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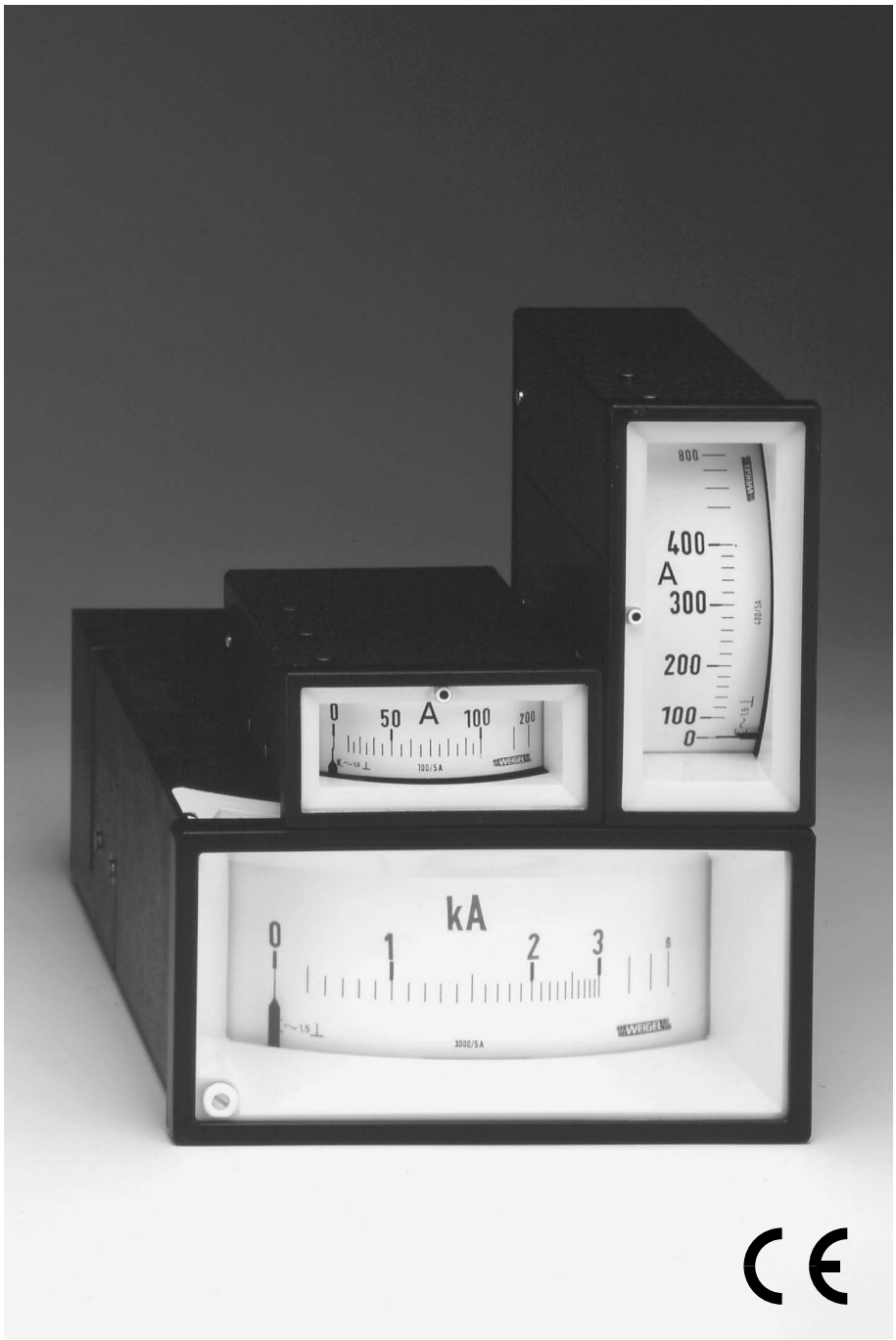
Data Sheet

Edgewise Series
020.D.201.04

Analog Meters Edgewise with Moving-Iron Movement

W 72 PrS
W 96 PrS
W 144 PrS



CE

WEIGEL

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. 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 (W 72/96 PrS) thermoplastics (W 144 PrS)
material of window	glass ➧
colour of bezel	black (similar to RAL 9005) ➧
position of use	vertical $\pm 5^\circ$
panel fixing	screw clamps
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), connector blades 6.3 x 0.8 (W 144 PrS)
ammeters >3 A	hexagon studs, M5 screws and wire clamps C10
voltmeters 600 V	connector blades 6.3 x 0.8 for protective wire (W 72/96 PrS)

dimensions (in mm)	W 72 PrS	W 96 PrS	W 144 PrS
bezel	72 x 36	96 x 48	144 x 72
case	66 x 32	91 x 43	137 x 67
depth	94	107	192
panel cutout	$68^{+0.7}$ x $33^{+0.6}$	$92^{+0.8}$ x $45^{+0.6}$	$138^{+1.0}$ x $68^{+0.7}$
panel thickness	1 ... 25	1 ... 12	≤ 40
weight approx.	0.28 kg	0.45 kg	1.0 kg

Electrical Data

measuring unit	AC voltages or AC currents	
frequency range	$16^2/_3$ ... 100 Hz	
power consumption	W 72/96 PrS	W 144 PrS
voltmeters	<4 VA	<4 VA
ammeters ≤ 15 A	<0.5 VA	<1,7 VA
ammeters >15 A	<0.8 VA	–
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	

Measuring Ranges

measuring ranges	operating voltage		
AC current [1]	W 72 PrS	W 96 PrS	W 144 PrS
100; 150; 250; 400; 600 mA			
1; 1.5; 2.5; 4; 5; 6; 10; 15; 25[3] **A**	300 V	300 V	600 V
AC voltage	W 72 PrS	W 96 PrS	W 144 PrS
6; 10; 15; 25; 40; 60; 100; 150 V	100 V	100 V	100 V
250 V, 400 V, 500 V	300 V	300 V	600 V
600 V	600 V	600 V	600 V
for use on VT/CT	W 72 PrS	W 96 PrS	W 144 PrS
N/1 A, N/5 A [1]	100 V	100 V	600 V
N/100 V, N/110 V [2]	100 V	100 V	100 V

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 (– " –)

[3]) W 72/96 PrS only

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: 92 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"

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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
frequency	$16^2/_3$ ... 100 Hz
wave form	sinusoidal, distortion factor <5%
others	DIN EN 60 051 - 1
influences	
ambient temperature	23˚C±2K
position of use	nominal position ±5˚
frequency	≥ 100 Hz
stray magnetic field	0.5 mT

Environmental

climatic suitability	climatic class 2 ◗ according to VDE/VDI 3540 sheet 2
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 43 718	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)

Options

measuring range	
special measuring range	deviating from standard
accuracy class	1.0 with fine scale division (as far as possible)
calibration	for a definite frequency 100 ... 1000 Hz
case	
window	non–glaring glass
colour of bezel	gray (similar to RAL 7037)
position of use	horizontal or on request 15 ... 165˚
performance	
climatic suitability	limited use in the tropics climatic class 3 according to VDE/VDI 3540 sheet 2
with operating temperature range	–10 ... +55˚C
marine application	non–certified
enclosure code	IP 54 splash–water protected front (without zero adjustment)

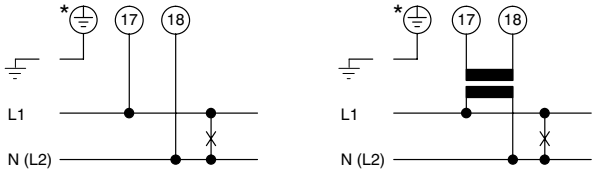
accessories

terminal protection against accidental contact
protective sleeves SW6, SW10 (ammeters >3A) for W 72/96 PrS

dial	
scale arrangement	vertical (bottom zero)
blank dial	pencil–marked on initial and end values
scale division and figuring	0 ... 100%, deviating from standard; special calibration from customer's non–linear graph or chart; 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 segment	red, green or blue within scale division
logo on the dial	none or on request
zero position	mechanically suppressed zero, no zero adjustment, max. 40% of full–scale value
overload scaling (ammeters)	no overload scale
expanded scale	on request

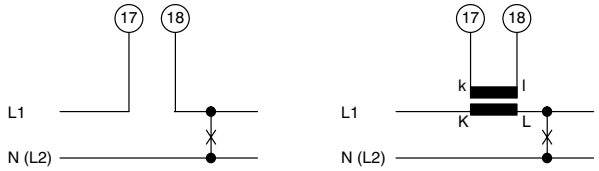
Connections

AC voltage



* W 72/96 PrS voltmeters 600 V

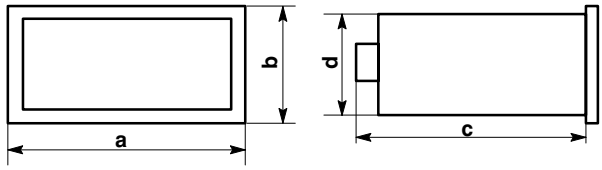
AC current



Dimensions

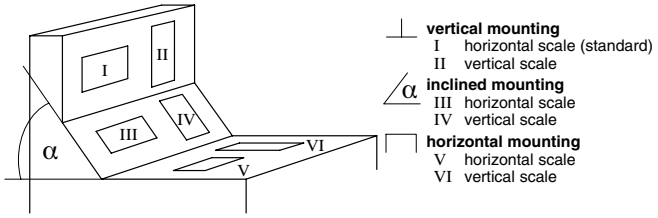
W 72/96 PrS

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	192
d	32	43	67

scales and position of use



Ordering Information

type **W**	 edgewise–type moving–iron panel meter
front dimensions **72 PrS** **96 PrS** **144 PrS**	 72 mm x 36 mm 96 mm x 48 mm 144 mm x 72 mm
measuring ranges	refer to preceding table
sp. measuring range	on request 2)
accuracy class	1.5 1) 1.0 with fine scale division as far as possible
calibration	none 1) for a definite frequency 100 ... 1000 Hz 2)
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) horizontal on request 15 ... 165° 2)
climatic suitability	class 2, –25 ... +40°C 1) class 3, –10 ... +55°C
marine application	none 1) non–certified
enclosure code	IP 52 1) IP 54 splash–water protected front
terminal protection	none 1) protective sleeves SW6 / SW10
scale arrangement	horizontal 1) vertical
dial	scale division & measuring range alike 1) blank dial scale division and figuring 0 ... 100% deviating from standard 2) calibration fr. non–linear graph or chart 2) additional lettering on request 2) additional figuring on request 2) coloured marks red, green or blue 2) coloured sector red, green or blue 2)
logo	WEIGEL 1) none OEM logo 2)
zero position	left or bottom zero 1) mechanically suppressed zero 2)
overload scaling (ammeters)	2 times rated current 1) no overload scale
expanded scale	on request 2)

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

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– specifications subject to change without notice; date of issue 12/10 –