Power Quality Analyzer
PQM-707
index: WMGBPQM707

7" TOUCH SCREEN

EVENTS

Li-Ion BATTERY

10.24 kHz SAMPLING RATE

CAT IV 600 V

CLASS S EN 61000-4-30

IP51

Portable power quality analysis center

Features

- **7" touchscreen - ergonomic and intuitive graphical user interface.**
- **Over 10 years of recording.**
- CAT IV 600 V measurement category - high safety.
- All parameters according to class S - high accuracy of measurements.
- Li-Ion rechargeable battery - higher mobility.
- Powering from measured network - reliability of measurements.
- Removable memory card - recording data with no restrictions.
- Quick setup and reporting - ease of use.
- Cooperation with desktop Sonel Analysis software - extended data analysis.

Measured parameters

- Inrush current.
- Inverter efficiency.
- **Voltages L1, L2, L3, N, PE (five 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 and maximum 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...70 Hz.
- Active (P), reactive (Q), distortion (D) and apparent (S) power with the type of reactive power (capacitive and inductive).
- Active (E_P), reactive (E_Q) and apparent (E_S) energy.
- Power factor PF, cosφ, tanφ.
- Harmonics up to the 50th order of voltage and current.
- Event logging for current and voltage along with oscillograms and half-period RMS charts.
- Energy cost calculator.
- ...and much more.
- **All parameters are recorded in compliance with class S according to IEC 61000-4-30 standard**

Wide range of mains to analyze

- **With rated frequency** 50/60 Hz
- **With rated voltages:** 58/100 V, 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, 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 – 2-element WYE without N conductor (Aron/Blondel)
  - » three-phase – 2-element Delta (Aron/Blondel)
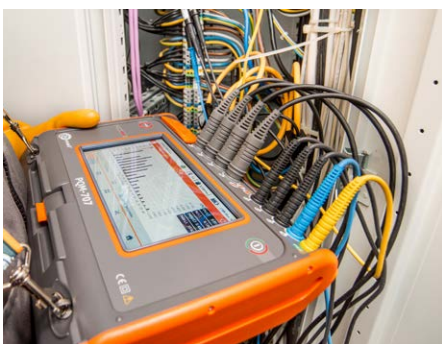 - » with current and voltage transducers

Capabilities

PQM-707 is an autonomous meter allowing versatile measurement, analysis, and registration of energy network (DC and 50/60 Hz) parameters. All parameters are measured I/A/W class S of the IEC 61000-4-30 standard guaranteeing high accuracy of measurements. The **7-inch colour touchscreen** - The largest in this class of analyzers! - enables intuitive and ergonomic operation. Thanks to the built-in lithium-ion battery, the analyzer allows for efficient work during the measurement without the necessity of connecting an external AC adapter.

Displaying data

The analyzer is equipped with a readable colour touchscreen. Its **800 x 480 pixel** resolution provides both high comfort of interacting with the interface and high readability of the measurement results. **The included stylus allows you to work with dielectric gloves.**

Application

The analyzer is directed to a very wide range of users, with particular reference to the maintenance staff. Due to its mobility and autonomy, any problems occurring in the supply networks can be diagnosed on the spot. The analyzer can be used in virtually all kinds of networks with rated voltage from 54 V to 760 V - directly or indirectly via transducers. PQM-707 can be used in the field of professional power engineering, maintenance services in industrial plants, as well as among those providing services focused on network analysis.

Durable and practical casing

The casing has been designed to allow easy access to the touchscreen and all measurement and communication sockets. Folding lid protects the display from damages. Thanks to the IP51 protection degree, the device can be used in difficult conditions - it is not afraid of dust or water splashes.

Parameters

Parameter	Measuring range	Max. resolution	Accuracy
Alternating voltage (TRMS)	0.0...760.0 V	4 significant digits	±0.5% U_{nom}
Crest Factor			
Voltage	1.00...10.00 (≤1,65 for 690 V)	0.01	±5%
Current	1.00...10.00 (≤3.6 for I_{nom})	0.01	±5%
Alternating current (TRMS)	depending on clamp *	0.01% I_{nom}	±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...50	as for alternating voltage True RMS	±0.15% U_{nom} for m.v. < 3% U_{nom} ±5% m.v. for m.v. ≥ 3% U_{nom}
Current	DC, 1...50	as for alternating current True RMS	±0.5% I_{nom} for m.v. < 10% I_{nom} ±5% m.v. for m.v. ≥10% I_{nom}
THD			
Voltage	0.0...100.0% (relative to RMS value)	0.1%	±5%
Current			±5%
Flicker index	0.40...10.00	0.01	±10%
Unbalance factor			
Voltage and current	0.0...10.0%	0.1%	±0,15% (absolute error)
Inrush current			
Current	depending on clamp *	0.01% I_{nom}	±4% m.v. for m.v. ≥ 10% I_{nom} ±4% I_{nom} for m.v. < 10% I_{nom} (RMS$_{1/2}$)

m.v. – measured value

* **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}) **F-2AHD, F-3AHD** clamp: 0...3000 A AC (10 000 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
	WACEGC4AOKR	WACEGC5AOKR	WACEGC6AOKR	WACEGC7AOKR
Rated current	1000 A AC	1000 A AC 1400 A DC	10 A AC	100 A AC
Frequency	30 Hz…10 kHz	DC…5 kHz	40 Hz…10 kHz	40 Hz…1 kHz
Max. diameter of measured conductor	52 mm	39 mm	20 mm	24 mm
Minimum accuracy	≤0.5%	≤1.5%	≤1%	0.5%
Battery power	−	√	−	−
Lead length	2.2 m	2.2 m	2.2 m	3 m
Measurement category	IV 300 V	IV 300 V	IV 300 V	III 300 V
Ingress protection		IP40		

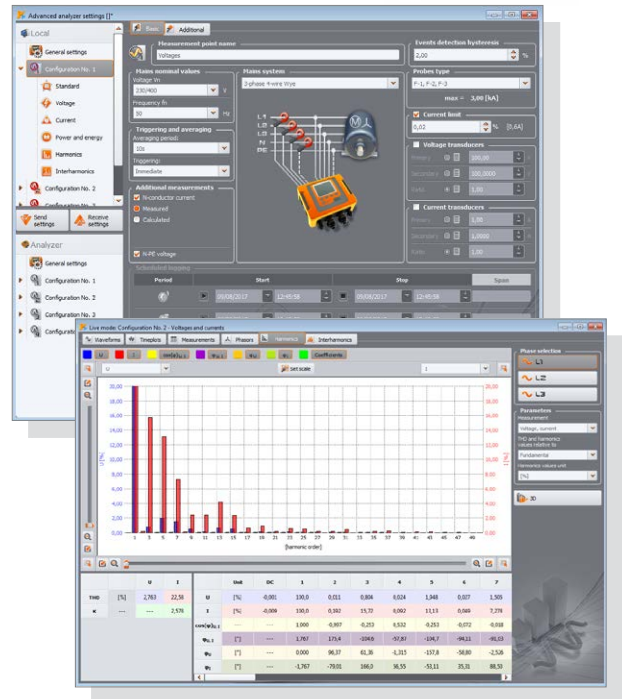|	F-1A1 / F-1A / F-1A6	F-2A1 / F-2A / F-2A6	F-3A1 / F-3A / F-3A6	F-2AHD	F-3AHD
	WACEGF1A1OKR WACEGF1AOKR WACEGF1A6OKR	WACEGF2A1OKR WACEGF2AOKR WACEGF2A6OKR	WACEGF3A1OKR WACEGF3AOKR WACEGF3A6OKR	WACEGF2AHDOKR	WACEGF3AHDOKR
Rated current	1500 / 3000 / 6000 A AC	1500 / 3000 / 6000 A AC	1500 / 3000 / 6000 A AC	3000 A AC	
Frequency		40 Hz…10 kHz		10 Hz…20 kHz	
Max. diameter of measured conductor	380 mm	250 mm	140 mm	290 mm	145 mm
Minimum accuracy		0.5%		0.5%	
Battery power		−		−	
Lead length		2.5 m		2.5 m	
Measurement category		IV 600 V		IV 600 V	
Ingress protection		IP67		IP65	

SONEL ANALYSIS

Sonel Analysis software – application delivered as standard accessory, indispensable for working with PQM-series analyzers. Depending on the mating instrument used, the software 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 and generating reports in compliance with standard EN 50160 (reports) and other user defined reference conditions - also for PV micro-installations up to 50 kW, a breakdown for active power states P>0, P<0 and P=0 and taking into account the graphs $Q_1=f(U_1/U_n)$ and $cos\varphi=f(P/P_n)$,
• 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),
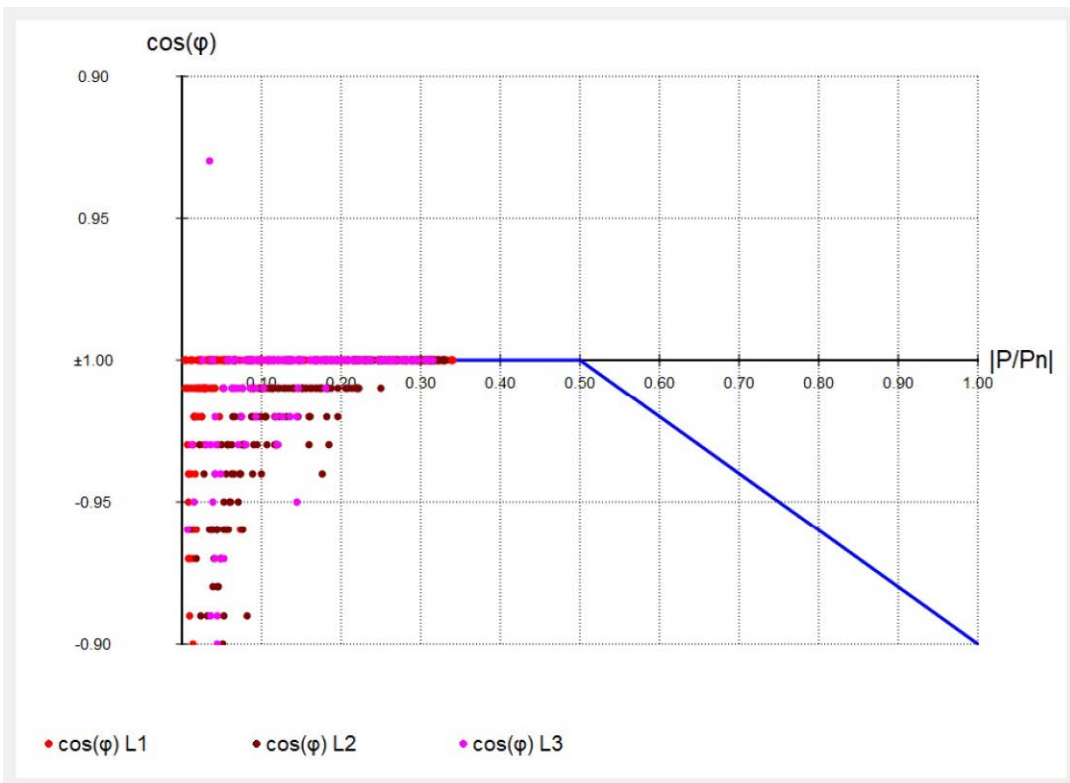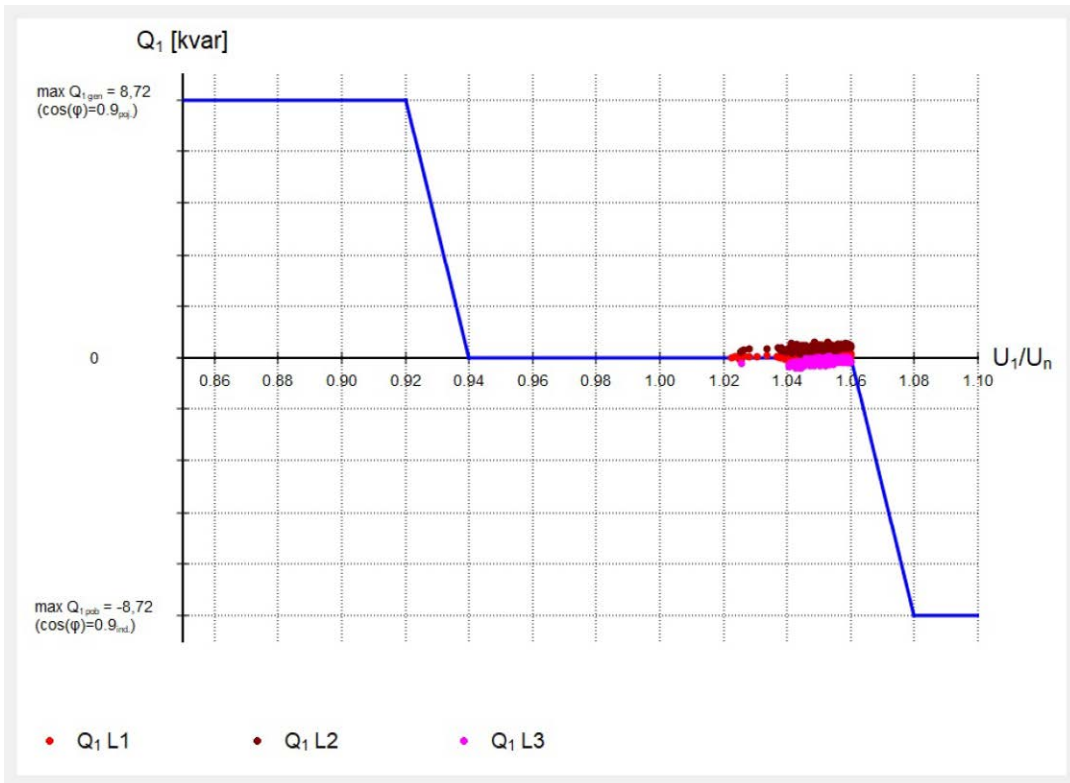• interharmonics.

The report can be generated according to EN 50160, IEEE 519, NEC 220.87 and the standards of the following countries, among others: Poland, Australia, Russia, Chile, Moldova, Ecuador. The full list of standards can be found in the software.

REPORT: Micro-installations up to 50 kW (P > 0, power consumption)

GENERAL INFORMATION

Analyzer:	Type: PQM-702 │ Version: FW1.50HWc │ Serial number: AZ0025
Report generated using:	SONEL Analysis 4.6.0 BUILD 111
Measurement time (UTC±00:00):	Start: 2021-12-03 16:00:00.000 Stop: 2021-12-10 16:00:00.000 Time: 1w 0d 0h 0m 0s
Number of parameter's samples averaged for every 5 s:	120,960
Number of parameter's samples averaged for every 10 min:	1,008
Number of parameter's samples averaged for every 15 min:	672
Number of parameter's samples averaged for every 2 h:	84
Number of excluded samples:	0 (PLT: 0)

	L1	L2	L3	L123-N
Number of parameter's samples averaged for every 5 s (P > 0, power consumption):	28,320	73,329	119,605	119,006
Number of parameter's samples averaged for every 10 min (P > 0, power consumption):	243	682	1,002	994
Number of parameter's samples averaged for every 15 min (P > 0, power consumption):	164	459	669	664
Number of excluded samples (P > 0, power consumption):	0	0	0	0

Nominal values:	Mains system: 3-phase 4-wire Wye Phase voltage: 230.00 V Phase-to-phase voltage: 400.00 V Frequency: 50.00 Hz Inverter power (3-p): 30.00 kW Insensitivity threshold: 300.00 W
Events limits:	Swells %Un: 10.00 Dips %Un: -10.00 Interruptions %Un: -95.00

Q₁ [kvar] vs U₁/Uₙ chart

max Q_{1gen} = 8,72 (cos(φ)=0.9$_{poj.}$)

max Q_{1pob} = -8,72 (cos(φ)=0.9$_{ind.}$)

- Q_1 L1
- Q_1 L2
- Q_1 L3

cos(φ) vs |P/Pn| chart

- cos(φ) L1
- cos(φ) L2
- cos(φ) L3

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

4 x F-3A flexible clamp (Ø=120 mm) 3 kA
WACEGF3AOKR

Test lead with banana plugs; 1 kV; 2.2 m; black

L1
WAPRZ2X2BLBBL1

L2
WAPRZ2X2BLBBL2

L3
WAPRZ2X2BLBBL3

Test lead with banana plugs; 1 kV; 2.2 m

blue
WAPRZ2X2BUBB

yellow-green
WAPRZ2X2YEBB

4 x magnetic voltage adapter - set
WAADAUMAGKPL

Li-Ion rechargeable battery 11.1 V 3.4 Ah
WAAKU15

AC-16 line splitter
WAADAAC16

Touchscreen pen
WAPOZTPEN

Storage & carrying

L-4 carrying case
WAFUTL4

Meter strap (type L-2)
WAPOZSZEKPL

Power supply

Z-7 power supply
WAZASZ7

AZ-2 power adapter (IEC C7 plug / banana plugs)
WAAZAAZ2

230 V power cord (IEC C7 plug)
WAPRZLAD230

Battery charging cable for 12 V car sockets
WAPRZLAD12SAM

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: WACEGF1A1OKR
3 kA: WACEGF1AOKR
6 kA: WACEGF1A6OKR

F-2A flexible clamp (Φ=235 mm)

1.5 kA: WACEGF2A1OKR
3 kA: WACEGF2AOKR
6 kA: WACEGF2A6OKR

F-3A flexible clamp (Φ=120 mm)

1.5 kA: WACEGF3A1OKR
3 kA: WACEGF3AOKR
6 kA: WACEGF3A6OKR

C-4A clamp (Ø 52 mm) 1000 A AC

WACEGC4AOKR

C-5A clamp (Ø 39 mm) 1000 A AC/DC

WACEGC5AOKR

C-6A clamp (Ø 20 mm) 10 A AC

WACEGC6AOKR

C-7A clamp (Ø 24 mm) 100 A AC

WACEGC7AOKR

L2 carrying case for clamps

WAWALL2

Magnetic voltage adapter

black WAADAUMAGKBL
blue WAADAUMAGKBU

Pin probe, blue 1 kV (banana socket)

black / blue / red / yellow
WASONBLOGB1
WASONBUOGB1
WASONREOGB1
WASONYEOGB1

ASX-1 piercing adapter (4 pcs)

WAADAPRZASX1KPL

Voltage adapter with M4/M6 thread (5 pcs)

WAADAM4M6

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

WASONCGB1KPL

Test clips with steel jaws (5 pcs)

WASONKGB1KPL

Adapter for control terminals (5 pcs)

WAADAPRZKPL1

AGT-16C three-phase socket adapter 16 A / 32 A (PEN)

WAADAAGT16C
WAADAAGT32C

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

WAADAAGT16P
WAADAAGT32P

Cover with a magnetic strip (universal)

WAPOZUCH8

AGT-63P three-phase socket adapter 63 A

WAADAAGT63P

AGT-16T industrial socket adapter 16 A / 32 A

WAADAAGT16T
WAADAAGT32T

Calibration certificate with accreditation

PQM-750

PQM-711

PQM-710

PQM-707

PQM-700

Portable Class S analyzer for basic and long term analysis	Stand alone Class S mains network analyzer for fast diagnosis	Class A high accuracy mains network analyzer	Top class of mains network analyzers with transients capture

Get to know the instrument before buying

Expand your capabilities with additional accessories