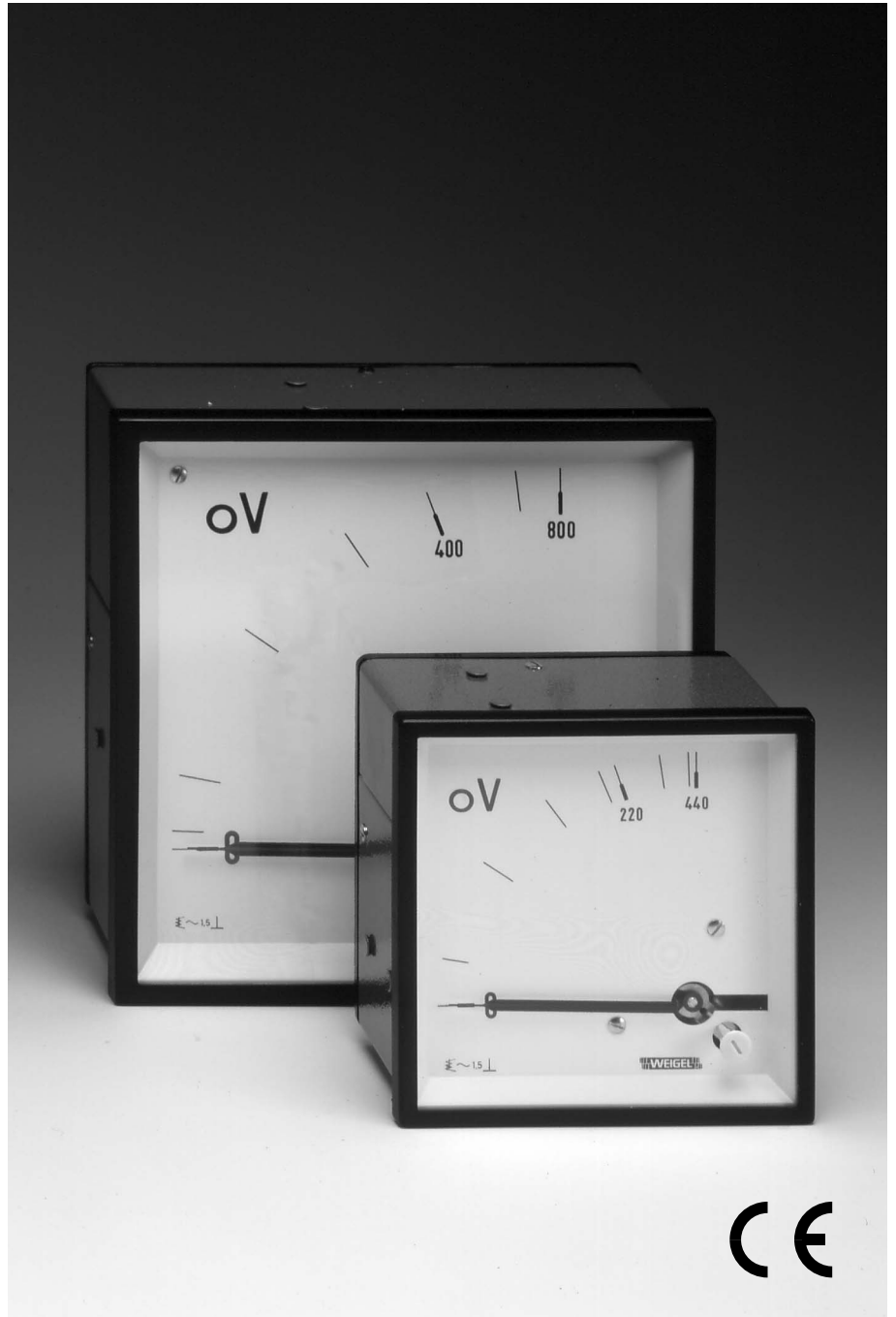


Data Sheet

M Series
022.D.101.05

Analog Meters Null Voltmeters with Moving-Iron Movement 90° Dial

WQ 96 /0S
WQ 144 /0S



WEIGEL

Application

The null voltmeters **WQ 96/144 /0S** (M series), housed in pressed steel cases, contain a moving-iron movement which scale is extremely expanded in its initial value range. Even small voltage differences of two AC voltages can be detected, e.g. those of a generator and of the mains supply.

The meters are suitable to be mounted in switchboards, synchronizing wall brackets or mosaic grid panels.

Functional Principle

Moving-iron movement; spring loaded jewel bearings and silicon oil damping for vibration and shock resistance.

Mechanical Data

case details	square case suitable to be mounted in control / switchgear panels or mosaic grid panels, stackable	
material of case	pressed steel	
material of window	glass ▶	
colour of bezel	black (similar to RAL 9005) ▶	
position of use	vertical $\pm 5^\circ$ ▶	
mounting	stackable next to each other	
terminals	hexagon studs, M3x6 screws and wire clamps C6 connector blades 6.3 x 0.8 for protective wire (WQ 96/0S only)	
panel thickness	1 ... 15 mm	
panel fixing	4 pieces WEIGEL screw clamps	
dimensions (in mm)	WQ 96 /0S	WQ 144 /0S
bezel	□ 96 mm	□ 144 mm
case	□ 90 mm	□ 137 mm
depth	60 mm	60 mm
panel cutout	□ 92 ^{+0.8} mm	□ 138 ⁺¹ mm
weight approx.	0.6 kg	0.7 kg

Electrical Data

measuring unit	difference in voltages of two AC supplies	
frequency range	50 ... 100 Hz	
overload capacity (acc. to DIN EN 60 051 - 1)		
continuously	1.2 times	
5 s max.	2 times	
measurement category	CAT III	
operating voltage	300 V	
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	

▶ for other ratings refer to "Options"

Measuring Ranges

rated voltage	power consumption WQ 96 /0S	power consumption WQ 144 /0S
0 ... 115/230 V	approx. 4.2 VA	approx. 4.9 VA
0 ... 230/460 V	approx. 4.5 VA	approx. 5.4 VA
0 ... 400/800 V	approx. 5.4 VA	approx. 5.8 VA
0 ... 500/1000 V	approx. 5.9 VA	approx. 7.2 VA
for use on voltage transformer		
0 ... 100/200 V	approx. 4.2 VA	approx. 4.9 VA
0 ... 110/220 V	approx. 4.2 VA	approx. 4.9 VA

Please state primary rating of voltage transformer.

Scaling

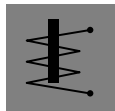
pointer	bar / knife-edge pointer	
pointer deflection	0 ... 90°	
scale characteristics	initial scale range greatly expanded	
scale division	coarse-fine	
scale length	WQ 96 /0S 94 mm	WQ 144 /0S 146 mm

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 $\pm 1^\circ$
input	rated measuring value
frequency	50 Hz
wave form	sinusoidal, distortion factor <5%
others	DIN EN 60 051 - 1
influences	
ambient temperature	23°C ± 2 K
position of use	nominal position $\pm 5^\circ$
frequency	50 ... 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	$\leq 75\%$ annual average, non-condensing
shock resistance	15 g, 11 ms ▶
vibration resistance	2.5 g, 5 ... 55 Hz ▶



Analog Meters Null Voltmeters with Moving-Iron Movement 90° Dial

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

case

window	non-glaring glass
colour of bezel	gray (similar to RAL 7037)
position of use	horizontal or to be specified 15...165°

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 sheet 2
with operating temperature range	-10 ... +55 °C

marine application	non-certified
enclosure code	IP 54 splash-water protected front

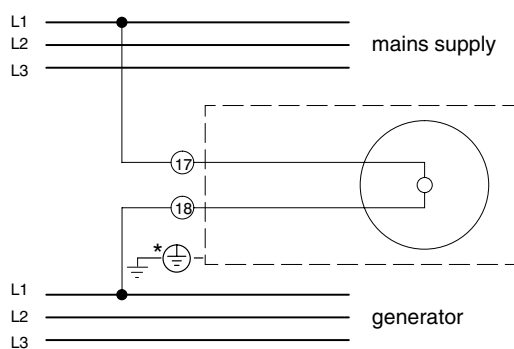
accessories

terminal protection against accidental contact	full-sized rear cover (WQ 96 /0S only) or protective sleeves SW6
terminals	connector blades 6.3 x 0.8

dial

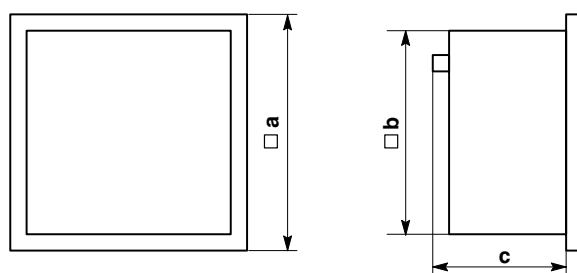
blank dial	pencil-marked initial and end values
scale division and figuring	0 ... 100/200%
additional lettering	to be specified e.g. "generator"
additional figuring	to be specified
coloured marks	red, green or blue for important scale values
coloured sector	red, green or blue within scale division
logo on the dial	none or as specified

Connections



* WQ 96 /0S

Dimensions



dimensions (in mm)	WQ 96 /0S	WQ 144 /0S
a	96	144
b	90	137
c	60	60

Ordering Information

type WQ	moving-iron panel meter
front dimensions 96 144	96 mm x 96 mm 144 mm x 144 mm
version /0S	null voltmeter
measuring ranges	refer to preceding table
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⁾ to special order 15 ... 165° ²⁾
mechanical loads	shock 15 g, vibration 2.5 g ¹⁾ shock 30 g, vibration 5 g
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⁾ full-sized rear cover ³⁾ protective sleeves
terminals	screws and wire clamps ¹⁾ connector blades 6.3 x 0.8
dial	scale division & measuring range alike ¹⁾ blank dial scale division and figuring 0 ... 100/200% additional lettering to be specified ²⁾ additional figuring to be specified ²⁾ coloured marks red, green or blue ²⁾ coloured sector red, green or blue ²⁾
logo	WEIGEL ¹⁾ none OEM logo ²⁾

¹⁾ Standard

²⁾ Please clearly add the desired specifications.

³⁾ WQ 96 /0S only

ordering example

WQ 96 /0S, measuring range and dial 0 ... 230/460 V,
window non-glaring glass, no logo

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

