

PD-SG1

Online Portable Switchgear PD Locator



PD-SG1 is used to detect, verify and locate PD activity in switchgear. The unit offers both TEV detection for internal discharge and ultrasonic detection for surface tracking and corona.

Key Features

- Ultrasonic detection of surface PD activity. Displayed on the LCD screen as dB reading, as well as audible signals through headphones.
- Measurement of TEV signals generated by internal PD
- PRPD Mode for viewing PD pattern in power cycle, allowing for the recognition of noise
- Precedence Mode for location of PD within the assets under test



PD Detection

Partial Discharge activity inside metal clad high voltage plant induces small voltage impulses TEV (Transient Earth Voltages) on the surface of the metal cladding. TEVs travel around the cladding surface to the outside of the switchgear panel where they can be picked up externally using CC-TEV transducers.

The PD-SG1 has three modes: **Level Mode**, used to detect presence of both TEV and ultrasonic activity; **Cycle Mode**, Phase Resolved Partial Discharge Display (PRPD) enables the user to verify PD activity is genuine and not from electrical noise interference before taking further remedial action; **Precedence Mode**, dual sensor precedence allows users to pin-point the source of PD activity.



The Benefits

- **Detect MV and HV problems** – before they present tangible risk of failure
- **Personnel Safety Device** – ensure the substation is clear of PD before conducting work
- **Locate PD Source** – precedence with pico second timing accurately locates PD within Switchgear
- **PRPD** – PRPD display allows user to distinguish between PD and Noise
- **Hear the PD** – only instrument available that allows the user to hear both ultrasonic and TEV PD activity



Technical Specification

PD-SG1

TEV Measurements	
Sensor	Capacitive
Measurement Range	0 to 80 dBmV
Resolution	1 dB
Accuracy	±1 dB
Noise Rejection	Yes, with PRPD
Ultrasonic Measurements	
Measurement Range	-6dBμV to + 70dBμV
Resolution	1 dB
Accuracy	±1 dB
Transducer Sensitivity	-65dB (0dB = 1volt/μbar RMS SPL)
Transducer Centre Frequency	40 kHz
High Frequency CT (HFCT)	
Measurement Range	0 to 2,000,000pC
Transfer Function	5.0V/A
Frequency	50kHz to 20 MHz
Precedence	
Time Resolution	240 pico-seconds
Distance Resolution	80mm
Power Cycle Mode	
Frequency	50/60Hz
Display Modes	Live & Infinite Persistence
Linear Range	Min 0 to 20mV, Max 0 to 14V
dB Range	0 to 80dBmV
Hardware	
Enclosure	Tough Aluminium case, with rubber protective side panels
Control	Membrane keypad
Connectors	Power, Headphones and External TEV and Acoustic Sensor
Display	Back-lit LCD with precedence LEDs
Operating Environment	
Temperature	5°C to 55°C
Humidity	≤90% RH non-condensing
IP Rating	54
Dimensions	
Unit Size	210 x 90 x 65 mm
Unit Weight	1.8 kg
Kit Size	565 x 340 x 230 mm
Kit Weight	10.25 kg
Power	
Internal Battery	Lithium Ion, 12V, 4Ah, 48Wh
Operating Time Approx.	8 hours
Battery Charger	
Rated Voltage	100 to 250 VAC, 512V, 1.65A
Frequency	47 to 63Hz
Country Adapters	UK, EU, Australia, USA
Charge time	4 hours
Safety and EMC	CE-compliant in accordance with Low Voltage Directive (2014/35/EU) and EMC Directive (2014/30/EU)

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The PD-SG1 kit contains

- PD-SG1
- Headphones
- Function Tester
- Sync Transmitter
- 2x CC-TEV PD Sensor
- AA Ultrasonic PD Sensor
- HFCT 48 PD Sensor
- AA Ultrasonic Probe
- Mains Charger
- Hard wearing PELI™ case (suitable for hold luggage)

Designed and manufactured in the United Kingdom