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Data Sheet 5.56/7

AC/DC Peak Voltmeter, Types MU17 and MU18

Application

The AC/DC Peak Voltmeters MU17 and MU18 are used for all measurements of AC and DC voltages, especially in HVAC and HVDC test systems in connection with HV dividers. The measurements meet all requirements of the related international standard IEC 60060-2. Measurements are displayed or instantaneously processed.

The voltmeter MU17 directly displays the measured value under consideration of the scale factor of the external voltage divider. AC and DC voltages with peak values up to 1000 V can be measured without any voltage divider. Furthermore the voltage waveform can be represented graphically. A special advantage for practical measurements is the storage of values occurring during a disruptive discharge at the test object. An internal testing procedure enables a rapid check of the device. Two serial interfaces provide the possibility of connection to automatic control and evaluation systems: A PROFIBUS-DP interface for time-critical communication (especially with HIGHVOLT control systems) and a V.24 interface for conventional connections are available.



Figure 1: MU17

Table 1: Survey of measurements and features

Displayed value	Measurement value
Peak + Peak -	positive peak value negative peak value
Peak average	average of both peak values
Peak / $\sqrt{2}$ + Peak / $\sqrt{2}$ -	positive peak value divided by $\sqrt{2}$ negative peak value divided by $\sqrt{2}$
Average	arithmetic mean
RMS	true r.m.s. value
Peak factor / $\sqrt{2}$	peak related to r.m.s. / $\sqrt{2}$
Ripple	ripple amplitude
Frequency	Frequency
graphic representation of the waveform	
measurement storage before disruptive discharge	
Interfaces	V.24 (RS232)
	PROFIBUS-DP (RS485)

Design

MU17

MU17 is designed as $\frac{1}{3}$ plug-in unit in the 19" system. It can be supplied either as stand-alone (MU17G) or plug-in device (MU17E). Communication via the two serial interfaces is also possible.

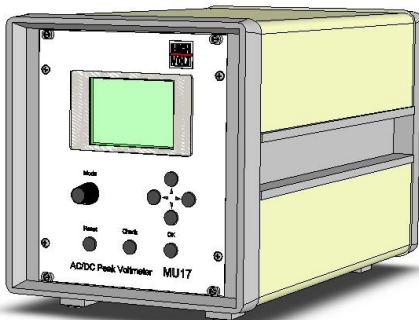


Figure 2: MU17G

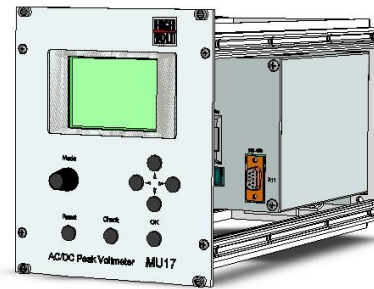


Figure 3: MU17E

MU18

MU18 is the metal-encapsulated measuring device for rail mounting, without display and operating panel, but connection by one of the two interfaces to the operator device or a controlling industrial PC for measuring and handling data and display.



Figure 4: MU18

In the case of a disruptive discharge, the measured values are stored until they are erased either manually or by an external control command or until a new voltage is applied to the measuring input. The storage can also be started by an external impulse (TTL; connector type BNC).

Measurement uncertainty

The measurement uncertainty is related to the measured value in the range of $\pm (10 \dots 1000) \text{ V}$, under reference conditions and at DC as well as in the frequency range (10 ... 500) Hz.

Peak values, mean values, true RMS value max. $\pm 0.5\%$

Visualisation

The waveform is shown on the graphic display for one period and normalised on the maximum peak value.

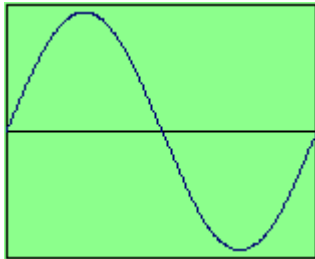


Figure 6: Graphical representation of the measurement values

Data input and output

Input of divider ratio	4 digits with exponent
Output of measured values	4 digits with unit of measurement
Interfaces	V.24 and PROFIBUS-DP
Analog output voltages	0 ... + 10 V (DC-OUT) and 0 ... $\pm 12 \text{ V}$ (MONITOR) ; connectors type BNC

Testing mode

Internal test voltage +5.000 V (DC)

The evaluation is effected according to the principal mode of operation. The divider ratio is set to 1.

Mains supply

MU17	230 V ($\pm 10\%$) 50/60 Hz $\leq 20 \text{ VA}$, (110-240 V wide range on request)
MU18	24 V ($\pm 10\%$) DC $\leq 300 \text{ mA}$

Dimensions and weight

MU17G stand-alone device (w x h x d)	186 x 205 x 330 mm / approx. 5.0 kg
MU17E plug-in device (w x h x d)	142(=28TE) x 173(=4HE) x 300 mm / approx. 2.5 kg
MU18 (w x h x d)	65 x 126 x 195 mm / approx. 1 kg

Conditions for application

Reference operating conditions	ambient temperature $23^\circ\text{C} \pm 5 \text{ K}$ relative humidity 10 ... 65%
Normal conditions	ambient temp. + 5 ... + 40°C relative humidity 10 ... 80%
Operation	indoor
Conditions for storage/transportation	ambient temp. - 40 ... + 70°C relative humidity $\leq 95\%$ (with max. 30°C)

Scope of delivery

MU17G stand-alone device

19" casing
plug-in unit MU17
power supply cable, 1.5 m
adapter N ↔ BNC
set of fuses
set of plugs

MU17E plug-in device

plug-in unit MU17
power supply cable, 1.5 m
adapter N ↔ BNC
set of fuses
set of plugs

MU18 measuring module

metal-encapsulated measuring device without display