PQA application

User manual

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Safety information

When the device is in operation some of its parts may be connected to a hazardous live voltage.

Improper operation of the device or its application to purposes different from the intended use may pose hazards to operators and /or may lead to the equipment damage.

National and local electrical safety regulations must always be followed.

The user shall be held fully responsible for any safety risk and possible failures of the equipment that may arise due to such an improper operation or misuse.

Exploration of damaged device can result in malfunction of protected object and result in threat to life and health.

Reliable and defect-free operation of the device needs appropriate transportation, handling, storage, installation and commissioning as well as correct operation and maintenance.

The device can be installed and operated solely by accordingly trained personnel.

Attention

We reserve the right to modify the device.

Device is an industrial monitoring and control instrument.

Remaining user documentation can be downloaded from energetyka.itr.org.pl

Contents:

1. Introduction

1.1. Symbols

Electrical warning symbol indicates the presence of hazardous energy circuits or electric shock hazards.

The warning symbol indicates the important information related to the threat to life and health.

The information symbol indicates the clarification of relevant features and parameters of the device.

2. Application

Energy quality is an essential factor in energy systems and determines energy receivers reliability. The interference that arises in the grid can affect the voltage and current signals as well as their frequency. The deterioration of power quality factors may be caused by the consumer installation or power network and it can result in energy receivers and transmission infrastructure malfunction or damage. The Power Quality Analyzer function facilitates the detection and identification of interference in order to minimize the failure risk.

3. Operational parameters

The measurement and aggregation of measurement data is carried out according to EN 50160:2002, PN EN 61000-4-7 and PN EN 61000-4-30 standards. The harmonic content and THD coefficient are calculated to the 40-th harmonic. The accuracy and ranges of respective values are in accordance with those declared in the “Measurement Accuracy” clause.
The analysis results are presented in the following form:

- averaged values of phase voltages and frequency,
- harmonic content and THD coefficients,
- averaged harmonic content and THD coefficients.

4. Operation

Power Quality Analyzer functions are accessible in “Applications -> Power quality analysis” menu.
The averaged values of phase voltages and frequency are accessible in “Averaged values” submenu. For each quantity 5 values are provided from the last averaged periods which are (in the case of 50 Hz grid):

- 400 ms (20 cycles) for phase voltages,
- 10 s for frequency.

Arithmetic averages of analyzed quantities are tagged with a flag and the last computed value has 1 as an index.
The harmonic content and THD coefficients are accessible in “Harmonics” submenu.
The running value of each harmonic, from 2nd to 40rd, relative to the 1st harmonic, are displayed in column form (Fig. 1). The numerical value of each harmonic can be read by selecting the appropriate column with cursors. The averaged value of the 1st harmonic relative to the RMS signal value and THD averaged value are displayed above the plot.
The quantities that are being analyzed are phase and interphase voltages, the zero sequence voltage component, phase currents and zero sequence current component.

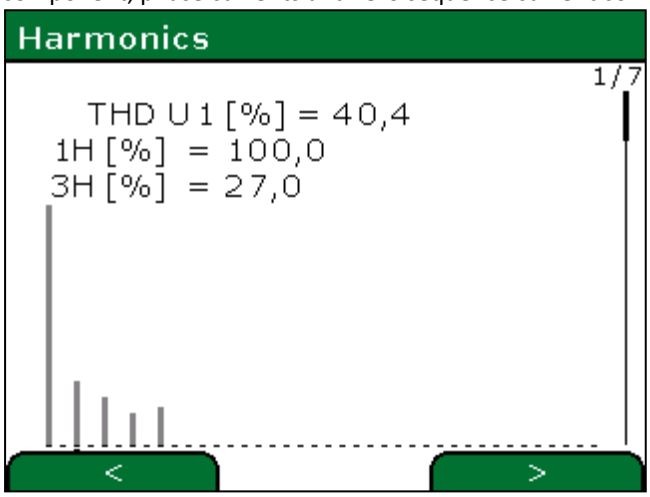

Fig. 1 Column plot of U1 harmonic content

The averaged THD coefficients and harmonic content are accessible in “Averaged Harmonics” submenu. The results presentation form is identical to the form for running values and the averaging period is equal to 10 minutes. The analyzed quantities are phase voltages and currents.

5. Contact

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