Data Sheet no. 4.8 / 8

HV Resistors and Resistive Dividers

Description HV resistors, Blocking Impedance:

High-voltage (HV) resistors are necessary components in the Module Systems. A wide range (from 0.25 kΩ to 5000 kΩ) of resistors in the grid 850 mm is available. They can be used for impulse voltage module systems as charging resistors, damping resistors or current limitation and partial discharge measurement. For partial discharge (PD) measurements, in AC voltage module systems a blocking impedance LS 150-1/40 (Data Sheet 1.35) and for PD measurements in DC voltage module systems a series resistor of 106 kΩ has been designed.

Technical Data:

Environmental conditions:

temperature 0 to 40° C
relative humidity ≤ 90 %
altitude ≤ 1000 m
indoor operation
(outdoor application and different parameters on request)

Type code:
R x resistor of x kΩ

type code		R 025	R 03	R 08 (R 08k)	R 6	R 45	R 106	R 280	R 460	R 5000
rated voltage	kV	140	140	140	140	140	140	140	140	140
resistance	kΩ	0.25	0.3	0.8	6.2	45	106	280	460	5000
PD - Intensity	pC	≤ 2								
dimensions l	mm	650	650	650 (482)	650	650	650	650	650	650
∅d	mm	40	40	100	40	100	100	105	105	170
weight	kg	5	5	5 (4)	5	5	5	5	5	10

Dimensional drawing:

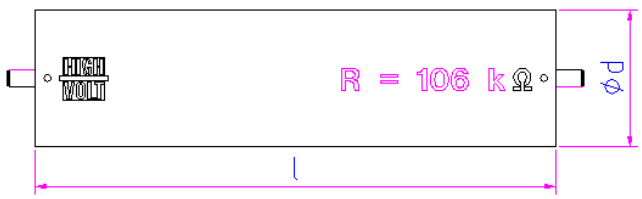

Fig. 1: R x

Description measuring resistor, resistive dividers:

For DC voltage measurement, a measuring resistor MR 250 and a measuring divider MRT 250 has been designed. Both types are PD-free measuring devices.
Housed in an insulating tube two resistors are switched in series to form the HV resistor itself. This mechanical design provides a linear voltage distribution along the HV resistor.
The measuring divider MRT 250 consists of the HV resistor itself and the low-voltage (LV) measuring branch witch is also housed in the insulating tube. A 10 m measuring cable with type N plug connector is included to the delivery scope of the measuring divider MRT 250.
In the Module System Resistive dividers are used to convert, the high DC voltages (up to 350 kV) to a level of typically below 1000 V. This output voltage can be measured by peak voltmeters type MU 17/ 18 (Data Sheet 5.56).

The Resistive Divider GMR 250/135 consists of the measuring divider MRT 250, the HV top electrode KE 1 and a base element FE 1 (Data Sheet 4.10).
With the components of the module System it is possible to built resistive dividers for higher voltages. For voltages up to 350 kV it is possible to switch one or two measuring resistors MR 250 and the measuring divider MRT 250 in series. With one MR 250 above the MRT 250 connected by an junction element KE 1 the divider GMR 500/270 will be formed.
With two measuring resistors MR 250 above the MRT 250 each one connected by an junction element KE 1 the divider GMR 750/350 is formed. As HV top electrode a junction element KE 2 is used. The base element FE 1 completed the dividers.

Technical Data:

Environmental conditions:

temperature 0 to 40° C
relative humidity ≤ 90 %
altitude ≤ 1000 m
indoor operation
(outdoor application and different parameters on request)

type code:

MR z	measuring resistor of z MΩ
MRT z	measuring divider resistor of z MΩ
GMR a/b	complete divider of a MΩ for b kV DC voltage

type code		**MR 250**	**MRT 250**	**GMR 250/135**	**GMR 500/270**	**GMR 750/350**
rated voltage	kV	135	135	135	270	350
divider ratio	ü		167.67	167.67	334.33	501
resistance	MΩ	250	251.5	251.5	501.5	751.5
components		MR 250	MRT 250	1 x FE 1, 1 x MRT 250, 1 x KE 1,	1 x FE 1, 1 x MR 250, 1 x MRT 250, 1 x KE 1, 1 x KE 2	1 x FE 1, 2 x MR 250, 1 x MRT 250, 2 x KE 1, 1 x KE 2
measuring uncertainty		< 2 %	< 2 %	< 2 %	< 2 %	< 2 %
weight	kg	10	10	17.6	31.1	42.4
dimensions (ød x l) (a x h)	mm	170 x 650	170 x 650	436 x 972	436 x 1990	436 x 2840

Dimensional drawing:

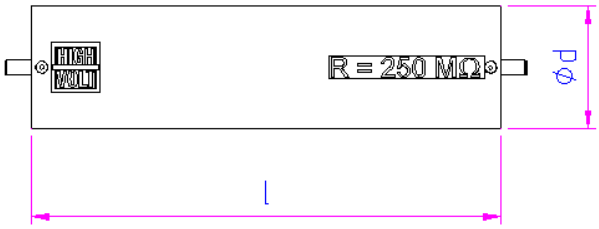

Fig. 2: MR 250

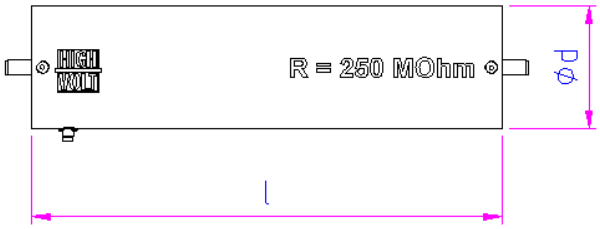

Fig. 3: MRT 250

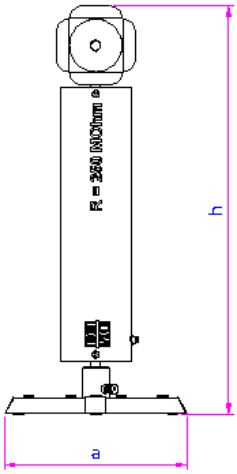

Fig. 4: GMR 250/135

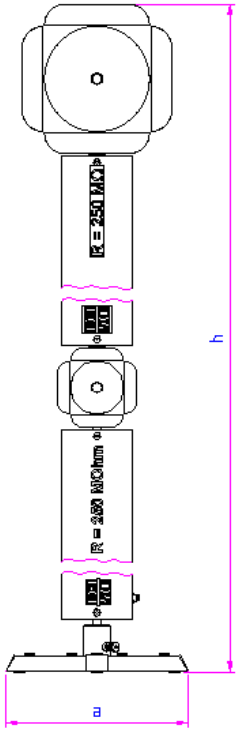

Fig. 5: GMR 500/270

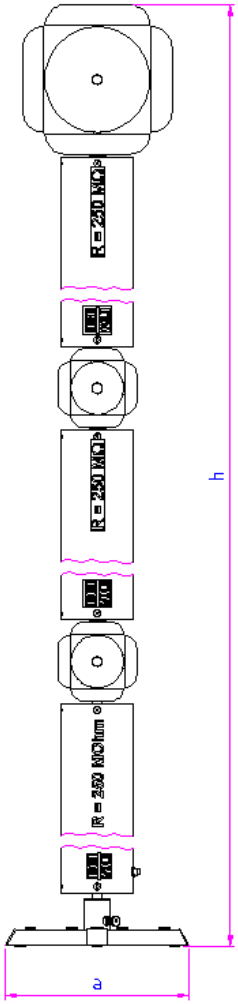

Fig. 6: GMR 750/350

For further information please contact:

or our local representative:

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
webseite http:\\www.highvolt.de