PQM 200

Power Quality

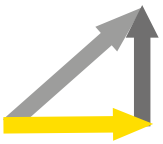
Harmonics, THD Supraharmonics, Symmetrical components etc.

System Dynamics

Phasor Measure Unit (PMU), Rate of Change of Frequency (RoCoF), WAMS, etc.

Transients

1/2 period values, Phase Angle jumps, Resonances, Switching etc.



Power

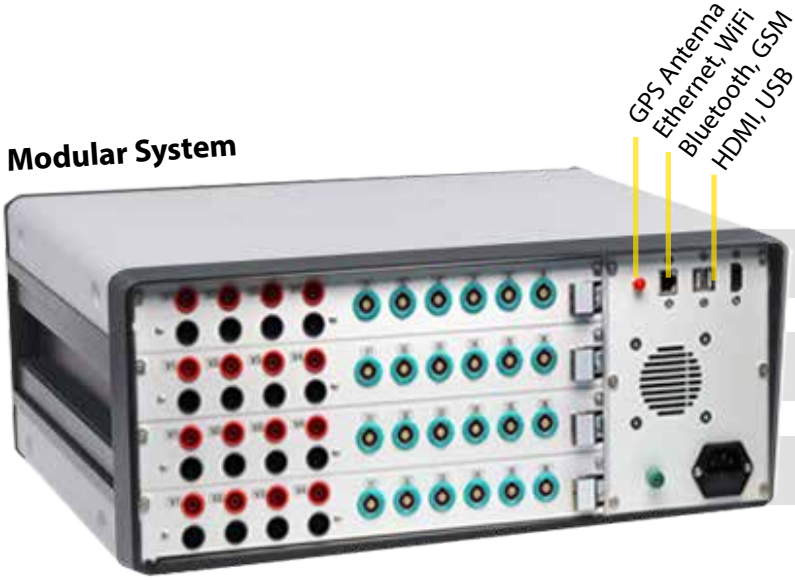
Active, reactive, apparent power, PF, harmonic power, energy, etc.

ACCURACY	0.05%
SAMPLING RATE	124kS/s
RESOLUTION	24bit
SAFETY CATEGORY	CAT IV 600V
MODULAR SYSTEM	up to 40 ch
DESKTOP or RACK-MOUNT	

PQM 200

MESSTECHNIK

Modular System



LIVE DATA
to SCADA (IEC61850/60870-5-104/Modbus)

HISTORY DATA
to SQL Database

LOCAL DATA
via USB storage

HYBRID DATA STORAGE	DATA ON-DEMAND	REMOTE CONFIGURATION	REMOTE LOCATION
Even if the connection is lost all data are stored locally and will be transmitted after reconnection.	All data can be transferred continuously or just triggered on demand.	The instrument can be configured remotely or locally. Either option also can be disabled.	All data can be transmitted via Ethernet and via a GSM connection.

PQM-200 is a computer-based Power Quality Monitor with up to 48 input channels. It combine functionalities of a Power Quality Monitor, Disturbance Recorder, Power Fault Recorder, Transient Recorder, Phasor Measure Unit (PMU) and high precision energy meter. The input modules are fully-isolated (isolation voltage 6kV) and provide a synchronized sampling rate of 144 kS/s per channel and 24 bit resolution. An Automatic Anti-Aliasing filter together with extremely low-noise ensures signal quality and signal processing.

COMPUTER BOARD	
CPU	Intel i5 or i7 (optional) 8GB RAM (optional 16GB or 32GB) 1TB HDD (optional 256GB SSD + 2TB HDD)
OPTIONS	GSM modem (integrated) GPS Antenna
INPUT MODULES	
Each instrument can be equipped by 4 input modules	
4HV4LV	4 channel high voltage input module 1600V 4 channel low voltage input module up to 10V (Clamp or Rogowski) Optional: 1x CAN2.0B and 1x RS485 Interface Optional: 8x Digital In and 2x Digital Out
4HV4LA	4 channel high voltage input module 1600V DC 4 channel current input module up to 5A rms (max. 20A) Optional: 1x CAN2.0B and 1x RS485 Interface Optional: 8x Digital In and 2x Digital Out
4HV6LV	4 channel high voltage input module 1600V 6 channel low voltage input module up to 10V (Clamp or Rogowski)
4HV6LA	4 channel high voltage input module 1600V DC 6 channel current input module up to 5A rms (max. 20A)
16DI16DO	16x Digital input and 16x Digital output 1x CAN2.0B, 1x RS485

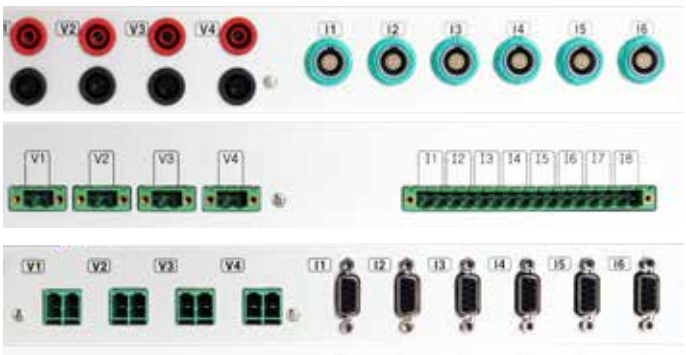
INPUT MODULES

HIGH-VOLTAGE (HV) INPUT SPECIFICATION	
Measurement Range	1600V
Accuracy	0.05%
Safety and Isolation	6kV isolation (60 sec) CAT III 1000V / CAT IV 600V
Sampling Rate	124kS/s per channel (selectable)
A/D Conversion	24 bit sigma-delta A/D conversion with an automatic Anti-Aliasing Filter
Bandwidth	70kHz (Alias-free)
Input Impedance	3.8MOhm
Connector Type	Banana, Screw Terminal

LOW-VOLTAGE (LV) INPUT SPECIFICATION	
Measurement Range	2mV, 20mV, 200mV, 1V, 2V, 5V, 10V
Input Type	Clamp or Rogowski (Integrator inside instrument)
Accuracy	0.05%
Sampling Rate	124kS/s per channel (selectable)
A/D Conversion	24 bit sigma-delta A/D conversion with an automatic Anti-Aliasing Filter
Bandwidth	70kHz (Alias-free)
Input Impedance	10MOhm
Excitation Voltage	±15V /12V / 3.3V
Connector Type	LEMO, DSUB9

CURRENT (LA) INPUT SPECIFICATION	
Measurement Range	5A rms (max. 20A peak)
Accuracy	0.05%
Sampling Rate	124kS/s per channel (selectable)
A/D Conversion	24 bit sigma-delta A/D conversion with an automatic Anti-Aliasing Filter
Bandwidth	70kHz (Alias-free)
Connector Type	Screw Terminal

DIGITAL IN / OUT SPECIFICATION	
Digital In	1kV isolation / adjustable trigger levels
Digital Out	PhotoMOS Relais, 350Vp / 0,12A
CAN 2.0B	1kV isolation
RS-485	1kV isolation



Exemplary Configurations with different types of connectors

SPECIFICATIONS

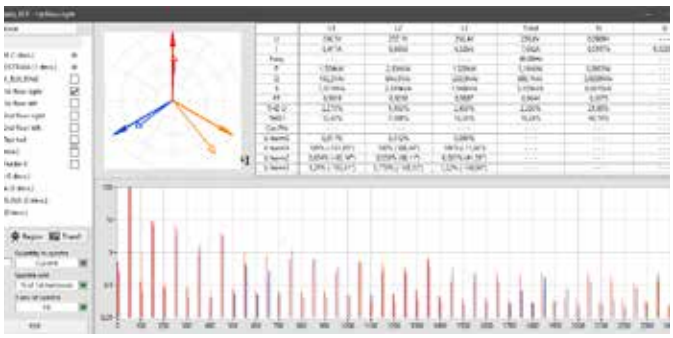
TECHNICAL SPECIFICATIONS	
Operating Temperature	0°C up to + 50 °C (32°F to 122°F)
Storage Temperature	-20°C to + 80°C (-4°F to 176°F)
Humidity	< 95%, no condensation
Nominal Voltage Input	85-264V AC / 47-63Hz
Protection	IP20
Power Quality	Class A (according to EN61000-4-30 Ed.3)
Dimensions	19" 4x height units 170 x 484 x 381 mm (h x w x d)
Weight	8.8kg
Interfaces	Ethernet, USB, WiFi, Bluetooth, RS232(optional)
Data File Format	.csv (for local storage)

The catalog with all products and detailed information can be downloaded at: www.neo-messtechnik.com

We are also happy to send you a hard copy of the catalog. Just send us an email to sales@neo-messtechnik.com

PQM-SCADA

PQM-SCADA is the enterprise management software for Power Quality Analyzers. PQM-SCADA software shows real-time data of all the PQ instruments as well as historical data stored in a central server or cloud storage. Data visualization, data analysis, report generation (EN50160), and notifications are just a few of the powerful features of PQM-SCADA software.



PQM MONITORS

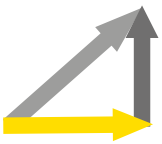
	PQM 100	PQM 200
		
Accuracy	0.1%	0.05%
Sampling Rate	16kS/s or 32kS/s	144kS/s
Resolution	24bit	24bit
Safety	CAT IV 300V	CAT IV 600V

POWER QUALITY

POWER

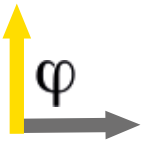
Voltage
Current

Power



Vector

Reactive Power



Energy

Digital Signalling

Power Calculation	P, Q, S, PF, cos phi, D, DH, QH
Frequency	10 sec, AVE, MIN, MAX
Voltage, Current	RMS, AVE, MIN, MAX, ½ Period-values, 200ms, 10s, 10min
Energy	Total, positive, negative (P, Q, P+, P-, Q+, Q-)
Efficiency	DC / AC, U-I Curve for PV
Wiring	DC, 1-Phase, 2-Phase, 3-Phase Star and Delta

WAVEFORM & TRANSIENTS

Transients

Resonances Oscillations

Switching

DC Offset

Overvoltage

Undervoltage

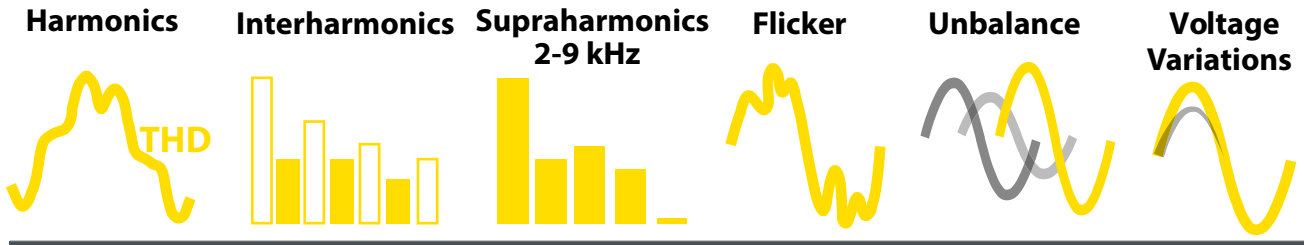
MIN, MAX, RMS, AVE	U, I, P, Q, S, f, PF, phi, THD, Harmonics, Interharm., Unbalance, etc.
ENVELOPE / WINDOW	U, I
DELTA	dU, dI, df, dP, etc.
DERIVATE (RATE OF CHANGE)	dU/dt, df/dt etc. … per ms, number of periods or half-period
VOLTAGE SIGNALLING	Threshold
EN50160	Trigger on any EN50160 parameter (Max, Quantil)

COMPLYING STANDARDS

POWER QUALITY, HARMONICS, FLICKER:
IEC61000-4-30 Ed. 3 Class A / IEC61000-4-7 / IEC61000-4-15 /
IEC62586-2 Ed. 2 / IEC62586-1
PUBLIC GRID, RAILWAY AND INDUSTRY
EN50160 / EN50163 / IEC61000-2-2 / IEC61000-2-4 (Class 1; 2; 3) /
IEEE519 / IEEE 1159 / IEC61000-2-12 / NRS048
WIND POWER, RENEWABLES AND GRID CODES
IEC61400-21 / IEC61400-12 / FGW-TR3 / VDE N-4105 / VDE N-4100 /
VDE N-4110 / D-A-CH-CZ / BDEW / ROCOF / IEEE C37.118-2005 (PMU)
MOTORS, TRANSFORMERS AND ELECTRICAL EQUIPMENT
IEC60034 / IEC 60076-1 / IEC61000-3-2 / IEC61000-3-3 / IEC61000-3-11 / IEC61000-3-12

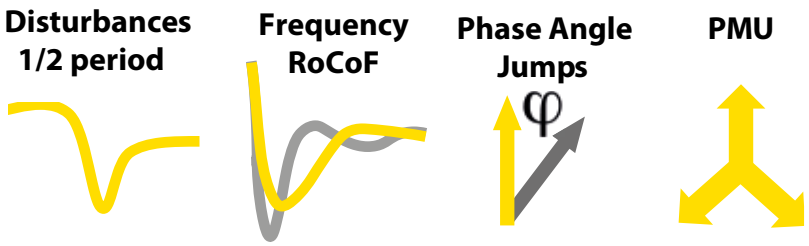
CLASS A

POWER QUALITY



according to IEC 61000-4-30 Ed.3 and IEC 62586	
Harmonics (Voltage, Current, Phi, Power)	Class A
Interharmonics	Class A
THD U, THD I	Class A
Higher Frequencies (200Hz band)	2 - 9 kHz (only PQM 200)
Higher Frequencies (2000Hz band)	-
Symmetrical Components & Unbalance (Pos-, Neg- and Zero Sequence)	Class A
Rapid Voltage Changes	Class A
Flicker (PST, PLT, Pinst)	Class A
Voltage Events (dip, swell, interruption – time, extrema, length)	Class A
Frequency	10 sec, AVE, MIN, MAX
Voltage, Current	RMS, AVE, MIN, MAX, ½ Period-values, 200ms, 10s, 10min
Time Synchronisation	Class A

DISTURBANCES AND SYSTEM DYNAMICS



1/2 PERIOD TRIGGER	U, I, P, Q, S, f, PF, phi, THD, Harmonics, Interharm., Unbalance, etc.
PHASE ANGLE TRIGGER	phi
SYMMETRICAL COMPONENTS	Pos., Neg., Zerosequence
RATE OF CHANGE FREQUENCY (ROCOF)	df/dt
Phasor Measure Unit (PMU) according to IEEE C37.118	Total Vector Error 0.01% (typ.) Angle Error 0.003°(typ) Timestamp Accuracy 0.1 µs up to 50 fps / via TCP / open PDC format / Offline storage possible