

Testing, diagnostics and
fault location on power cables

Megger[®]

**Find all your cable faults and
maintain your network
to prevent outages.**



CABLE TESTING

Megger's cable test solutions are comprehensive, with a focus on portability, usability and reliability. Cables can be highly capacitive, so testing the insulation at a standardized test frequency of 0.1 Hz often requires a significant power output from the test equipment. Many cable test systems are therefore quite large as a result.

Our experience in testing, knowledge of cables and cable test methods fuel our designs to address this, resulting in the most efficient solutions and best-in-class performance.





VLF SINE 34 kV / 45 kV / 62 kV

Test systems for medium voltage cables

FEATURES

- Wide range of VLF systems for all type of applications
- Testing in accordance to international standards and guidelines such as IEEE 400.2 and IEC 60502-2
- VLF, DC and sheath testing in one unit
- Expendable with tanDelta or partial discharge (PD) measurement
- Maximum user-safety through automatic discharge of test object and earth-loop monitoring

Very Low Frequency test sets are used to verify the dielectric integrity of the cable under test, be it for commissioning/ acceptance testing or for maintenance testing. VLF Sineoidal and VLF Cosine Rectangular (CR) are the two most common and standardized wave shapes used for VLF testing. Whereas VLF Sineoidal test sets can be used for testing of short cable lengths, the VLF CR units can test long cables or multiple phases in parallel, and this with almost same dimensions and weight. Megger is the only provider which can supply both technologies and even a combination of both technologies (TDM series). Additional testing capabilities such as Tan Delta (internal or external) and PD measurement can also be added to gain more information about the insulation condition of medium voltage cables. All VLF test units from Megger can also be used for sheath testing and sheath fault pinpointing.

TECHNICAL DATA	VLF Sine 34 kV	VLF Sine 45 kV	VLF Sine 62 kV
VLF test voltage	0 to 34 kV _{peak}	0 to 45 kV _{peak}	0 to 62 kV _{peak}
Frequency	0.01 to 0.1Hz	0.01 to 0.1Hz	0.01 to 0.1Hz
Wave form	Sine	Sine	Sine
Testing cable capacitance @U _{max}	0.6 µF @ 0.1Hz 5 µF max*	0.6 µF @ 0.1Hz 10 µF max*	1 µF @ 0.1Hz 10 µF max*
Optional tanDelta measurement	external	internal / external	internal / external
DC test voltage	0 to ± 34 kV	0 to ± 45 kV	0 to ± 62 kV
Sheath testing	0 to 5 / 10 kV	0 to 5 / 10 / 20 kV	0 to 5 / 10 / 20 kV
Sheath pinpointing test voltage	0 to 5 / 10 kV	0 to 5 / 10 / 20 kV	0 to 5 / 10 / 20 kV
Pulse rate	1:3 / 1:4	1:2 / 1:3 / 1:4	1:3 / 1:4
Output current	0 to 14 mA	0 to 20 mA	0 to 40 mA
Dimension (W x D x H)	520 x 450 x 300 mm	544 x 520 x 416 mm	544 x 520 x 416 mm
Weight	25 kg	50 kg	60 kg

*at reduced voltage and/or frequency

RECOMMENDED ACCESSORIES

tanDelta diagnostics (internal or external)
Partial discharge diagnostics with PDS 62-SIN
Transport cases (offshore/ onshore)
ESG NT for sheath fault pinpointing

VLF Sine 34 kV

The VLF Sine 34 kV is a compact, robust and portable VLF sine wave test system for medium voltage cables. With its output voltage of 34 kV_{peak} it is ideally suited to perform withstand testing on cables rated up to 15 kV. For diagnostic applications it is suited for cables up to the 23 kV class.

FEATURES

- High test capacity of 5 μF at maximum test voltage
- Single-button operation
- Integrated safety system
- Continuous duty-cycle



VLF Sine 34
Datasheet

VLF Sine 45 kV

The VLF Sine 45 kV, with optional integrated tanDelta, is a compact system for commissioning and condition analysis of medium-voltage cables. With its output voltage of 45 kV_{peak} it is ideally suited to perform withstand testing on cables rated up to 25 kV. For diagnostic applications it is suited for cables up to the 36 kV class.

FEATURES

- Multifunctional unit, withstand testing and dielectric loss measurement in one system
- Internal tanDelta with automatic result interpretation
- Maximum user safety thanks to integrated safety system
- Simple field operation, no external laptop required



VLF Sine 45
Datasheet

VLF Sine 62 kV

The VLF Sine 62 kV, with optional integrated tanDelta, is the smallest and lightest system on the market with internal tanDelta measurement. With its output voltage of 62 kV_{peak} it is ideally suited to perform withstand testing on cables rated up to 36 kV. For diagnostic applications it is suited for cables up to the 45 kV class.

FEATURES

- For performing cable tests, cable diagnostics and sheath fault pinpointing
- Most compact and lightest device in its class on the market
- Internal tanDelta with automatic result interpretation
- Maximum user safety thanks to integrated safety system
- Simple field operation, no external computer required



VLF Sine 62
Datasheet

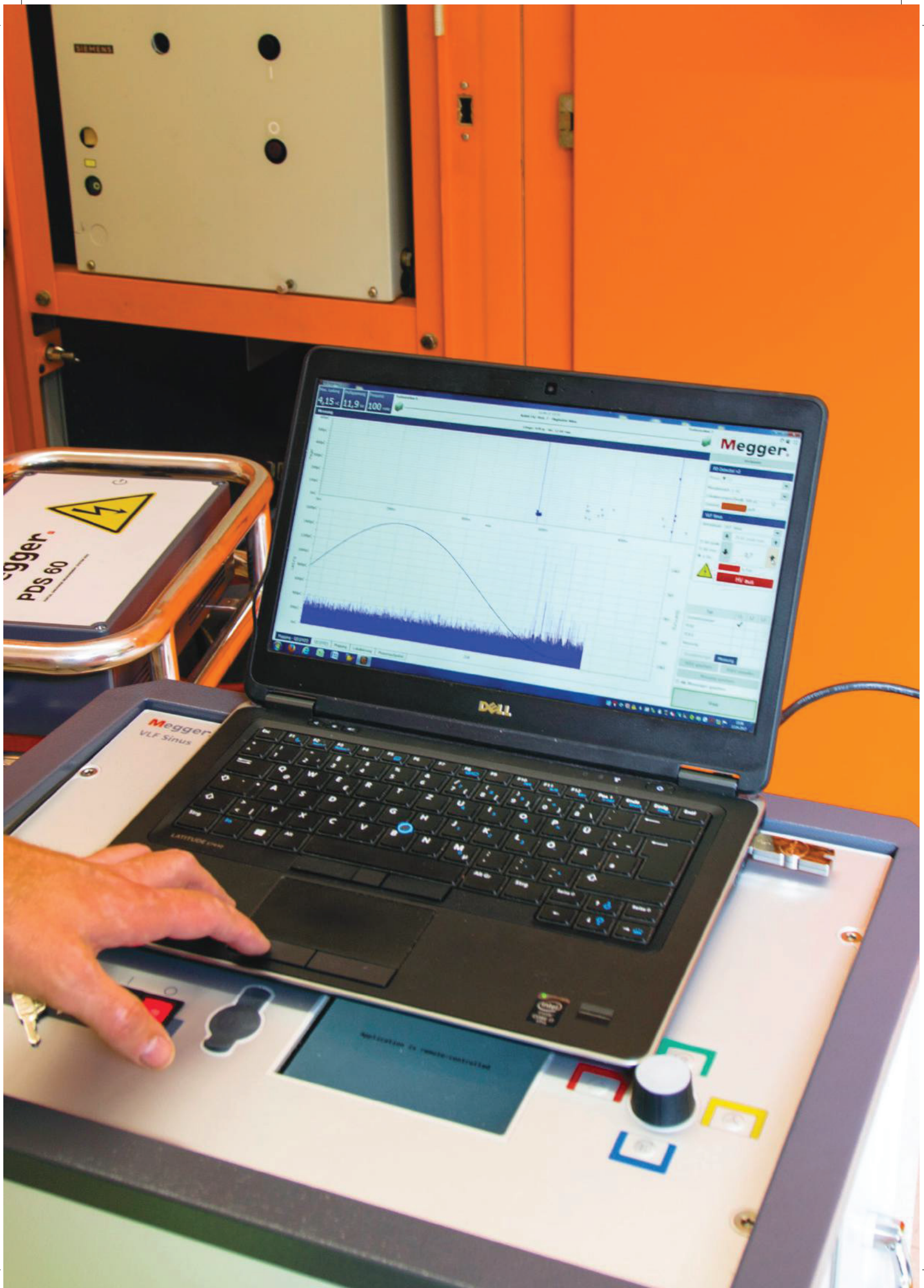
CABLE DIAGNOSTICS

The main goal of Megger diagnostic technologies is to avoid service interruptions during network operation in medium voltage, high voltage and extra high voltage cable systems. Service interruptions are primarily caused by damage to the cable resulting from poor cable laying, workmanship failures on accessories and age-related deterioration in joints, terminations and cable insulation.

With Megger diagnostic systems, it is possible to verify the quality of a new cable system and assess its condition before a cable is put into operation. Potential issues and damage caused by poor installation can be detected and corrected at the commissioning stage, while all components are still accessible. This avoids future network failures and the subsequent costs that would otherwise be incurred.

Another way to save costs is to efficiently replace cables based on their condition. For critical cables that are already in operation, permanent or periodic condition analysis can identify potential faults, so that planned, condition-based maintenance work can be carried out. This avoids unplanned outages and again, the associated costs that would otherwise be incurred by network failure.





PDS 62-SIN

Partial Discharge detection and localisation system

FEATURES

- Partial discharge diagnostics with VLF Sineoidal voltage up to $62\text{kV}_{\text{peak}}$
- With 14.5 kg – the lightest PD measuring unit on the market
- Real-time data evaluation and display of results, no post processing needed
- General and localized Phase Resolved PD (PRPD) pattern display for defect type recognition

Apart from PD couplers which are suited for all types of excitation voltages Megger also offers PD couplers which are suited for VLF Sineoidal only. The PDS 62-SIN has been designed for all Megger VLF Sineoidal testers up to $62\text{ kV}_{\text{peak}}$. With its weight of 14.5 kg the PDS 62-SIN is the lightest PD measuring unit on the market.



PDS 62-SIN
Datasheet

TECHNICAL DATA	PDS 62-SIN
Voltage	
Operation	max. $62\text{ kV}_{\text{peak}}$
Type	VLF sine 0.01 to 0.1 Hz
Sensitivity range	2 pC ... 100 nC
PD self-noise level	< 2 pC
PD localization	
Measuring range	0 ... 16000 m / $v/2 = 80\text{ m}/\mu\text{s}$
Precision	1% of the cable length
Resolution	$\pm 1\text{ pC} / \pm 1\text{ m}$
Weight	14.5 kg
Dimension (W x D x H)	36 x 33 x 64 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

RECOMMENDED ACCESSORIES

Diagnostic connection set and test bushings
Transport cases
PD-free connection cable

TAN DELTA DIAGNOSTICS

Dielectric loss measurement
on medium voltage cables

FEATURES

- Automatic result interpretation acc. to IEEE 400.2
- Optional leakage current correction
- Internal and external systems available

TanDelta measurements allows the operator to precisely determine a cable's condition. Integral aging effects, such as the degree of humidity and "water treeing" can be simply recognised and quantified, making the tanDelta diagnostics the ideal instrument for monitoring cable conditions.

Megger provides three solutions for tanDelta diagnostics, the external TanDelta attachment is a high precise unit which functions with all Megger VLF testers. In addition Megger also provides VLF units with internal TanDelta facility, the VLF Sine 45-TD/ TDM45-P-TD and the VLF Sine 62-TD/ TDM62-P-TD.



TAN DELTA
DIAGNOSTICS
Datasheet

TECHNICAL DATA	Ext. tanDelta	VLF Sine 45-TD	VLF Sine 62-TD
Internal/ external	external	internal	internal
Voltage range	up to 62 kV _{peak}	up to 45 kV _{peak}	up to 62 kV _{peak}
Operating frequency	0.01 to 0.1Hz	0.01 to 0.1Hz	0.01 to 0.1Hz
tanDelta accuracy	10 ⁻⁴	10 ⁻³	10 ⁻⁴
tanDelta resolution	10 ⁻⁶	10 ⁻⁴	10 ⁻⁵
Power supply	battery operated	via VLF unit	via VLF unit
Data communication	wireless to laptop	via VLF unit	via VLF unit
Weight	12 kg	50 kg (incl. VLF)	60 kg (incl. VLF)



HV DAC SERIES

Test and diagnostic system for high voltage cables

FEATURES

- Cable withstand test and PD diagnostic in one single system
- Acceptance testing of newly installed cable
- Condition monitoring of in-service cables to check the aging of the cable
- Automatic display and evaluation of results during the test
- Transportable and compact
- Short set-up times allowing to response quickly on changing weather conditions

Having accurate data is essential for reliable asset management to extend the life of assets and minimise operational costs. PD in High voltage cables indicates a progressive breakdown in insulation that may at some point become critical resulting in an unplanned outage. The costs of unplanned outages in the transmission network are extremely high so asset managers need to optimise their condition assessment and predictive maintenance regimes.

The HV DAC-200 and HV DAC-300 apply damped AC voltage techniques to the cable installation, as part of a maintenance regime or the commissioning of new high voltage cables up to 230 kV. HV DAC systems can easily identify, evaluate and locate partial discharges faults in cable insulation and cable accessories of all types in both new and aged high voltage power cables. The DAC frequency of the test voltage is close to nominal AC voltage service condition, therefore all PD measurements are evaluated and comparable to the power frequency. PD inception voltage (PDIV) and PD extinction voltage (PDEV) also can be easily determined.

TECHNICAL DATA

	HV DAC-200
Output Voltage DAC	18-141 kV _{RMS} / 25-200 kV _{peak}
Commissioning cable	up to 132 kV
Commissioning standard	IEC 60840 / IEEE 400.4
PD testing standard	acc. to IEC 60270
Software	For operation, evaluation & reports
Frequency range	20Hz – 300Hz
Capacity range	0.035µF - 8µF 200m – 40 km @ 0.2 µF/km
Charging current	20 mA
PD range and resolution	2 pC – 100 nC & ± 1pC
Weight	950 kg (incl. flight cases)



Please watch the video
HV DAC 300 (3:04)
uk.megger.com/hv-dac



RECOMMENDED ACCESSORIES

- Support capacitor for testing short cables
- PD-free connection tubes in different lengths and diameter



HV source

HV switch



HV DAC 200
Datasheet



HV DAC 300
Datasheet

HV DAC-300

18-212 kV_{RMS} / 25-300 kV_{peak}
up to 230 kV

IEC 62067 / IEEE 400.4

acc. to IEC 60270

For operation, evaluation & reports

20Hz – 300Hz

0.035 μ F - 8 μ F
200m – 40 km @ 0.2 μ F/km

12.5 mA

2 pC – 100 nC & \pm 1pC

1100 kg (incl. flight cases)



Inductance

Coupling capacitor



PD SCAN

Medium voltage switchgear substation surveying system



FEATURES

- Universal application range thanks to wide variety of sensors (internal/ external)
- Automatic evaluation and interpretation of the data
- Easy to use via touch screen and key pad
- Integrated camera/ QR code scanner
- PD localization via external TEV Sensor

The PD Scan is a handheld, pre-screening tool suitable for on-line detection of PD activity in MV cables and plant. PD activity is widely regarded as an indication of incipient faults in the insulation and seen as one of the best 'early warning' indicators of the deterioration of medium and high voltage insulation. Faults in MV plant are in most cases cost expensive. A breakdown in e.g. a termination can lead to damage of the entire cubicle. In addition faults in MV plant can lead to long outage times. With help from the PD scan such faults can be prevented.

As of its large color touchscreen and simple guidance the PD Scan belongs to the easiest to use handheld online PD units on the market. Furthermore features like QR code scanner, TEV PD localisation mode, its wide variety of sensors with auto recognition function and some unique software features make the unit a versatile tool. Therefore it should be part of the toolbox for all maintenance and service teams doing work in MV substations.

TECHNICAL DATA	PD SCAN
Type of sensor	TEV (internal/ external) AA (internal/ external) HFCT (external) Temp/ Hum (external)
Display	3.5" color touchscreen
Interfaces	USB Type-C, Lemo, Bluetooth
Memory	internal
Power supply	Input voltage 100 ... 240 V, 50/60 Hz, Output voltage 5 V / 2.2 A Li-Ion 3.6 V DC / 3.35 Ah > 8 hours
Dimensions	220 x 91 x 35 mm
Weight	410 g



PD SCAN
Datasheet



Please watch the video
PD SCAN (1:16)
uk.megger.com/pdscan





CABLE FAULT LOCATION

A cable fault is a failure of the most vital component inside of a power cable, the bulk insulation between center conductor and neutral. This will inevitably cause an unexpected and expensive in-service outage which negatively impacts key performance indicators like SAIDI and SAIFI. Underground fault locating crews in utility companies and service contractors around the world are under tremendous pressure to find faults as quickly as possible, and doing that as safely as possible. Due to the different nature of the various different types of faults, Cable Fault Location (CFL) is a troubleshooting process: methods and technologies applicable to a certain type of fault might not be useful on other faults. Therefore, to be effective, it is imperative to have not just a single tool at hand but an entire toolbox of methods and technologies. That way, a crew in the field can react appropriately to any fault, even in difficult conditions.

The modern fault locating approach is a heuristic process in three steps using highly integrated, digitally controlled and fully automated fault location systems. Those systems contain a number of components: a so-called surge wave generator with a multi-stage capacitor for cap discharge (surging, thumping), a high voltage DC source, a set of filters and couplers, and a radar (time domain reflectometer, TDR).

The first step when trying to find a fault is to identify the type of fault. Learning the type of fault will already narrow down the choice of viable methods in subsequent steps.

Secondly, by applying so-called prelocation methods, an approximate distance to the fault can be determined. For decades now the undisputed industry standard and state-of-the-art technology for prelocation is Megger's Arc Reflection Method (ARM) which is highly effective on extruded cables (XLPE, EPR) and which is able to find up to 9 out of 10 typical faults.

Subsequently in a third step, based on the previous prelocation results the exact position of the fault must be determined by pinpointing using pinpointing devices like Megger's magnetic-acoustic digiPHONE².

Build on the achievements of HDW Elektronik and SebaKMT, Megger has become the world's leading manufacturer and powerhouse in Cable Fault Location equipment. Using state-of-the-art technologies, Megger's innovative products enable fault locating crews around the world to locate cable faults quickly, without causing damage to the remaining healthy parts of the cable. Since safety is paramount, Megger's equipment is designed to be the safest in the industry.





STX40

STX40

Portable cable fault location system

FEATURES

- True portable outdoor-ready unit, IP 43
- Easy to use software interface via a single rotary knob
- Fully automated operation via motorised switching
- Surge/Thump energy 2,000 Joule
- DC testing up to 40 kV, surging/thumping up to 32 kV, burning up to 40 kV
- Latest cable radar/TDR technology functionally fully integrated: Teleflex® RDR
- Multishot with 32 traces and Best Picture feature
- HV prelocation: ARM, ICE, Decay
- Inductive ARM filter for improved fault finding performance
- Built-in safety interlocks for earth connection monitoring (F-Ohm) and touch potential monitoring (F-U)



[Datasheet STX40](#)

The STX40 is the most powerful and most modern portable fault location system in the market. It is ideally suited for proof testing, analysing, prelocating and pinpointing of faults on extruded low voltage and medium voltage XLPE- and EPR-insulated cables. With its 40 kV DC source and a potent high frequency burner it is also highly capable and effective on PILC cables as well.

The STX40 is fully automated with motorised HV switches controlled by either the rotary knob or the industry-grade colour touchscreen.

The STX is the only system in its class with 7 fault locating methods built-in:

- Insulation testing
- Time Domain Reflectometry (Radar)
- HV DC testing (DC hipot)
- Burning
- TDR-based and transient HV prelocation
- Surging/Thumping in multiple voltage stages
- Sheath testing and sheath fault pinpointing





The challenge of paper cables

Old paper-lead cables pose a big challenge when fault locating due to their different physical design compared to modern solid dielectric cables: Instead of having to deal with carbon and air, like in faulted XLPE- or EPR-insulated cables, PILC cables are made of lapped paper layers impregnated with mass or oil. Breaking down a liquid insulation medium, igniting and stabilising an arc in a fluid, and capturing useful fault traces with the radar is all far more difficult on paper cables than on solid dielectric cables. In particular, breakdown voltages of high resistance faults may be very high, and low resistance faults do occur significantly more often. Consequentially, to be truly effective on paper cables, the fault location unit must have a high DC voltage, sufficient energy for cap discharge, and a number of modern TDR features. With its 40 kV DC hipot, 2000 Joules at 32 kV, and a radar with Best Picture Multishot as well as ProRange de-attenuation, STX is well-equipped to be successful in finding faults even on PILC cables.



Unbeatable combination:
With the STX40 and the digiPHONE+2 NT set you have the best option for pinpointing cables faults and sheath faults (see the next page).



DIGIPHONE+2

Pinpointing with magnetic-acoustic surge wave receiver

FEATURES

- Acoustic-magnetic pinpointing
- Highest acoustic noise immunity
- Automatic filtering of interference signals
- Automatic adjustment of all parameters, no adjustment required
- Cable compass: shows the actual cable route position and always helps you to stay on track
- Optional: Bluetooth® headphones

The digiPHONE+ 2 marks the next step in pinpointing of cable faults with the coincidence method. It is the refined successor of the orange digiPHONE+, the world's best-selling surge wave receiver.

Thanks to the optimised acoustic sensors, noise is reduced, and the bang of the cable fault is amplified and can be heard even clearer. In combination with the high-quality wireless headphones, the advanced Active Noise Cancelling function, which filters additional noise from the outside, is optionally available.



Datasheet
digiPHONE+ 2 Series



You can connect wired and wireless headphones to digiPHONE+2 at the same time. This makes it easier to train new staff.

DIGIPHONE+2 NT SET

Sheath fault location using voltage gradient method

In addition to acoustic-magnetic pinpointing of insulation faults, this set can also be used to pinpoint cable sheath faults using the voltage gradient method (step voltage method).

FEATURES

- Automatic suppression of extraneous potentials
- Automatic adaptation to the measuring voltage
- Automatic detection of the pulse
- Automatic zero point adjustment
- Measurement sensitivity in μV range



The digiPHONE+2 NT and NTRX sets already have wireless ANC headphones included.



EZ-THUMP / SMART-THUMP FAMILIES

The E-TRAY based fault locating systems promote the operational and logistic advantages of a toll box concept. For the operator this means he needs to bring only one piece of equipment to the job site instead of a collection of 5 or more stand-alone units.

The E-TRAY tool box offers the following fault identification / locating methods:

- **DC Hipot Proof test incl. measurement of insulation resistance**
- **Low voltage TDR tracing and extremely fast multi phase or phase conductor comparison**
- **ARM fault prelocating with automatic MULTISHOT support for best fault capture**
- **ICE or Impulse Current Prelocation of MV cable faults (SMART-THUMP units)**
- **Pinpointing using single or dual stage surge capacitors, depending on required KV rating and Joules output**
- **Low voltage service cable / MV cable sheath testing / fault locating using the voltage gradient method**

All E-TRAY units are designed and certified for use in outdoor / wet environments and are or can be equipped with internal batteries for fully self contained service.

The E-TRAY units are capable of fault locating all LV and MV cables up to 35 kV, with XLPE / EPR and PILC insulation. The SMART-THUMPS are available either as portable units or as permanently installed vehicle mounted units.



EZ-Thump
3 kV / 4 kV
Datasheet



EZ-Thump 12 kV
Datasheet



Smart-Thump 16-20
Datasheet



Smart-Thump 25-30

TELEFLEX SERIES

Radars, Time domain reflectometers (TDRs)

Radars (time domain reflectometers) can determine the distance to the fault by measuring runtimes and impedance changes in the cable. In conjunction with a surge wave generator, radars may also be used for various high voltage prelocation methods. The Teleflex series has been designed to be the best performing radars in the world and can be used either as standalone portable unit or vehicle-mounted as part of a cable test van.



TECHNICAL DATA	Teleflex SX-1	Teleflex VX V2	MTDR300
Operation mode	Single rotary knob, touchscreen, AC & battery	Single rotary knob, touchscreen, only AC	Single rotary knob, AC & battery
Measuring range @ 80m/μs	160 km	1,280 km	55 km
Measurement modes	TDR, IFL	TDR, IFL	TDR
Supported HV methods	ARM, ICE, Decay, ARM Live Burning	ARM, ICE, Decay, ARM Live Burning	ARM, ICE, Decay
Pulse amplitude	50 V, fixed	150 V, adjustable	25 V, fixed
Resolution	0.1m @ 80 m/μs	0.1m @ 80 m/μs	0.8 m @ 82 m/μs
ARM trigger	Automatic	Automatic	Automatic
ARM Multishot	15 traces per shot	15 traces per shot	Depending on cable length (up to 1024)
Memory	2 GB	16 GB	2 GB
User interface	easyGO	easyGO	CAS
Communication	USB	USB, Ethernet	USB
Display	10.1"	15"	10,4"
Data rate	> 400 MHz	> 400 MHz	100 MHz
Mounting	portable or van-mounted	portable or van-mounted	portable
Channels	2-phase	3-phase	3-phase
Protection class	IP 65 closed, IP 54 open	IP 65 closed, IP 54 open	IP 65 closed
Weight	7.8 kg	18 kg	6.7 kg
Dimension (W x D x H)	362 x 305 x 195 mm	483 x 295 x 200 mm	360 x 305 x 194 mm



[Teleflex SX-1 Datasheet](#)



[Teleflex VX V2 Datasheet](#)



[MTDR300 Datasheet](#)



TDR2050

Dual channel handheld TDR



TDR2050
Datasheet

FEATURES

- CAT IV 600 V input protection
- IP 54 rating offers real life working
- Auto set up mode for instant, easy use
- AutoFind and FindEnd functions helps find the fault fast
- Trace tagging facility that allows a name to be saved with the trace
- Distance dependent gain to counteract signal attenuation
- Step function to improve detection of near end faults and illegal taps

Designed for the location of faults in low voltage electrical power supply cables, the TDR2050 is tough. Its rugged and advanced design is dust and weatherproof to IP 54, so it is ready to work in the real world. Safety is paramount in LV networks so the unit is rated to CAT IV 600V and supplied with fused test leads as standard. Ease-of-use features such as auto-setup help new users start fault locating quickly and safely, and the auto-find function assists in interpreting the traces to find the distance to fault.

Expert users can override the auto function, permitting manual fine-tuning for more difficult faults. Megger's new screen layout allows the operator to overlay traces, providing further assistance in the location of faults such as comparing good and bad cores.

TECHNICAL DATA	TDR2050
Range	10 ... 20.000 m
Operation modes	Step and Pulse TDR selections Dual channel
Accuracy	±1% of range ±1 pixel at 0.67 VF
Resolution	1% of range
Velocity factor Propagation velocity V/2	Variable from 0.2 to 0.99 in steps of 0.01 30 ... 148 m/μs
Pulse widths	2; 6; 20; 40; 60; 100; 200; 400; 600; 800; 1000; 2000; 4000; 5000; 6000 ns
Pulse amplitude	up to 20 V
Cable Impedance	25, 50, 75, 100, 125, 140 ohm + AUTO
Dimension (W x D x H)	290 mm x 190 mm x 55 mm
Weight	1.7 kg
Display	800 x 480 px, colour graphics LCD, sunlight readable
Battery	Li-ion rechargeable battery, 12 hours typical battery life
Operating temperature	-15 °C to +50 °C
Storage temperature	-20 °C to +70 °C

FERROLUX® SYSTEM

Location of cables and pipes



Please watch the video
FERROLUX (1:51)



The FERROLUX® cable locating system is the perfect solution for your daily routine tasks. Locate and route cables and pipes. Determine their depth and store the information directly in the device. By the use of an external GPS receiver, the location data can also be stored.

The FERROLUX® combines the location techniques (identification of the direction of the signal flow) and audio-frequency methods in one instrument.

FEATURES

- Perfect ergonomics and light weight for comfortable operation
- Live measurement of cable depth and signal current strength
- Signal select feature for unambiguous identification of targeted cable
- Cable locating with left-right arrows and guidance line
- Automatic or manual frequency selection
- Multi-frequency operation – three frequencies at the same time
- Powerful transmitter with integrated rechargeable battery

RECOMMENDED ACCESSORIES

Mini antenna IFA (for cable selection)

Transmitter clamp UZ 50, UZ 100

Transmitter Ferrolux FLG12



"Earth fault" sensor set
Optional expansion set for sheath fault location
via voltage gradient method



FLG12
Transmitter

Mini antenna IFA

UZ 100
Transmitter clamp

Ferrolux Rx
Multifunctional
control unit with
route sensor IFS



Ferrolux
Datasheet



FLG12
Datasheet

EASYLOC

Tracing of cables and pipes



Easyloc
Datasheet

FEATURES

- Safe and fast preparation of construction sites
- Avoid cable damage and inconvenient delays
- Depth measurement at the push of a button, even without a transmitter
- 33 kHz – compatible with other location systems
- Large display with simple menu guidance and automatic backlight

Speed up civil engineering work and minimise the risk of accidents – thanks to the Megger Easyloc you know the location of the underground pipes and cables! The Easyloc locating system has been specially developed for quick and easy checking of of underground utility plans. Thanks to the considerably simplified locating process, line damage can be avoided and the use of earthmoving equipment can be optimized. It is therefore the ideal locating system for civil engineering and road construction companies, municipalities (building yard, road maintenance department) as well as gardening and landscaping companies.



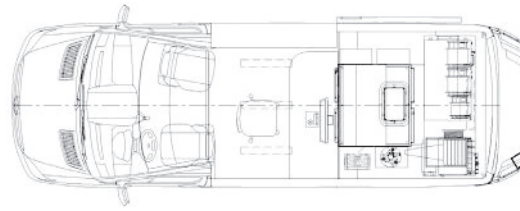
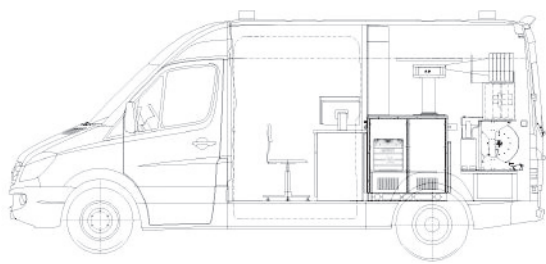
TECHNICAL DATA	Easyloc Basic	Easyloc Standard	Easyloc Plus	Easyloc Cam
Passive Frequencies	Radio: 15 kHz ... 23 kHz, Power: 50 Hz ... 250 Hz, Easyloc Tx / Sonde: 33 kHz			Power: 50 Hz / 60 Hz
Active Frequencies	33 kHz	33 kHz	100 Hz /120 Hz 8 kHz 33 kHz	512 Hz 640 Hz 33 kHz (only sondes)
Depth measurement	⊘	Cables: 0.3 m ... 5 m Sondes: 0.3 m ... 7 m	Cables: 0.3 m ... 5 m Sondes: 0.3 m ... 7 m	Sondes: 0.3 m ... 7 m
Output power	0.1 W 0.5 W Continuous and pulsed signal (switchable)	0.1 W 0.5 W Continuous and pulsed signal (switchable)	0.1 W 0.5 W 2 W Continuous and pulsed signal (switchable)	⊘
Application	Cable location	Cable location	Cable and pipe location	Sonde and camerahead location

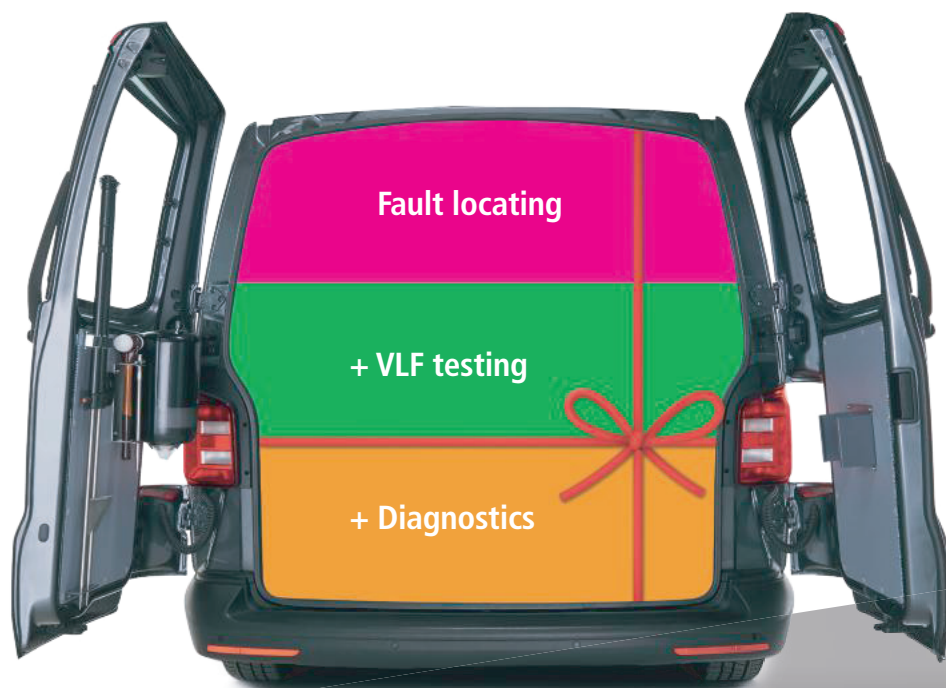


CABLE TEST VANS

Megger's cable test vans offer great user convenience, reliability and efficiency. Customers may choose between various standardized solutions, however, tailoring a system to highly individual demands is always possible and one of Megger Germany's core competencies.

The development of our systems is based on unique, innovative technologies as well as rich feedback from customers in the field. The result is always a product which sets new benchmarks in cable fault location and cable diagnostics performance, allowing you to keep the power on.





STX40
INSIDE



CENTRIX Evolution

The number 1 of cable test vans. Worldwide.



CENTRIX Evolution
Datasheet

FEATURES

- Made in Germany
- Most successful centrally controlled system in the market
- By now more than 1,000 vans in the field since the global market release of Centrix in 2006
- High quality furniture with durable materials
- Enormous degree of customization: Upon customer request systems may be extensively project-engineered and can be tailored to highly individual needs
- Proven fault location technology: 80 kV DC, Teleflex radar, prelocation, surging (thumping) and pinpointing, fault conversion (burning) and sheath testing
- Surging (thumping) up to 4,000 J
- Large 21.5" industrial-grade control unit
- Linux-based software for great stability, robustness, data security and cybersecurity, superior to Windows-based solutions
- Comes with the most sophisticated commercially available safety system incl. F-Ohm, F-U and a powerful discharge unit (SafeDischarge)
- VLF testing with high test capacitance at 0.1 Hz, necessary for working on long cables and for testing all three phases in parallel
- Testing and Diagnostics based on sinewave technology as an entry-level solution
- Testing and Diagnostics based on advanced near-power-frequency waveshapes (Cosine Rectangular, Damped AC) for best results when doing PD testing as well as monitored withstand testing with accompanying PD trending
- Connectivity package: system remote control, remote access via TeamViewer, smartphone app



Even after more than 15 years in the market Centrix is still the leading centrally controlled cable test van system. Centrix combines cable fault location with options for cable testing and diagnostics. The either single phase or three phase system is operated via a smartphone-inspired multi-touch graphic user interface. For fault location purposes all existing prelocation methods are available, for example inductive ARM Multishot, ARM Conditioning, ICE, Decay, Decay Plus, ARM Live Burning (Burn Arc Reflection), Loop On Loop Off (or differential ICE), ARM Charging, etc.

The current Centrix version, CENTRIX Evolution, may be configured as a complete testing and diagnostics solution with VLF, tan-Delta and PD measurement, complemented by its 80 kV DC testing function. For more than 20 years now, monitored VLF withstand testing with accompanying PD trending and IEC60270-compliant PD diagnostics was recommended to be carried out with near line frequency waveshapes, namely Cosine Rectangular and damped oscillating voltage (DAC). PD testing with sinewave voltage is possible but generally discouraged due to performance and validity issues.

Any additional equipment to do line location, route tracing, pinpointing and cable selection can be installed inside of the cable test van and will be tucked away safely in their corresponding mounts.

Overall, CENTRIX Evolution is the holistic, safe and reliable solution for commissioning and proactive, preventive and condition-based maintenance. The connectivity package and the MeggerBook software allow for sophisticated remote control features, remote access via TeamViewer, GPS mapping, GIS data import/export and therefore for location-based data storage, protocolling and most efficient cable fault location.



Upon customer request: Sinewave-based testing and diagnostics available as entry-level solution

Note: 0.1 Hz sine VLF can suffer from performance and validity issues, and, on average, does not provide results comparable to 50/60 Hz or near-line-frequency waveshapes. This has been observed in numerous field measurements since 2004 and has been published in papers and case studies many times. Therefore, we offer sinewave solutions but recommend solutions with 0.1 Hz Cosine Rectangular and Damped AC for obtaining results fully comparable with 50/60 Hz.



PRIMEON

Fully integrated, automated and centrally controlled cable fault location and cable testing system for small and very small vehicles

FEATURES

- State-of-the-art system for small vehicles with very limited payload and space
- Clear and straightforward software-based graphic user interface (GUI)
- Toolbox philosophy: 7 fault location methods built-in to be flexible in the field
- Suitable for low voltage cables, medium voltage cables and paper-lead cables
- 40 kV DC, surging (thumping) in multiple stages up to 32 kV
- High frequency burner up to 40 kV
- Teleflex® RDR, latest radar/TDR technology integrated
- Integrated prelocation: ARM, ICE, Decay, IFL mode, LV TDR mode
- Best Picture Multishot with 32 fault traces
- Inductive ARM filter for improved fault finding performance
- Available with additional fault locating options, e.g. power burner, line location and sheath testing
- Available with sinewave-based entry-level solutions for testing and diagnostics
- Available with powerful testing and diagnostics solutions based on advanced waveshapes like Cosine Rectangular and Damped AC for near line frequency results and non-destructive condition assessment



PRIMEON
Datasheet

PRIMEON fits into many different types of vehicles –
4x4 Ranger, trailer solution, ... no problem!



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