


MEG44 DESCRIPTION

The MEG44 class S monitor measures three voltages and three currents of the DTS transformer at LV level. It provides the functions of recording, electricity meter and analysis of voltage quality, all performed simultaneously. Methods of measuring voltage quality meet the requirements of EN 62586-2:2014.

In the recording function, the MEG44 monitor processes all measured quantities, evaluates powers, energies and harmonics up to the 64th order. In the function of voltage quality analyser, the monitor evaluates all parameters for measured three voltages and three currents, as stipulated by the standard EN 61000-4-30:2015. When recording events, the monitor, aside from recording the course of $U_{RMS1/2}$ and $I_{RMS1/2}$, makes an oscillographic record of all measured values of voltage and current.

The voltage measuring inputs are designed for direct voltage measurement at the LV level. The current inputs are only designed for indirect measurement by means of instrument current transformers.

The monitor is equipped with three communication interfaces. The serial USB interface is designed for local parametrisation devices and for downloading of measured data. The Ethernet and RS485 interfaces are intended for connecting to local networks and for remote downloading of data. 

The MEg44 monitor is powered by $12V_{DC}$ from MEg101.4 or MEg101.5 uninterruptible power supplies. It is possible to connect uninterruptible power supplies utilizing HBUS.

MEg44 monitor can be also connected to the MEg202.3 communication unit, which enables remote transmission of parametrised and measured data via mobile network utilizing GSM/GPRS and GSM/UMTS/HSPA.

The MEg44 unit is installed in a $108 \times 90 \times 63$ mm polycarbonate, self-extinguishing box, equipped for DIN rail mounting. Measuring category CAT IV / 300V and safety class II qualified.

INFORMATION ABOUT SW

The MEg44 PQ monitor package includes a CD with user programs. Parametrization of measurements, reading of measured data, displaying of direct measurements, including oscillographic recording, are carried out by the PQ MEg software. 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.

TECHNICAL PARAMETERS

Voltage inputs U1, U2 and U3

Rated phase voltages U_n^{L-N} :	$230V_{AC}$
Rated line-to-line voltages U_n^{L-L} :	$400V_{AC}$
Measuring range of phase voltages:	$299V_{AC}$
Maximum output voltage L-N:	$300V_{AC}$
Voltage measurement uncertainty	
	with $f = 50$ Hz: $\pm 0.1\%$ of M.V. $\pm 0.025\% U_n$
Frequency range:	up to 6.4 kHz
Input resistance:	$1.68 M\Omega$
Temperature coefficient:	$0.05\% / 10K$

Proudové vstupy I1, I2, I3

Rated value of current I_n :	1 A or 5 A
Current measuring range:	$5\% I_n$ up to $120\% I_n$
Frequency range:	40 Hz to 6.4 kHz
Measurement uncertainty of current:	$I_n = 1 A, 5 A$ $\pm 0.2\%$ of M.V. $\pm 0.025\% I_n$ (45 Hz to 60 Hz)
Temperature coefficient:	$0.2\% / 10K$
Uncertainty of harmonic measurement:	$\pm 5\% I_{harm}$ at $I_{harm} \geq 3\% I_n$ and $\pm 0.15\% I_n$ at $I_{harm} < 3\% I_n$

Active power:	$\pm 0.5\%$ of M.V. $\pm 0.2\%$ $P_n^{1)}$	at $U \geq 10\% U_n$, $I \geq 5\% I_n$, PF ≥ 0.5
Reactive power:	$\pm 0.5\%$ of M.V. $\pm 0.2\%$ $Q_n^{2)}$	at $U \geq 10\% U_n$, $I \geq 5\% I_n$, PF ≤ 0.866
PF:	± 0.01	at $U \geq 10\% U_n$, $I \geq 5\% I_n$
Active energy:	class B	EN 50470-1:2006
Ripple control – voltage :	$5\% U_{HDO}$	$U_{HDO} \geq 3\% U_n$
	$0.1\% U_n$	$1\% U_n \leq U_{HDO} \leq 3\% U_n$

M.V. – measured value

¹⁾ $P_n = U_n \cdot I_n \cdot \cos 0^\circ$, u(t) and i(t) only fundamental harmonic

²⁾ $Q_n = U_n \cdot I_n \cdot \cos 90^\circ$, u(t) and i(t) only fundamental harmonic

Measuring characteristics

Sampling frequency:	128 samples per period
Anti-aliasing filter:	digital filter, type FIR
Phase-Locked Loop:	controlled by the passage of the basic harmonic voltage U_1 through zero
Aggregation intervals:	quality function – according to EN 61000-4-30:2015 recorder function – from 1 sec to ¼ hr.
Synchronisation of aggregation:	according to EN 61000-4-30:2015
Time base:	± 1 sec per 24 hours at operating temperature

Data memory

Capacity:	512 MB, circular, organization for each function
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Design data

Dimensions:	110 × 90 × 63 mm
Weight:	0.3 kg
Protection:	IP00 according to EN 60 529:1991 IP20 when installed in a LV cabinet with a cover panel over terminals
Overvoltage category:	CAT IV / 300V as per EN 61010-2-030:2010
Safety class:	II, reinforced insulation

Operating conditions

Operating temperature:	-20 °C to +55 °C
Stabilisation period:	10 minutes
Relative humidity:	10% to 90%, non-condensing

Measurement uncertainty and measuring ranges of voltage quality parameters during test conditions 1, 2 and 3 according to standard EN 61000-4-30:2015

LV level, $f = 50$ Hz

Parameter	Uncertainty	Measuring range
Frequency	± 2 mHz	42.5 Hz – 57.5 Hz
Voltage	$\pm 0.2\% U_n$	$10\% U_n - 120\% U_n$
Flicker P_{st}	$5\% P_{st}$ EN 61000-4-15:2011	P_{st} (0.2 – 10,0) 1 – 4 000 changes / minute
Flicker $P_{inst, max}$	$8\% P_{st}$	$P_{st} = 1.0$ sine, rectangular
Voltage events	Amplitude: $\pm 0.5\% U_n$ Duration: ± 1 period	$5\% U_n - 150\% U_n$ 0.02 sec – 60 sec
Interruption	Duration: ± 1 period	0.02 sec – 180 sec
Asymmetry	$\pm 0.1\%$	$0.5\% u_2 - 5\% u_2$ $0.5\% u_0 - 5\% u_0$
Harmonic voltage	$5\% U_{harm}$, $U_{harm} \geq 1\% U_n$ $0.05\% U_n$, $U_{harm} < 1\% U_n$	10% – 100 % IEC 61000-2-4
Interharmonic voltages	$5\% U_{harm}$, $U_{harm} \geq 3\% U_n$ $0.15\% U_n$, $U_{harm} < 3\% U_n$	10% – 100 % IEC 61000-2-4
Signals in voltage	$\pm 5\% U_{sig}$ for $3\% U_n \leq U_{sig} \leq 15\% U_n$, $\pm 0.15\% U_n$ for $1\% U_n \leq U_{sig} \leq 3\% U_n$	$0.5\% U_n - 15\% U_n$
Time base	± 1 sec per 24 hrs,	-

Detailed user information is available at www.e-mega.cz.

Manufacturer

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