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Innovative Electronic Systems

PQM4000

Class A DIN 192x144 power quality analyzer
for CTs or current clamps

Class A certified in compliance
with IEC/EN 61000-4-30:2015 Ed. 3

APPLICATIONS

PQM4000 is connected to networks and facilities to monitor:

- Power quality

- Critical processes even in remote mode

- Harmonics and interharmonics in cases of power quality problems

- Type and timing of faults on energy supply

- Power quality standards according
  to EN 50160 and issuing a printable report

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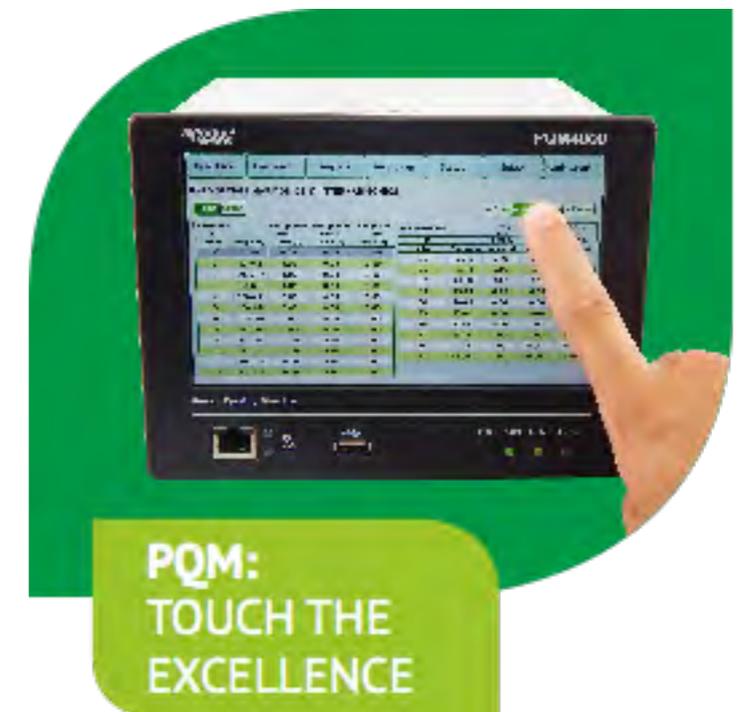
HIGHLIGHTS

- Quality analysis according to Class A EN61000-4-30: 2015

- Measurements of harmonics and interharmonics according to EN61000-4-7

- Flicker measurement according to EN61000-4-15 and IEEE1453

- Transients capturing

- Communication, management and monitoring measuring remotely via ETHERNET

- High data recording capacity 16GB

- Touch screen graphic functions

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MAIN **FEATURES**

- Voltage and current additional channels compared to other three phase devices on the market: up to 9 channels, 4 voltage inputs and 5 current inputs

- PQM4000: current inputs for CT or current clamps to ensure the accuracy of measurement

- Continuous monitoring of the metering parameters related to power quality for energy characteristics

- Simultaneous recording of events, Min / AVG / Max values and energy meters in 16Gb memory

- Various possibilities of data transmission: Ethernet, WIFI, Modbus RTU / TCP, USB

- Web interface easy to use and available in Italian, English, French, German and Spanish

- Graphical and table display of the measured data

- Automatic data transferring to FTP servers operated by frequency event or daily pre-programmed at fixed times

- Energy pulse generation on digital output according to EN 62053-31

- NTP time synchronization (default) or resolution to 1ms with GPS synchronization (option)
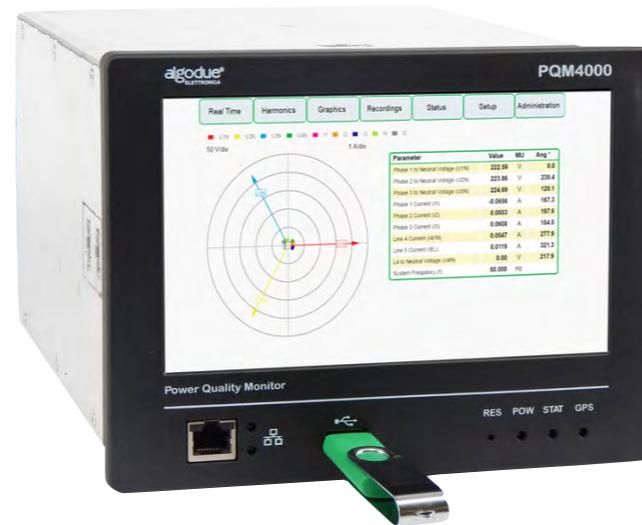
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GENERAL **FEATURES**
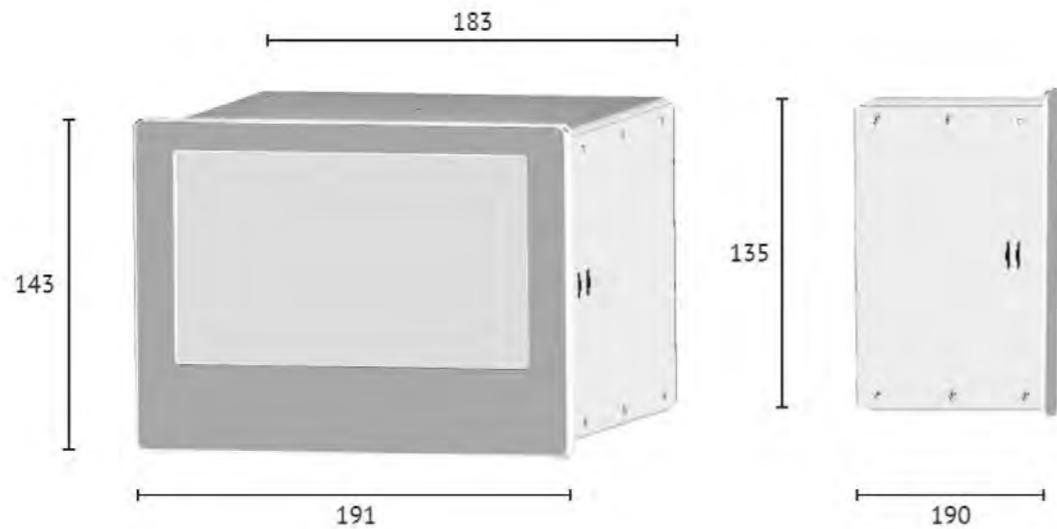
The instrument is for panel mount 192x144 DIN size.

The instrument is provided with a touch screen display and an USB port on front panel. The USB port supports USB flash drives for data transferring (recorded data) or upload of device new firmware.

Bundled USB pen drive supplied with installation kit for EN50160 analysis.

The instrument is provided with two ETHERNET communication ports:

1 front port for a quick instrument connection to a PC
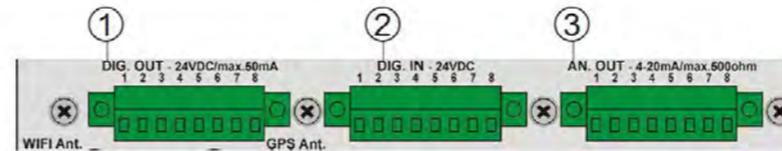
1 rear port for data reading and management in remote mode

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REAR CONNECTION: COMUNICATIONS AND I/O
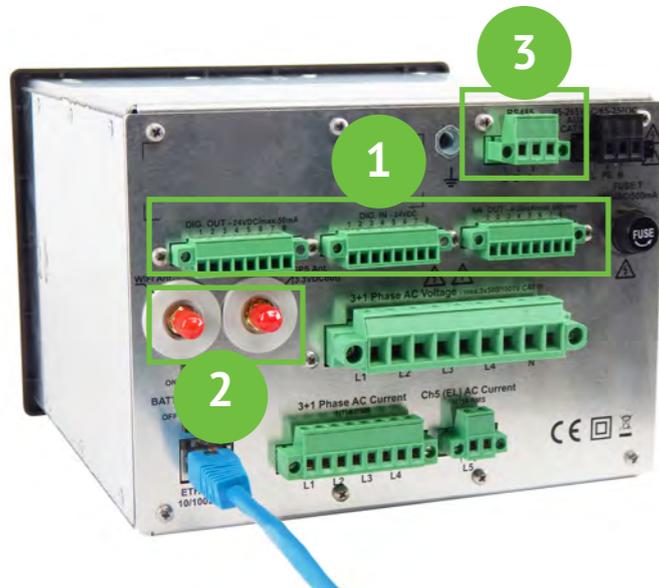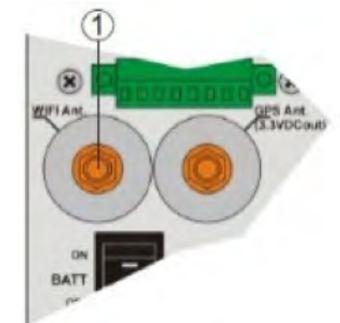

Back of the instrument

1 Inputs & Outputs

The instrument is provided with digital inputs, outputs and analog outputs, refer to the following picture and description.

| PART	FUNCTION
①	4 channels with 24 VDC optoisolated passive digital outputs for alarm tripping or pulse emission.
②	4 channels with 24 VDC optoisolated digital inputs to acquire logical status of control signals.
③	4 channels with 4...20 mA analog outputs for real time parameter variation transmission.

2 WIFI Port

A WIFI port is provided for a quick instrument connection in wireless network.

3 RS485 port

The instrument is provided with an isolated RS485 communication port for instrument data reading by MODBUS RTU.

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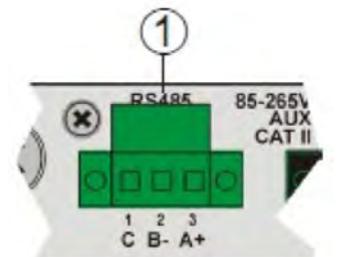
RECORDINGS: RECORDING TYPES

The instrument can monitor the measurements and record different data according to the set recording type. Available recording types:

- **Events:** event capture at threshold overtake; in case of fast frequency event, the event can be triggered also by manual mode

- **Min/Avg/Max:** LOG recording containing the Min/Avg/Max values stored at a preset rate

- **Energy counter LOG:** LOG recording containing the energy counters stored at a preset rate

- **Inputs LOG:** recording containing digital input status changes

- **Functional LOG:** LOG recording containing instrument operating status

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RECORDINGS: RECORDING FORMATS

DATA	RECORDING FORMATS
Fast voltage events	CSV, PQDIF
Fast frequency events*	CSV, PQDIF
Fast U4 voltage events	CSV, PQDIF
Rapid voltage changes	CSV
Overcurrent events	CSV, PQDIF
Slow voltage events	CSV
Slow frequency events	CSV
Flicker events	CSV
Voltage THD events	CSV
Voltage unbalance ratio events	CSV
Min/Avg/Max recordings	PQDIF
Energy counter LOG	CSV
Digital inputs LOG	CSV
Functional LOG	CSV

In case of frequency transient, only the corresponding CSV and PQDIF files are uploaded.

CSV: Comma Separated Values
PQDIF: Power Quality Data Interchange Format

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RECORDINGS: RECORDING FORMATS

Example of display page VOLTAGE FAST THREE EVENTS. The "VIEW" icons allow the graphical display of event.
By clicking on the icons under "View" you can view RMS graphics and waveforms.

Recording type menu

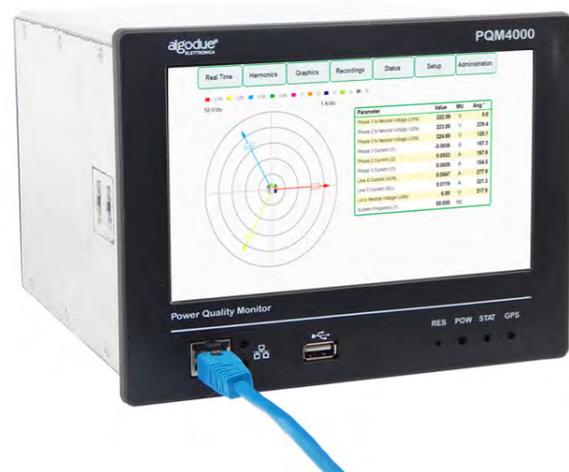## RECORDINGS: RECORDING FORMATS

Example of RMS graphic.

Example of Waweforms graphic.

WEBSERVER

Web server is the instrument web interface which allows to manage the instrument by any PC using a simple web browser.
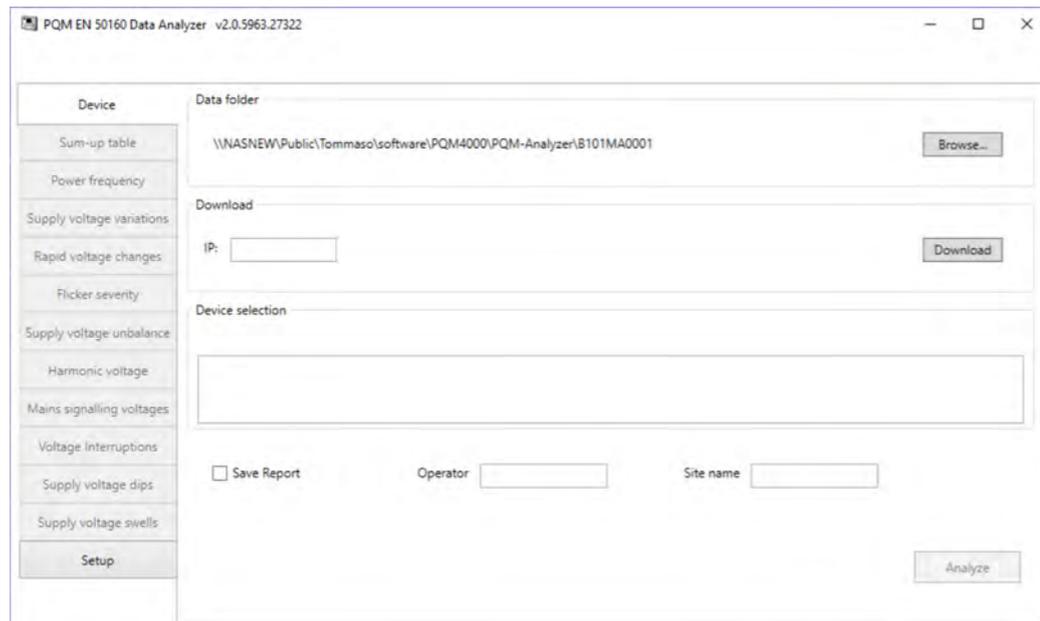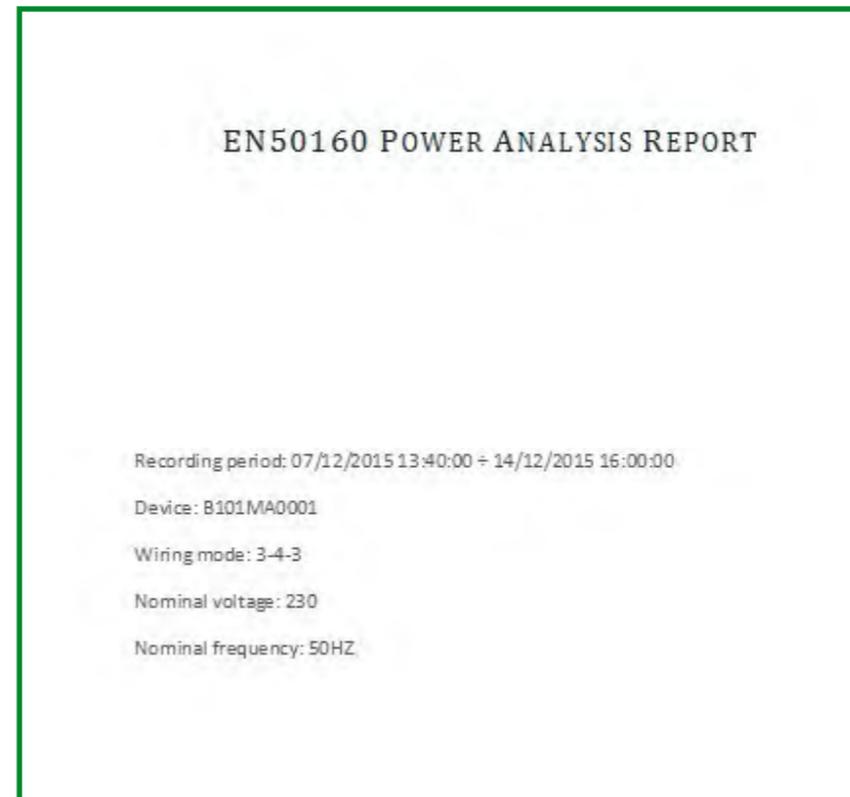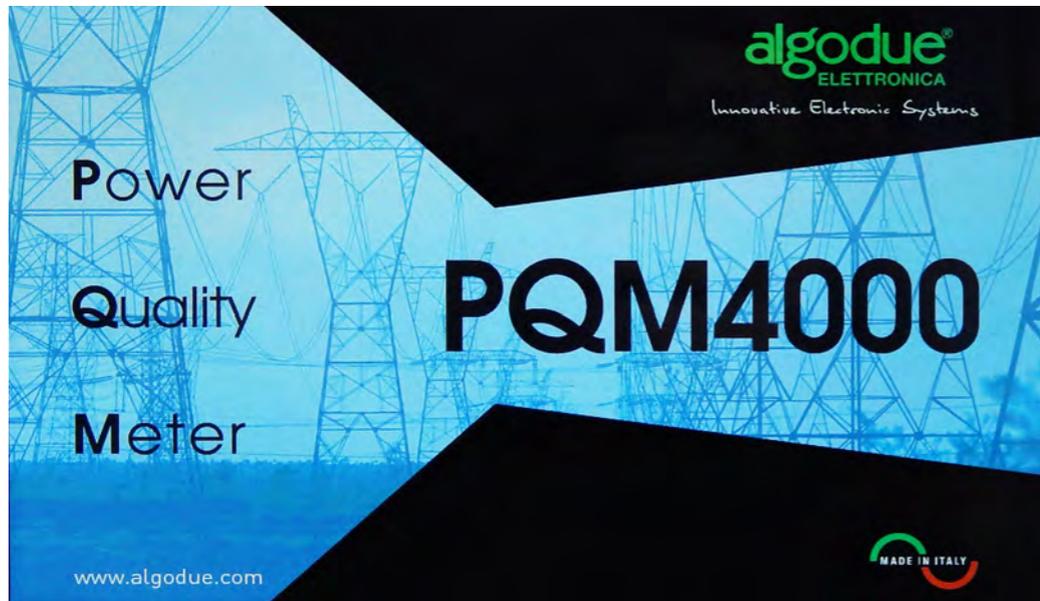Example of a webserver real time page:

The Web server graphic interface is the same displayed on the instrument touch screen.
Both the instrument and the interface are multilingual.

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PQM-ANALYZER SOFTWARE

Bundled software for analysis in accordance with the EN50160 data issuing a dedicated report.

EN50160 POWER ANALYSIS REPORT

Recording period: 07/12/2015 13:40:00 ÷ 14/12/2015 16:00:00

Device: B101MA0001

Wiring mode: 3-4-3

Nominal voltage: 230

Nominal frequency: 50HZ

EN 50160 ANALYSIS SUM UP

EN 50160 Analysis Sum Up

|	
Power frequency	Fail
Supply voltage variations	Fail
Rapid voltage changes	Fail
Flicker severity	Fail
Supply voltage unbalance	Pass
Harmonic voltage	Fail
Mains signalling voltages	Fail
Short interruptions of the supply voltage	Analyzed
Medium interruptions of the supply voltage	Analyzed
Long interruptions of the supply voltage	Analyzed
Supply voltage dips	Analyzed
Supply voltage swells	Analyzed

PQM-TOOL CLASS A MONITORING SOFTWARE TOOL

PQM Class A Monitoring Tool is a software tool which provides the possibility to view and monitor all Voltage and Frequency parameters defined in the IEC 61000-4-30:2015 standard for Class A certification. The tool communicates with the PQM Power Quality Monitor family devices through Modbus TCP protocol, therefore the device must be connected through Ethernet.
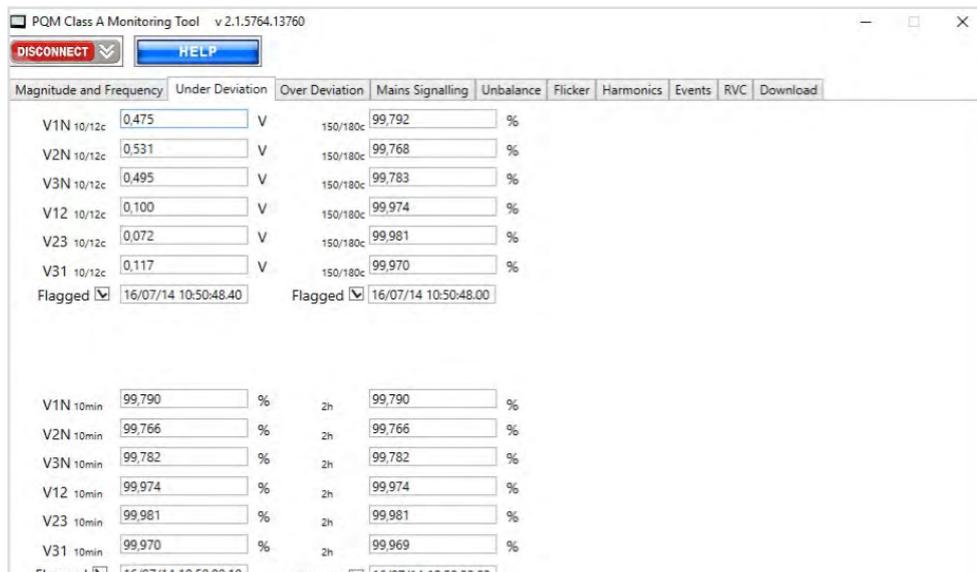
Available types of data:

Magnitude and Frequency	Flicker
Under Deviation	Harmonics
Over Deviation	Events
Mains Signalling	RVC
Unbalance	Download
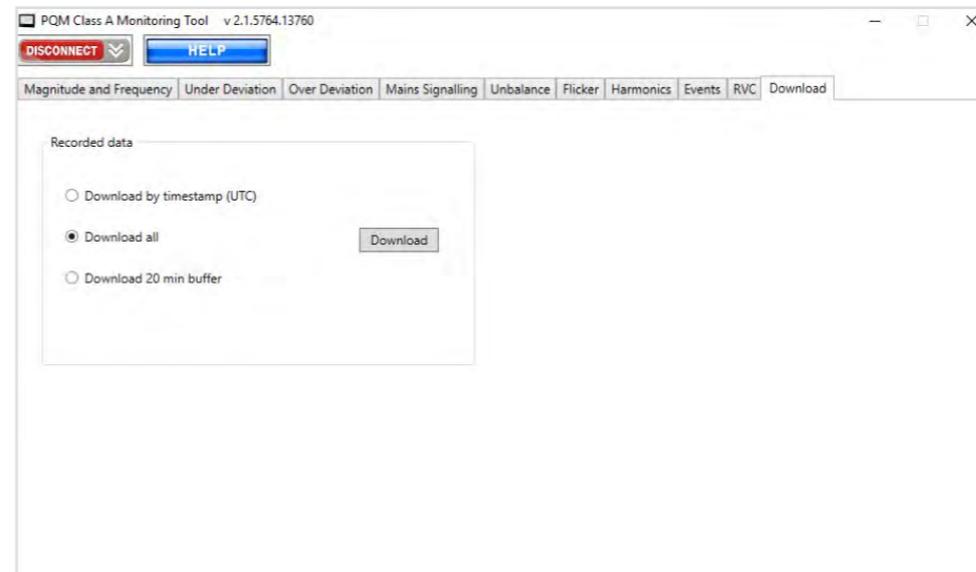
Data download screen:

Download by timestamp (UTC)
Download all
Download with 20 min buffers

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TABLE OF **AVAILABLE TYPES**

PQM4000 - DEFAULT CONFIGURATIONS

ORDER CODE	POWER SUPPLY	COMMUNICATION				GPS FOR SYNCHRO	MEMORY	I/O		
	85...285VAC / 65...250VDC	ETHERNET	RS485 read-only	WIFI	USB	Integrated	16GB	DI	DO	AO
FOR CTs (not included)										
1301.0002.0001	●	●	●	●	●	●	●	●	●	●
FOR CLAMPS (not included)										
1302.0002.0001	●	●	●	●	●	●	●	●	●	●

LEGEND

GPS for synchro: GPS module for RTC synchronisation, integrated in the instrument.
DI: 4 digital inputs for remote management of control signals.
DO: 4 digital outputs for alarm or pulse emission.
AO: 4 analog outputs for real time parameter variation transmission.

FOR MORE INFO: algodue.it/eng/PQM4000.html
algodue.it/pdf/PQM4000_ds_ENG.pdf

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CONTACTS

"Getting together is a beginning,
staying together is a progress,
working together is an achievement."

Henry Ford

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