Professional technology makes the cable fault location much easier

Cable fault location process is generally divided into five steps:

1. **Check the type of fault**: before locating the fault, the type of fault should be checked with a mega meter and a multimeter. Measure respectively the insulation resistance of each cable phase core to the earth and phase-to-phase, and do the conductor connectivity test.

2. **Fault pre-location (also called rough test)**: because no matter what method used, the measured value represents only the cable (fault) length under the earth. Due to the reserved length under the earth cannot be accurately estimated, this length cannot represent the distance on the ground. Therefore, cable fault test cannot complete in one step, only to test out the approximate range of the fault point.

3. **Cable path location (if need)**: for old cables for many years or cables with incomplete information of cable path, T2000 intelligent cable locator is applied to trace the path of related cable, which is helpful to pin-point the cable fault.

4. **Pinpoint**: it is a critical step for cable locating, which helps to reduce excavation range and labor intensity and get precious time for repair. Locate the cable fault on the basis of complete certainty of cable path (direction). By applying shock high voltage to cable (or HV impulse), discharging acoustic wave from fault point, magnetic and acoustic synchronization method or step voltage method is applied to accurately locate the fault within the range of fault distance in the rough test.

5. **Cable identification (if need)**: if the cable fault is found, but it cannot identify which one is the fault one from the surface after digging out, don’t cut the cable hastily. Only cut after identifying the fault cable with cable identifier.

Cable fault test cannot complete in one step, only to test out the approximate range of the fault point.
About us

We concentrate on the cable fault location and condition monitoring, and strive for being the testing expert of underground pipeline network. With advanced technology, easy operation, intelligence and durability, Tanbos popularize rapidly in different areas, electric grid, railway, metro, power generation, nuclear power, wind power, airport, and gain praises from our users. It provides professional technical solutions for power cable running, testing, construction and installation and experiment.

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T32+ Intelligent Cable Fault Location System

Introduction
The most international advanced tech—stable arc reflection method, and set HV impulse, DC withstand test, burn through in one, mainly used in 380V-500kV cable’s major insulation fault shooting. Powerful current will burn through the fault in a short time, making knotty high-resistance fault location easier. New intelligent digital HV voltage drop technology and intelligent voltage bridge technology, easy to locate stable and water-in knotty high resistance fault, etc. New generation intelligent time-different and cable path indication technology, make location point faster, more effective and accurate.

Features
- Design: portable trolley, built-in system from Germany, suitable for wild application.
- Functions: withstand voltage test, HV impulse, burning.
- Strong output: 0-32kV/1800J/1000mA.
- Sampling frequency: 200MHz.
- High accuracy: 0.4m.

Strong power to burn through
- Output voltage up to 60kV.
- Output current up to 600mA.
- Quickly change difficult high-resistance fault into low resistance.

Pre-location technology
- Intelligent digital bridge location technology: one button operation, no need to check the waveform or calculate, show the fault distance in number directly.
- Intelligent voltage drop method: avoiding to be interfered by induced voltage of single-core cable, and it’s more effective to single-core cable’s sheath fault location.
- Intelligent digital bridge method: vary effective to water-in intermediate joints, damping knotty stable high resistance fault.
- Sectional area method: input the cable’s sectional area, can also show the distance of fault quickly and effectively.
- Stable arc reflection technology: automatically recognize fault point, ends of cable and show the distance of fault.

Strong output: 0-32kV/1800J/1000mA.
Design: portable trolley, built-in system from Germany, suitable for wild application.
Functions: withstand voltage test, HV impulse, burning.

Sampling frequency: 200MHz.
High accuracy: 0.4m.
Output current up to 600mA.
Output voltage up to 60kV.
Quickly change difficult high resistance fault into low resistance.

* Technical data refers to page 25
T20 Cable Fault Location System

Introduction

T20 cable fault location system is the first system in the world that uses innovative remote location technology to locate power cable faults. It is mainly suitable for the accurate search of various main insulation faults of 0-35kv power cables. Under the control of the remote service center, it can break through geographical restrictions and locate fault points remotely and in real time. Fault location is more convenient, faster, safer and more effective. Its unique intelligent time difference fixed-point technology and cable path indication technology make the fault point determination faster and more accurate.

Features

Appearance: exquisite, light, portable, integrated

- Exquisite: US PALICAN trolley case.
- Light weight: no more than 25kg.
- Portable: integrated trolley case.
- Integrated: integrate capacitor, controller, booster, rectifier and discharge device in one.

Safety

- HV output line with special insulation, withstand voltage up to 60kV.
- With "emergency" button, further improved the safety of operation.
- Multi-safety protection, HV starts from 0, automatic release the capacitance after power off.

Pre-location test method

- LV impulse method: applicable to locate low resistance fault, open circuit fault, total length and intermediate joint
- Impulse current method: current coupler gathers signal from ground line, applicable to locate high resistance and flashover fault. Safe and reliable.
- Second-impulse method: high precision, simple waveform, easy analysis, applicable to locate high resistance and flashover fault.

Light weight: no more than 25kg.
Portable: integrated trolley case.
Integrated: integrate capacitor, controller, booster, rectifier and discharge device in one.

Intelligent time-difference technology: show the time difference between fault and test place in number; a lower number means closer to the fault point.
Powerful noise reduction technology can effectively filter out environmental interference, leaving only the "Cracking" discharge sound at the fault point in your ears.

Pinpoint Technology

- Intelligent time-different technology: show the time difference between fault and test place in number, a lower number means closer to the fault point.
- Powerful noise reduction technology can effectively filter out environmental interference, leaving only the "Cracking" discharge sound at the fault point in your ears.
**T8 Low Voltage Cable Fault Location System**

**Introduction**

Although low voltage cable and distribution cable have relatively low voltage, the fault's location is more difficult than HV cable because of the larger quantity lines and bad environment. Because of common HV surge generator's high output is over the max withstand voltage of LV cable, which is very easy to cause new faults. T8 overcomes this problem effectively. The max output is 18kV, but max impulse energy up to 900J which can protect the LV cable and make the recharge sound loud enough.

* Technical data refers to page 27

**Features**

- **Appearance:** exquisite, light, portable
  - Exquisite: US PALICAN trolley case.
  - Light weight: no more than 25kg.
  - Portable: integrated trolley case.

**Humanized design**

- Big capacity: 8μF super big capacitance, recharge energy up to 900J.
- Multifunction: DC withstand voltage test, period impulse.
- High safety: HV starts from 0, "emergency" button.

**Pre-location test method**

- LV impulse method: applicable to locate low resistance fault, open circuit fault, total length and intermediate joint
- Impulse current method: current coupler gathers signal from ground line, applicable to locate high resistance and flashover fault. **Safe and reliable.**
- Second-impulse method: high precision, simple waveform, easy analysis, applicable to locate high resistance and flashover fault.

**Pinpoint Technology**

- Intelligent time-different technology: show the time difference between fault and test place in number, a lower number means closer to the fault point.
- Powerful noise reduction technology can effectively filter out environmental interference, leaving only the "Crackling" discharge sound at the fault point in your ears.
**LB4/60A Intelligent Digital Cable Fault Location Bridge**

**Introduction**
In the cable fault test, there are always faults like intermediate joint damp of insulation, water-in cable, the fault cannot be burn through by flashover. These faults generally 1~2MD, some even tens MΩ or hundreds MΩ, called super-high resistance fault. When these fault occur, the methods based on impulse reflection principle cannot locate the fault effectively. LB4/60A, uses new digital location model, and combines with Wheatstone Bridge tech and constant current burn through technology, the output voltage up to 60 kV, location current 600 mA, having solved these super-high resistance faults effectively. It’s the necessary instrument of cable maintenance department.

* Technical data refers to page 28

**Features**

**Appearance: exquisite, portable, integrated**
- Exquisite: US PALICAN trolley case.
- Portable: integrated trolley case.
- Integrated: set intelligent bridge and constant current burn through in one.

**Strong power to burn through**
- Burn-through voltage output up to 60kV.
- Burn-through current output up to 600mA.
- Quickly burn through super high resistance fault.

**New digital location mode**
- Showing the fault distance by number.
- Solving problems with waveform difficult to analysis.
- Easy to locate cable’s intermediate joint fault.
- One button operation makes things easier.

**Intelligent location: compared with traditional impulse-reflect method**
- High accuracy: intelligent bridge method no dead zone.
- Easy analysis: no need to see the waveform, showing the fault distance by number.
- Wide range: very applicable to locate big section and long distance fault.
- Diversification: intelligent HV bridge method, voltage drop method, sectional area method.
- Specificity: very effective to water-in and stable high resistance fault.

**Locating cable’s Intermediate joint fault**

**Light weight**

![Portable with draw-bar box](image)

![High resistance fault in cable’s intermediate joint being burn through](image)

**Percentage : 33.2%**
**Fault distance : 66m**

**Traditional wave-reflect location: Arc Reflection Method**

**Traditional wave-reflect location: impulse current method**

**New digital location mode show fault distance directly**

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Cable Fault Location  Power Cable Main Insulation Fault Location
SPC20 Multi-pulse Arc Stabilization Unit

Introduction
SPC20 is an auxiliary accessory for the cable fault location power supply. It needs to be used together with the cable fault location power supply and the cable fault wave reflection locator. The multiple pulse arc reflection method makes the fault waveform simpler, helps users to quickly pre-position, and is particularly effective in difficult locations such as long cable faults and intermediate joint faults, and can complete the pre-location of fault points more accurately and quickly.

Features
- Appearance: integrated American PELICAN case, simple wiring, light and portable, weight is only 13kg, easy to move on-site.
- Operation: simple wiring, can be used with other high-voltage equipment.
- No high voltage exposure, safe and reliable.
- Most advanced "multiple pulse method" technology and pulse balance technology in the world. Highlight the reflected waveform of the fault point. Easier identification of test waveform. More accurate distance measurement.
- Safety: High-voltage protection measures can realize the electrical isolation between the measuring circuit and the high-voltage impulse power supply, ensuring the safety of the rangefinder in the impulse voltage environment, without damage or crash.

* Technical data refers to page 28

SPC20 on-site application

LB15 Cable Fault Location Bridge

Introduction
On the cable fault test, there are always faults like intermediate joint damp of insulation, water-in cable, the fault cannot be ignited through by flashover. When these faults occur, conventional methods like impulse method second impulse method or arc reflection method, cannot locate the fault effectively because of the waveform cannot be sampled. LB15 is designed on the basis of Murray Bridge, to solve these super-high resistance faults effectively. It’s the necessary instrument of cable maintenance department.

Features
- Wide range: applicable to 380V~35kV cable’s pre-location.
- Easy to locate bad wave properly cable’s fault like PVC cable or no copper shield cable.
- Effective to locate intermediate joint damp of insulation, water-in cable stable high resistance fault.
- Output: voltage, 5kV and 16kV; current 30mA.

* Technical data refers to page 28

Principle of bridge location

In figure L1/L2=R1/(R1+R2), fault distance L1=2L1*r1/(r1+r2), r1/(r1+r2) is got from the dial scale after the balance of the bridge.

LB15 on-site application
**XHKJ-2000 Overhead Line Fault Location System**

**Introduction**
Overhead line grounding faults are frequent and hidden, which often consumes a lot of manpower and time to patrol the line to find the fault point. The grounding line selection device can only select the line but cannot locate it. The traditional location device needs to mount the pole and hook the sensor to find the fault by section, which is cumbersome. XHKJ-2000 dual-mode intelligent overhead line fault location system innovatively adopts high-order harmonic space vector technology, which can locate the fault point within two hours without power failure; adopts new low-frequency AC mode, after a power failure, it will inject AC signals to the circuit to reproduce the line operation and fault conditions. The receiver receives signal under the line, then measures and analyzes its amplitude and phase under GPS synchronization. The signal characteristics before and after the fault point will be quite different, so as to achieve fault segmentation and location. No longer need to mount the pole to hook up the sensor, the fault location has never been easier.

**Features**

**Locating mode 1: Intelligent AC location mode**
- No-need climbing: Using sampling space magnetic field sensor to detect the characteristic signals, no need to climb the pole to hook the sensor.
- Simple: Near-end record signal characteristics and full automatic comparison, which makes result simple and clear.
- Li-ion Batteries: Transmitter has built-in large capacity Li-ion Batteries, easy to carry.

**Locating mode 2: Arc grounding (High resistance) fault DC location mode**
- Locating arc grounding fault: Using a dedicated adapter accurately locate a ground fault of 1 MΩ.
- DC mode: Stable signal, locate fault point quickly by Dichotomy.

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**T3000 PRO Cable and Pipe Locator**

**Introduction**
T3000 PRO is a high performance underground metallic pipe locating system. It consists a transmitter and a receiver, can be used to do route tracing, pipe exploration and depth measurement of the underground cables and metallic pipes. It can also be used to identify target cable from a bunch of cables, locate the pipe insulation damage and part type cable fault.

**Features**
- Display: visual display of pipeline position, left and right direction.
- Right and wrong indication: current direction measurement, right and wrong indication, eliminating adjacent line interference (partial frequencies).
- Depth and current measurement, can display signal strength history curve.
- Fully digital high-precision sampling processing: stable and reliable, ultra-high sensitivity, extremely narrow receiving passband, strong anti-interference ability, can fully suppress the power frequency and harmonic interference of adjacent running cables and pipelines.

**System principle**

**T3000 PRO on-site application**

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**HCI Cable Identifier**

**Introduction**

Identifying a certain cable correctly from a bunch of cables is a common tech question for power cable engineer and cable workers. Cable identifying will avoid severe damage resulting from sawing wrong cable. Cable identifying usually need professional person proceed from 2 ends of cable, and make sure the two numbers are correct. But, human memory is not as reliable as professional device at any time in any circumstance. HCI adopts the Smart concept and integrates a number of patented recognition technologies. Under correct operation, the accuracy of the recognition results is 100%.

* Technical data refers to page 31

**Features**

- Smart Alert technology: smart reminder, no need to worry about the direction of the clamp.
- Smart Display technology: directly and intelligently display “target cable” or “no signal”.
- Pulse Current technology: under correct operation, the accuracy of the recognition result is 100%.

**On-site test wiring**

* Target Cable: If shows a screen when it gets the target cable.
* No Signal: If shows a screen when it gets the wrong cable.

**HCI on-site application**

**ECI Low Voltage Cable Identifier**

**Introduction**

Identifying a certain cable correctly from a bunch of cables is a common tech question. Cable identifying will avoid severe damage resulting from sawing wrong cable. Cable identifying usually need professional person proceed from 2 ends of cable, and make sure the two serious numbers are correct. But, human memory is not as reliable as professional device at any time in any circumstance. ECI is applicable for identifying low voltage live cable 220V/380V, and the identification of low voltage section. It can identify the target cable and low-volt section without power off. 100% correct result under correct method.

* Technical data refers to page 31

**Features**

- Small size, high stability, easy operation and safe, result is intuitive, no need any experience.
- 100% correct result under correct method.
- Meet the “Electricity Safety Regulations” of 2005 version.
- Light weight, less than 1.8kg of the whole set.

**On-site test wiring**

* Red clip: Black clip
* White clip: N

**ECI on-site application**
**FCI+ Live Cable Identification Instrument**

**Introduction**

The power cables buried underground is out of our vision, which brings new problems to the daily maintenance and management. Especially with the passage of time, the replacement of specific managers, the lack of original files and other reasons, it is often difficult to identify the corresponding problems between specific user points and the head end of the power supply, and the parallel transmission of multiple cables in the cable well cannot be identified. Traditional identification can only be used in uncharged cable. FCI+ live cable identification instrument adopts pulse audio identification technology, which gets rid of the disadvantages of traditional cable identification such as weak ability to filter out clutter and poor ability to receive weak signals, so that cables can be accurately identified without power failure.

* Technical data refers to page 31

**Features**

Appearance: light, portable, integrated
- Light weight: 3.5kg.
- Portable: small case.
- Power supply: no-need generator, high density lithium battery can work continuously for 5 hours.
- Intuitive display: "target cable" or "No signal" is a non-target cable.

Light weight, easy to carry

**FCI+ on-site application**

**TV10 & TV35 DAC Situation Detection Location System**

**Introduction**

DAC is new technology in cable situation checking, and is closely focused by all over the world recent years. The essence of DAC is to use DAC voltage to replace power frequency AC withstand voltage test, on the basis of meet IEC60270 standard. DAC situation detection location system TV10, combines DAC withstand voltage test and partial discharge, to do non-destructive test and provide effective way to find the potential faults. With partial discharge measurement location function, it can locate the fault successfully. It’s ideal equipment of operating maintenance department and test department.

* Technical data refers to page 32

**Features**

System Principle
- Damping oscillatory wave release process is based on RLC principle, and the tested cable with HV inductance form a LC circuit.
- Constant current linear boost method storages energy to the tested cable, automatic boost to the preset voltage, on the process without static DC electric field in cable insulation.
- Finished boost, HV switch will close LC circuit at 1 μs, producing 20~300 Hz oscillating AC voltage.
- Under the stimulation of oscillation voltage, cable’s inner fault will cause partial discharge. Mainframe collects oscillatory wave and partial discharge signal by partial discharge pressure/coupling unit, then analysis.

During the test, there is no statistic current, and no wastage to the crosslinked cable.

**TV10 & TV35 on-site application**
VLF-40kV & VLF-90kV
0.1Hz Cable AC Withstand Voltage Test System

Introduction
Ultra-low frequency insulation withstand voltage test is actually an alternative method of power frequency withstand voltage test. As we know, when power frequency withstand voltage test to large generators and cable, it needs to test transformer or resonant transformers with large capacity because their insulation layer are with big capacitance. Such huge equipment, not only weight heavy, high cost and application is also inconvenient. In order to solve this problem, Power Sections adopt reducing the test frequency, thus reducing the capacity of the test power supply. 0.1 Hz AC withstand voltage test alternative power frequency withstand voltage test, not only can have the same equivalence, but also have much less volume of equipment and greatly reduce the weight.

Features

Appearance
- Light: 25kg.
- Screen: big LCD screen.
- Safety: over-voltage and over-current protect, no more than 20ms.

Test range
- Function: withstand voltage test of 10kV and below cable.
- Output voltage: max 40kV, effective voltage 28kV,
- VLF90kV max.90kV, effective voltage 63kV.
- Big capacity: test fast, test length up to 5km.

VLF-40kV on-site application

* Technical data refers to page 33

Output voltage: max 40kV, effective voltage 28kV,

VLF90kV max.90kV, effective voltage 63kV.

Cable Fault Test Van

Introduction
According user-defined design to meet test need on the scene, our company has designed this cable test van. Put all kinds of test instruments, equipment, accessories and auxiliary tools in station wagon after refitting, which will set cable test, cable fault diagnose, cable fault pre-location, cable locator, fault pin-pointer and cable identifier in one, to give customer complete cable fault solution plan. The efficiency and standard of cable fault detection are improved effectively.

Function
- Pre-location and pin-point.
- Accuracy searching for cable path.
- Cable identifier for live and dead cable.
- 0.1Hz cable AC withstand voltage test.
- High resistance fault burn through.
- Cable DC withstand voltage test.
- Auxiliary tools for routine work.

Application

* Technical data refers to page 33
Experience and Training Center

The power cable training center, as part of the International Equipment Center, is a versatile and experiential technical exchange and training platform, with fully functional teaching base and impeccable training system.

Brief Introduction

Main Training Terms:
- Precise and comprehensive management technology of underground pipe network
- Cable fault location and comprehensive assessment of cable status
- Cable intermediate joint manufacturing technique

Main Aims:
- To improve the technical level of cable fault locating staff
- To ensure the safe operation of power, and effectively improve the reliability of power supply
- To be China's outstanding, professional technical exchanges and training platform

Cable Laying Ways
- Overhead Lines Laying
- Cable Trench Laying
- Direct Burial Laying
- Cable Laying in Pipe
- Concrete Pavement Laying
- Cable Well Laying

Seven Training Area

Tanbos Power Cable Training Center is strictly according to international standards to lay 9 cables, with 12 kinds of faults: single phase grounding fault, single phase low resistance grounding fault, dead grounding fault, flashover high resistance fault, open circuit fault, interphase high resistance fault, interphase short circuit fault, high voltage single-core cable outer sheath fault, fault in the pipe, intermediate joint fault. Different difficulties can meet different needs from different levels' people.

Training Center also hires experts to teach professional knowledge regularly, or technical seminars, by combining theory and practice. Staff in electric power industry can exchange theoretical knowledge, also get true experience of cable fault location, which has really improved the capacity of them, and ensured the work safe, fast and effective to enhance the social and economic benefits.
**Voice 1.0 Fault Point Discharge Sound Sensitivity Training System**

**Changeable environment, let you hear more discharge voices than experts!**

**System Overview**

In the cable fault location process, the cable overhaul person may not be sensitive to the cable fault point of the discharge sound, especially for the cable overhaul person who lack of experience in the field of cable is particularly prominent. The complexity of the environment and the variety of cable laying methods increase the difficulty of precise points of fault. The training system integrates different voltage levels, different types of failures, different scene modes: wind, rain, day, night, noise, etc; Different laying environments: tube, channel, buried, lawn, water, etc; As well as the real cable fault point discharge sound in different buried depth, through computer system, flash animation interactively simulate the real, effective rendering point scene. Through the system training, let the students to grasp the skill precisely the fixed-point accurately, easy to feel the real fault point discharge under different environment, enhance the sensitivity of cable maintenance engineers to feel the fault point discharge voice, help users never miss the familiar voices, easily locate the fault point.

**Functional Technical Features**

- **Flash Animation**
  Through the 3D animation to simulate fixed-point scene of different cable failures.

- **Scene Modes**
  Wind, rain, day, night, noise, etc.

- **Laying Environment**
  Tube, channel, buried, lawn, water, etc.

- **Fault Character**
  Low resistance: 5Ω, 10Ω, 6Ω, 100Ω, 200Ω
  High resistance: 300Ω, 600Ω, 1kΩ, 3kΩ, 10kΩ.

- **Voltage Class**
  380V, 10kV, 27.5kV, 35kV, 110kV, 220kV

- **Cable Buried Depth**
  0, 3m, 0.6m, 0.75m, 1m, 2m, 3m, 5m
Wave-Pad Wave-Pad Cable Fault Training System

System overview

Wave-Pad cable fault training system is a multi function portable practice / teaching training system. It gathers a variety of real site cable fault waveform (e.g.: full length, broken line, low resistance, intermediate joint, tube failure, difficult to be high resistance, stable high resistance, near terminal failure, unbreakable waveform, etc) and cable fault test principle knowledge, teaching video, on-site classic case and so on, which integrated large data, enrich the teaching content. The system adopts the computer model design, which can be divided into the entry level and the expert level according to the difficulty of the waveform. Users press the button to make sure after they determined, then the system will automatically determine whether the detective waveform is correct. If the waveform is right, the interface will show: “correct”; if not, the interface displays red: “error”, and the cursor will automatically move to the correct position. This function helps users to learn how to test waveform.

Functional technical features

Multi - functional teaching mode

- Teaching materials: cable basic knowledge / noun explanation / cable fault location principle analysis.
- Video teaching: low-voltage pulse, pulse current waveform operation skills and cable fault test steps.
- Waveform teaching: integrate the site waveform database to facilitate the user to practice at any time.

Intelligent simulation exercise

- Wave type
  Low resistance, high resistance, full length, intermediate joint, broken line, unbreakable, etc.

- Intelligent error correction
  If the waveform is wrong, the cursor will automatically move to the correct position.

- Automatic judgment
  Users test the waveform, then the system will automatically determine whether the detective waveform is correct.

Classic case sharing

- Routine failure cases
  1. Single phase low resistance ground fault
  2. Single phase high resistance ground fault
  3. Disconnection failure

- Troubleshooting cases
  1. Dead grounding fault of cable
  2. Waveform cannot get out
  3. Perforated tube fault
  4. The middle part damped
  5. The cable path indicate fault
  6. Flashover failure

Learning without going outside!
Technical Data

T32+ Intelligent Cable Fault Location System

Fault location power LP30/4+

- Output voltage: 0-30kV continuously adjustable
- Capacitance: 4μF
- Single discharge energy: 1800J
- Weight: 90kg
- Volume: 380x380x790(mm)

Impulse reflector/Cable fault pre-locator (TDR) WL50+

- Low voltage impulse: 30V
- Impulse width: 40ns-10μs
- Sampling frequency: 200MHz
- Error: 0.4μm
- Test range: 100km
- Work mode: Low voltage impulse, Impulse current, Stable Arc Reflection Method
- Weight: 3kg
- Volume: 355x269x155(mm)

Cable fault pin-pointer PP20

- Precision of point positioning: 0.1m
- Precision of path location precision: 0.1m
- Precision of step voltage method: 0.1m
- Work mode: Anti-noise mode: Strong noise reduction mode, Background suppression noise reduction mode, Intelligent Acousto-Magnetic Time Difference Mode
- Display mode: Color LCD
- Power: Li-battery, 12h standby

T20 Cable Fault Location System

Fault location power LP30/2

- DC voltage output: 0-35kV continuously adjustable
- Max charging current: 30mA
- Max discharge energy: 900J
- Polarity of output voltage: Negative polarity
- Power supply: Lithium battery
- Capacity: 1kVA
- Volume: 500x305x457(mm)
- Net weight: 28 kg

Cable fault pre-locator (TDR) WL20

- Low voltage impulse launching voltage: 30V
- Sampling frequency: 200MHz
- Max ranging scope: 100km
- Dead zone: 2m
- Max resolution: 0.4μm
- Power supply: Polymer Li-ion battery pack, for Min 5 hours continuous usage. AC200V, 50Hz
- Size: 274x219x81(mm)
- Weight: 3.5kg

Cable fault pin-pointer PP20

- Precision of point positioning: 0.1m
- Precision of path location precision: 0.1m
- Precision of step voltage method: 0.1m
- Work mode: Anti-noise mode: Strong noise reduction mode, Background suppression noise reduction mode, Intelligent Acousto-Magnetic Time Difference Mode
- Display mode: Color LCD
- Power: Li-battery, 12h standby

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Email: sales@instrumentsgroup.co.za
Tel: (011) 683 4365
**T8 Low Voltage Cable Fault Location System**

**Fault location power LP158**

- DC output voltage: 0-15kV continuously adjustable
- Output Power: Peak 2000W
- Capacitance: 8μf
- Max discharge energy: 900J
- Power supply: Lithium battery
- Size: 500X305X457(mm)
- Weight: 29.5kg

**Cable fault pre-locator (TDR) WL20**

- Low voltage impulse launching voltage: 30V
- Sampling frequency: 200MHz
- Max ranging scope: 100km
- Dead zone: 2m
- Max resolution: 0.4m
- Power: AC 220V, 50Hz
- Size: 274×218×81(mm)
- Weight: 3.5kg

**Cable fault pin-pointer PP20**

- Precision of point positioning: 0.1m
- Precision of path location precision: 0.1m
- Precision of step voltage method: 0.1m
- Work mode: Anti-noise mode; Strong noise reduction mode; Background suppression noise reduction mode; Point location mode; Intelligent Acousto-Magnetic Time Difference Mode
- Display mode: Color LCD
- Power: Li-battery, 12h standby

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**LB4 / 60A Intelligent Digital Cable Fault Location Bridge**

- **Burn through function**
  - Output voltage: 0-60kV continuously adjustable
  - Short-circuit current: 400mA
- **Bridge function**
  - Output voltage: 0-4kV
  - Short-circuit current: 750mA
  - LCD screen size: 128X64(mm)
  - Location precision: ±(0.2%×L+1)m
  - Testing range: 1-50000m
  - Power supply: One key operation
- **Power supply**
  - Supply: 220V AC±10%, 50Hz
  - Power: 1KVA, generator as power supply (>1kW)
- **Weight**
  - 30kg
- **Dimension**
  - 30x4650(cm)
- **Working temperature**
  - -10°C to +55°C

---

**SPC20 Multi-pulse Arc Stabilization Unit**

- **Input voltage**
  - 0 ~ 30kV (Negative pulse)
- **Output voltage**
  - 0 ~ 30kV (Negative pulse)
- **Allowable input impulse voltage**
  - <35kV
- **Allowable input impact energy**
  - 2000J
- **High voltage input method**
  - Negative high voltage pulse input
- **Size**
  - 420X220X340(mm)
- **Weight**
  - 13kg

---

**LB15 Cable Fault Location Bridge**

- **Output voltage**
  - 0-5kV, 1-15kV. Two gears, continuously adjustable
- **Short circuit current**
  - 30mA
- **Burn through power**
  - 260W
- **Location ratio precision**
  - ±(0.2%×L+1)m
- **Weight**
  - 10kg
- **Size**
  - 380X360X270(mm)
- **Working power supply**
  - 220V±15%
**XHKJ-2000 Overhead Line Fault Location System**

<table>
<thead>
<tr>
<th>Working way</th>
<th>Intelligent diagnosis, AC location, DC location, AC withstand voltage, DC withstand voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent diagnosis</td>
<td>Resistance measurement: Range: 600 MΩ / Accuracy: ±10%</td>
</tr>
</tbody>
</table>

**DC location**
- Output frequency: Pulse 1Hz
- Output method: Limited power constant current output
- Output current: 70mA
- Output voltage: DC8kV
- Output current: Max 33mA
- Output voltage: External booster output: peak 5kV
- Max power: 100W

**DC withstand voltage**
- Output current: Max 70mA
- Output voltage: DC8kV
- Max power: 400W

**Protective function**
- Overheat protection, overcurrent protection, shutdown under voltage, automatic discharge, automatic shutdown after 2 hours of no operation

**Power supply**
- Built-in 480WH lithium battery pack

**Display**
- 800×480 highlight color LCD

**Charger power supply**
- Input: AC220V 50-60Hz
- Output: 54.6V, 2A

**Size**
- 450mm×240mm×270mm

**Weight**
- 13Kg

---

**Receiver & DC wireless sensor**

<table>
<thead>
<tr>
<th>Working way</th>
<th>AC location, DC location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data memory</td>
<td>Data storage and recording</td>
</tr>
<tr>
<td>Communication between DC wireless sensor and receiver</td>
<td>2.4GHz, &gt;100m</td>
</tr>
<tr>
<td>Display</td>
<td>Receiver: 800×480 highlight color LCD</td>
</tr>
<tr>
<td>Power supply</td>
<td>Receiver: 18650 lithium battery 3.7V, 6700mAH</td>
</tr>
<tr>
<td>Suspension sensor</td>
<td>Rechargeable lithium battery 3.7V, 1500mAH</td>
</tr>
<tr>
<td>Charger</td>
<td>Input: AC100-240V 50/60Hz, Output 5V/2A</td>
</tr>
<tr>
<td>Size</td>
<td>Receiver: 226mm×140mm×55mm</td>
</tr>
<tr>
<td>Suspension sensor</td>
<td>185mm×140mm×50mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Receiver: 0.9kg</td>
</tr>
<tr>
<td>Suspension sensor</td>
<td>0.5kg</td>
</tr>
</tbody>
</table>

---

**T3000 pro Cable and Pipe Locator**

<table>
<thead>
<tr>
<th>Output</th>
<th>Direct Connection output, Clamp Coupling Output (optional), Radiation output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Frequency</td>
<td>640Hz (Fault finding booster optional), 1280Hz (complex frequency), 10kHz, 33kHz, 82kHz, 197kHz</td>
</tr>
<tr>
<td>Output power</td>
<td>Max. 10W, 10 levels adjustable, auto impedance matching</td>
</tr>
<tr>
<td>Direct connection voltage</td>
<td>Max. 150Vpp</td>
</tr>
<tr>
<td>HMI</td>
<td>320X240 LCD</td>
</tr>
<tr>
<td>Power supply</td>
<td>4xbuilt-in 18650 Li-ion batteries, standard 7.4V, 6.8Ah</td>
</tr>
</tbody>
</table>

**Receiver**
- Input: Internal receiving loop, Clamp (optional), sensor (optional), fault locating A Frame (optional)

**Receiving frequency**
- Active detection frequency: 640Hz, 1280Hz, 10kHz, 33kHz, 82kHz, 197kHz
- Power frequency passive detection frequency: 50Hz/60Hz and 250Hz/300Hz (user configurable)
- Radio frequency passive detection frequency bands: center frequencies are 10kHz, 33kHz, 82kHz, respectively

**Pipe detection mode**
- Wide peak method, narrow peak method, valley method

**Cable identification mode**
- Receiving Clamp (optional) intelligent identification and sensor (optional) identification

**HMI**
- 320X249 LCD

---

**Others**
- Volume: Transmitter 280X220X90(mm) Receiver 680X277X120mm
- Weight: Transmitter 2.3Kg Receiver 2Kg
- Charger: Input AC 100~240V, 50/60Hz, output DC4.4V, 2A
- Working environment: Temperature -10~40°C, humidity: 5~90%, elevation: <4500m
**FCI+ Live Cable Identification Instrument**

<table>
<thead>
<tr>
<th>Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Power</td>
</tr>
<tr>
<td>Output frequency</td>
</tr>
<tr>
<td>Output voltage</td>
</tr>
<tr>
<td>Short circuit current</td>
</tr>
<tr>
<td>Output mode</td>
</tr>
<tr>
<td>Screen</td>
</tr>
<tr>
<td>Display</td>
</tr>
<tr>
<td>Output mode</td>
</tr>
<tr>
<td>Power supply</td>
</tr>
<tr>
<td>Working time</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Weight</td>
</tr>
</tbody>
</table>

**Receiver: LCD optional**

<table>
<thead>
<tr>
<th>Display</th>
<th>The LCD screen indicates the target cable (target cable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamp</td>
<td>Flexible clamp 19mm</td>
</tr>
<tr>
<td>Gain</td>
<td>10 gears (-3dB to +24 dB)</td>
</tr>
<tr>
<td>Power supply</td>
<td>4 x AAA</td>
</tr>
<tr>
<td>On-site use time</td>
<td>&gt;50hours</td>
</tr>
<tr>
<td>Weight</td>
<td>400g (with clamp and battery)</td>
</tr>
<tr>
<td>Size</td>
<td>165x80x30(mm)</td>
</tr>
</tbody>
</table>

**ECI Low Voltage Cable Identifier**

<table>
<thead>
<tr>
<th>Transmitter (ECI-101):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working voltage</td>
</tr>
<tr>
<td>Periodic impulse current</td>
</tr>
<tr>
<td>Impulse frequency</td>
</tr>
<tr>
<td>Power supply</td>
</tr>
<tr>
<td>Display mode</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Size</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receiver (ECI-108):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
</tr>
<tr>
<td>Keys press mode</td>
</tr>
<tr>
<td>Gain</td>
</tr>
<tr>
<td>On-site use time</td>
</tr>
<tr>
<td>Power supply</td>
</tr>
<tr>
<td>Clamp</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Size</td>
</tr>
</tbody>
</table>

**Technical Data**

**Test and Measurement Instruments C.C.**

www.instrumentsgroup.co.za

Email: sales@instrumentsgroup.co.za  Tel: (011) 683 4365
**TV10 DAC situation detection location system**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>220VAC ± 10%, 50Hz</td>
</tr>
<tr>
<td>Oscillating wave output maximum voltage</td>
<td>0-30 kV (pek) / 0-21.2 kV (rms)</td>
</tr>
<tr>
<td>Oscillation frequency</td>
<td>50-800 Hz</td>
</tr>
<tr>
<td>High voltage charging current</td>
<td>10 mA</td>
</tr>
<tr>
<td>PD measurement range</td>
<td>50 pC ~ 20nC</td>
</tr>
<tr>
<td>Partial positioning bandwidth</td>
<td>150kHz ~ 45MHz automatic adjustment</td>
</tr>
<tr>
<td>PD locating accuracy</td>
<td>0.1 m</td>
</tr>
<tr>
<td>Dielectric loss measurement range</td>
<td>0.1%-5%, automatic measurement</td>
</tr>
<tr>
<td>Control mode</td>
<td>Wireless control</td>
</tr>
<tr>
<td>Power supply</td>
<td>AC220V±10%</td>
</tr>
</tbody>
</table>

**TV35 DAC situation detection location system**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oscillating power supply output peak voltage</td>
<td>0-60 kV (pek) / 0-51.2 kV (rms)</td>
</tr>
<tr>
<td>Oscillation frequency</td>
<td>50-800 Hz</td>
</tr>
<tr>
<td>Oscillation loop inductance</td>
<td>Not less than 0.8H</td>
</tr>
<tr>
<td>Cable capacitance</td>
<td>0.03 μF - 5 μF</td>
</tr>
<tr>
<td>PD positioning bandwidth</td>
<td>150kHz-45MHz</td>
</tr>
<tr>
<td>PD measurement accuracy</td>
<td>1 pC</td>
</tr>
<tr>
<td>Location accuracy</td>
<td>0.1 m</td>
</tr>
<tr>
<td>PD calibration range</td>
<td>50 pC ~ 20nC</td>
</tr>
<tr>
<td>High voltage charging current</td>
<td>10 mA</td>
</tr>
<tr>
<td>Cable dielectric loss measurement range</td>
<td>0.1%-5%, automatic measurement</td>
</tr>
<tr>
<td>Testing time</td>
<td>Charging time is not more than 2 seconds, test time is less than 100ms, non-destructive test</td>
</tr>
<tr>
<td>Wave</td>
<td>Damped oscillatory waves; frequency domain filtering and wavelet filtering</td>
</tr>
<tr>
<td>PD level and trend</td>
<td>It depicts the level and trend of partial discharge during the withstand voltage test, and has a compensation function to truly restore the actual level of the partial discharge</td>
</tr>
<tr>
<td>Wireless control</td>
<td>Control the high voltage output through wireless local area network (WLAN) to ensure personal safety, or you can choose wired control</td>
</tr>
<tr>
<td>Analysis function</td>
<td>Automatic and manual analysis functions</td>
</tr>
<tr>
<td>Cable length correction</td>
<td>Cable length correction function</td>
</tr>
<tr>
<td>Anti-interference</td>
<td>Wireless connection or wired connection, eliminate the interference of on-site signal</td>
</tr>
<tr>
<td>Power supply</td>
<td>AC220V±10%</td>
</tr>
</tbody>
</table>

**VLF 0.1Hz Cable AC Withstand Voltage Test System**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage (peak value)</th>
<th>Load capacity</th>
<th>Power fuse</th>
<th>Weight</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLF-40</td>
<td>40kV</td>
<td>0.1Hz, +1.1μF</td>
<td>10A</td>
<td>4kg</td>
<td>10kV cable</td>
</tr>
<tr>
<td></td>
<td>0.05Hz, +2.2μF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02Hz, +5.5μF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLF-90</td>
<td>90kV</td>
<td>0.1Hz, +1.1μF</td>
<td>35A</td>
<td>5kg</td>
<td>35kV cable</td>
</tr>
<tr>
<td></td>
<td>0.05Hz, +2.2μF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02Hz, +5.5μF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Input voltage**

100-240V  50/60Hz

**Output current (accuracy ±1%)**

0-44mA

**Resolution**

10μA

**Output frequency**

0.02...0.1Hz, increments of 0.01Hz, default is 0.1Hz

**Output mode**

AC ultra-low frequency AC symmetrical high voltage test, in all test ranges, the waveform is not affected by the load

DC high voltage direct current test positive or negative polarity

Fault cable burn-through mode or fault trip mode

Outer sheath or shielding layer test mode

**HV cable**

4.5m HV output cable with alligator clip

**Accuracy**

3%

**Parameters**

Voltage and current (effective value and peak value)

Capacitance, resistance, time, flashover voltage

**Test method**

Continuous test

**Communication Interface**

RS232 interface (including software), USB

**Temperature**

Store: -25°C to +70°C  Operation: -5°C to +45°C

**Size**

≤450x340x520mm