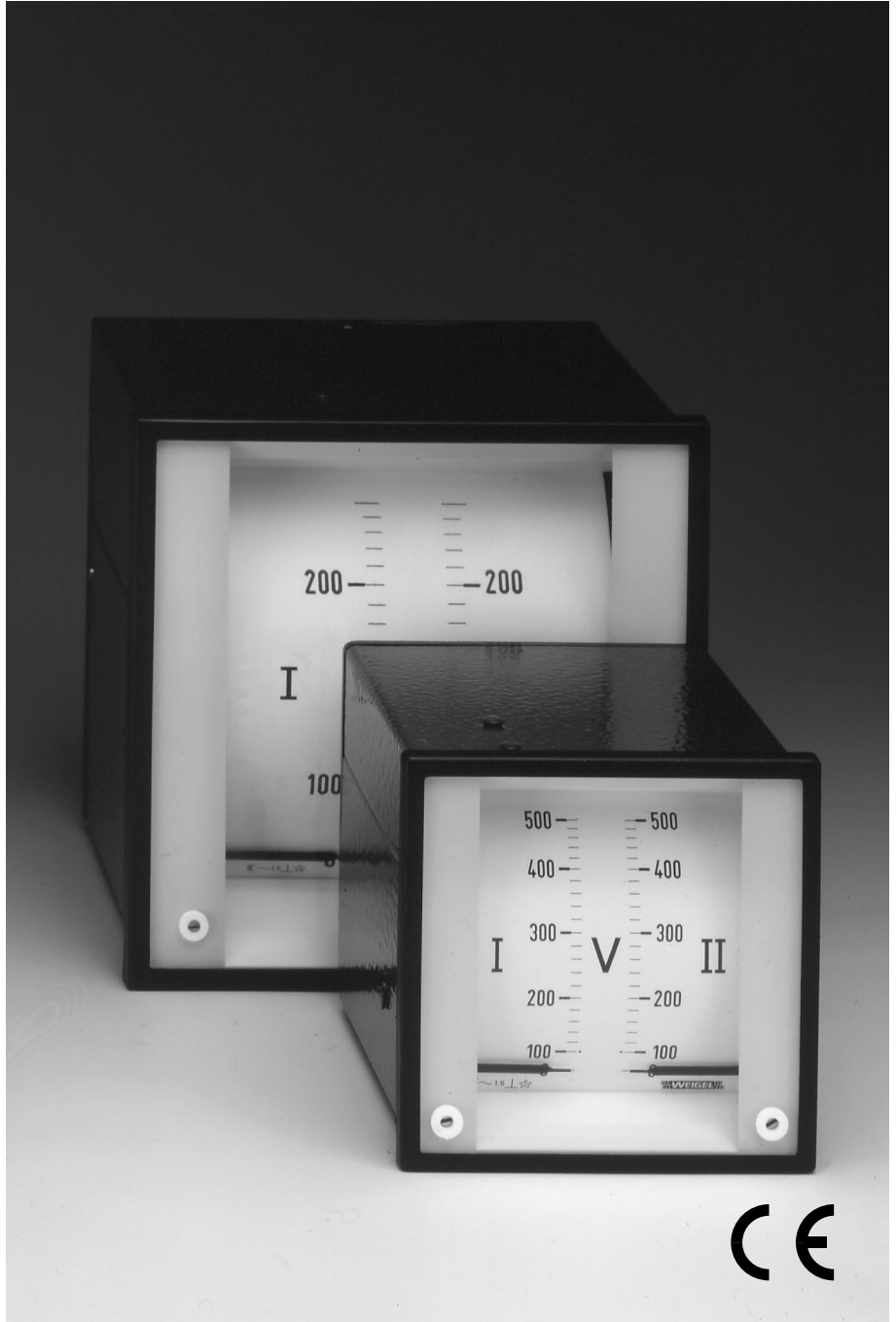


# Data Sheet

M - Series  
023.D.101.03

## Analog Meters with Two Moving-Iron Movements

**WQ 96/2S**  
**WQ 144/2S**



## Application

The dual voltmeters **WQ 96 /2S** and **WQ 144 /2S** (M-series) comprise two electrically independent moving-iron movements for simultaneously measuring two AC voltages, one to indicate the generator voltage, the other to indicate the power supply voltage.

The dual voltmeters are housed in pressed steel cases. They are suitable to be mounted in generating sets, power supply control panels, switchboards or mosaic panels.

## Functional Principle

Two electrically independent moving-iron movements, pivot suspended. 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 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, M3 x 6 screws and wire clamps	
<b>dimensions</b>	<b>WQ 96 /2S</b>	<b>WQ 144 /2S</b>
bezel	□ 96 mm	□ 144 mm
case	□ 90 mm	□ 137 mm
depth	115 mm	121 mm
panel cutout	□ 92 <sup>+0.8</sup> mm	□ 138 <sup>+1</sup> mm
panel thickness	1...15 mm	1...40 mm
panel fixing	4 pieces WEIGEL screw clamps	2 pieces type B screw clamps acc. to DIN 43 835
weight approx.	1.2 kg	1.5 kg

## Electrical Data

measuring units	two AC voltages
frequency range	50 ... 100 Hz
overload capacity (acc. to DIN EN 60 051)	
continuously	1.2 times rated voltages
5 s max.	2 times rated voltages
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
excess voltage category	CAT II
pollution level	2
operating voltage	600 V

## Measuring Ranges

AC voltages	power consumption approximately	
	WQ 96 2/S	WQ 144 2/S
2 x 0 ... 100 V *)	1.8 VA	2.5 VA
2 x 0 ... 110 V *)	2.0 VA	2.3 VA
2 x 0 ... 150 V	2.2 VA	2.6 VA
2 x 0 ... 250 V	2.3 VA	3.9 VA
2 x 0 ... 500 V	2.1 VA	3.8 VA
2 x 0 ... 600 V	2.5 VA	4.5 VA

\*) also for use on voltage transformer, please state primary rating of voltage transformer.

## Scaling

pointer	bar / knife-edge pointer	
pointer deflection	0 ... 60°	
scale characteristics	practically linear down to $\frac{1}{5}$ th of full-scale rating	
scale division	coarse-fine	
scale length	<b>WQ 96 /2S</b> 60 mm	<b>WQ 144 /2S</b> 97 mm

## Accuracy at Reference Conditions

accuracy class	1.5 acc. to DIN EN 60 051
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### reference conditions

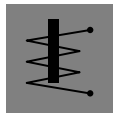
ambient temperature	23°C $\pm$ 1K
position of use	nominal position $\pm 1^\circ$
input	rated measuring value
others	DIN EN 60 051

### influence quantities

ambient temperature	-25°C ... +23°C ... +40°C
position of use	nominal position $\pm 5^\circ$
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	$\leq$ 75% annual average, non-condensing
shock resistance	15 g, 11 ms
vibration resistance	2.5 g, 5...55 Hz



## Analog Meters with Two Moving – Iron Movements

### 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)
position of use	on request 15° ... 165°

#### performance

climatic suitability	limited use in the tropics climatic class 3 according to VDE/VDI 3540
with operating temperature range	-10 ... +55°C
marine application	non-certified
enclosure code	IP 54 splash-water protected front
dielectric test	3 kV based on 50 Hz, 1 min acc. to DIN 57 410

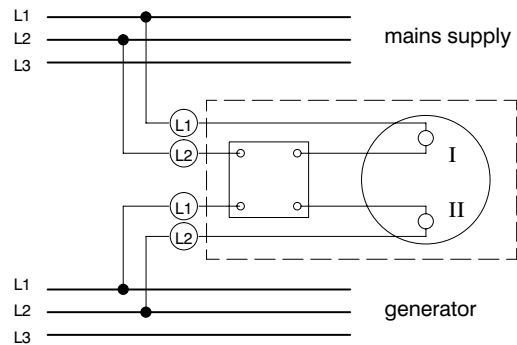
#### dial

blank dial	pencil-marked on initial and end values
scale division and figuring	0 ... 100% or deviating from 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

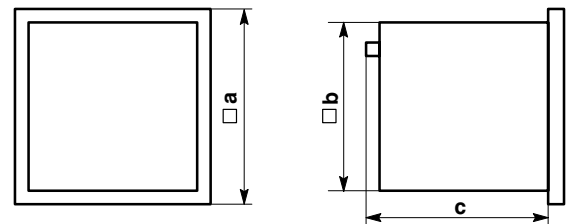
#### accessories

terminal protection against accidental contact	full-sized rear cover (WQ 96 /2S only) or protective sleeves SW6
terminals	connector blades 6.3 x 0.8

### Connections



### Dimensions



dimensions (in mm)	WQ 96 /2S	WQ 144 /2S
a	96	144
b	90	137
c	115	121

## Ordering Information

<b>type</b> WQ	dual moving-iron voltmeter
<b>front dimensions</b> 96 144	96 mm x 96 mm 144 mm x 144 mm
<b>version</b> /2S	two movements
<b>measuring ranges</b>	refer to preceding table
<b>window</b>	glass *) non-glaring glass
<b>colour of bezel</b>	black (similar to RAL 9005) *) gray (similar to RAL 7037)
<b>position of use</b>	vertical *) on request 15 ... 165° **)
<b>climatic suitability</b>	class 2, -25 ... +40°C *) class 3, -10 ... +55°C
<b>marine application</b>	none *) non-certified
<b>enclosure code</b>	IP 52 *) IP 54 splash-water protected front
<b>terminal protection</b>	none *) full-sized rear cover ***) protective sleeves
<b>terminals</b>	screws M3 x 6 and wire clamps *) connector blades 6.3 x 0.8
<b>dial</b>	scale division & measuring range alike *) blank dial scale division and figuring 0 ... 100% deviating from standard **) additional lettering on request **) additional figuring on request **) coloured marks red, green or blue **) coloured sector red, green or blue **)
<b>logo</b>	WEIGEL *) none OEM logo **)

\*) standard

\*\*) Please clearly add the desired specifications.

\*\*\*) WQ 96 /2S only

### ordering example

WQ 96 /2S, measuring range 2x 0 ... 150 V,  
window non-glaring glass, dial 0 ... 100%, no logo

– specifications subject to change without notice; date of issue 04/03 –

## WEIGEL – MESSGERÄTE GmbH

P.O.B. 720 154 • D-90241 Nürnberg • Telephone: 0911 / 423 47-0  
Erlenstraße 14 • D-90441 Nürnberg • Fax: 0911 / 423 47-39  
Internet: <http://www.weigel-messgeraete.de>  
e-mail: [vertrieb@weigel-messgeraete.de](mailto:vertrieb@weigel-messgeraete.de)

