

# SPARK P3

Partial Discharge (PD) and Electromagnetic Interference (EMI) Analyzer

## INSULATION SYSTEM DIAGNOSTICS FOR HIGH-VOLTAGE ASSETS



The Doble Spark P3 is the most universal PD and EMI analyzer available today. It utilizes a combination of various signal processing technologies that enable the user to identify the characteristics of insulation system deterioration that could lead to the failure of high voltage equipment in the field and in the laboratory. The Spark P3 enables the user to utilize any sensor capable of detecting PD, with its detectors covering frequencies from 9kHz to 2GHz.

A comprehensive range of detectors, acquisition and analysis tools enables users of all levels to acquire and review PD and EMI signals. The incorporated detectors and key features include:

- IEC 60270 integrative charge PD measurement for online/offline testing
- Ultra-Wide-Band integrative charge measurement 0.1MHz to 60MHz
- CISPR16 EMI measurement
- Narrowband HF PD detection  $f < 60\text{MHz}$  (1MHz BW)
- Narrowband UHF PD detection  $60\text{MHz} < f < 2\text{GHz}$  (6MHz BW)
- Acoustic Emission detection  $< 500\text{kHz}$
- Freely adjustable gain/attenuation
- Freely adjustable measurement filters
- Total dynamic range  $> 120\text{dB}$
- Various synchronization options
- Spectrum, Time Resolved, Phase Resolved, and Bar Graph data acquisition modes (depending on detector)

The incorporated detectors allow to utilize the Spark P3 across a wide range of applications and sensors, including:

- Rotating Machines (PD couplers, HFCT sensors)
- Power Transformers (HFCT sensors, UHF antennas, acoustic microphones)
- Instrument transformers (HFCT sensors, directional antennas)
- Switchgear (GIS/AIS - TEV sensors, UHF antennas, HFCT, acoustic microphones, spacer sensors, window sensors)
- Cables and accessories (HFCT, UHF sensors, acoustic sensors)
- FAT/SAT/offline-test: IEC 60270 Phase Resolved Pattern acquisition

## FEATURES

- Universal detector suitable for most PD testing scenarios
- Guided mode for minimum operator requirements
- Freely configurable and pre-set test plans for various applications and automatic data acquisition
- Battery operated benchtop (lab) or Pelicase (site), 19 inch rack mount adapter available

## BENEFITS

- Automatic data acquisition methods help inexperienced operators to obtain reliable results
- Guided measurements
- Automatic measurements and test plans (can be edited)
- Suits most PD/EMI applications
- Lightweight battery operated device (suitable for cabin and hold air travel)

## GUIDANCE FOR INEXPERIENCED USERS

A "Wizard Mode" guides users new to the subject through the measurement and data acquisition procedure, limiting functionality and other elements to the minimum required to conduct the task. More experienced personnel can select "Expert Mode" to configure the system to perform measurements in any desired form.

### MECHANICAL

Dimensions (WxHxD)	47 x 35.7 x 17.6 cm 18.50 x 14.06 x 6.93 in
Weight	9 kg/19.8 lbs

### ENVIRONMENTAL

IP Classification	IP 67 (closed case) IP 40 (open lid outside of case)
Operating temperature	-20° to + 50°C/ -4° F to 122° F
Storage temperature	-20° to + 70°C/ -4° F to 158° F

### POWER SUPPLY

	115-230 VAC 50-60 Hz 2A
Battery	7.2V 20Ah
Capacity	6 hours
Charging time	3 hours

## MANAGE TEST PLANS AND DATA

Doble's Spark measurement systems will integrate with Doble's Pulse™ companion PC software which enables the user to manage measurement data, edit test plans and asset information, visualize measurement data, and export individual data sets or entire test plans to report templates.



### Doble Engineering

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## SPARK P3 TECHNICAL SPECIFICATIONS

### SPECIFICATIONS

HF Tuner	9 kHz to 56 MHz
gain stages	-20dB, 0dB, 20dB
total dynamic range	>120dB
VHF/UHF Tuner	56 MHz to 2 GHz
gain stages	-20dB, 0dB, 20dB, 40dB
total dynamic range	>120dB

switchable 12V DC offset for external sensor amplifiers

UWB Detector	integrative charge measurement, including IEC 60270 compliant
gain stages	-20dB, 0dB, 20dB
total dynamic range	>120dB
detection level (Qiec)	<110fC
fmin	= 100kHz
fmax	= 60MHz

Acoustic Emission Detector	0dB, 20dB
gain stages	switchable 28V DC offset for sensors with integrated amplifiers

Reference voltage input	DC to 500 kHz
gain stages	-40dB, -20dB, 0dB, 20dB

Input Channel Configurations	Channel Groups: 2 Group Configurations: BNC 1: UHF BNC 2: HF/UWB/EMI/Acoustic BNC 3: Sync/Acoustic
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Detector modes	Spectrum analysis (Peak, Average, Quasi-Peak) Time resolved (zero span) Phase resolved Acoustic
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Tuner Sensitivity	1uV
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Number of PD input channels	2
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Number of reference voltage/ acoustic emission channels	2
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Power supply	100-240V 2A
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Specifications are subject to change without notice.

Doble is an ISO 9001 & ISO/IEC 17025 & 17034 Certified Company.

Doble is an ESCO Technologies Company.

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