



**ORION ITALIA**

Protection relays & Metering division

# MPR-100

Motor - MCC Automation



## Metering & Protection for Asynchronous Motors

The device has been designed for continuous monitoring of electrical parameters in low voltage systems. It allows direct, close-distance or remote monitoring via RS-485 connectivity, of the system's general conditions as it immediately signals faults.

The MPR-100 excels in its ability to activate specific protection functions tailored to motor industrial applications, including oil & gas, mining, and water treatment. Its remarkable versatility makes it the perfect solution for demanding environments..

## APPLICATIONS

- Metering & protection of 3P asynchronous motors
- Commercial & industrial utility
- Flexible control for demand load shedding, power factor\*
- Power quality analysis\*

## DIGITAL MEASUREMENT

- True RMS Phase Currents
- True RMS Line Voltage
- Active Power (kW)
- Reactive Power (kvar)
- Apparent Power (kVA)
- Power Factor (PF)
- Voltage and Current THD
- Frequency (Hz)
- Voltage and Current Harmonics (up to 11th)
- Vectorial Ground Current
- Energy
- Phase Sequence

(see table on pg.2 for function availability on the model required)

## APPLICABILITY

- Systems: Wye or Delta three-phase
- Frequency: 50/60 Hz
- Current: up to 6000 A max (or up to 400 A max with Orion Italia standard CTs for MPR)
- Voltage: up to 277/480Vac (direct measure) or external VT

## COMMUNICATION

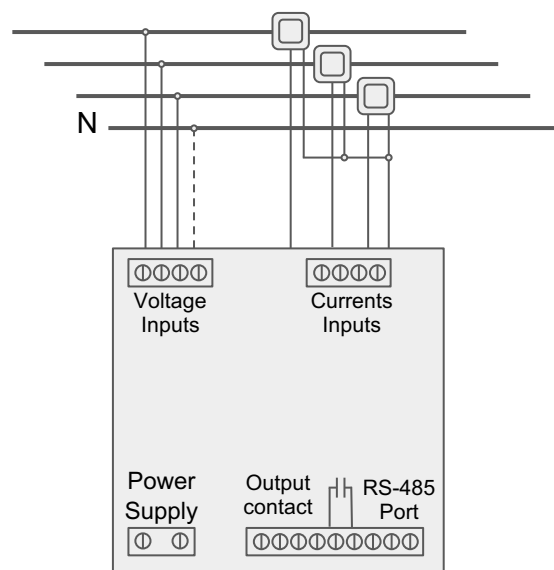
- RS485 port, Modbus RTU Protocol

## SIGNALLING AND PROGRAMMING

- Graphic LCD & LED based HMI
- Indication of fault conditions
- Indication of the system status

## PROTECTION AND FUNCTIONALITY\*

- Phase Under & Over Voltage
- Phase Reversal
- Mechanical Jam
- Overload Protection (thermal capacity)
- Acceleration Timer
- Current Unbalance
- Ground Fault
- Load Increase
- Undercurrent



## SPECIFICATIONS

<b>SUPPLY VOLTAGE</b> (See Order Code) <b>Model A:</b> 120/230 Vac, -15%, +10%, 50/60 Hz <b>Model W:</b> 85V (115V) + 264V (300V) Vac (Vdc) <b>Model B:</b> 24Vdc -15%, +10%, <b>Model C:</b> 48Vdc -15%, +10%	<b>MAX. POWER CONSUMPTION</b> 6 VA (4 W)  <b>RELATIVE HUMIDITY</b> Max. 90% (non condensing)
<b>TEMPERATURE</b> Operational: -20 °C +55 °C Storage Temperature: -30 to +70 °C	<b>BURN IN</b> 48 hours at 50 °C
<b>DIELECTRIC WITHSTAND VOLTAGE</b> 2 kVac, 60s from all circuits and enclosure 2 kVac, 60s between HLV and LV circuit	<b>ELECTRICAL INSULATION CONSTRUCTION</b> Overvoltage Category: III Pollution degree: 2 Altitude: 2000m (AMSL)
<b>ACCURACY</b> Voltages: cl.1% ± 1 digit Currents: cl. 1% ± 1 digit 3 Ph Active Power: cl. 2% ± 1 digit	<b>OUTPUT CONTACT</b> 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
<b>PHASE CT INPUTS</b> CT Primary Range: 1.6-3.2-6.4 A ; 25 A ; Custom; 100-200-300-400 A (CT's included in the box) Nominal current input: In=0,2 A Burden: 0,2 VA @In Frequency: 50/60 Hz Range: 0.05 to 8 x In	<b>VOLTAGE INPUTS</b> Rated Input: 480/277 Vac (ph-ph/ph-N) 50/60 Hz VT burden: 0,5 VA max. Max. Continuous: 300 Vac phase-neutral System: 3 wires, 4 wires External VT: Wye/Wye or Delta
<b>COMMUNICATION</b> RS-485 serial port Protocol: Modbus RTU-Slave Insulation: 1,5 kVdc	<b>MECHANICAL</b> Terminal block, section 2,5 mm <sup>2</sup> 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: 91 <sup>-0,5</sup> x 91 <sup>-0,5</sup> mm Weight: 700 gr.
	<b>STANDARDS</b> Low Voltage directive: IEC 60255-27, IEC 60255-5 EMC directive: IEC 60255-26

## CURRENT TRANSFORMERS (INCLUDED)

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

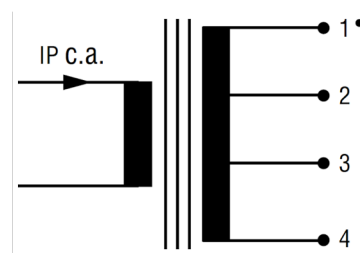
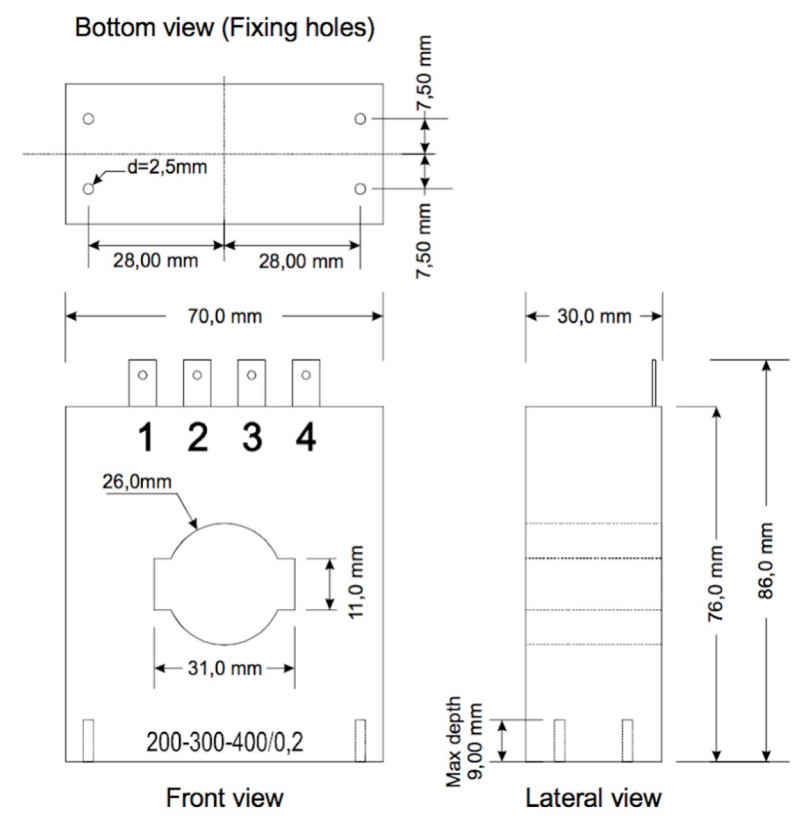


I <sub>p</sub> /I <sub>s</sub>	n	OUTPUTS	ACCURACY
100/0.2 A	n <sub>2-3</sub> = 500	2 - 3	0.5%
200/0.2 A	n <sub>1-2</sub> = 1000	1 - 2	0.5%
300/0.2 A	n <sub>1-3</sub> = 1500	1 - 3	0.3%
400/0.2 A	n <sub>1-4</sub> = 2000	1 - 4	0.2%

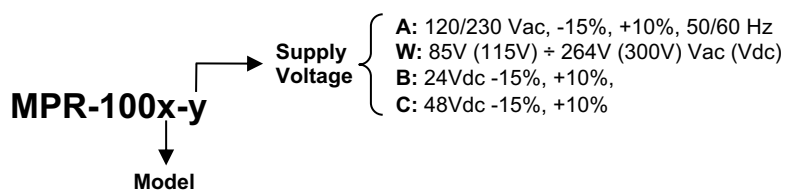
\* see table - depending on model

# CTs

Included for the MPR family



## HOW TO ORDER



Packaging content

Model	Metering										Protections (ANSI)										Events	Communication Port
	RMS Amp	RMS Volt	Freq.	KW, KVA, KVAR	KWh	Power Factor	Phase Sequence	Currents Harmonics	Voltage Harmonics	THD (Volt, Amp)	27	37	59	49	46i	47	51R	51GV	51GS (sef)			
0	0							0						0	0		0	0		0	Modbus RTU	
1	0							0						0	0		0	0		0		
2	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0		0		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		