PQM-701Z

Indeks: WMGBPQM701Z

Power quality analyzer

Description

ANALYZER MEASURES AND RECORDS ACCORDING TO THE EN 61000 - 4-30 CLASS-A STANDARD

The device is designed to work with networks with nominal frequency 50/60 Hz.

The device is designed to work with networks with nominal voltage:

- 110/190 V,
- 115/200 V,
- 220/380 V,
- 230/400 V,
- 240/415 V,
- 400/690 V.

The network configuration is set from the computer software.

Supported networks:

- single-phase,
- two-phase with the common N,
- three-phase star with and without N,
- three-phase triangle.

Technical Specification

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Possible measurements:

- Measurements according to EN 50160
- Voltage L1, L2, L3, N-PE (five inputs, compiles with EN 61000 - 4-30, class A)
  - average, minimum, maximum and instantaneous values, range to 690 V, ability to work with voltage transformers,
- Current L1, L2, L3, N (four inputs)
  - average, minimum, maximum and instantaneous values, measurement current with range to 3 kA (depends on used clamp), ability to work with current transformers,
- Crest factor for voltage and current,
- Frequency from 40 Hz to 70 Hz (compiles with EN 61000 - 4-30, class A),

- Active, reactive, distortion, apparent power, including the type of reactive power (capacitive, inductive),
- Power recording:
  - Budeanu method,
  - IEEE 1459,
- Active, reactive, apparent energy,
- Power factor, cosφ, tgφ,
- K factor (transformer overload caused by the harmonics),
- Up to 50th harmonics for voltage and current (compiles with EN 61000 - 4-7, class I),
- Total Harmonic Distortion (THD) for voltage and current,
- Short-term (P_{ST}) and long-term (P_{LT}) flicker (compiles with EN 61000 - 4-15, class A),
- Unballace of Voltage (compiles with EN 61000 - 4-30, class A) and current,
- Voltage dips, swells and interruption registration including oscillograms (compiles with EN 61000 - 4-30, class A),
- Current events registration including oscillograms,
- Current and voltage oscillograms registration after each averaging period.

Specification		Range	Resolution	Accuracy
AC voltage (TRMS)	-	0,0...690,0 V	0,01 % U_n	±0,1% U_n
Crest Factor	Voltage	1,00...10,00 (≤1,65 for voltage 690 V)	0,01	±5%
	Current	1,00...10,00 (≤3,6 I_{nom})	0,01	± 5% m.v.
AC current	-	depends on the clamp*	0,01 % of nominal	±0,1% of nominal range

			range	(add clamps accuracy)
TRMS				
Frequency	-	40,00...70,00 Hz	0,01 Hz	±0,01 Hz
Active, reactive, apparent power and distortion	-	depends of configuration (transformers, clamp)	up to 4 decimal places	depends on configuration (transformers, clamp)
Active, reactive apparent energy	-	depends of configuration (transformers, clamp)	up to 4 decimal places	the same as above
cosφ and Power Factor (PF)	-	0,00...1,00	0,01	±0,03
tgφ	-	0,00...10,00	0,01	depends on Active and Reactive power accuracy
Harmonics	Voltage	same as for AC voltage TRMS	same as for AC voltage TRMS	±5% U_h for $U_h \geq 1\%$ Un ±0,05% U_n for $U_h < 1\%$ U_n
	Current	same as for AC current TRMS	same as for AC current TRMS	± 5% I_h for $I_h \geq 3\%$ I_n ± 0,15% I_n for $I_h < 3\%$ I_n

Total Harmonics Distortion	Voltage	0,0..100,0%	0,1%	±5%
	Current			±5%
Harmonics active and reactive power	-	depends on configuration (transformers, clamp)	depends on current and voltage minimum value	-
Angle between voltage and current harmonics	-	-180,0... +180,0º	0,1º	±(h x 1º)
K-Factor	-	1,0...50,0	0,1	±10%
Flicker	-	0,20...10,00	0,01	±5%
Unbalance	Voltage and Current	0,0...20,0%	0,1%	±0,15% (absolute error)

*Clamp F-1/F-2/F-3:0..3000 A (10000 Ap-p) *Clamp C-4: 0..1000 A (3600 Ap-p)*Clamp C-5: 0..1000 A (3600 Ap-p)*Clamp C-6: 0..10 A (36 Ap-p) (without current transformers)

Sonel Analysis 1.0

„SONEL Analysis" software is an application used to work with PQM-701 power quality analyzer. It enables:

- analyzer configuration,
- reading data from the analyzer,
- network parameters check in real time,
- data deleting in the analyzer,
- data presentation in tables,

- data presentation in diagrams,
- data analysis according to EN 50160 or according to user defined conditions,
- independent service of multiple analyzers,
- software upgrade through the Internet.

Analyzer configuration

The software enables configuration of all analyzer's parameters. The configuraton is made on the PC computer and later transfered to the analyzer. The configuration settings can be stored on hard drive or other data storage devices to be used later.The software enables the configuration of:

- wthe choice of Measurement Points and memory assigment to each Measurement Point,
- analyzer time settings,
- keyboard lock,
- PIN code security,
- averaging time setting,
- choice of current and voltage transformers,
- trigger mode choice (immidiately, after an event or according to the scheduler),
- choice of clamp's type, setting of additional parameters registration in N and PE channels,
- choice of network type, for which the analyzer will be used.

The analyzer has four independent Measurement Points. Each Measurement Point can be set individually to perform four different types of registration without need to change analyzer's configuration.

For each Measurement Point the following settings can be made:

- cwheather the analyzer shall work according to EN 50160 or according to user defined conditions,
- for each registration user can define, which network parameters shall be registered,
- for each parameter user can define wheather the analyzer shall register average, minimum, maximum or instantaneous values,
- the limits beyond which the analyzer will record the event can be defined.

Recent data reading

"SONEL Analysis" software enables reading of selected parameters and their graphic presentation in real time.These parameters are measured independently of the registration saved on the memory card. User can check:

- wvoltage and current diagrams (oscilloscope),
- diagrams of voltage and current in time function,
- scope phasor,
- different parameters values,
- harmonics and harmonics' power.

Data analysis

With "SONEL Analysis" software user can read data stored on the memory card and analyze them. Data from the analyzer can be stored on hard drive and be used later. This feature enables data archiving.

The user can analyze the data from the device.There is a choice of:

- **General** – all data are shown with dots (Measurements, Events and Oscillograms),
- **Measurements** – all measured values registered in averaging time are shown with dots (voltage, frequency, etc.),
- **Events** – all detected events are shown with dots (dips, swells, interruptions, etc.).