MakeID

# Cable Route Locator

# Product Manual

Chongqing Pinsheng Technology Co., Ltd.

## Product Overview

The Cable Route Locator integrates fiber optic sensing, OTDR, GIS, and intelligent algorithms to efficiently capture optical cable routes, accurately locate fiber faults, calibrate and correct network resource data, automatically compare cables sharing the same route, and monitor fiber quality in real time. By generating accurate and intuitive cable route maps, it enhances the digital and intelligent management of passive network assets, improves field operation efficiency, and reduces network operation and maintenance costs.

## Key Features

### Portable Design

Compact 3 $dm^3$ form factor and lightweight 3 kg design for easy transportation and rapid field deployment.

### Acoustic Route Detection

Full-range acoustic signal restoration enables fast and accurate optical cable route identification.

### Aerial Cable Identification

AI-powered noise reduction effectively suppresses wind interference for reliable aerial cable detection.

### Buried Cable Depth Measurement

Accurately calculates burial depth based on acoustic time-of-flight analysis.

### High-Precision Fault Localization

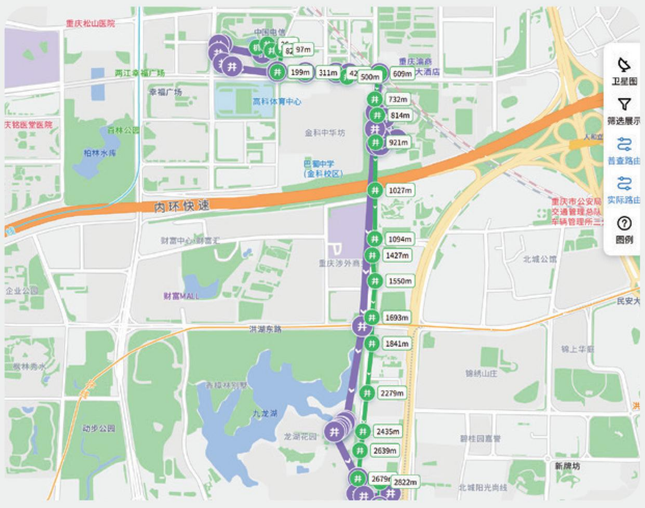
Supports detection distances of up to 80km with a positioning accuracy of ±5 m.

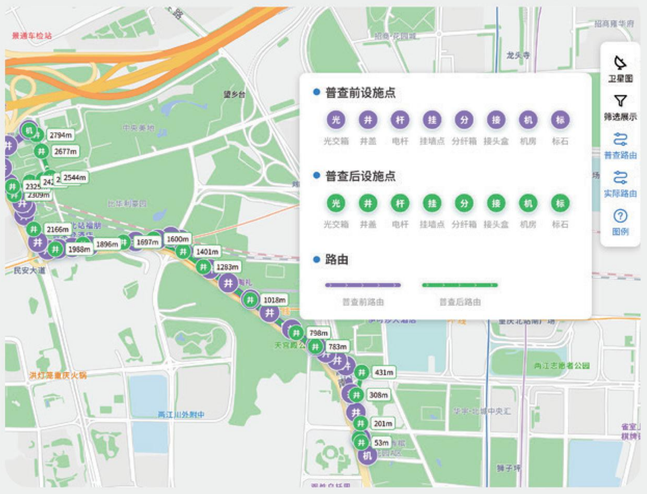
# Core Function 1

## Optical Cable Route Survey

### Challenge

Traditional route surveys need engineers to climb poles and enter manholes, making the process time-consuming,labor-intensive, and prone to manual data entry errors.






### Solution

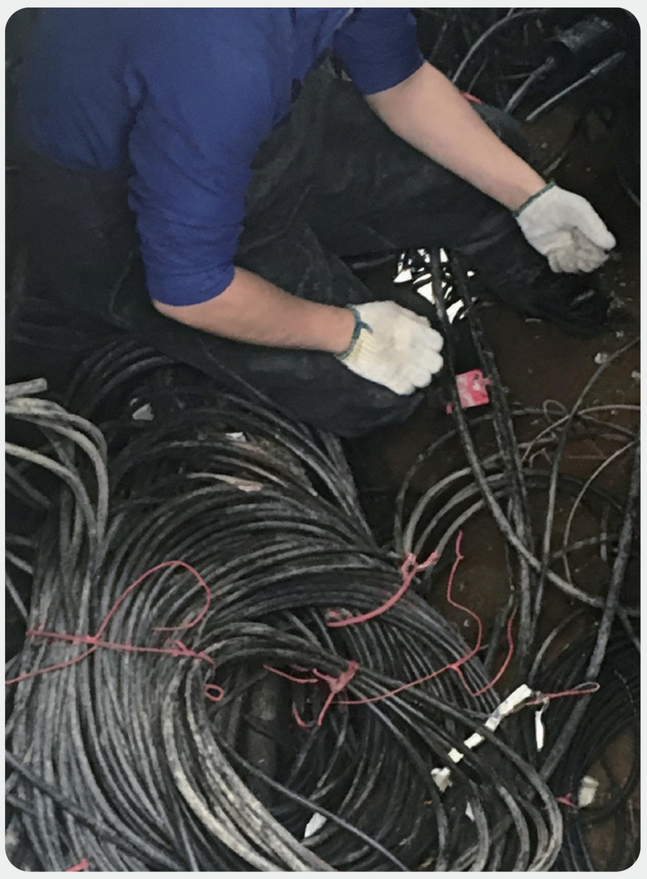
By simply knocking the manhole cover, the system automatically collects cable length, GPS coordinates, and slack loop information, then generates a GIS-based visual map of the optical cable route.

### Value

**Improves route survey efficiency, Creates accurate, digital cable route records, Enables intelligent management of passive network assets, Enhances field personnel safety during inspections.**

# Core Function 2

## Optical Cable Fault Localization



### Challenge

Locating faults in underground optical cable networks is often difficult due to the large number of buried cables. Traditional manhole inspections are time-consuming and may expose field engineers to safety risks.

### Solution

By simply tapping the manhole cover, the system quickly pinpoints the fault location and identifies the target cable among multiple bundled optical cables—without disconnecting or damaging the network.

### Value

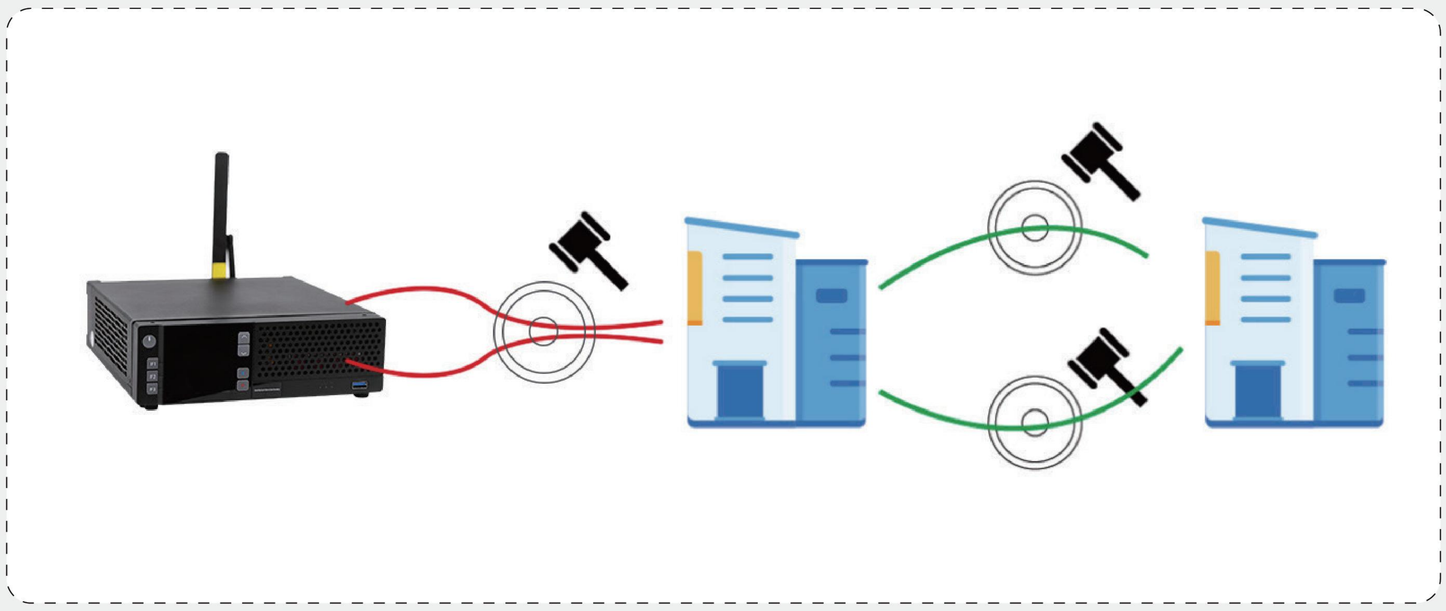
**Reduces fault location and repair time from hours to minutes, Improves customer service experience.**

# Core Function 3

## Shared Route Analysis

### Challenge

Primary and backup fibers routed through the same cable or duct create a single point of failure. Traditional analysis relies heavily on manual inspection, making shared-route identification time-consuming and inefficient.



### Solution

Connect the primary and backup fibers and tap the manhole cover. It will automatically generates a comprehensive Shared Route Analysis Report.

### Value

**Identify the shared-route risks, Improves the efficiency of route data collection and analysis, Enhances network resilience and service reliability.**

# Core Function 4

## Optical Cable Quality Monitoring

### Challenge

Fiber attenuation cannot be monitored or analyzed on a timely manner, difficult to identify and locate abnormal loss

### Solution

Leveraging high-precision OTDR technology, the system performs intelligent optical cable diagnostics and automatically generates detailed fiber analysis reports.

### Value

**Detects abnormal optical loss in splitters, splice closures, bending points, and other network components, Continuously monitors and provides comprehensive cable quality trend reports, thus improves network reliability and ensure consistent service quality.**

## Product Specifications

| Specification | Details | |
|---|---|---|
| Model# | OCSD-4L03-XC | |
| Function | OTDR | Vibration |
| Operating Wavelength | 1310/1550nm | 1550nm |
| Dynamic Range | 40/38dB | 16dB |
| Localization Accuracy | ±2.5m@40km; ±5m@80km; ±10m@120km | ±5m@40km |
| Fiber Type | Single-mode | |
| Number of Channels | 4 | |
| External Communication Interface | 4G/LAN/WIFI | |
| Optical Connector | SC/APC (Customizable) | |
| Spatial Resolution | / | 5m |
| Measurement Type | Attenuation | Vibration |
| Attenuation Measurement Accuracy | 0.002dB | / |
| Measurement Time | 15s | 0.2s |
| Event Detection | Fiber Break / Low Optical Power | Vibration |
| Power Supply | DC 24V | |
| Operating Temperature | 0~45°C | |
| Storage Temperature | -20~70°C | |
| Storage Humidity | <90%RH | |
| Dimensions (L×W× H) | 210*215* 65mm | |
| Weight | 3Kg | |
| **Optical Power Meter** | | |
| Response Wavelength | 700~1700nm | |
| Calibrated Wavelengths | 850/980/1270/1300/1310/1490/1550/1577/1625/1650nm | |
| Measurement Range Type | T: –70 to +10 dBm/Type C: –50 to +30 dBm | |
| Measurement Accuracy | ±0.2dB | |
| Optical Connector | Universal 2.5 mm adapter,Compatible with PC/APC connectors | |
| **VFL** | | |
| Laser Type | VCSEL | |
| Output Wavelength | 650+20nm | |
| Output Power | 1 mW / 15 mW / 30 mW (Optional) | |
| Modulation Frequency | 2±1Hz | |
| Optical Connector | Universal 2.5 mm PC connector | |

# Unlock the Full Value of Every Asset

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