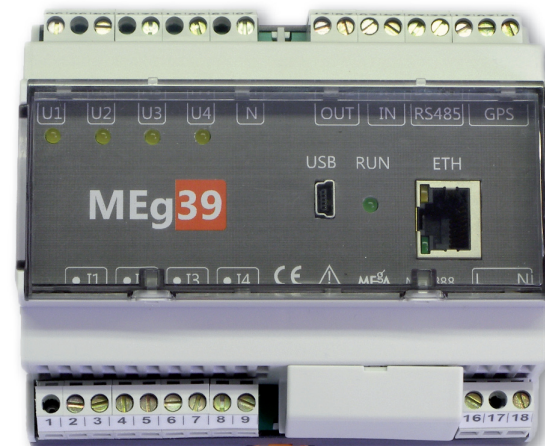


Detailed user's description is to be found on the web page [www.e-mega.cz](http://www.e-mega.cz)

### Manufacturer

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### Description of MEg39

PQ monitor MEg39 measures four voltage and four current values at LV, MV, HV levels. It provides the functions of recording, electricity meter and analysis of voltage quality, all performed simultaneously. In the recording function, PQ monitor MEg39 processes all measured values, evaluates powers, energy and harmonics up to the order of 64.

In the function of class A voltage quality analyser, the monitor evaluates all parameters for measured three voltages and three currents, as stipulated by the standard. It analyses harmonics and centred subgroups of interharmonics up to the order of 125.

When recording events, the monitor, aside from recording the course of  $U_{\text{RMS1/2}}$  and  $I_{\text{RMS1/2}}$ , makes an oscillographic record of all four values of voltage and current. The monitor can operate as an oscillograph with the function of recording the voltage values U1 to U4 and current values I1 to I4 into data memory; an oscillographic record can be triggered by voltage U4. The voltage measuring inputs are designed for indirect voltage measurements by means of instrument transformers for the MV and HV levels and for direct measurements at the LV level. The current inputs are only designed for indirect measurements by means of instrument current transformers.

The monitor is supplied by power mains voltage or by DC voltage and it is resistant against short-term power outages. The device can be powered by DC 12V from a separate UPS MEg101.3. This power supply is connected through the HBUS connector located in the DIN rail on which the device is installed. This bus connector enables connecting a communication unit MEg202.3, which enables remote transmission of data from the device by means of GPRS data service using the GSM mobile network. The monitor is equipped with four communication interfaces. The serial USB interface is designed for local parameterization of the device and for downloading of measured data, the Ethernet and RS485 interfaces are designed for connecting to local technological networks and the RS232 interface is reserved for service purposes.

## INFORMATION ON SW

PQ monitor MEG39 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 **SW PQ** 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. 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.

Functions of the individual programs are specified in separate user manuals. User's description is to be found on the web page [www.e-mega.cz](http://www.e-mega.cz).

## 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, event data and recorder data.

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

- Interval (time) of evaluation
- Voltage unbalance
- Frequency
- Voltage
- Voltage deviations  $U_{over}$ ,  $U_{under}$
- Flicker  $P_{st}$  and  $P_{lt}$
- THD<sub>U</sub>
- DC component, fundamental harmonic up to 125<sup>th</sup> harmonic of voltage
- Centred subgroups of interharmonic component of voltage up to the order of 125
- Level of voltage signals
- Flagged data
- Currents
- Basic to 125<sup>th</sup> harmonics of currents
- Centred subgroups of interharmonic of current up to the order of 125
- Powers and energies

**Data at events:**

- 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  $U_{RMS1/2}$  and currents  $I_{RMS1/2}$
- Oscillogram of voltage and current curves during event
- Harmonic voltages and currents during event

## Recorder data

(aggregation interval from 1 s to ¼ h pursuant to measurement parameterization):

- Time of evaluation
- Voltages
- Currents
- Active powers
- Reactive powers
- Apparent powers
- Deformation powers
- Unbalance power
- PF
- THD<sub>U</sub>
- THD<sub>I</sub>
- Harmonic components of voltages up to the order of 64.
- Harmonic components of currents up to the order of 64.
- Active and reactive energy (6 registers for each phase)

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 events starting from an exceeding of the defined limits for voltages U1 to U4 and for currents I1 to I3 are recorded for all the stated values and current I4.

The above stated recorder data apply to voltages U1 to U4 and currents I1 to I4.

## DESIGN AND BASIC CONNECTION

The MEG39 unit is installed in a polycarbonate self-extinguishing box with the dimensions of 108 × 90 × 63 mm with the design for TC35 DIN rail mounting. The monitor is installed under the switchgear box cover with a possibility of sealing to restrict access to the terminals. The instrument panel can be sealed, too.

Input terminals of measured voltages and currents, power supply, RS485 communication interface, two-state input and output contact are realized by means of screw terminals for a wire diameter of up to 4 mm<sup>2</sup>.

The four yellow LEDs U1, U2, U3 and U4 signalize by permanent light the presence of input voltages within preset tolerances. If a measured voltage is beyond preset tolerances, the corresponding LED flashes shortly. Single flash indicates voltage interruption, double flash indicates voltage drop and triple flash indicates overvoltage. Green RUN LED indicates operation of the unit.

The miniUSB connector located on the panel of the unit is designed for local communication with the operator. Remote communication is realized by means of the RS485 interface. Furthermore, it is possible to use the Ethernet interface, whose RJ45 connector is located at the panel of the unit and it enables using the functions provided by the built-in webserver. A GPS antenna providing time synchronization of measurement can be connected to the panel through the transparent cover.