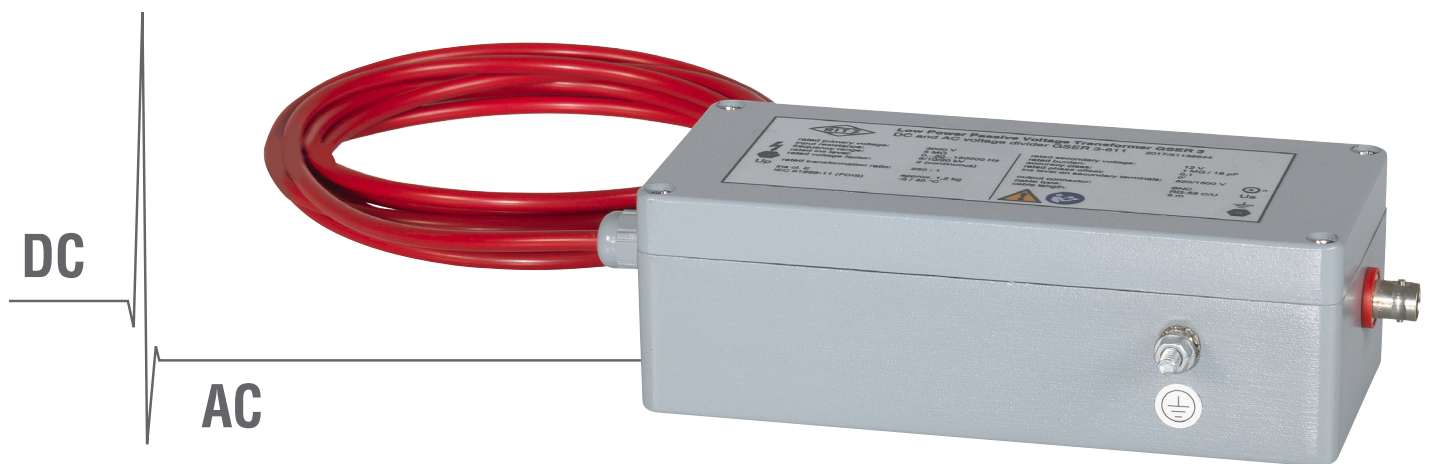




# LOW POWER PASSIVE VOLTAGE TRANSFORMER GSER 3

*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

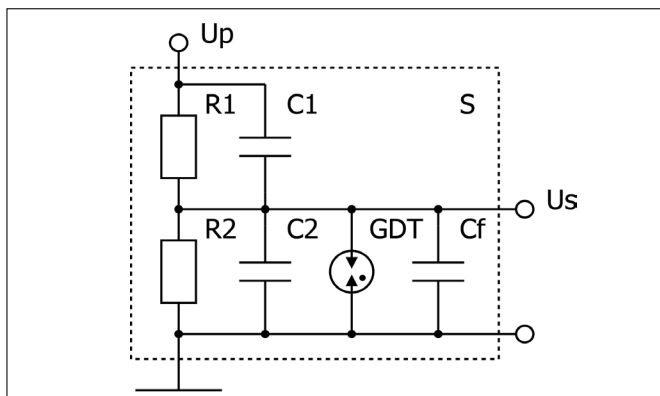
The GSER 3 consists of a high voltage resistive/capacitive divider ( $R_1, R_2 / C_1, C_2$ ), an electromagnetic shielding (S) and a surge protector (GDT).

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 gas discharge tube (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 @ $f_R$ | 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      |
| Temperature class   | -5/40       |
| Storage temperature | -25 – 85 °C |

#### Mechanical Data

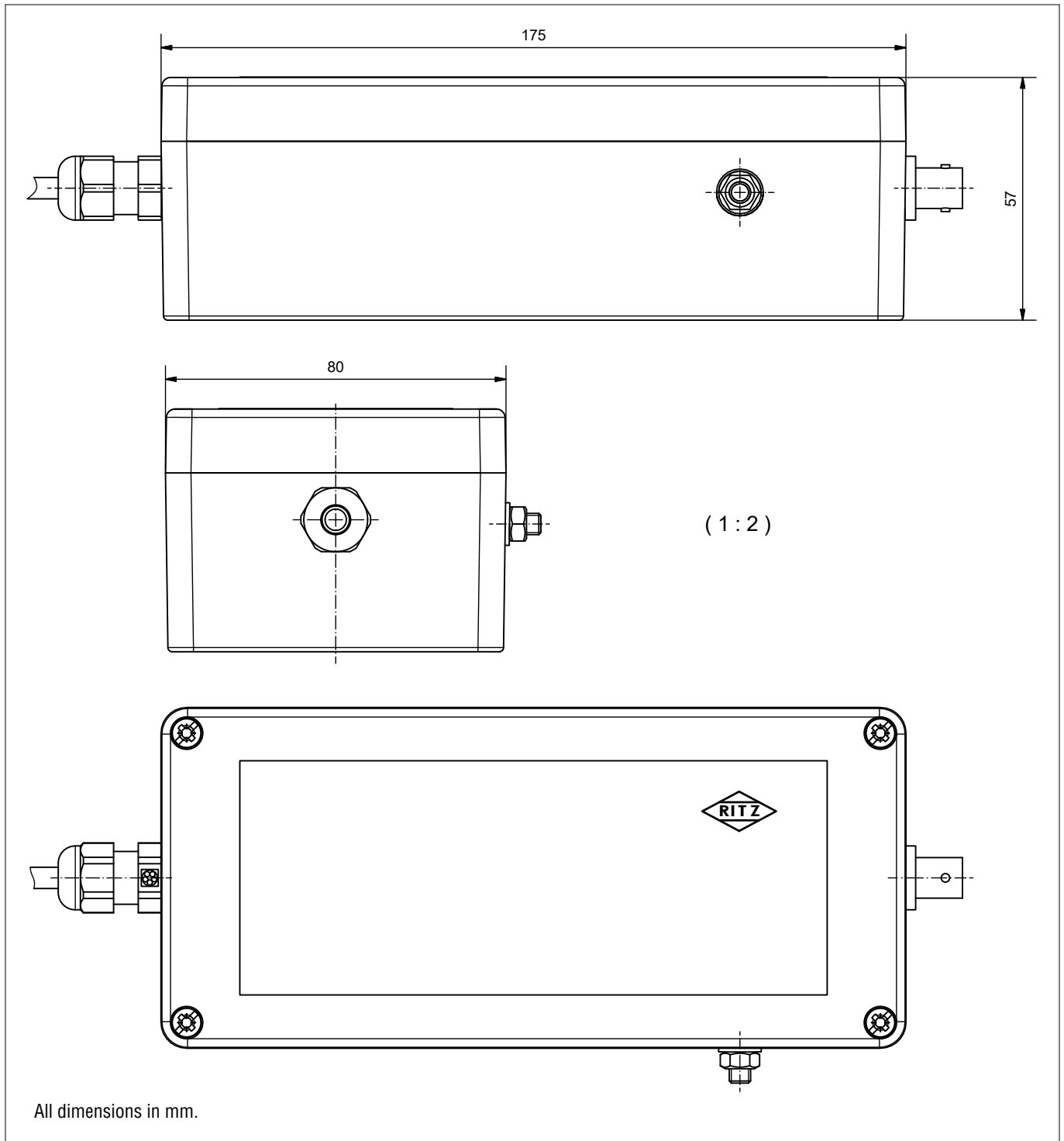
|                    |                  |
|--------------------|------------------|
| Creepage distance  | n/a              |
| Flashover distance | n/a              |
| Insulator color    | n/a              |
| Size (L x W x H)   | 175 x 80 x 57 mm |
| Weight, approx.    | 1,2 kg           |

#### 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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