# Cable Fault Testing System FB41

Cable fault tester+DC withstand voltage burnthrough device
+intelligent digital bridge

# Wider use and stronger performance

Suitable for multiple scenarios and more applications, waiting for you to unlock!

## Suitable for various scenarios

Street light cable maintenance

Troubleshooting of cable faults in farmland irrigation

Community and garden green belt cables

Field power cable

Highway cables

Factory and mining enterprise cables

The measurement method is simple and fast

# Fault ranging unit

Triple pulse ranging host and central control unit

Low voltage pulse

Flashover method

Secondary pulse

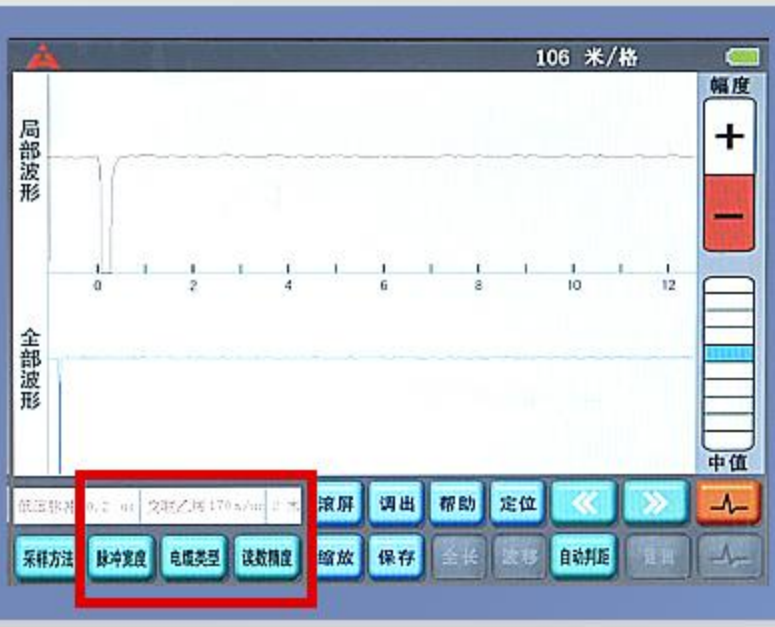
Triple pulse

Multiple pulses



Low voltage pulse method: can test the distance of low resistance short circuit faults and broken wire faults along the entire length of the cable.

Secondary pulse/tertiary pulse/multiple pulse can convert the complex waveform obtained by the flashover method into a simple waveform similar to that obtained by the low-voltage pulse method, which only includes transmitted and reflected waves.




Pulse width, cable type, and reading accuracy can be adjusted appropriately based on the length of the measured cable

Scroll and zoom keys: can flexibly view waveforms

Automatic criterion: can automatically lock the cable fault distance

Positioning key: can manually set points for waveforms


Sample line
Distance measuring host
Connection line
Charger
Sampling box
Digital Time Domain Reflectometer

# Function and characteristic

## Function and Characteristic

**TIPS 01** / Can detect high and low resistance faults in all cables of 35KV and below levels, with a wide range of adaptability.

**TIPS 02** / Adopting internationally advanced testing techniques such as the three-level pulse method and the three-level multiple pulse method. It also has traditional high-voltage flashover method and low-voltage pulse method.

**TIPS 03** / Any high resistance fault presents simple waveform characteristics similar to low-voltage pulse short circuit faults, which are extremely easy to interpret.

**TIPS 04** / Featuring user-friendly software and a full Chinese menu, the key definitions are simple and clear. The measurement method is simple and fast.

**TIPS 05** / Adopting a central control unit to sequentially trigger three levels of signal output with one click control, ensuring safety and success rate. The central control unit can prompt operation steps and monitor work progress.

**TIPS 06** / It has the function of storing test waveforms, which can conveniently store the waveforms tested on site in the specified order in the instrument for easy access and observation at any time. Can store a large number of on-site test waveforms.

**TIPS 07** / The waveform of the measured fault point can be displayed on the screen simultaneously with the full-length open circuit waveform of the good phase for same screen comparison and superimposed comparison, and the fault distance can be automatically determined.

**TIPS 08** / An 11 inch ultra high brightness color touch LCD screen display with powerful data processing capabilities and a user-friendly display interface.

**TIPS 09** / Equipped with extremely safe sampling high-voltage protection measures.

**TIPS 10** / Equipped with 232 computer communication interface and USB communication interface, it is convenient to save data and graphics in the computer.

**TIPS 11** / Equipped with a built-in power supply, it can test cables for open circuit and low resistance short circuit faults in a power free environment.

| Technical Parameter | |
|---|---|
| Test method | Low voltage pulse method, flashover method, secondary pulse method, tertiary pulse method, multiple pulse method, velocity measurement |
| Data sampling rate | 100MHZ, 50 MHZ, 25MHZ, 12.5 MHZ |
| Test distance | >64KM; |
| Reading resolution | 1M |
| System testing accuracy | 0.1M |
| Test cable pulse width with | 0.05, 0.1, 0.2, 0.5, 1, 2, 8 microseconds |
| Built in power supply | After being fully charged, the instrument can work continuously for more than 3 hours, and can also be operated with an external AC power supply. |
| Working conditions | Temperature -30 ° C~+45 ° C |
| **Technical indicators of central control unit** | |
| Control mode | One click control, triggering three levels of signal sequential output in sequence. |
| Energy storage capacity | 300J |
| working voltage | 220V, 50HZ |
| power dissipation | 100VA |
| External dimensions | 450MMx360MMx320MM |
| weight | 12KG |
| Operating ambient temperature | -30 ° C~+50 ° C |

The measurement method is simple and fast

# Pathfinding and identification unit

T7000 cable path detector

# Function and characteristic

## Function and Characteristic

**TIPS 01** / Can quickly and effectively determine the direction and depth of underground optical cables, as well as identify skin faults.

**TIPS 02** / Determine the direction of the cable (pipeline), with signal strength indication, left and right arrow indication, and compass direction indication.

**TIPS 03** / Equipped with current direction indication to prevent cross line interference.

**TIPS 04** / Depth of digital direct reading display cable (optical cable): 0-20 meters, accuracy within 3 meters is 5%, accuracy within 8 meters is 10%

**TIPS 05** / It has a dedicated fault detection mode, which can be used to detect skin faults and cable damage.

**TIPS 06** / Automatic depth measurement: When the instrument is correctly placed vertically above the pipeline, it automatically displays the true depth of the target pipeline.

**TIPS 07** / Signal recognition: Accurately identify optical cables and cables from three dimensions: signal amplitude, signal direction, and signal phase.

**TIPS 08** / Current direction indication: With unique technology, it can display the current direction and phase of the tracking signal, effectively improving the accuracy of finding the path.

# Technical parameters of transmitter

This machine is a multi frequency high-power transmitter with constant power output and automatic matching of external loads, ensuring that the machine operates in an optimal state. Equipped with an ohmmeter function, it can detect external voltage and test continuous loop resistance, which can assist in determining the nature of faults.

## Available frequencies for selection:

Output sine AC signals of 31 frequencies, namely 98HZ, 128HZ, 256HZ, 480HZ, 491HZ, 512HZ, 577HZ, 640 HZ, 815HZ, 982HZ, 1.02KHZ, 1.17KHZ, 1.45KHZ, 1.52KHZ, 4.1KHZ, 8.01KHZ, 8KHZ, 8.44KHZ, 9.5KHZ, 9.82KHZ, 29.4KHZ, 33 KHZ, 38 KHZ, 65.5 KHZ, 78.1KHZ, 80.43 KHZ, 823 KHZ. 3KHZ, 83.1KHZ, 89KHZ, 133KHZ, 200KHZ, fault detection and pipeline identification signals FFLOW, FFHIGH, Current direction signals SS LOW and SS HIGH.

With FF fault detection frequency, it can simultaneously emit routing tracking signals and fault location signals

Ohm meter function, can detect external resistance and external dangerous voltage prompts

Three signal transmission methods (direct connection method, coupling method, induction method)

Automatic load adjustment

The output power is adjustable, with four gears: low, medium, high, and full. Large output current not less than 999MA; High output power not less than 12W

Powered by large capacity lithium batteries, capable of working at full load for 8 hours

# Receiver technical parameters

The receiver uses a 3.5-inch 24 bit true color LCD display, which displays signal strength digits, amplitude bars, compass pointing, left and right arrow pointing, and current direction indication. It is used to indicate signal strength, optical cable positioning, fault detection, optical cable identification, and depth measurement.

There are five display methods: wide peak, valley, narrow peak, wide peak arrow, and peak plus valley

Equipped with broadband reception technology, it can provide personalized customization according to customer needs (within 100HZ to 200KHZ)

Available frequencies to choose from: 50HZ, 60HZ, LF, 577HZ, 8KHZ, 33KHZ, 82KHZ, 133KHZ, SSLOW, SSHIGH.

Digital direct reading depth range: 0~20 meters. Accuracy: Within 3 meters+5%, within 8 meters+10%.

Display content: signal strength, signal amplitude light bar, left and right arrow indication, compass direction indication, current direction indication, current phase display, real-time depth indication.

External A-frame can be used for precise positioning of cable faults.

External coupling pliers can be used for precise cable identification.

Signal recognition: Accurately identify optical cables and cables from three dimensions: signal amplitude, signal direction, and signal phase.

Current direction indication: With unique technology, it can display the current direction and phase of the tracking signal, effectively improving the accuracy of finding the path.

Has adjustable tone: a signal strength sound indicator for quantity.

3.5-inch 24 bit true color LCD display. The backlight brightness can be adjusted to adapt to various environments.

Powered by a large capacity lithium battery, it operates continuously for 8 hours.

Intelligent positioning device

# Fault fixed-point unit

Highlighting the fault point discharge sound has higher sensitivity and anti-interference ability

Suitable for various scenarios

# Function and characteristic

## Function and Characteristic

**TIPS 01** / The display part adopts a bright 4.3-inch OLED color LCD, making the display interface clearer.

**TIPS 02** / The function and parameter adjustment adopt a one click programmable pulse coding button, making the operation panel more concise and convenient.

**TIPS 03** / The instrument will collect and display the waveform of the audio part in real time. By observing the repetitive waveform characteristics and the approximate distance from the fault point to the distance axis, the operator can observe the waveform without fatigue.

**TIPS 04** / Four filtering frequency bands were used in the acquisition of acoustic signals, including low frequency band, medium frequency band, high frequency band, and full frequency band. Users can choose according to the actual situation on site.

**TIPS 05** / The audio part adopts digital filtering technology for filtering processing, making the characteristic frequency band more prominent and the filtering performance better.

**TIPS 06** / Excellent discharge sound quality and quieter background, used to quickly and reliably locate the fault point.

**TIPS 07** / Fully automatic setting of trigger threshold for sound channels.

**TIPS 08** / Intelligent background digital noise reduction technology BNR.

**TIPS 09** / Turn on and off the upper limit of shock discharge sound.

**TIPS 10** / Fully automatic mute technology can effectively protect the operator's ears and avoid additional noise caused by the movement of the pickup probe when the operator moves it.

**TIPS 11** / Cable left and right direction indication function provides more accurate cable position.

**TIPS 12** / Fault point distance display can display the distance of the fault point within the range of 0-99.9MS (0-30M).

**TIPS 13** / Display the amplitude of 8 historical electromagnetic signals in the form of a bar chart.

**TIPS 14** / 1 minute without operation or electromagnetic signal, the backlight of the display screen will automatically dim.

**TIPS 15** / Equipped with high-voltage step voltage function, selectable upon startup. Equipped with an A-frame.


## Technical Parameter

| | |
|---|---|
| The amplification factor of the surge discharge gain is greater than 120DB, and the surge discharge sound. The upper limit of 84DB can be turned on or off. | |
| Dynamic range of sensors | Sound channel>110DB, electromagnetic channel>110DB |
| Sensor operating frequency range | 100HZ～1500HZ |
| Filter frequency band settings | Full frequency band 100Hz~1500Hz Low frequency band 100Hz~400Hz<br>Bandwidth 150Hz~600Hz High frequency band 200Hz~1500Hz |
| Fault distance display | 0-100MS/0-30M |
| Audio testing accuracy | 0.1MS |
| Electromagnetic intensity display | Rectangular bar display, large value record display |
| Cable left and right direction indication function | |
| Fully automatic mute technology | |
| 1 minute without operation or electromagnetic signal, the backlight of the display screen will automatically dim. | |
| Power supply method: Lithium battery, 7.4V-4.2AH. | |
| Continuous working hours: greater than 8 hours. | |
| Display: 4.3-inch high brightness OLED display (480 * 272). | |
| Working environment temperature: -20 ° C -70 ° C. | |
| Host size: 240 * 130 * 120MM. | |

Short cable fault location

# High voltage signal unit

Integrated high-voltage signal generator with battery

Central control unit

Connection line

Combination grounding wire

High voltage connection line

High voltage signal generator

# Function and characteristic

## Function and Characteristic

**TIPS 01** / Adopting a closed box structure, all high-voltage equipment and high-voltage ports are not exposed to ensure safe operation.

**TIPS 02** / Adopting a large screen color LCD compass display to more intuitively display the discharge voltage and current values

**TIPS 03** / The integration level is high, integrating high-voltage switch power supply, high-voltage pulse capacitor, unique pulse output mechanism, automatic discharge mechanism, and discharge rod into one. The entire process is completely insulated to meet the safety first requirement of simplified wiring.

**TIPS 04** / This instrument has a high degree of automation and has the function of automatic discharge of the discharge rod and overcurrent protection after power failure. Especially, the high-voltage switch is controlled by a digital pulse circuit, achieving an automatically adjustable frequency high-voltage pulse generator as the voltage increases.

**TIPS 05** / It has three working modes: continuous high-voltage pulse, high-voltage DC, and single high-voltage pulse, and users can choose according to their needs. For example, selecting DC high voltage for three pulse sampling, selecting single high voltage pulse for flashover sampling, and selecting continuous high voltage pulse for fault location.

**TIPS 06** / Equipped with single discharge and periodic discharge functions, suitable for different cable fault properties, suitable for various imported and domestic cable fault testers.

**TIPS 07** / Desktop structure, all control, operation, and display devices are set on the front panel, with intuitive display and convenient operation

**TIPS 08** / The pressure boosting, ignition, and discharge devices are integrated, with simple and convenient wiring and operation, small size, light weight, and convenient portability.

**TIPS 09** / The control circuit is designed using electronic technology, which improves safety and reliability

**TIPS 10** / Small size takes up little space and can be safely used in narrow environments

**TIPS 11** / It can work on battery power and does not require mains power.



## Technical Parameter

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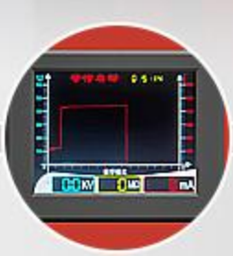
|---|
| Pulse high-voltage output: 0-36KV, negative polarity, continuously adjustable |
| DC high-voltage output: 0~36KV, high output current: 100MA |
| Built in capacitor: 2UF |
| Working mode: DC/single pulse/periodic pulse |
| Discharge cycle: 55 (customizable for 5-30 seconds and adjustable) |
| Discharge energy: 1800J (up to 3600J) |
| Power supply: 220V+10% 50Hz+1% |
| Working conditions: Temperature -30 ° C~+45 ° C, |
| Relative humidity: 90%. |
| Volume: 350 MMx280 MMx350MM |

# High voltage signal unit

NC-DC High Vollage Source


The DC withstand voltage test can output a 60kV DC voltage, which can be used for high-voltage cables and electrical equipment DC withstand voltage tests.


By using microcontroller industrial control technology, the breakdown voltage is automatically lowered as the insulation resistance value decreases, and the breakdown current increases significantly. It has the ability to quickly burn through cable insulation defects and high resistance leakage faults (MAX current 600mA).

# Product composition introduction

*Product Composition Introduction*


Host


Discharging rod

Power line

Ground wire

Current limit resistor

High voltage connection line

# Technical parameter

| |
|---|
| Maximum output voltage: 60KV |
| Maximum output current: 600mA |
| Continuous power: 1000W |
| Display error:<1.5% of soil |
| Working voltage: AC 220V ± 10% 50Hz |
| Working temperature: -20 ° C -50 ° C |
| Relative humidity: ≤ 90% |
| Display: 5.6-inch color LCD screen, resolution, 640 * 480 |
| Weight and volume: 25kg 450 * 320 * 340 (mm) |

# Intelligent Digital Bridge DL5Q

# Functional characteristics

Functional Characteristics


Automated testing: With high intelligence, it automatically completes positioning and calculates the fault distance based on the testing ratio

Large insulation testing range: not affected by small currents, testing insulation resistance value can reach 150MΩ, high anti-interference performance: can avoid the phenomenon of testing cables being unable to measure due to interference signals from other operating cables, so that testing is no longer affected.

# Product composition introduction

Product Composition Introduction

# Technical parameter

| |
|---|
| Test voltage: 0V to 15000V |
| Voltage levels: 1KV, 2KV, 5KV, 8KV, 10KV, 12KV, 15KV, custom |
| Short circuit current: 5mA |
| Test resolution: 0.1% |
| Test range:<20km |
| Bridge positioning accuracy: soil (0.2% oL+1) m (above 0.29) |
| Working voltage: AC 220V ± 10% 50Hz |
| Testing method: Touch type - Key testing operation |
| Display method: 800X480 (7-inch) color touch LCD screen |
| Anti interference capability:>100VAC |
| External dimensions: 465mmX330mmX260mm; |
| Weight: ≤ 11.2 kg |