

PD-TaD 62

BAUR portable PD diagnostics system

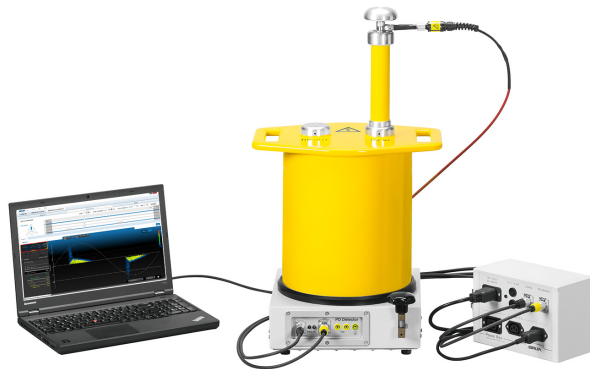


Figure: PD-TaD 62 with laptop and Power Box

A new dimension in cable condition evaluation

- Better decisions based on a comprehensive condition evaluation of the cable network
- Saves time on site thanks to automated sequences and report generation
- Lightweight and compact for mobile use on site

The PD-TaD 62 portable PD diagnostics system is used in combination with a BAUR VLF generator for carrying out:

- Partial discharge testing and location
- VLF cable testing with parallel partial discharge testing
- Parallel partial discharge and dissipation factor measurement*
- Full MWT*

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 a one-step cable analysis with: 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.

The ability to perform partial discharge and dissipation factor measurements simultaneously saves a lot of time and leads to increased efficiency during inspection of the entire cable network. The simultaneous monitoring of TD values and PD activities also helps detect hidden faults (e.g. moist joints).

Light, robust and portable: PD-TaD 62 is ideal for mobile use in the field. The device and accessories are convenient to transport in robust transport cases.

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

- PD testing up to 44 kV_{rms} / 62 kV_{peak}
- Excellent precision thanks to high coupling capacitance (10 nF) and sensitivity (≤ 1 pC)

Functions and features

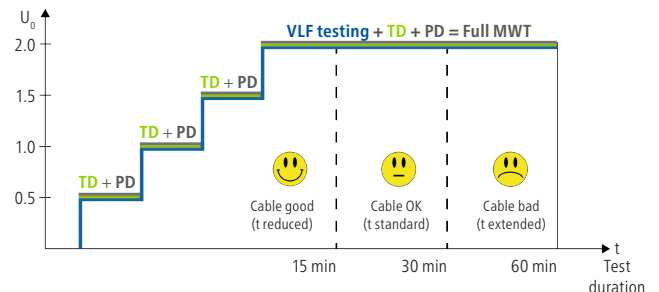
- Location of PD activities in cable insulation, joints and terminations
- Measurement of
 - PD level and frequency
 - PD inception and extinction voltages
 - PD phase resolving for classification of PD faults (option)
- Parallel partial discharge and dissipation factor measurement*
- Full Monitored Withstand Test*
Full MWT = VLF cable testing with parallel partial discharge and dissipation factor measurement
- Partial discharge testing and calibration of the measurement setup according to IEC 60270
- Lightweight and compact at just 17.5 kg
- Excellent precision thanks to high coupling capacitance (10 nF) and sensitivity (≤ 1 pC)
- Coupling capacitor incl. measurement impedance and PD measuring unit in one device
- 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
- Intuitive user interface in multiple languages adapted to the work flow
- Further details on dissipation factor and partial discharge measurement can be found in the BAUR Software 4 cable testing and diagnostics data sheet

Full Monitored Withstand Test

Combination of methods for more significant information

With the PD-TaD 62, in combination with a BAUR VLF generator with TD measurement function, dielectric losses can be measured and the cable route can be tested for partial discharges during the VLF cable test. This combination of methods is called **Full MWT** and provides significantly more information than the cable test alone. While the cable test shows whether the cable system can withstand a load over a specified test duration, the dissipation factor measurement enables an evaluation of the condition of the cable insulation. Moreover, partial discharge testing shows and locates the PD faults precisely.

The highlight of MWT is the condition-based test duration: Provided it is permitted, the test duration can be shortened, which in turn lowers costs. This way, the cable is only exposed to the increased test voltage for the required duration.



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

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 62 & frida / viola / PHG 70 portable / PHG 80 portable
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 62 & frida / viola / PHG 70 portable / PHG 80 portable
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 62 & frida TD / viola TD / PHG 70 portable with TD module / PHG 80 portable with TD module
Simultaneous TD measurement and PD testing	<ul style="list-style-type: none"> ▪ Combination of statements of a TD measurement and PD testing ▪ Shorter test duration with simultaneous TD measurement and PD testing ▪ Better detection of hidden faults (e.g. moist joints) and simultaneous analysis of TD values and PD activities ▪ Only one test setup required for TD and PD measurement 	PD-TaD 62 & frida TD / viola TD
Full MWT	<ul style="list-style-type: none"> ▪ Combination of statements of a TD measurement and PD testing ▪ Shorter test duration with simultaneous TD measurement and PD testing ▪ Intelligent withstand voltage test with shorter test duration for cables in good condition ▪ Better detection of hidden faults (e.g. moist joints) and simultaneous analysis of TD values and PD activities ▪ Only one test setup required for TD and PD measurement 	PD-TaD 62 & frida TD / viola TD

*If you already have a VLF generator, please ask BAUR GmbH or your nearest BAUR representative whether your VLF generator is equipped for all measurement methods with PD-TaD 62.

Technical data

PD-TaD 62

HV coupling unit:	
Input voltage	44 kV _{rms} / 62 kV _{peak}
Capacitance of coupling capacitor	10 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 463 x 369 mm
incl. HF filter	Approx. 410 x 668 x 369 mm
Weight	Approx. 17 kg
incl. HF filter	Approx. 17.5 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
Measurement control	
frida TD / viola TD	Via VLF generator
PHG 70 portable / PHG 80 portable	Via BAUR Software

For more details, see the data sheet for the respective VLF generator

Power Box

Input voltage	90 – 264 V, 47 – 63 Hz
Power consumption	max. 3,500 VA
Max. current	16 A
PD-TaD 62 interface	Ethernet (PoE)
Dimensions (W x H x D)	160 x 120 x 240 mm
Weight	Approx. 1.7 kg

BAUR Software 4

Details about the BAUR Software 4 and the system requirements can be found in the data sheet for the BAUR Software 4.

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 62	approx. 38 kg; 800 x 581 x 482 mm
Transport case 2 with accessories	approx. 22.5 kg; 627 x 497 x 303 mm

Standard delivery

PD-TaD 62 portable PD diagnostics system:

- Transport case 1
 - HV coupling unit with integrated PD measuring unit
 - HF filter
 - Mounting brackets
- Transport case 2
 - Power Box
 - CAL1B or CAL1E calibrator
 - HV connection set incl. adapters
 - Connection cable set
 - User manuals
- Laptop acc. to quotation with pre-installed Windows 10 Ultimate and BAUR Software 4, incl. carrying bag

Standard delivery for integration into cable test vans acc. to quotation

Accessories and options

- CAL1B calibrator
- CAL1E calibrator

Optional software functions

- Dissipation factor measurement in combination with:
 - frida TD VLF tester and diagnostics device*
 - viola TD VLF tester and diagnostics device*
 - PHG portable VLF test system* with TD module
- BAUR GeoBase Map (countries available on request)
- GIS interface

* not included in the standard delivery of PD-TaD 62

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