

STX40

Portable cable fault locating system

Megger[®]

**The lightweight champion
with the heavyweight's punch**



STX40 – Second to none!

Made for demanding outdoor use

Fault location systems have to meet steep requirements to be considered truly portable and thus outdoor-ready for use in the field. Units must be lightweight, rugged, inured to hostile and challenging environments, very mobile in adverse terrain and as compact in size as possible. Units must also be operable in rain as well as in very bright daylight conditions with intense sunshine. The STX40 is the only fault locating unit in its class with such a degree of outdoor-readiness. No competitor comes even close.

The STX40 is weatherproof thanks to IP43. The unit is also easily transportable in difficult terrain due to its low weight, pneumatic tyres and low center of gravity. Compared to its predecessors it weighs 80 kg (176 lbs) less.

Furthermore, the STX40 has a very wide operating temperature range. No matter whether a user is fault locating somewhere in the desert in +55°C or somewhere near the polar circle in -20°C, no matter whether a user is up in the mountains at high altitudes where the air is thinner or somewhere in the jungle in humid or tropical conditions – STX is built for all climates.

The sunshine-proof display is very bright and has got an anti-glare coating, keeping the user interface clearly visible even in intense sunshine.



Superconvenient "Turn&Click" control interface

The STX40 is far ahead of all of its challengers; it is the only fault locating unit in its class to offer an intuitive software-based graphic user interface, which can be operated either by a single rotary knob or via the display's touchscreen function. Navigating the menus is straightforward and self-explanatory. The typical fault location steps are embedded as a logical sequence which can be easily followed.

Unlike older units with their extreme overload in terms of knobs, buttons, levers and variacs, the STX40 is a fully automated system. The user only has to tell the system what to do and the system will then set up itself automatically and completely correct without any further user intervention. Both, the selection of all high voltage operating modes, and the execution of all high voltage functions and methods are automated via software-controlled motorised switches. That means STX offers the same convenience and comfort of a centrally controlled cable test van. The STX's user interface is very similar to the one working inside of the Centrix test vans.

This modern operating philosophy with motorised switching, automated centralised controls and easy to use graphic user interface enables all users to focus on the actual process of finding the fault instead of having to remember, and to struggle with, all the details and subtlties of operating an old manual unit. The training burden on personnel is noticeably reduced. We know from customer feedback that it is not uncommon to internalize the controls within a few minutes and work the unit fluidly quickly, even without prior experience.



The most powerful portable fault location system in the market

Integration

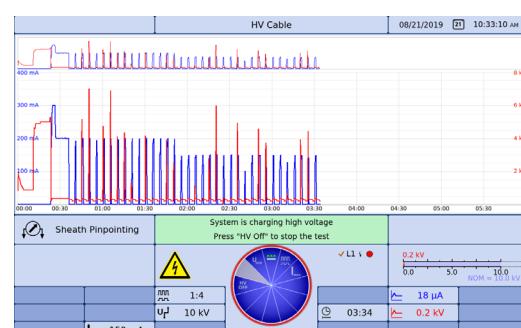
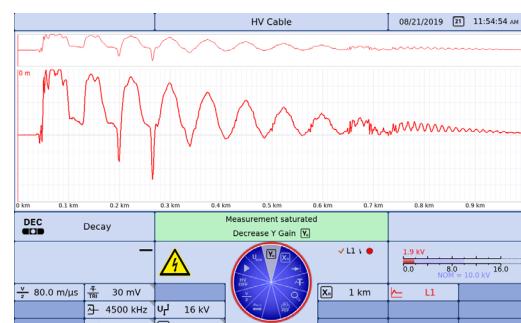
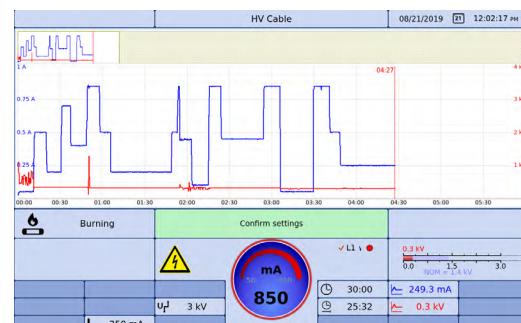
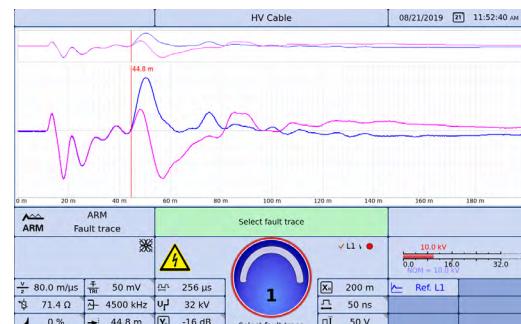
The STX40 redefines the state-of-the-art: as a complete package it comes with all necessary fault locating components fully integrated in a single robust housing.

The STX40 comes with an in-built TDR of the Teleflex® type for time domain reflectometry, furthermore with an insulation testing unit, a very powerful high voltage DC source, a multi-stage surge wave generator (thumper) for pinpointing with the digiPHONE+2, a high frequency burner for fault conversion, and a set of standard radar-based and transient prelocation methods. The TDR is also the control unit for the system and runs the graphic user interface.

The toolbox philosophy

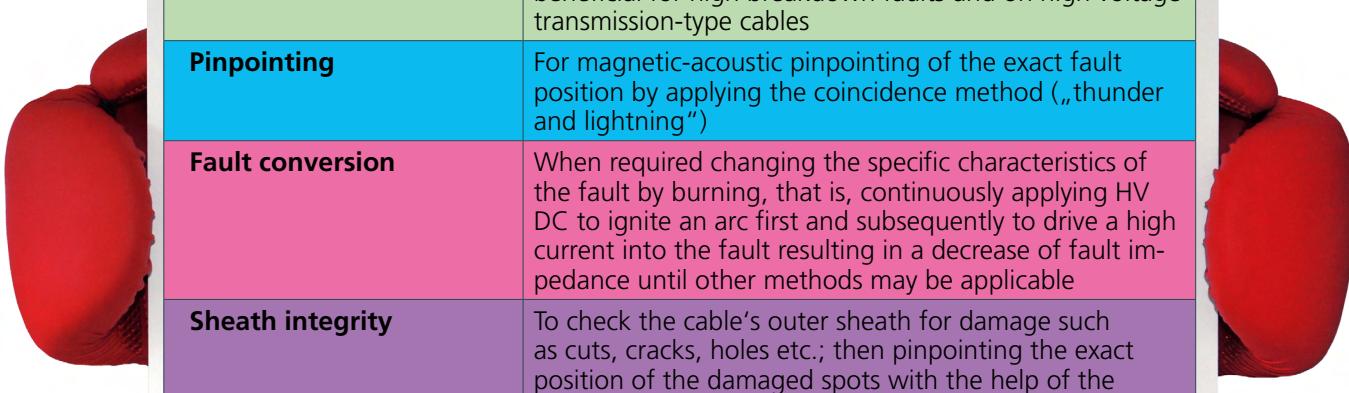
Since low impedance faults and high impedance faults have different specific characteristics, not every fault location method is applicable to every fault. Each method has its limitations.

The best approach for being effective in finding faults on underground cables is not to have just one tool only, but a whole toolbox of various methods which are complementing one another. Only then users will always have the right tool at hand which best fits the actual fault situation, even on difficult-to-find faults.



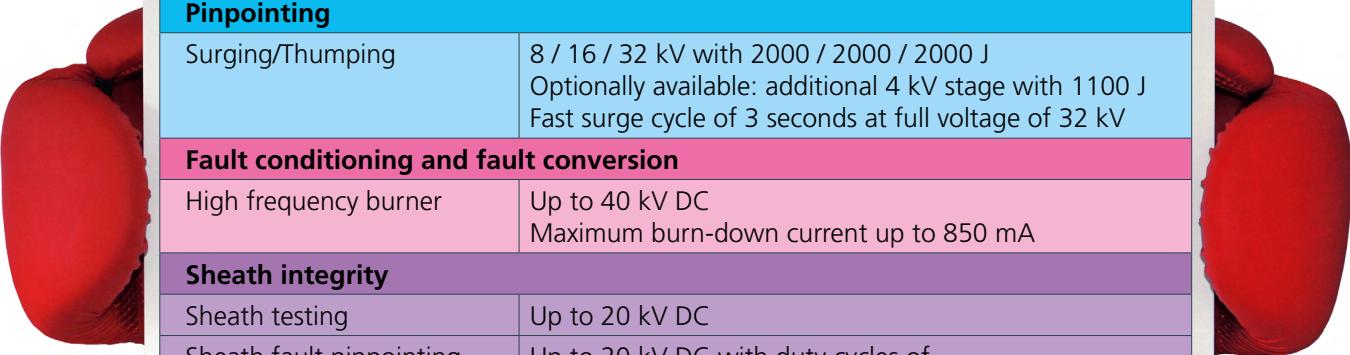
The STX is the only system in its class with 7 fault locating methods built-in:

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



Application	Description
DC hipot	To do proof testing with DC if necessary, and as a technical means to perform fault identification, fault conditioning and charging during capacitor discharge
Fault identification	To tell apart and to identify different types of faults, by means of insulation resistance testing as well as charging the cable with ramped DC in order to measure the breakdown voltage
Prelocation	To get a distance to the fault, and to learn where best to start pinpointing
Radar (TDR)	Time domain reflectometry – runtime-based measurement of impedance changes in the cable using high frequency low voltage pulses; Distance-dependent de-attenuation: Essential technology to counteract the exponential attenuation on long cables in order to be able to measure far-away reflections at all
Inductive ARM Multishot	Arc Reflection Method – the standard technology in the industry to find the distance to the fault; Multishot: 15 fault traces per shot Filter: inductive coil-type arc reflection filter is superior to resistive filters in terms of fault ignition, arc stabilisation and capturing fault traces with the radar
ICE (Surge Pulse)	Travelling wave method with current decoupling – beneficial on long cables, paper-lead cables (PILC) and on faults which are not chargeable
DECAY	Travelling wave method with voltage decoupling – beneficial for high breakdown faults and on high voltage transmission-type cables
Pinpointing	For magnetic-acoustic pinpointing of the exact fault position by applying the coincidence method („thunder and lightning“)
Fault conversion	When required changing the specific characteristics of the fault by burning, that is, continuously applying HV DC to ignite an arc first and subsequently to drive a high current into the fault resulting in a decrease of fault impedance until other methods may be applicable
Sheath integrity	To check the cable's outer sheath for damage such as cuts, cracks, holes etc.; then pinpointing the exact position of the damaged spots with the help of the step voltage method (voltage gradient method)

Performance otherwise only possible in cable test vans



Feature	Performance
Hipot and Proof testing	
High voltage output	40 kV DC
Fault identification	
Insulation evaluation	Up to 20 kV, 100 Ohm ... 650 MOhm
Ramped DC	Breakdown detection up to 40 kV
Prelocation	
Radar (TDR)	Teleflex® Up to 50 V Distance-dependent de-attenuation +22 dB Phase comparison Mode for locating intermittent faults (IFL) No-User-Intervention auto mode Auto-ranging cable end recognition Auto-find cursor to fault position
Inductive ARM Multishot	Up to 32 kV inductive coil-type filter Multishot: 15 fault traces per arc reflection shot
ICE (Surge Pulse)	Up to 32 kV
DECAY	Up to 40 kV
Pinpointing	
Surging/Thumping	8 / 16 / 32 kV with 2000 / 2000 / 2000 J Optionally available: additional 4 kV stage with 1100 J Fast surge cycle of 3 seconds at full voltage of 32 kV
Fault conditioning and fault conversion	
High frequency burner	Up to 40 kV DC Maximum burn-down current up to 850 mA
Sheath integrity	
Sheath testing	Up to 20 kV DC
Sheath fault pinpointing	Up to 20 kV DC with duty cycles of 0.5:1 , 1:3 , 1:4 and 1:6

A benchmark for safety

Occupational safety and safe working conditions are paramount for us and our customers. Therefore, Megger products are designed to be the safest in the market. STX is no exception to that. It meets the strict requirements of VDE 0104. Equipped with a ground loop monitoring circuit (F-Ohm) and a touch potential monitoring circuit (F-U or F-Voltage), STX is a milestone and the portable fault location system with the highest safety standards in the market by far.



Paper-lead cables will not knock out the STX

Old paper-lead cables pose a big challenge when fault locating due to their different physical construction 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 impregnated with mica or oil.

Breaking down a fluid 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.

Consequently, to be truly effective on paper-lead cables, the fault location system used must have a high DC hipot, sufficient energy for cap discharge, and a modern TDR. With its 40 kV DC hipot, 2000 Joules at 32 kV and a radar with Multishot and de-attenuation features, STX is well-equipped to be successful in finding faults even on PILC cables.

Ready to take on your cable faults

Megger Germany GmbH · Dr.-Herbert-Iann-Str. 6 · D-96148 Baunach
Tel. +49 (9544) - 680 · Fax +49 (9544) - 2273
team.international@megger.com
www.megger.com

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.

STX40_BR_EN_V02.pdf

The word 'Megger' is a registered trademark. Copyright © 2024

Megger[®]