

# PDS200

RFI Surveyor with EMI Diagnostics

**FIND INSULATION AND OTHER SYSTEM DEFECTS IN MOTORS, GENERATORS, TRANSFORMERS, CABLE TERMINATIONS AND OTHER SUBSTATION HV COMPONENTS**

Find both faulty or degraded insulation from substation high voltage components, motors and generators, and system defects associated with rotating machines with the PDS200 Surveying tool. The PDS200 Surveyor measures and analyses the radio frequency (RFI) and the lower frequency electromagnetic (EMI) emissions that are associated with these defects. EMI analysis can discriminate between different defects and discharge sources, and monitors not only activity within e.g. a generator stator winding, but mechanical defects such as bearing wear and shaft eccentricity as well. The presence of partial discharge (PD) is a precursor to complete insulation failure or an early indication of other electrical and mechanical defects. It is important to detect and trend these discharge phenomena from an early stage and follow the development of the problem. The PDS200 allows the operator to quickly make a system wide survey thus making it an ideal tool for utilities that desire a System Diagnostics approach and early warning of incipient failures.

## FEATURES

- Easy to use, handheld device with large display screen
- Captures the electromagnetic emissions in the RFI and EMI spectrum and displays a "fingerprint" of the defect causing the radiation
- User selection of measurement parameters maximises sensitivity to emissions
- Signal capture may be synchronised to the power cycle to facilitate phase resolved PD analysis
- Connection to sensing devices such as HFCT's, probes and directional antenna for different applications
- Synchronous sampling and display of detector outputs provides discrimination of telecommunication carriers, noise and discharge phenomena
- Logging of key parameters for short/medium term trending of emissions

## BENEFITS

- Quickly perform surveys without costly outages
- No physical connections to the unit under test; detection method is truly non-invasive
- Safe, effective method to detect insulation and mechanical defects
- Provides immediate trending of measurements
- The software enables the operator to record and analyze the emissions and make decisions for further actions
- Convenient, simple tool for routine substation and motor/generator surveys together with other methods such as infrared scanning and vibration monitoring



## PDS200 TECHNICAL SPECIFICATIONS

### DESCRIPTION

The PDS200 is a dual function instrument capable of analysing both EMI and RFI emissions from insulation and system defects using a variety of sensors. During a survey, the three presentation and analysis modes Spectrum Analyzer, Time Resolved, and Level Meter provide different ways to present and trend a frequency 'signature' of the defect and provide the analysis to fingerprint the defect. User selection of the measurement parameters maximise sensitivity to emissions or follow the spirit of the CISPR-16 standard to ensure compatibility of measurement and results interpretation across different EMI measurement instruments.

### DETECTION AND SWEEP FUNCTIONS

Detector Modes	Peak, Average, Synchronous Peak and Average Mode (S.P.A.M.), Quasi-Peak, Synchronous Peak and Quasi Peak (S.P.Q.P.)
Sweep Processing	Continuous, Counted and Single Mode

### FREQUENCY

	EMI	RFI
Frequency Range	50 kHz - 50 MHz	50MHz - 1000 MHz
Resolution Bandwidth (RBW)	9kHz / 120 kHz	120 kHz / 6 MHz
Accuracy	± 10 kHz	± 100 kHz

### AMPLITUDE

Display units	MHz/dBm or Mhz/dBµV
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## ORDERING INFORMATION

### PRODUCT

**Doble PDS200**  
Complete with transport case, antennae (telescopic and whip), battery charger, neck strap and wireless synchronization adapter. Software is included.

### ACCESSORIES

#### HFCT

to scan for electrical pulses (f<200 MHz) as evidence for partial discharge to earth. Can be clipped on an apparatus ground wire (transformers, dead tank breakers) and connected to a PDS200.

#### Directional Antenna

provides more specific location of RFI sources. With this combination you not only determine the presence of PD sources, you can also establish the direction of the emissions.

#### UHF Drain Valve Probe DN50/DN80

to be inserted into the suspect transformer to find RFI as evidence of partial discharge.

Transient Earth Voltage (TEV) capacitive probe to find PD in metal-clad switchgear (GIS).

### POWER SUPPLY

External Supply	External DC adapter, 12V @ 2A
DC Adapter	85-264 VAC (47-63 Hz) / 12 VDC
Internal Battery	Li-Ion, high capacity 7.2V, 6.6Ah
Battery Life	>6 hours
Charging Time	± 3 hours

### CONNECTIVITY

USB 1.1 Host and Client, WiFi. For use with tablet or PC based apps to trend or archive survey data

### DATA STORAGE

Internal	NV Flash Memory
External	USB Storage compliant USB Flash Drive / Hard Disk Drive
Real Time Clock	Battery backed

### LCD SCREEN

Display	TFT, 6.4" Transreflective
Size (W x H)	132 x100 mm
Resolution	640 x 480 pixels, 256 colours
Backlight	LED

### MECHANICAL

Instrument	225 x 310 x 70 mm (WxHxD) 2.4 kg
Transport Case	425 x 284 x 155 mm (WxHxD) 3.4 kg
Total Weight	5.8 kg (incl. instrument, transport case, charger etc.)

### ENVIRONMENTAL

Enclosure	IP64 – top covers closed IP51 – top covers open
Transport case	IP67
Electrostatic discharge according to EN 61000-4-2	
Humidity	0-95% non-condensing
Temperature	Operating temperature: -10°C to +50°C / 32°F-122°F Storage temperature: -20°C to +70°C / -4°F - 158°F



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Specifications are subject to change without notice.

Doble is ISO-9001:2008 certified.

Doble is an ESCO Technologies Company.

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