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User Manual

Version: WireXpert4500_MPO_IT_EN_U_201702

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Softing Singapore Pte Ltd

Singapore Science Park 1
3 Science Park Drive
Franklin, #03-09
Singapore 118223
http://itnetworks.softing.com

+ 65 6569 6019
+ 65 6899 1016
asia-support.itnetworks@softing.com

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

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CAUTION

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

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

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
005	Firmware update to v7.3.

Table 1: Document history

1.4.2 Conventions used

The following conventions are used throughout Softing customer documentation:

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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	`MaxDlsapAddressSupported=23`
Filenames and directories are written in italic	Device description files are located in *C:\<product name>\delivery\software\Device Description files*

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.

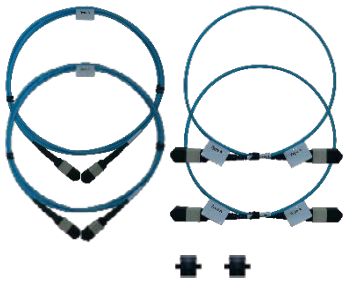
Key differences between WX4500 and WX500

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_MM_MPO_KIT)

Power Meter (LOCAL) Adapter (WX_AD_MM_MPO_PWRMETER)
Light Source (REMOTE) adapter (WX_AD_MM_MPO_SOURCE)



Type A Test Cords (WX_AC_MM_MPO_TESTCORD)
Type A Reference Cords (WX_AC_MM_MPO_REFCORD_A)
Type B Reference Cords (WX_AC_MM_MPO_REFCORD_B)
Mating Couplers (WX_AC_MPO_ADAPTER_A)

MPO Cleaning Kit (WX_AC_MPO_CLEANING_KIT)

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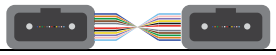
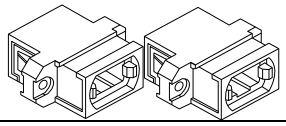
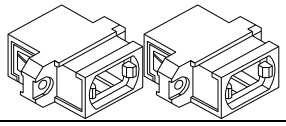
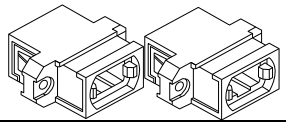
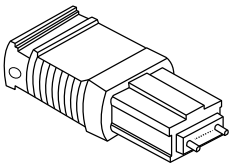
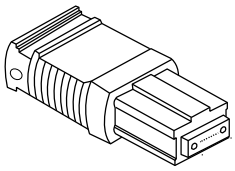
Description/ Type	A	B	C
Fiber Map			
Module Type	Single module type wire in a „straight through“ configuration	Single module type on both ends, wired in a „straight through“ configuration	
MPO Methods			
Polarity	Polarity is addressed in the patch cords.	Polarity is managed in the trunk.	Polarity is managed in the cable.

CAUTION

Always use a coupler when mating a pinned and unpinned connector. Mating two pinned connectors with a coupler will damage the pins.



Male / Pinned Connector



Female / Unpinned Connector

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

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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_vcredist_x64.exe
   d. Step_4_vcredist_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.

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

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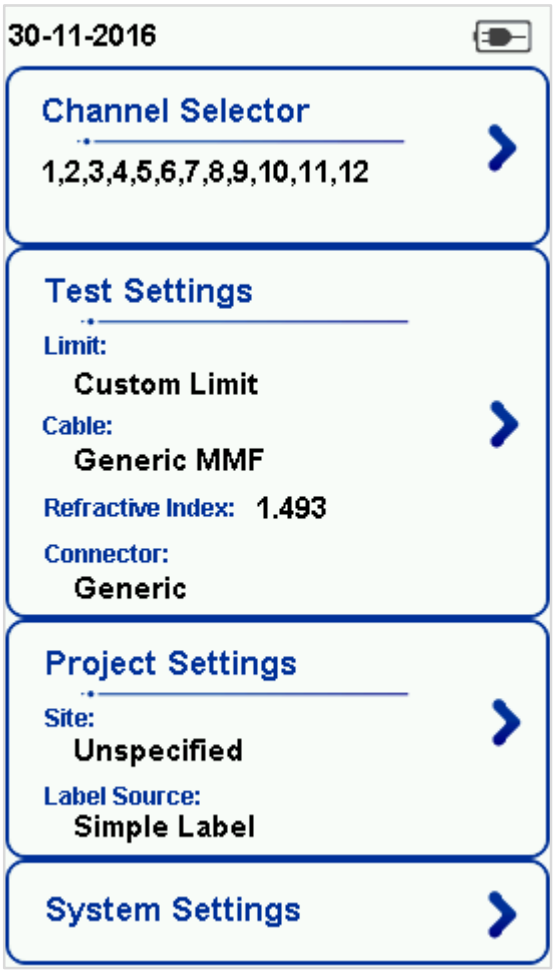
3 WireXpert User Interface

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. Status bar
2. Channel Selector
3. Test Settings group
4. Project Settings group
5. System Settings group

1. The ***Status bar*** displays the current date and time, talk set and battery level. Tap icons to change/view setting.
2. The ***Channel Selector*** provides selection on which channel loss limit will be applied on a 12 core MPO cable 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.

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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:

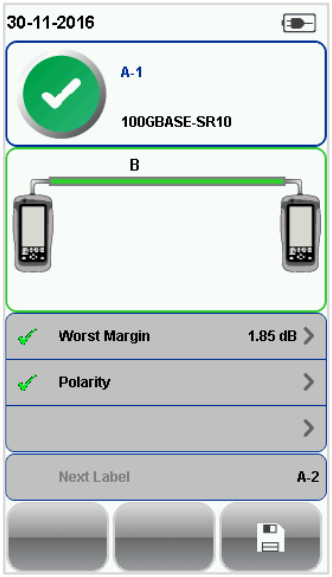
Green “PASS” – Good test result in accordance to pre-defined settings.

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

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

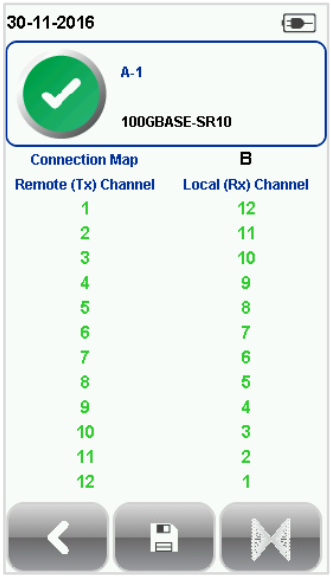
- **[Save]** test results to device

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.



MPO AUTOTEST results

Detailed loss results



Detailed polarity results

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.

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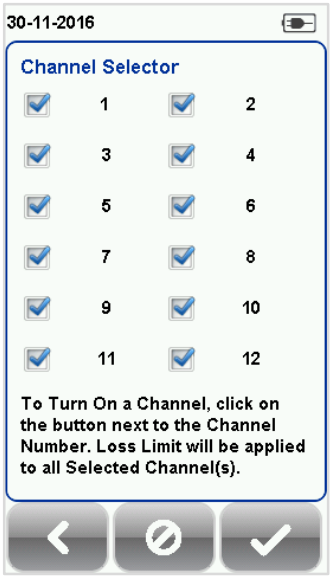
3.2.2 The [SETUP] button

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

These options include –

3.2.2.1 Channel Selector

Channel Selector provides selection on which channel(s) loss limit will be applied on during an AUTOTEST. Passed and failed result(s) will be indicated in green and red respectively. Deselected channels will be indicated in yellow.



Channel Selector

Passed AUTOTEST result with all channels selected

3.2.2.2 Test Settings

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

3.2.2.2.1 Network Limits

Choose from 40GBASE-SR4 and 100GBASE-SR10 limit to perform MPO test. SR4 uses a single MPO ribbon with four strands to transmit and four strands to receive. SR10 uses a 24 strand MPO cable with ten strands to transmit and 10 strands to receive.

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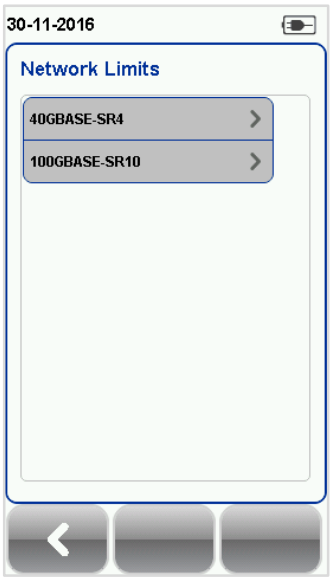
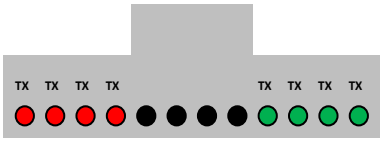
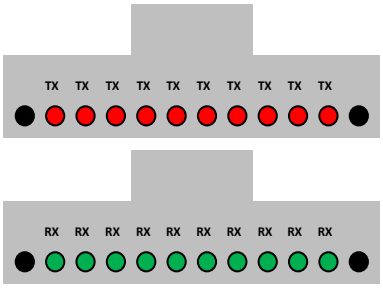


Select Network Limits

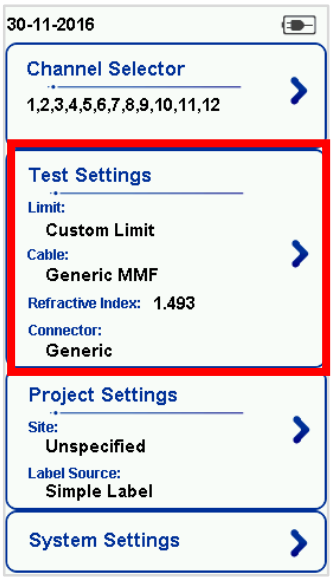


40Gbase-SR4

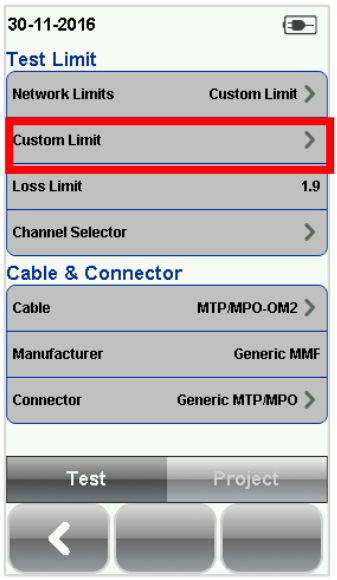


100Gbase-SR10

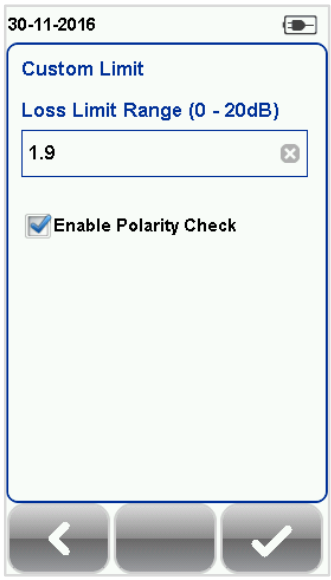
Custom Limit: Enter Loss Limit to perform custom limit test. Uncheck “Enable Polarity Check” to bypass polarity check for customized cable.



Test Settings



Custom Limit



Change Custom Limit with/without Polarity Check

Channel Selector: Loss limit will be applied to selected channels during an AUTOTEST.

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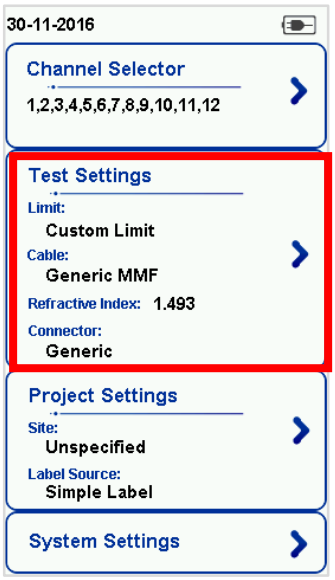
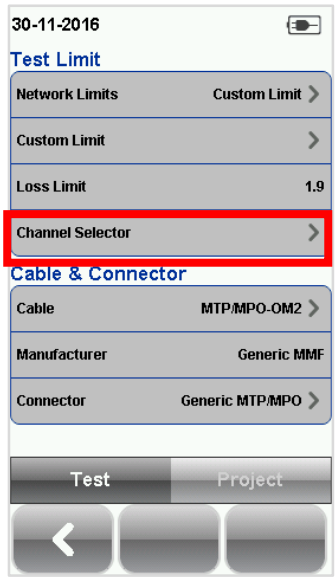
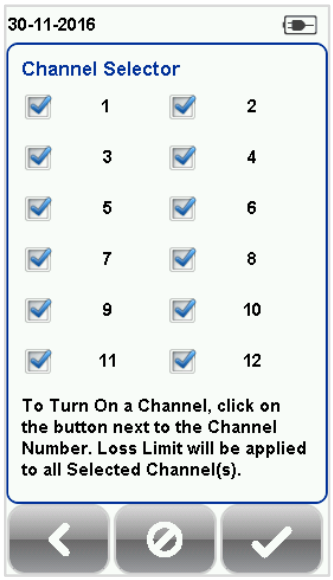


Test Settings



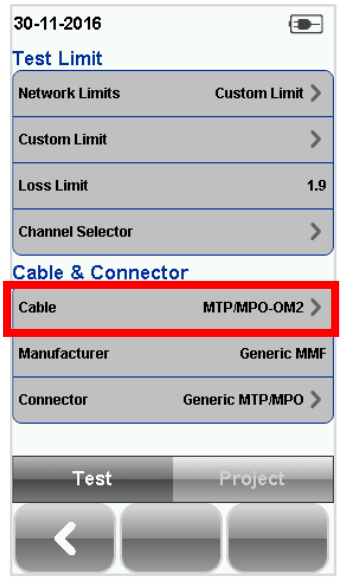
Channel Selector



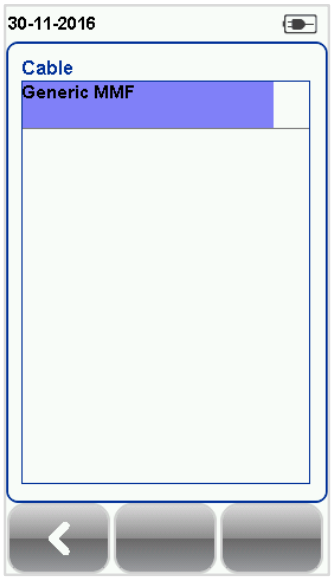
Select choice of channel Selector

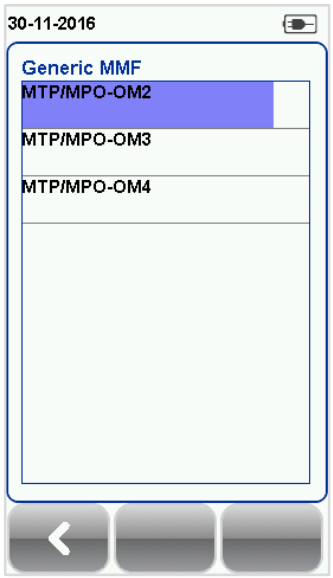
3.2.2.2.2 Cable

Select **[Generic MMF]** cable.



Cable





Select choice of generic MMF

3.2.2.2.3 Connector

Select **[Generic]** connector.

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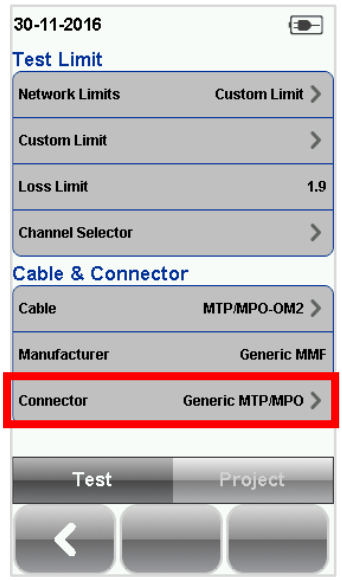
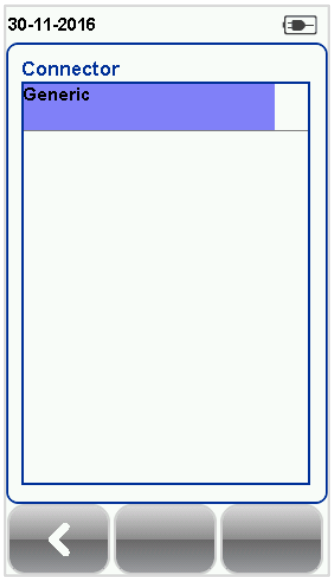
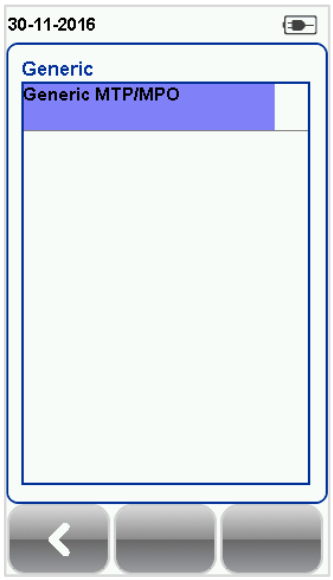


Cable





Select choice of generic

3.2.2.3 Project Settings

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

User Manuals

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

3.2.2.3.1 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.

3.2.2.4 System Settings

3.2.2.4.1 Device Settings

L R L R

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.

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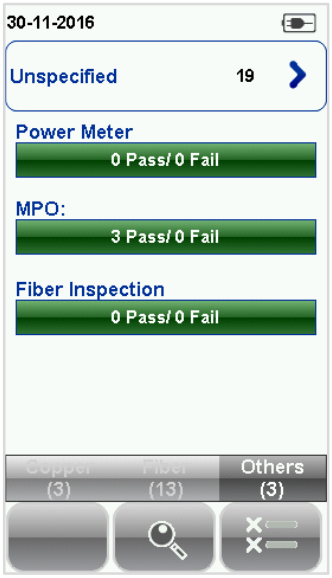
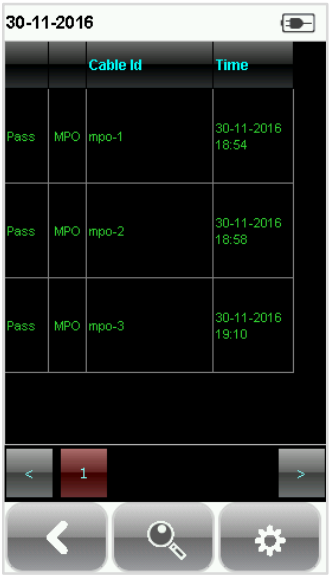
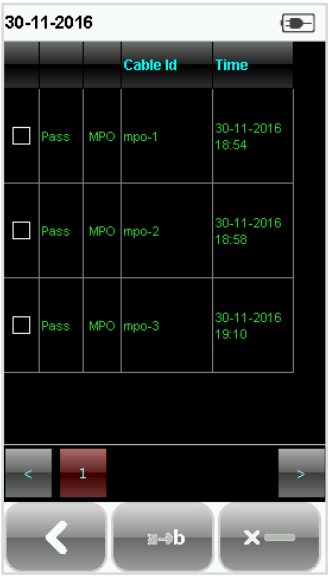
The [DATA] button

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.





View Results



Manage Results

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 or 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. Remote MPO

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

Requires:
Local or Remote

About – Displays worldwide contact information.

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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.

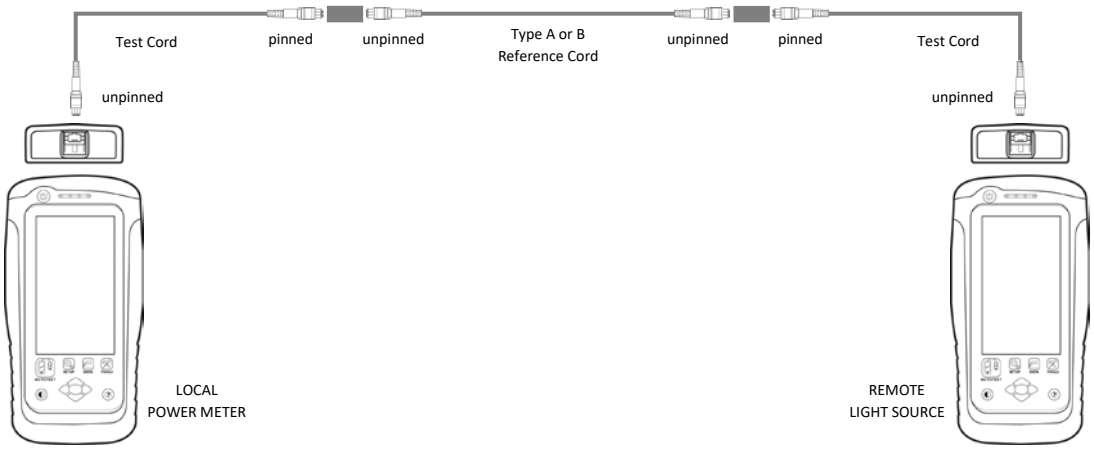
The setup varies depending on the number of jumpers reference is selected.

Note

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

1. Connect the unpinned end of the tail cords to the LOCAL and REMOTE units.
2. Connect each pinned end of the tail cord to a coupler.
3. Connect a Type A or Type B reference cord to the other end of the connectors.

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



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

   Reference cord type should be the same as the MPO cable to be tested.

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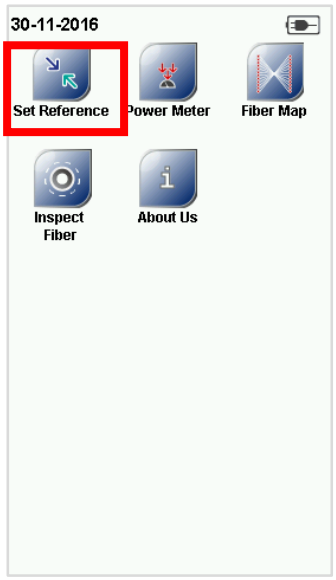
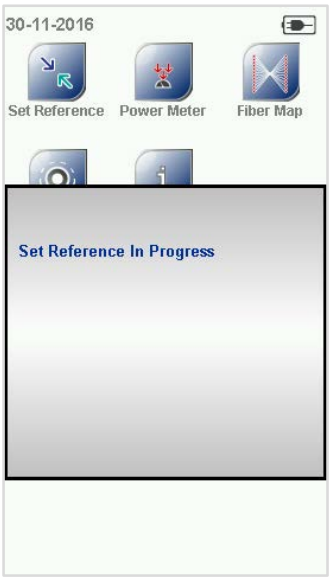
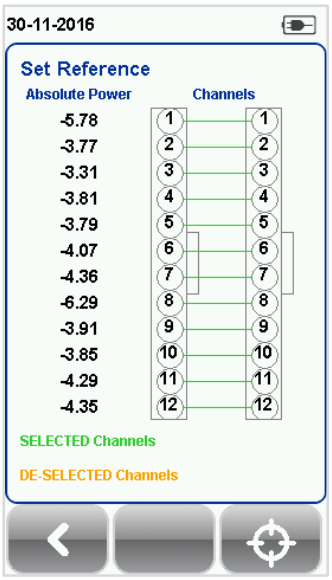
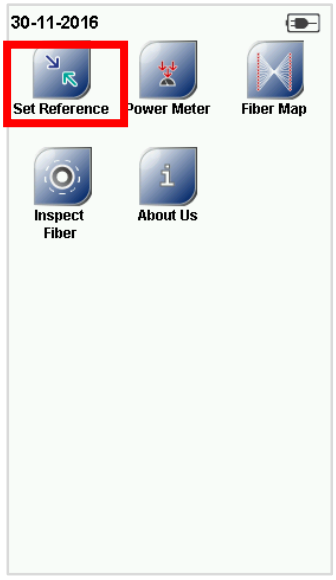
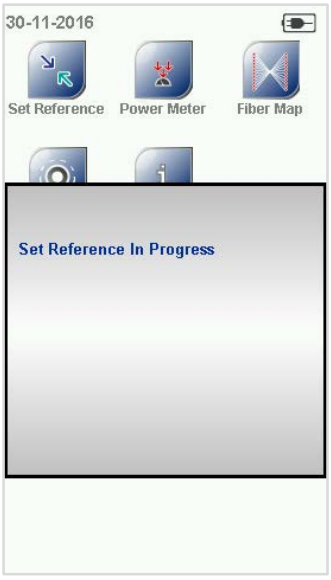


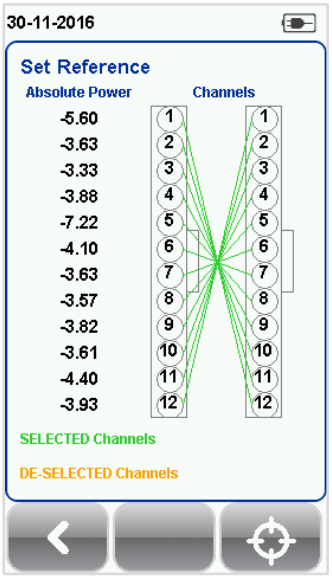




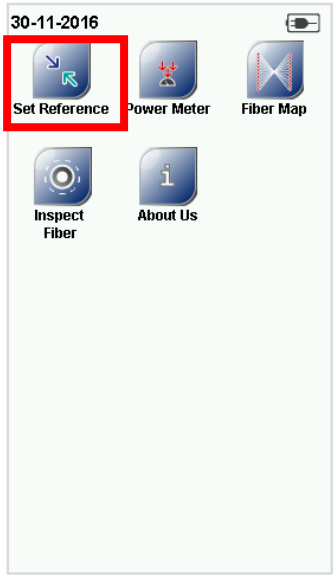
MPO Type A

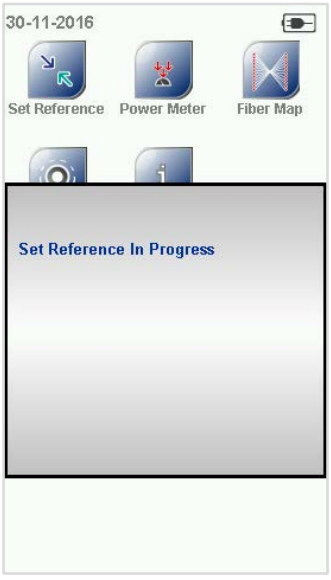


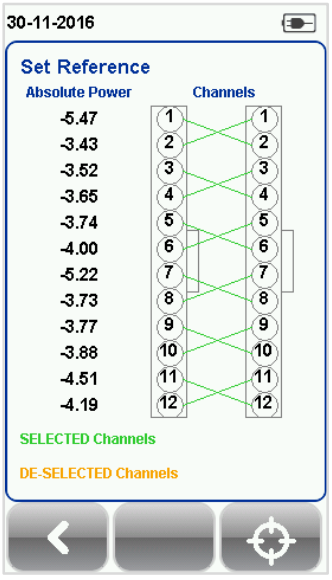




MPO Type B







MPO Type C

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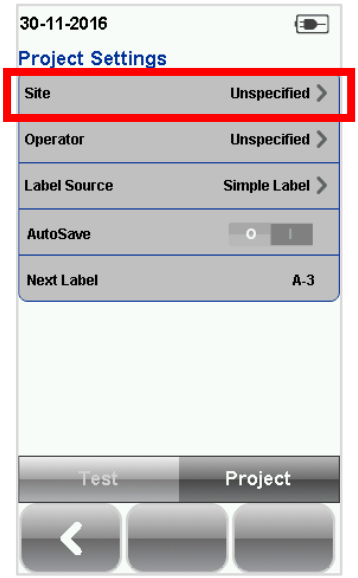
5 Configuring an AUTOTEST

5.1 Setting up WireXpert

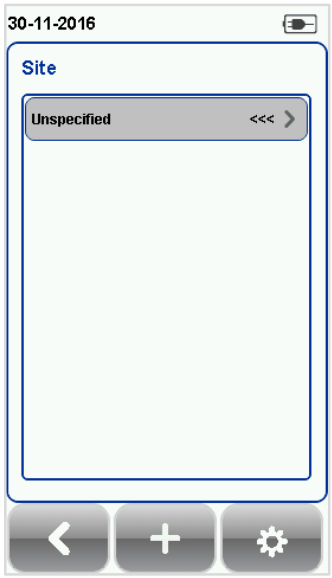
After configuring the system settings, follow these steps to set up an AUTOTEST.

1. Press the **[SETUP]** button ➔ **Project Settings**

   a. ***Site*** – Create or select a Site



Site

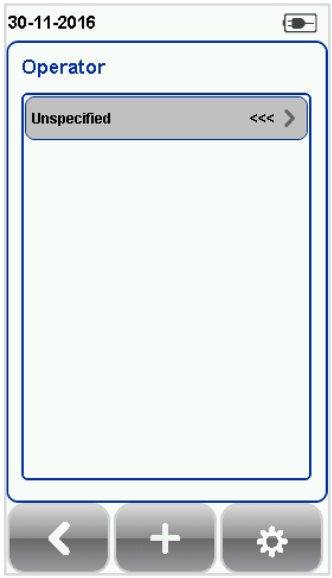


Select Unspecified

Create site

   b. ***Operator*** – Create or select an Operator

Operator



Select Unspecified

Create site

   c. ***Label Source*** – Select cable labeling scheme. Load labels from USB flash drive if using List Based Testing (LBT).

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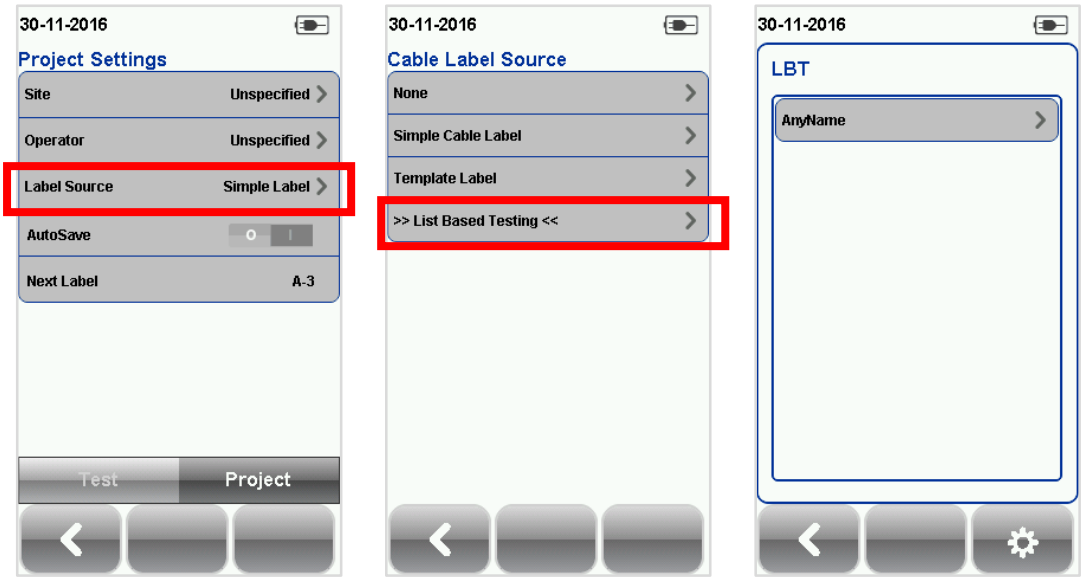
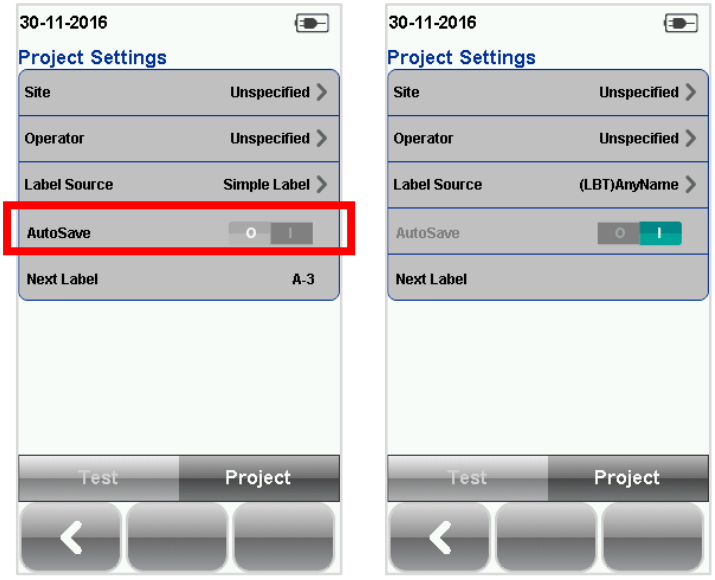


Label Source *Select Label Source*

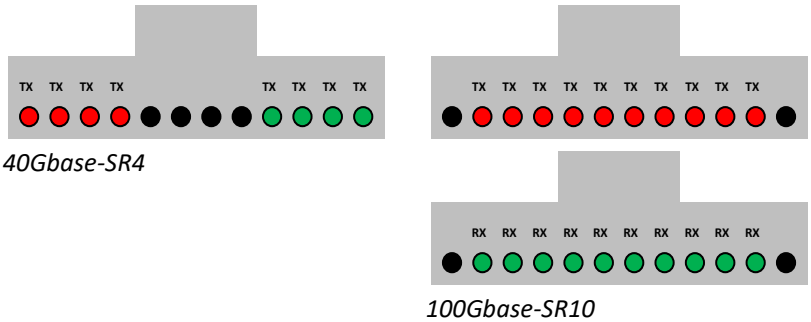
d. ***AutoSave*** – Enable option for WireXpert to auto save every PASS result.



Auto save

2. Press the **[SETUP]** button ➔ **Test Settings**

a. ***Test Limit*** – Select a test limit



40Gbase-SR4

100Gbase-SR10

b. ***Channel Selector*** – Select Channel(s) of cable where loss limit will be applied

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c. ***Cable*** –Select “Generic”

d. ***Connector*** – Select “Generic”

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

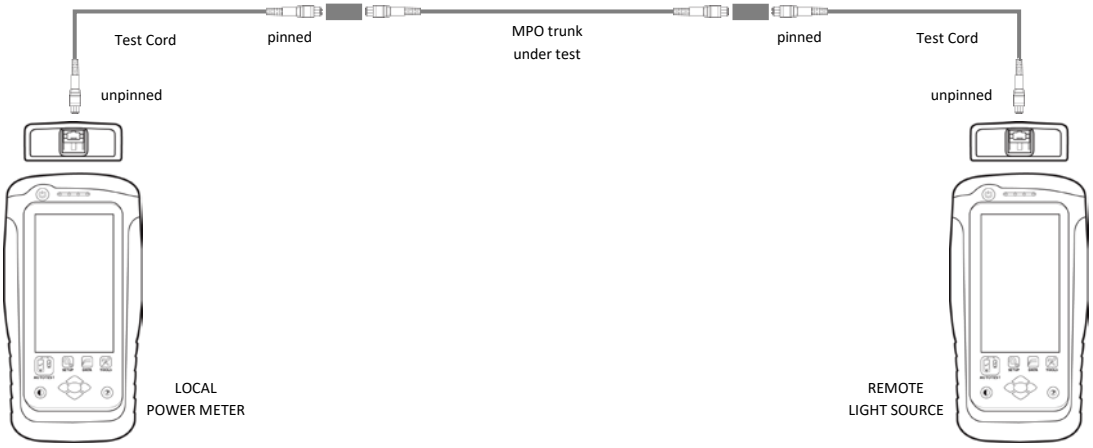
- WireXpert, Local & Remote units (WX4500)
- MPO Testing Kit (WX_AD_MM_MPO_KIT)

WX_AD_MM_MPO_KIT

5.2 Testing Guide for 12-channels MPO Testing

1. Replace the reference cord with the trunk cable of the same type to be tested.

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



2. Toggle the light transmission by pressing the on the REMOTE unit.

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3. Press the **[AUTOTEST]** button on the LOCAL unit to begin Autotest.

CAUTION

Always use a coupler when mating a pinned and unpinned connector. Mating two pinned connectors with a coupler will damage the pins.

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6 Performing an AUTOTEST

6.1 Understanding AUTOTEST

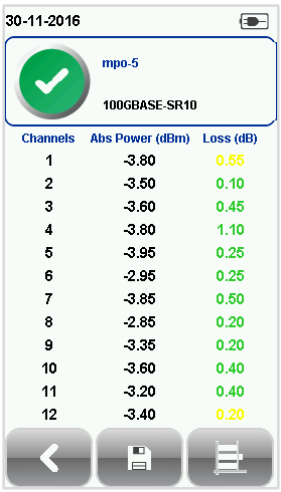
Press the **[AUTOTEST]** button once settings and limits have been selected. WireXpert will use the last configuration or factory settings to perform the AUTOTEST if new settings are not configured.

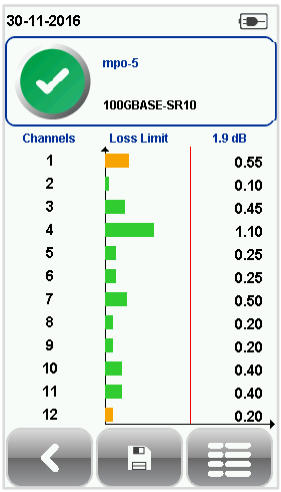
WireXpert will display summarized result with PASS or FAIL once autotest is completed. Press the **[Loss]** or **[Polarity]** button to view the detailed result or the **[Save]** button to save the results.

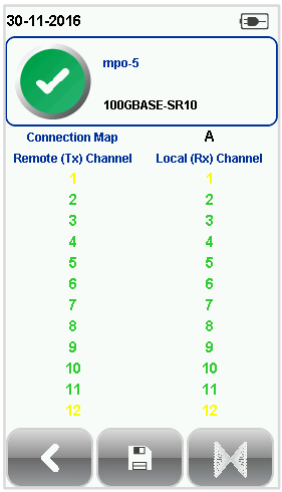
Depending on the type of MPO cable is under test, Type A, B and C will return different results. By pressing the buttons in the lower right corner, test results displayed will toggle between absolute power, loss, polarity and fiber map of the MPO cable.

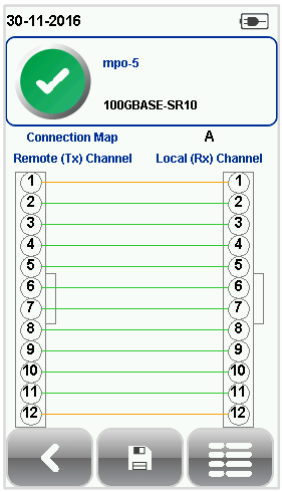
Note

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.

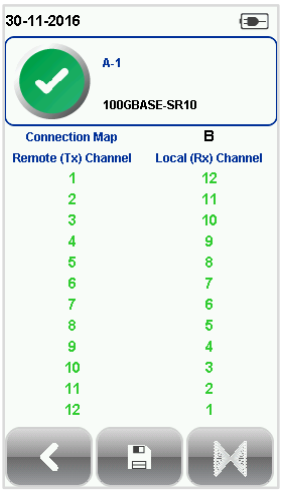


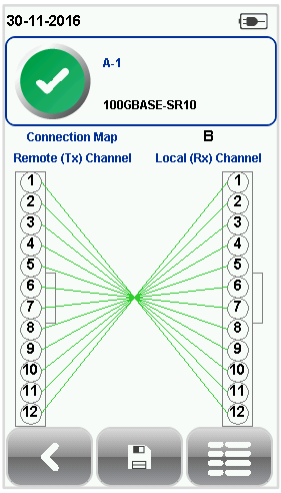




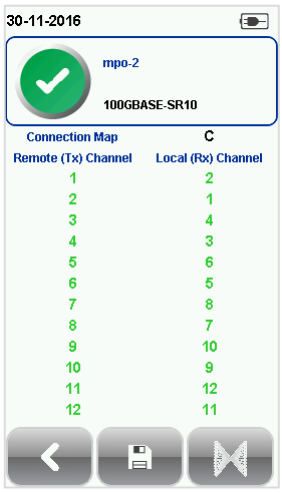


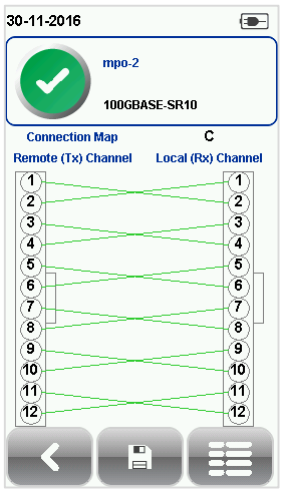
Type A MPO cable





Type B MPO cable





Type C MPO cable

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Note

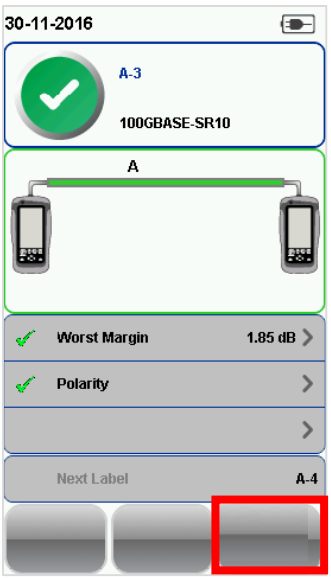
If 40GBase-SR4 or 100GBase-SR10 limits are selected, channels 5, 6, 7, 8 and 1, 12 will be de-selected automatically.

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

In detailed view, the absolute power and loss values can be displayed in grid or chart format and polarity can be displayed in simplified text or map format.

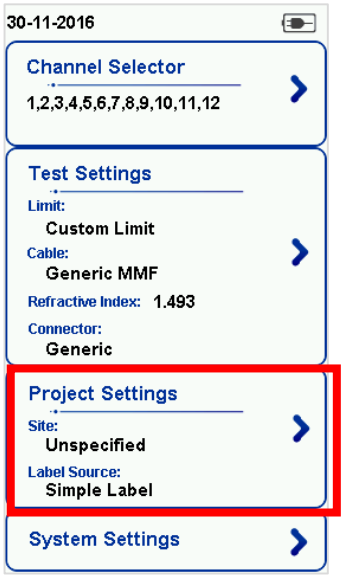
6.2 Managing test result(s)

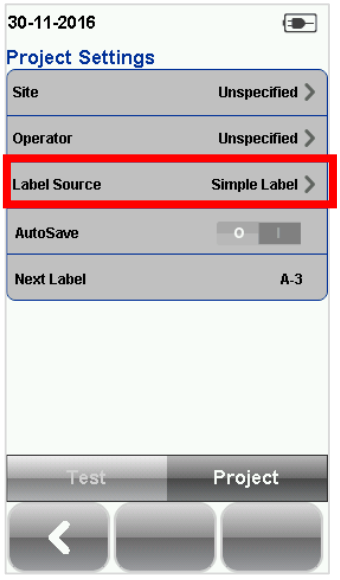
Test results can be manually saved by pressing the **[Save]** button after an AUTOTEST is completed. When prompted, enter label name and click **[OK]** to save.

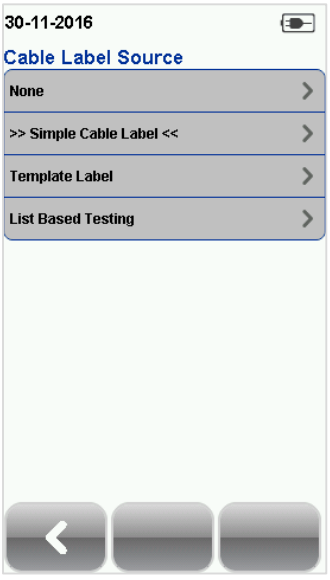


*The **[Save]** icon will disappear once saving is completed.*

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







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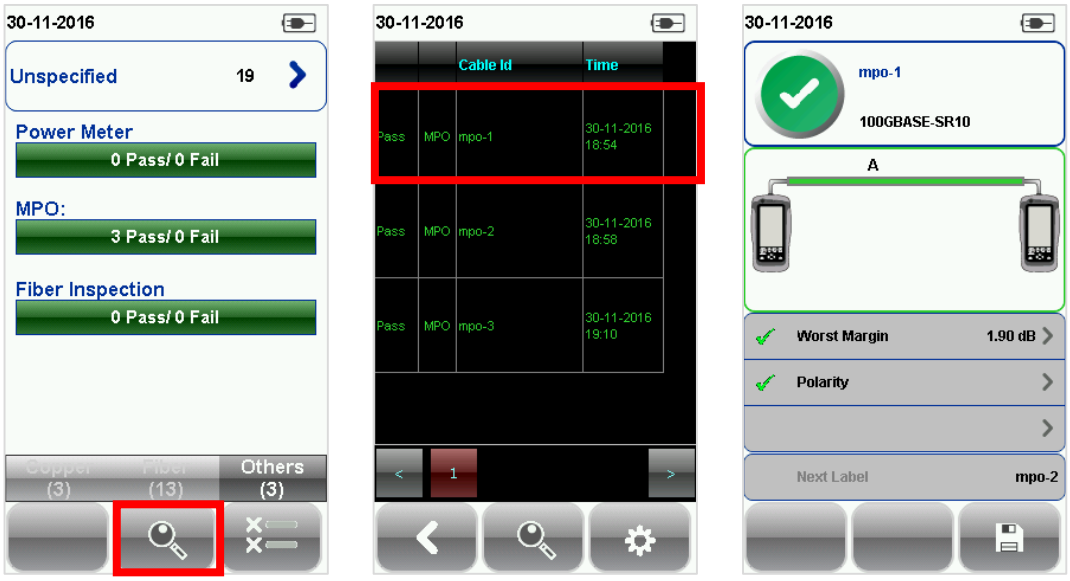
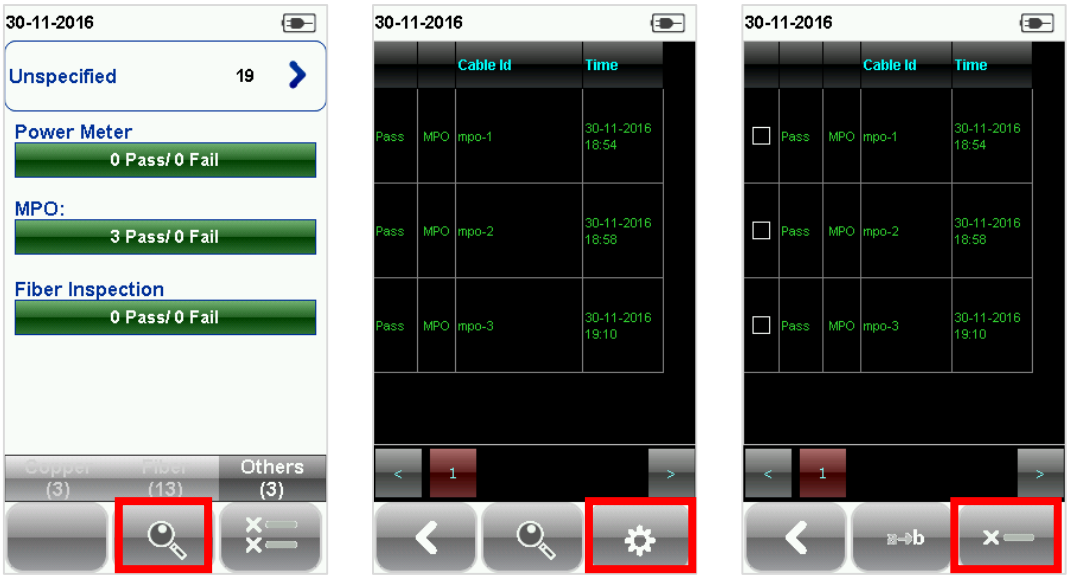
To view saved results,

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



Manage results

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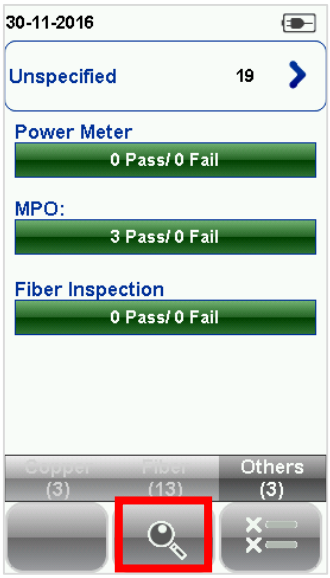
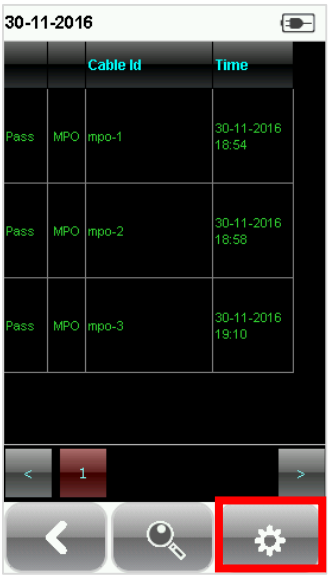
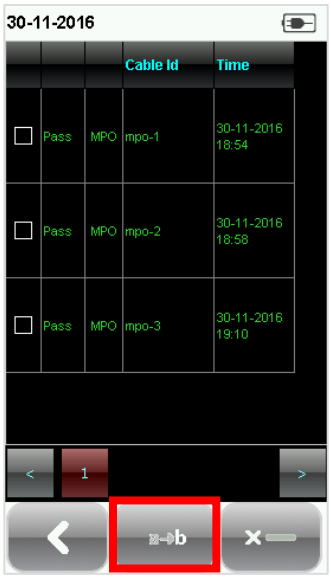
To rename a saved result,

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





View results



Amend names

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.

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7 Declarations

EU Declaration of Conformity

We

Softing Singapore Pte. Ltd.
3 Science Park Drive
#03-09, The Franklin
Singapore Science Park 1
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

6/7/16
Date

Template version 2.1		Document No: 3000-0006

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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.

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.

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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.

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8 Appendix

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

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

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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

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9 Technical Support

Softing's global presence ensures our customers receives sales and technical support anywhere around the world. For more information : ***http://itnetworks.softing.com***

The America

Softing Inc.
7209 Chapman Highway
Knoxville, TN 37920
Phone: +1 865 251 5252
E-mail: sales@softing.us

Asia / Pacific

Softing Singapore Pte. Ltd.
3 Science Park Drive
#03-09, The Franklin
Singapore Science Park 1
Singapore 118223
Phone: +65-6569-6019 ext. 105
E-mail: asia-sales.itnetwork@softing.com

Softing Shanghai
Room 208, Building 1, No 388, Tianlin Road
Xuhui District, 200233
Shanghai, China

Phone: +86-21-54133123
E-mail: china-sales.itnetwork@softing.com

Europe/Middle East/Africa

Softing IT Networks GmbH
Richard-Reitzner-Alle 6
D-85540 Haar, Munich
Phone: +49 89 45 656 660
E-mail:info.itnetworks@softing.com

Softing SRL
87 Rue du Général Leclerc
Creteil, Île-de-France
94000 (Paris)
Phone: +33 1451 72805
E-mail: info.france@softing.com

Softing Italia Srl.
Via M. Kolbe, 6
20090 CesanoBoscone (MI)
Phone: +39 02 4505171
E-mail: info@softingitalia.it

Austria
Buxbaum Automation GmbH
Eisenstadt
Phone: +43 2682 7045 60
E-Mail: office@myautomation.at

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