

## TDS NT

# The unique combination system for cable testing and cable diagnosis

**Megger**<sup>®</sup>



- **Two proven voltage wave shapes in one device**
- **Standard compliant VLF cable testing with accompanying PD diagnosis**
- **Non-destructive PD diagnosis by means of proven DAC voltage**
- **50 Hz Slope Technology for a direct comparison with the power frequency**

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## DESCRIPTION

### The next generation in cable diagnosis

Network operators can now get faster and significantly more reliable information about the quality and the condition of their cables. This is made possible thanks to the brand-new 50 Hz Slope Technology. For the first time, it has become possible to immediately locate faults in underground cables during the actual PD measurement.

### The unique "ALL-IN-ONE" solution

The new TDS NT series offers the highest degree of flexibility in the area of cable testing and diagnosis. The TDS NT consists of a multifunctional, compact voltage source and a modern PD detector. The TDS test voltage source can be used for both simple VLF tests or for meaningful commissioning tests with accompanying PD diagnosis in connection with the PD detector. In addition to the proven VLF and DAC test voltage the TDS can also be used for DC tests and sheath tests in compliance with IEC 60229. Furthermore, in combination with the step voltage sensor ESG NT, it can also be used for precise pinpointing of sheath faults.

### The 50 Hz Slope Technology

Both the VLF voltage and the DAC voltage work according to the principle of 50 Hz Slope Technology. This is particularly important for PD diagnosis, since reliable evaluation of the measured results requires a direct comparability with the power frequency.

It is widely known that PD characteristics change in case of large frequency differences, making reliable evaluation impossible. Our 50 Hz Slope Technology ensures comparability for both voltage wave shapes.

### The focus of the new technology is on the user

The operating software is designed so that any user will come to grips with it immediately.

- Integrated database, simplified searching, browsing and administration of measurement and cable data.
- Improved fully automatic calibration with display of signal to noise ratio.
- "Real time" PD mapping: The PD evaluation algorithm enables a reliable automatic detection and precise location of partial discharges (PD mapping) whilst the measurement is taking place. Time-consuming post-processing of the measurement data is no longer needed, maintenance resources can be directly scheduled.
- Reporting by mouse click: immediately after the measurement has been completed, the operator can create a report with a clearly structured summary of the most important measurement data with a simple mouse click.

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### TECHNICAL DATA TDS 40 / 60

#### Special features:

- Thanks to the high test capacitance, standard compliant 0.1 Hz VLF tests on long cables or multiple phases in parallel are guaranteed. This allows considerable time savings.
- Portable and easy to transport thanks to two-piece design.
- The integrated leakage measurement gives a first indication about the condition of the cable.
- Highest safety through integrated discharge unit, earth-loop-monitoring and breakdown detection.



#### Variant

#### Output voltage

VLF

DAC

DC

#### Output current

#### Leakage current measurement

#### Frequency

VLF

DAC

#### Testable cable capacitance VLF

Basic version

Plus version

#### Testable cable capacitance DAC

#### Sheath test / fault pinpointing

#### Safety devices

#### Power supply

#### Reporting

#### Temperature

Operation

Storage

#### Relative humidity

#### Protection class

#### Weight (depends on options fitted)

#### Dimensions W x H x D, divided in two devices

#### TDS 40

3 ... 40 kV<sub>RMS</sub>

3 ... 40 kV<sub>peak</sub>

3 ... ±40 kV

7 mA

0 ... 7 mA

resolution 10 µA

0.1 Hz

20 ... 500 Hz

2.4 µF / 40 kV<sub>RMS</sub> @ 0.1 Hz

4.8 µF / 40 kV<sub>RMS</sub> @ 0.1 Hz

5 µF / 40 kV<sub>peak</sub>

10 µF max.

Testing 3...10 kV

Pinpointing: 3...10 kV, pulse 1:3/ 1:5/ 1:9

Breakdown detection, integrated discharge unit, earth loop monitoring

230 V, 50/60 Hz, 500 VA

120 V, 60 Hz, 500 VA

yes

-20 °C ... +55 °C

-40 °C ... +70 °C

93 % / 30 °C

(non-condensing)

IP20

Approx. 55 kg + 48 kg

550 x 1100 x 420 mm

#### TDS 60

3 ... 60 kV<sub>RMS</sub>

3 ... 60 kV<sub>peak</sub>

3 ... ±60 kV

5 mA

0 ... 5 mA

resolution 10 µA

1 µF / 60 kV<sub>RMS</sub> @ 0.1 Hz

2 µF / 60 kV<sub>RMS</sub> @ 0.1 Hz

2 µF / 60 kV<sub>peak</sub>

10 µF max.

93 % / 30 °C until 50 kV

(non-condensing)

70 % / 30 °C from 50 kV to 60 kV

(non-condensing)

Approx. 85 kg + 48 kg

550 x 1100 x 420 mm

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### TECHNICAL DATA

#### PD-Detector PDS 60

##### Voltage

Operation	max. 60 kV <sub>RMS</sub>
Type	VLF CR or DAC

**Capacity of HV coupling capacitor** 25 nF

**Sensitivity range** 2 pC ... 100 nC

**Resolution** ±1 pC

**PD self-noise level** < 2 pC

**PD impulse repetition rate** 100 kHz

##### PD localization

Measuring range	0 ... 16.000 m / $v/2 = 80\text{m}/\mu\text{s}$
Propagation velocity $v/2$	50 ... 120 m/ $\mu\text{s}$
Sampling rate	125 MHz (8 ns)
Bandwidth	3 / 25 MHz (switchable)
Precision	1% of the cable length
Resolution	±1 pC / ±1 m

##### Filter

analogue and digital

##### Power supply

24 V via TDS-System

##### Temperature

Operation	-20 °C ... +55 °C
Storage	-40 °C ... +70 °C

##### Relative humidity

93 % / 30 °C  
(non-condensing)

##### Weight

35 kg

##### Dimensions (W x D x H)

39 x 58 x 76 cm

##### PD calibrator

##### (IEC 60270-compliant)

Measuring range	100 pC ... 100 nC
Power supply	9 V block battery

##### Software

EasyGo principle,  
integrated cable database,  
fully automatic evaluation

### FEATURES

#### Special features of the evaluation software:

- Powerful database. Simplified searching, browsing and administration of measurement and cable data.
- Fully automatic calibration with the option of calibrating according to cable length or propagation velocity.
- Clear display of measurement results and real time PD localization. A time-consuming post-processing of the measured data is no longer necessary.
- Report generation by mouse click.



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### ORDERING INFORMATION

Product	Order no.
<b>TDS NT 40-B Set, consisting of:</b>	
<b>TDS 40-B;</b> TDS 40 Basic power source (incl. lead-set, reporting SW)	138315765
<b>PDS 60-v3;</b> PD Coupler PDS 60-v3	1014865
<b>PD calibrator;</b> Measurement range 100 pC ... 100 nC	2008807
<b>PD software license;</b> incl. 3 dongles	90011937
<b>Laptop ENG:</b> (other languages on request)	2007129
<b>Mandatory selection PDS lead set (1x)</b>	
Standard lead set PDS 60-v3	2003837
NAFTA lead set PDS 60-v3	2011838
<b>Mandatory selection mains cable (1x)</b>	
Mains cable EU	81000024
Mains cable UK	118307335
Mains cable US	502025220
Mains cable AUS	90020435
<b>TDS NT 40-P Set, consisting of:</b>	
<b>TDS 40-P;</b> TDS 40 Plus power source (incl. lead-set, reporting SW)	138315795
<b>PDS 60-v3;</b> PD Coupler PDS 60-v3	1014865
<b>PD calibrator;</b> Measurement range 100 pC ... 100 nC	2008807
<b>PD software license;</b> incl. 3 dongles	90011937
<b>Laptop ENG:</b> (other languages on request)	2007129
<b>Mandatory selection PDS lead set (1x)</b>	
Standard lead set PDS 60-v3	2003837
NAFTA lead set PDS 60-v3	2011838
<b>Mandatory selection mains cable (1x)</b>	
Mains cable EU	81000024
Mains cable UK	118307335
Mains cable US	502025220
Mains cable AUS	90020435
<b>TDS NT 60-B Set, consisting of:</b>	
<b>TDS 60-B;</b> TDS 60 Basic power source (incl. lead-set, reporting SW)	138315405
<b>PDS 60-v3;</b> PD Coupler PDS 60-v3	1014865
<b>TE Kalibrator;</b> Measurement range 100 pC ... 100 nC	2008807
<b>PD software license; Incl. 3 dongles</b>	90011937
<b>Laptop ENG:</b> (other languages on request)	2007129
<b>Mandatory selection PDS lead set (1x)</b>	
Standard lead set PDS 60-v3	2003837
NAFTA lead set PDS 60-v3	2011838
<b>Mandatory selection mains cable (1x)</b>	
Mains cable EU	81000024
Mains cable UK	118307335
Mains cable US	502025220
Mains cable AUS	90020435

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<b>TDS NT 60-P Set, consisting of:</b>	
<b>TDS 60-P;</b> TDS 60 Plus power source (incl. lead-set, reporting SW)	138315410
<b>PDS 60-v3;</b> PD Coupler PDS 60-v3	1014865
<b>TE Kalibrator;</b> Measurement range 100 pC ... 100 nC	2008807
<b>PD software license; incl. 3 dongles</b>	90011937
<b>Laptop ENG;</b> (other languages on request)	2007129
<b>Mandatory selection PDS lead set (1x)</b>	
Standard lead set PDS 60-v3	2003837
NAFTA lead set PDS 60-v3	2011838
<b>Mandatory selection mains cable (1x)</b>	
Mains cable EU	810000024
Mains cable UK	118307335
Mains cable US	502025220
Mains cable AUS	90020435
<b>Optional HV connection cable:</b>	
PDS 60 HV connection cable 3 m	2009832
PDS 60 HV connection cable 5 m	890010915
PDS 60 HV connection cable 10 m	890023555
PDS 60 HV connection cable 15 m	890015603
PDS 62 HV connection cable PD free, 5 m (NAFTA)	2012596
PDS 62 HV connection cable PD free, 10 m (NAFTA)	2012597
PDS 62 HV connection cable PD free, 15 m (NAFTA)	2012598
TDS 40/60 HV connection cable 10 m	2005656
TDS 40/60 HV control cable 10 m	2005687
TDS 40/60 earth cable 10 m	2012514
<b>Optional accessoires:</b>	
Diagnostic connection set	890017909
PD-free adapter TE PC-MC-UNI-L, long version (460 mm), incl. thread-adapter M16 to M12	1013564
PD-free adapter TE PC-MC-UNI-K, short version (310 mm), incl. thread-adapter M16 to M12	1013563
External safety device	128309600
Rain protection hood TDS 40	899005660
Rain protection hood TDS 60	899007332
Transport case for TDS 40 HV unit	90021851
Transport case for TDS 60 HV unit	90021852
Transport case for TDS 40/60 control unit	90021853
Transport case for PDS 60-v3 PD-Coupler	90019220
Vehicle mounting kit TDS 40/60	2013689
Vehicle mounting kit PDS 60-v3	2008358
Calibration certificate TDS 40	2008887
Calibration certificate TDS 60	2008888
<b>General options:</b>	
Additional Smardcards	899005374
Additional Smartcard reader	899005375

\* The information in this document is subject to change without notice and should not be construed as a commitment by Megger Germany. Megger Germany assumes no responsibility for any errors that may appear in this document.

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