

Data Sheet no. 5.23/2

High-Ohmic Resistive Reference Voltage Divider Type GMR ... ref

Application

The High-Ohmic Resistive Reference Voltage Dividers are designed for the measurement of the mean value of Direct Voltages (DC). They are the basic components of Direct Voltage Reference Measuring Systems for calibration purposes according to IEC 60060-2 and they also can be used as measuring divider of a high voltage test system.

Design

The divider consists of low inductive high power resistors with a low temperature coefficient of $25 \cdot 10^{-6} K^{-1}$. The resistors are arranged inside an insulating tube. The low voltage part of the divider is formed by a tap of the lowest resistor. Therefore under operating conditions the low voltage part and the high voltage part have a similar temperature level. The resistors are cooled by the ambient air which can circulate through the insulating tube in which the resistors are arranged.

The dividers are equipped with a PD free top electrode and a base frame with rollers.

Calibration

High-Ohmic Resistive Reference Voltage Dividers are calibrated by the HIGHVOLT Calibration Laboratory DKD-K-24501. The calibration is documented by a DKD-calibration certificate. This calibration certificate documents the traceability to national standards, which realize the units of measurements according to the International System of Units (SI).

The DKD is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.

If the application task demands a calibration at a National Institute for Metrology on request the High-Ohmic Resistive Reference Voltage Dividers would be calibrated at the Physikalisch-Technische Bundesanstalt (PTB).

It is recommended to calibrate the High-Ohmic Resistive Reference Voltage Dividers together with the instruments which will be used together with the divider.

Instruments

Beside the High-Ohmic Resistive Reference Voltage Divider the instrument for the Reference Measuring System –the AC/DC peak voltmeter MU 17 (see Data Sheet 5.56) – can be delivered, too.

Option

For the application of the divider and the instrument for on-site calibrations special transportation boxes can be delivered on request.



Figure 1: GMR 800/400 ref

Technical data

Type GMR	R [MΩ]	DC voltage (peak) [kV]	DC duration [min]	divider ratio
GMR 250/135 ref	250	135	30	225
GMR 600/300 ref	600	300	30	550
GMR 800/400 ref	800	400	30	2000
Measuring uncertainty of voltage: Measurement for a probability level of 95 %:		direct voltage (average and scale factor): (under reference working conditions)		≤ 0.7 %
Metrological characteristics:		voltage dependent non-linearity:		≤ 0.3 %
		short term instability at DC rated voltage and operating time 30 min:		≤ 0.2 %
		long term instability over 1 year:		≤ 0.5 %
		temperature coefficient of the scale factor:		≤ 0.01 %/K
Installation:		indoor to keep the temperature range		
Reference working conditions:		temperature:		15 °C ... 30 °C
		relative humidity:		≤ 55 %
Operating working conditions:		temperature:		5 °C ... 40 °C
		relative humidity:		< 80 %
Type of socket at the divider:		N-type		
The following accessories belong to the content of delivery:		<ul style="list-style-type: none"> measuring cable (wave resistance 50 Ohm, length 25 m, single screened) documentation (record of performance according to IEC 60060-2) 		

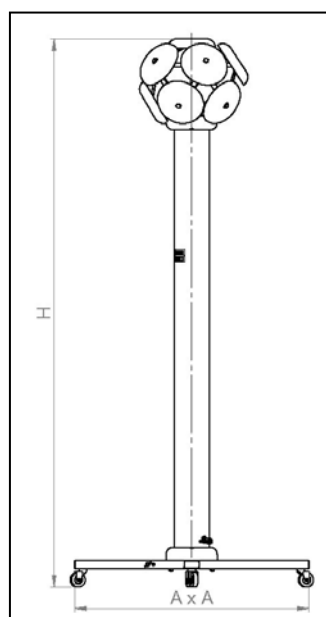
Dimensions and weight

Type	H [mm]	A x A [mm]	Weight [kg]
GMR 250/135 ref	1050	440 x 440	30
GMR 600/300 ref	2300	1000 x 1000	42
GMR 800/400 ref	2875	1228 x 1228	50

Type designation

GMR x/y ref means a divider with a HV arm of x MΩ and for y kV DC.

Figure 2: Dimensional drawing



For further information please contact:

HIGHVOLT Prüftechnik Dresden GmbH
Marie-Curie-Strasse 10

D-01139 Dresden / Germany

Tel. +49 351 8425-648
Fax +49 351 8425-679
e-mail dresden@highvolt.de
website <http://www.highvolt.de>

or our local representative: