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softing

Wire ~~X~~pert 4500



Fiber

USER MANUAL

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<http://itnetworks.softing.com>

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1 Introduction

1.1 About product

Softing's WireXpert, with its unparalleled 2,500 MHz measurement range, is the first cable certifier with capability to certify the highest performance cabling systems in enterprise networks and data centers. Cable installers make significant gain in productivity with WireXpert's industry leading test speed and ease of use. With certification testing up to Class FA and CAT8 copper cabling, as well as MPO, SM, MM and MMEF fiber optic cabling, WireXpert is ready for 40G and beyond.

1.2 Safety precautions

Read this manual before starting



For damages due to improper connection, implementation or operation Softing refuses any liability according to our existing warranty obligations.

Note



This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.

Hint



This symbol is used when providing you with helpful user hints.

CAUTION



Selection of option may cause all or partial of saved data and/or settings in the device to be erased or restored to non-reversible original factory state. Backing up of saved result(s) is recommended before executing option.



CAUTION



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

DANGER



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

1.3 Intended use

WireXpert series has been designed for use in factory, process and building control. The unit must not be used in explosion hazard areas. The permissible ambient conditions given in the Technical Data must be complied with.

The faultless and safe operation of the product requires proper transport, proper storage and installation, and expert operation and maintenance in accordance with the manual.

1.4 About this document

Read this manual before starting



For damages due to improper connection, implementation or operation Softing refuses any liability according to our existing warranty obligations.

1.4.1 Document history

Document version	Modifications compared to previous version
105	Firmware update to v7.3.

Table 1: Document history

1.4.2 Conventions used

The following conventions are used throughout Softing customer documentation:

Keys, buttons, menu items, commands and other elements involving user interaction are set in bold font and menu sequences are separated by an arrow	Open Start → Control Panel → Programs
Buttons from the user interface are enclosed in brackets and set to bold typeface	Press [Start] to start the application
Coding samples, file extracts and screen output is set in Courier font type	MaxDisapAddressSupported=23
Filenames and directories are written in italic	Device description files are located in <i>C:\<product name>\delivery\software\ Device Description files</i>

1.5 Before you start

Check that the latest eXport PC software and firmware is installed in the workstation and WireXpert respectively to ensure the latest features are available. Ensure WireXpert is calibrated annually for optimum accuracy.

Key differences between WX4500 and WX500

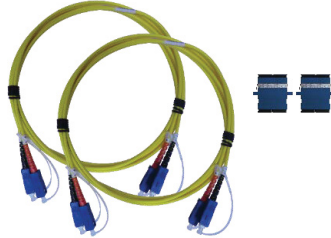
Features	WX4500-FA	WX500
Frequency of measurement	2500 MHz	500 MHz
Accuracy Specification	Level 2G	Level IIIe
Fiber Testing option	Yes	No
Class FA/CAT 8 options	Yes	No
Patch Cord Test adapters	Yes	Yes

1.6 Scope of delivery

Single Mode Fiber (WX_AD_SM2)



Single Mode Adapters
(WX_AD_SM2)



SC-SC Duplex Reference Cords
(WX_AC_SM_REFCORD_SC)
Mating Couplers

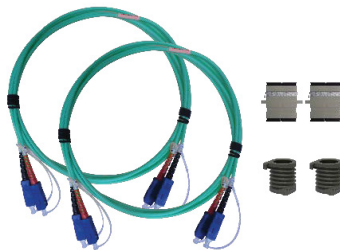


SC Cleaning Kit
(WX_AC_SC_CLEANING_KIT)

Multi-Mode Fiber (WX_AD_VCL_MM2)



Multi-Mode Adapters
(WX_AD_VCL_MM2)

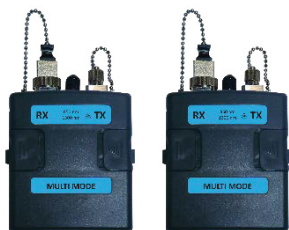


SC-SC Duplex Cords
(WX_AC_MM_REFCORD_SC)
Mandrels
(WX_AC_MANDREL)
Mating Couplers

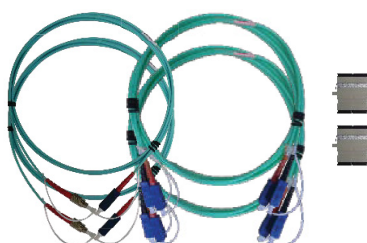


SC Cleaning Kit
(WX_AC_SC_CLEANING_KIT)

Encircled Flux Compliant Multi Mode Fiber (WX_AD_EF_MM2)



Multi-Mode Adapters
(WX_AD_EF_MM2)



FC-SC Modally Transparent
Reference Cords
SC-SC Tail Cords
(WX_AC_EF_MM_REFCORD_SC2)
Mating Couplers



SC Cleaning Kit
(WX_AC_SC_CLEANING_KIT)

Optional SM/MM/MMEF LC Cord Kits available.

	Single Mode	Multi Mode (MM)	Encircled Flux MM
Wavelengths	1310nm, 1550nm	850nm, 1300nm	
Connector Type (Cable)	1. SC 2. LC (Optional)	1. SC 2. LC (Optional)	1. SC-SC + FC-SC 2. LC-SC + FC-SC (Optional)
Test Standards	TIA 568 C.3 IEC 14763-3		TIA 568 C.3 IEC 14763-3 IEC 61280-4-1
Test Parameters			
Loss	0 to 31 dB, ± 0.2 dB	0 to 24 dB, ± 0.2 dB	
Length	0 to 20,000m, ± 1.5 m	0 to 2,000m, ± 1.5 m	
Output Power	-5 to -9 dBm	-4 to -10 dBm	-16 to -20 dBm
Receiver Sensitivity	-40 dBm	-34 dBm	-40 dBm
VFL Wavelength	NA	NA	650 nm

1.7 System requirements

Hardware

- PC

Operating system

- Windows Vista, 7, 8.x or 10 (32 bit or 64 bit)
- Intel Core i3, 2.4Ghz and above
- 4 GB of RAM
- 200 MB of free space of installation
- Microsoft .NET framework 4.0



2 WireXpert PC Software and Firmware

2.1 Install software

- 1 Download the latest eXport PC software from <http://itnetworks.softing.com/>
- 2 If this is a new installation, install the files in the package in the following order
 - a. Step_1_drvupdate-amd64.exeb
 - b. Step_2_dotNetFx40_Full_x86_x64.exed
 - c. Step_3_vcrist_x64.exe
 - d. Step_4_vcrist_x64_mfc.EXE
 - e. Step_5_eXport_setup_v7.2.0_x64.exe
- 3 If this is an upgrade from an earlier version from 6.x and above, install only item e.

User Manuals



For more information on installation and using eXport PC software, please refer to “Installation Guide for eXport PC software” and “User Manual for eXport PC software”.

Note



Softing IT Networks has ceased support for ReportXpert v5.x and earlier. Please contact asia-support.itnetworks@softing.com for more information.

2.2 Upgrade firmware

- 1 Download and install the latest eXport PC software.
- 2 Connect an USB flash drive to the workstation.
- 3 Run eXport PC software.
- 4 Go to **Tools → Update Device Firmware**
- 5 Click **[OK]** and select USB drive from “Export to USB” window.
- 6 Click **[Export]** and **[OK]** to proceed.

- 7 Please wait while exporting takes place. This process may take a while.
- 8 Remove USB flash drive from workstation and connect to WireXpert.
- 9 Select [**Upgrade Firmware**] from prompt and click [**OK**] button to continue.
- 10 If prompt did not appear, check that USB icon is present on the status bar, and press the **SETUP** button →**Settings 2** →**Storage** →**USB**.
- 11 Please wait while upgrading takes place. This process may take a while.
- 12 Upgrade process is complete.

CAUTION



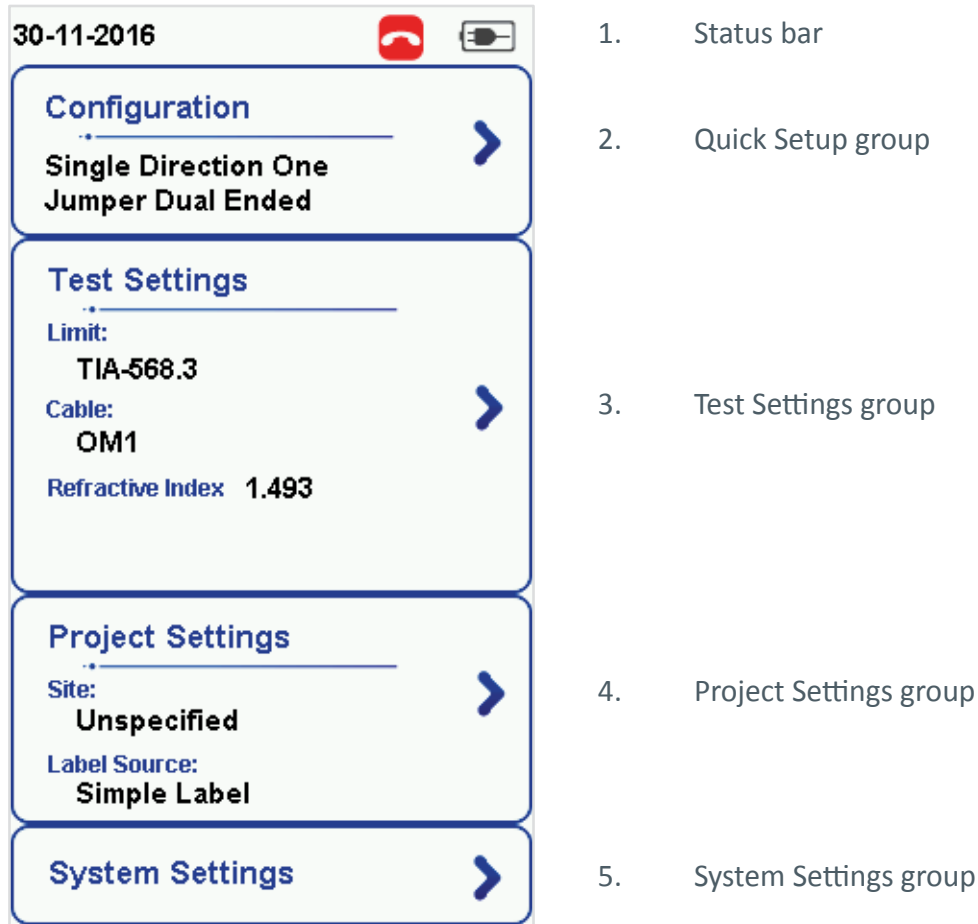
Saved test results and settings may be erased during upgrading. You are recommended to save all test results before upgrading the firmware.

3 Understanding WireXpert

3.1 Touch Screen Layout

The Graphical User Interface (GUI) in version 7.0's firmware has been updated with a more responsive system and quick-access menus

WireXpert boots up to the SETUP screen. It is categorized into 5 groups:



1. The **Status bar** displays the current date and time, talk set and battery level. Tap icons to change/view setting.
2. The **Configuration** group provides selection on number of jumper(s) referencing is set to, and determine single or bi-directional test is performed during an AUTOTEST.
3. The **Test Settings** group provides results oriented configurations necessary to perform an AUTOTEST.
4. The **Project Settings** group provides non-results oriented configurations before performing an AUTOTEST.
5. The **System Settings** group settings provides device, time, localization and device related configurations.

3.2 The One Touch Access Button



The fundamental philosophy behind the WireXpert User Interface is simplicity in its ease of use. The main functions of the One-Touch access buttons as follows:

3.2.1 The [AUTOTEST] button



The **[AUTOTEST]** button will perform an immediate certification test on the last configured settings. If no settings were configured, default settings will be used.

Test results will be generated automatically after the test is completed.

You will receive any of the following 4 results after performing AUTOTEST:



Green “PASS” – Good test result in accordance to pre-defined settings.

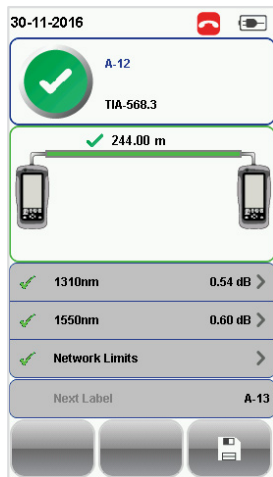


Red “FAIL” – Unacceptable results with severe disturbance on one or more test parameters.

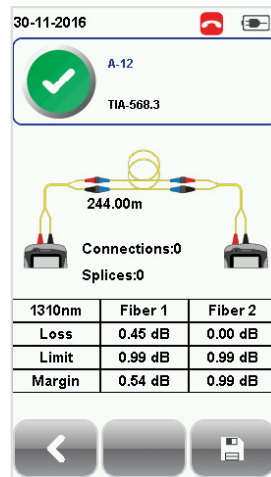
You will be given the following option after performing an AUTOTEST:

- **[Save]** test results to device

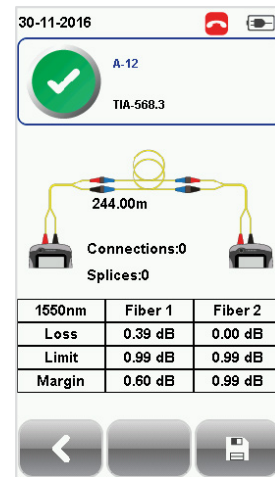
An “AUTOTEST” will fail in the event of missing connection between the LOCAL and REMOTE units, wrong settings configured, “dirty” end connectors or broken cables.



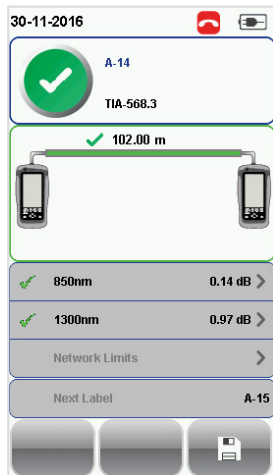
SM Fiber AUTOTEST results



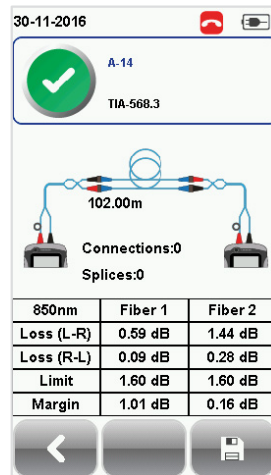
Detailed results for 1310nm



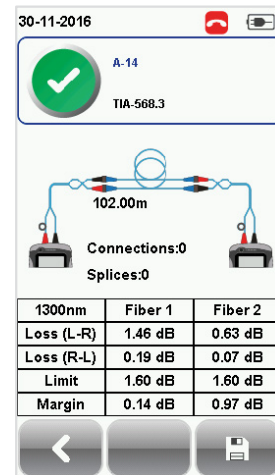
Detailed results for 1550nm



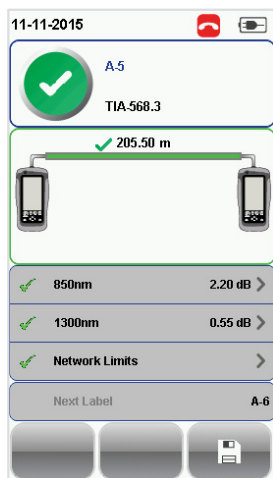
MM Fiber AUTOTEST results



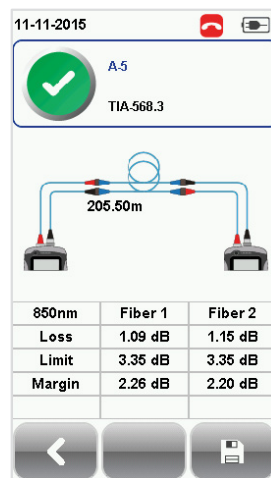
Detailed results for 850nm



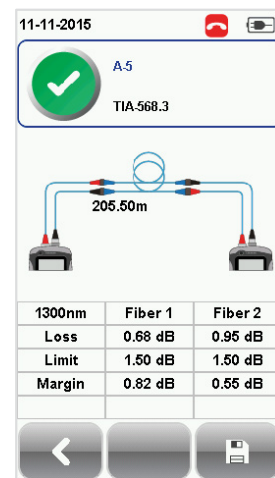
Detailed results for 1310nm



MMEF Fiber AUTOTEST results

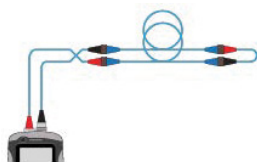
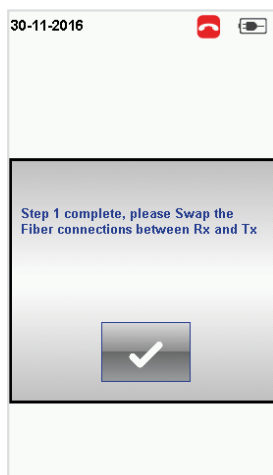


Detailed results for 850nm

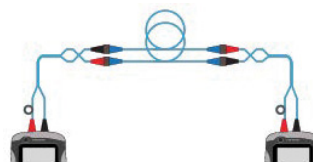


Detailed results for 1300nm

If Bi-direction is selected, swap the TX and RX connections on both ends when prompted.



Swapping of TX and RX for Single-ended loopback testing.



Swapping of TX and RX for Dual-ended testing.



Note

Diagrams and images used are for illustration purposes only and do not represent suggested test values. Reference and test values vary to usage and condition.

3.2.2 The [SETUP] button



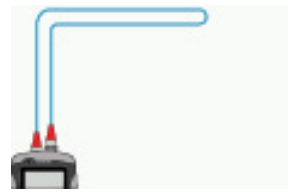
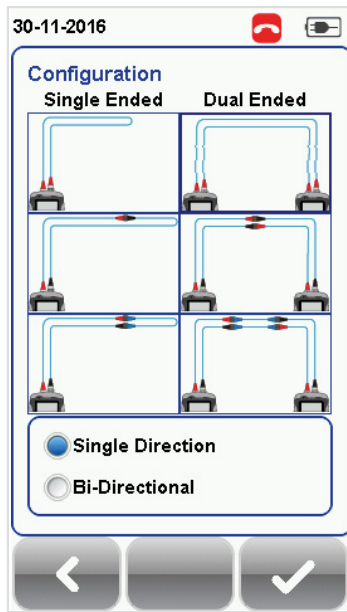
The [SETUP] button provides setting options necessary to conduct an AUTOTEST and configure the device.

These options include –

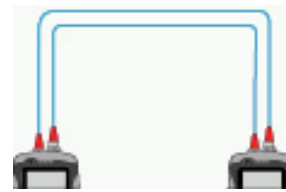
3.2.2.1 Configuration

Configuration provides selection of the number of jumper(s) is used for setting reference on dual or single ended loopback, and determines if single or bi-directional test is performed during an AUTOTEST.





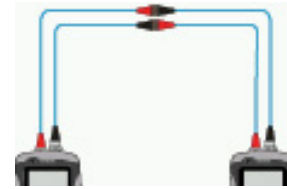
1 Jumper, Single-ended



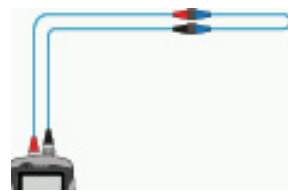
1 Jumper, Dual-ended



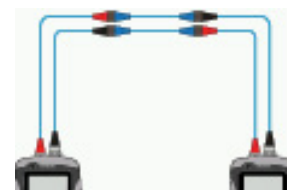
2 Jumpers, Single-ended



2 Jumpers, Dual-ended



3 Jumpers, Single-ended



3 Jumpers, Dual-ended

Note



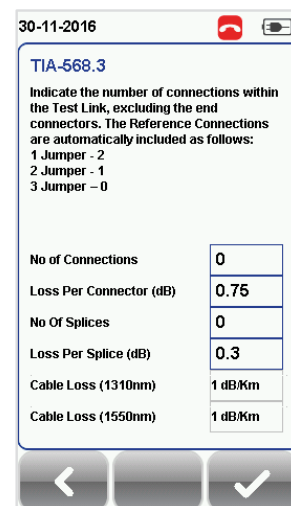
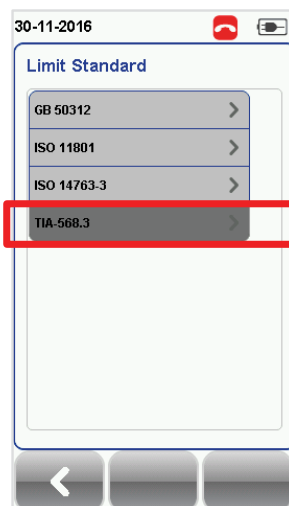
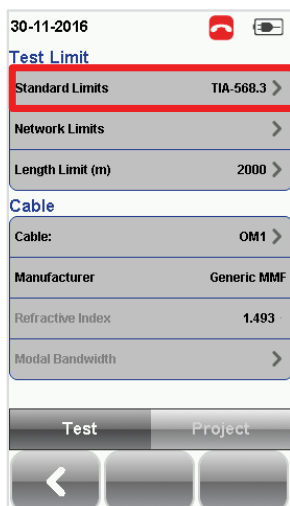
According to the ISO/IEC standards, the 2-jumpers testing method is not compliant, hence the selection for 2-jumpers configuration will be disabled when an ISO limit is selected.

3.2.2.2 Test Settings

Test Settings provides results oriented configurations necessary to perform an AUTOTEST including:-

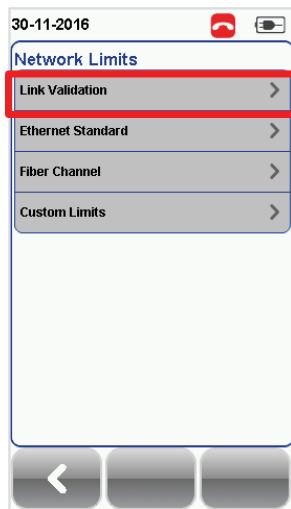
3.2.2.2.1 Test Limit

Standard Limits: Choose from a list of standards to determine the performance criteria in a given standard. Enter the value for the number of connections, loss per connection, number of splices and loss per splice.

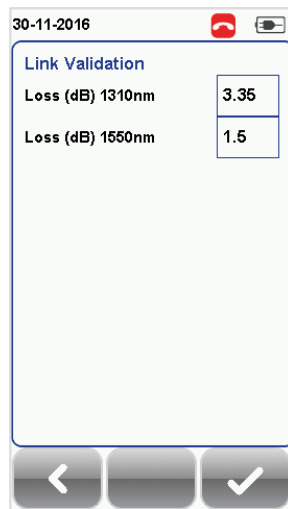


Network Limits: Choose from a list of network limits to determine additional specific network testing criteria such as maximum loss in link validation, Ethernet standard, fiber channel or custom limits. Custom limits can be created using spreadsheet software, saved as *.CSV format and loaded to the device.

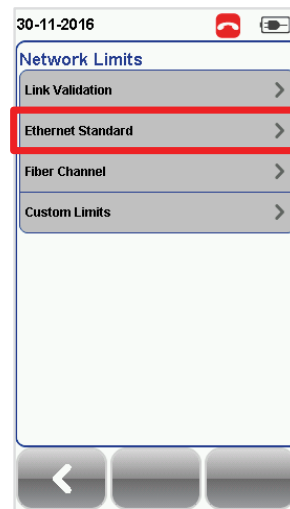
Length Limits: Enter fiber length if test criteria requires specific fiber length.



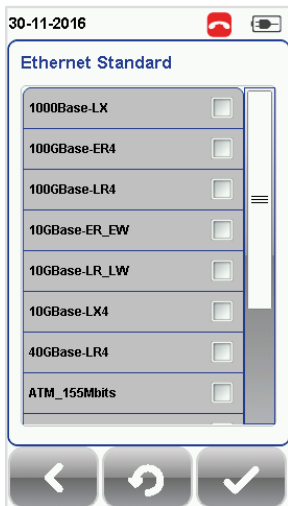
Network Limits



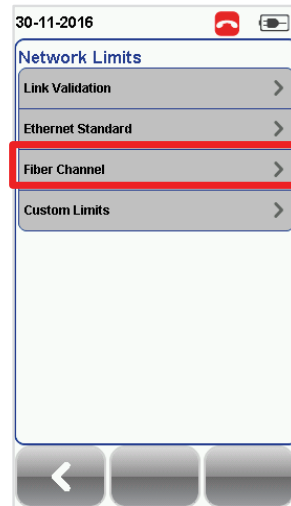
Link Validation



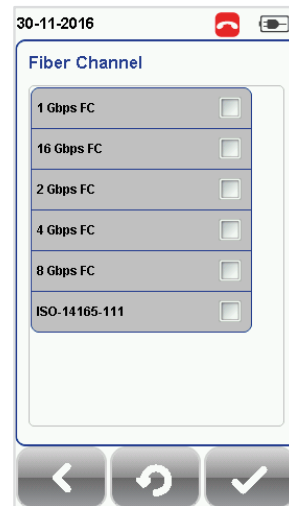
Network Limits



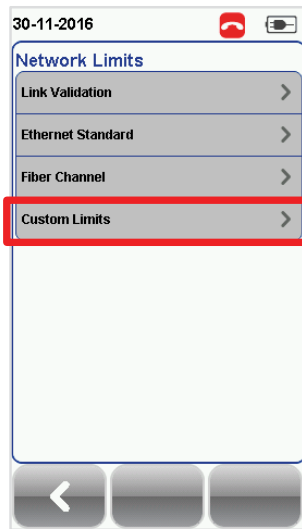
Ethernet Standard



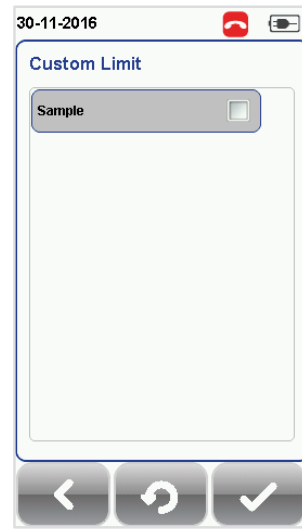
Network Limits



Fiber Channel



Network Limits



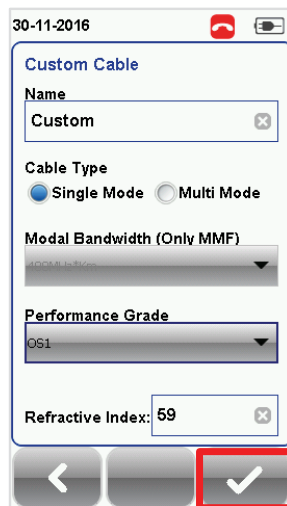
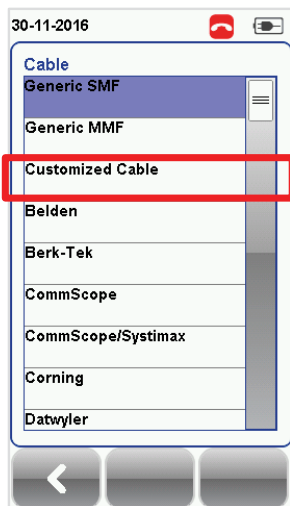
Custom Limit

3.2.2.2.2 Cable

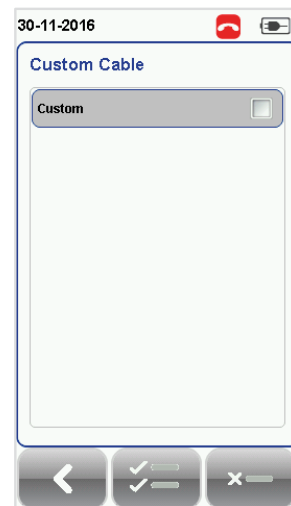
Choose from a list of cable manufacturer for more specific test parameters. If unsure of manufacturer, choose **[Generic SMF]** or **[Generic MMF]**, or **[Customized Cable]** to create custom cable.

Customized Cable

Click **[Add]** to add or **[Delete]** to remove customized cable(s) from the customised cable list.



Add customised cable



Manage customised cables

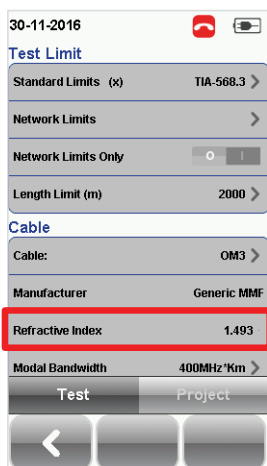
When creating customised cable, determining the cable name, cable type, performance grade and cable's refractive index is required.



WireXpert introduces the **[Manage]** button on version 7.0 firmware. **[Manage]** enables multiple saved items such as sites, operators, customized cables, customized connectors and results to be selected and deleted simultaneously.

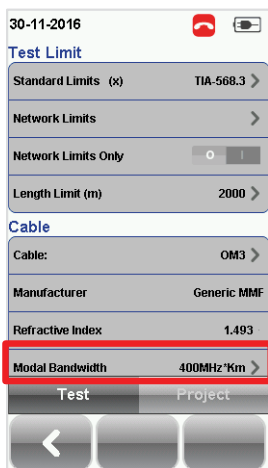
3.2.2.2.3 Refractive Index

The refractive index determines the speed light is travelling in the fiber optic. The value is determined by the fiber cable selected.



3.2.2.2.4 Modal Bandwidth

Press the [SETUP] button → **Test Settings** → **Modal Bandwidth** to choose the modal bandwidth of the cable under test. Modal bandwidth refers to the signalling rate per distance unit. Select 400MHz*Km for OM1 (62.5/125), 500MHz*Km for OM2 (50/125), 2000MHz*Km for OM3 (50/125) and 4700MHz*Km for OM4 (50/125).



3.2.2.3 Project Settings

Project Settings provides non-results oriented configurations before performing an AUTOTEST.



User Manuals

Refer "User Guide – List Based Testing" for more information on List Based Testing.

3.2.2.4 Label Source

User Manuals



Refer “User Manual – Copper Certification Testing” or “User Guide – List Based Testing” for more information.

List Based Testing

List based testing allows creation of label list in the eXport software on PC and then bring the list to WireXpert. It further allows easy selection of labels from the list to help technician select the cables to be tested quickly. This testing method is carefully optimized for typical test work-flow, and it significantly improves productivity.

User Manuals



Refer “User Guide – List Based Testing” for more information on List Based Testing.

3.2.2.5 System Settings

3.2.2.5.1 Device Settings



Press the [SETUP] button → **System Settings** → **Settings** → **Device Settings** → **Device Type** to set unit as a LOCAL or REMOTE unit. Device will reboot to take effect.

User Manuals

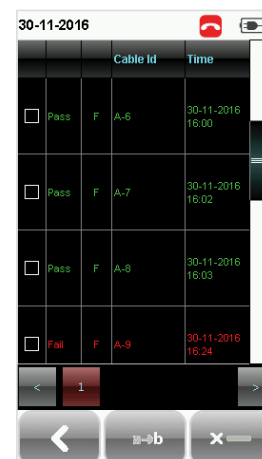
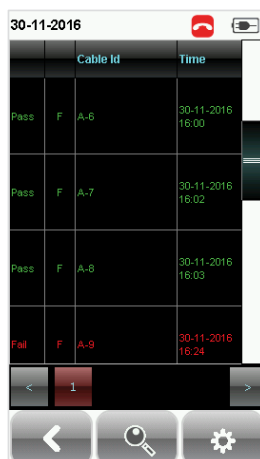
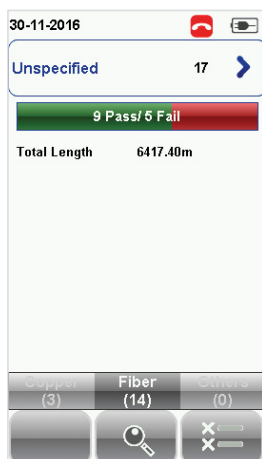


Refer “User Manual – Copper Certification Testing” for more information on System Settings.

The [DATA] button



The [DATA] button provides archive and data management ability to saved sites and test results. Saved test results can be renamed or deleted in this option.





CAUTION

Deleting a site will also delete its containing test results.

3.2.3 The [TOOLS] button



The [TOOLS] button provides advanced options for in-depth troubleshooting and expert WireXpert users. These options include;-



Requires:
LOCAL and REMOTE

Set Reference – Establish test conditions and exclude the reference cords from the measurement.



Requires:
LOCAL and REMOTE

Power Meter – Measures the power loss from a 850/1300nm or 1310/1550nm wavelength light source.



Requires:
LOCAL and REMOTE

Light Source – Emits 850/1300nm or 1310/1550nm light source to determine loss on a Power Meter.



Requires:
1. LOCAL or REMOTE
2. Inspection Probe

Inspect Fiber – – Performs visual verification of fiber's quality using an external scope probe.



Requires:
LOCAL or REMOTE
(MMEF only)

VFL – Visual Fault Locator. Emits light for visual detection of broken fiber location.



Requires:
1. LOCAL MM/MMEF
2. REMOTEMPO

MPO/MTP – Switches device to MPO mode to perform single fiber Power Meter test.



Requires:
LOCAL and REMOTE

About – Displays worldwide contact information.



4 Setting Reference

It is necessary to perform a set reference measurement before each test. If there is a mismatch in firmware versions, WireXpert will require user to perform a set reference.

The setup varies depending on the number of jumpers reference is selected.

Note



Diagrams and images used are for illustration purposes only. Reference and test values vary to usage and condition. Procedures are applicable for SM, MM and MMEF fiber setups.

Hint



Use reference cords provided in the kit. Connect the cords by following the colour of the connectors as shown in each configuration. Connect cords with red connectors to the TX port and black connectors to the RX ports of the adapters.

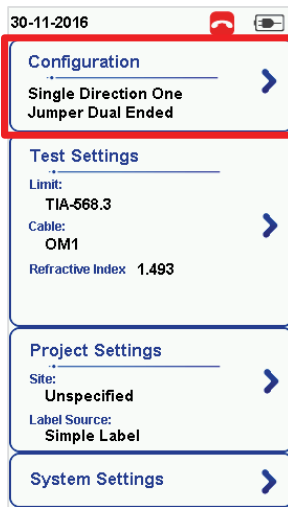
4.1 One jumper Dual-ended

1. Connect TX1 to the LOCAL TX port and RX1 to the REMOTE RX port.
2. Connect TX2 to the REMOTE TX port and RX2 to LOCAL RX port.

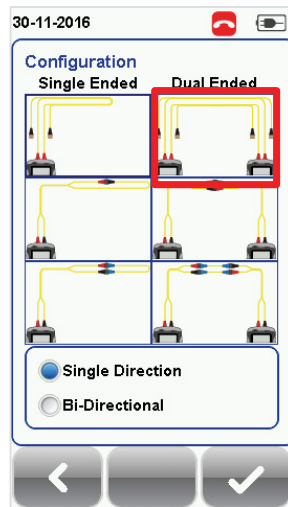
Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



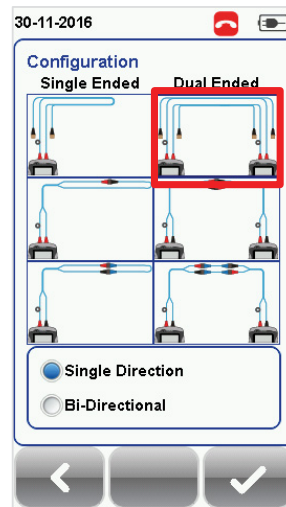
3. Press the **[SETUP]** button → **Configuration** → **One Jumper** from Dual-Ended column. Select Single or Bi direction depending on requirement.



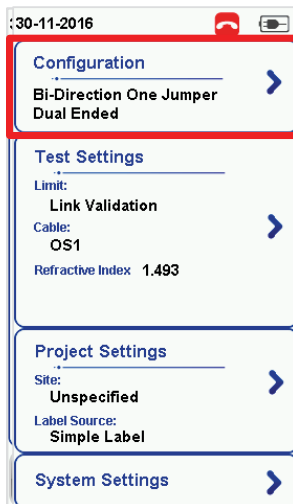
[SETUP]



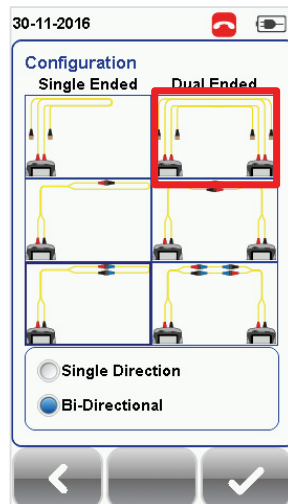
Single Mode [Configuration]



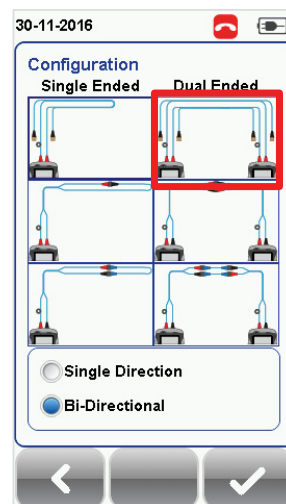
Multimode [Configuration]



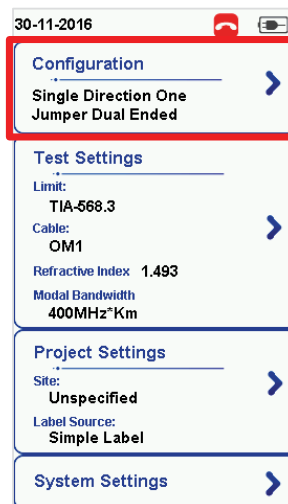
[SETUP]



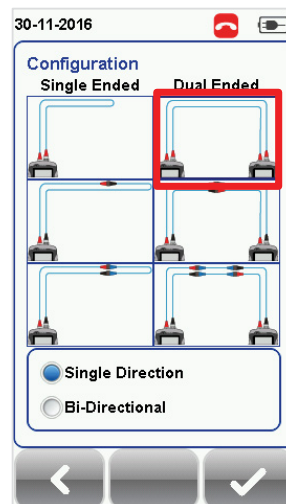
Single Mode [Configuration]



Multimode [Configuration]



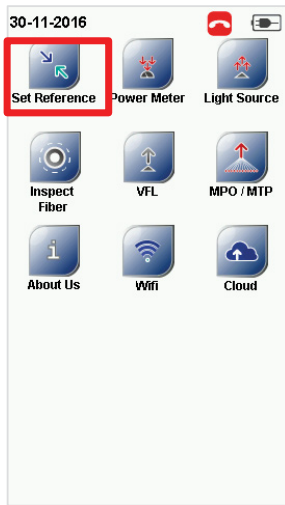
[SETUP]



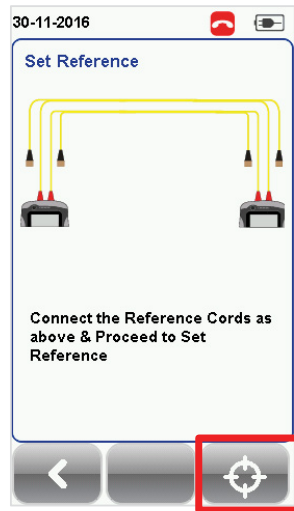
Multimode EF [Configuration]



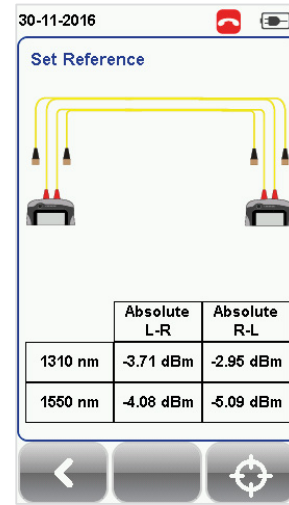
4. Press the [TOOLS] button → **Set Reference** and press the [Ok] button to set reference.



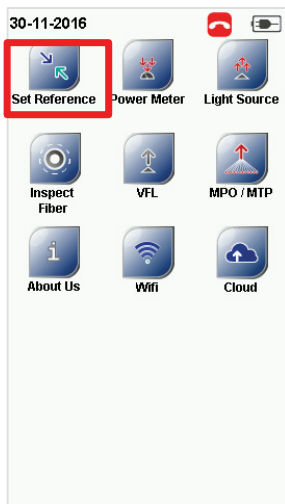
[TOOLS]



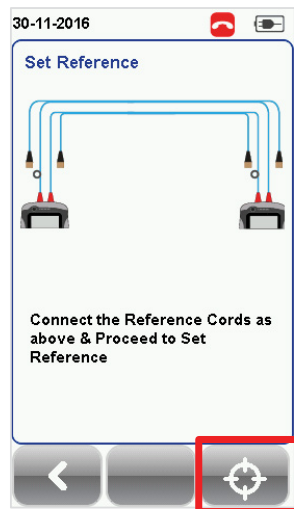
Single mode - Set Reference



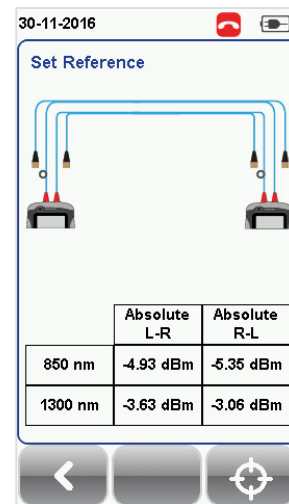
Set Reference Success



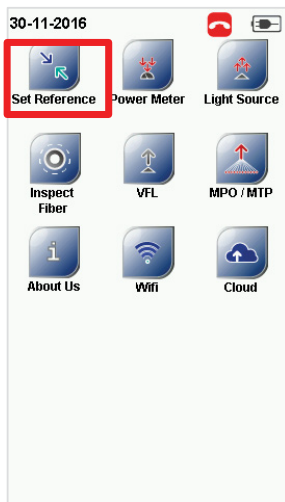
[TOOLS]



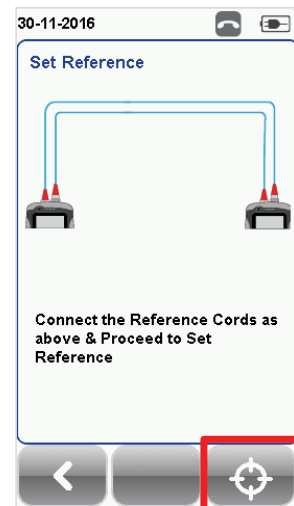
Multimode - Set Reference



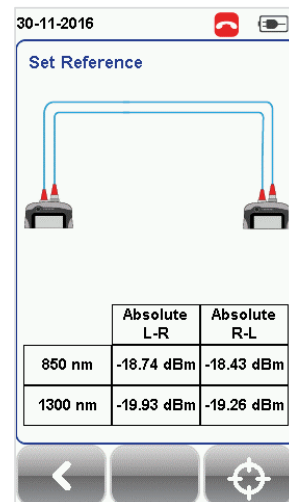
Set Reference Success



[TOOLS]



Multimode EF - Set Reference



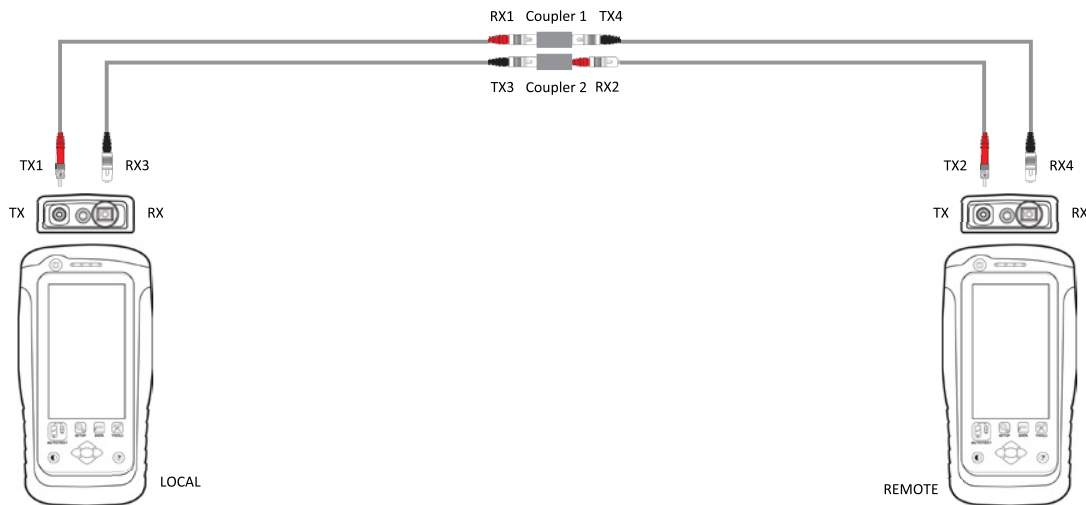
Set Reference Success

5. Check that the Set Reference result is between **-3** to **-9dBm** for Single and Multi Mode and **-18** to **-20dBm** for Encircled Flux Multi Mode.

4.1.1 Verification Test

To verify reference has been set correctly, setup the following connection.

1. Connect TX1 to the LOCAL TX port and RX1 to coupler 1.
2. Connect RX3 to the LOCAL RX port and TX3 to coupler 2.
3. Connect TX2 to the REMOTE TX port and RX2 to coupler 2.
4. Connect RX4 to the REMOTE RX port and TX4 to coupler 1.

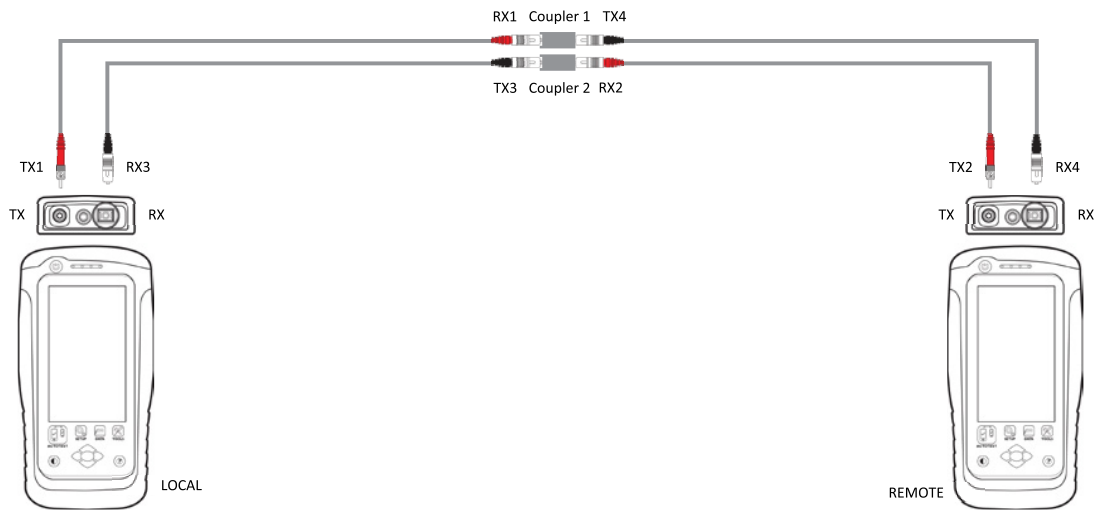


5. Press the AUTOTEST button.
6. Check that the result passes with the following results;
 - Single Mode – 0.3 dB
 - Multi-Mode - 0.3 dB
 - EF compliant Multi-mode – 0.15 dB

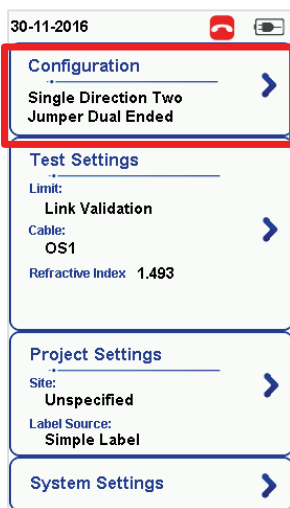
4.2 Two jumpers Dual-ended,

- 1 Connect TX1 to the LOCAL TX port and RX1 to coupler 1.
- 2 Connect RX3 to the LOCAL RX port and TX3 to coupler 2.
3. Connect TX2 to the REMOTE TX port and RX2 to coupler 2.
4. Connect RX4 to the REMOTE RX port and TX4 to coupler 1.

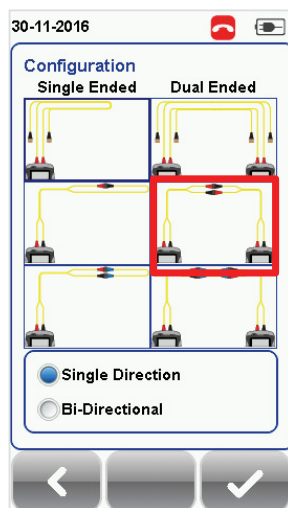
Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



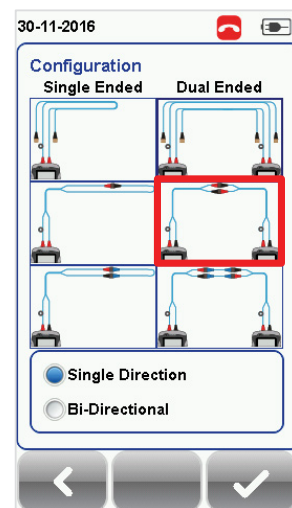
Press the **[SETUP]** button → **Configuration** → **Two Jumpers** from Dual-Ended column.
Select Single or Bi direction depending on requirement.



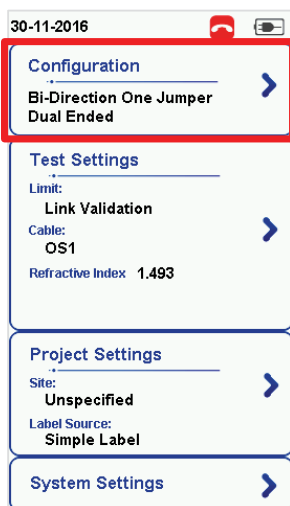
Configuration



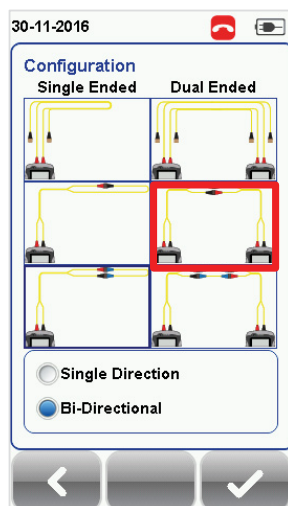
Single Mode [Configuration]



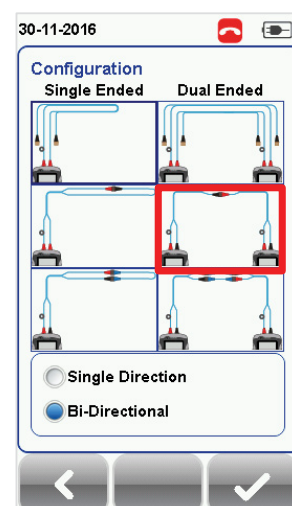
Multimode [Configuration]



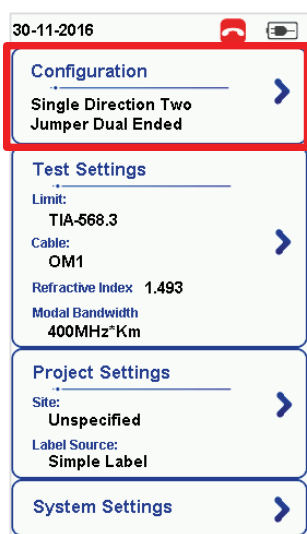
Configuration



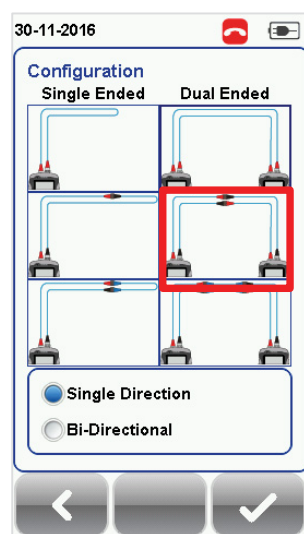
Single Mode [Configuration]



Multimode [Configuration]

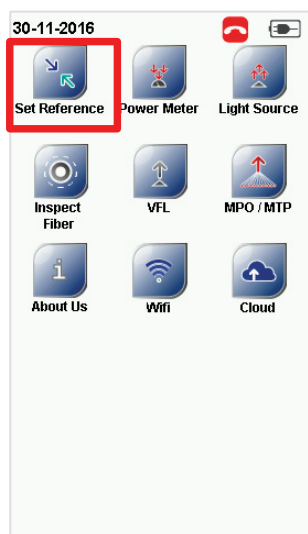


[SETUP]

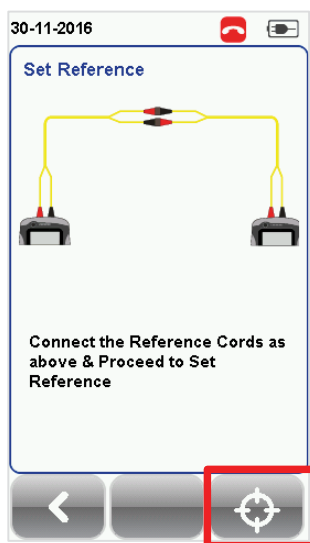


Multimode EF [Configuration]

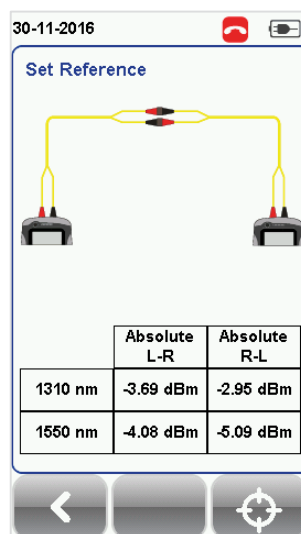
5. Press the **[TOOLS]** button → **Set Reference** and press the **[Ok]** button to set reference.



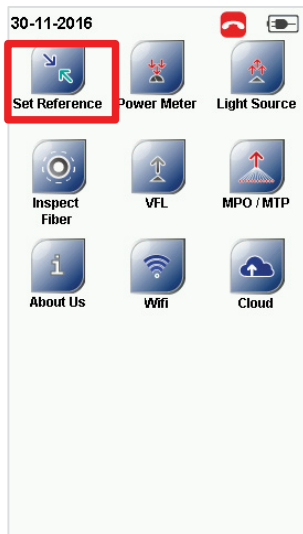
[TOOLS]



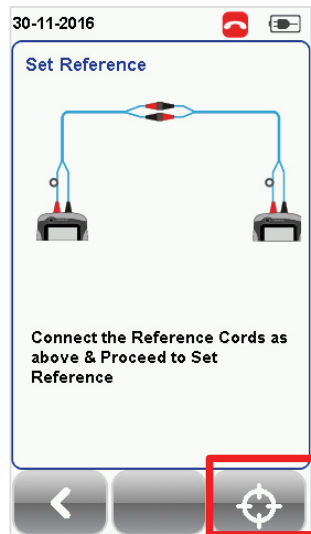
Single mode - Set Reference



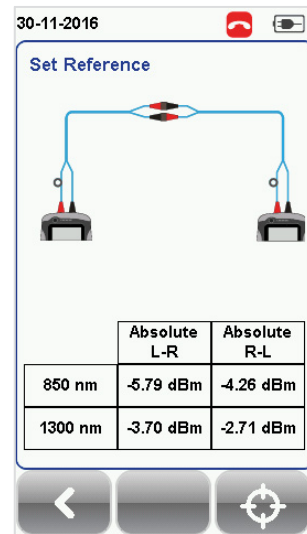
Set Reference Success



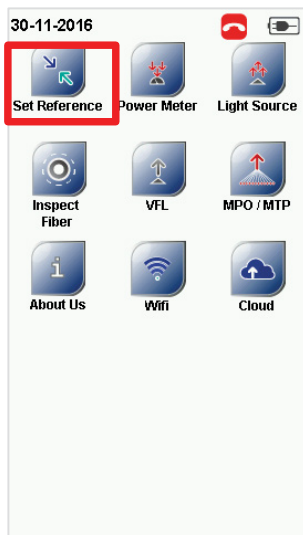
[TOOLS]



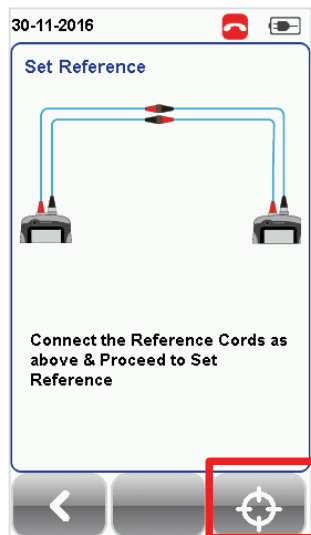
Single mode - Set Reference



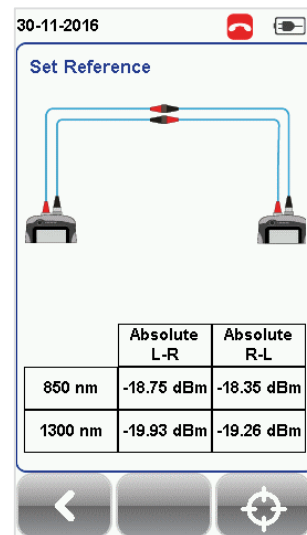
Set Reference Success



[TOOLS]



Multimode EF - Set Reference



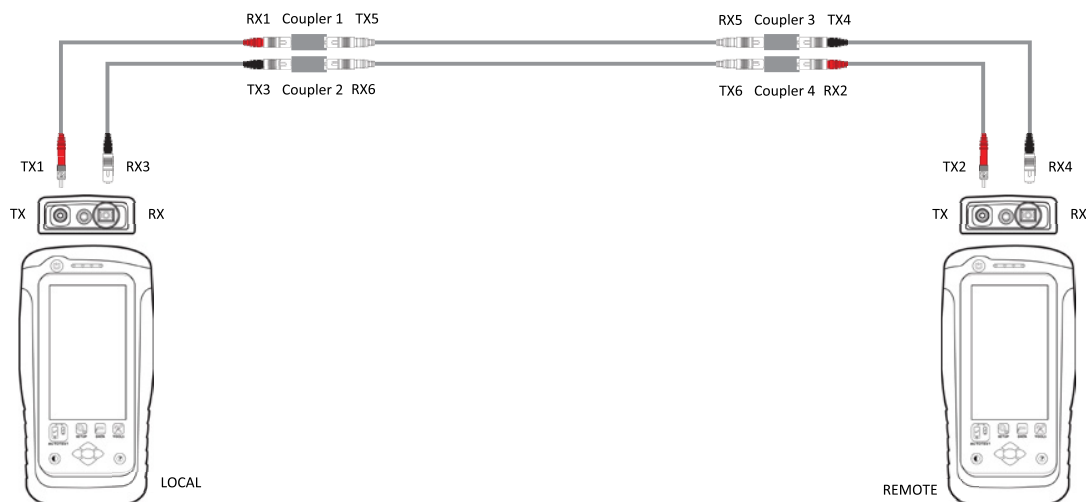
Set Reference Success

6. Check that the Set Reference result is between **-3 to -9dBm** for Single and Multi Mode and **-18 to -20dBm** for Encircled Flux Multi Mode.

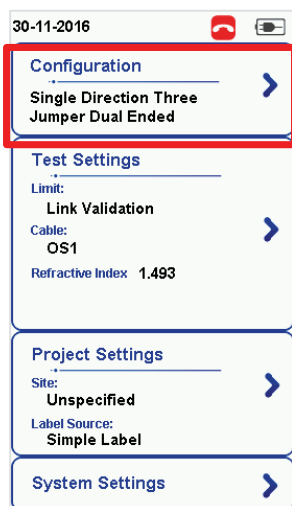
4.3 Three jumpers Dual-ended,

1. Connect TX1 to the LOCAL TX port and RX1 to coupler 1.
2. Connect RX3 to the LOCAL RX port and TX3 to coupler 2.
3. Connect TX2 to the REMOTE TX port and RX2 to coupler 4.
4. Connect RX4 to the REMOTE RX port and TX4 to coupler 3.
5. Connect one end of your jumper (TX5) to coupler 1 and other end (RX5) to coupler 3.
6. Connect one end of another jumper(RX6) to coupler 2 and other end (TX6) to coupler 4.

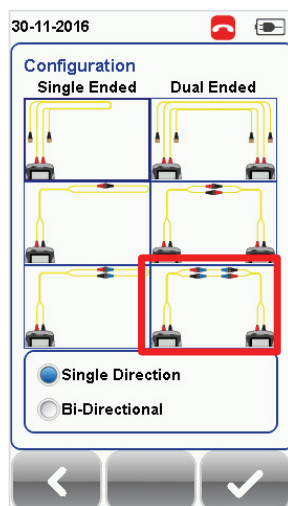
Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit



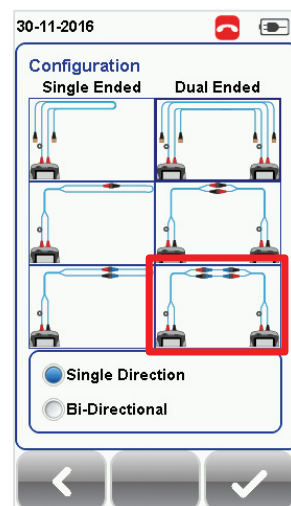
7. Press the **[SETUP]** button → **Configuration** → **Three Jumpers** from Dual-Ended column. Select Single or Bi direction depending on requirement.



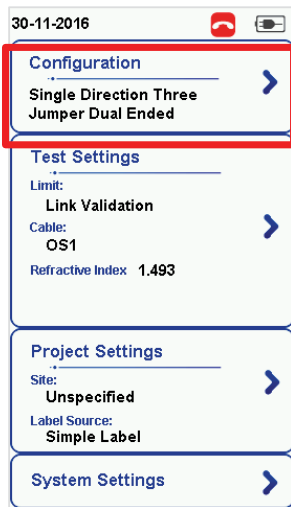
Configuration



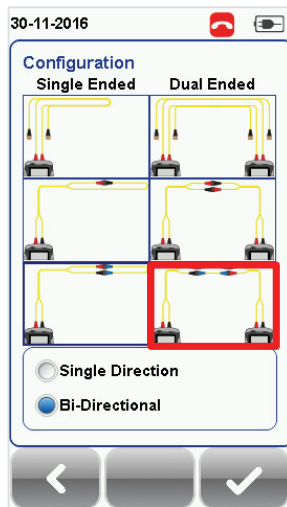
Single Mode [Configuration]



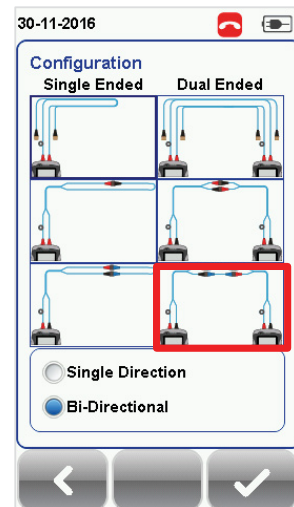
Multimode [Configuration]



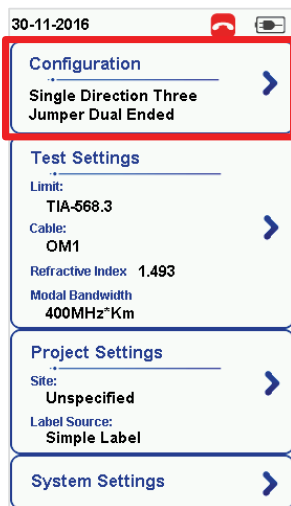
Configuration



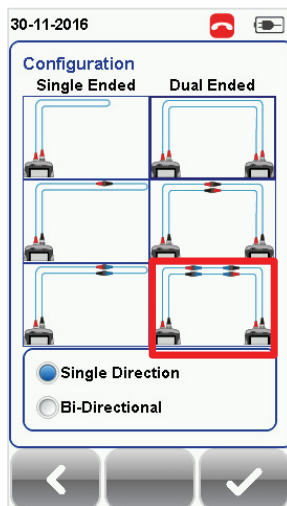
Single Mode [Configuration]



Multimode [Configuration]

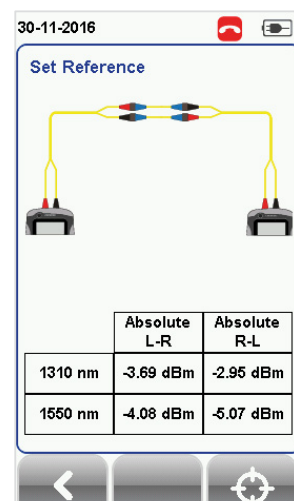
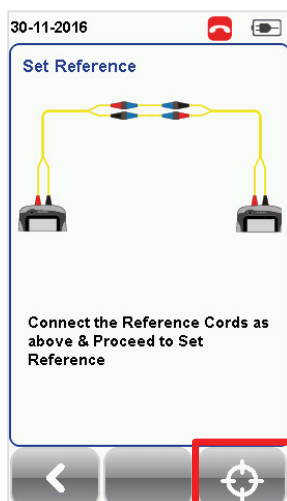
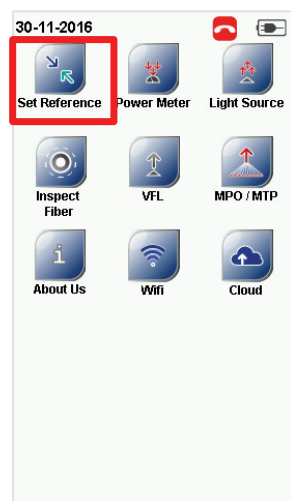


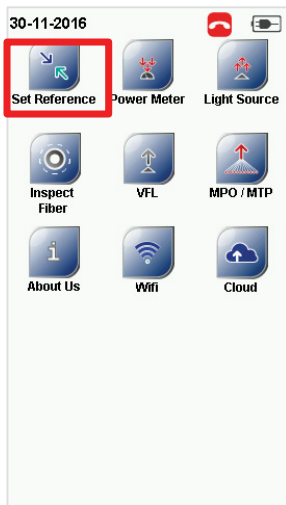
[SETUP]



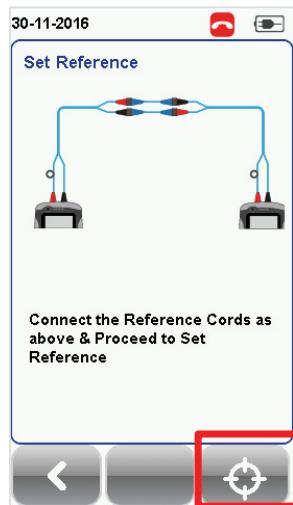
Multimode EF [Configuration]

8. Press the **[TOOLS]** button → **Set Reference** and press the **[Ok]** button to set reference.

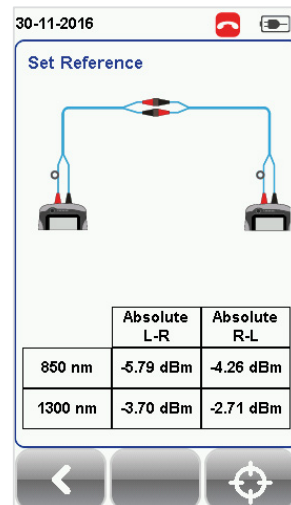




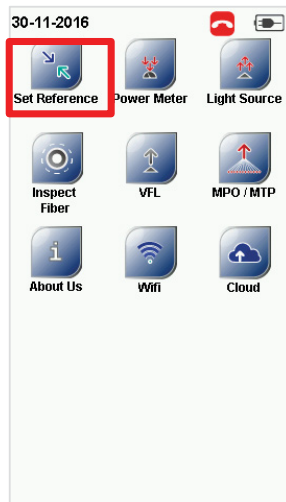
[TOOLS]



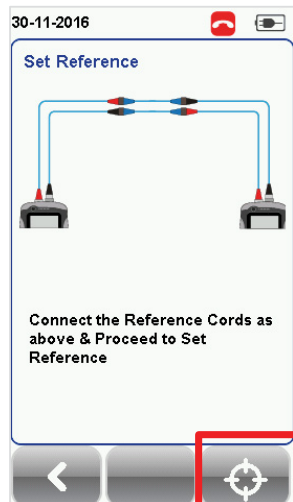
Multimode - Set Reference



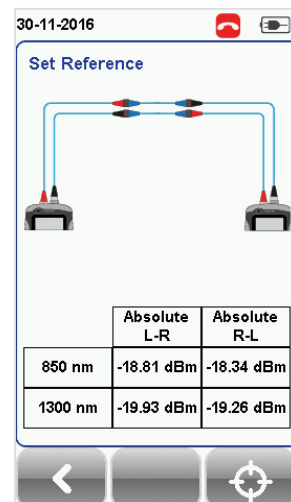
Set Reference Success



[TOOLS]



Multimode - Set Reference



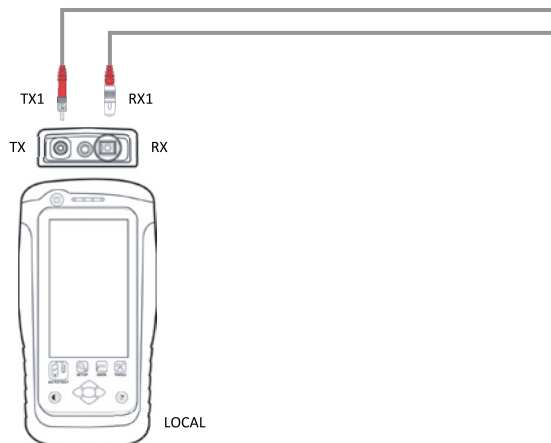
Set Reference Success

- Check that the Set Reference result is between -3 to **-9dBm** for Single and Multi Mode and **-18** to **-20dBm** for Encircled Flux Multi Mode.

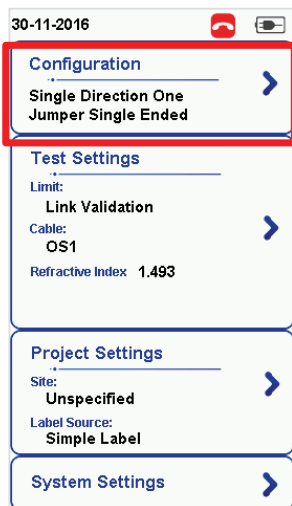
4.4 One jumper Single-ended Loopback

- Connect the TX1 and RX1 ends of the reference cord to the TX port RX port of the adapter respectively.

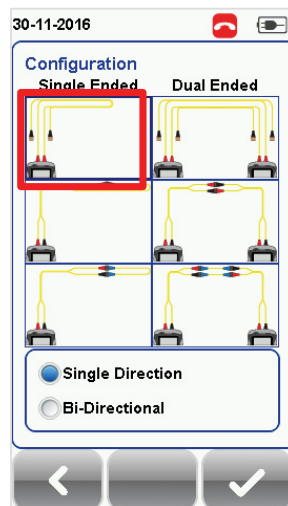
Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



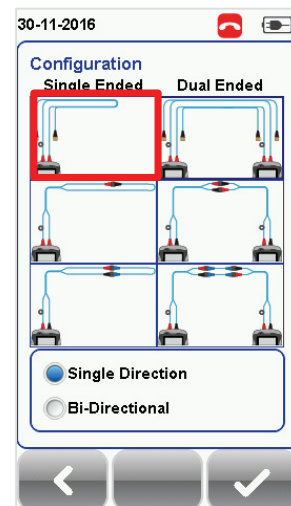
2. Press the **[SETUP]** button → **Configuration** → **One Jumper** from Single-Ended column. Select Single or Bi direction depending on requirement.



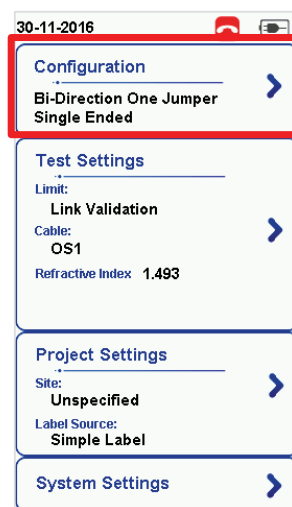
Configuration



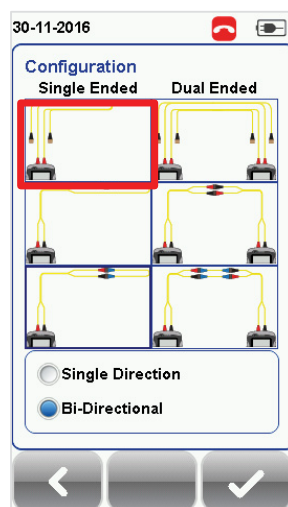
Single Mode [Configuration]



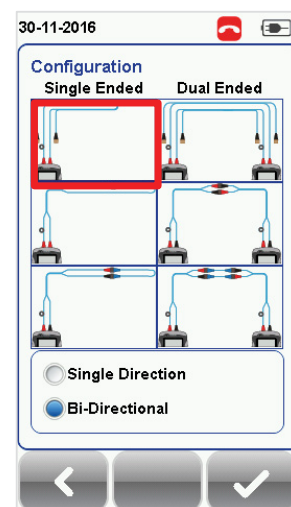
Multimode [Configuration]



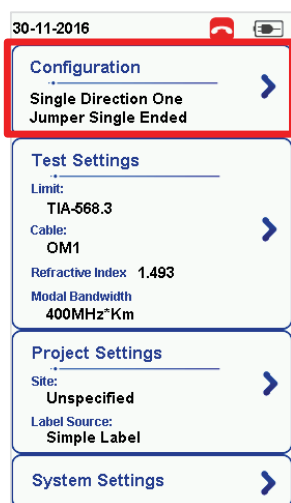
Configuration



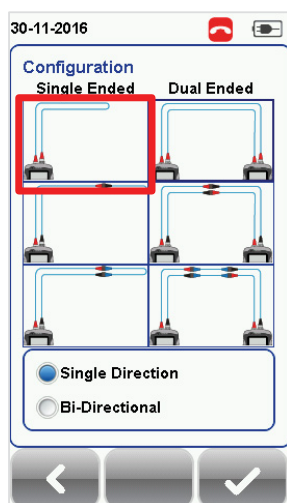
Single Mode [Configuration]



Multimode [Configuration]

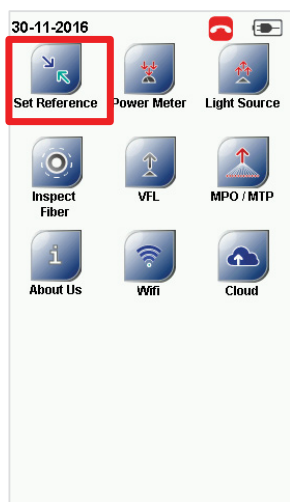


Configuration

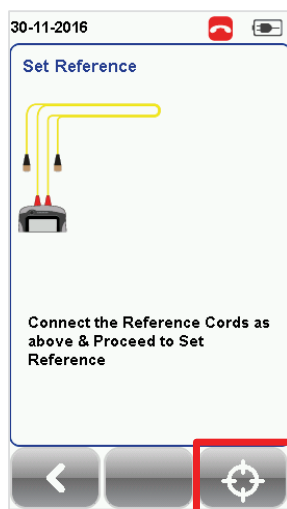


Multimode EF [Configuration]

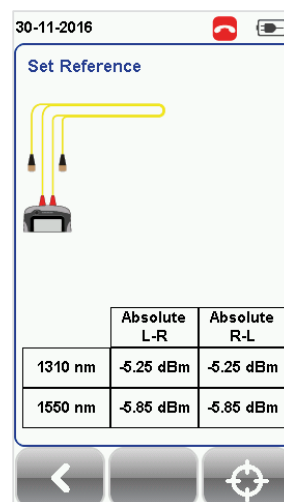
- Press the **[TOOLS]** button → **Set Reference** and press the **[Ok]** button to set reference.



[TOOLS]

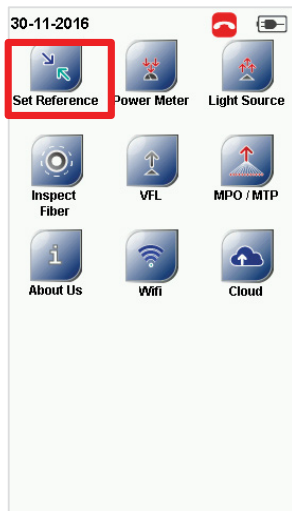


Single mode - Set Reference

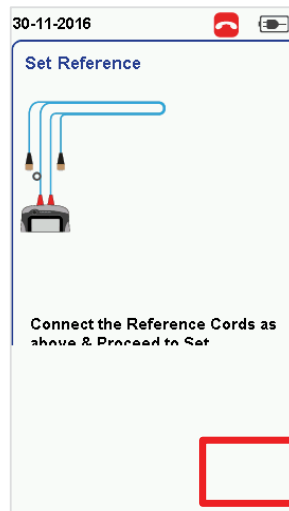


Set Reference Success

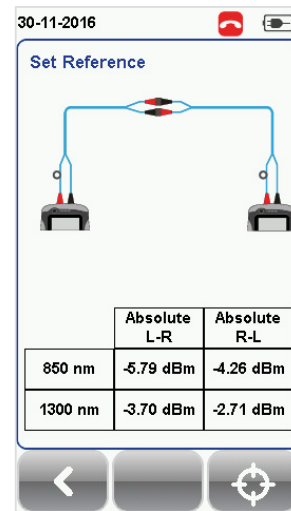




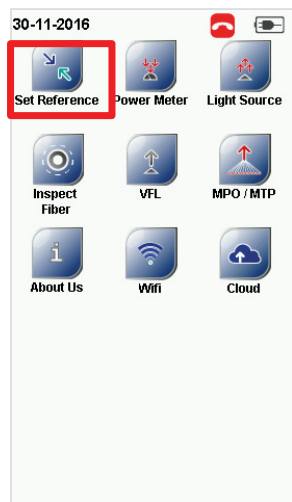
[TOOLS]



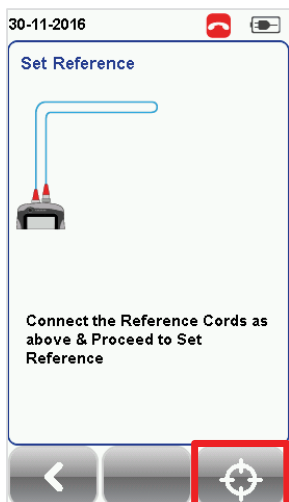
Multimode - Set Reference



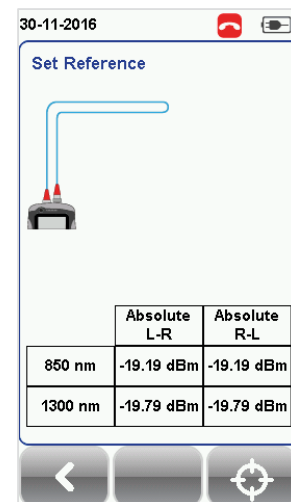
Set Reference Success



[TOOLS]



Multimode - Set Reference



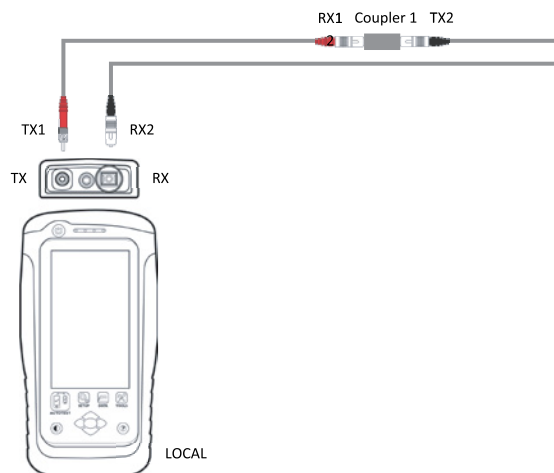
Set Reference Success

4. Check that the Set Reference result is between **-3** to **-9dBm** for Single and Multi Mode and **-18** to **-20dBm** for Encircled Flux Multi Mode.

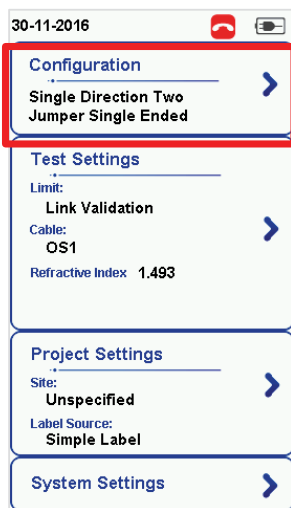
4.5 Two jumpers Single-ended Loopback

1. Connect TX1 to the TX port and RX1 to one end of coupler 1.
2. Connect RX2 to the RX port and TX2 to the other end of coupler 1.

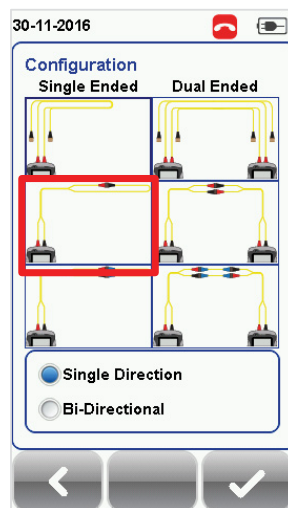
Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



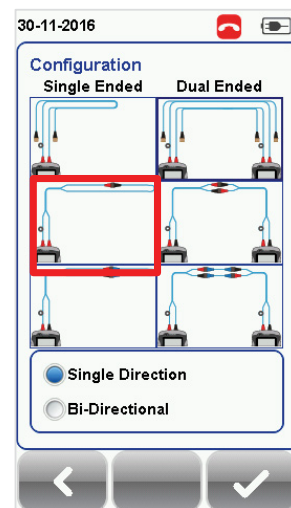
3. Press the **[SETUP]** button → **Configuration** → **Two Jumpers** from Single-Ended column. Select Single or Bi direction depending on requirement.



Configuration



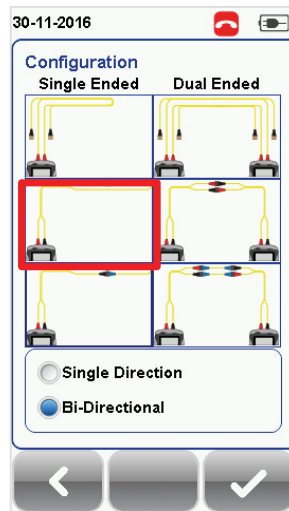
Single Mode [Configuration]



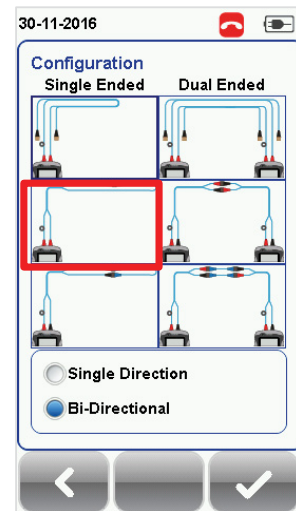
Multimode [Configuration]



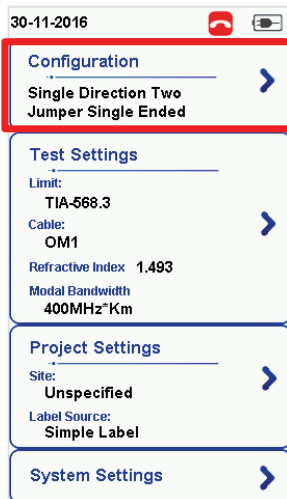
Configuration



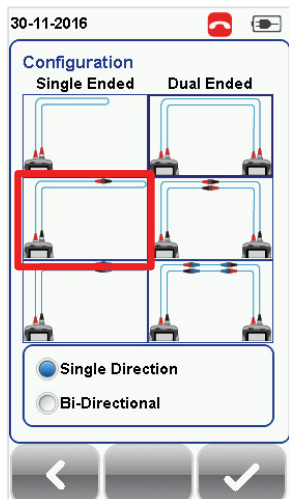
Single Mode [Configuration]



Multimode [Configuration]

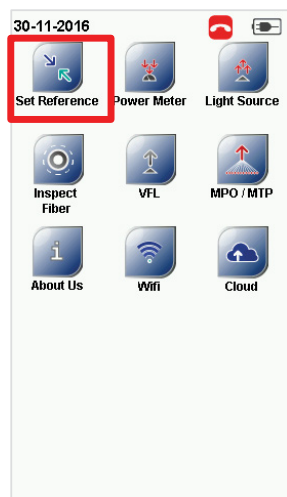


Configuration

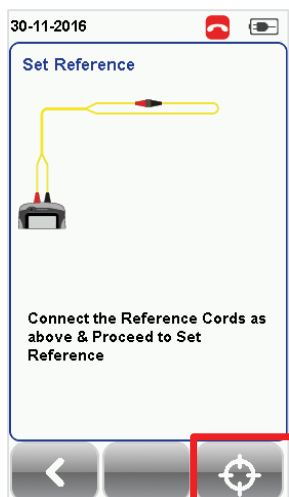


Multimode EF [Configuration]

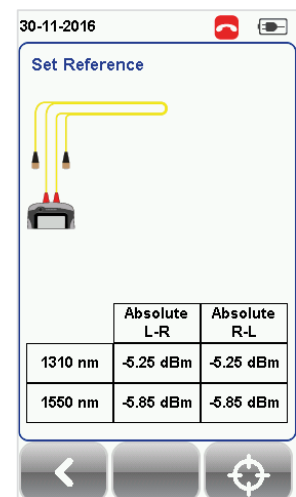
4. Press the **[TOOLS]** button → **Set Reference** and press the **[OK]** button to set reference.



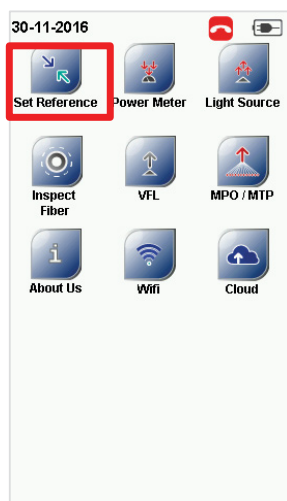
[TOOLS]



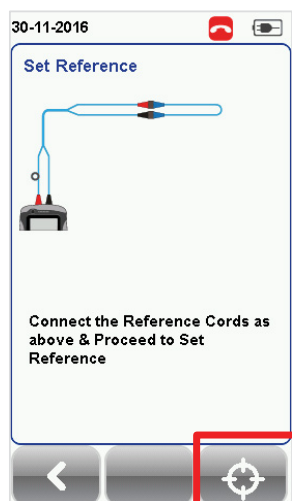
Single mode Set Reference



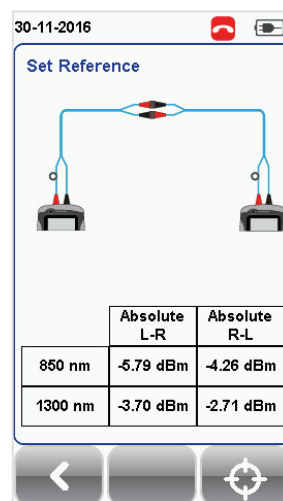
Set Reference Success



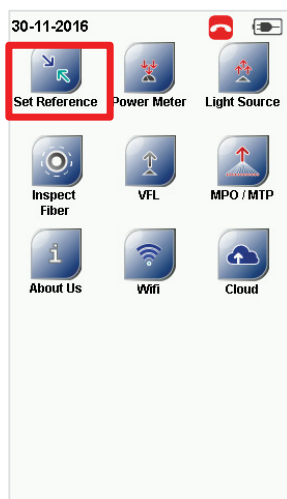
[TOOLS]



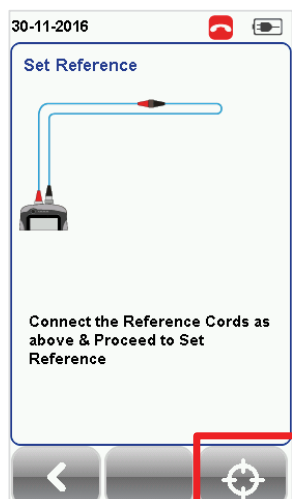
Multimode - Set Reference



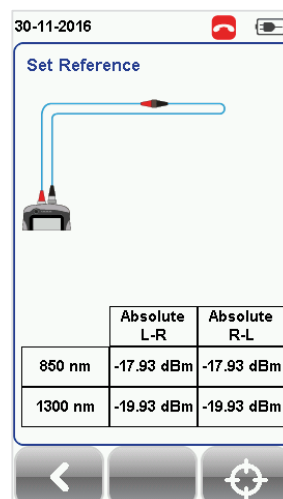
Set Reference Success



[TOOLS]



Multimode EF - Set Reference

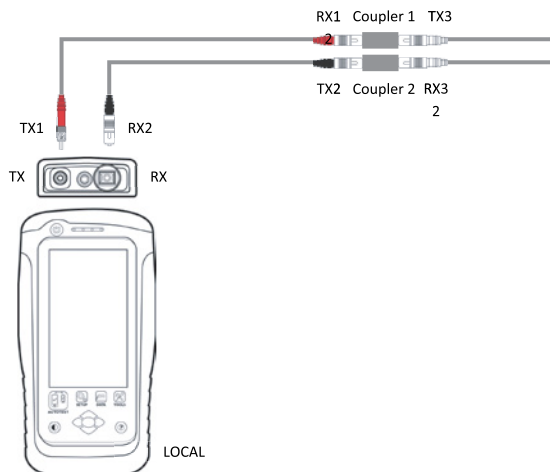


Set Reference Success

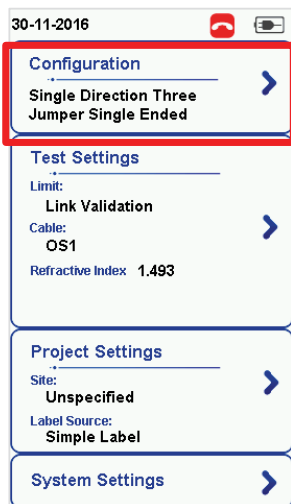
5. Check that the Set Reference result is between **-3** to **-9dBm** for Single and Multi Mode and **-18** to **-20dBm** for Encircled Flux Multi Mode.

4.6 Three jumpers Single-ended Loopback

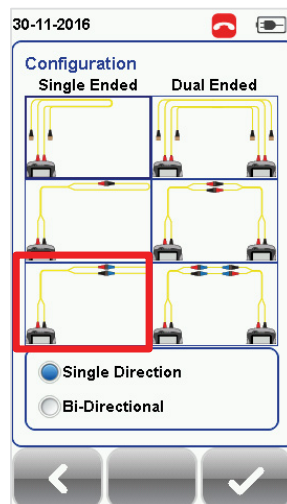
1. Connect TX1 to the TX port and RX1 to one end of coupler 1.
 2. Connect RX2 to the RX port and TX2 to the other end of coupler 2.
 3. Connect one end of your jumper (TX3) to coupler 1 and other end (RX3) to coupler 2.
- Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



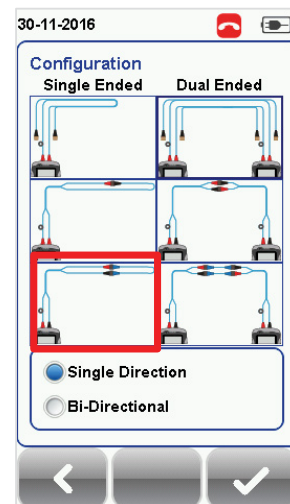
4. Press the **[SETUP]** button → **Configuration** → **Three Jumpers** from Single-Ended column. Select Single or Bi direction depending on requirement.



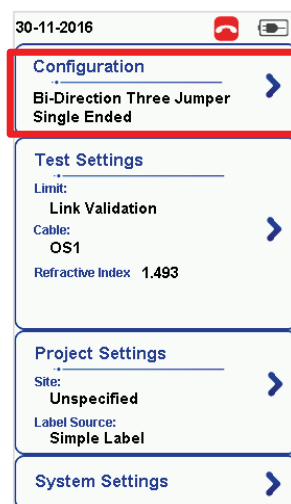
Configuration



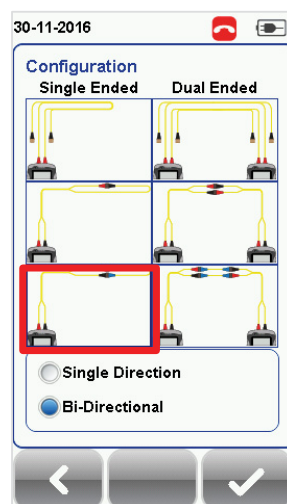
Single Mode [Configuration]



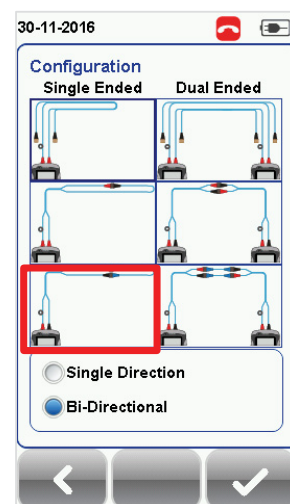
Multimode [Configuration]



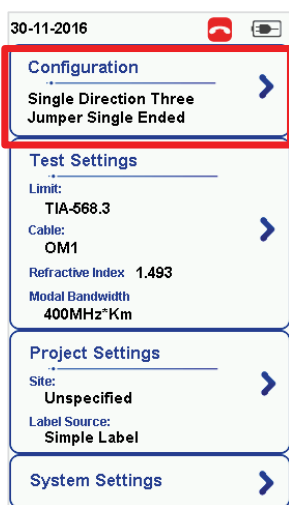
Configuration



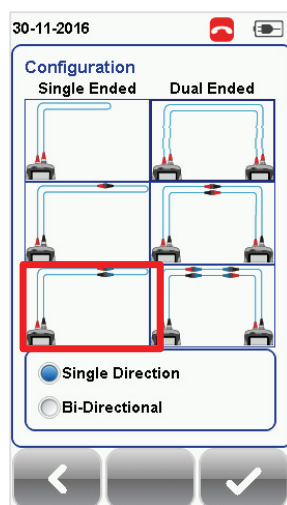
Single Mode [Configuration]



Multimode [Configuration]

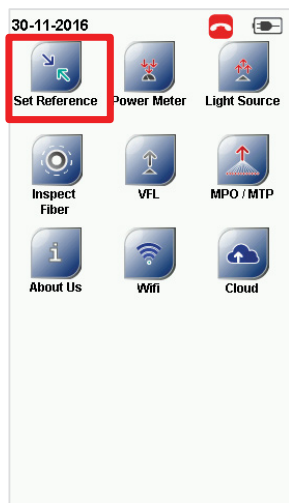


Configuration

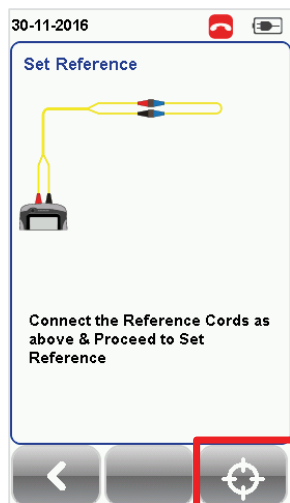


Multimode EF [Configuration]

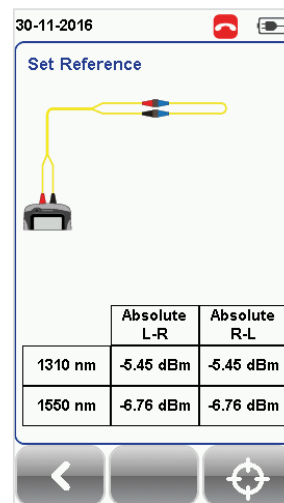
5. Press the **[TOOLS]** button → **Set Reference** and press the **[Ok]** button to set reference.



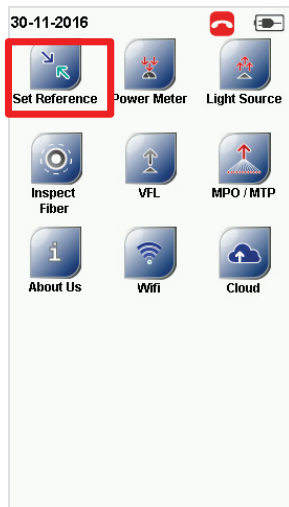
[TOOLS]



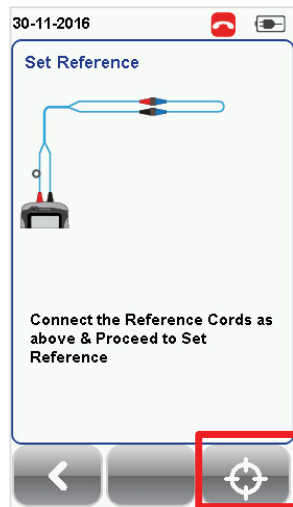
Single mode - Set Reference



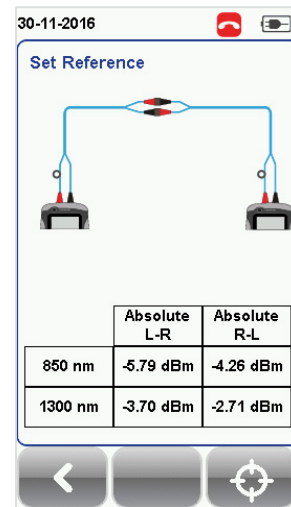
Set Reference Success



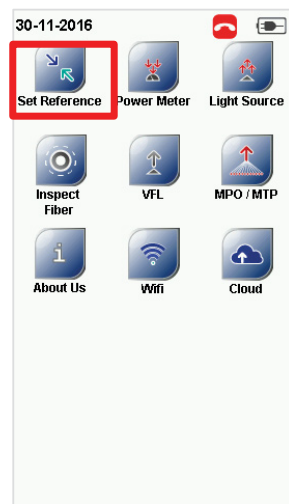
[TOOLS]



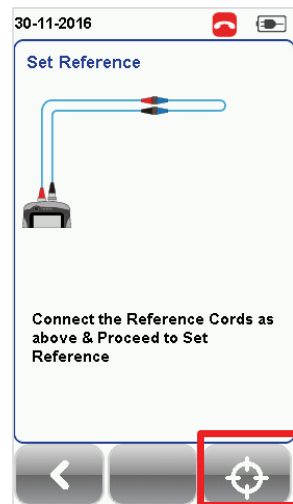
Multimode - Set Reference



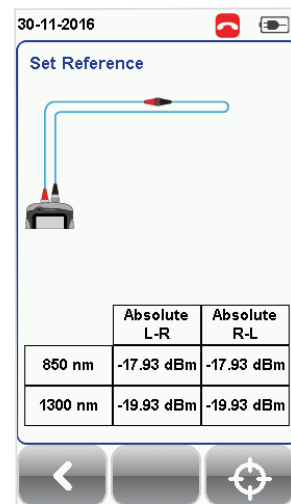
Set Reference Success



[TOOLS]



Multimode EF - Set Reference



Set Reference Success

6. Check that the Set Reference result is between **-3 to -9dBm** for Single and Multi Mode and **-18 to -20dBm** for Encircled Flux Multi Mode.

Hint



Set Reference will fail in the event of-

- Adapter probe mismatch
- Firmware version mismatch
- No connection between LOCAL and REMOTE units

Note



According to the ISO/IEC standards, the 2-jumpers testing method is not a recognised procedure, hence the selection for 2-jumpers configuration will be disabled when an ISO limit is selected.

5 Configuring an AUTOTEST

5.1 Setting up WireXpert

After configuring the system settings, follow these steps to set up an AUTOTEST.

1. Press the **[SETUP]** button → **Project Settings**
 - a. **Site** – Create or select a Site
 - b. **Operator** – Create or select an Operator
 - c. **Label Source** – Select cable labeling scheme. Load labels from USB flash drive if using List Based Testing (LBT).
 - d. **AutoSave** – Enable option for WireXpert to auto save every PASS result.
2. Press the **[SETUP]** button → **Configuration** to select the number of jumper(s) is used for setting reference on dual or single ended loopback, and determines if single or bi-directional test is performed during an AUTOTEST.
3. Manual Setup – Press the **[SETUP]** button → **Test Settings**
 - a. **Test Limit** – Select a test limit
 - b. **Cable** – Create a custom or select cable from list. Select **[Generic]** if unsure.
 - c. **Modal Bandwidth** - Choose the modal bandwidth of the cable under test. Leave option unchanged if unsure.

Please ensure you have the following components before conducting the test;

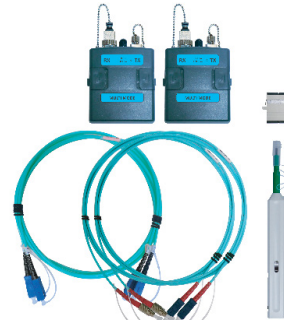
- WireXpert, LOCAL&REMOTE units (WX4500)
- Single Mode Testing Kit (WX_AD_SM2) OR
- Multi-Mode Testing Kit (WX_AD_VCL_MM2) OR
- Encircled Flux Multi-Mode Testing Kit (WX_AD_EF_MM2)



WX_AD_SM2



WX_AD_VCL_MM2

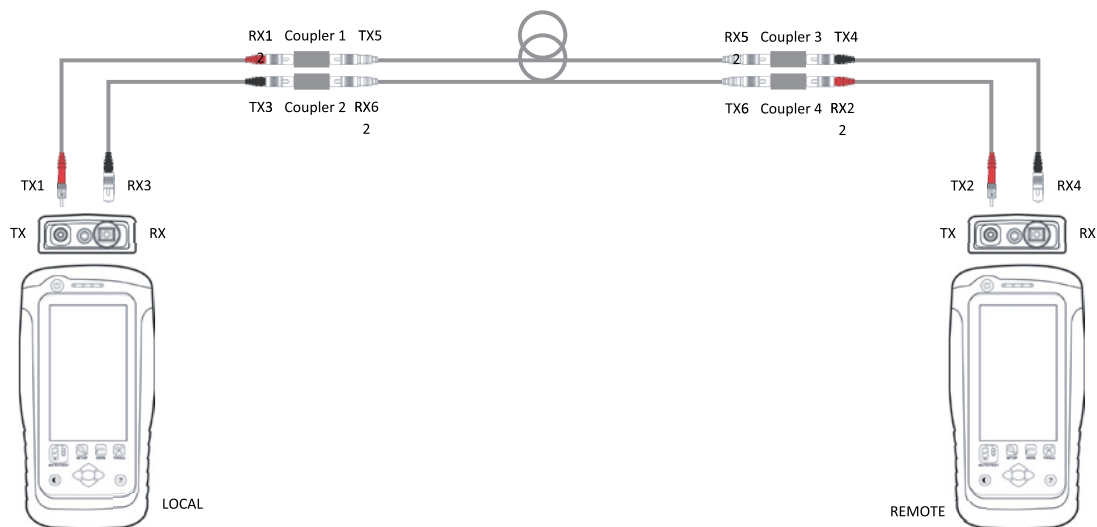


WX_AD_EF_MM2

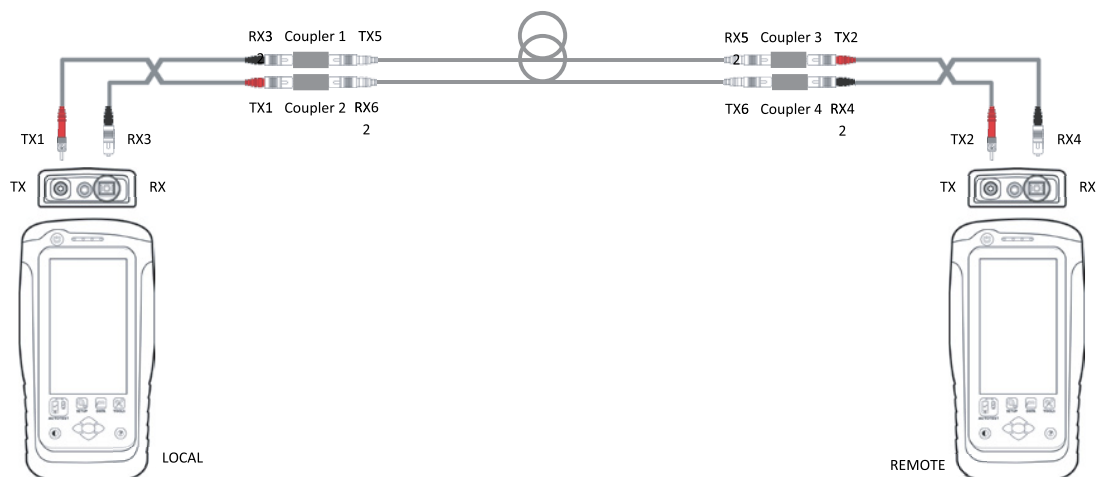
5.2 Testing Guide for Dual-ended Testing

1. Connect TX1 to the LOCAL TX port and RX1 to coupler 1 of link under test.
2. Connect RX3 to the LOCAL RX port and TX3 to coupler 2 of link under test.
3. Connect TX2 to the REMOTE TX port and RX2 to coupler 4 of link under test.
4. Connect RX4 to the REMOTE RX port and TX4 to coupler 3 of link under test.
5. Connect the link to be tested (TX5) to coupler 1 and other end (RX5) to coupler 3.
6. Connect the other link to be test (RX6) to coupler 2 and other end (TX6) to coupler 4.

Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



7. Press the **[AUTOTEST]** button to begin AUTOTEST.
8. If Bi-Direction measurement is selected, swap the position of RX1 and TX3, TX4 and RX2.
9. Click **[STEP 2]** to continue test.

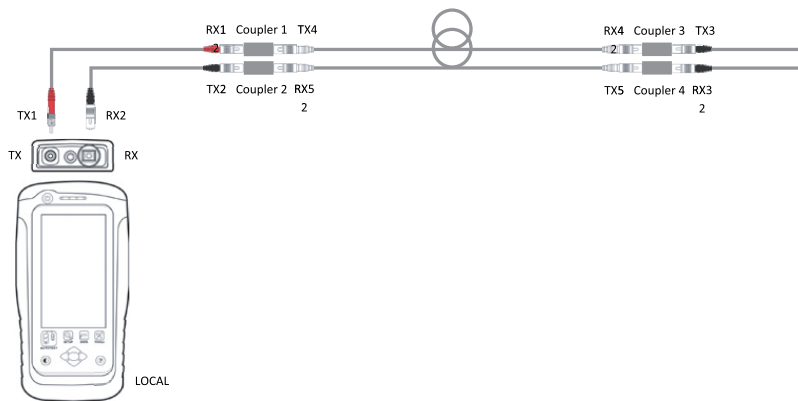


10. Select "850nm" or "1300nm" for Multi-mode or "1310nm" or "1550nm" for Single Mode to check the Loss, Limit and Margin of the fiber setup at the respective wavelength

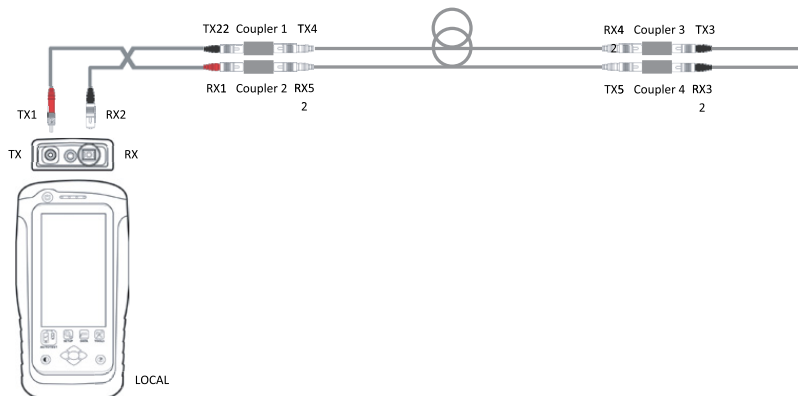
5.3 Testing Guide for Dual-ended Testing

1. Connect TX1 to the LOCAL TX port and RX1 to coupler 1 of link under test.
2. Connect RX2 to the LOCAL RX port and TX2 to coupler 2 of link under test.
3. Connect one end of a reference cord (TX3) to coupler 3 of link under test.
4. Connect the other end of the reference cord (RX3) to coupler 4 of link under test.
5. Connect the link to be tested (TX4) to coupler 1 and other end (RX4) to coupler 3.

Please ensure the fiber cables are cleaned using the cleaning kit provided in the kit.



6. Press the **[AUTOTEST]** button to begin AUTOTEST.
7. If Bi-Direction measurement is selected, swap the position of RX1 and TX2.



8. Click **[STEP 2]** to continue test.
9. Select "850nm Margin" or "1310nm Margin" to check the Loss, Limit and Margin of the fiber setup at the respective wavelength.

6 Performing an AUTOTEST

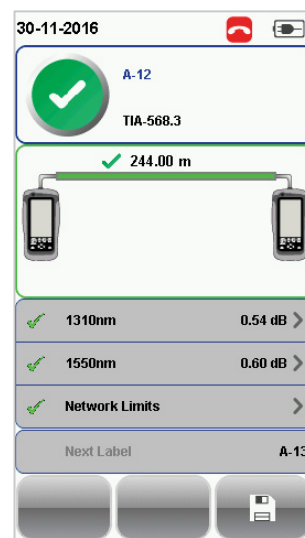
6.1 Understanding AUTOTEST

Press the **[AUTOTEST]** button once settings and limits have been selected. WireXpert will use the last configuration or factory settings to perform the AUTOTEST if new settings are not configured.

WireXpert will display summarized result with PASS or FAIL once AUTOTEST is completed. Press the **[View]** details button to view the comprehensive result or the **[Save]** button to save the results.



AUTOTEST in progress



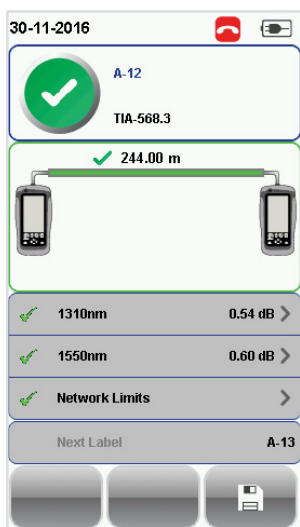
AUTOTEST complete

Click on the parameter to display a more comprehensive individual result.

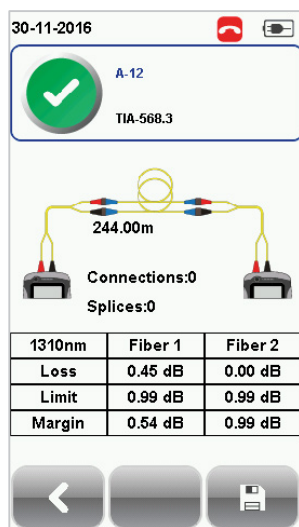
In detailed view, loss from the LOCAL to the REMOTE unit, Limit and Margin will be displayed for each wavelength for both Single and Multi-mode. If Bi-directional test is selected at the configuration settings, test result for loss from REMOTE to LOCAL will be displayed.

Depending on installation requirements, additional tests in line with the application standard will be performed during an Autotest if Ethernet Standard and/or Fiber Channel is selected. To perform additional application standard test, press the **[SETUP]** button → **Test Settings** → **Network Limits**.

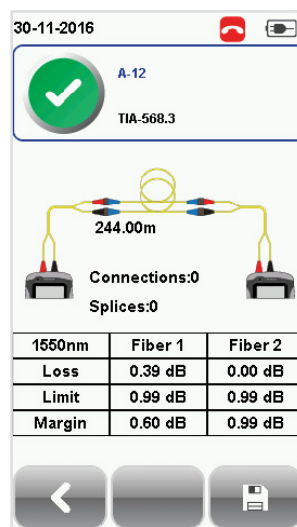
WireXpert will perform a separate test based on the loss value input if Link Validation is selected.



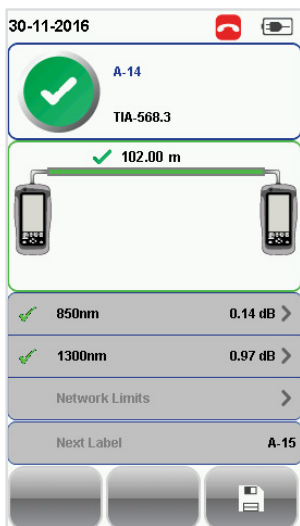
SingleMode



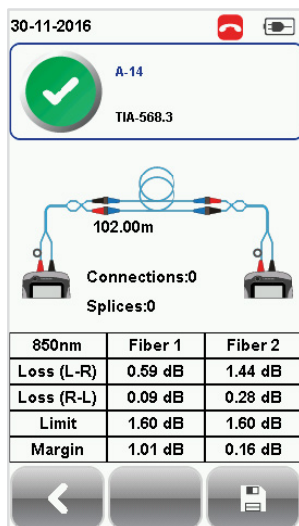
SingleMode 1310 nm



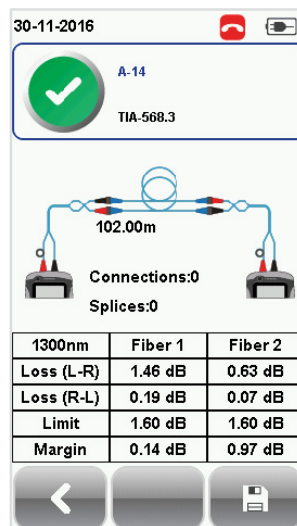
SingleMode 1550 nm



Multimode



Multimode 850 nm



Multimode 1300 nm

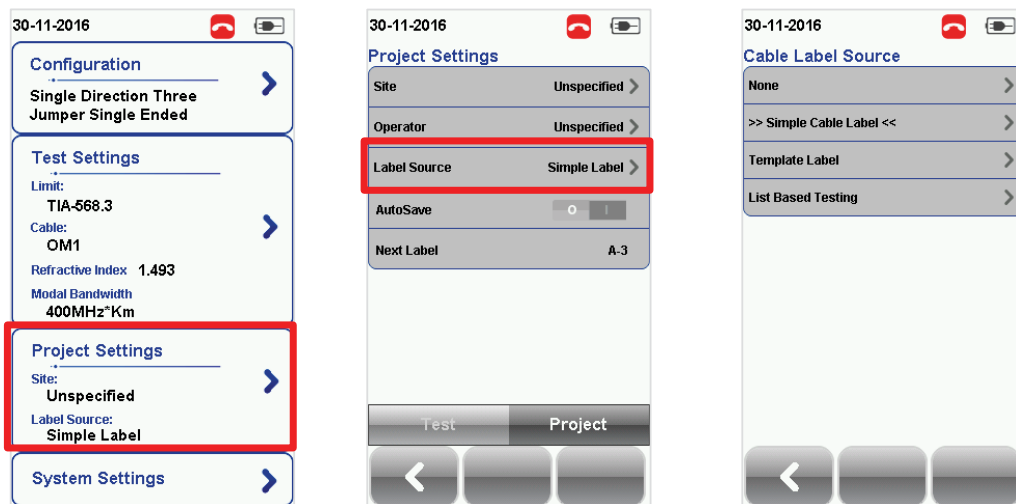
6.2 Managing test result(s)

Test results can be manually saved by pressing the **[Save]** button after an AUTOTEST is completed. When prompted, enter label name and click **[OK]** to save.



*The **[Save]** icon will disappear once saving is completed.*

Pass test results will be automatically saved with reference to the selected Label Source (**[SETUP]** button → **Project Settings** → **Label Source**) when AUTOTEST is completed.



[SETUP] button

Project Settings

To view saved results,

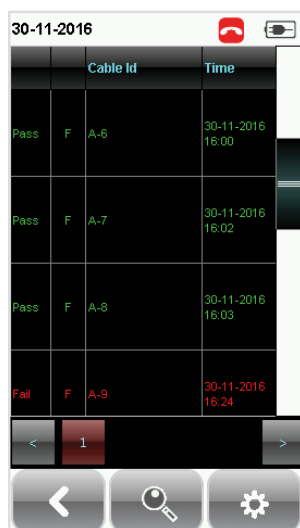
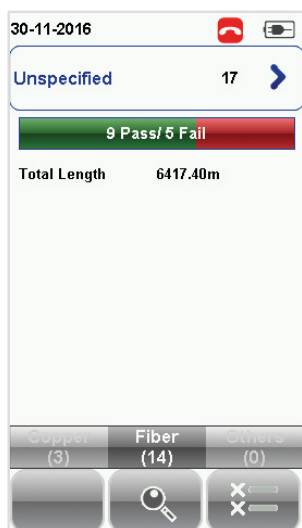
1. Press the **[DATA]** button.
2. Select **[Fiber]** and press the **[View]** button.
3. Select the test results click **[View]** to view results.
4. Select the next page for more results.

To delete a saved result,

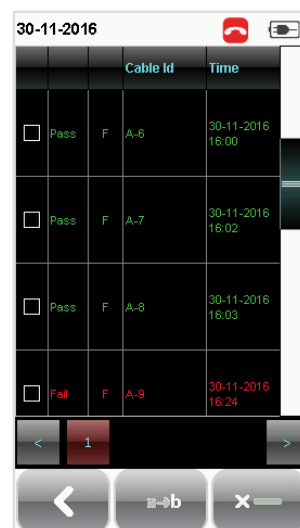
1. Press the **[DATA]** button.
2. Select **[Fiber]** and press the **[View]** button.
3. Press the **[Manage]** button.
4. Select result(s) and press the **[Delete]** to delete result(s).

To rename a saved result,

1. Press the **[DATA]** button.
2. Select **[Fiber]** and press the **[View]** button.
3. Press the **[Manage]** button.
4. Select result and press the **[Rename]** to rename result.



View results



Manage results

6.3 Exporting test results into eXport PC Software

eXport is a data management software designed to work seamlessly with WireXpert.

User Manuals



Refer "User Manual – Copper Certification Testing" for more information on exporting test results into eXport PC Software.

User Manuals



Refer "User Manual – eXport" for more information on how to use the software.



7 Declarations

EU Declaration of Conformity



We

Softing Singapore Pte. Ltd.
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Singapore
118223

declare under our sole responsibility that the products

Model / Description

WX4500-FA	/	WireXpert cable certifier 2500 MHz
WX500-CU	/	WireXpert cable certifier 500 MHz
WX_AD_VCL_MM1/MM2	/	Multi mode fibre adapter
WX_AD_EF_MM1/MM2	/	Multi mode fibre adapter (encircled flux compliant)
WX_AD_SM1/SM2	/	Single mode fibre adapter
WX_AD_MM_MPO_KIT/ SOURCE/PWRMETER	/	Multi mode MPO adapters

comply with the requirements of the following directives:

EMC directive 2004/108/EC (valid until April 19, 2016)
EMC directive 2014/30/EU (valid from April 20, 2016)

RoHS directive 2011/65/EU

Low Voltage Directive 2006/95/EC (valid until April 19, 2016)
Low Voltage Directive 2014/35/EU (valid from April 20, 2016)

Applied harmonised standards:

EN 55024 (2003-10) : Information technology equipment – Immunity characteristics – Limits and methods of measurement

EN 55022 (2008-05) : Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 : Information technology equipment – Safety – Part 1 : General requirements

Simon Harrison
General Manager

Date

Template version 2.1

Document No: 3000-0006

This device complies with the requirements of the EC directive 2004/108/EG “Electromagnetic Compatibility” (EMC directive). It meets the following requirements:



Note

A Declaration of Conformity in compliance with the above standards has been made and can be requested from Softing Singapore Pte Ltd.



China ROHS

The WireXpert device and its test components are China ROHS compliant.



WEEE

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product, contact Softing IT Networks.



CAUTION

This is a Class A product. In a domestic environment this product may cause radio interference. In that case the user may be required to take adequate measures!



ROHS

The WireXpert device and its test components are ROHS compliant.



Intertek

ETL Intertek Verified

WireXpert device is ETL verified to ANSI/TIA IIIe, IEC 61935-1 levels IIIe & IV and currently proposed Level V draft, with the applicable measurement accuracy.



Class 1 Laser Product

The light source transmitted from the following fiber test modules – Single Mode (SM), Multi-Mode (MM) and Encircled Flux compliant Multi-Mode (MMEF) are classified as Class 1 lasers and are very low risk and “safe under reasonably foreseeable use”, including the use of optical instruments for intrabeam viewing.










Class 1m Laser Product

The light source transmitted from the following fiber test modules – MPO REMOTE are classified as Class 1m lasers and have wavelengths between 302.5 nm and 4000 nm, and are safe except when used with optical aids.

8 Appendix

 <p>[Add]– Adds a site, operator or customised cable, connector to the database.</p>	 <p>[Retest] – Performs an AUTOTEST on selected result on List-Based Testing.</p>	 <p>[Back] – Returns to previous screen. Unsaved options will be discarded.</p>
 <p>[Cancel] – Discards option.</p>	 <p>[Delete] – Deletes a site, operator or customised cable, connector from the database.</p>	 <p>[View]– View selected result.</p>
 <p>[Manage] – Enables [Rename] and [Select all] options.</p>	 <p>Format, Reset – Performs non-reversible setting/ data restoration to factory defaults.</p>	 <p>Forward – Proceed to the next screen.</p>
 <p>[Device info] – Displays device firmware build information.</p>	 <p>[OK] – Confirms and saves current option.</p>	 <p>[Rename] – Renames saved test result in the DATA menu.</p>
 <p>[Restart] – Restarts current procedure.</p>	 <p>[Save] – Saves current test result. Icon will disappear after a successful save.</p>	 <p>[USB] – Reads USB flash drive to perform upgrade firmware, test result export or custom limit and label list import</p>

 <p>[Select all] – Selects all data on screen.</p>	 <p>[Next pair] – View next pair of plots of the current result.</p>	 <p>Fibermap – Displays mapping of fiber being tested.</p>
 <p>[MPO chart/grid] – Toggles between displaying of power loss in bar chart or grid format for fiber testing.</p>	 <p>[Scope live/test] – Toggles between 'Live' and 'Test' mode when inspecting a SM/MM fiber with the inspection scope.</p>	 <p>[Set Reference] – Performs result referencing between the LOCAL and REMOTE units.</p>
 <p>[Transmit ON/OFF] – Toggles between enabling and disabling of light source on the REMOTE unit.</p>		

Related documents

User Manual – Fiber Certification Testing

User Manual – MPO Certification

User Manual – eXport

User Guide – List Based Testing

User Guide – Installing eXport PC Software

Quick Start Guide – Copper Certification Testing

Quick Start Guide – Fiber Certification Testing

Quick Start Guide – Encircled Flux Compliant Multimode Fiber Certification Testing

Quick Start Guide – MPO Certification Testing

Disclaimer of liability

The information contained in these instructions corresponds to the technical status at the time of printing of it and is passed on with the best of our knowledge. The information in these instructions is in no event a basis for warranty claims or contractual agreements concerning the described products, and may especially not be deemed as warranty concerning the quality and durability pursuant to Sec. We reserve the right to make any alterations or improvements to these instructions without prior notice. The actual design of products may deviate from the information contained in the instructions if technical alterations and product improvements so require.

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The latest version of this manual is available in the Softing download area at:

<http://itnetworks.softing.com>.

9 Technical Support

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