Three phase multifunction Power Transmitter

Product features

- Measuring of 51 different parameters
- 3 × 0-125 VAC / 0-250 VAC voltage input (CAT III)
- 3 × 0-5 AAC / 0-1 AAC galvanic isolated current inputs (CAT III)
- different measurement layouts application with null wire network and without null wire network using one, two, or three power measure inputs
- 2 × 0-20 mA / 4-20 mA galvanic isolated outputs
- RS485 communication, MODBUS RTU / ASCII Slave protocol
- 2 energy pulse outputs / limit outputs
- Configurable from PC via USB port
- 19-35 VAC / 25-50 VDC / 90-250 V AC/DC power supply
- 22.5 mm width, TS-35 rail mounting

Type designation

PQRM5100 31 ☐☐☐☐☐☐

			OPTION	OPTION*	
				2IA	**RS4**
			DO		
			dual-channel impulse output	dual-channel active output 0-20A / 4-20 mA	RS485 MODBUS
INPUT	**I1**	0-1 A	● ●	● ●	● ●
INPUT	**I5**	0-5 A	● ●	● ●	● ●
INPUT	**U125**	0-125 V	● ●	● ●	● ●
INPUT	**U250**	0-250 V	● ●	● ●	● ●

PQRM5100 31 ☐☐☐☐☐☐

20-50 VDC / 19-35 VAC POWER SUPPLY

PS 90-250 VAC / DC POWER SUPPLY

* only one option at the same time

The PQRM5100 31 ... Three phase multifunction Power Transmitter suitable for the measuring of 51 different parameters of the three phase power network: • the TRMS values of phase voltages and phase currents • active power, reactive power, apparent power and power factor per each phase • +active energy, -active energy, inductive energy, capacitive energy per each phase and per 3 phase • frequency, phase angle, line voltages, phase angles between phase voltages.
The voltage inputs of the equipment are resistor networks (nonisolated) and the current inputs are isolated from the network with wideband current transformers. The current inputs 0-5 AAC or 0-1 AAC, and the voltage inputs 0-125 VAC / 0-250 VAC are in compliance with the requirements for measurement category CAT III.
The PQRM5100 31... is available with the following output options:

- 2 × 0-20 mA / 4-20 mA galvanic isolated, scalable, active analog current outputs *
- MODBUS RTU galvanic isolated communicatoin which makes possible the reading of all measurement values via the communication line, with a PLC or with a PC *.

(* only one option at the same time)

2 energy pulse outputs / limit outputs for limit-switching and for simple control tasks.
The measurement and output parameters are configurable from PC via USB port with the help of a user friendly configuration software. The configuration software is free of charge.
The PQRM5100 31 ... has two power supply versions 19-35 VAC / 25-50 VDC (PQRM5100 31 ...) or 90-250 V AC/DC (PQRM5100 31 ... PS).

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Technical specifications

Safety data:	
The connection terminals of the supply voltages are isolated from each other, the isolation is in compliance with the standard EN 61010-1, taking into consideration the following:	
Pollution level:	2
Measurement category:	CAT III
Overcurrent protection in instalation:	4A
Input parameters:	
Measured parameters:	U_{12}, U_{23}, U_{31}, U_{L1}, U_{L2}, U_{L3}, I_{L1}, I_{L2}, I_{L3}, P_{L1}, P_{L2}, P_{L3}, Q_{L1}, Q_{L2}, Q_{L3}, S_{L1}, S_{L2}, S_{L3}, PF_{L1}, PF_{L2}, PF_{L3}, φ_{L1}, φ_{L2}, φ_{L3}, ΣP, ΣQ, ΣS, ΣPF, f_1, f_2, f_3, ρ_{12}, ρ_{13}, $P_{mom}15$, $P_{prog}15$, +EP1, -EP1, +EQ1, -EQ1, +EP2, -EP2, +EQ2, -EQ2, +EP3, -EP3, +EQ3, -EQ3, +ΣEP, -ΣEP, +ΣEQ, -ΣEQ, U_{12}, U_{23}, U_{31}, U_{L1}, U_{L2}, U_{L3}, I_{L1}, I_{L2}, I_{L3}, P_{L1}, P_{L2}, P_{L3}, Q_{L1}, Q_{L2}, Q_{L3}, S_{L1}, S_{L2}, S_{L3}, PF_{L1}, PF_{L2}, PF_{L3}, φ_{L1}, φ_{L2}, φ_{L3}, ΣP, ΣQ, ΣS, ΣPF, f_1, f_2, f_3, ρ_{12}, ρ_{13}, $P_{mom}15$, $P_{prog}15$, +EP1, -EP1, +EQ1, -EQ1, +EP2, -EP2, +EQ2, -EQ2, +EP3, -EP3, +EQ3, -EQ3, +ΣEP, -ΣEP, +ΣEQ, -ΣEQ
Input voltage:	0-125 VAC / 0-250 VAC resistor network (specified at ordering)
Input current:	0-5 AAC / 0-1 AAC galvanic isolated (specified at ordering)
Overrange:	2 × I, 1.2 × U, 300 V (max.)
Short overrange (1 sec.):	20 × I, 100 A (max.)
Consumption of the input:	0.5 VA (max.)
Frequency range:	40-80 Hz
Error:	0.2%
Refreshing time:	250 ms
Temperature coefficient:	25 ppm / °C (max.)
Output parameters: **Analogue outputs (optional):**	
Output type:	2 active current outputs (configurable, specified at ordering)
Range:	0-20 mA / 4-20 mA (scalable)
Burden:	500 ohm (max.)
Refreshing time:	same as the measuring time (2 s)
Overcurrent:	20.8 mA
Error:	< 4 uA (23 °C ±2 °C) < 40 uA (-20 - +60 °C)
Burden resistance effect:	practically zero
Pulse outputs (optional):	
Output type:	2 galvanic isolated transistor, passiv switching transistor
Rating:	30 V, 50 mA
MODBUS communication interface (optional):	
Interface type:	RS485, galvanic isolated
Baud rate:	300 / 600 / 1200 / 2400 / 4800 / 9600 / 14400 / 19200 / 32800 Baud
Parity:	even / odd / none
Protocol:	MODBUS RTU slave
Address:	1-255
Possible commands:	3 (register read)
Power supply:	
Supply voltage:	20-50 VDC / 19-35 VAC PQRM5100 11 90-250 V AC/DC PQRM5100 11 PS
Power consumption:	1.5 VA / 1 W
Galvanic isolation:	
Current power measure input:	Galvanic isolated, R < 20 mOhm
Voltage power measure input:	Resistordivider, R = 1.6 MOhm
Operating isolation voltage:	250 V_{eff} (between measuring inputs and power supply input)
Test voltage:	4200 VDC (1 min.) (between measuring inputs and power supply input) 500 VDC (between output-power supply terminals)
Ambient conditions:	
Operating temperature range:	0-60 °C
Storage temperature range:	0-70 °C
Relative humidity:	90% (max., non condensing)
Place of installation:	cabinet
Electromagnetic compatibility (EMC) **accordance with the standard EN 61326-1**	
Immunity:	industrial area
Noise emission:	Group 1, Class B
General data:	
Housing:	terminal assembly box, rail mounting on TS-35 rail, material: polyamide PA6.6
Connection:	screw terminal
Connection cable:	4.5 mm^2 (max.)
Dimensions / weight:	22.5 × 108 × 114 mm (width × height × depth) / 0.4 kg (max.)
Protection:	IP 20

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~~Detailed information see~~ in operating instructions. The Manufacturer maintans the right to change the technical data!

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