

Data Sheet no. 5.56/6

## AC/DC Peak Voltmeter MU17 and 18



Survey of measurements and features	
<b>Peak + ; Peak -</b>	min. and max. peak
<b>Peak average</b>	average of both peak values
<b>Peak / <math>\sqrt{2}</math> + ; Peak / <math>\sqrt{2}</math> -</b>	min. and max. peak / $\sqrt{2}$
<b>Average</b>	arithmetic mean
<b>RMS</b>	real r.m.s.
<b>Peak factor / <math>\sqrt{2}</math></b>	peak related to r.m.s. / $\sqrt{2}$
<b>Ripple</b>	ripple amplitude
<b>Frequency</b>	Frequency
graphic representation of the waveform	
measurement storage before disruptive discharge	
Interfaces	V.24 (RS232)
	PROFIBUS-DP (RS485)

### 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 wave-

form 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.

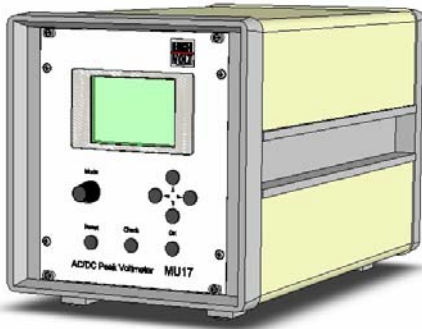
# Design

## Type MU17

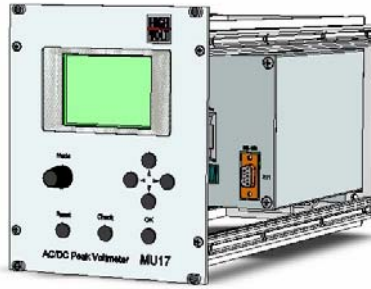
is designed as 1/3 plug-in unit in the 19" system, it can be supplied either as stand-alone (MU17G) or plug-in device (MU17E). Communication via the two serial interfaces is also possible.

## Type 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.



MU17G



MU17E



MU18

# Operation

The operation is explained by the circuit diagram below. The voltage to be measured is transferred from the INPUT via the internal divider, input amplifier and the programmable amplifier to the analog-digital converter (ADC).

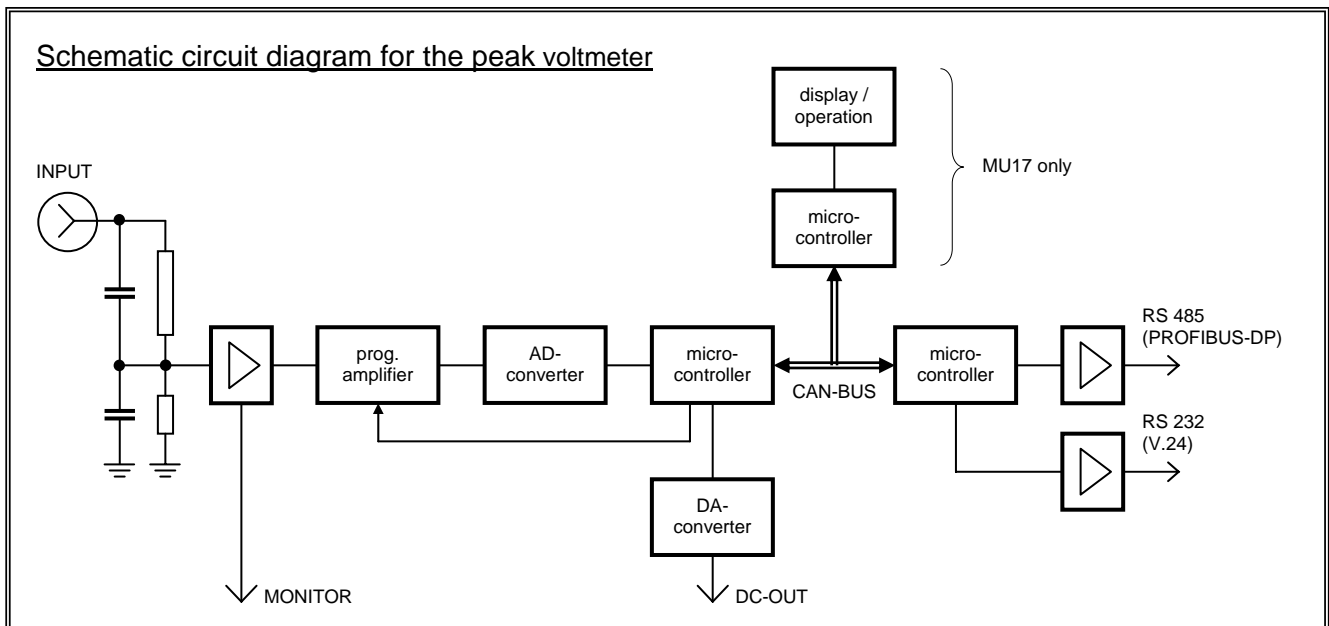
The converter scans the input signal with a high frequency. The digital values gained by the ADC are immediately evaluated by a microcontroller related to the measurement.

All measured values are internally stored temporarily and therefore available after a disruptive discharge.

For special controlling modes, a DC voltage that is proportional to the peak value is available at DC-OUT and a voltage proportional to the INPUT is provided at MONITOR.

Another microcontroller controls the entire data exchange across the PROFIBUS-DP or V.24 interfaces. With the device MU18, operation and data output is only possible across these interfaces.

The communication between the microcontrollers is realized by CAN-Bus.





## 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 approx. 20 VA  
MU18 24 V (12 V ... 32 V) DC approx. 300 mA

## Dimensions and weight

MU17G stand-alone device (w x h x d) 186 x 205 x 330 mm / approx. 5.5 kg  
MU17E plug-in device (w x h x d) 142(=28TE) x 173(=4HE) x 300 mm / approx. 3 kg  
MU18 (w x h x d) 65 x 126 x 160 mm / approx. 1 kg

## Conditions for application

Reference operating conditions ambient temperature 23°C  $\pm 5$  K  
relative humidity 10 ... 65%  
Normal conditions ambient temp. +5 ... +40°C  
relative humidity 10 ... 80%  
Application 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  $\leftrightarrow$  BNC  
set of fuses  
set of plugs

MU17E plug-in device plug-in unit MU17  
power supply cable, 1.5 m  
adapter N  $\leftrightarrow$  BNC  
set of fuses  
set of plugs

MU18 measuring module metal-encapsulated measuring device without display

MU17/18 fulfils all requirements of IEC 60060-2.

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