

PDTD200-2

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 PDTD200-2 system offers a portable solution for the diagnostics of all kinds of medium voltage cables as it includes both partial discharge (PD) and Tan Delta (TD) diagnostics units. It 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 cable test and diagnostics system for up to 200 kV.

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

Comprehensive diagnostics: Measurement of cables with different lengths at constant frequency, being a prerequisite for the comparison of PD as well as TD results within the grid.

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.

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



Operating voltage (sine wave)	max. 200 kV _{peak} , 141 kV _{rms}
Capacitance	
- HV coupling capacitor	~ 0.75 nF
- HV filter	~ 0.75 nF
Sample rate	up to 250 MS/s
TD resolution/accuracy*	1 x 10 ⁻⁵ / ± 1 x 10 ⁻⁴

YOUR BENEFITS



COMPACT & PORTABLE

Our PDTD systems are designed for maximum portability and on-site use. This makes them utilizable for versatile applications, e.g. off-shore.



TRUE MODULARITY

All our HVA test sets can be easily extended to a complete diagnostics system by adding our PD, TD or PDTD series products at a later point of time. This keeps the initial investment low.



AUTOMATIC MODE

b2 Suite software provides manual and incremental modes with self-explanatory menus, and a fully automatic measurement mode reducing operation efforts.



SIMULTANEOUS PD & TD MEASUREMENT (b2 Suite v2 or higher)

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

- Quick and easy measurement setup
- Phase-resolved presentation of PD & comprehensive reporting
- High noise suppression by filtering
- Real-time data assessment of the measured data

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TECHNICAL DATA

Characteristics		
Operating voltage	1 ... 200 kV _{peak} 1 ... 141 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)	
High voltage tests		
Test types	Simultaneous PD and TD test	
	Partial Discharge test	
	Tangent Delta test	
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 background level	< 10 pC	
PD localization accuracy	1% of the cable length	
PD resolution	0.1 pC and 0.1 m 0.33 ft	
PD measurement range	0.1 pC ... 100 nC	
Sample rate	up to 250 MS/s	
Bandwidth	100 MHz	
Filtering	analog: 100 MHz	
	digital: definable in the software	
	additional low pass filter available	
Tan Delta metering		
Voltage measurement	AC	
	Maximum value	218 kV _{peak} 152 kV _{rms}
	Resolution	0.1 kV _{rms}
	Accuracy	± 0.5% of reading OR resolution
Current measurement	AC	
	Maximum value	150 mA _{peak} 105 mA _{rms}
	Resolution	1 / 10 / 100 μA _{rms}
	Accuracy	± 0.5% 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

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Tan Delta metering (continued)

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%

Further characteristics

AC supply		110 ... 240 V 50/60 Hz power consumption max. 240 VA
Battery operation	PD	built-in; 6 V, 42 Wh performance at full load: 4 h
	TD	exchangeable battery size D performance at full load: 2 test weeks
Data transfer		USB type B
Measurement control		b2 Suite v1.8 (included) or b2 Suite v2 (optional)
Environmental conditions	Operating temp. range	-5 ... +45 °C 23 ... 113 °F
	Storage temp. range	-20 ... +65 °C -4 ... 149 °F
Dimensions	Coupling capacitor	length 1.780 mm x Ø 660 mm length 70.0 in x Ø 26 in
	HV filter	length 1.780 mm x Ø 660 mm length 70.0 in x Ø 26 in
Weight	Coupling capacitor	90.0 kg 198.4 lbs
	HV filter	90.0 kg 198.4 lbs

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SCOPE OF SUPPLY

		Art. No.
PDTD200-2 Partial Discharge Diagnostics System		SH5037
Included accessories	Pcs.	Art. No.
PDTD200-2 coupling capacitor 200 kV	1	GH5745
PD200-2 filter 200 kV	1	GH5744
PDC1 calibrator 10 pC - 10 nC	1	GH5728
PDTD aluminium flex test lead DUT PD 0.6 - 1.6 m MC14	1	GH0825
PDTD aluminium flex test lead DUT PD 4.5 - 10 m MC14	1	GH0828
MC socket 45° ring terminal B14AR-N	1	KE50105
MC socket straight ring terminal B14AR-N	1	KE50209
MC socket B14AR-N - shortened thread l = 13 mm	1	KE50283
G-clamp 6-16 mm² with M8 wing screw - Dehn	1	KE50274
Grounding cable 16 mm² 0.5 m flat MC14/MC14	1	GH0830
Grounding cable 16 mm² 1 m flat M6/M6	1	GH0838
Grounding cable 16 mm² 5 m flat M6/M8	1	GH0839
Grounding cable 16 mm² 5 m flat M6/clamp	1	GH1009
HVA200 short circuit cable MC14 - M6	2	GH0837
PD CC USB cable 10 m	1	GH0586
Bluetooth USB adapter 50 m	1	KDG0013
Charger for rechargeable batteries, country-specific	1	*
Rechargeable NiMH battery size D 1.2 V/10 Ah 2 pcs	1	KEB0006
Battery size D 1.5 V/18.600 mAh	2	M0022
b2 Suite v1.8 & corresponding PDTD documentation on a USB drive	1	GZD5004
b2 Safety instructions for the PD TD series multi language	1	DHV1441
b2 Suite v1.8 license complete (Basic & PD & TD Diagnostics)	2	GS0003
Power cord country-specific with C13 connector	1	XKEK0001

*The charger is available under different article numbers, depending on the specified country