PD-SG1

Online Portable Switchgear PD Locator

PD-SG1 Is designed and manufactured by IPEC Ltd, 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

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.

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 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

Measurements	
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	4.8V/A
Frequency	100 kHz to 13 MHz
Precedence	
Time Resolution Distance Resolution	240 pico-seconds 85mm
Power Cycle Mode	
Frequency	50/60Hz
Display Modes	Live & Infinite Persistence
Linear Range	Min 0 to 20mV, Max 0 to 20V
dB Range	0 to 60dBmV
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	
Operating Temperature	-10°C to 60°C
Humidity	0 - 95% R.H 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	
Charging Temperature	0°C to 45°C
Rated Voltage	100 to 250 VAC, 12.6V, 1.65A
Frequency	50 to 60Hz
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)
Designed and manufactured in the United Kingdom	

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)