Komshine
enabling today,inspiring tomorrow

Enabling today.
Inspiring tomorrow.

# QX65
# Fiber Monster *OTDR*

- Maximum dynamic range up to 45dB
- 0.8 m Event dead zone, 2.5 m attenuation dead zone
- Intelligent link diagram, support Pass & Fail judgment
- iOLA, one-click Intelligent testing of passive PON networks

# Fiber Monster OTDR

The QX65 OTDR offers superior performance thanks to a completely new algorithm, a large capacity battery and a 7in user-friendly screen. Ensure measurement quality and improve work efficiency, benefits include:

## Full range selection

- Wide dynamic range 30-45dB
- Up to 9 OTDR models for selection
- Five optional modules to be customized

## Operability

- 7-inch color LCD touch screen
- Generate PDF reports quickly
- F/P analytical judgment function
- Smart map to analyze links graphically

## Advanced trace analysis

- 4-points test
- Bidirectional testing
- Multi-trace analysis

## Strong reliability

- Up to 12h battery life
- Maximum sampling points 250,000
- Minimum sampling resolution 0.04m

## Not just OTDR

- VNC / GPS / WIFI
- OPM (Optical power meter module)
- SLS (Stabilized light source module)
- VFL (Visual fault locator module)
- RJ45 (Network Test module)
- FIP (Fiber connector end-face inspection module + analysis function)


★ FIP module can first perform connector end-face detection and then OTDR link testing

# FULL RANGE SELECTION

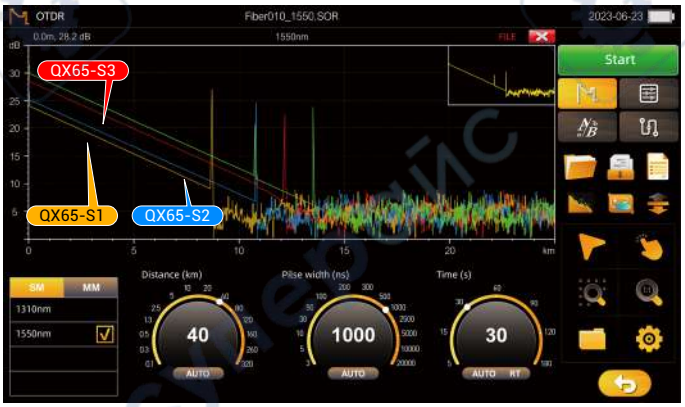
QX65 OTDR comes with an iLOA test function that enables complex front-line test work with less-experience, to support a variety of applications, including installation and maintenance (I&M) of mainline fiber (core network, metropolitan area network, mobile forward, mobile backhaul) and troubleshooting of access networks and FTTx. And combines industry-leading OTDR technology with OPM, VFL, SLS, network testing and fiber end inspection capabilities in one powerful handheld device.

## QX65 OTDR Models

| Fiber Type | Link Type | | Test Application | |
|---|---|---|---|---|
| | Area | PON | Installation (measurement of live fibers and dark fibers) | |
| | | | Model / Description | Wavelength (nm) / Dynamic range (dB) |
| SM | Access network | 1x32 | QX65-S1 (Entry-level model) | 1310/32 1550/30 |
| | Acces network / Metropolitan area network | 1x64 | QX65-S2 (Basic model) | 1310/35 1550/33 |
| | | | QX65-P1 (3 Wavelengths + live model) | 1310/32 1550/30 1625/28 |
| | | | QX65-P2 (High dynamic range wavelengths + live model) | 1310/38 1550/36 1625/34 |
| | Metropolitan network / Core network | 1x128 | QX65-S3 (Standard model) | 1310/40 1550/38 |
| | | | QX65-S4 (High dynamic model) | 1310/42 1550/40 |
| | | | QX65-S5 (Super-high dynamic model) | 1310/45 1550/43 |
| MM | LAN | | QX65-M (MM model) | 850/20 1300/22 |
| | | | QX65-MS (SM & MM model) | 850/20 1300/22 + 1310/32 1550/30 |

## QX65-S1/S2/S3/S4/S5

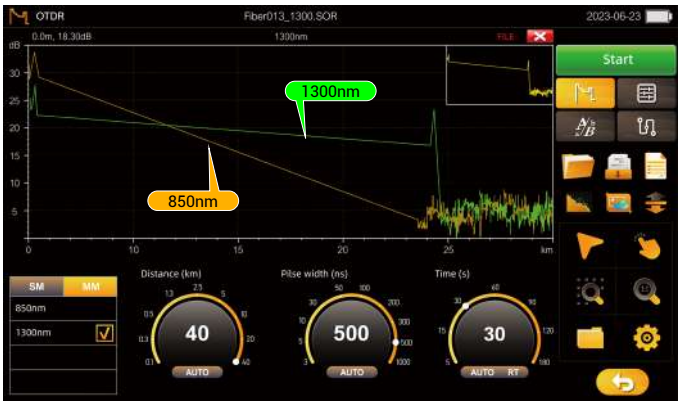
Dual wavelength module 1310/1550nm, used in fiber installations.




1μs Pulse width trace

## QX65-M/MS

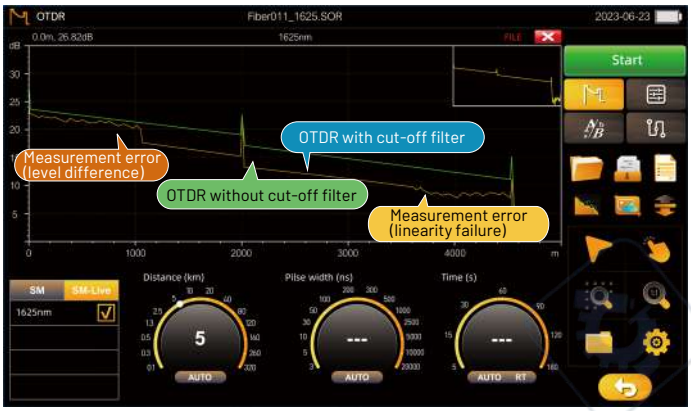
MM model



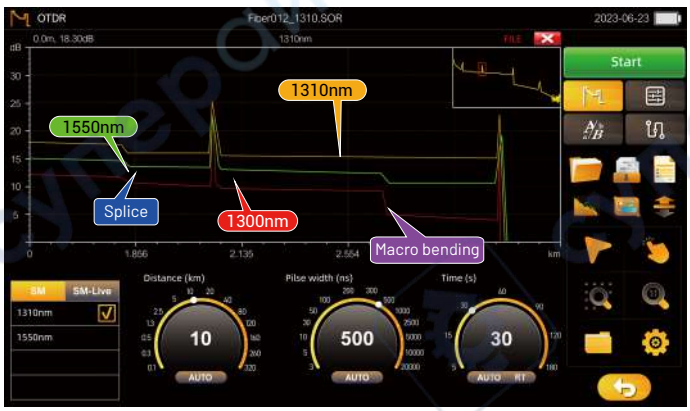

MM fiber trace

# QX65-P1/P2

Maintenance models for real-time communication lines.




Real-time communication line trace




A trace with a macro bend

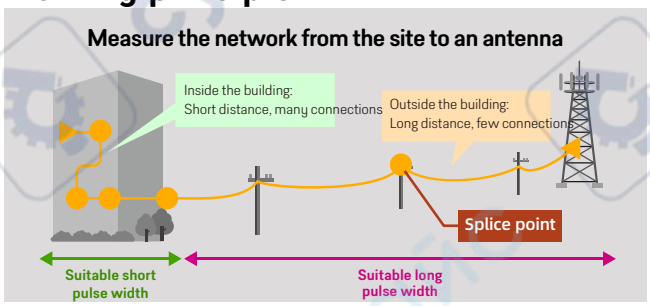
# iOLA (HAWKEYE)

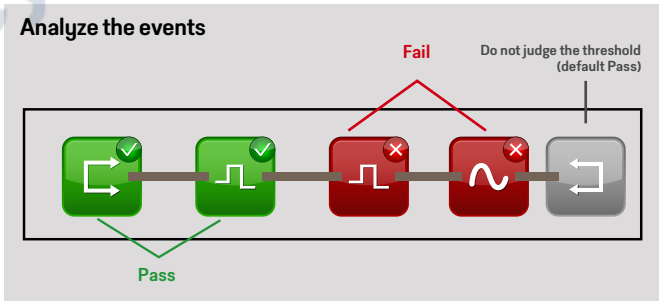
**OTDR faces a series of challenges:**

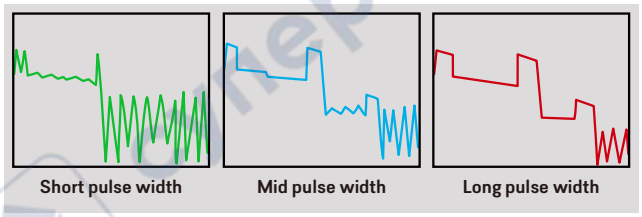
- Trace is wrong
- Need to analyze several traces
- The same work needs to be done twice
- Requires complex instrument training

To address these challenges, KOMSHINE has developed a better way to test fiber links: iOLA (Hawkeye) is an OTDR-based application designed to simplify the OTDR testing process by eliminating the need to configure parameters, analyze and interpret multiple complex OTDR curves. It adopts advanced algorithm, can dynamically define the test parameters, and according to the measured network to determine the appropriate curve acquisition times; Multiple pulse widths at multiple wavelengths can also be correlated to locate and identify faults with very high resolution - all at the touch of a button.

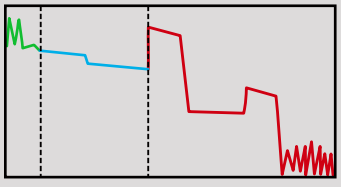
## Working principle




Analysis of some events of the measured trace, link the trace together

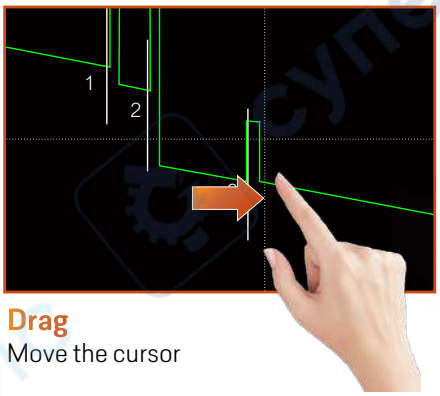


# OPERABILITY

## 7.0” Multi-Touch Capacitive Touch Screen

It supports new gestures to amplification. The screencapture color is clear. The interface design is simple and clear.

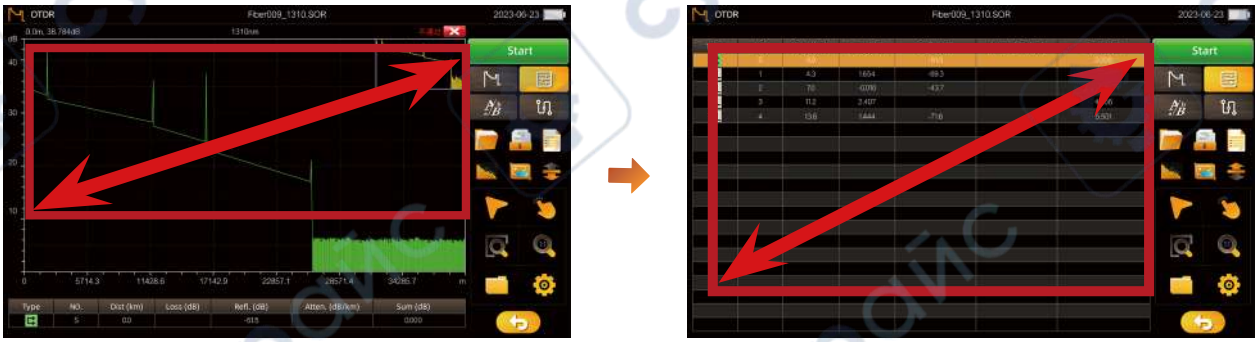
**Fragment selection**
Amplify the trace



**Drag**
Move the cursor


## Expand the trace display area

By tapping the icon  , you can enlarge the trace display area to view more detail.




## Quickly Generate the PDF Report

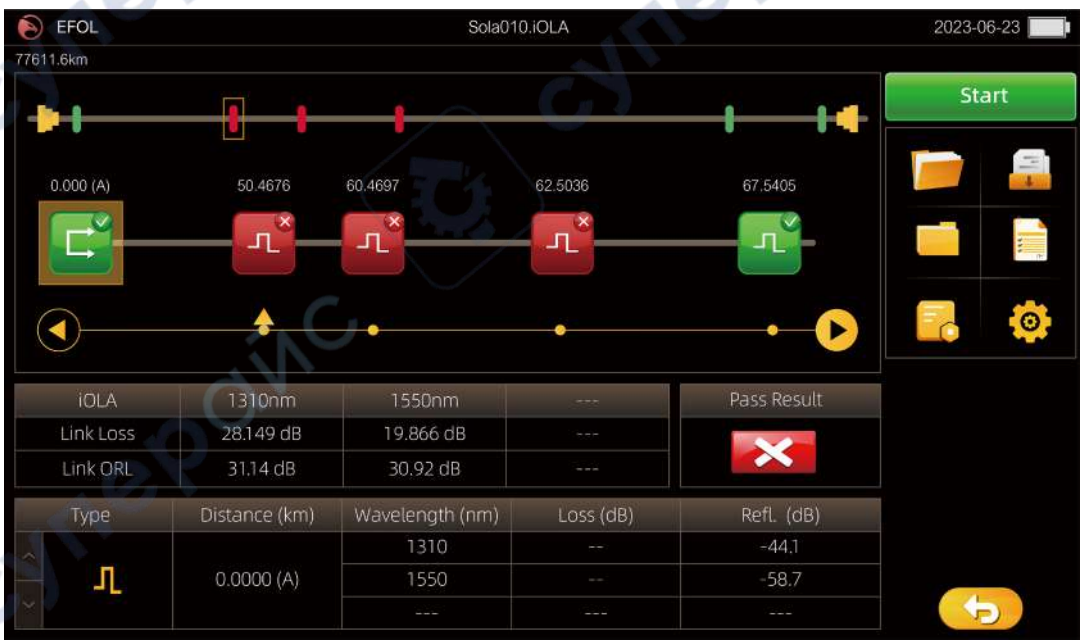
Built-in post-processing software is used to generate SOR format, which can be viewed and edited by the host computer software; it can also generate PDF test reports for easy viewing on the computer.

## Pass & Fail Analysis Function

Automatically perform Pass /Fail judgments for each event based on pre-specified thresholds. The measurement results can be viewed through the result display items (As shown in the red box on the following side).


## Smart Map Analyze Links Graphically

With Smart Map, users only need to press one button to execute measurement, detect network events and execute Pass /Fail judgment. It includes a simple icon view that facilitates the location and type of the event, and automatically executes the Pass & Fail judgment of each event based on the prespecified threshold.



# ADVANCED TRACE ANALYSIS

The OTDR master module is capable of performing advanced analysis of measured data.

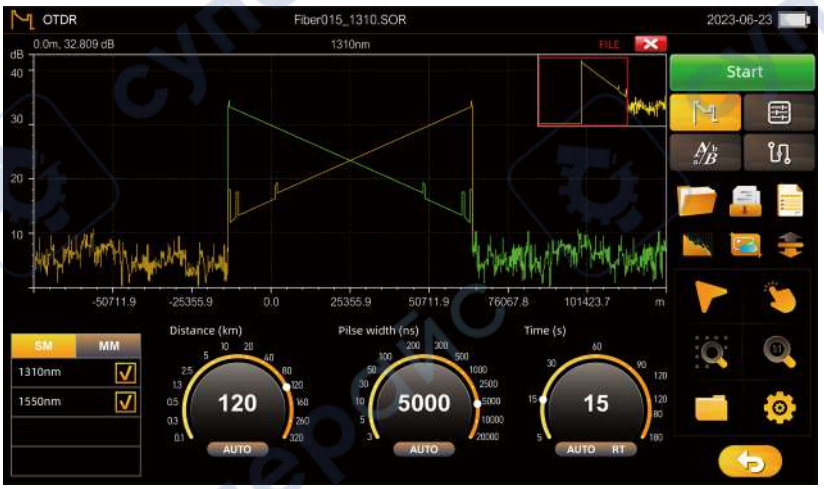
## Multi-Trace Analysis

View multi -trace, can view up to 4 traces at the same time, comprehensive analysis, and the results are more accurate.


## Bidirectional Testing

Averaging values obtained from opposite directions provides a more accurate quantification of losses.

Bidirectional testing is a great way to improve test integrity in long distance applications.



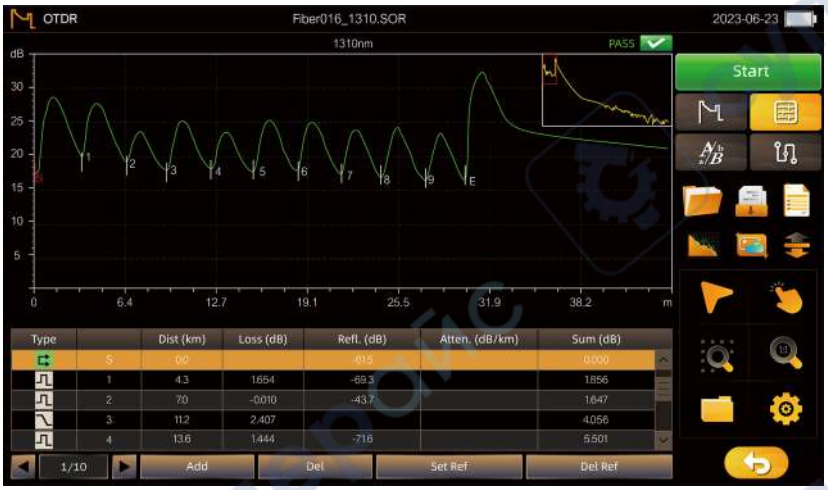

## 4-Points Testing

Real-time monitoring of splicing and insertion loss, less noise impact, more accurate test results.

# STRONG RELIABILITY

## 10x3m Jumper Test

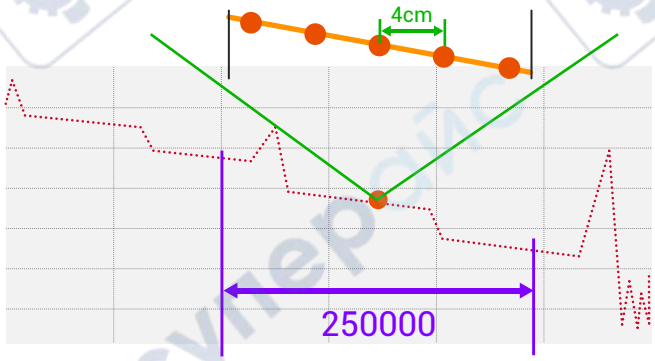
Short distance testing: Accurately test events and loss.





## Minimum Sampling Resolution 0.04m

## Maximum Sampling Points: 250,000




## Battery Working Time: 12 hours


## Rubber sheath design: effective shock absorption, anti-fall and anti-bump

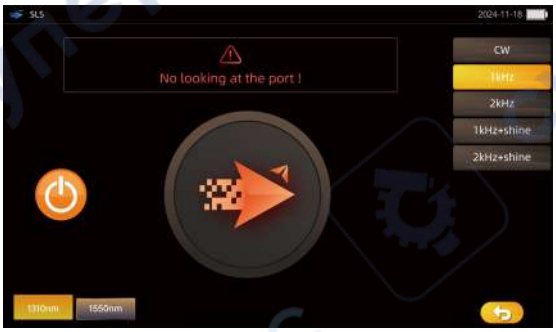
# NOT JUST OTDR

## OPM (Built-in)

Used to measure absolute optical power or the relative loss of optical power through a section of fiber link.


## SLS (Built-in)

Output stable continuous signal, used in combination with an OPM to measure optical loss in fiber optic systems.




## VFL (Built-in)

Visible light sources are usually used for fiber identification, single-mode or multi-mode fiber fault location and fiber identification..

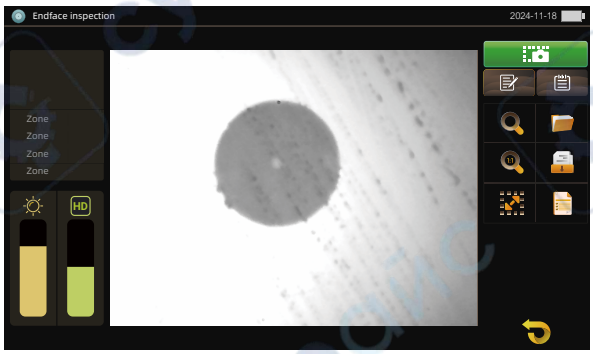

## Network Test Module (Built-in)

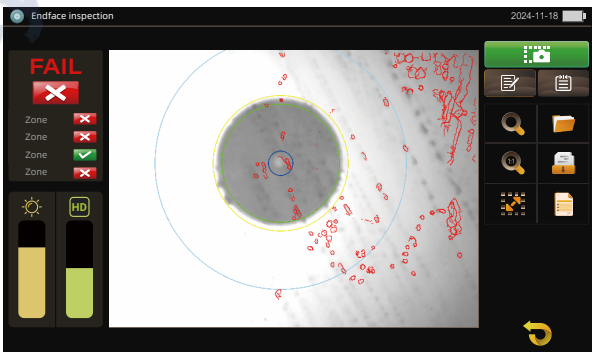
Network line finding, sequencing, and distance measurement are suitable for LAN fault detection, maintenance, and integrated wiring construction.


## Fiber Connector Inspection Module (Built-in)

★FIP module can first perform connector end-face detection and then OTDR link testing

The fiber connector end-face inspection module can visualize the surface of the connector, and combine with handle probe(optional) can automatically analyze the scratches and dust on the fiber connector, save the surface image and judge the result. And offer a PDF report.




Fiber connector detection result

**Optional** Fiber Inspection Probe

Save the end face detection file, support host computer viewing and editing

Generate PDF report, which can be viewed on the computer

## GPS (Module Optional)

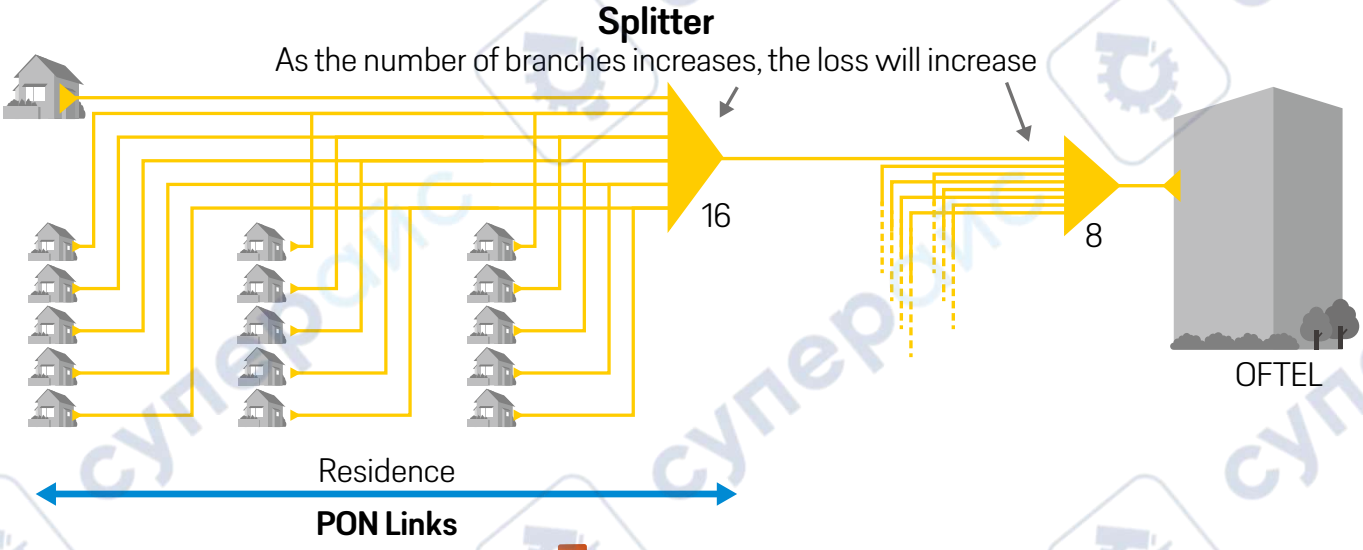

## WIFI Remote Control (Built-in)

VNC remote control function, using mobile phones or computers online remote operation OTDR easily solve the remote work, can simultaneously take into account multiple room testing, greatly improve efficiency.

# PON Optimization

Quickly, easily and correctly measure networks with large losses, such as PON links. In PON mode, simply select the route configuration to be measured on the screen, and OTDR will automatically determine the appropriate measurement conditions and set the optimal value, even after the optical splitter caused large losses, the QX65 OTDR can ensure high trace quality.

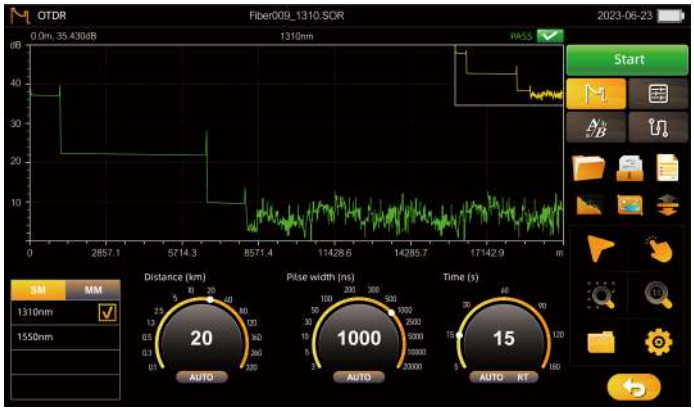
## Measuring a residential PON network with two-level splitters




Set the parameters of the splitter to be measured in PON mode


Ultra-high signal-to-noise ratio measurement


▲ iOLA: Measuring total 1:128 splitter

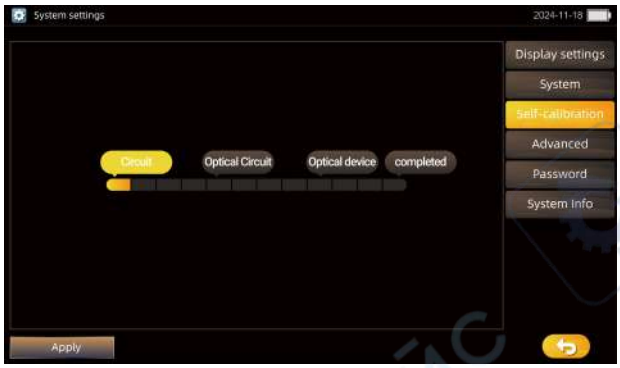



▲ Measuring total 1:128 splitter

# ADDITIONAL FUNCTION

## Self Calibration

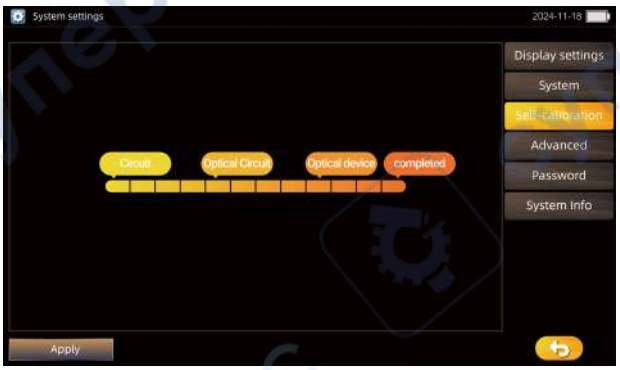
Shorten maintenance time and reduce maintenance costs.




▲ CIRCUIT


▲ OPTICAL CIRC


▲ CALIBRATION




▲ OPTICAL DEVI

## Power-on Password

Acquire and use OTDR by means of leasing, paying in installments according to the agreed time and amount.

# APPEARANCE


# Packaging Configuration

① Carrying bag x1

② OTDR host x1

③ Fiber Optic Clean Pen x1

④ shoulder strap x1

⑤ Power cord x1

⑥ Touch pen x1
(Touchpen is equipped inside the boxand needs to be installed by self)

⑦ Quick guide x1
Calibration certificate x1
Test report x1

# OTDR

| Model | QX65-S1 | QX65-S2 | QX65-S3 | QX65-S4 | QX65-S5 | QX65-P1 | QX65-P2 | QX65-M | QX65-MS |
|---|---|---|---|---|---|---|---|---|---|
| Wavelength (nm) | 1310/1550 | 1310/1550 | 1310/1550 | 1310/1550 | 1310/1550 | PON 1310/1550/1625 (built-in filter) | | 850/1300 | 850/1300+1310/1550 |
| Dynamic range (dB) | 32/30 | 35/33 | 40/38 | 42/40 | 45/43 | 32/30/28 | 38/36/34 | 20/22 | 20/22 32/30 |
| Number of optical port | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 |
| Event dead zone★① (m) | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1 | 1 | 1.5 | SM≤1； MM≤1.5 |
| Attenuation dead zone★② (m) | 3 | 3 | 2.5 | 2.5 | 2.5 | 3 | 3 | 5 | SM≤3.5； MM≤5 |
| Spliters Measurement | Max 1:32 | Max 1:64 | Max 1:128 | | | Max 1:32 | Max 1:64 | × | Max 1:32 |
| Multi-fiber Measurement | √ | | | | | | | √ | √ |
| Multi-pulse Measurement | √ | | | | | | | × | √ |
| Applicable fiber | SM (ITU-T G.652) | | | | | | | | |
| Distance range (km) | 0.1/ 0.3/ 0.5/ 1.3/ 2.5/ 5/ 10/ 20/ 40/ 80/ 120/ 160/ 260/ 320 | | | | | | | | |
| Pulse width (ns) | 3, 5, 10, 30, 50, 100, 200, 300, 500, 1000, 2500, 5000, 10000, 20000 | | | | | | | | |
| Number of sampling points | Max 250000 | | | | | | | | |
| Sampling resolution | Min 0.04m | | | | | | | | |
| Distance measurement accuracy | ±(0.75 m + Measurement distance × 2 × $10^{-5}$ + Sampling resolution) | | | | | | | | |
| Loss measurement accuracy | ±0.03 dB/dB | | | | | | | | |
| Return loss measurement accuracy | ±2 dB | | | | | | | | |
| **Optical Power Meter Module (Built-in)** | √ | | | | | | | | |
| Wavelength | 800 ~ 1650nm | | | | | | | | |
| Measure range | -70 ~ +6dBm | | | | | | | | |
| Measure accuracy | ＜ (±0.2dB or ±5%) | | | | | | | | |
| Display resolution | 0.01dB | | | | | | | | |
| Optical input port | 2.5mm Universal ferrule for FC, SC, ST/ UPC | | | | | | | | |
| **Stabilized Light Source Module (Built-in)** | √ | | | | | | | | |
| Wavelength (nm) | 1310/1550 | | | | | 1310/1550/1625 | | 850/1300 | 850/1300+1310/1550 |
| Output power | ≥-10dBm | | | | | | | | |
| Modulation mode | CW, 270 Hz, 1 kHz, 2 kHz | | | | | | | | |
| Laser class | Class 1M or Class 1 | | | | | | | | |
| Optical input port | OTDR port | | | | | | | | |
| **Visual Fault Locator Module (Built-in)** | √ | | | | | | | | |
| Wavelength (nm) | 650±10nm | | | | | | | | |
| Output power | 10mW | | | | | | | | |
| Modulation mode | CW, CHOP (2 Hz) | | | | | | | | |
| Laser class | Class 3R | | | | | | | | |
| Optical input port | 2.5 mm Universal ferrule type for FC, SC, ST | | | | | | | | |
| **Fiber Inspection Probe (Built-in)** | Optional | | | | | | | | |
| Pass / Fail | √ | | | | | | | | |
| Magnification | 400X | | | | | | | | |
| Resolution(um) | ≥1.0 | | | | | | | | |
| Electrical interface | USB2.0 | | | | | | | | |
| Optical Connector | FC/UPC, SC/UPC, ST/UPC | | | | | | | | |
| CMOS size | 1/3 inch | | | | | | | | |
| **RJ45 Networks Test (Built-in)** | √ | | | | | | | | |
| Applicable cable | CAT5, CAT6 | | | | | | | | |
| Distance of Cable Collationl | 300m | | | | | | | | |
| Distance of emitting signal | 300m | | | | | | | | |
| **GPS Module (Built-in)** | Optional | | | | | | | | |
| Location accuracy | < 50m | | | | | | | | |
| Real-time Monitoring | support | | | | | | | | |
| **WIFI Module (Built-in)** | √ | | | | | | | | |
| Data transmission | √ | | | | | | | | |
| Remote Control | √ | | | | | | | | |

| General Specifications | |
|---|---|
| Link Map | √ |
| Pass/Fail judgment | √ |
| Distance unit | m, km, mile, kf |
| PC Analysis Software | √ |
| Languages | English, Español, Chinese, Português, Français, Русский，ภาษาไทย，한국어 |
| Optical connector | FC/UPC (SC/UPC/APC、 LC/UPC/APC 、 FC/APC Optional) |
| Display | 7-inch touch screen (Resolution: 1024 × 600) |
| Port | Charge port × 2, 12V - 2.5A & Type C |
| Operating temperature | '-10 ~ 50°C (0 ~ 40°C when AC adapter is being used. 0 to 35°C when battery is be charged) |
| Storage temperature | -20 to 60°C |
| Altitude | 4000 m |
| Humidity | 0 to 90% RH (20 to 90% with 739874 AC adapter, non-condensing) |
| Power requirements | 100 - 240V AC, 50/60Hz (AC adapter) |
| Battery | 7.4V,10500mAh,≥77Wh |
| LED Light illumination | >15000mcd |
| Operating time★③ | 12 hours |
| Data storage | Internal storage: ≥10000 traces, External storage: USB memory |
| Dimensions | 232 mm (W) × 161 mm (H) × 70 mm (D) |
| Weight | 1.6 kg (including internal battery and protectors, excluding OTDR unit and options) |

**Notes:**

★①. Minimum pulse width, return loss: ≥55 dB (≥40 dB for 850/1300 nm), group refractive index: 1.5, the unsaturated peak level ＜1.5dB.

★②. Minimum pulse width, group refractive index: 1.5, the backscatter level is >0.5dB of the normal level. For SMF, at 1310nm, return loss: ≥55dB. For MMF, at 850nm, return loss: ≥40dB.

★③. New Battery

All specifications valid at 23°C ± 2°C (73.4°F ± 3.6°F) unless otherwise specified.