



T-KF200 Sheath Fault Receiver

The T-KF200 receiver can pinpoint the location of a fault on a buried power cable sheath fault using the Pool of Potential method. It will detect an asymmetrical pulsed high voltage signal from a source such as the Kehui T-H300.

For unburied cables, laid in troughs or pipes, it can determine the direction of the fault by identifying the intermittent high-voltage signal, and then find the location of the fault between two access points, through segmentation techniques. The equipment can also locate the auxiliary location of the core ground fault (in a damaged protective layer or a low voltage cable without a metal sheath).

Features

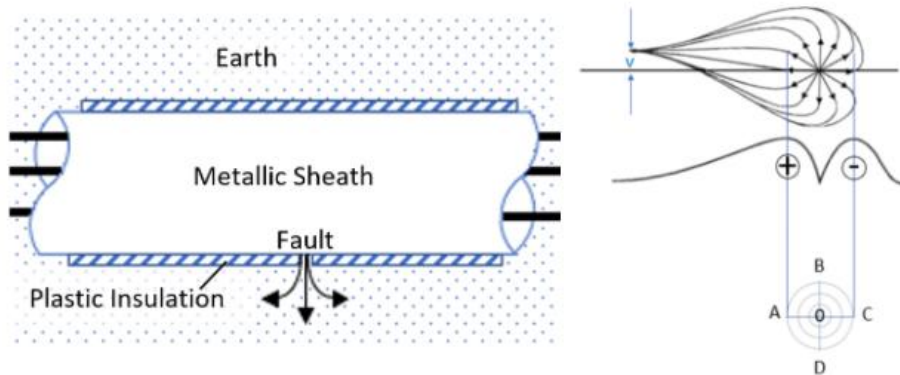
- Three fault location modes
- Indicates fault direction in step voltage mode
- Detects resistive current to facilitate segmentation
- Automatic zero adjustment offsets the influence of earth potential
- Clear fault direction indication
- Rugged housing

Specifications

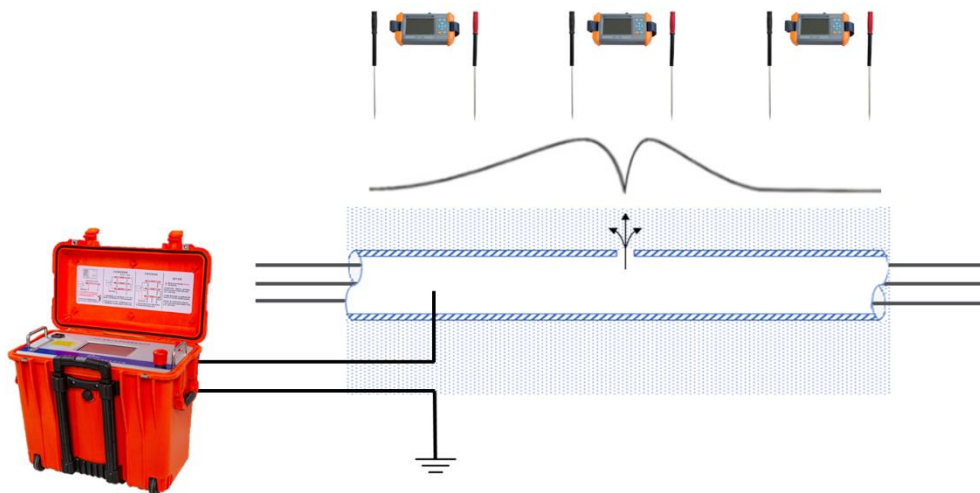
- Input resistance 0 – 2000 Ω
- Step voltage range: $\pm 300\text{V}$, 1% Accuracy
- Current pinpointing: $\pm 1\text{A}$, 1% Accuracy
- HV probe: $\pm 10\text{kV}$ <1% accuracy
- 3.7V 6.8AH Lithium battery with 15 hours operation from fully charged.
- Ingress protection IP54
- Operating temperature range: -10 °C to +50°C
- Weight: 0.9 kg
- Dimension (W x H x D): 220 x 125 x 55mm

Application

When a cable is buried, it can be considered to be surrounded by the earth at all points along its length; but due to its insulation, a fault is the one point of galvanic contact between the sheath and the earth. If a voltage is applied between the metallic sheath and the earth, it produces currents which expand into the ground. An idealised plan view of the fault point indicates the concentric points of equipotential (the pool of potential), such that the voltages at A, B, C and D are equal but A - O is positive, whereas O - C is negative. It should be noted that in a real situation the voltage rise on the source side is more gradual and so the equipotential lines will not be circular.



The T-KF200 uses this phenomenon to pinpoint the sheath fault. The faulty cable is disconnected from the supply and the earth, the T-H300 is connected to its metallic sheath and a voltage applied. The spikes are inserted in the ground as far apart as possible and the polarity of the reading on the T-KF200 is noted. The test is repeated at regular intervals along the cable path, until a change in the polarity is noted. The null point between the peaks of polarity will represent the position of the fault.



If a cable is not buried in the ground, the T-KF200 can also determine the direction of the fault using its current sensing accessory, then find its exact position through sectionalising (i.e. determining the current direction at different access points on the cable, until the faulty section is identified). This utilises one of the additional two sensors provided with the device.