

Energy Management Energy Meter Type EM110



- Single phase energy meter
- Class 1 (kWh) according to EN62053-21
- Class B (kWh) according to EN50470-3
- Electro-mechanical display
- Energy readout on display: 6+1 digit
- Measurements on display: total kWh
- Direct current measurement up to 45AAC
- Self power supply
- Dimensions: 1-DIN module
- Protection degree (front): IP51
- Pulse output (by open collector PNP)
- Detects wrong current direction

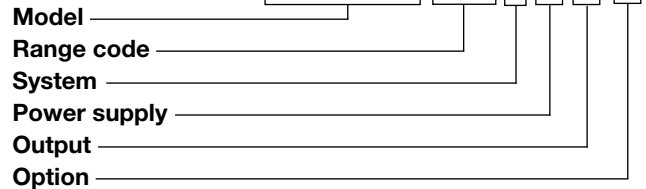
Product description

Single-phase energy meter with electro-mechanical data displaying; particularly indicated for active energy metering and for cost allocation in applications up to 45 A (direct connection), especially when energy reading is necessary during power down. Housing for DIN-rail mounting, with IP51 front degree protection. The meter is provided with pulse output proportional to the active energy being measured.

STANDARD

Not certified according to MID Directive. Cannot be used for fiscal (legal) metrology.

How to order **EM110-DIN AV8 1 X 01 X**



Type Selection

Range code	System	Power supply	Output
AV8: 230VLN AC - 5(45)A (Direct connection)	1: 1-phase 2-wire	X: Self power supply -30% +20% of the rated measuring input voltage, 45 to 65Hz	O1: pulse output
AV7: 120VLN AC - 5(45)A (Direct connection)			

Option

X: none

Input specifications

Rated Inputs		Max. and Min. indication	Max. 999 999.9 Min. 0.0
Current type	1-phase loads, direct connection	LEDs	Flashing red light pulses according to EN50470-3, EN62052-11, 1000 imp./kWh (min. period: 90ms) Fix orange light: wrong current direction
Current range	5(45)A	Current overloads	
Nominal voltage	230VLN AC (AV8 option), 120 VLN (AV7 option)	Continuous	45A, @ 50Hz
		For 10ms	1350 A
Accuracy (@25°C ±5°C, R.H. ≤60%, 45 to 65 Hz)		Voltage Overloads	
AV7	I _{min} =0.25A; I _b : 5A, I _{max} : 45A; U _n : 120VLN -30% +30%	Continuous	1.2 U _n
AV8	I _{min} =0.25A; I _b : 5A, I _{max} : 45A; U _n : 230VLN -30% +20%	For 500ms	2 U _n
Energies	Class 1 according to EN62053-21	Input impedance	
Start-up current:	20mA (AV7, AV8) Self-consumption is not measured.	Voltage input 230VL-N	> 750 Kohm
Start-up voltage	84V (AV7), 161V (AV8)	Voltage input 120VL-N	> 750 Kohm
		Current inputs: 5(45) A	< 0.5 VA
Resolution			
Energy	0.1 kWh		
Energy additional errors			
Influence quantities	According to EN62053-21		
Temperature drift	≤200ppm/°C		
Sampling rate	4096 samples/s @ 50Hz 4096 samples/s @ 60Hz		
Display			
Type	Electro-mechanical, h 5 mm		
Energies read-out	Total: 6+1 digit Only positive energy is integrated		

Output specifications

Static output		Pulse ON duration	30ms, according to EN62052-31
Purpose	For pulse output proportional to the active energy (kWh)	Output type	open collector PNP
Pulse rate	1000 pulses per kWh	Load	V _{ON} 1 VDC; max. 100 mA V _{OFF} 80 VDC max

General specifications

Operating temperature	-25 to +65 °C, indoor, (R.H. from 0 to 90% non-condensing @ 40°C)	Standard compliance	EN62052-11 EN62053-21, EN50470-3
Storage temperature	-30°C to +80°C (R.H. < 90% noncondensing @ 40°C)	Approvals	CE
Installation category	Cat. III	Connections	
Insulation (for 1 minute)	4000 VAC RMS between measuring inputs and digital/serial output (see table) 4000 VAC RMS	Cable cross-section area	Measuring inputs: 6 mm ² , with/without metallic cable ferrule; Max. screw tightening torque: 1.1 Nm 1.5 mm ² , Min./Max. screws tightening torque: 0.4 Nm
Dielectric strength	4000 VAC RMS for 1 minute	Other terminals	
EMC		Housing	
Electrostatic discharges	According to EN62052-11 15kV air discharge;	Dimensions (WxHxD)	17.5 x 63 x 90 mm
Immunity to irradiated	Test with current: 10V/m from 80 to 2000MHz;	Material	Noryl, self-extinguishing: UL 94 V-0
Electromagnetic fields	Test without any current: 30V/m from 80 to 2000MHz;	Sealing covers	Included
Burst	On current and voltage measuring inputs circuit: 4kV	Mounting	DIN-rail
Immunity to conducted disturbances	10V/m from 150KHz to 80MHz	Protection degree	
Surge	On current and voltage measuring inputs circuit: 4kV;	Front	IP51
Radio frequency	According to CISPR 22	Screw terminals (cable inputs)	IP20
		Weight	Approx. 75 g (packing included)

Power supply specifications

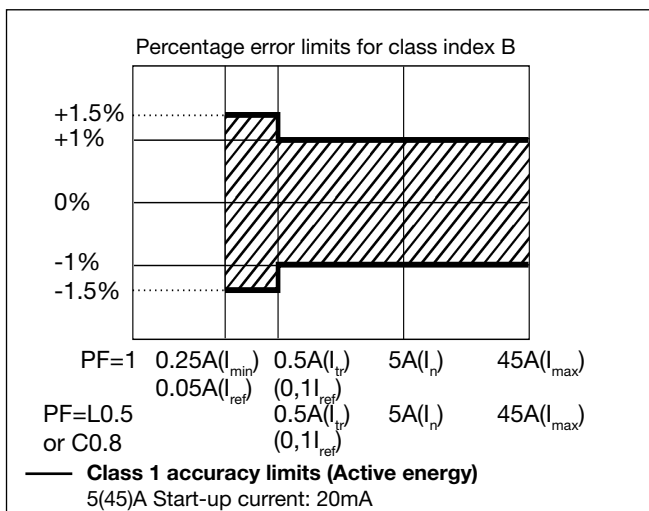
Self power supply		Power consumption	≤1.0W, ≤ 8VA
AV8	230VAC VL-N, -30% +20% 50/60Hz		
AV7	120VAC VL-N, -30% +30% 50/60Hz		

Insulation (for 1 minute) between inputs and outputs

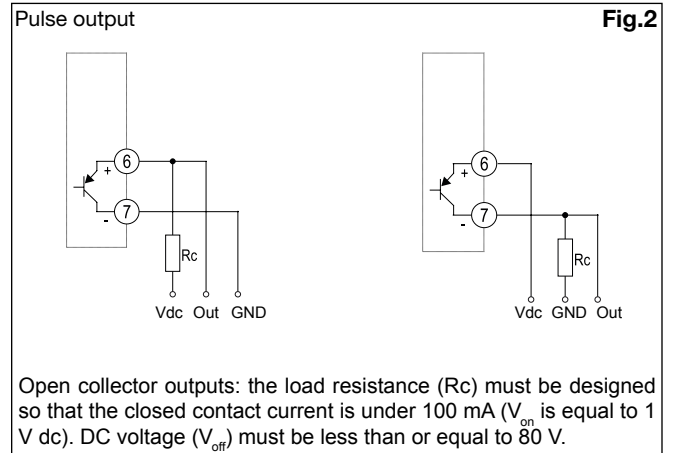
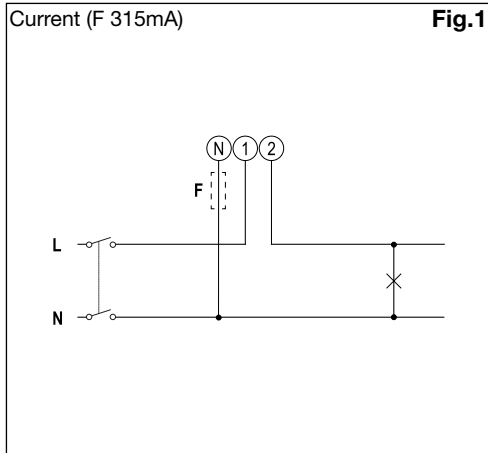
	Measuring input	Auxiliary power supply	Digital output
Measuring input	-	0 kV	4 kV
Auxiliary power supply	0 kV	-	4 kV
Digital output	4 kV	4 kV	-

Accuracy according to EN50470-3

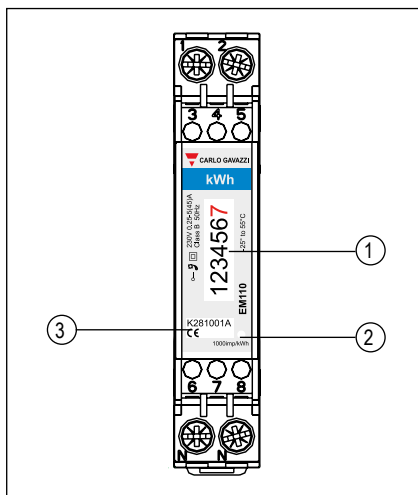
kWh, PF=accuracy (RDG) depending on the current



Wiring diagrams



Front panel description



1. **Display**
Electro-mechanical type with total kWh indication
2. **LED**
LED proportional to kWh reading
3. **Serial number**
Area reserved to serial number

Dimensions

