Huazheng®

# HZ-DS4
# Cable Identification Instrument


**Huazheng Electric Manufacturing (Baoding) Co., Ltd**

Dear user:

Thank you for choosing HZ-DS4 Cable Identification Instrument.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life.

"Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

# Contents

# I. Overview

Cable identification is of great significance in cable construction and maintenance. Both for power cable identification instrument on the market at present, also has in view of the electric cable identification instrument, but in the concrete use, at the scene of the actual cable is often placed the overlying each other together, conventional instrument used calipers tend not to lead to identification card, and largely identify receiving part still use pointer to the header to indicate, the scene due to the vibration failure easily. There are existing equipment often require the site to provide 24

0V power, the user is very inconvenient to use.

Based on this, the research and development department of our company developed a live cable identification instrument with flexible coil and LIQUID crystal display by using modern electronic technology, and changed the design of the main machine into the mode of dry battery power supply, which can solve the disadvantages of the above instrument and is of great help to the actual work. It has the following characteristics:

1. The whole set of instruments can use AA battery to work, to completely solve the on-site no power supply and rechargeable battery is not easy to maintain failure. For the transmitting host, it is specially designed for both AC and DC, which can be powered by either battery or 240V power supply.

2. One-box engineering plastic packing, easy to use, more suitable for transportation and field environment.

3. The large diameter flexible coil receiving part is suitable for all kinds of complex cables.

4. The receiver liquid crystal display is designed with micro-power consumption technology, which is especially power-saving and simple and intuitive to judge.

5. Battery voltage indicator function of receiver. Outdoor visual LCD, sunlight, dark environment can be used.

6. Multi-purpose machine, namely can identify live power cable, can also identify power failure cable.

7. For power failure cables, coupling pliers can be used to apply signals without disassembling cables, or the cable end head and end head can be removed, and the special connection wire prepared can be used to directly apply signals for identification.

# II. Major Technical Indicators

1. Launch pliers jaw: ≥130mm when closed, internal diameter ≥125mm

Receiving flexible coil: can be drawn into a straight line, can be distorted, closed into a circular inner

diameter ≥135mm

2. Receiver power supply: two pieces of AA alkaline battery, continuous working time ≥8h

3. Host power supply: four pieces of AA alkaline battery, continuous working time ≥3h

Or use AC240V power supply

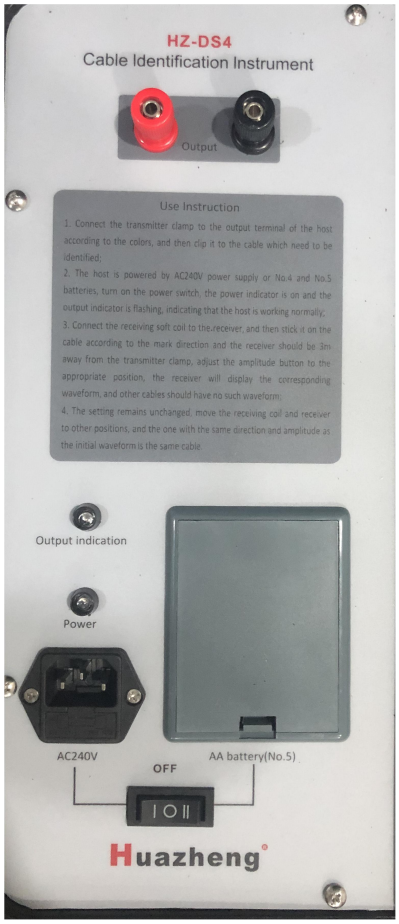
4. Identification method: waveform direction, waveform amplitude, double judgment basis

5. Receiving sensitivity: The resistance of the ground loop is less than 200 ohms

6. Weight and dimension: about 6.5kg, 47cmX38cmX15cm

The appearance is shown below

## III.Panel diagram and function introduction





### Host part:

1. Power indicator: When on, it indicates that the power supply is normal.

2. Output indicator light: on and flashing indicating signal output is normal.

3. Power switch: Choose to use AC240V or 4 pieces of AA alkaline battery for power supply.

4. Output: connect the output calipers or the special direct output line in red and black colors.

**Cable identification instrument receiver part:**

5. Cable navigation plug interface: connected with the identification flexible coil, and used when the power switch.

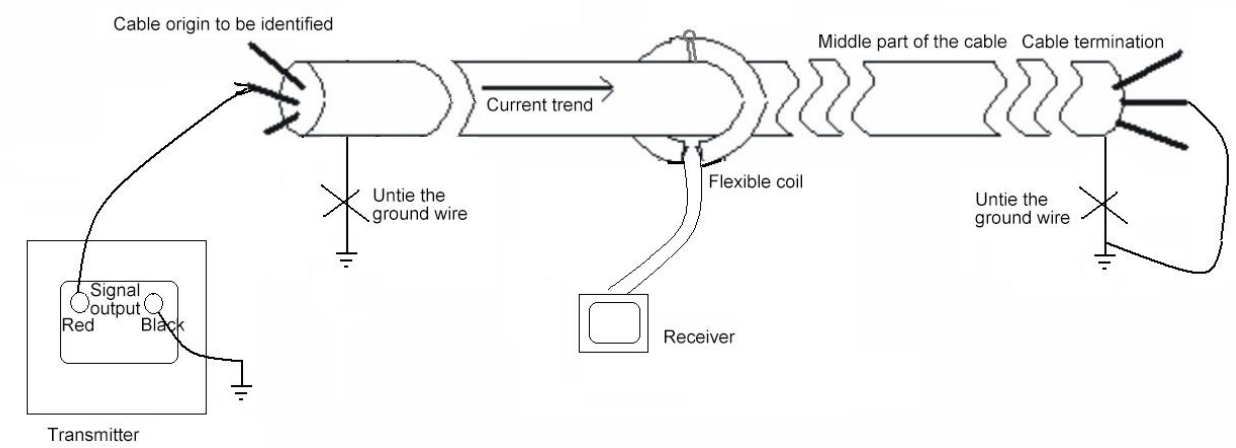
6. "Amplitude" button: Adjust the receiving sensitivity.

7. Battery box: 2 pcs AA alkaline battery.

# IV.Operation method

## 1. Identify live cables

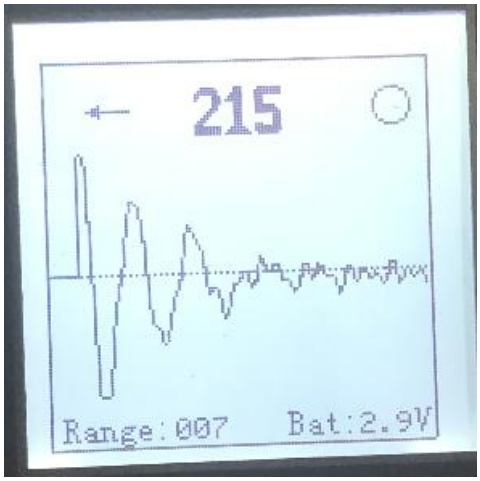
Wiring diagram is as follows:




(1) Connect the output coupling pliers respectively according to the color, use AC240V for the launching host or install four pieces of AA alkaline battery, and connect the output calipers to the cable to be identified according to the direction marked by the pliers.

(2) Turn on the power, the power indicator of the host is on, and the output indicator will have flashing output display, indicating that the output signal of the transmitting host is normal. At this point, take the receiving flexible coil away from the transmitter forceps for about 3 meters and attach it to the cable. Adjust the sensitivity, and the receiving box will display the corresponding attenuation waveform and direction arrow indication. If the setting is unchanged, the waveform should not be displayed on other cables, and the amplitude and direction will be different.

The sample receiver displays as shown in the figure below:



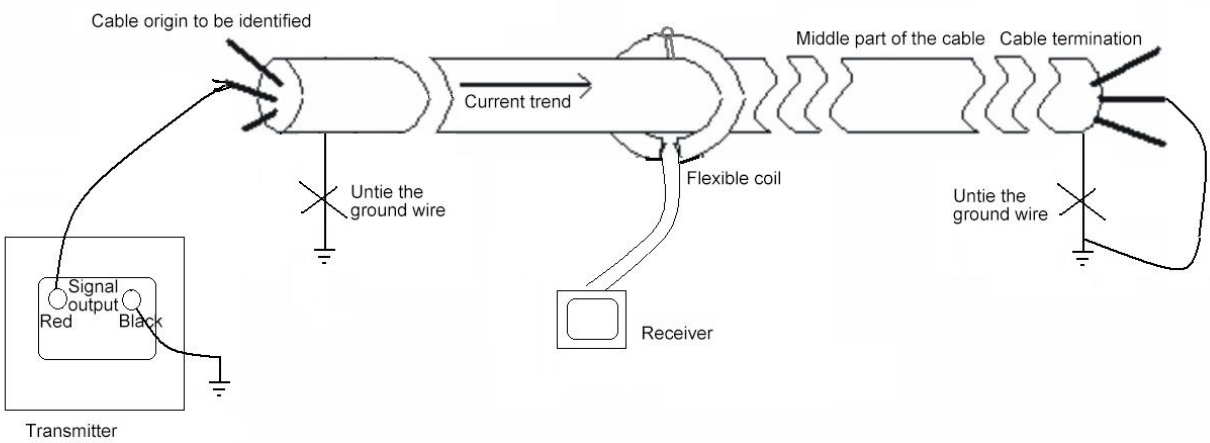

Note: The receiver's "O" position will be blackened to indicate that the signal has been received. At the same time, the receiver's buzzer will sound and the number displayed in the middle will change. If the signal is valid, the corresponding directional arrow will be displayed. If the arrow position shows "X" continuously or does not trigger, it means that the amplitude is too small and needs to be increased; When the battery is below 2.6V, "low voltage" will be displayed, prompting to replace the battery. If the signal is received continuously and irregularly, it indicates interference and needs to reduce the reception amplitude or change the reception position.

(3) If the setting remains unchanged and the receiving coil and box are moved to other positions of the cable, those with the same direction and similar amplitude as the initial waveform are the same cable. This method is suitable for situations where multiple cable identification points need to be confirmed as the same cable.

## 2. Identify dead cables

The uncharged cable can be regarded as a live cable for identification according to the method of 1. above, or it can be directly identified according to the direct connection method below.

The wiring diagram is as follows:



The difference with the live cable identification is: do not use the transmitter calipers, untie the start and end of the cable to be identified, untie the armor wires on both sides, use the dedicated direct connection output wire, the red wire is connected to the cable core wire, and the black wire is connected The earth, the cable core wire terminal is connected to the earth. Refer to 1 for other operations.

This method is suitable for situations where the start and end of the cable are known, and the middle position of the cable is found with an instrument.

This method is suitable for situations where the beginning and end of a cable are known and an instrument is used to find the middle position of the cable.

## V.Working principle of live cable identification

Apply the signal to the cable to be recognized through the output coupling clamp. According to the principle of electromagnetic induction, if the copper shielding layer of the cable is intact and the two ends are grounded reliably, the copper shielding layer of the cable will inevitably induce an induction signal consistent with the transmitted signal law , At the site to be identified, use the receiving test clamp of the handheld receiving box to test all the cables on the spot. According to the displayed waveform, the cable with the same direction and similar amplitude is the cable of the added signal.

## VI.Precautions

1. If there is a ground or branch in the middle of a live cable, only the part before the ground or branch of the cable can be identified.

After adding a coupled signal to the cable, no obvious effective signal can be measured with the flexible coil and the receiving box. You can leave the transmitter clamp about 3 meters to avoid signal interference. If there is still no effective signal display, it means that the copper shielding layer of the cable has a broken point or The grounding of both ends of the cable is not reliable.

At this time, generally check the grounding of the cable to be identified. If you find that the shielding layer has a disconnection point, you can use a grounding clamp to ground the disconnection point before and after the disconnection point, and then identify it in sections.

This phenomenon does not exist when the uncharged cable is identified according to the above four and 2.

2. If the receiver is about 3m away from the host, there is a signal for verification and identification, but there is no signal at the site to be identified, or the signal is too small to be identified, it means that the cable to be identified must have multiple metal outer sheath grounding points In this case, the power

failure of the cable to be identified must be identified in sections. At this time, the core wire can be used as the signal channel for identification, that is, the core wire of the cable start and terminal is grounded for identification.

3. After turning on the power switch, please do not touch the output terminals and metal leakage parts; after turning off the power, wait for the output indicator to completely go out before removing the wires to avoid electric shock.

4. When the device is not used for a long time, please take out the batteries in the host and the receiving box and store them separately.

# VII.Packing List

| No. | Item | Qty |
|---|---|---|
| 1 | Main engine | 1 |
| 2 | Output coupling pliers | 1 |
| 3 | Power line | 1 |
| 4 | Special direct continuous radiation (red, black) | 2 |
| 5 | Receiving flexible coil | 1 |
| 6 | Signal receiver | 1 |
| 7 | Fuse pipe | 2 |
| 8 | Alkaline battery ((4 pcs for the tester, 2 pcs for the receiving box） | 6 |