



Multiple input PQ monitor MEG37



CHARACTERISTICS

The multiple input PQ monitor MEG37 measures four voltages and the total of 36 currents at the LV level. It provides the functions of measuring and evaluation of voltage quality, recording of time courses of electrical quantities and the function of electric power measurement and record of ripple control duration. The mentioned functions are performed simultaneously. In the function of measuring and evaluation of voltage quality, it evaluates the set voltage quality parameters for three measured voltages and three measured currents according to EN61000-4-30, ed.2, with the precision of Class S using methods meeting the requirements of EN 62586 for Class A. At events specified in the voltage quality standard as well as events initiated by overcurrents, it records courses of RMS $\frac{1}{2}$ values with an optional pre-trigger and post-trigger in addition to the stated parameters.

In the recording function of all the measured quantities, the monitor calculates an average value for individual user-defined recording intervals from ten-period values and evaluates the maximum and minimum ten-period value. It records time lines of these values and the values of active and reactive energies with the distinction of flow direction, derived from all current channels to non-destructive data memory.

In the function of electric power measurement, it accumulates ten-period values of active and reactive energies for individual record intervals to six registers for active, reactive inductive and reactive capacitive energy with flow direction distinction. It also saves the time line in individual record intervals of accumulated values of six energy registers for all the current channels in the non-destructive data memory. ▶

The monitor includes an uninterruptible power supply with an internal accumulator and supply from all of the four measured voltages. It uses flexible current sensors with electronic switching of measurement ranges at measurement parameterization to measure currents.

The GPS signal can be used for time synchronization.

Local measurement parameterization and check of correct connection is carried out via the serial USB 2.0 interface. Remote transmission of measured data and remote parameterization can be carried out via a GSM network with GPRS/EDGE, LTE and UMTS/HSPA+ services. The monitor has the ETH communication interface.

It is designed in an all-plastic waterproof case and it has increased insulation and is in over-voltage category CAT IV 300V.

INFORMATION ON SW

The multiple input PQ monitor MEG37 package includes a CD with user programs. Parameterization of measurements, reading of measured data, displaying of direct measurements, including an oscillographic recording, are carried out by the PQ_MEG program. Unified program Data Viewer ensures displaying of measured data in graphic and tabular form of a data file, export of measured data and printing tasks. Functions of the individual programs are specified in separate user manuals.

The database based program WebDatOr, supplied separately, is ready to take care of work with data files from one or more measurement instruments, even of different types.

MEASURED DATA

The range of measured data depends on connection for measurement and measurement parameterization. Measured data are divided into data of continuous phenomena of voltage quality, data at voltage events and events initiated by voltage U₄, and overcurrents, recorder data and data of electric power measurement.

Data of continuous phenomena of voltage quality (aggregation interval 10 minutes)::

- Time of evaluation
- Voltage unbalance
- Frequency
- Voltage
- Voltage deviations U_{over} U_{under}
- Flicker P_{st} and P_{It}
- THD_U
- DC component, fundamental up to 60th harmonic of voltage
- Centered groups of interharmonic voltages up to the order of 60
- Level of voltage signals (HDO)
- Flagged data
- Currents
- THD_I

- Basic to 60th harmonics of currents
- Centered groups of interharmonic currents up to the order of 60.

Data at voltage phenomena and events initiated by voltage U4 and overcurrents:

- Time of event
- Event duration
- Moments when the limits for interruption, dip and swell of voltage and current are exceeded.
- Residual and maximum values of voltage and current
- Curves of voltages $U_{\text{RMS1/2}}$ and currents $I_{\text{RMS1/2}}$ before, during and after an event..

Recorder data (aggreg. interval from 1 sec to ¼ h pursuant to measuring parameterization):

- Time of evaluation
- Voltage
- Currents
- Active powers
- Reactive powers
- Apparent powers
- PF
- Active and reactive energies – four quadrants, 6 registers for each phase
- Distortion powers
- Unbalance power
- Active powers of the 1st harmonic
- Reactive powers of the 1st harmonic
- Apparent powers of the 1st harmonic
- $\text{Cos } \varphi$
- Active and reactive energies of the 1st harm. – four quadrants, 6 registers for each phase
- THD_U
- THD_I
- Harmonic components of voltages up to the order of 60
- Harmonic components of currents up to the order of 60.

The above stated data of continuous phenomena of voltage quality are stipulated for the voltages U1, U2, U3 and currents I1, I2, I3.

The above stated recorded data of voltage events and single events starting from exceeding of defined limits for voltages U1 to U4 and for currents I1 to I3 are recorded for all the stated values, including I4.

The above stated recorder data apply to voltages U1 to U4, currents I1 to I4 and currents of inputs A through H.

FUNCTION OF MEASURING THE POWER QUALITY

Classification of the PQ monitor MEg37 according to IEC 62586-1

PQ monitor MEg37 Class S has the classification of PQI-S-PO-H, $f = 50$ Hz, CATIII / 300V according to EN 61010-2-030:2010.

Table of functions of the PQ monitor MEg37 according to EN 61000-4-30:2009 including EN 61000-4-15:2011 and EN 61000-4-7:2002:

Function and measured data	MEg37, Class S	
	Method of measurement	Measurement uncertainty, measurement range
Frequency 10 sec data	Class A	Class S
Magnitude of supply voltage 150 periods, 10 minutes, 2 hours	Class A	Class S
Flicker 10 minutes P_{st} , 2 hours P_{It}	Class A	Class S
Voltage dips and swells residual and maximum U, T duration	Class A	Class S
Supply voltage interruption residual U, T duration	Class A	Class S
Voltage unbalance 150 periods, 10 minutes, 2 hours	Class A	Class S
Harmonic voltages 150 periods, 10 minutes, 2 hours	Class A	Class S
Interharmonic voltages 150 periods, 10 minutes, 2 hours	Class A	Class S
Mains signaling voltage 150 periods	Class A	Class S
Underdeviation and overdeviation 150 periods, 10 minutes, 2 hours	Class A	Class S

Note: According to EN 61557-12 the PQ monitor MEg37 is a self-powered performance measuring and monitoring device. It combines the functions of recording, measuring the electric power and measuring the quality of voltage.

Detailed user's description is to be found on the web page: www.e-mega.cz.

Manufacturer

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