tanbos

Testing, diagnostics and fault location on power cables and overhead lines

Xianheng International Science&Technology Co., Ltd.
Listed on the main board of Shanghai Stock Exchange, stock code 605056

Xianheng Technology Building, No. 101 Xinghuang Lane, Dongxin Street, Gongshu District,
Hangzhou, 310022, China.
Tel: +86-571-88322170
Fax: +86-571-88865359
E-mail: exp@xianhengguoji.com

www.tanbos.com

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Tanbos, Experts in power cable and overhead line diagnosis

Founded in 2008, Xianheng intl is a leading company in the field of design and manufacturing of portable and rugged test equipment for electrical energy systems, power plants and electrical substations in China. Our engineers think portable and rugged instruments will help to prevent damage to electrical energy networks in a safe, fast and cost-efficient way. We are built for this.

We built Tanbos which is one of our self-owned brands focus on making products for cable test and diagnosis.

Through fast development and professional capability, we public listing on the main board of Shanghai Stock Exchange. Continuous efforts contribute a lot to our good reputation and wide acceptance from the market. In recent years, we have established a long-term and win-win cooperation with customers from America, Europe, Southeast Asia, Africa and Middle East. Welcome to our company to create a good business relationship in near future.

Table of contents

CABLE TEST VAN SYSTEMS

No need complicated modification, No need bigger vehicle to put in, No need to worry about the power. The TBS-1000 is your best friend for cable fault location.

Integrating multiple functions such as TDR, DC test, impulse discharge, and arcing, it's controlled by a tablet with Auto Go software. Offering intelligent/expert modes, it auto-detects cable status, analyzes waveforms, pre-locates faults, and stores data. With 8/16/32kV output, 2432J energy, 3-10s discharge rate, and a fully insulated design for easy vehicle installation, it ensures efficient and safe cable fault location.

TBS-1000

Lightweight and Intelligent Cable Test Van System

FEATURES

- Test modes: DC Proof, Surge Pulse (thumping) at 8/16/32 kV with fully variable output ranges at all voltage settings and facilitating full high energy capacitive discharge at all three volatge taps deliv-ering up to 2,432 Joules. Variable discharge rate 3 – 10 second discharge/thump rate
- Easily installed in vehicles
- Built-in TDR, ARM, ICE and DECAY
- Controlled by a tablet
- Fully insulated design
- Equipped with intelligent mode and expert mode, suitable for different test situations

The TBS-1000 Unit integrates TDR, DC test (residual voltage identification), multi-level impulse discharge, high-frequency arcing (fault conversion) and other functions. It is controlled by a wireless tablet and equipped with the Auto Go software system. It can automatically perform active pulse reflection testing and transient fault pre-location, truly realizing the intelligence of fault testing and equipment integration.

<0.5m²
Spaceneed

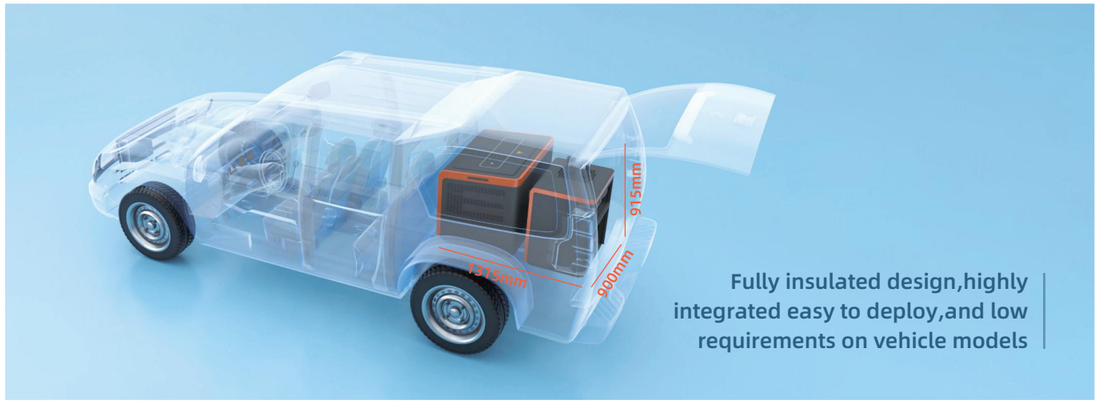
76uf
Max capacitor

2500J
Output in all voltage range

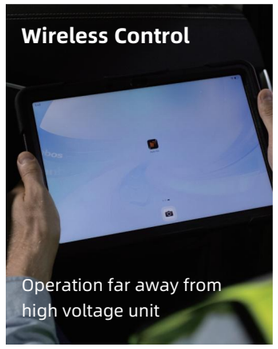
8/16/32kV
Voltage output

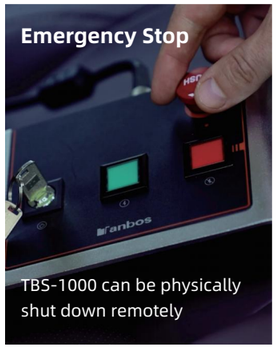
0-500kV
Voltage cable adjustable

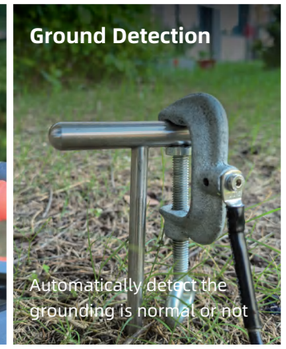
SMART IN INTEGRATION



SMART IN SAFETY

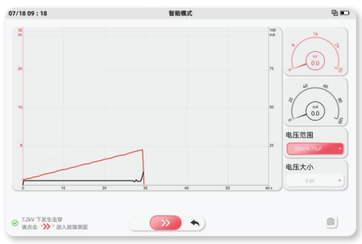






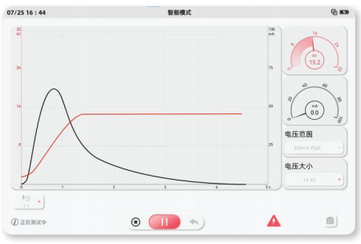
SMART IN FUNCTION

Auto Go consists of TDR, ICE, ARM, and DECAY test methods. With Auto Go Intelligent Mode TBS-1000 can automatically detect cable status, analyze TDR waveforms, and pre-locate faults with one click.
Auto Go also has a built-in powerful database function to store test data in real time.



Automatically analyse fault type

Automatically analyse TDR Waveform



Automatically assist in accurate fault location

CABLE FAULT LOCATION

- Surge wave generators (SWGs)
- Time domain reflectometers (TDRs)
- Pinpointing
- Cable & phase identification Tracing

Tanbos's cable test solutions are comprehensive, with a focus on portability, usability, reliability and composability.

All Tanbos cable fault products adopt a split design, which can realize many testing functions through product combinations according to the test situations. This can save you money while still having many necessary functions.

LP SERIES SURGE WAVE GENERATORS (SWGS)

Surge wave generators (SWG) are used for pre-location and pinpointing of high-and low-resistive as well as intermittent faults in power cables. The energy stored in a high-voltage capacitor is released at regular intervals or as DC voltage. The thus generated acoustic signal at the fault position can be recorded with a ground microphone.

LP30-4+ Portable design but still keep powerful function

FEATURES

- Built in ARM pre-location method
- Surge voltage up to 32 kV and output up to 2048 J
- 88kg, suitable as all kinds voltage level cable fault location SWG

LP30-2 Portable design with integrate all necessary functions

FEATURES

- Optional ARM pre-location model
- Surge voltage up to 32 kV and output up to 1024 J
- 30kg, suitable as MV cable fault location SWG

LP15-8 Portable design focus on LV cable fault location

FEATURES

- Lower voltage output but keep big output joules
- Surge voltage up to 15 kV and output up to 900 J
- 30kg, suitable as LV cable fault location SWG

TDR AND PINPOINTER

WL Series

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. WL series can be used either as standalone portbale unit or vehicle-mounted as part of a cable test van.

FEATURES

- Standaloneor with SWGs
- Battery inside, single rotary knoband touch screen control
- 5kg, portable design

WL50+

WL20

PP20

Pin-pointer is used for fault pinpointing with an acoustic method when used with surge generators, which are supplied as part of cable test vans or mobile fault location systems.

FEATURES

- Acoustic-magnetic pinpointing
- High acoustic noise immunity
- Automatic filtering of interference signals
- Automatic adjustment of all parameters, no adjustment required
- Cable compass: shows the actual cable routen position

CABLE FAULT LOCATION SYSTEM SELECTION TABLE

TECHNICAL DATA	T32	T20	T8
Advantages	Ultra large energy Built-in ARM Arc Stabilization Unit	Lightweight & Portable High Integration	Lightweight & Portable High Integration
Applicable Cable Voltage Level	All	Medium voltage cable	Low voltage cable
SWG Size（L*W*H）	56x62x94cm	50x30x45cm	50x30x45cm
SWG Weight	88kg	30kg	30kg
Fuction	DC Test Surging TDR Prelocation	DC Test Surging TDR Prelocation	DC Test Surging TDR Prelocation
DC Test	32kV	32kV	15kV
Surging	32kV; 2048J	32kV; 1024J	15kV; 900J
Interval Time	5s，fixed	5s，fixed	5s，fixed
TDR Prelocation	LV TDR；ICE；ARM	LV TDR；ICE；ARM (ARM need to expand)	LV TDR；ICE；ARM (ARM need to expand)
Measuring Range	0-100km	0-100km	0-100km
Pulse Generation	Bipolar	Bipolar	Bipolar
Pulse Amplitude	50V	30V	30V
Pulse Width	70ns-15us	70ns-15us	70ns-15us
Data Rate	400MHz	200MHz	200MHz
Velocity of Propagation	100 -300m/μs	100 -300m/μs	100 -300m/μs
Resolution	0.4m	0.4m	0.4m

CABLE IDENTIFICATION AND TRACING

Where multiple cables exist, cable identification testing will identify the correct cable to work on. Clear identification before a cable is cut is intrinsic to safe maintenance work. Any mistakes here can be fatal, and may cause much longer outages for the connected customers.

When an underground cable is first laid it rarely runs in a straight line, but rather meanders in depth and direction. Cable tracing is done to determine that the route of the cable is following the expected path.

T5000-3

Cable Locator

FEATURES

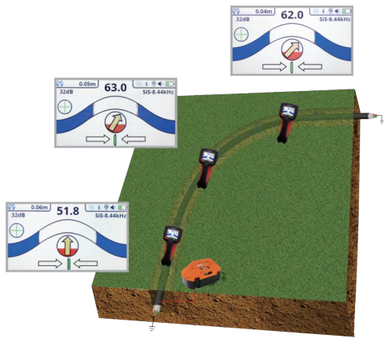
- True dB value display
- Built-in self-calibration function
- Real-time display of 3D navigation view
- Real-time correction of calculated depth
- Green, blue and red warning functions for signal interference intensity
- Same-screen display of cable depth, current and signal interference intensity

EASIER TO LOCATE A CABLE

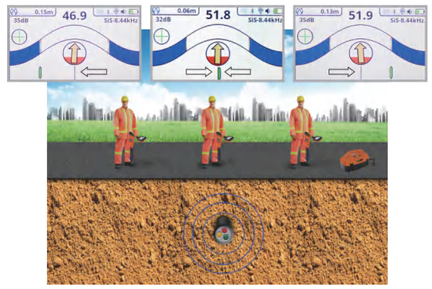
T5000-3 cable locator is suitable for path positioning, depth measurement, sheath fault location , GPS coordinate positioning and mapping of 380V-220kV power cables. Its innovative design makes it simpler and more intelligent. More than 50 frequency options and diversified optional accessories help users solve complex on-site problems.

Non-target cable　　Target cable

Eliminate interference from other cables



Always pointing in the direction of cable's forward



Make sure you are always directly above the cable

CI Series

Cable Identifier

The clear identification of a cable before cutting or assembly is an absolutely safety-relevant task. A false statement can have life-threatening consequences for the assembler and cause outages for the connected customers.

We design different models to meet different applications. ECI focus on LV cables identification, HCI+ focus on de-energised cables identification, FCI+ focus on energised cables identification.

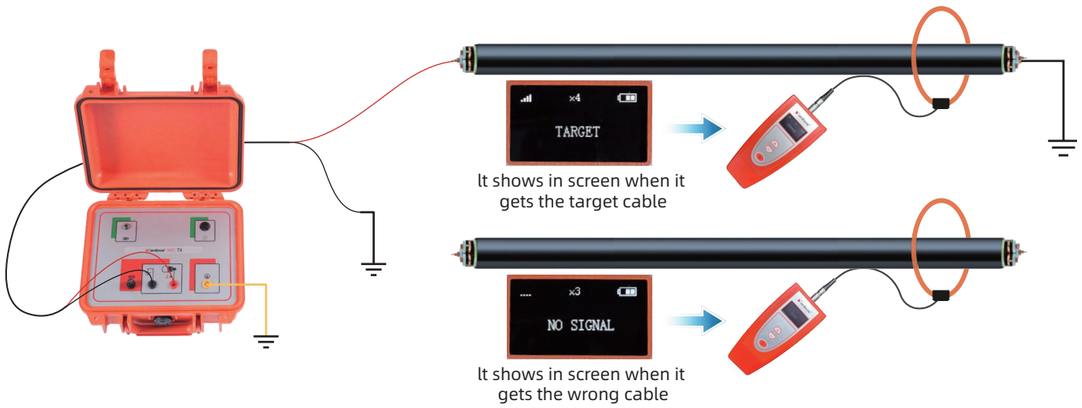
PRODUCT SELECTION TABLE

Model	HCI	ECI	FCI+
Cable Range	All de-energised cables	LV energised cables	MV energised cables
Signal Type	Pulse signal	Audio signal	Passive coupling signal

HCI/ ECI

FEATURES

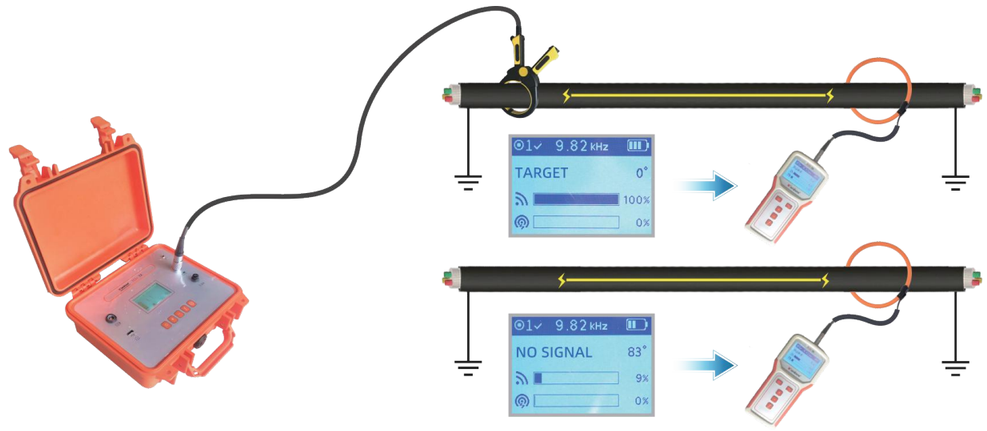
- Clear, safe and quick cable identification on all types
- of de-energised cables and energised LV cables
- Cable identification Automatic recording and analysis of transmitting pulses:
  - Amplitude
  - Interval (time)
  - Pulse direction (polarity)
- High pulse current up to 100 A
- Signal uncoupling by means of a flexcoupler for large cable diameters of up to 190mm



FCI+

FEATURES

- Identification before labeling cables
- Cable identification Automatic recording and analysis of transmitting pulses:
  - Amplitude
  - Interval (time)
  - Pulse direction (polarity)
- Intuitive display: ‘Target cable’ or ‘No signal’ is a non-target cable



SPECIAL EQUIPMENT

- High voltage bridge
- Cable sheath fault location
- Portable Power Station

There are many types of cable faults, in addition to the main insulation fault, there is also the sheath faults, and the fault point itself has high resistance fault, low resistance fault, and even cable moisture. In addition, if the cable is very long, it is difficult to accurately locate the fault.

We have created special equipment to solve these problems. The LB4-60A Smart Bridge can easily obtain the fault distance without analyzing the difficult TDR waveform. The HC-10 Sheath Fault Locator has three locating methods to help you easily and accurately locate where are them.

PS-4800

Portable Power Station

FEATURES

- 220V/3500W or 110V/3000W high capacity output Used for stable on-site power supply of electric test instruments, electric picks, cutting machines, angle grinders, etc.
- Match 48V DC welding machine, can achieve long welding of Φ2.5-3.2mm welding rods
- Quick charging, 0-80% charging in 2 hours, fully charged in 3 hours
- All-round battery protection circuit, safe and guaranteed

We are well aware that the on-site testing environment is complex and changeable, and reliable power supply is sometimes a luxury. In the past, diesel generators were mostly used as the source of on-site power supply, but while providing power, they also brought huge on-site noise, affecting the work on site. At the same time, the large size and weight of diesel generators are not conducive to on-site transportation.

Thanks to the innovation of battery technology, we designed this portable mobile power supply, and the stable output can greatly facilitate the testing needs of on-site electrical equipment. While working, there is no noise, which helps to quickly operate on site.

LB4/60A

Smart Bridge

FEATURES

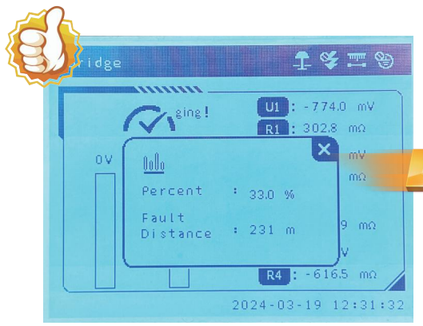
- No need to analyze waveform (TDR reflection based technologies)
- Directly show the fault distance
- Compact and lightweight
- Suited for prelocating difficult, high-resistive faults
- **With burning function up to 60kV**
- One knob to easy operate

The LB4-60A is a highly accurate high-voltage bridge designed to pre-locate cable faults. We add burning function inside with a high voltage up to 60kV which will be useful to high-resitive faults.
Why do you need an HV bridge when you have ARM based prelocation?
Because it locates faults where the otherwise perfect reflection based technologies have limits, for example on long cables as subsea cables.

- TDR reflection based technologies have very large reflections on crossbonded cables, which prevent longer ranges.
- Reflection measurements are based on an impedance measurement, while the LB4-60A measures resistance. Resistance and impedance values can be completely different while having the same cause.
- The main insulation wave reflection characteristics of low-voltage cables are bad, making it difficult to obtain effective TDR reflection.

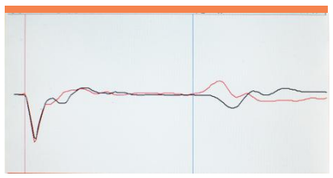
EASIER TO LOCATE A CABLE FAULT

No need to analyze waveform, no need to calculate, directly show distance between you and faults.



New digital location mode shows fault distance directly

Traditional wave-reflect location: impulse current method



Traditional wave-reflect location: Arc Reflection Method

HC-10

Cable Sheath Fault Location

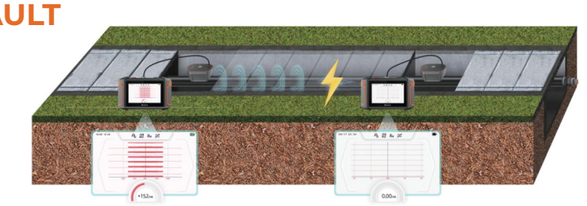
FEATURES

- Testing, burning and pinpointing, direct resistance measurement, voltage and current limiter
- Multiple signal reception methods used for different cable laying scenes(not just direct burial)
- Mains and battery operated
- Only one HV connection cable
- Automatic evaluation and recommend test methods
- Step voltage method for cable sheath fault pin-pointing

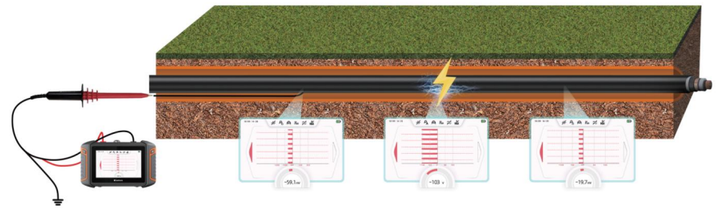
The HC-10 is used for cable and cable sheath testing, and for the pin-pointing of cable sheath faults and cable faults due to earth contact. The operation of the system is achieved via touch screen and rotary encoder.Multiple signal reception methods used for different cable laying scenes.

EASIER TO LOCATE A SHEATH FAULT

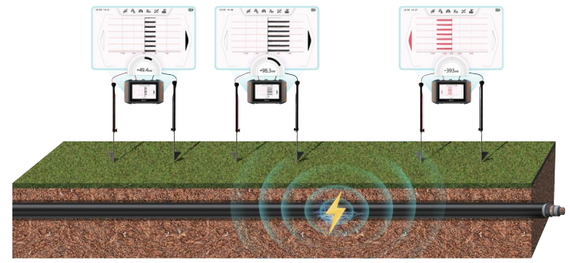
Stethoscope mode: suitable for cable trench or tunnel.Signals exist before fault point and disappears behind fault point



Probe mode: suitable for cable pipe.Near the fault point, the received signal value is maximum



Step voltage mode: suitable for direct burial.Judge according to the color of the arrow whether it is closer to the red earth spike or the black earth spike



CABLE TESTING & DIAGNOSTICS

- VLF Test System
- DAC Test & Diagnosis System

It is too late to locate a cable fault after the cable has a fault. Many cable faults have signs before they occur.

By using DAC testing technology, we can easily find the weak points of the cable and know exactly where the weak points are, so we can pay attention to these weak points in advance to prevent them from becoming cable faults.

VLF Series Portable Hipot Test System

The VLF Series is a compact, robust and portable VLF sine wave test system for cables. With its powerful function, it is ideally suited to perform withstand testing on cables.

VLF-40

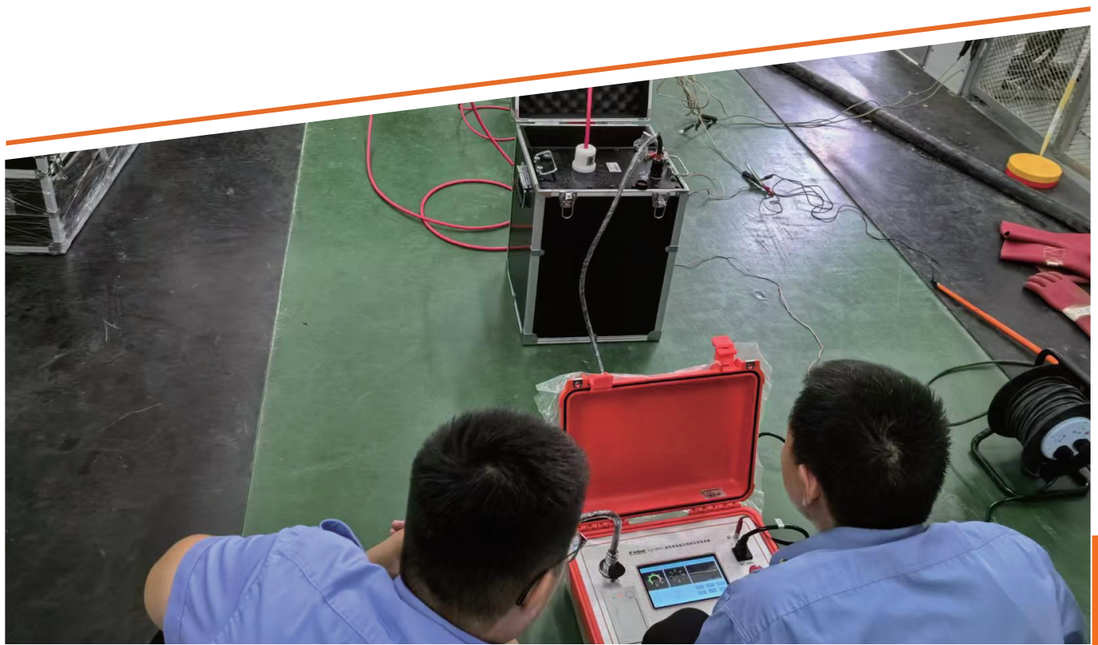
FEATURES

- Output 40kV (Peak) voltage with 0.1Hz, 0.05Hz, 0.02Hz adjustable
- Touch screen control
- Integrated safety system
- Built in printer

VLF-90

FEATURES

- Output 90kV (Peak) voltage with 0.1Hz, 0.05Hz, 0.02Hz adjustable
- Touch screen control
- Integrated safety system
- Built in printer
- Portable design



TV Series

DAC Test and Diagnosis System for Cables

DAC voltage test and diagnostic measurements (PD and TD) provide for reliable detection of poor installation, failures due to inappropriate laying, failures in accessories or deterioration in cable insulation due to aging. It allows much more than a simple "go or no-go" decision. DAC testing is an advanced maintenance tool which supports asset management and grid operation as well.

TV 30/ TV 60

FEATURES

- Output 30/60kV(Peak) max with 20Hz-500Hz range
- Compact and lightweight
- Easy WIFI or wired based automatic control
- Built in Time Domain Reflectometer(TDR)
- Uses well proven DAC excitation voltage for PD measurements(acc.IEC 60270)

TV30
30kV output voltage (Peak)

TV60
60kV output voltage (Peak)

TV 180

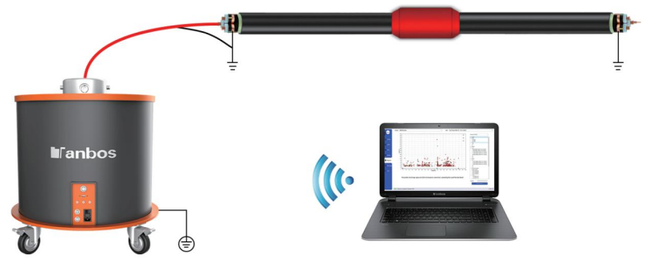
FEATURES

- Output 180kV (Peak) max with 30Hz-300Hz range
- PD diagnosis
- 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

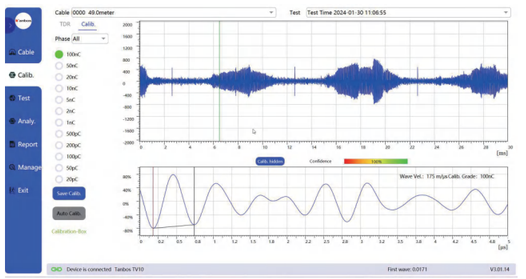
TIME-SAVER AT YOUR SERVICE FOR CABLE DIAGNOSTICS: CONNECT — AUTOMATIC — INSPECT

The on field test is very simple, after the connection between TV30 and cable is completed, the operating software will guide you through the entire process.

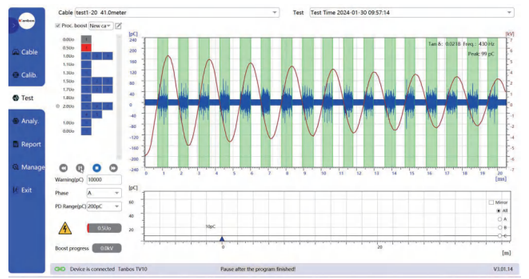
Connect: After the necessary inspections and pre-tests are completed, only need few connections about DAC test.



Automatic: Second step is just follow the steps of operating software, only need to input some necessary parameters of tested cable, others system will complete it automatically.



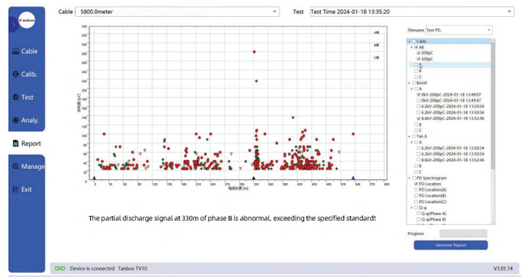
Calibration



Automatic test

Inspect: The test and diagnosis will performed, live PD mapping will automatic displayed on the screen. You only need to check the results and choose whether to output a test report.

Analysis the PD mapping



Test report

TRAINING AND SUPPORT

An additional benefit to purchasing any test instrument from Tanbos is the breadth and depth of the technical knowledge and experience that we can share with you.

We have invested heavily in creating a training space for better support to our customers. We also helped built other training space for China State Grid, China Southern Power Grid and China Railway Industry.

We warmly welcome our customers to our training space for technical exchanges.

REAL TRAINING SPACE

We have set up a special training area to help our customers understand the products and learn cable fault location techniques.


Cable fault location area

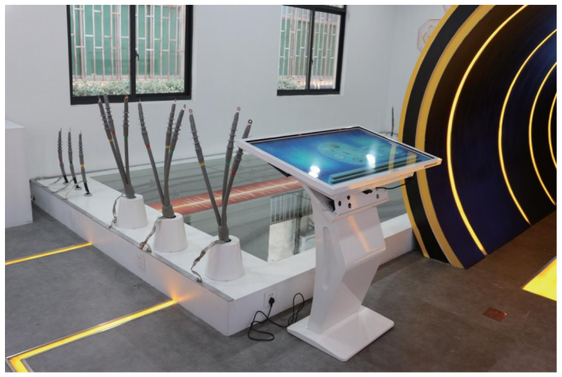

Cable path location area


Cable identification area


Cable diagnosis area

SIMULATION SPACE

We have also established a cable fault simulation area to help our customers understand the principles and details of cable faults.



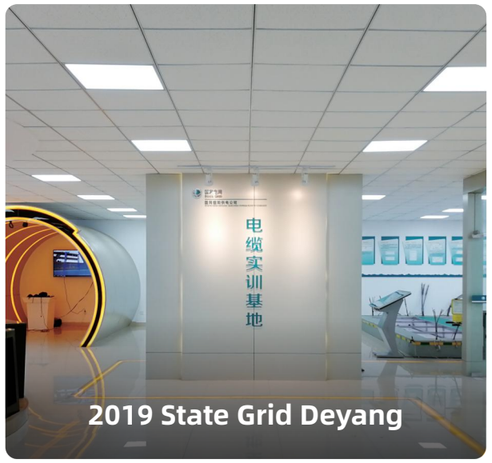
Use some cables, a computer and some mechanical devices to simulate various types of cable faults.

GROW WITH UTILITIES

We have helped the utilities to build technical spaces for cable and overhead line fault location.
By 2024, more than 30 technical spaces have been built.


2022 Railway Industry Xi'an


2023 Railway Industry Yinchuan



2019 State Grid Deyang

2022 State Grid Changsha


2022 State Grid Hefei

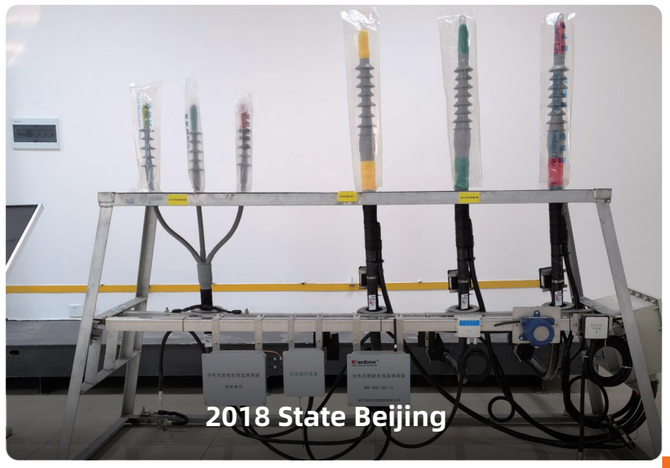
2020 Tanbos Hangzhou

2022 Railway Industry Wuhan


2023 Railway Industry Shanghai


2021 State Grid Dezhou

2021 State Grid Jinan


2018 State Beijing