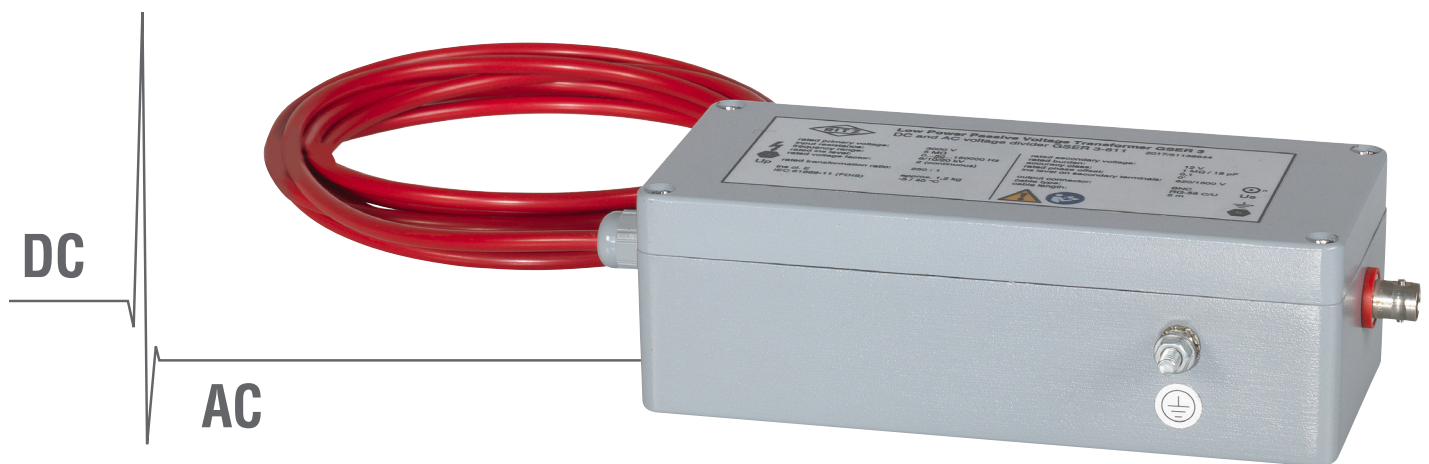




# LOW-POWER PASSIVE VOLTAGE TRANSFORMER GSER 3

*DC AND AC VOLTAGE DIVIDER UP TO 6 kV*



- **Medium Voltage Applications**
- **Direct, Alternating and Mixed Voltages**
- **Wide Frequency Range**



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## FEATURES

- Passive network - no auxiliary power necessary
- High electromagnetic compatibility (EMC)
- High overload capability
- Low temperature drift
- Small size and weight

## APPLICATION

The low-power passive voltage transformer GSER 3 measures direct, alternating and mixed voltages for e.g. motor management, power quality analysis and protection purposes. Its area of application are indoor medium voltage installations where it can be used as an accessory for power quality analyzers. Due to its passive network, it is independent of any auxiliary power supply. The GSER 3 is an alternative to conventional voltage transformers once the primary voltage contains DC components and/or higher frequencies.

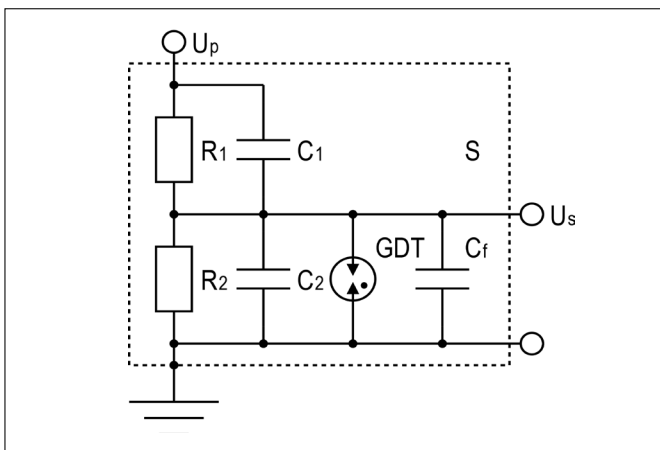
## DESCRIPTION

The GSER 3 consists of a high voltage resistive-capacitive divider ( $R_1, R_2 / C_1, C_2$ ), an electromagnetic shielding (S) and a gas discharge tube (GDT) as surge protector. The voltage divider transforms the primary voltage  $U_p$  to a low voltage  $U_s$ , which can be processed by the secondary system. Parasitic capacitances resulting from the mechanical design of the sensor, the output cable and the input of the secondary system are compensated ( $C_f$ ), resulting in a wide frequency range.

The electromagnetic shielding ensures high EMC and makes the GSER 3 suitable for use in environments with heavy external interference and disturbance.

The GDT protects the secondary tap against high voltages, since there is no galvanic isolation between the primary and secondary terminal.

## SCHEMATIC CIRCUIT DIAGRAM GSER 3



## TECHNICAL DATA

### General

Type	GSER 3	
Application	Motor management, power quality analysis, protection purposes	
Design	Cast resin insulated	
Functional principle	Resistive-capacitive voltage divider	
Standard	IEC 61869-11	

### Electrical Data

#### Input

Rated primary voltage	$U_{pr}$	$5/\sqrt{3}$ kV <sup>(1)</sup>
Rated voltage factor	$F_v$	2 (cont.)
Highest voltage for equipment	$U_m$	6 kV
Primary capacitance ( $\pm 10\%$ )	$C_1$	136 pF
Primary resistance ( $\pm 5\%$ )	$R_1$	5 M $\Omega$
Rated frequency	$f_r$	50 / 60 Hz <sup>(1)</sup>

#### Output

Rated secondary voltage	$U_{sr}$	$3,25/\sqrt{3}$ V <sup>(1)</sup>
Rated burden	$R_{br}$	2 M $\Omega$    50 pF <sup>(1)(2)</sup>

#### Accuracy

Accuracy class	0,1
Accuracy up to 150 kHz	$\pm 5\%$
Rated phase offset	$\phi_{or}$ 0'

#### Primary Terminal

Connector type	n/a
Cable type	Unipolar, unshielded high voltage cable
Cable length	3 m <sup>(1)</sup>

#### Secondary Terminal

Connector type	BNC
Cable type	RG 58 C/U coaxial cable 50 $\Omega$ <sup>(2)</sup>
Cable length	5 m <sup>(1)(2)</sup>

#### Insulation Level

Power frequency withstand	10 kV (50 Hz, 1 min)
Lightning impulse withstand	20 kV (1,2/50 $\mu$ s)

#### Service Conditions

Environment	Indoor
Operating temperature	-5–40 °C
Storage temperature	-25–85 °C

#### Mechanical Data

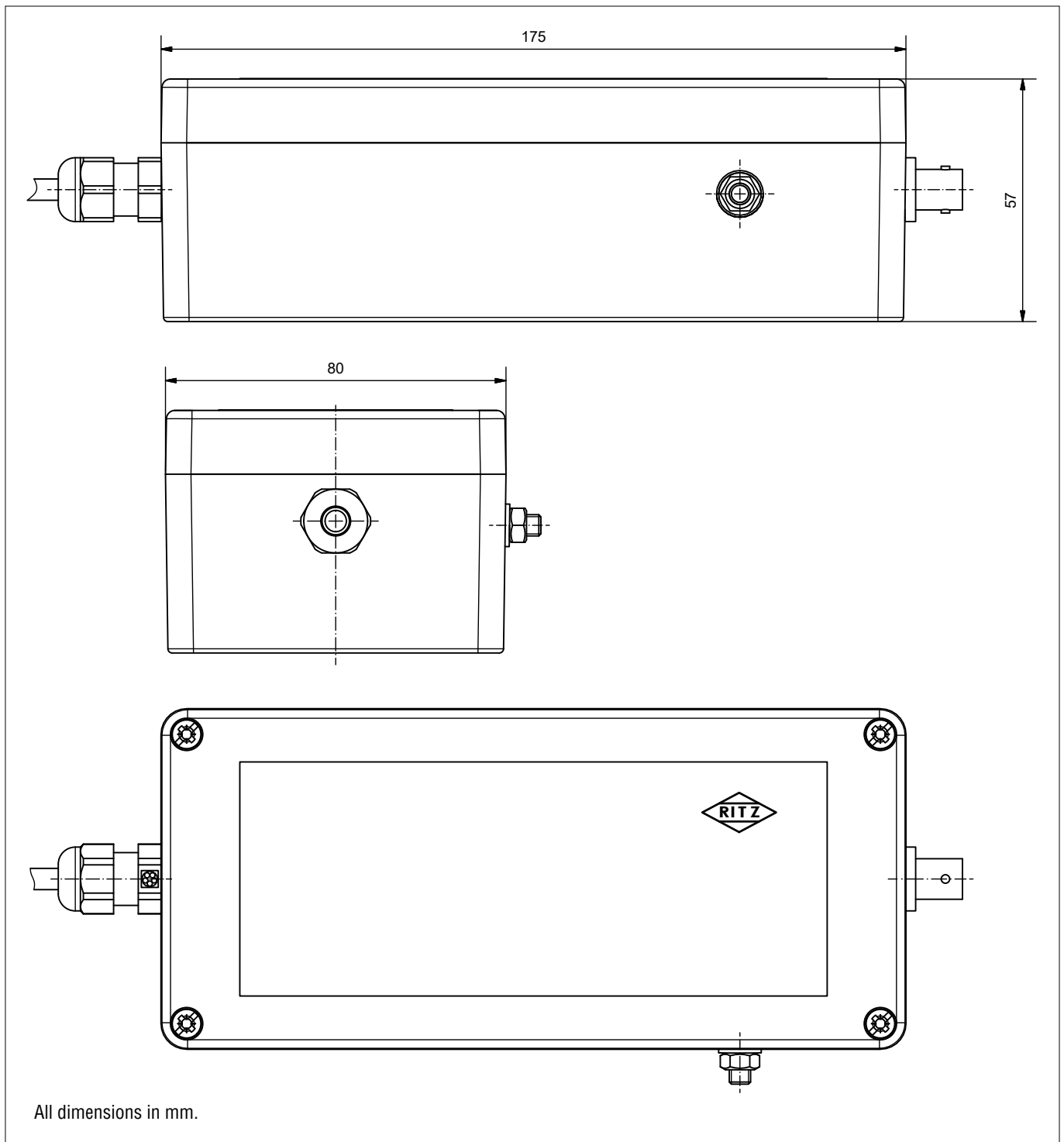
Creepage distance	n/a
Flashover distance	n/a
Insulator color	n/a
Size (L x W x H)	175 x 80 x 57 mm
Weight	approx. 1,2 kg

#### NOTES:

(1) Example value, other values on request

(2) Burden and output cable capacitance belong to the individual voltage transformer adjustment. Output cable type and length must not differ from the specifications otherwise the accuracy changes. The output cable is not part of the GSER 3. If desired, it can be ordered in addition.

## OUTLINE DRAWING



### SOLUTIONS WITH ACTIVE ELECTRONICS

Electronic Voltage Transformer EGIW x64	DC and AC Measuring System with Optical Data Transmission
Electronic Voltage Transformer EGIW x85	DC and AC Voltage Divider with Isolation Amplifier
Electronic Voltage Transformer EVBA x06	DC and AC Voltage Divider with Buffer Amplifier
Buffer Amplifier EVBA 006	Add-On for Existing Low-Power Passive Voltage Transformers

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