metrum

IEC 61000-4-30 Class A

METRUM® PQX3-M

Reference meters for energy, power quality and proactive disturbance analysis

PROACTIVE ANALYSIS FOR DIGITALIZED GRID

Metrum PQX3-M is a class A reference instrument for energy, power quality and disturbance analysis. The instrument is designed for easy installation in various environments and applications and thus offers an optimal and comprehensive measurement for both electricity distribution companies and industry.

The measuring instrument has maximum measurement performance. Due to high accuracy and an intelligent basic platform, the Metrum PQX3-M works excellently as both an energy control meter and a class A power quality reference meter.

In addition, the instrument is adapted for proactive disturbance analysis. Detect deviations before they lead to costly faults and outages!

HIGH-QUALITY ANALYSIS

The PQX3 instrument series was developed to provide high-quality measurement data with a focus on energy, power quality and disturbances. All data can be analyzed with the central Metrum PQ Controller system, which includes a report generator according to current standards, and several different analysis functions (such as graphical disturbance analysis).

THIRD-GENERATION MEASURING INSTRUMENT

The new PQX3-M was developed with the latest available technology and belongs to the third generation of Metrum measuring instruments. The high-performance platform includes proactive and automatic analysis of data that facilitates its use throughout the process.

The instruments support both multi-triggering and area triggering with several selectable configuration options. This expands the field of application and gives the possibility of dynamic control.

DISTURBANCE RECORDER

Metrum PQX3-M is a full-scale disturbance recorder. The digital inputs can be used to trigger various events, such as breaker switches. The instrument records waveforms and current status at high speed on all channels.

The high-resolution measurement enables proactive fault analysis and detection of incipient and intermittent faults in the grid, minimizing the risk of unnecessary and costly outages.

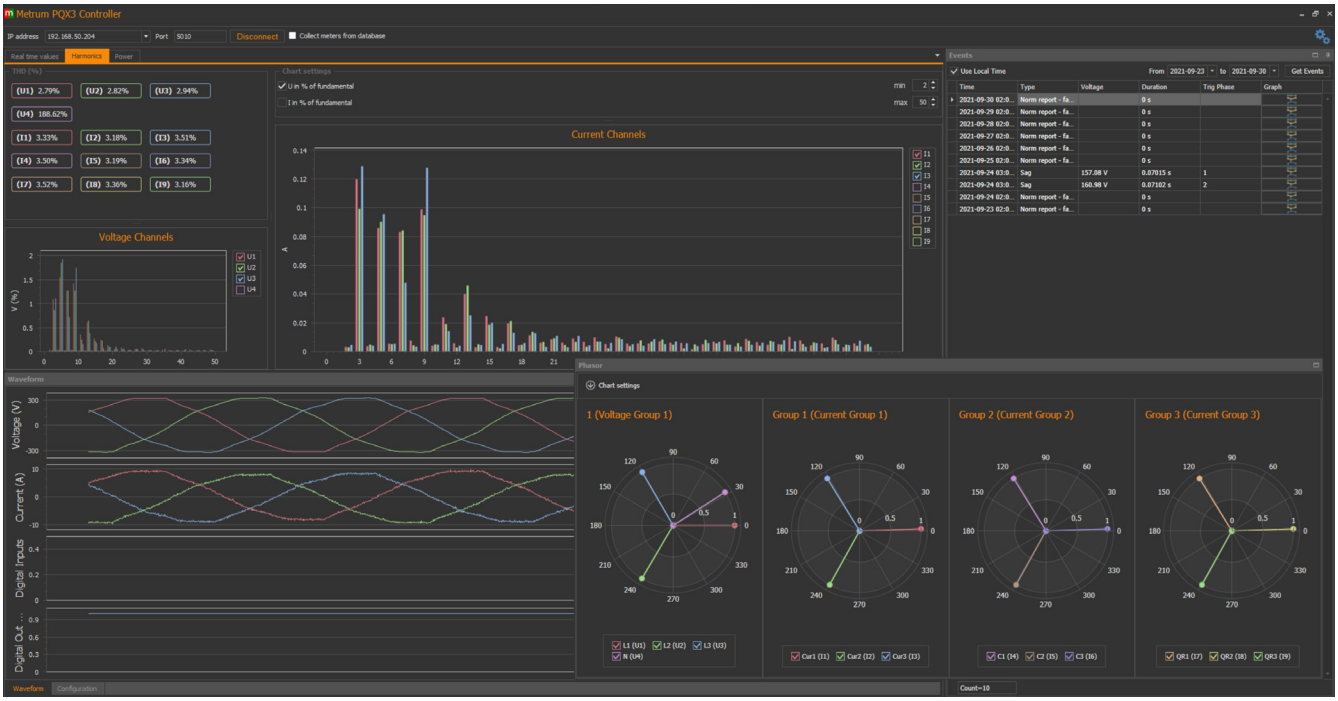
Metrum IMU® concept

- Built-in report analysis – Supports national voltage quality standards
- Support for national voltage quality regulations (for example, Swedish EIFS 2013:1)
- Clear feedback (red/green)
- Proactive solution – early warning alarm, avoiding costly problems
- Black box – documented information about disturbances and poor electricity quality
- Statistics – indicates where to prioritize maintenance

REAL-TIME ANALYTICS

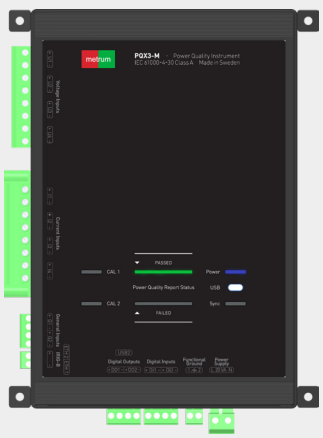
Metrum PQX3-M has extended support for real-time analysis including streaming of measure-ment data for analysis and possible control. The measuring instruments have 2 Ethernet ports and handle parallel communication with multiple systems. Examples of supported communica-tion protocols:

- IEC 61 850
- IEC 62541, OPC-UA (IEC 61850 over OPC-UA)
- Modbus TCP
- DDS/RTPS



HIGH-FREQUENCY MEASUREMENT

The new instrument has improved measurement performance and uses a high sampling rate and multiple measurement channels. This provides improved disturbance detection plus an extended measurement range including possible measurement of harmonics in higher frequency bands between 2–9 kHz.



METRUM® PQX3-M – physical data

Size (H x D x W)	160 x 240 x 90 mm
IP class	IP41
Weight	1.4 kg
Humidity	10–85 % non-condensing
Temperature	-25 °C to +55 °C

Teknisk specifikation

Parameters	Specification	Information	PQX3-M
INPUTS/OUTPUTS			
Voltage inputs	0–460 V RMS	Differential voltage inputs (+/-), 51.2 kHz/channel	4
HV voltage inputs	0–6 kV peak	Built-in high-frequency inputs (1 MHz)	4
Current inputs	0–10 A RMS	Differential current inputs (+/-), 51.2 kHz/channel	4
General inputs	-20 mA to +20 mA	51.2 KHz	2
Digital inputs	20–150 VDC	Digital inputs that support FR options	2
Digital outputs	120 VAC/150 VDC	For alarm and control	2
POWER SUPPLY			
Supply voltage	85–264 VAC/110–350 VDC	(47–63 Hz)	Yes
Built-in backup			Yes
NORM COMPLIANCE			
IEC 61000-4-30, class A	< 0.1%	Reference instrument	Yes
IEC 61000-4-7		Harmonic measurement	Yes
IEC 61000-4-15		Flicker measurements	Yes
EN 50 160		Calculated in the instrument	Yes
EIFS 2013:1		Calculated in the instrument	Yes
National standards (FoL, DEFU, NL, ZS387, etc.)		Large number of standards supported	Yes
Custom reports		Calculated in the instrument	Yes
Storage intervals		Selectable storage intervals	Yes
PQDIF format		Selectable export	Yes
INSTRUMENT			
Memory			64 GB
Sampling rate, U/I Standard inputs			51.2 kHz
Sampling rate, HV inputs			1 MHz
Accuracy		IEC 61000-4-30, class A	< 0.1%
Resolution (U/I)		Voltage/current inputs	16 bit
Resolution (GI)		General measurement inputs	16 bit
Input impedance – voltage inputs			10 MOhm
Input impedance – current inputs			10 mOhm
Anti-aliasing filter			Yes
PLL synchronization			Yes
COMMUNICATION			
USB		Computer port	Yes
Ethernet port 1 (RJ-45)		Ethernet port	Yes
Ethernet port 2 (RJ-45)		For redundancy	Yes
Time synchronization	For external time synchronization	(NTP/PTP/IRIG-B)	Yes

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