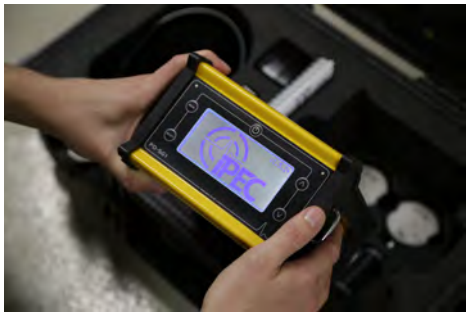
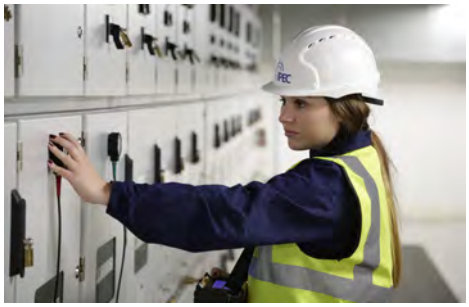
PD-SG1

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.





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 TEV transducers.

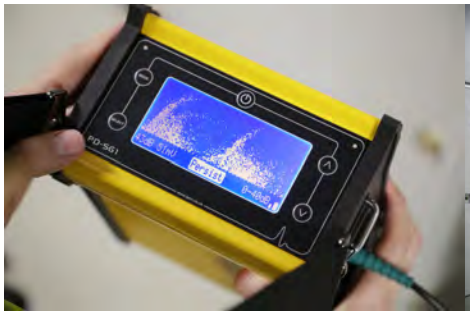
The PD-SG1 has three modes: **Level Mode**, used to detect presence of both TEV and ultrasonic activity; **Cycle Mode**, Phase Resolved Partial Discharge Display (PRPD) enables the user to verify PD activity is genuine and not from electrical noise interference before taking further remedial action;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

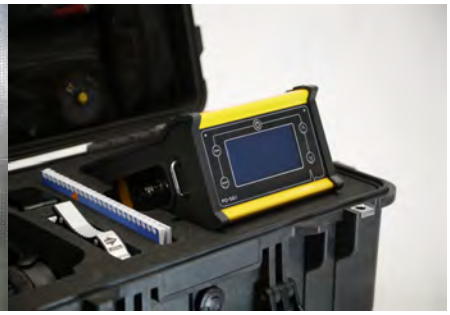
Key Features

- Ultrasonic detection of surface PD activity. Displayed on the LCD screen as dB
- 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 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

TEV Measurements	
Measurement Range	0 to 80 dBmV
Resolution	1dB (Accuracy ±1dB)
Noise Rejection	Yes, with PRPD

Ultrasonic Measurements	
Measurement Range	-6dBµV to + 70dBµV
Measurement Range	1 dB (Accuracy ±1 dB)
Transducer Sensitivity	-65dB (0dB = 1volt/µbar RMS SPL)
Transducer Centre Frequency	40 kHz

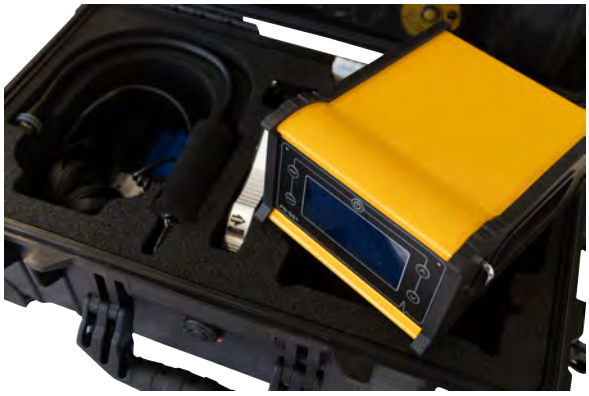
HFCT Measurements	
Measurement Range	0 to 2,000,000pC
Transfer Function	4.8V/A
Frequency	100 kHz to 13 MHz

Precedence	
Time Resolution	240 pico-seconds
Distance Resolution	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



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

Dimensions	
Unit Size	210 x 90 x 65 mm
Unit Weight	1.8 kg
Kit Size	270 x 246 x 124 mm
Kit Weight	1.8 kg

Power	
Internal Battery	Lithium Ion, 3.75V, 2.2Ah, 8.25Wh
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
Charge time approx.	4 hours

Compliance

- CE-compliant in accordance with EMC Directive (2014/30/EU)
- IEC 62478: High voltage test techniques - Measurement of partial discharges by electromagnetic and acoustic methods

Designed and manufactured in the United Kingdom

Instrument