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# PD-SGS On-line PD Detection of HV Assets



#### PD Detection

#### Switchgear – Air Insulated (AIS)

Partial Discharge activity inside metal clad high voltage plant induces small voltage impulses called Transient Earth Voltages on the surface of the metal panels. TEVs travel around the surface to the outside of the switchgear, where they can be picked up externally using the PD Detector.

Defects on the surface of high voltage insulators are prone to a phenomenon known as surface tracking. Tracking causes carbon deposits that build up over time, ultimately leading to flashover and insulation failure. The PD Detector is highly sensitive to the ultrasonic emissions produced by tracking and enable the onset to be detected before insulation failure.

#### Switchgear – Gas Insulated (GIS)

PD-565

**Compatible Sensors & Asset Types** 

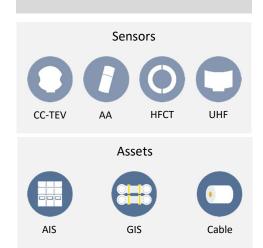
IPEC's UHF (Ultra High Frequency) sensor is used to detect PD in EHV cable terminations, GIS (Gas Insulated Switchgear), GIL (Gas Insulated transmission Lines) & GIT (Gas Insulated Transformers). The sensors pick up signals in the UHF range (200MHz-2.0GHz) and are mounted against the insulating barrier spacers that separate components of the HV asset.

#### Cable

Partial discharge activity in solid high voltage insulation induces small high frequency currents in the earth conductor of the electrical system. These impulses travel along the equipment earth to the substation earth. Using a high frequency current transformer, they can be detected as they pass through the CT.

#### The Benefits

- Advanced Noise Rejection System detects PD in higher noise environments, reducing the possibility false positives
- **PRPD** PRPD display allows user to distinguish between PD and Noise
- **Rapidly survey whole substation** detects MV and HV problems before developing into tangible failure risks





## **Technical Specification**

#### PD-SGS

-D-303		
<b>TEV Measurements</b>		
Measurement Range	0 to 80dBmV	www.ipec.co.uk
Measurement Bandwidth	3 to 200MHz (with FM Bandstop)	
Resolution	1dB (Accuracy ±1dB)	
Noise Rejection	Yes, with PRPD	
Ultrasonic Measurements		
Measurement Range	-6dBμV to + 68dBμV	- Dan
Resolution	1 dB (Accuracy ±1 dB)	
Transducer Sensitivity	-65dB (OdB = $1$ volt/µbar RMS SPL)	942 ×
Transducer Centre Frequency	40 kHz	
HFCT Measurements		
Measurement Range	0 to 50,000pC	
Measurement Bandwidth	100kHz to 70MHz	
Resolution	5pC (Accuracy ±5pC)	
UHF Measurements		
Measurement Range	OdB-75dB	
Resolution	1dB (Accuracy ±1dB)	PD-SGS kit contains
Bandwidth	200MHz – 2.0GHz	PD-SGS
Hardware	2001112 200112	Headphones
Enclosure	Injection moulded plastic case	Function Tester
Control	Membrane keypad	Mains Charger
Connectors	Power, Headphones and optional sensors	0
Display	OLED with level LEDs, dB, PRPD, Noise	USB Charger
Operating Environment		Hard wearing PELI™ case Optional Accessories
Operating Temperature	0°C to 60°C	•
		HFCT Sensor
Humidity	0 - 95% RH non-condensing	UHF Sensor
IP Rating	54	
Dimensions		
Unit Size	190 x 90 x 55 mm	Level HFCT
Unit Weight	210 g	62PC
Kit Size	295 x 340 x 145 mm	
Kit Weight	2.9 kg	
Power		6.98
Internal Battery	Lithium Ion, 3.75V, 2.2Ah, 8.25Wh	
Operating Time Approx.	8 hours	
Battery Charger		Level mode - HFCT
Charging Temperature	0°C to 45°C	-
Rated Voltage	100 to 250 VAC, 5V, 3A	
Frequency	47 to 63Hz	
Country Adapters	UK, EU, Australia, USA	
Charge time	3 hours	
Compliance	CE-compliant in accordance with EMC	in the seamer
	Directive (2014/30/EU)	and a second
		11dB /v TEV 10-40dB
Designed and manufactured in the United Kingdom		PRPD mode - TEV

PRPD mode - TEV

