

PD-SGS

BAUR handheld online PD detector



Rapid identification of PD activities in switchgear and cable accessories

- Initial rapid condition evaluation of switchgear and cable accessories during mains operation
- Ideal for quick checks of MV and HV switchgear
- Two integrated sensors:
TEV sensor for measuring PD on switchgear surfaces
Acoustic sensor for measuring PD within switchgear
- Greater safety for test personnel – switchgear tested for safety risks before starting work

The BAUR handheld online PD detector PD-SGS is used to conduct rapid initial tests for PD activities on live switchgear. Potential weak points are immediately signalled acoustically and numerically. The user is also provided with recommendations for how to deal with the switchgear under test by means of a traffic light system. This makes it possible to quickly evaluate the condition of the entire substation in order to use the measurement results to effectively plan cost-efficient further investigations or immediate maintenance.

The integrated capacitive TEV and acoustic sensors in the PD-SGS rapidly and reliably identify both the internal high-frequency switchgear partial discharges and the partial discharges of the surfaces which arise as a result of tracking on the surfaces, or due to corona discharges. The BAUR handheld detector has a connector for a parabolic aerial for examining difficult-to-reach system components.

As safety equipment for daily use, the PD-SGS is used by test personnel to conduct a quick safety check to determine whether the work area around the switchgear is safe.

Functions

- Test whether the switchgear is PD-free
- Test whether the extent of the PD activities requires further examination such as online PD spot testing or offline diagnostic testing
- Test whether the extent of the PD activities requires immediate maintenance work
- Test whether the work area around the switchgear is safe

Features

- Measurement of PD which spreads across the surfaces of switchgear by determining the transient earth voltage (TEV)
- Detection of PD activities on switchgear components, such as busbars and cable accessories by means of ultrasound location
- Highly sensitive acoustic sensor for detection of ultrasound emissions
- Automatic detection of background interference signals
- Acoustic and numerical display of the ultrasound and TEV measurement results
- Acoustic output via headphone connection or integrated loudspeaker
- Two display modes:
 - Level (real-time signal level)
 - Trend (PD activity over a 5-second period)
- Bright, legible OLED display with dB indicator
- Very user-friendly handheld device with minimum training required
- Ergonomic and compact design
- Robust plastic housing with a protective rubber sleeve around the sensors
- Long-life rechargeable battery for a full day's work
- Standard delivery includes function tester

TEV - PD detection

PD activities within switchgear enclosed in metal induct small voltage pulses in the surface of the metal housing which are known as transient earth voltages (TEV). The transient earth voltages run along the housing surface to the outer side of the metal housing where they can be detected by a capacitive TEV sensor.

Technical data

TEV measurement	
Sensor	Capacitive
Measurement range	0 – 80 dBmV
Frequency range	20 MHz – 200 MHz
Resolution	1 dB
Accuracy	±1 dB
Ultrasound measurement	
Measurement range	-6 to +70 dBμV
Resolution	1 dB
Accuracy	±1 dB
Convertor sensitivity	-65 dB (0 dB = 1 V/μbar _{rms} sound pressure level)
Convertor average frequency	40 kHz ±1 kHz
Hardware	
Housing	Plastic injection-moulded housing
Operating controls	2 keys (membrane keyboard) 1 trigger button
Connections	Power supply Headphones External acoustic sensor
Display	High-resolution OLED display with strong contrast, 6 display LEDs (PD level)

Standard delivery includes

- BAUR DP-SGS handheld online PD detector
- PD-FT function tester
- Stereo headphones
- Main charger incl. country-specific adapter (UK, Europe, Australia, USA); DC 5 V / 3.0 A
- Transport case
- Micro car charger; DC 5 V / 2.1 A
- Charge cable incl. USB plug
- User manual

Options

- Parabolic reflector incl. carrying bag
- Laser pointer extension kit

Acoustic emission - PD detection

Faults on the surface of high-voltage isolators tend to suffer from a phenomenon known as “tracking”. Tracking causes carbon deposits to build up over time which later lead to a flashover which in turn causes the insulation to fail. The highly sensitive PD-SGS acoustic sensor makes it possible to identify ultrasound emissions caused by tracking and corona discharges before insulation faults occur.

General	
Rechargeable battery	Lithium-ion rechargeable battery 2.2 Ah; DC 3.75 V
Battery life	Approx. 12 h
Main Charger	
Nominal voltage	AC 90 – 264 V (50/60 Hz)
Output voltage	DC 5 V / 3.0 A
Charging time	Approx. 2 h
Ambient temperature (operational)	-5°C to +55°C
Humidity	≤90%, non-condensing
Degree of protection	IP 54
Dimensions (W x H x D)	Approx. 90 x 190 x 65 mm
Weight	Approx. 300 g
Safety and EMC	CE-compliant in accordance with Low Voltage Directive (2014/35/EU) and EMC Directive (2014/30/EU)