

CLASS S

IEC 61000-4-30

CAT IV

300 V

IP65

55°C
HEAVY DUTY
20°C

EVENTS



Recording and diagnostics in all conditions

Features

- **4 current inputs**, physical measurement of current in the neutral conductor.
- **Registration of up to 1100 parameters**, including average, maximum, minimum and instantaneous values.
- **Built-in heater**, stable operation at low temperatures down to -20°C.
- **Internal rechargeable battery**, autonomy of the meter (min. 6 hours).
- **IP65 ingress protection**, possibility of work in rain, snow and high humidity.

Measured parameters

- **Voltages L1, L2, L3, N (four measurement inputs)** – average, minimum, maximum and instant values within the range up to 760 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 (CFV).
- 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), $\cos\phi$, $\tan\phi$.
- Harmonics up to the 40th in voltage and current.
- 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 S) and currents.
- Event logging for current and voltage along with oscillograms and half-period RMS charts.
- **All parameters are registered in compliance with class S according to standard EN 61000-4-30.**



Wide range of mains to analyze

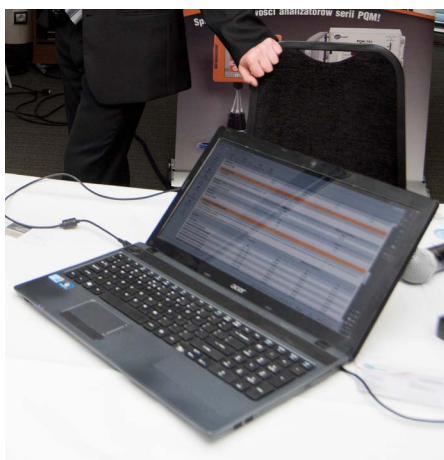
- **With rated frequency** 50/60 Hz
- **With rated voltages:** 64/110 V; 110/190 V; 115/200 V; 120/208 V; 127/220 V; 133/230 V; 220/380 V; 230/400 V; 240/415 V; 254/440 V; 265/460 V; 277/480 V, 290/500 V, 400/690 V
- **Direct current**
- **Systems:**
 - » single-phase
 - » split-phase with common N
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



Capabilities

The analyzer provides comprehensive measurements of power quality parameters in **class S**, in accordance with IEC 61000-4-30, which guarantees high accuracy of results. Even when the temperature reaches -20°C, the measurements are reliable and the device operation is stable - all thanks to the built-in heater.

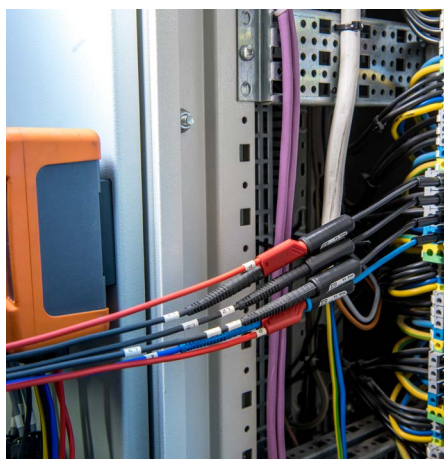
Thanks to the internal battery, the analyzer does not turn off after a power failure, but maintains recording - **up to 6 hours**. Data is recorded on a removable 2 GB memory card. Logs can be downloaded using a USB connection or using an external reader. Then they can be analyzed in free Sonel Analysis software.



Displaying data

All recorded parameters - including indicated events - can be easily read using the dedicated **Sonel Analysis** software. The advanced features of the application allow you to view the collected results and save them on your computer's hard drive - in the form of raw data or reports.

Sonel Analysis is constantly updated and developed. This means that the user will keep up with the latest requirements of norms and standards.



Application








PQM-700 fulfills its role in industry - in hands of electricians, maintenance services etc. - as a cheap, multi-functional load parameter recorder. It is also used by consumers and producers of renewable energy (wind farms, solar farms), where a 4-quadrant power analysis is required.

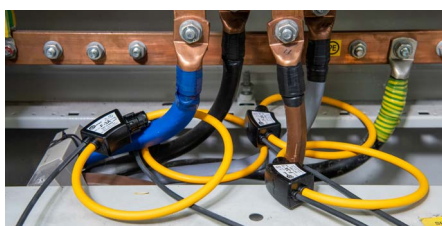
Parameters

Parameter	Measuring range	Max. resolution	Accuracy
Alternating voltage (TRMS)	0.0...760.0 V	4 significant digits	$\pm 0.5\% U_{nom}$
Crest Factor			
Voltage	1.00...10.00 (≤ 1.65 for 690 V voltage)	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	$\pm 0.2\% I_{nom}$ (error does not account for clamp error)
Frequency	40.00...70.00 Hz	0.01 Hz	± 0.05 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)	0.00...1.00	0.01	± 0.03
tanϕ	0.00...10.00	0.01	depends on error of active and reactive power
Harmonics			
Voltage	DC, 1...40	as for alternating voltage True RMS	$\pm 0.15\% U_{nom}$ for m.v. < 3% U_{nom} $\pm 5\%$ m.v. for m.v. $\geq 3\% U_{nom}$
Current	DC, 1...40	as for alternating current True RMS	$\pm 0.5\% I_{nom}$ for m.v. < 10% I_{nom} $\pm 5\%$ m.v. for m.v. $\geq 10\% I_{nom}$
THD			
Voltage	0.0...100.0% (relative to RMS value)	0.1%	$\pm 5\%$
Current			$\pm 5\%$
Flicker index	0.40...10.00	0.01	$\pm 10\%$
Unbalance factor			
Voltage and current	0.0...10,0%	0.1%	$\pm 0.3\%$ (absolute error)

m.v. – measured value

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

							
	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
	WACEGC4A0KR	WACEGC5A0KR	WACEGC6A0KR	WACEGC7A0KR	WACEGF1A10KR WACEGF1A0KR WACEGF1A60KR	WACEGF2A10KR WACEGF2A0KR WACEGF2A60KR	WACEGF3A10KR WACEGF3A0KR WACEGF3A60KR
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

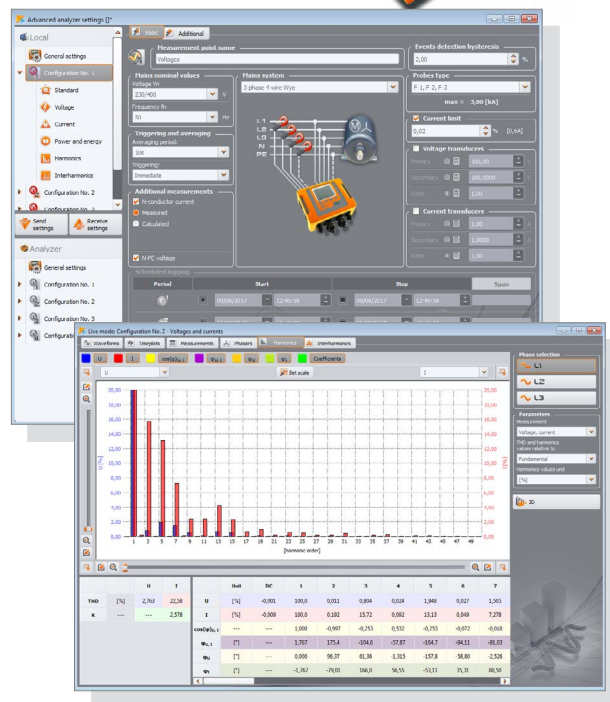


Sonel Analysis software - application delivered as standard accessory, indispensable for working with PQM-series analyzers. It enables:

- 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,
- 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



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



L-5 carrying case

WAFUTL5



Data transfer and analysis

USB cable
WAPRZUSB

Sonel Analysis software
WAPROANALIZA4



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

WAADAAZ1

Optional accessories



F-1A flexible clamp
($\Phi=360$ mm)

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



F-2A flexible clamp
($\Phi=235$ mm)

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



F-3A flexible clamp
($\Phi=120$ mm)

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



C-4A clamp
(Φ 52 mm)
1000 A AC

WACEG4A0KR



C-5A clamp
(Φ 39 mm)
1000 A AC/DC

WACEG5A0KR



C-6A clamp
(Φ 20 mm)
10 A AC

WACEG6A0KR



C-7A clamp
(Φ 24 mm)
100 A AC

WACEG7A0KR



L2 carrying case
for clamps

WAWALL2



AC-16 line splitter

WAADAAC16



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



Voltage adapter
with M4/M6
thread - set 4 pcs

WAADAM4M64



**Magnetic volt-
age adapter**

black
WAADAUMAGKBL
blue
WAADAUMAGKBU



**ASX-1 piercing
adapter - set 4 pcs**

WAADAPRZASX1



**AGT-16T indu-
strial socket adapter**
16 A / 32 A

WAADAAGT16T
WAADAAGT32T



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

WAADAAGT63P



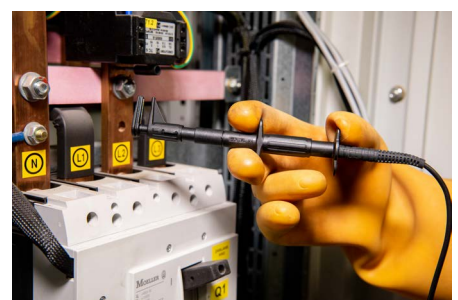
XL2 carrying case

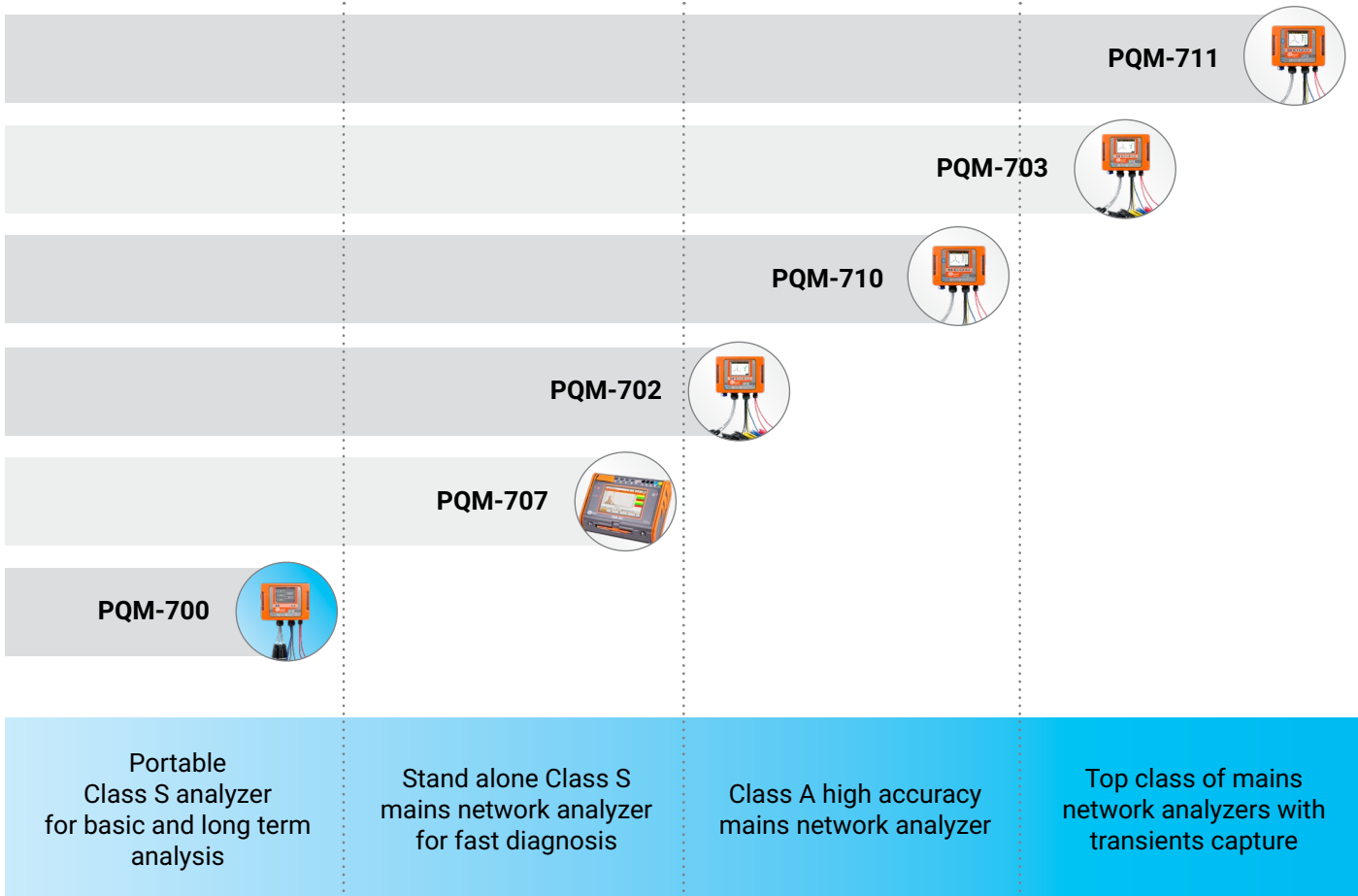
WAWALXL2



**PQM magnetic
strap (2 pcs)**

WAPOZUCH5





Get to know the instrument before buying

www.sonel.com

Expand your capabilities with additional accessories