PDTD68
VLF diagnostics system

Datasheet

Diagnostics of medium and high voltage cables provides the opportunity for early detection of potential issues, enabling preventive maintenance to be carried out before the cable fails in service. The PDTD68 provides a portable solution for the diagnostics of all kinds of medium voltage cables. It enables simultaneous and sensitive partial discharge (PD) and Tan Delta (TD) diagnostics with sinusoidal operating voltage with constant frequency. 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 set you get a full-featured and full-value VLF cable test and PDTD diagnostics system for up to 68 kV.

Application: PD & TD diagnostics of all kinds of medium voltage cables with length up to 100 km with a portable diagnostics system.

PD localization: Precise & sensitive real time localization of PD faults in cables with 1 % accuracy and resolution of 0.1 pC and 0.1 m.

Powerful software: The b2 Suite guides throughout the entire cable testing and diagnostics process. It includes automated PD algorithms and test standard sequences with associated limits.

Compact and portable: The one single PD device with integrated TD diagnostics and battery or USB-C power.

Compliance: Test setup and calibration according to IEC 60270. Additionally, TD testing according to IEEE 400.2.

Operating voltage (sine wave)	max. 68 kV_{peak}, 48 kV_{rms}
PD capacitance	
- HV coupling capacitor	22 nF
- HV filter	integrated
Sample rate	up to 250 MS/s
Integrated TD (resolution / accuracy)	1×10^{-5} / $\pm 1 \times 10^{-4}$

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
All that PDTD68 requires is one single communication cable and one DUT cable.

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

SINGLE COMPACT & PORTABLE DEVICE
The PDTD68 has been designed for maximum portability, resulting in widely applicable device for any type of on-site use.

- 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_{peak} | 1 ... 48 kV_{rms}
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	up to 250 MS/s
Bandwidth	30 MHz | 80 MHz

Metering		
Voltage measurement	AC	
	Maximum value	70 kV_{peak} | 50 kV_{rms}
	Resolution	0.1 kV_{rms}
	Accuracy	± 1% of reading OR resolution
Current measurement	AC	
	Maximum value	100 mA_{peak} | 70 mA_{rms}
	Resolution	1 / 10 / 100 $µA_{rms}$
	Accuracy	± 1% of reading OR resolution
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		
Input voltage		USB PD 3.1 (5 V - 48 V)
Battery operation	PD	built-in; 6 V, 80 Wh | performance at full load: 1 day
	TD	exchangeable block battery 9 V | performance at full load: 1 month
Data transmission		USB 3.0 to fiber
Measurement control		b2 Suite v2.2 or later
Environmental conditions	Operating temp. range	-10 ... +50 °C | 14 ... 122 °F
	Storage temp. range	-20 ... +65 °C | -4 ... 149 °F
Dimensions L x W x H		303 mm x 303 mm x 610 mm | 11.9 in x 11.9 in x 24 in
Weight		19.8 kg | 43.6 lbs

SCOPE OF SUPPLY

		Art. No.
PDTD68 VLF diagnostics system		SH5060
Included accessories	**Pcs.**	**Art. No.**
PDC1 calibrator 10 pC - 10 nC	1	GH5728
PDC accessories	1	*
PDTD HV test lead DUT PD 100 kV 0.85 m MC14	2	GH0550
PDTD HV test lead DUT PD 100 kV 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
Fiber optic data cable incl. communication unit	1	GH0941
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
PDTD communication unit	1	GH0942
USB C cable USB C 1 m	1	KEK0219
Transport case with wheels	1	VKR0070

*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