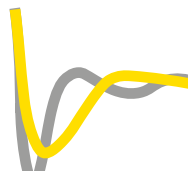**neo** MESSTECHNIK

PQA 7000

Power Quality

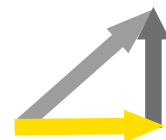Harmonics, THD Supraharmonics, Symmetrical components etc.

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.

HIGH **ACCURACY**	0.05%
HIGH **SAMPLING RATE**	48 kS/s
HIGH **RESOLUTION**	24bit
HIGH **DYNAMIC RANGE**	0.5mA to 150kA
HIGH **SAFETY CATEGORY**	CAT IV 600V
DATA **STORAGE**	up to 256 GB

Isolation

6kV

Standards

IEC61000-4-30
Class A

HIGHLIGHTS

neo MESSTECHNIK

SMART TOUCH
The 7 inch Smart Touch display responds immediately without any delay with intuitive operation like on a mobile phone.

MOBILE OPERATION
The integrated battery pack allows an operating time of up to 6 hours of operation. 5 LEDs indicate the remaining battery capacity. There is no need for an external power supply or special connectors... plug and play.

GPS
Integrated GPS enables high-precision time measurements & synchronization, which is ideal for PMU applications.

STORAGE
The instrument offers an internal memory of 32 GB which can be extended up to 256GB. The storage can further be increased by a USB disk.
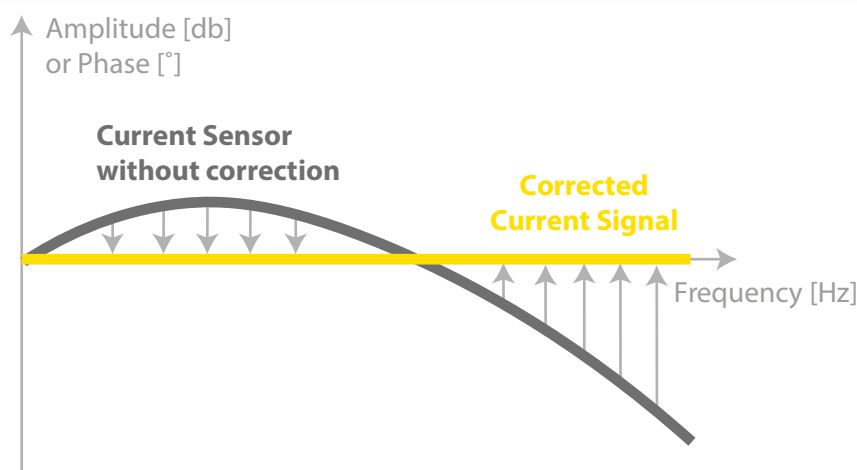
INTERFACES
The instrument provides an easy integration with other analog and digital signals such as temperature. The interfaces include USB 3.0, TCP/IP, LAN, Wifi, Bluetooth, RS232, Modbus, 104, DI, and CAN.

SENSOR SUPPLY
The instrument can provide excitation for your current sensors, and there is no need for batteries or external power supplies.
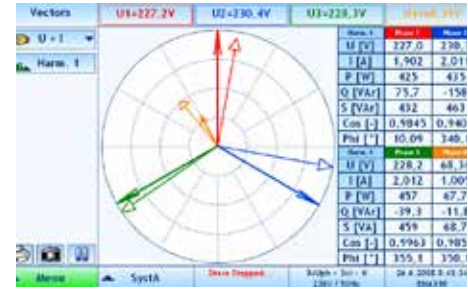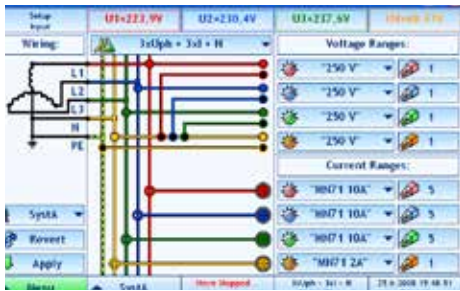
HIGHEST ACCURACY
The NEO sensor integration calibrates each sensor over a wide frequency bandwidth and corrects frequency dependent phase shift and amplitude damping. In addition, the sensors will calibrated for each measurement range using multiple points (1% to 100%). This unique technology improves the performance of each sensor and ensures highest accurate measurement results.

Amplitude [db] or Phase [°]

Current Sensor without correction

Corrected Current Signal

Frequency [Hz]

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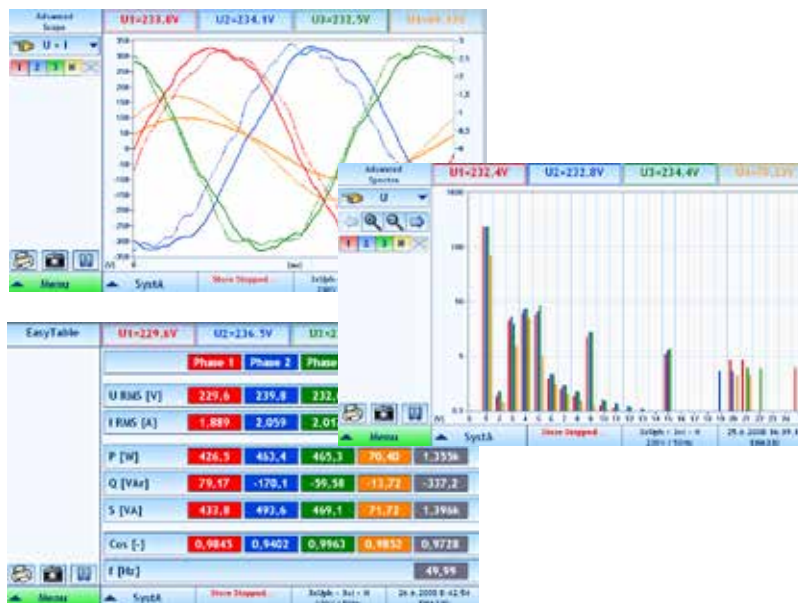ABOUT NEO

SOFTWARE

1 SETUP

The instrument has a clear structure that
shows schematics with explanations.

2 MEASURE

During measurements the user can define widgets such as Scopes,
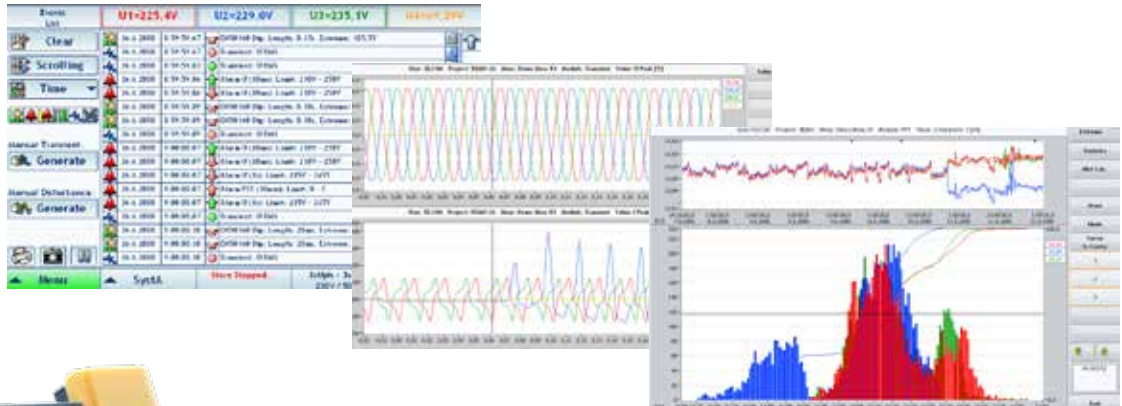Vector Scopes, Harmonic FFTs, Tables, and Recorders.

TRULY INTUITIVE

Intuitive Measurement menus: Cleary structured and explicit menus

HIGHLIGHTS

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3 ANALYZE

Sophisticated functions include PQ Data, Transients, Disturbances, and Alarms.

4 REPORT

The instrument can automatically generate reports and professional documentation. The user can create reports that include all relevant information (location, comments, company logo, etc) directly on-site or during post processing. PDF reports that are saved on the instrument are always available and can be shared directly via email.

Report EN50160

Database SCADA

Remote Connection

5 EXPORT

Data can be exported into CSV, XLS, PDF, Comtrade, and PQDiff.

6 OTHER PROGRAMS

The instrument uses Microsoft Windows© as the operating system. Programs such as Microsoft Excel, Word or Matlab can be added as well as Email messaging services.

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neo
MESSTECHNIK

HARDWARE

GENERAL SPECIFICATIONS

PC	Microsoft® Windows 10 IOT(64 bit) Intel® Quad Core Processor and 4GB RAM Multilanguage Support
Storage	32GB
Display	7 inch Capacitive Multi-Touch TFT LCD Sunlight Readable
Battery	Li-Ion Battery 80Wh up to 6h operation
Power Supply	10-30 V DC
Interfaces	2x USB, 1x Ethernet, WiFi
Dimensions	250 x 190 x 80 mm 9.84 x 7.5 x 3.2 inch
Weight	2,3kg / 5 pound
Temperature Range	Operating: 0 to 60°C (32°F to 140°F) Storage: -20 to 80°C (-4°F to 176°F)
IP Class	IP2X
Accessories	Transport Bag and Keyboard included
Standards & Certification	IEC61010-1 (2011) / IEC61010-2-030 / IEC 61000-4-3 / IEC 61000-4-4 / LVD Directive 2014 / EMC Directive 2014/ Rohs Directive 2015/ EN 61000-3-2 / EN 61000-3-3 / EN 61326-1 / EN 55011 +A1, Class A

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VOLTAGE INPUTS

Inputs	4x
Range	1600V/ 800V
Accuracy	0.05% f.s.
Isolation	6kV isolation
Safety	CAT III 1000V CAT IV 600V
Impedance	10 MΩ

CURRENT INPUTS

Inputs	5x
Accuracy	0.05% f.s.
Type	Clamp or Rogowski
Instrument Ranges Clamp	2mV to 10V (15x Ranges)
Integrator Rogowski Range	1A to 300kA
Sensor Supply	±15V
TEDS	Automatic Sensor Detection*
Impedance	10 MΩ

ANALOG DIGITAL CONVERSION (A/D)

Sampling Rate	48 kS/s
Resolution	24 bit
Filters	Analogue and Digital Automatic Anti-Aliasing Filter

DIGITAL IN & INTERFACES

Digital In	Adjustable Trigger
CAN, RS485	Selectable Termination

OPTIONS AND ACCESSORIES

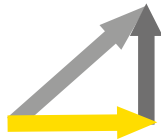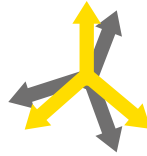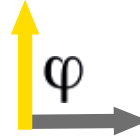|	
Storage Upgrade	Upgrade to 256 GB data storage
GPS	Integrated GPS receiver and GPS mouse
Transport Case	Ruggedized Pelican-Case (IP67), with foamed insert adapted for the measurement instrument and pullout handle
Color Code	Color code for all voltage and current inputs
Current Sensor	See Chapter Accessories
Test Leads	See Chapter Accessories

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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

Transiente	Resonanzen Oszillationen	Schaltvorgänge	DC Offset	Überspannung	Unterspannung

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
COMBI-TRIGGER	Combination of triggering including mulitple conditions
VOLTAGE SIGNALLING	Threshold
RAPID VOLTAGE CHANGES (RVC's)	dU, dc, dt
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
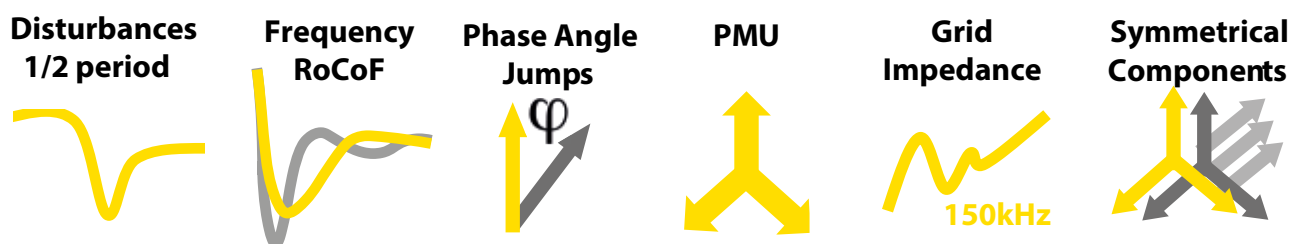
CLASS A++

POWER QUALITY

Harmonics	Interharmonics	Supraharmonics	Flicker	Unbalance	Voltage Variations
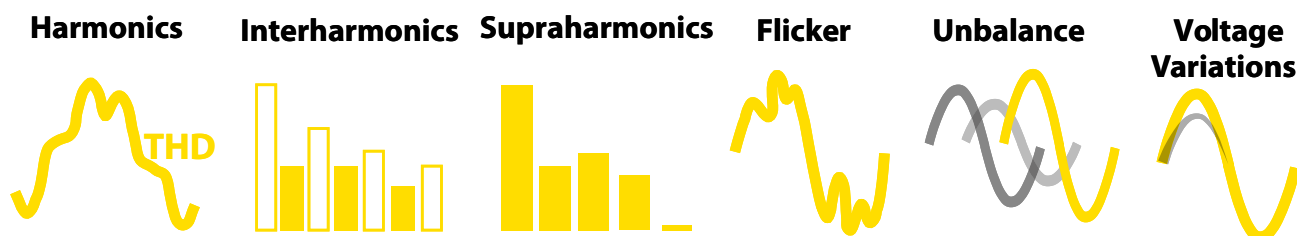
according to IEC 61000-4-30 Ed.3 and IEC 62586

Harmonics (Voltage, Current, Phi, Power)	Class A
Interharmonics	Class A
THD U, THD I	Class A
Higher Frequencies (200Hz band)	2 - 9 kHz (can be calculated from 0 to definable upper limit)
Higher Frequencies (2000Hz band)	20 kHz for voltage and current
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

Disturbances 1/2 period	Frequency RoCoF	Phase Angle Jumps	PMU	Grid Impedance	Symmetrical Components
		φ		150kHz	

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

ADDITIONAL FEATURES INCLUDE
- ☑ **compounded trigger settings**
- ☑ **definable pre-triggers and post-time extensions**

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