

# PDTD68 VLF diagnostics system

## Datasheet



To make diagnostics on power cables as easy and efficient as possible, we have developed the PDTD68 which provides a portable solution for the diagnostics of all kinds of medium voltage cables. PDTD68 enables simultaneous and sensitive partial discharge (PD) and Tan Delta (TD) diagnostics with sinusoidal operating voltage with constant frequency in one single device. The device is specially designed for the use with the HVA very low frequency (VLF) test sets.

**Complete system:** In combination with an HVA test, the PDTD68 forms a full-featured and full-value system for VLF cable testing and PDTD diagnostics up to 68 kV.

**Application:** PD and TD diagnostics on all types of medium voltage cables up to 100 km length with a portable diagnostics system.

**Reliability & versatility:** Designed for robust use across various environments and applications, being thus a long-term investment.

**Powerful software:** The b2 Suite guides through the entire cable testing and diagnostics process. It includes automated PD algorithms, standard-compliant test sequences, and limit checks.

**Flexible power options:** Operates via battery or USB-C® power, offering maximum flexibility in the field.

**Compliance:** Fully compliant with IEC 60270 for PD diagnostics and IEEE 400.2 for TD testing, ensuring reliable and standardized results.



Operating voltage (sine wave)	max. 68 kV <sub>peak</sub> , 48 kV <sub>rms</sub>
PD capacitance	
- HV coupling capacitor	22 nF
- HV filter	integrated
Sample rate	250 MS/s
Integrated TD (resolution/accuracy)	1 x 10 <sup>-5</sup> / ± 1 x 10 <sup>-4</sup>

## YOUR BENEFITS



### PRECISE & SENSITIVE REAL TIME LOCALIZATION

PD faults are localized with 1% accuracy and a resolution of 0.1 pC and 0.1 m.



### SIMPLE, SAFE & STRAIGHTFORWARD WIRING

Provides a simple wiring & a secure, galvanically isolated, high-speed data transfer connection for PD & TD data via a single connection cable.



### SIMULTANEOUS PD & TD MEASUREMENT

Parallel PD & TD diagnostics significantly saves time and prevents pre-conditioning of the cable.



### ONE SINGLE COMPACT & PORTABLE DEVICE

The PDTD68 has been designed for maximum portability and on-site use. The single unit design makes it utilizable for versatile applications, e.g. off-shore.

- Sensitive PD measurement due to high coupling capacitance
- Compact setup with one single device for PD & TD diagnostics
- Easy wiring: one single communication cable and an integrated battery
- High noise suppression by the integrated filter
- Real-time data assessment of the measured data
- Quick and comprehensive reporting

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### TECHNICAL DATA

Characteristics	
Operating voltage	1 ... 68 kV <sub>peak</sub>   1 ... 48 kV <sub>rms</sub>
Operating voltage waveform	sine wave
Operating frequency range	0.01 Hz ... 0.1 Hz in steps of 0.01 Hz   default: 0.1 Hz (auto frequency)

Appropriate diagnostics	
Test types	Simultaneous PD and TD diagnostics Partial Discharge diagnostics Tangent Delta diagnostics

PD localization	
Propagation velocity range (v/2)	10 ... 150 m/μs   32.8 ... 492 ft/μs
Measurement range	0.1 m ... 100 km   3.94 in ... 62.13 mi.
PD localization accuracy	1% of the cable length
PD resolution	0.1 pC
PD measurement range	0.1 pC ... 100 nC
Sample rate	250 MS/s
Bandwidth	30 MHz   customizable digital filter

Metering		
Voltage measurement	AC	
	Maximum value	70 kV <sub>peak</sub>   50 kV <sub>rms</sub>
	Resolution	0.1 kV <sub>rms</sub>
	Accuracy	± 1% of reading OR ± 0.1 kV <sub>rms</sub>
Current measurement	AC	
	Maximum value	100 mA <sub>peak</sub>   70 mA <sub>rms</sub>
	Resolution	1 / 10 / 100 μA <sub>rms</sub>
	Accuracy	± 1% of reading OR ± 1 μA
Tan Delta	Load 10 nF ... 10 μF	
	TD range	0.1 ... 999 E-3
	Resolution	single: 0.1 E-3   mean: 0.01 E-3
	Accuracy	± 0.1 E-3
	Load 0.5 nF ... 10 nF	
	TD range	0.1 ... 999 E-3
	Resolution	single: 0.1 E-3   mean: 0.01 E-3
	Accuracy	± 0.3 E-3
Resistance	Range	0.1 MΩ ... 5 GΩ
	Resolution	0.1 / 1 / 10 / 100 MΩ
	Accuracy	typ. 10%
Capacitance	Range	0 ... 20 μF
	Resolution	0.01 / 0.1 / 1 nF and 0.01 / 0.1 μF
	Accuracy	typ. 20%

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Further characteristics	
<b>Input voltage</b>	USB-C® PD 5 V – 48 V   Measurement enabled from 9 V upwards
<b>Battery operation</b>	Main battery built-in; 6 V, 80 Wh   performance at full load: 1 day
	TD satellite exchangeable block battery 9 V   performance at full load: 1 month
<b>Data transmission</b>	USB 3.0 to fiber
<b>Measurement control</b>	b2 Suite v2.2 or later
<b>Environmental conditions</b>	Operating temp. range -10 ... +50 °C   14 ... 122 °F
	Storage temp. range -20 ... +65 °C   -4 ... 149 °F
<b>Dimensions L x W x H</b>	303 mm x 303 mm x 610 mm   11.9 in x 11.9 in x 24 in
<b>Weight</b>	20.6 kg   45.4 lbs

## SCOPE OF SUPPLY

	Art. No.
PDTD68 VLF diagnostics system	SH5060
<b>Included accessories</b>	<b>Pcs.</b> <b>Art. No.</b>
PDC1 calibrator 10 pC - 10 nC	1 GH5728
PDC accessories	1 *
PDTD HV test lead DUT PD 0.85 m MC14	1 GH0550
PDTD HV test lead DUT PD 1.6 m MC14	1 GH0551
Corona sphere 2-part, min. clearance distance = 10 mm	2 KMD0081
MC socket 45° ring terminal B14AR-N	1 KES0105
MC socket straight ring terminal B14AR-N	1 KES0209
G-clamp 6-16 mm² with M8 wing screw - Dehn	1 KES0274
Grounding cable 16 mm² 2 m flat MC14/M8	1 GH0690
Grounding cable 16 mm² 5 m flat MC14/clamp	1 GH1010
Corona sphere spacer M10 35 mm	2 KES0387
PD impedance 3.9 kOhm MC14 mm (male - female)	1 GH0581
USB fiber optic converter USB-FOC-RS232 3 m	1 GH0624
PDTD68 optical duo lite cable 10 m	1 GH0943
PDTD68 communication unit	1 GH5942
USB-C® cable USB-C® 1 m	1 KEK0219
Battery 9 V block	2 M0026
b2 Suite v2 & corresponding PDTD documentation on a USB drive	1 GZD5005
b2 Safety instructions for the PD TD series multi language	1 DHV1441
b2 Suite v2 license - 2 activations	1 GS0012
Transport case with wheels	1 VKR0070
<b>Optionally available</b>	
PDTD-2 TD-MC accessory kit for guarding Near End & Far End	1 GH0926

\*PDC accessories consist of:

BNC cable to 4 mm plug;  
Dolphin clip 32 A 4 mm socket: 1x black and 1x red;  
BNC plug protective cap LD-PE; Offset screwdriver Torx Tx10