ORION ITALIA

Protection relays & Metering division

EMR-100

Smart Metering

CE

Electrical Multimetering & Monitoring

The EMR-100 relay has been designed for the continuous monitoring of electrical parameters in medium or low voltage 1-phase or 3-phase systems. It allows direct or remote monitoring of the system's general conditions.

Some available versions of the EMR-100, can also be used to control the production process thanks to the programmable contacts suitable for various applications.

APPLICATIONS

- Metering of distribution feeders, transformers, generators, capacitor banks and motors
- Commercial & industrial utility
- Flexible control for demand load shedding, power factor, among others
- Power quality analysis

DIGITAL MEASUREMENT

- True RMS Phase & Ground Current*
- True RMS Phase+& Line Voltage
- Energy
- Positive & Negative Active power (kW) & Reactive power (kvar)
- Last & Maximum Demand readings for:
  - phase current (A)
  - active power (kW)
  - reactive power (kvar)
  - apparent power (kVA)
- Frequency (Hz)
- Voltage & Current Unbalance
- Voltage & Current Harmonic analysis up to the 11th
- Current K factor

COMMUNICATION

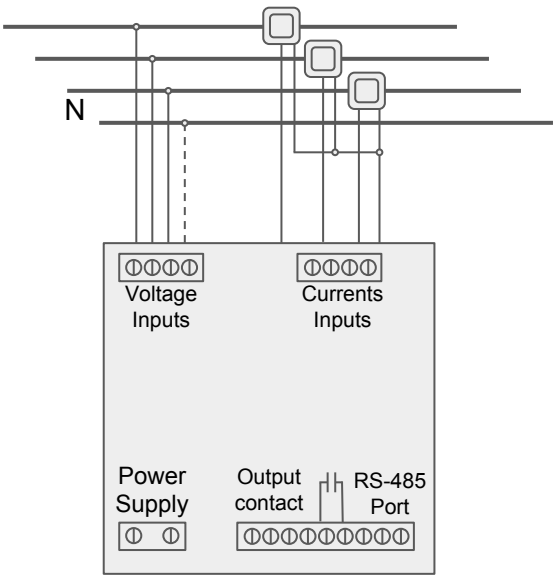
- 1 RS485 port, Modbus RTU Protocol
- Bluetooth

SIGNALLING AND PROGRAMMING

- Graphic 128x64 LCD display
- Status LED
- Indication and storage of fault conditions and their values*

OUTPUT CONTACT THRESHOLD LEVEL*

- Ground & Neutral OverCurrent
- Minimum Voltage
- Max +/- KW
- UnderVoltage
- OverVoltage
- Power demand



*Depending on firmware upgrade
+Depending on Voltage, Current connection type

SPECIFICATIONS

SUPPLY VOLTAGE
120/230 Vac, -15%, +10%, 50/60 Hz

MAX. POWER CONSUMPTION
6 VA (4 W)

TEMPERATURE
Operational: -20 °C +55 °C
Storage temperature: -30 to +70 °C

RELATIVE HUMIDITY
Max. 90% (non condensing)

DIELECTRIC WITHSTAND VOLTAGE
2 kVac, 60s from all circuits and enclosure
2 kVac, 60s between HLV and LV circuit

BURN IN
48 hours at 50 °C

ELECTRICAL INSULATION CONSTRUCTION
OverVoltage category: III
Pollution degree: 2
Altitude: 2000m (AMSL)

OUTPUT CONTACT *(See HOW TO ORDER table below)*
Rated load: 8 A@240 Vac Resistive
8 A@24 Vdc Resistive (0,2 A @125 Vdc)
Max. switching voltage: 400 Vac / 150 Vdc
Max. continuous current: 5 A

PHASE CT INPUTS
Nominal current input: In=0,2 A
Burden: 0,2 VA @In
Frequency: 50/60 Hz
Range: 0,01 to 4 x In
Max. continuous current: 2 x In

VOLTAGE INPUTS
Rated Input (Vn): 480/277 Vac (ph-ph/ph-N) 50/60 Hz
VT burden: 0,5 VA max.
Max. continuous: 500/300 Vac (ph-ph/ph-N)
Range: 10-300 Vac (ph-N)
System: 3 wires, 4 wires
External VT: Wye/Wye or Delta/Delta

ACCURACY
Voltage: cl. 0,5% ± 1 digit
Current: cl. 0,5% ± 1 digit
3 Ph Active Power: cl. 1% ± 1 digit
3 Ph Active Energy: cl. 1% ± 1 digit

MECHANICAL
Back connections, section 2,5 mm2 or 14 AWG
Frame: Noryl auto-extinguish
IP40 Front (up to IP54 front, on request)
Dimension: 96 x 96 x 146 mm
Front panel cutout: 90^{+1} x 90^{+1} mm
Weight: 700 gr.

COMMUNICATION
RS-485 serial port
Insulation: 1,5 kVdc
Protocol: Modbus RTU-Slave
Bluetooth: BLE 4.2

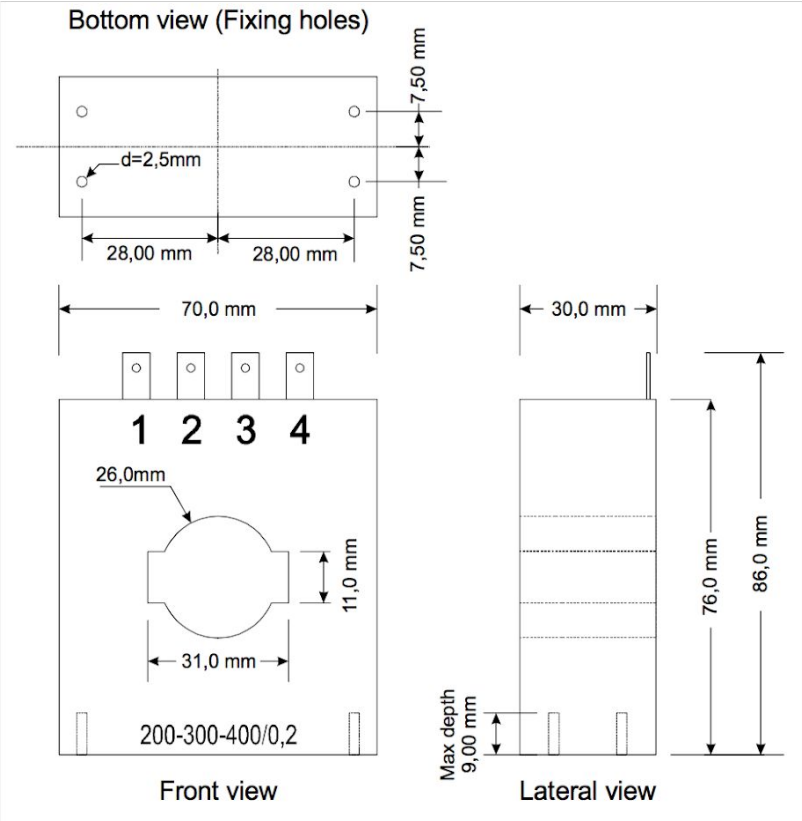
FIRMWARE UPGRADE
via RS-485 Serial Port*
OTA via Bluetooth*

*Depending on firmware upgrade

STANDARDS
Low voltage directive: IEC 60255-27, IEC 60255-5
EMC directive: IEC 60255-26

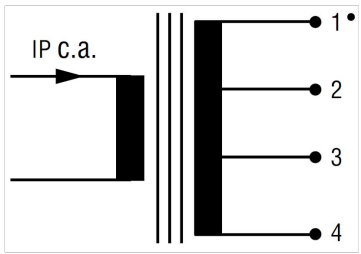
	Metering								Output Contact Threshold Level			Communication & Smart Functions	
Model	RMS Volt Amp	Freq.	KW, KVA, KVAR, demand	KWh	Power Factor	Phase Sequence	Currents Voltage Harmonics	THD Voltage Current	Ground & Neutral OverCurrent	Max +/- KW Under/Over Volt. KW demand	Events	Communication Port	Cloud Ready**
EMR-1000	o	o	o	o	o	o						Modbus RTU & Bluetooth	YES
EMR-1001	o	o	o	o	o	o	o	o					
EMR-1002	o	o	o	o	o	o			o		o		
EMR-1003	o	o	o	o	o	o				o	o		
EMR-1004	o	o	o	o	o	o	o	o	o	o	o		

***Future option*



CTs

EMR family Standard CT



SPECIFICATIONS

Temperature range: -40 +70 °C
Box made with self-extinguishing material UL 94-VO
Test voltage between primary and secondary: 4Kv

Ip/Is	n	OUTPUTS	ACCURACY
100/0.2 A	n_{2-3} = 500	2 - 3	0.5%
200/0.2 A	n_{1-2} = 1000	1 - 2	0.5%
300/0.2 A	n_{1-3} = 1500	1 - 3	0.3%
400/0.2 A	n_{1-4} = 2000	1 - 4	0.2%

HOW TO ORDER

KITTA01

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