

INGEPAC

SR GR

Voltage sensor
for gas-insulated switchgear



INGEPAC™ GR is a voltage sensor based on **resistive dividers** for **gas-insulated switchgear** up to 24 kV. It consists of one part designed to be inserted into a type C symmetrical T connector, which contains a high-voltage resistor, and a low-voltage part for connection to the measurement equipment using a **BNC connector** and grounding.

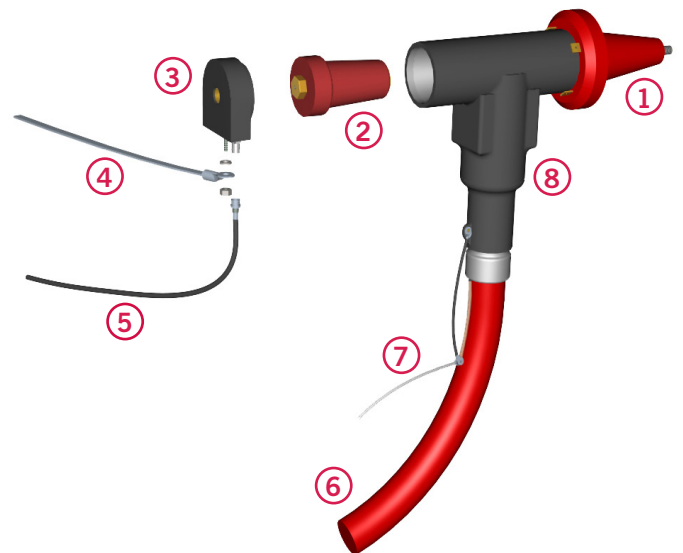
The sensor has a **10,000:1** transformation ratio and complies with the requirements defined in the **IEC 61869-1:2009** and **IEC 61869-3:2011** standards. Every unit is individually tested to ensure its accuracy.

Voltage metering for gas switchgear

Applications:

- Protection
- Medium-voltage line supervision
- Metering and power quality

- ① Bushing
- ② High voltage part
- ③ Low voltage box
- ④ Cable for sensor's earth connection
- ⑤ Coaxial cable for the sensor's connection to the measurement equipment
- ⑥ High voltage cable
- ⑦ Cable for earth connection of the type C connector and the outer mesh of the shielded unipolar high voltage cable
- ⑧ Type C connector



Type tests

· Accuracy in module and argument	±1% / ±1 ° at -10 °C, +20 °C and +60 °C at 50 Hz ±1.5% / ±1.5 ° at -10 °C, +20 °C and +60 °C at 50 Hz
· Industrial frequency withstand voltage (50 KV)	50 KV
· Lightning impulse withstand voltage 125 KV	125 KV
· Partial discharges (UNE-EN 61869-1)	<50 pC for 1,2 • 24 kV <20 pC for 1,2 • 24 kV / √3
· Secondary side overvoltage protection tests	15 A @ 1 S withstand current test

Routine tests

· Accuracy in module and argument	± 1% / ± 1° at ambient temperature (20 °C ±5 °C)
· Partial discharges test (UNE-EN 61869-1)	<50 pC for 1,2 • 24 kV
· Industrial frequency withstand voltage (50 KV)	<20pC for 1,2 • 24 kV / √3

General features

- Accuracy in module: ±1% for the defined temperature range
- Accuracy in argument: ±1 ° for the defined temperature range
- Climatic conditions -10 °C to 60 °C
- Transformation ratio: 10,000:1
- Connection type: phase-ground
- Lifetime: 40 years

Electrical characteristics

- Possible primary voltages assigned: 11 kV, 13.2 kV, 15 kV, 20 kV
- Grid frequency: 50/60 Hz
- Isolation voltage (Um): 24 KV
- Overvoltage protection: gas discharger
- Power consumed: <3 W
- Total length: 147 ±2 mm

Mechanical characteristics

- Protection level in primary side: IP65
- Primary side material: resin
- Low voltage connector: BNC type
- Earthing terminal: stud bolt and M6 screw
- Connection format with MV:
 - Compatible with T terminal and DIN C type connectable bushing
 - M16 primary terminal connection and length less than 31 mm
- HV block maximum tightening torque: 60 Nm
- Maximum tightening torque between detachable parts: 10 Nm
- Earthing connection terminal tightening torque: 5.5 Nm
- Weight: 900 ±20 g
- Screw material: A2 steel, hardness 70