



Reliable class A measurements



Features

- Power from the measured network.
- Designed for use in virtually all network types from 64 V to 760 V directly, with particular emphasis on measurements at low voltage poles, due to the ease of installation.
- Independent power supply makes it particularly suitable for measurements behind voltage transformers. It can also be used for measurements in DC voltage systems.
- Remote configuration and data transfer in real time using the built-in GSM modem.
- Anti-theft function – text message notification in case of position change – built-in GPS receiver.
- Real time clock synchronized using GPS protocol.

Measured parameters

- **Voltages L1, L2, L3, N, PE (five measurement inputs)** – average, minimum, maximum and instant values within the range up to 1000 V, interoperability with voltage transducers.
- **Currents L1, L2, L3, N (four measurement inputs)** – average, minimum, maximum and instant values, current measurement within the range up to 6 kA (depending on applied current clamp), interoperability with current transducers.
- Crest factors for current (CFI) and voltage (CFU).
- Frequency within the range of 40 Hz – 70 Hz.
- Active power (P), reactive power (Q), distortion power (D), apparent power (S) with identification of the nature of reactive power (capacitive, inductive).
- Calculation of reactive power using the Budeanu method and IEEE 1459 method.
- Active energy (E_p), reactive energy (E_Q), apparent energy (E_S).
- Power factor (PF), $\cos\phi$, $\tan\phi$.
- K factor (transformer overload caused by the harmonics).
- Harmonics up to the 50th in voltage and current.
- Interharmonics measured as groups.
- Total harmonic distortion THD for current and voltage.
- Short-term (P_{ST}) and long-term (P_{LT}) light flicker index.
- Unbalance of voltages (in compliance with IEC 61000-4-30 class A) and currents.
- Event logging along with oscillograms.



Wide range of mains to analyze

- With rated frequency 50/60 Hz
- With rated voltages: 64/110 V; 110/190 V; 115/200 V; 120/208 V; 127/220 V; 133/230 V; 220/380 V; 230/400 V; 240/415 V; 254/440 V; 265/460 V; 277/480 V; 290/500 V; 400/690 V; 480/830 V (for systems with N conductor)
- Direct current
- Systems:
 - » single-phase
 - » split-phase with common N
 - » three-phase – WYE with and without N conductor
 - » three-phase – Delta
 - » three-phase – WYE and Delta Aron
 - » with current and voltage transducers



Capabilities

As a standard, the analyzers are equipped with an **8 GB** memory card, which allows you to collect **over 4500 parameters** simultaneously – at intervals of up to 200 ms. In addition to checking the power quality according to standards and ordinances, it allows you to create a detailed situation picture in terms of operation and possible disturbance. However, nothing stands in the way to make this image even clearer – the manufacturer can expand the memory to 32 GB (optional).

PQM-702 and PQM-703 record control signals in power networks. In addition, the PQM-703 model is equipped with a **transient recorder** with voltage range **up to ±8000 V** and a maximum sampling frequency of 10 MHz.

The built-in GPS receiver ensures real time clock accuracy, and the integrated GSM modem facilitates remote analyzer operation.

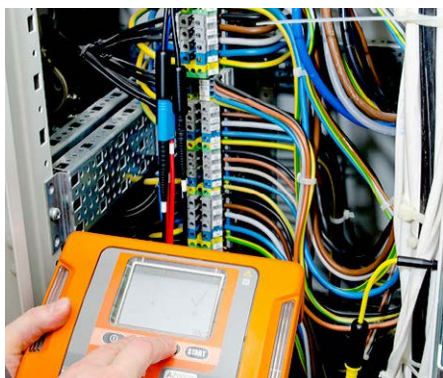


Displaying data

The colorful, backlit 3.5" LCD screen with a resolution of 320 x 240 pixels presents basic parameters of the tested network, such as voltage, current and power – everything in a clear and transparent way. Information about the device configuration as well as messages and warnings about the operation status or emergency conditions are available. In addition, the user can check the phasor diagram to check the network connection.

The analyzers can be **remotely controlled**. The user can set up the meter, check measured parameters in real time and download registered data. The remote connection is made using the built-in GSM modem.

GSM transmission gives an incomparably greater range: after inserting any SIM card with a static IP number into the analyzer, you can access it from anywhere in the world.



Application

The analyzers are addressed to users who need to control power quality using a mobile device that meets the requirements of the IEC 61000 class A standard for analyzers. PQM-702 and PQM-703 fully satisfy the functional needs of power quality analysis and interference diagnostics in power networks. They are used in the field of professional energy and maintenance services in industrial plants, as well as among independent power quality specialists.








Parameters

Parameter	Measuring range	Max. resolution	Accuracy
Alternating voltage (TRMS)	0,0...1000,0 V or 0.0...760.0 V*	4 significant digits	$\pm 0.1\% U_{nom}$
Crest Factor			
Voltage	1.00...10.00 (≤ 1.65 for voltage of 690 V)	0.01	$\pm 5\%$
Current	1.00...10.00 (≤ 3.6 for I_{nom})	0.01	$\pm 5\%$
Alternating current (TRMS)	depending on clamp**	4 significant digits	$\pm 0.1\% I_{nom}$ (error does not account for clamp error)
Frequency	40.00...70.00 Hz	0.01 Hz	± 0.01 Hz
Active, reactive, apparent and distortion power	depending on configuration (transducers, clamps)	4 significant digits	depending on configuration (transducers, clamps)
Active, reactive and apparent energy	depending on configuration (transducers, clamps)	4 significant digits	as power error
cosϕ and power factor (PF)	-1.00...1.00	0.01	± 0.03
tanϕ	-10.00...10.00	0.01	depends on error of active and reactive power
Harmonics and interharmonics			
Voltage	DC, 1...50	as for alternating voltage True RMS	$\pm 0.05\% U_{nom}$ for m.v. < 1% U_{nom} $\pm 5\%$ m.v. for m.v. $\geq 1\% U_{nom}$
Current	DC, 1...50	as for alternating current True RMS	$\pm 0.15\% I_{nom}$ for m.v. < 3% I_{nom} $\pm 5\%$ m.v. for m.v. $\geq 3\% I_{nom}$
THD			
Voltage	0.0...100.0% (relative to RMS value)	0.1%	$\pm 5\%$
Current			$\pm 5\%$
Active and reactive power of harmonics	depending on configuration (transducers, clamps)	depends on minimum current and voltage values	—
Angle between current and voltage harmonics	-180.0...+180.0°	0.1°	$\pm(n \times 1^\circ)$
K-Factor	1.0...50.0	0.1	$\pm 10\%$
Flicker index	0.20...10.00	0.01	$\pm 5\%$
Unbalance factor			
Voltage and current	0.0...20.0%	0.1%	$\pm 0.15\%$ (absolute error)
Measurement of control signals			
Voltage	up to 15% U_{nom} at 5.00...3000.00 Hz	4 significant digits	unspecified for <1% U_{nom} $\pm 0.15\%$ for 1...3% U_{nom} $\pm 5\%$ for 3...15% U_{nom}
Measurement of transients (PQM-703)			
Voltage	± 8000 V	4 significant digits	$\pm(5\% + 25$ V)

m.v. – measured value

* Depending on analyzer version

** F-1A1, F-2A1, F-3A1 clamp: 0...1500 A AC (5000 A_{p-p}) • F-1A, F-2A, F-3A clamp: 0...3000 A AC (10 000 A_{p-p}) • F-1A6, F-2A6, F-3A6 clamp: 0...6000 A AC (20 000 A_{p-p})
C-4A clamp: 0...1000 A AC (3600 A_{p-p}) • C-5A clamp: 0...1000 A AC/DC (3600 A_{p-p}) • C-6A clamp: 0...10 A AC (36 A_{p-p}) • C-7A clamp: 0...100 A AC (360 A_{p-p})

							
	C-4A	C-5A	C-6A	C-7A	F-1A1 / F-1A / F-1A6	F-2A1 / F-2A / F-2A6	F-3A1 / F-3A / F-3A6
	WACEGC4AOKR	WACEGC5AOKR	WACEGC6AOKR	WACEGC7AOKR	WACEGF1A1OKR WACEGF1AOKR WACEGF1A6OKR	WACEGF2A1OKR WACEGF2AOKR WACEGF2A6OKR	WACEGF3A1OKR WACEGF3AOKR WACEGF3A6OKR
Rated current	1000 A AC	1000 A AC 1400 A DC	10 A AC	100 A AC	1500 / 3000 / 6000 A AC		
Frequency	30 Hz...10 kHz	DC...5 kHz	40 Hz...10 kHz	40 Hz...1 kHz	40 Hz...10 kHz		
Output signal level	1 mV / 1 A	1 mV / 1 A	100 mV / 1 A	5 mV / 1 A	77.6 μ V / 1 A	38.8 μ V / 1 A	19.4 μ V / 1 A
Max. diameter of measured conductor	52 mm	39 mm	20 mm	24 mm	360 mm	235 mm	120 mm
Minimum accuracy	$\leq 0.5\%$	$\leq 1.5\%$	$\leq 1\%$	0.5%	1%		
Battery power	—	✓	—	—	—		
Lead length	2.2 m	2.2 m	2.2 m	3 m	2.2 m		
Measurement category	IV 300 V	IV 300 V	IV 300 V	III 300 V	IV 600 V		
Ingress protection	IP40			IP67			

SONEL ANALYSIS

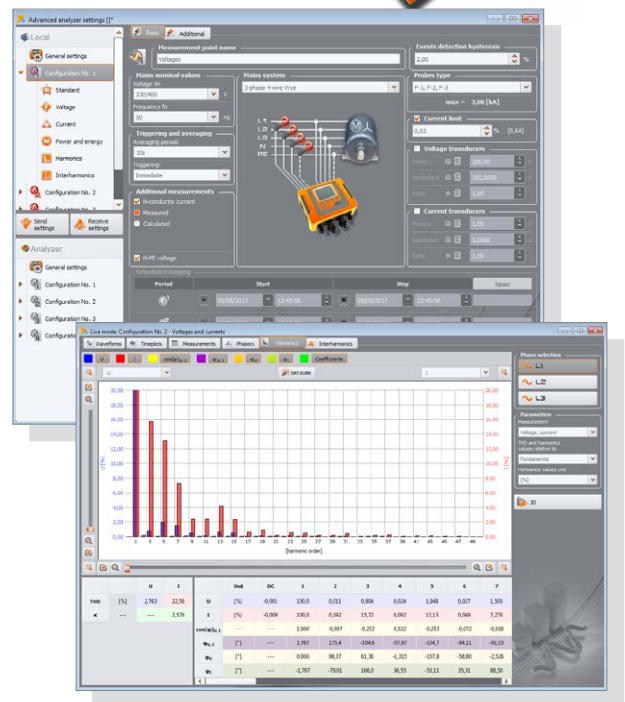


Sonel Analysis software – application delivered as standard accessory, indispensable for working with PQM-series analyzers. It enables:

- analyzer configuration,
- data reading from logger,
- preview of network parameters in real time (with capability of reading via GSM modem),
- deletion of data in the analyzer,
- data presentation in tables,
- data presentation in charts,
- data analysis in compliance with standard EN 50160 (reports) and other user defined reference conditions,
- independent support of multiple analyzers,
- analyzer firmware updates.

The software enables readout of selected parameters and their visualization in real time. These parameters are measured independently from the registration saved on the memory card. The user can view:

- charts of voltage and current progression (oscilloscope),
- charts of voltage and current over time,
- phasor diagram,
- measurements of multiple parameters,
- harmonics and harmonic powers (estimating the direction of harmonics),
- interharmonics.



Standard accessories



3 x crocodile clip, black, 1 kV, 20 A
WAKROBL20K01

2 x crocodile clip, red, 1 kV, 20 A
WAKRORE20K02



Crocodile clip, blue, 1 kV, 20 A
WAKROBU20K02

Crocodile clip, yellow, 1 kV, 20 A
WAKROYE20K02



AC-16 line splitter
WAADAAC16



AZ-1 power supply adapter (mains plug/banana inputs)
WAADAAZ1



Voltage adapter with M4/M6 thread – set 5 pcs
WAADAM4M6



4 x magnetic voltage adapter – set
WAADAUMAGKPL



Straps for mounting on a pole – set – 1.2 m
WAPOZOPAKPL



DIN rail mounting bracket with positioning catches
WAPOZUCH3



2 x fasteners and bands for mounting the analyzer
WAPOZUCH4



XL2 carrying case
WAWALX2



Data transfer and analysis

USB cable
WAPRZUSB
Sonel Analysis software
WAPROANALIZA4



Factory calibration certificate

Optional accessories



F-1A flexible clamp
(Φ=360 mm)

1.5 kA: WACEGF1A10KR
3 kA: WACEGF1A0KR
6 kA: WACEGF1A60KR



F-2A flexible clamp
(Φ=235 mm)

1.5 kA: WACEGF2A10KR
3 kA: WACEGF2A0KR
6 kA: WACEGF2A60KR



F-3A flexible clamp
(Φ=120 mm)

1.5 kA: WACEGF3A10KR
3 kA: WACEGF3A0KR
6 kA: WACEGF3A60KR



C-4A clamp
(Ø 52 mm)
1000 A AC

WACEGC4A0KR



C-5A clamp
(Ø 39 mm)
1000 A AC/DC

WACEGC5A0KR



C-6A clamp
(Ø 20 mm)
10 A AC

WACEGC6A0KR



C-7A clamp
(Ø 24 mm)
100 A AC

WACEGC7A0KR



L2 carrying case
for clamps

WAWALL2



**Magnetic volt-
age adapter**

black
WAADAUMAGKBL
blue
WAADAUMAGKBU



Flat test clip
(grip – banana
socket) (5 pcs)

WASONKCB1KPL



**Test clips with steel
jaws – set (5 pcs)**

WASONKGB1KPL



**Adapter for control
terminals (5 pcs)**

WAADAPRZKPL1



**AGT-16C three-
phase socket adapt-
er 16 A / 32 A (PEN)**

WAADAAGT16C
WAADAAGT32C



**AGT-16P three-
phase socket
adapter 16 A / 32 A**

WAADAAGT16P
WAADAAGT32P



**AGT-16T indus-
trial socket adapter
16 A / 32 A**

WAADAAGT16T
WAADAAGT32T



**AGT-63P three-
phase socket
adapter 63 A**

WAADAAGT63P



**PQM magnetic
strap (2 pcs)**

WAPOZUCH5



**ASX-1 piercing
adapter (4 pcs)**

WAADAPRZASX1



GPS antenna

WAPOZANT10GPS



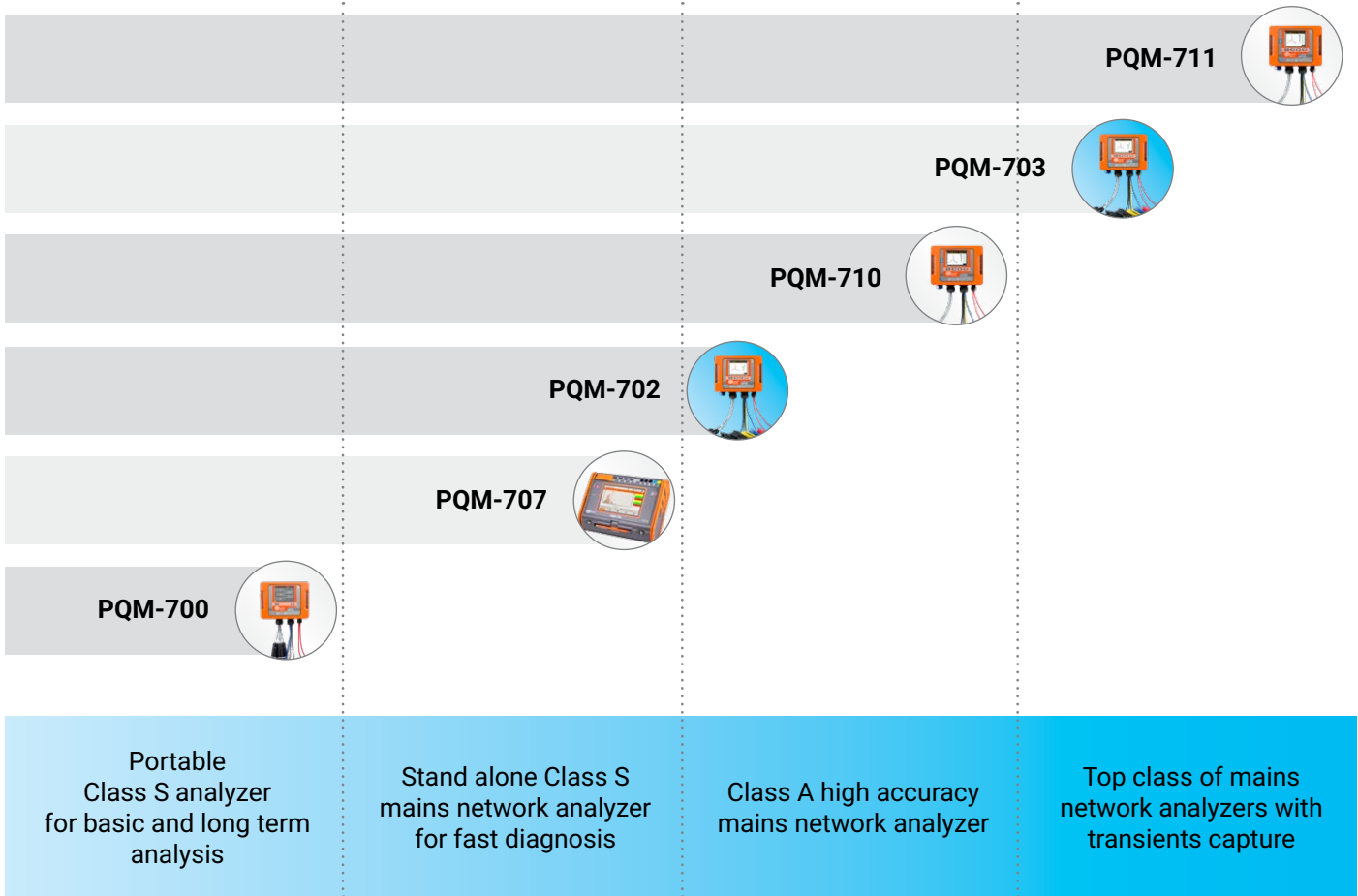
GSM repeater

WAPOZANTREPEATER



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with accreditation**





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