

Data Sheet 5.71/5

Ratiometer RM 3

Application

The ratiometer RM 3 serves for the measurement of the divider ratio (scale factor according to IEC 60060-2) of HV dividers for AC voltage and impulse voltage. The divider ratio reaches from 1:1 to 1:10 000. The unit can be placed on a desk. It is meant for the performance check of dividers requested by IEC 60060-2.



Figure 1: Ratiometer RM 3

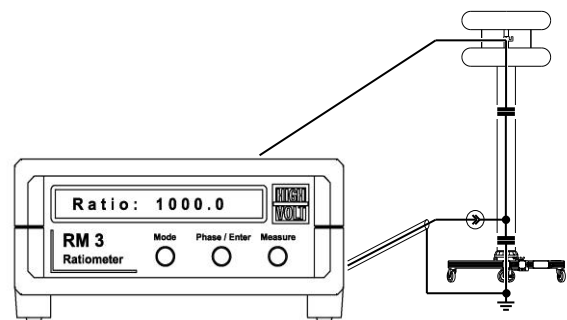


Figure 2: Example for a measuring arrangement

Functioning

A sine wave AC voltage of 100 V with a frequency of approx. 1 kHz / 60Hz / 50Hz generated in the RM 3 is applied to the HV terminal of the measuring divider to be tested. The output of the divider is connected to the input of the ratiometer. This input voltage is transferred via an automatic measuring range switch and a band pass filter to the AD converter. The reference voltage of this AD converter is generated from the output signal of the RM 3. This means that this ratiometric evaluation of the voltages shows the divider ratio directly on the attached display.

The voltage ratio corresponding to the transformation ratio of the divider is indicated.

The measuring procedure is started by pushing the button "Measure". For reasons of safety for the operator, the button has to be pushed until termination of the measurement. After completion of measurement pushing the button "Phase/Enter" will show the phase angle. During a selectable period, the measured value will be displayed, and then the equipment will switch off.

The voltage supply of the unit is managed by means of a rechargeable battery which needs no maintenance. Operation is also possible with an external mains supply. Simultaneously, the battery will be recharged; therefore it is possible to operate with discharged battery, too.

Technical Data

Values for connection

Input resistance:	1 M Ω , < 100 pF
Max. input voltage (RMS):	100 V
Measuring voltage (RMS):	100 V
Frequency:	approx. 1 kHz (975 Hz), 60 Hz, 50 Hz
Max. load of output amplifier:	R _{min} \geq 5 k Ω ; C _{max} \leq 20 nF

Data Output

Display values:	LCD; 16 characters, 1 row, backlit
Measuring ranges:	1:1...1:10 000 selection of internal measuring range occurs automatically
Period of storage of meas. value:	5 s to 9 min (selectable)

Measuring Deviation

Relative measuring deviation:	max. \pm 1 % of measuring value
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Voltage Supply

Battery:	internal lead-gel batteries 12 V (no maintenance) capacity for approx. 100 measurements internal charging unit, parallel operation with mains supply automatic switch-off
Mains supply:	external mains supply unit 90...260 V/ 47...63 Hz (or other with output voltage 15 ... 18 V AC or DC)

Dimensions and Weight

Dimensions (W x H x D):	158 x 75 x 200 mm
Weight:	approx. 1.5 kg

Conditions for Application

Standard conditions:	ambient temperature +5...+40 °C relative humidity 10...80 %
Application:	indoor
Conditions for storage/transport:	ambient temperature -20 ... + 70 °C ¹⁾ relative humidity \leq 95 % (at max. 30 °C)

Scope of Delivery

Standard:	Ratiometer RM 3 mains supply unit 90...260 V/ 47...63 Hz divider for self-test manual
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¹⁾ This temperature range only applies for a fully charged battery or for the device without battery installed.