Data Sheet
Edgewise Series
Analog Meters
Edgewise with Moving-Iron Movement

W 72 PrS
W 96 PrS
W 144 PrS
Application

The edgewise moving-iron panel meters W 72/96/144 PrS with a curved dial are mainly used for the measurement of AC currents and voltages in the usual technical frequency range of 16 2/3 ... 100 Hz (W 72/96 PrS) or 15 ... 65 Hz (W 144 PrS), special calibration for a definite frequency up to 1000 Hz on request.

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. They are suitable to be mounted in switchboards, control panels, machine tool consoles and mosaic panels.

Movements

Moving-iron movement with pivot suspension, spring-loaded jewel bearings and silicon oil damping for vibration and shock resistance.

Mechanical Data

case details
edgewise case suitable to be mounted in control / switchgear panels, machine tool consoles or mosaic panels, stackable

material of case
pressed steel

material of window
glass

colour of bezel
black (similar to RAL 9005)

position of use
vertical ±5°

mounting
stackable next to each other (except W 144 PrS)

terminals
voltmeters and ammeters ≤ 3 A
hexagon studs, M3 screws and wire clamps C6 (W 72/96 PrS)
hexagon studs, M5 screws and wire clamps C10 (W 144 PrS)
ammeters > 3 A
hexagon studs, M5 screws and wire clamps C10
voltmeters 600 V (W 72/96 PrS)
connector blades 6.3 x 0.8 for protective wire

dimensions (in mm)

<table>
<thead>
<tr>
<th></th>
<th>W 72 PrS</th>
<th>W 96 PrS</th>
<th>W 144 PrS</th>
</tr>
</thead>
<tbody>
<tr>
<td>bezel</td>
<td>72 x 36</td>
<td>96 x 48</td>
<td>144 x 72</td>
</tr>
<tr>
<td>case</td>
<td>66 x 32</td>
<td>91 x 43</td>
<td>137 x 67</td>
</tr>
<tr>
<td>depth</td>
<td>94</td>
<td>107</td>
<td>174</td>
</tr>
<tr>
<td>panel cutout</td>
<td>68•0.7 x 33•0.6</td>
<td>92•0.8 x 45•0.6</td>
<td>138•1.0 x 68•0.7</td>
</tr>
<tr>
<td>panel thickness</td>
<td>1 ... 25</td>
<td>1 ... 12</td>
<td>≤ 40</td>
</tr>
<tr>
<td>weight approx.</td>
<td>0.28 kg</td>
<td>0.45 kg</td>
<td>1.2 kg</td>
</tr>
</tbody>
</table>

Electrical Data

measuring unit
AC voltages or AC currents

frequency range
W 72/96 PrS 16 2/3 ... 100 Hz 1
W 144 PrS 15 ... 65 Hz

power consumption
voltmeters < 100 V ≤ 1.4 VA
voltmeters > 100 V ≤ 2.5 VA
ammeters ≤ 15 A ≤ 0.3 VA
ammeters > 15 A ≤ 0.3 VA

overload capacity (acc. to DIN EN 60 051-1)
continuous 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 (W 72/96 PrS)
IP 50 case front side (W 144 PrS)
IP 00 for terminals without protection against accidental contact
IP 20 for terminals protected against accidental contact

Measuring Ranges

<table>
<thead>
<tr>
<th>measuring unit</th>
<th>W 72/96 PrS</th>
<th>W 144 PrS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100; 150; 250; 400; 600 mA</td>
<td>300 V</td>
<td>150 V</td>
</tr>
<tr>
<td>1; 1.5; 2.5; 4; 5; 6; 10; 15; 25 A</td>
<td>300 V</td>
<td>150 V</td>
</tr>
<tr>
<td>250 V; 400 V; 500 V; 600 V</td>
<td>300 V</td>
<td>–</td>
</tr>
<tr>
<td>for use on VT/CT</td>
<td>600 V</td>
<td>–</td>
</tr>
</tbody>
</table>

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

response time
1 s for full–scale deflection

scale arrangement
horizontal (left-hand zero)

scale characteristics
practically linear

down to 1/5 th of rated full–scale value.
The initial scale is compressed.

scale division
coarse–fine

scale length
W 72 PrS 45 mm
W 96 PrS 67 mm
W 144 PrS 96 mm

overload scaling
ammeters 2 times rated current
voltmeters for use on voltage transformers 1.2 times rated voltage

for other ratings refer to “Options”
**Accuracy at Reference Conditions**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>accuracy class</td>
<td>1.5 according to DIN EN 60 051-1</td>
</tr>
<tr>
<td>reference conditions</td>
<td></td>
</tr>
<tr>
<td>ambient temperature</td>
<td>23°C</td>
</tr>
<tr>
<td>position of use</td>
<td>nominal position ±1°</td>
</tr>
<tr>
<td>input</td>
<td>rated measuring value</td>
</tr>
<tr>
<td>frequency</td>
<td>16 2/3 / 100 Hz (W 72/96 PrS)</td>
</tr>
<tr>
<td>wave form</td>
<td>sinusoidal, distortion factor &lt;5%</td>
</tr>
<tr>
<td>others</td>
<td>DIN EN 60 051-1</td>
</tr>
<tr>
<td>influences</td>
<td></td>
</tr>
<tr>
<td>ambient temperature</td>
<td>23°C ± 2K</td>
</tr>
<tr>
<td>position of use</td>
<td>nominal position ±5°</td>
</tr>
<tr>
<td>frequency</td>
<td>≥ 100 Hz (W 72/96 PrS)</td>
</tr>
<tr>
<td>stray magnetic field</td>
<td>0.5 mT</td>
</tr>
</tbody>
</table>

**Environmental**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>climatic suitability</td>
<td>climatic class 2 according to VDE/VDI 3540 sheet 2</td>
</tr>
<tr>
<td>operating</td>
<td>−25 ... +40°C</td>
</tr>
<tr>
<td>temperature range</td>
<td></td>
</tr>
<tr>
<td>storage</td>
<td>−25 ... +65°C (W 72/96 PrS)</td>
</tr>
<tr>
<td>relative humidity</td>
<td>≤ 75% annual average, non-condensing</td>
</tr>
<tr>
<td>shock resistance</td>
<td>15 g, 11 ms</td>
</tr>
<tr>
<td>vibration resistance</td>
<td>2.5 g, 5 ... 55 Hz (W 72/96 PrS)</td>
</tr>
<tr>
<td></td>
<td>1.5 g, 5 ... 55 Hz (W 144 PrS)</td>
</tr>
</tbody>
</table>

**Rules and Standards**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN 43 718</td>
<td>Measurement and control; front-frames and frontpanels of measurement and control equipment; principal dimensions</td>
</tr>
<tr>
<td>DIN 43 802</td>
<td>Line scales and pointers for indicating electrical measuring instruments; general requirements</td>
</tr>
<tr>
<td>DIN 16 257</td>
<td>Nominal positions and position symbols used for measuring instruments</td>
</tr>
<tr>
<td>DIN EN 60 051</td>
<td>Direct acting indicating analogue electrical measuring instruments and their accessories</td>
</tr>
<tr>
<td>DIN EN 60 529</td>
<td>Enclosure codes by housings (IP-code)</td>
</tr>
<tr>
<td>DIN EN 61 010-1</td>
<td>Safety requirements for electrical measuring, control and laboratory equipment Part 1: General requirements</td>
</tr>
<tr>
<td>DIN EN 61 326-1</td>
<td>Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General requirements</td>
</tr>
<tr>
<td>DIN IEC 61 554</td>
<td>Panel mounted equipment – Electrical measuring instruments – Dimensions for panel mounting</td>
</tr>
<tr>
<td>VDE/VDI 3540 sheet 2</td>
<td>reliability of measuring and control equipment (classification of climates)</td>
</tr>
</tbody>
</table>

**Options**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>measuring range</td>
<td>deviating from standard</td>
</tr>
<tr>
<td>special measuring range</td>
<td></td>
</tr>
<tr>
<td>accuracy class</td>
<td>1.0 with fine scale division (as far as possible)</td>
</tr>
<tr>
<td>calibration</td>
<td>for a definite frequency 100 ... 1000 Hz</td>
</tr>
<tr>
<td>case</td>
<td>non-glaring glass</td>
</tr>
<tr>
<td>colour of bezel</td>
<td>gray (similar to RAL 7037)</td>
</tr>
<tr>
<td>position of use</td>
<td>horizontal or on request 15 ... 165°</td>
</tr>
</tbody>
</table>

**Performance**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>climatic suitability</td>
<td>limited use in the tropics climatic class 3 according to VDE/VDI 3540 sheet 2</td>
</tr>
<tr>
<td>with operating</td>
<td>−10 ... +55°C</td>
</tr>
<tr>
<td>temperature range</td>
<td></td>
</tr>
<tr>
<td>marine application</td>
<td>non-certified</td>
</tr>
<tr>
<td>enclosure code</td>
<td>IP 54 splash-water protected front (without zero adjustment)</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>terminal protection against accidental contact</td>
<td></td>
</tr>
<tr>
<td>protective sleeves SW6, SW10 (ammeters &gt;3A) for W 72/96 PrS</td>
<td></td>
</tr>
<tr>
<td>dial</td>
<td>vertical (bottom zero)</td>
</tr>
<tr>
<td>blank dial</td>
<td>pencil–marked on initial and end values</td>
</tr>
<tr>
<td>scale division</td>
<td>0 ... 100%, deviating from standard: special calibration from customer’s non-linear graph or chart; captions on request</td>
</tr>
<tr>
<td>and figuring</td>
<td></td>
</tr>
<tr>
<td>additional lettering</td>
<td>on request e.g. “generator”</td>
</tr>
<tr>
<td>additional figuring</td>
<td>on request</td>
</tr>
<tr>
<td>coloured marks</td>
<td>red, green or blue for important scale values</td>
</tr>
<tr>
<td>coloured segment</td>
<td>red, green or blue within scale division</td>
</tr>
<tr>
<td>logo on the dial</td>
<td>none or on request</td>
</tr>
<tr>
<td>zero position</td>
<td>mechanically suppressed zero, no zero adjustment, max. 40% of full-scale value</td>
</tr>
<tr>
<td>overload scaling (ammeters)</td>
<td>no overload scale</td>
</tr>
<tr>
<td>expanded scale</td>
<td>on request</td>
</tr>
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<td>VDE/VDI 3540 sheet 2</td>
<td>reliability of measuring and control equipment (classification of climates)</td>
</tr>
</tbody>
</table>
Connections

AC voltage

L1  N (L2)

L1  N (L2)

* W 72/96 PrS voltmeters 600 V

AC current

L1  N (L2)

L1  N (L2)

Dimensions

W 72/96 PrS

W 144 PrS

dimensions (in mm) W 72 PrS W 96 PrS W 144 PrS

a  72 96 144
b  36 48 72
c  94 107 174
d  32 43 67

scales and position of use

Ordering Information

<table>
<thead>
<tr>
<th>type</th>
<th>edge-wise-type moving-iron panel meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>front dimensions</td>
<td>72 mm x 36 mm</td>
</tr>
<tr>
<td></td>
<td>96 mm x 48 mm</td>
</tr>
<tr>
<td></td>
<td>144 mm x 72 mm</td>
</tr>
<tr>
<td>measuring ranges</td>
<td>refer to preceding table</td>
</tr>
<tr>
<td>special measuring range</td>
<td>on request 2)</td>
</tr>
<tr>
<td>accuracy class</td>
<td>1.5 1)</td>
</tr>
<tr>
<td>calibration</td>
<td>none 1) for a definite frequency 100 ... 1000 Hz 2)</td>
</tr>
<tr>
<td>window</td>
<td>glass 1) non-glaring glass</td>
</tr>
<tr>
<td>colour of bezel</td>
<td>black (similar to RAL 9005) 1) grey (similar to RAL 7037)</td>
</tr>
<tr>
<td>position of use</td>
<td>vertical 1) horizontal</td>
</tr>
<tr>
<td>climatic suitability</td>
<td>class 2, –25 ... +40°C 1)</td>
</tr>
<tr>
<td>marine application</td>
<td>none 1) non-certified</td>
</tr>
<tr>
<td>enclosure code</td>
<td>IP 52 (W 72/96 PrS) / IP 50 (W 144 PrS) 1)</td>
</tr>
<tr>
<td>terminal protection</td>
<td>protective sleeves SW6 / SW10</td>
</tr>
<tr>
<td>scale arrangement</td>
<td>horizontal 1) vertical</td>
</tr>
<tr>
<td>dial</td>
<td>scale division &amp; measuring range alike 1) blank dial</td>
</tr>
<tr>
<td></td>
<td>scale division and figuring 0 ... –100% deviating from standard 2)</td>
</tr>
<tr>
<td></td>
<td>calibration fr. non-linear graph or chart 2) additional lettering on request 2)</td>
</tr>
<tr>
<td></td>
<td>additional figuring on request 2) coloured marks red, green or blue 2)</td>
</tr>
<tr>
<td></td>
<td>coloured sector red, green or blue 2)</td>
</tr>
<tr>
<td>logo</td>
<td>WEIGEL 1) none</td>
</tr>
<tr>
<td>zero position</td>
<td>left or bottom zero 1) mechanically suppressed zero 2)</td>
</tr>
<tr>
<td>overload scaling</td>
<td>2 times rated current 1) no overload scale</td>
</tr>
<tr>
<td>expanded scale</td>
<td>on request 2)</td>
</tr>
</tbody>
</table>

1) Standard
2) Please clearly add the desired specifications.

ordering example

W 72 PrS, measuring range 0 ... 250 mA, horizontal scale, vertical mounting, window non-glaring glass, WEIGEL logo

Weigel Meßgeräte GmbH
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Erlstraße 14 • 90441 Nürnberg • Fax: 0911/42347-39
Sales: Phone: 0911/42347-94
Internet: http://www.weigel-messgeraete.de
e-mail: vertrieb@weigel-messgeraete.de

– specifications subject to change without notice; date of issue 09/15 –