PDTD60-2

PARTIAL DISCHARGE AND TAN DELTA DIAGNOSTICS SYSTEM

simultaneous measurement of PD and TD

Software incl. Database

portable

The b2 electronic GmbH PDTD60-2 Partial Discharge (PD) and Tan Delta (TD) diagnotics system for diagnosis of medium voltage cables, rotating machinery and transformers.

PARTIAL DISCHARGE DIAGNOSTICS (PD)

The Partial Discharge diagnostics on medium and high voltage cable offers the possibility of early detection of vulnerabilities through a precise localization of PD faults in cables and their connections (joints and terminations), often caused by mechanical damage or a faulty installation process.

TAN DELTA DIAGNOSTICS (TD)

The Tan Delta diagnostics (TD) allows a statement about the overall dielectric condition of cables. A deterioration or damage by so-called water trees in XLPE/PE/XLPE cables can be easily detected. Water Trees cannot be identified or measured with a sole partial discharge measurement.

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Features

- Compact, light and portable devices
- Simultaneous Partial Discharge and Tan Delta measurement
- b2 Suite® - comprehensive diagnostic software and database
- Display of cable route on OpenStreetMap®
- Very simple and clear measurement process
- Manual and automatic diagnostic mode
- Exact PD localization (PD mapping)
- Phase-resolved PD display (PD Pattern)
- PD Magnitude
- PD inception and extinction voltage
- PD rate
- High noise suppression by filtering
- Very high accuracy for Tan Delta measurement
- Extensive reporting
- Test setup according to IEC 60270 and calibration
- Monitored Withstand Test (MWT) according IEEE400.2-2013
- PD and TD measurement unit in one device
- PD and TD measurement unit in battery operation

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PDTD60-2
PARTIAL DISCHARGE & TAN DELTA DIAGNOSTICS SYSTEM

HVA68-2

PDTD60-2

PDC

PDTD60-2 DIAGNOSTICS WITH VLF

The diagnostic system PDTD60-2 (in combination with a VLF generator[1]) enables comprehensive diagnosis with sinusoidal output voltage with constant frequency, which is a prerequisite for the comparison of PD and TD measurement results of cables with different lengths. Load-dependent and therefore constantly changing measurement frequencies offer no basis for this. The sine wave output voltage is the only described VLF voltage form in IEEE400.2-2013 for partial discharge and tan delta measurements and provides clear procedures and quality control procedures.
The comprehensive monitoring and diagnostics software b2 Suite® makes the process easier and leads you through the diagnostics process. The database solution of b2 Suite® allows to process the data quickly and can be retrieved at any time.

Compact, lightweight and portable solutions

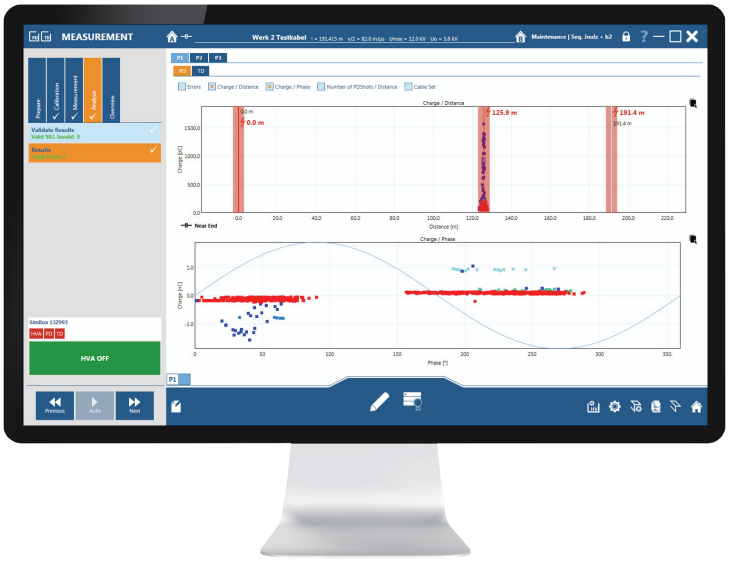
From small portable unit for on-site use (e.g. off-shore) to built-in solutions for test van versions.

Algorithms for detection of PD activities

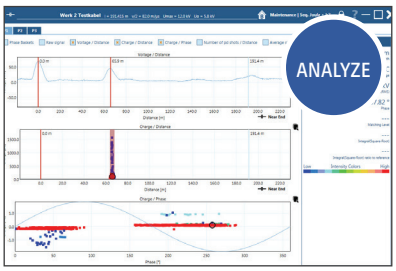
The b2 Suite® distinguishes between valid and invalid PD signals, and then separates them. This facilitates the easy interpretation of results for the user.

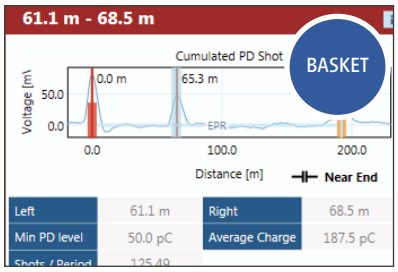
1 VLF (0.1 Hz) high voltage generator (required) is not included in the scope of delivery.

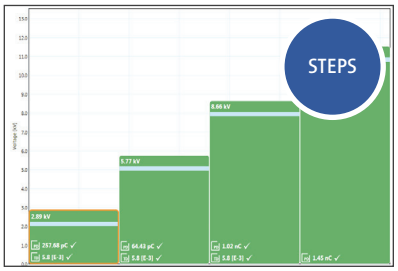
b2 SUITE®
SOFTWARE



b2 Suite® - Software







FEATURES

- Automatic or manual modes for testing and PD diagnostics
- Precise location of PD events on cable insulation, terminations and joints
- Presentation of PD events over total cable length
- Phase-resolved presentation (pattern)of PD
- PD inceptions- and extinction voltage
- Guided Diagnostics Process - leads the operator through diagnostics step by step
- Automatic & manual gain and trigger setting
- Sets or recommends measuring parameters
- Recommended by Standards (CENELEC &IEEE), with guidance for interpretation in literature
- Analog and digital frequency filters
- Direct Mapping of cable trace in OpenStreetMap®
- PD mapping
- Display of parasitic frequencies (bandpass and bandstop for parasitic frequencies)

Database

The comprehensive b2 Suite® database enables easy analysis and evaluation of the PD measurement. A fast search function for measurements and easy reproducibility of a measurement are among the key features.

Reporting

Reporting - be it simple or comprehensive - takes one click. Individual design for reporting and easy integration of data and files. Measurement in as little as 15 min incl. reporting.

PDTD60-2

TECHNICAL DATA

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PARTIAL DISCHARGE DIAGNOSTICS SYSTEM (PD)		
Article number		SH5031
Input supply voltage		110/240 VAC, 50/60 Hz
Operating voltage	sinusoidal	44 kV rms, 60 kV peak
	frequency	0.01-0.1 Hz in steps of 0.01 Hz default: 0.1 Hz (auto frequency)
HV coupling capacitor	capacitance	~ 1 nF
	dimensions, weight	L 330 x W 280 x H 730 mm, 20.7 kg
HV filter	capacitance	~ 1 nF
	dimensions, weight	L 300 x W 280 x H 720 mm, 19.9 kg
Filter		analog & digital
Velocity range (v/2)		10-150 m/µs
Measuring range		100 km
PD background level		< 10 pC
PD localization	accuracy	1%
PD resolution		0.1 pC, 0.1 m
Sample rate		200 MS/s
Bandwidth		100 MHz, analog filter
Signal amplification		0-52 dB (1 channel) , 0-72 dB (2 channel)
Environment		temperature: storage -20°C to + 65°C, operating -5°C to + 45°C
TAN DELTA DIAGNOSTICS SYSTEM (TD)		
Output Voltage	sinusoidal	44 kV rms, 60 kV peak
	frequency	0.1 Hz, 0.01 to 0.1 Hz[1]
Measuring range		0.1 x 10^{-3}-999 x 10^{-3}
Voltage measurement	resolution	0.1 kV rms
	accuracy	0.5 % of reading
Current measurement	resolution	1 µA rms
	accuracy	0.5 % of reading
Tan Delta measurement	resolution	1 x 10^{-5}
	accuracy	± 1 x 10^{-4}
Load range	standard	500 pF to 10 µF
Weight and dimensions		incorporated in the PD coupling capacitor
CONTROL AND DIAGNOSTICS SOFTWARE b2 SUITE®		
Features		• 0.1 Hz PD and TD diagnostics at the same time! • Automatic or manual modes for PD diagnostics • Guided diagnostics process • Comprehensive data base
Control		b2 VLF generator control[3], and b2 Suite® Software
Measurement		Cable length with PD activities, PD location, PD mapping, background noise, PD magnitude, sine wave imposed display, PDIV and PDEV, etc
System requirements		Windows 8 and 10, 64 Bit operating system
ACCESSORIES		
Scope of delivery		Unit (two parts), PDC calibrator incl. accessories, HV cable, PD connection cable (2), power and earthing cable, corona shields, transport boxes (2), b2 Suite® V1.8 software[2] (2 licences), database, operating manual
NOT in Scope of delivery		Computer/PC, VLF (0.1 Hz) generator[3] (voltage source), b2 Suite V2 (optional)

[1] Calibration Certificate for variable frequencies optional, [2] b2 Suite V2 optional,
[3] Please note: A VLF (0.1 high voltage generator (required) is not included in the scope of delivery.

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