

PD-TaD 80

BAUR portable PD diagnostics system



Figure: PD-TaD 80 (Standalone) with Power Box

A new dimension in cable condition evaluation

- Comprehensive cable diagnostics – with partial discharge and dissipation factor measurement*
- The lightest and most compact PD measuring device up to 80 kV_{peak}: Saves space and weight in the cable test van
- High-quality measurement technology combined with ease of use

The PD-TaD 80 portable PD diagnostics system is used in combination with a BAUR VLF HV generator for carrying out:

- Partial discharge testing and location
- VLF cable testing with parallel partial discharge testing
- Dissipation factor measurement*

With the partial discharge testing and the dissipation factor measurement, two effective and proven methods for evaluating the ageing condition of medium-voltage cables and cable accessories have been combined in a single compact and portable device. The result is comprehensive one-step cable diagnostics: early detection and localisation of weak points through a PD measurement, in addition to the evaluation of dielectric ageing based on the dissipation factor values.

Light, robust and portable: PD-TaD is ideal for integration in cable test vans and, in combination with PHG portable, is also suitable for mobile use in the field.

* Available methods and BAUR equipment required for these, can be found on page 2.

NEW:

- PD testing up to 57 kV_{rms} / 80 kV_{peak}
- Excellent precision thanks to high coupling capacitance (8 nF) and sensitivity (≤ 1 pC)

Functions

- Location of PD activities in cable insulation, joints and terminations
- Measurement of
 - PD level
 - PD inception and extinction voltages
 - PD frequency
 - PD phase resolving for classification of PD faults (option)
- Dissipation factor measurement*

Features

- Partial discharge measurement and calibration of the measurement setup according to IEC 60270
- At 21 kg, the lightest and most compact PD measuring device up to 80 kV_{peak} in the market
- Excellent precision thanks to high coupling capacitance (8 nF) and sensitivity (≤ 1 pC)
- Coupling capacitor incl. measurement impedance and PD measuring unit in one device
- Easy test setup: identical test setup for partial discharge testing and dissipation factor measurement
- Integrated filter for suppressing noise signals
- Stable data transmission and power supply via Power over Ethernet (PoE); no batteries needed
- Excellent noise suppression due to
 - compact structure
 - galvanic isolation between PD measuring unit and laptop
 - central power supply
- Integrated device for detecting leakage currents for dissipation factor measurement*
- Easy, menu-driven operation
- Time and cost saving for onsite measurement
- For integration into cable test vans

Precise and reliable measurements

VLF truesinus® - A voltage shape for all methods and method combinations

VLF truesinus® is the only voltage shape that enables both the reliable voltage tests as well as precise dissipation factor measurements and partial discharge testing. Unlike other voltage shapes, the VLF truesinus® voltage is load-independent, symmetrical and continuous. This is a prerequisite for high precision as well as reproducibility and comparability of measurement results.

Available methods and combinations of methods with PD-TaD 80

Method	Significance and benefits	Required equipment*
PD testing	<ul style="list-style-type: none"> ▪ Diagnostics of local weak points ▪ Location of faults in the cable insulation 	PD-TaD 80 & PHG 70 / PHG 80 / PHG 70 portable / PHG 80 portable / viola
VLF cable testing with parallel PD testing	<ul style="list-style-type: none"> ▪ Intelligent withstand voltage test ▪ Diagnostics of local weak points ▪ Location of faults in the cable insulation 	PD-TaD 80 & PHG 70 / PHG 80 / PHG 70 portable / PHG 80 portable / viola
Dissipation factor measurement	<ul style="list-style-type: none"> ▪ Evaluation of the dielectric condition of the insulation ▪ Indication of PD, water trees, humidity in joints, etc. 	PD-TaD 80 & PHG 70 TD / PHG 80 TD / PHG 70 portable / PHG 80 portable / viola TD

*If you already have a VLF HV generator, please ask BAUR GmbH or your nearest BAUR representative whether your VLF HV generator is equipped for all measurement methods with PD-TaD 80.

Technical data

PD-TaD 80	
HV coupling unit:	
Input voltage	57 kV _{rms} / 80 kV _{peak}
Capacitance of coupling capacitor	8 nF
PD measuring unit:	
Power supply and data transmission	Via Power Box (Power over Ethernet)
Signal gain	0 – 75 dB
Degree of protection	IP54
Dimensions (W x H x D)	Approx. 410 x 593 x 369 mm
incl. HF filter	Approx. 410 x 798 x 369 mm
Weight	Approx. 21 kg
incl. HF filter	Approx. 21.5 kg
Calibrator	
Electrical charge (pulses)	
CAL1B	0.1 / 0.2 / 0.5 / 1 / 2 / 5 / 10 nC
CAL1E	0.5 / 1 / 2 / 5 / 10 / 20 / 50 nC
Power supply	9 V block battery, DIN/IEC 6F22
Partial discharge location	
Theoretical measurement range	10 – 12,800 m (at v/2 = 80 m/μs)
Velocity of propagation	50 – 120 m/μs
Sampling rate	100 MSamples/s (10 ns)
PD measurement range	1 pC – 100 nC
Accuracy	Approx. 1% of cable length
Resolution	0.1 pC / 0.1 m
Dissipation factor measurement	
Automatic detection and compensation of leakage currents	integrated
For more details, see the data sheet for the respective VLF HV generator	

Power Box (PD-TaD 80 Standalone)	
Input voltage	90 – 264 V, 47 – 63 Hz
Power consumption	max. 3,500 VA
Max. current	16 A
PD-TaD 80 interface	Ethernet (PoE)
Dimensions (W x H x D)	160 x 120 x 240 mm
Weight	Approx. 1.7 kg
Laptop (PD-TaD 80 Standalone)	
Processor	Intel Core i5
Operating system	Windows 7 Ultimate 32-bit (or higher)
Working memory	At least 4 GB
Hard disk	At least 256 GB SSD
BAUR system software	
Multilingual user interface	in 23 languages
For more details, see the data sheet for BAUR system software	
General	
Ambient temperature (operational)	-10°C to +50°C
Storage temperature	-20°C to +60°C
Rel. humidity	Non-condensing
Safety and EMC	CE-compliant in accordance with Low Voltage Directive (2014/35/EU), EMC Directive (2014/30/EU), EN 60068-2-ff Environmental testing
Transport case: Weight and dimensions (W x H x D)	
Transport case 1 with PD-TaD 80	Approx. 42 kg; 800 x 581 x 482 mm
Transport case 2 with accessories	approx. 22.5 kg; 627 x 497 x 303 mm

Standard delivery and options

PD-TaD 80 integrated in cable test van, incl.

- HV coupling unit with integrated PD measuring unit
- HF filter, mounting bracket
- Power Box (integrated in cable test van)
- Vehicle mounts
- CAL1B or CAL1E calibrator
- Connection set incl. connection cable and adapter (stored in drawers)
- User manuals
- Windows 7 Ultimate on USB drive

Options

- Phase-resolved PD presentation
- CAL1B or CAL1E calibrator
- Vehicle mount
- Dissipation factor measurement in combination with PHG TD or viola TD

HV sources

(not included in the standard delivery of PD-TaD 80)

- PHG 70 BAUR VLF test system
- PHG 80 BAUR VLF test system
- viola BAUR VLF tester
- PHG 70 TD BAUR VLF test and diagnostics system
- PHG 80 TD BAUR VLF test and diagnostics system
- viola TD BAUR VLF tester and diagnostics device

PD-TaD 80 Standalone, incl.

- | | |
|--|------------------|
| ▪ HV coupling unit with integrated PD measuring unit | Transport case 1 |
| ▪ HF filter, mounting bracket | |
| ▪ Power Box | |
| ▪ CAL1B or CAL1E calibrator | Transport case 2 |
| ▪ Connection set incl. connection cable and adapter | |
| ▪ User manuals | |
| ▪ Laptop incl. carrying bag | |
| ▪ BAUR system software 3.x (installed on a laptop) | |
| ▪ Windows 7 Ultimate on USB drive | |

Options

- Phase-resolved PD presentation
- CAL1B or CAL1E calibrator
- Dissipation factor measurement in combination with PHG portable or viola TD

HV sources

(not included in the standard delivery of PD-TaD 80)

- PHG 70 portable BAUR VLF test system
- PHG 80 portable BAUR VLF test system
- viola BAUR VLF tester
- viola TD BAUR VLF tester and diagnostics device

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