 35 | internal resistance $\pm 1\%$ at 23°C lead resistance $> 0,05 \Omega$ |
| calibration | 50 Hz *) |
| W 35 | definite frequency 100 ... 1000 Hz **) |
| zero position | unchanged *) |
| W 35, P 35 | mechanically suppressed zero **) |
| performance loads | shock 15 g, vibration 2.5 g *) shock 30 g, vibration 5 g |
| climatic suitability | class 2, -25 ... +40°C *) class 3, -10 ... +55°C |
| dielectric test | 2 kV *) 3 kV |
| dial | scale division and measuring range alike resp. full-scale values acc. to DIN series 1 - 1.5 - 2.5 - 4 - 6 *) blank dial scale division and figuring 0 ... 100% ***) linear acc. to DIN series **) ***) linear deviating from DIN series **) ***) calibration fr. non-linear graph or chart **) scaling in ohms for voltmeters **) additional lettering to be specified **) additional figuring to be specified **) coloured marks red, green or blue **) coloured sector red, green or blue **) |
| logo on the dial | WEIGEL *) none OEM logo **) |
| overload scaling | none |
| W 35 ammeters | 2 times rated current *) |

*) standard

**) Please clearly add the desired specifications.

***) P 35, LSP 35 only

ordering example

P 35, measuring range and scaling 0 ... 1 A

- specifications subject to change without notice; date of issue 10/94 -

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