Energy Management Multifunction meter Type WM10 DIN

- **Accuracy ±0.5% RDG (current/voltage)**
- **Multifunction meter**
- **Instantaneous variables readout: 3 DGT**
- **System variables: W, var, PF, Hz and phase-sequence.**
- **Single phase variables: A, VL-N, VL-L, W, var**
- **TRMS measurements of distorted sine waves (voltages/currents)**
- **Direct connection up to 65A**
- **Self power supply**
- **Dimensions: 4-DIN modules**
- **Protection degree (front): IP50**
- **Easy installation: no parameters programming needed.**

Product Description

Three-phase multifunction meter with built-in joystick and LCD data displaying. Housing for DIN-rail mounting with IP50 (front) protection degree. Direct connection up to 65A. No set-up needed.

How to order

WM10 DIN AV9 3 X XX X

Model
Range code
System
Power supply
Output
Option

Type Selection

Range codes

AV9: 400V_{LL} AC - 10(65)A (Direct connection)

System

3: balanced and unbalanced load: 3-phase, 4-wire; 3-phase, 4-wire

Output

XX: none

Power supply

X: Self power supply -15% +20% of the rated measuring input voltage, 45 to 65 Hz

Options

X: none

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Input specifications

Rated inputs	
System type	3-phase
Current type	Galvanic insulation by means of built-in CT's
Current range (direct)	10(65)ACA
Voltage (AV9)	400VLL CA
Accuracy (Display + RS485)	Ib: 10A, Imax: 65A; 0.1Ib: 1.0A (@25°C ±5°C, R.H. ≤60%, 48 to 62 Hz)
AV9 model	Ib: 10A, Imax: 65A; Un: 184 to 276VLN (318 to 480VLL)
Current	From 0.004Ib to 0.2Ib: ±(0.5% RDG +3DGT) From 0.2Ib to Imax: ±(0.5% RDG +1DGT)
Phase-neutral voltage	In the range Un: ±(0,5% RDG +1DGT)
Phase-phase voltage	In the range Un: ±(1% RDG +1DGT)
Active power	±(1%RDG +2DGT)
Reactive power	±(2%RDG +2DGT)
Power Factor	±[0.001+1%(1.000 - "PF RDG")]
Start up current	40mA
Energy additional errors	
Influence quantities	According to EN62053-21, EN62053-23 and EN50470-1-2
Temperature drift	≤200ppm/°C
Sampling rate	1600 samples/s @ 50Hz 1900 samples/s @ 60Hz
Display refresh time	750 ms
Display	2 lines (1 x 7 DGT; 1 x 3DGT)
Type	LCD, h 9mm
Instantaneous variables read-out	3 DGT
Overload status	EEE indication when the value being measured is exceeding the "Continuous inputs overload" (maximum measurement capacity)
Max and Min indication	Max instantaneous variables: 999. Min instantaneous variables: 0
Measurements	See "List of the variables that can be displayed"
Method	TRMS measurements of distorted wave forms.
Coupling type	Direct
Crest factor	Ib 10A ≤4 (91A max. peak)
Current Overloads	
Continuous	65A, @ 50Hz
For 10ms	1920A max, @ 50Hz
Voltage Overloads	
Continuous	1.2 Un
For 500ms	2 Un
Input impedance	
400VL-L	Refer to "Power Consumption"
10(65) A	< 4VA
Frequency	45 to 65 Hz
Joystick	For variable selection.

Software functions

Displaying	Up to 3 variables per page
Easy connection function	Automatic phase sequence detection with current and voltage synchronisation. Power measurements are independent from the current direction. The displayed energy is always "imported".

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General specifications

Operating temperature	-25°C to +55°C (-13°F to 131°F) (R.H. from 0 to 90% non-condensing @ 40°C)
Storage temperature	-30°C to +70°C (-22°F to 158°F) (R.H. < 90% non-condensing @ 40°C) a
Installation category	Cat. III (IEC60664, EN60664)
Dielectric strength	4000 VRMS for 1 minute
Noise rejection CMRR	100 dB, 48 to 62 Hz
EMC	According to EN62052-11
Electrostatic discharges	15kV air discharge;
Immunity to irradiated Electromagnetic fields	Test with current: 10V/m from 80 to 2000MHz; Test without any current: 30V/m from 80 to 2000MHz;
Burst	On current and voltage measuring inputs circuit: 4kV
Immunity to conducted disturbances	10V/m from 150KHz to 80MHz
Surge	On current and voltage measuring inputs circuit: 4kV.
Radio frequency suppression	According to CISPR 22
Standard compliance	
Safety	IEC60664, IEC61010-1 EN60664, EN61010-1

Approvals	CE
Connections	Screw-type
Cable cross-section area	Max. 16 mm^2 Min. 2.5 mm^2 (measuring inputs); Min./Max. screws tightening torque: 1.7 Nm / 3 Nm
Housing DIN	
Dimensions (WxHxD)	71 x 90 x 64.5 mm
Material	Nylon PA66, self-extinguishing: UL 94 V-0
Mounting	DIN-rail
Protection degree	
Front	IP50
Screw terminals	IP20
Weight	Approx. 400 g (packing included)

Power supply specifications

Self supplied version	-15% +20% of Un, 48-62Hz.
Note	The instrument working in a 3-phase system with neutral may work also if one or two phases are missing. The instrument working in a 3-phase system without neutral may work also if one phase is missing.
Power consumption	≤20VA/1W

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List of the variables that can be displayed:

No	Variable	3-ph. 4-wire balanced system	3-ph. 4-wire unbalanced system	3-ph. 3-wire balanced system	3-ph. 3-wire unbalanced system	Notes
1	V L1-N	x	x	y	y	
2	V L2-N	x	x	y	y	
3	V L3-N	x	x	y	y	
4	V L-N sys	x	x	y	y	sys=system
5	V L1-2	x	x	x	x	
6	V L2-3	x	x	x	x	
7	V L3-1	x	x	x	x	
8	V L-L sys	x	x	x	x	sys=system
9	A L1	x	x	x	x	
10	A L2	x	x	x	x	
11	A L3	x	x	y	y	
12	W L1	x	x	y	y	
13	W L2	x	x	y	y	
14	W L3	x	x	y	y	
15	W sys	x	x	y	y	sys=system
16	var L1	x	x	y	y	
17	var L2	x	x	y	y	
18	var L3	x	x	y	y	
19	var sys	x	x	y	y	sys=system
20	PF sys	x	x	y	y	sys=system
21	Hz	x	x	x	x	
22	Phase sequence	x	x	x	x	

(x) = available
(y) = virtual

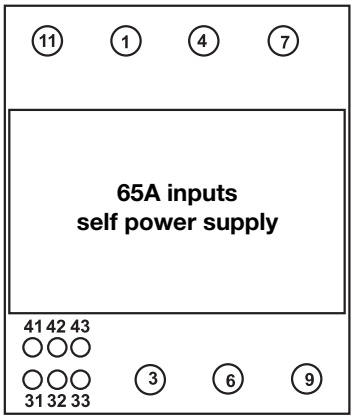
Display pages

Display variables in 3-phase systems with or without neutral

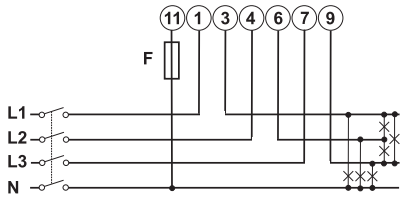
No	Joystick	1st line	2nd line	Phase Sequence
1	UP	W L1, WL2	W L3	Warning triangle if reverse sequence
2	UP	“SYS” (text)	W sys	Warning triangle if reverse sequence
3	UP	var L1, var L2	var L3	Warning triangle if reverse sequence
4	UP	“SYS” (text)	var sys	Warning triangle if reverse sequence
5	UP	“SYS PF” (text)	PF sys	Warning triangle if reverse sequence
6	LEFT	V L1-N, V L2-N	V L3-N	Warning triangle if reverse sequence
7	LEFT	“SYS V LN” (text)	V L-N sys	Warning triangle if reverse sequence
8	LEFT	V L1-L2, “_” V L2-L3	V L3-L1	Warning triangle if reverse sequence
9	LEFT	“SYS V LL” (text)	V L-L sys	Warning triangle if reverse sequence
10	LEFT	“SYS Hz” (text)	Hz	Warning triangle if reverse sequence
11	DOWN	A L1 - A L2	A L3	Warning triangle if reverse sequence

Note: whatever page the user has selected, after 60s it goes back to page 1.
On “Page 8” the symbol “_” means that all the values on this page are “phase to phase”.

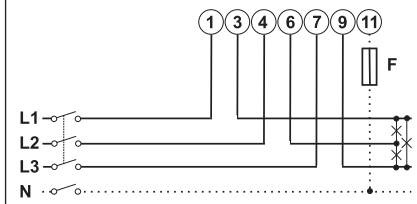
Wiring diagrams



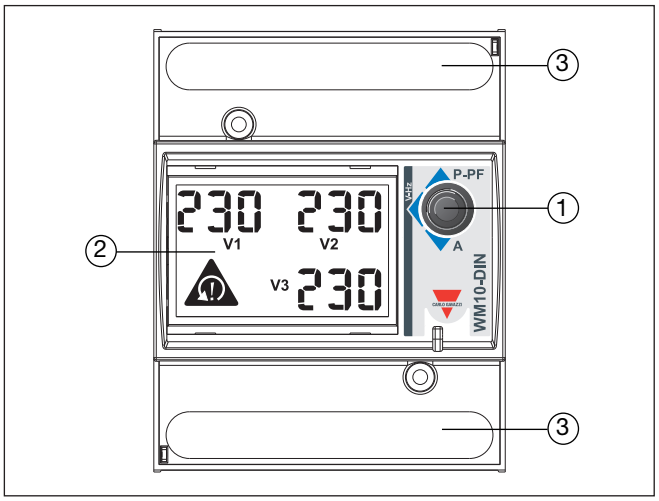
3-ph, 4-wire, unbal./bal. load **Fig.1**



3-ph, 3-wire, unbal./bal. load **Fig. 2**



Front panel description



1. **Joystick**
   To scroll the variables on the display.
2. **Display**
   LCD-type with alphanumeric indications to display all the measured variables.
3. **Connections**
   Screw terminal blocks for instrument wiring.

Dimensions