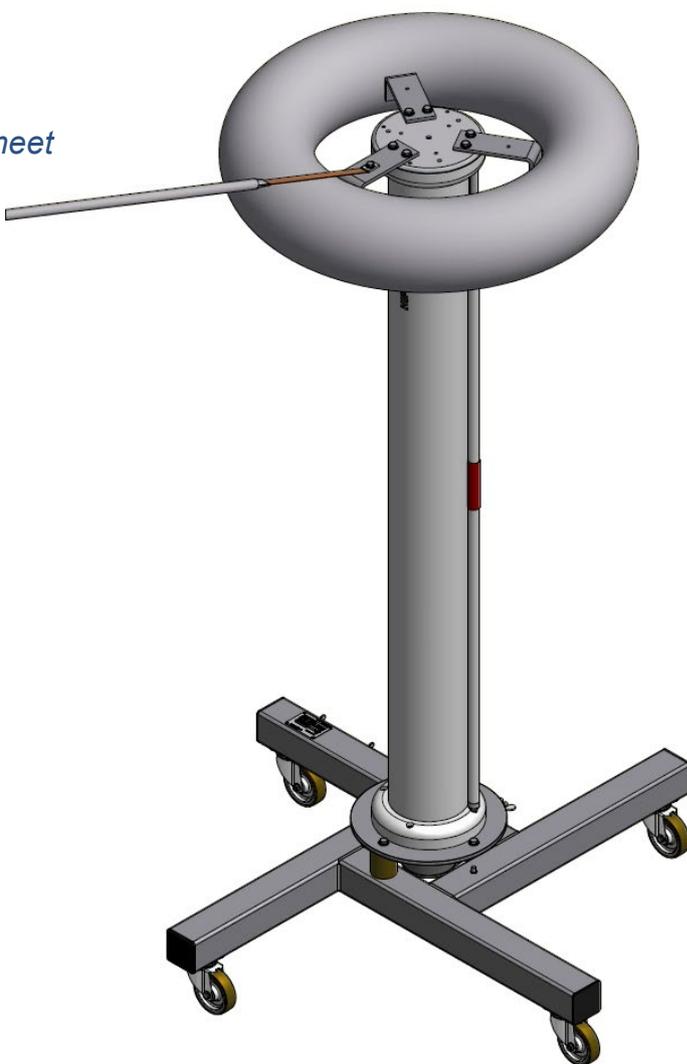




# RT-REF & RCZ-REF

Reference Universal Dividers

*Datasheet*



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Current and voltage – our passion

# General Description

Reference dividers are used for comparative measurements while calibrating measuring systems.

Reference dividers, type RCZ, are designed for the calibration of voltage dividers for AC, DC, full- and tail-chopped impulse voltages. They can be used for normal measurements as well.

Reference dividers, type R, are designed for the calibration of voltage dividers for full and front-chopped lightning impulse voltages. R dividers can be used for normal measurements too.

Reference dividers meet all requirements of IEC 60060-2, in particular those with respect to measuring accuracy and step response.

The active part of the high voltage unit of dividers type RCZ consists of one oil-filled capacitor assembly that is housed in a cylinder made of glass fibre reinforced epoxy resin. A series damping resistor is inserted between the capacitor elements of the unit and acts as a distributed internal resistive element. A further resistor is arranged in parallel with these RC elements. The active part of the high-voltage unit in the R 500 REF forms a low-inductance resistor consisting of CrNi wire wound on a core that is also housed in a glass fibre reinforced epoxy resin cylinder.

The RCZ 500 operates corona-free in its basic version and the reference dividers type R and RCZ

800 are equipped with a specific HV electrode to guarantee corona-free operation.

The secondary unit of the R dividers consists of measuring resistors with low inductance

mounted in a coaxial design inside a cylindrical housing. For the divider type RCZ additional capacitors are combined with the resistors in a similar arrangement. The secondary unit is fixed at the bottom of the divider and can be easily exchanged.

The reference dividers are erected on a four-arm base equipped with castors. They are designed for indoor operation.

The divider ratio is designed to achieve an output voltage of approx. 1400 V at rated lightning impulse voltage and thereby reduce the influence of electromagnetic interferences. Other ratios or an attenuator to match the input voltage of other measuring devices can be made available.



R 500 -REF

## Technical Data

Type	Rated impulse voltage		Rated AC voltage, 50/60 Hz, cont. duty	Rated DC voltage cont. duty	Primary capacitance	Primary resistor	Primary parallel resistor	Damping resistor
	LI	SI						
	kV	kV	kV	KV		Ω	MΩ	Ω
RCZ 500 REF	500	500	180 kV RMS	180 kV	500 pF ±10%	400	225	300
RCZ 800 REF	800	600	250 kV RMS	375 kV	500 pF ±10%	400	900	300
R 500 REF	500	--	--	--	--	5000	--	300

	RCZ 500 REF	RCZ 800 REF	RT 500 REF
<b>Ratio for impulse voltages</b>	500 : 1.4 *	800 : 1.4 *	500 : 1.4 *
<b>Ratio of AC voltages 50 / 60 Hz</b>	180 : 0.14 **	250 : 0.19 **	--
<b>Ratio of DC voltages</b>	180 : 0.14 **	375 : 0.28 **	--
<b>SI, AC, DC voltage</b>	Measurement uncertainty $\leq \pm 1\%$		--
<b>Front-chopped lightning impulse voltage</b>	Measurement uncertainty $\leq \pm 3\%$		
<b>LI full &amp; tail-chopped voltage</b>	Measurement uncertainty $\leq \pm 1\%$		
<b>Stability of the ratio</b>	$\leq \pm 1\%$		
<b>Relative humidity</b>	<95% non-condensing		
<b>Reference temperature</b>	+10°C ... +30°C		
<b>Storage temperature</b>	-20°C ... +50°C		
<b>Step response</b>	The unit step response of the dividers is adjusted to meet the requirements of IEC 60060-2 (2010).		
<b>Instrument impedance</b>	Optimised for instrument input impedances of 1M $\Omega$ / 30 pF.		
<b>Scope of supply</b>	High voltage unit; Short circuit bar; External damping resistor; Mobile base frame; Measuring cable, HV connection & Record of performance		
<b>Scope of supply</b>	2 Secondary parts for impulse voltages & For AC - DC voltages	2 Secondary parts for impulse voltage & For AC-DC voltages	Secondary part for lightning impulse voltages; Termination resistor 75 $\Omega$

## Technical Data – Physical Dimensions

Type	Height H m	Base frame G m	Electrode type d1/D1	Net weight kg	Shipping volume m <sup>3</sup>	Min. clearance to walls and ceiling m
RCZ 500 REF	2	1.2	--	170	4.0	2.0
RCZ 800 REF	2.62	1.5	R 250/1100	210	8.0	2.6
R 500 REF	1.9	0.8	R 40/890	100	2.0	1.9

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