MPOLS-84 (P)
MPOLS-85 (P)
MPOLP-85 (P)

SmartClass™ Fiber
Multifiber Light Source
Multifiber Power Meter

Operating manual

BN 2329/98.21
2020.04
English

Please direct all inquiries to your local Viavi sales company. The addresses can be found at:
www.viavisolutions.com/en-us/contact-sales-expert

A description of additional instrument features can be found at:
www.viavisolutions.com/en-us/products/network-test-and-certification

Notice

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Notes

Changes may be made to specifications, descriptions, and delivery information.

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1 INTRODUCTION

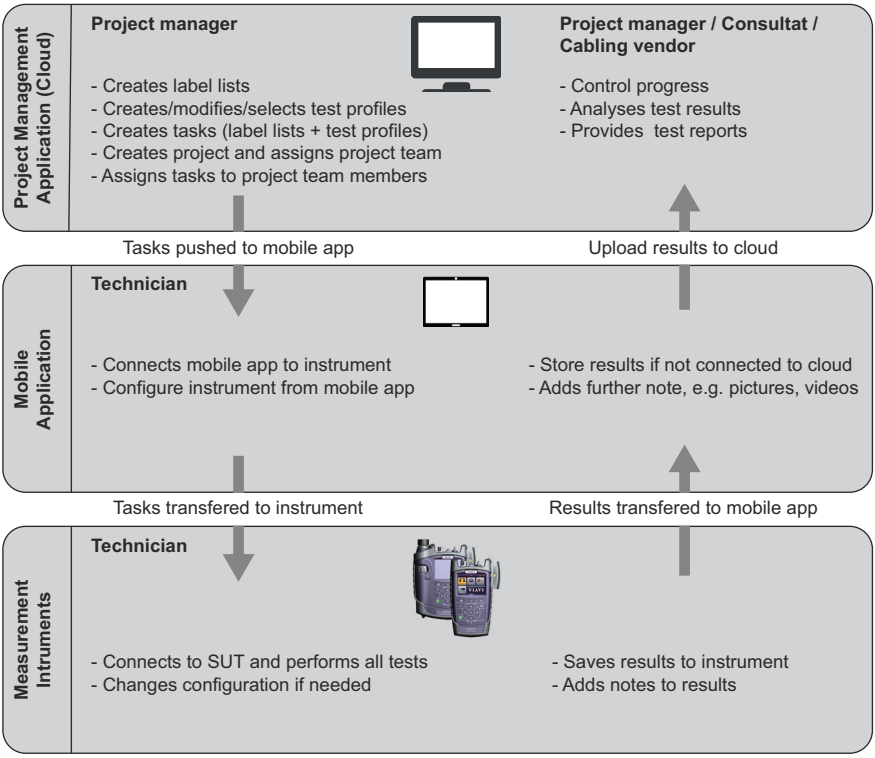
Enterprise Structured Cabling Workflow

With Enterprise Structured Cabling Workflow (ESCW) Viavi provides an integrated workflow environment for planning, distributing, performing, collecting, and evaluating measurement procedures of fiber infrastructures.

ESCW consists of three components:

- Project Management Application
- Mobile Application
- Measurement instrument (e.g. MPOLx-84/85 (P))

The cloud workflow overview



Project Management Application

The Project Management Application is a cloud- and browser-based application that allows a project manager to control the entire measurement process:

- Define enterprise specific workflows
- Assign tasks
- Develop label templates
- Set up test profiles
- Analyse results
- Manage crews

When finally set up tasks can be assigned to a field technician and provided via the cloud platform.

NOTE: For further information about the Project Management Application please refer to the help provided with the application.

Mobile Application

The Mobile Application allows the field technician to download assigned tasks from the cloud platform (push service) and to transfer the task to the measurement instrument.

After completing the tasks the results can be uploaded via the Mobile Application to the Project Management Application on the cloud platform for further analysis.

NOTE: For further information about the Mobile Application please refer to the help provided with the application.

Measurement instrument

Measurement instruments that support ESCW (...) offer beneath the test application centric Test-Tool mode a Workflow mode. This Workflow mode allows the use of the ESCW functions like a structured, guided, and pass/fail-oriented execution of projects assigned to a specific field technician.

For key benefits of the Workflow mode see “Workflow mode” on page 8.

MPOLx-84/85 (P) MPO Test Sets

The MPOLx-84/85 (P) test sets consist of two test units:

- **MPOLS-84/MPOLP-85, MPOLS-85/MPOLP-85**
  The MPOLS-84/MPOLP-85 test set (for Multi-mode) and MPOLS-85/MPOLP-85 test set (for Single-mode) consist of a high-performance, easy-to-use MPO light source and a MPO power meter for measuring up to 12 fiber simultaneously. In a single run polarity, length and loss can be measured fast and reliable. The results are displayed either in an overview for quick check or in detail for a deeper evaluation. The results can be saved for later use.
- **MPOLS-85P/MPOLP-85P, MPOLS-84P/MPOLP-85P**
  The MPOLS-85P/MPOLP-85P test set - while offering the identical features as the MPOLS-85/MPOLP-85 test set - are additionally equipped with a Patch Cord Microscope (PCM) to view and inspect (male or female) patch cord fiber connectors.

Key Benefits of the Test Sets

Test-Tool mode

- Test application centric approach.
- Achieve complete network certification with the MPOLx-84/85 (P).
- Optimize productivity with the industry's fastest test workflow.
- Obtain comprehensive results for the latest TIA 568.3, ISO 11801, and ISO 14763-3 requirements.
- View test setup and results data at both local and remote instruments.
- Objective pass/fail testing for fiber end-face requirements.

Workflow mode

- Label list centric approach.
- Guided testing of large number of equal test points with predefined tests.
- Visual display of measurement progress.
- Quick overview of passed and failed test.

Features

- Multi-mode (850/1300 nm) and single-mode (1310/1550 nm) adapters for Tier 1 fiber certification (loss/length/polarity).
- Industry-leading P5000i Digital Probe fiber end face inspection probe support.
- Measuring 24 fiber cables (with optional Y-adapter cable).

MPOLS-85/P Light Sources

The MPOx MPOLS-85/P light sources are professional, versatile, compact handheld instruments designed for qualification and certification of fiber optic networks. Carefully chosen combinations of available wavelengths make MPOx MPOLS-85/P light sources the optimum choice for link loss testing and characterization of long-haul, metro, and access telecommunication networks, as well as for data center and local area network testing.

Single-mode (SM) or multi-mode (MM) – The perfect solution for your need

Light sources are available as single-mode (MPOLS-85/P) and multi-mode (MPOLS-84/P) devices. Just choose the device that fits your needs. These instruments are particularly suitable for rental and measurement service companies.

Fiber inspection ready – Inspect before you connect

The MPOx MPOLS-85 instruments are prepared for fiber inspection. Connection of a P5000i Digital Probe to the MPOLS-85 enables a technician to perform best practices fiber inspection and automated Pass/Fail testing of optical connectors/adapters in order to ensure industry standard fiber end face quality and cleanliness. No additional fiber microscope set required – simply plug in a P5000i Digital Probe.

Report generation – Do it the easy way

Of course, it is possible to make measurement reports with a PC tool. FiberChekPRO™ is the ideal tool for generating your report. Please download FiberChekPRO™ for free on http://updatemyunit.net/index2.php.

Rugged and portable

Battery operation with AA dry batteries, AA NiMH rechargeable batteries, or with a rechargeable Li-Ion Battery Pack ensures a long operating time in the field and a robust, shock-proof design makes the MPOx instruments the perfect choice for optical network field testing, even under tough conditions.

Remote controllable

Operation with an AC/DC power supply and remote control capabilities via USB 2.0 and Ethernet make the MPOx instruments a perfect solution even for fixed installations in central offices, in production environments, and on the laboratory workbench.

Operating manual update

Continuing enhancement and further development of the MPOx family implicates that this operating manual might not cover all the latest functions of your instrument.

If the operating instructions about features supported by your instrument are missing, please visit the Viavi web site to check if additional information is available.

To download the latest user manual:

1. Visit the Viavi web site at http://scf.updatemyunit.net.
2. Select your MPOx model from the product line.
3. Open the download area and download the latest user manual.

Symbols used in this operating manual

Various elements are used in this operating manual to draw attention to special meanings or important points in the text.

Symbols and terms used in warnings

The following warnings, symbols, and terms are used in this document in compliance with the American National Standard ANSI Z535.6-2011:

NOTICE

Follow the instructions carefully to avoid **damage to or destruction of the instrument.**

⚠ CAUTION

Follow the instructions carefully to avoid a low or medium risk of **injury to persons.**

⚠ WARNING

Follow the instructions carefully to avoid **severe injury** to persons.

⚠ DANGER

Follow the instructions carefully to avoid **death** or **severe injury** to persons.

High voltage

Follow the instructions carefully to avoid **damage** to the instrument or **severe injury** to persons.

This safety instruction is given if the danger is due to **high voltage**.

Laser

Follow the instructions carefully to avoid **damage** to the instrument or **severe injury** to persons.

This safety instruction is given if the danger is due to **laser radiation**. Information specifying the laser class is also given.

Warning format

All warnings have the following format:

⚠ WARNING

Type and source of danger

Consequences of ignoring the warning.

- Action needed to avoid danger.

The following elements are used in this operating manual:

✓	**Requirement** This requirement must be met first; e.g. ✓ The system is switched on.
▶ 1. 2. 3.	**Instruction** Follow the instructions given. An arrow indicates a single step, numbers indicate the order in which the instructions should be followed, e.g. ▶ Select mode.
Italics	**Result** Indicates the result of following an instruction; e.g. *The page opens.*
Boldface	**Pages, controls, and display elements** Screen pages, controls, and display elements are indicated in **boldface**.
Text in blue	**Cross references** Cross references are indicated in blue type. When using the PDF version, just click on the blue text to skip to the cross reference.
[⊟]	**Instrument keys** Instrument keys are indicated within square brackets.
[More]	**Touchscreen buttons** Touchscreen buttons are indicated within blue square brackets.

2 SAFETY INFORMATION

Warning symbols on the unit

Warning symbols indicating a potential hazard

- In all cases where the unit is labeled with a warning symbol, the operating manual must be consulted to learn more about the nature of the potential hazard and any action that must be taken.

Proper usage

This instrument is intended for measurements on optical fiber devices and systems.

- Please make sure the instrument is not operated outside the permitted ambient conditions.
- Always make sure that the instrument is in proper working order before switching it on.

Laser safety

This device is a Class 1 laser product according to DIN EN 60825-1:2007.

No danger to eyes and skin is to be expected when used properly (see "Proper usage" on page 13).

Nevertheless, you should observe the following warnings regarding your safety and the safety of other people.

- Always be aware of the hazard level of the instrument to be connected.
- Do not point the laser beam at people.
- Always cover unused ports.
- Heed the normal precautions for working with laser radiation and consider local regulations.

Battery operation

⚠ WARNING

Explosion danger

Short-circuiting the batteries can result in overheating, explosion, or ignition of the batteries and their surroundings.

- Never short-circuit the battery contacts by touching both contacts simultaneously with an electrical conducting object.
- Only use AA size dry batteries or rechargeable batteries.
- Make sure the batteries are inserted with the correct polarity.

Ventilation

NOTICE

Insufficient ventilation

Insufficient ventilation can damage the instrument or adversely affect its function and safety.

- Ensure adequate ventilation when operating the instrument.

PS4 Universal AC/DC Power Supply

Safety class

The PS4 Universal AC/DC Power Supply unit has a protective isolation that conforms with IEC 60950.

Environmental conditions

NOTICE

Ambient temperature too high/low

Temperatures outside the operating range of 0 to +40 °C can damage the PS4 Universal AC/DC Power Supply or adversely affect its function and safety.

- Only operate the PS4 Universal AC/DC Power Supply indoors.
  The PS4 Universal AC/DC Power Supply must only be operated at ambient temperatures between 0 and +40 °C.

NOTICE

Insufficient ventilation

Insufficient ventilation can damage the PS4 Universal AC/DC Power Supply or adversely affect its function and safety.

- Ensure adequate ventilation when operating the PS4 Universal AC/DC Power Supply.

NOTICE

Condensation

Operation in the presence of condensation can damage the PS4 Universal AC/DC Power Supply or adversely affect its function and safety.

- Do not operate the PS4 Universal AC/DC Power Supply if condensation has formed.
- If condensation cannot be avoided, such as when the PS4 Universal AC/DC Power Supply is cold and is moved to a warm room, wait until the PS4 Universal AC/DC Power Supply Unit is dry before plugging it into the AC power line.

3 GETTING STARTED

Unpacking the instrument

Packing material

We suggest that you keep the original packing material. It is designed for reuse (unless it is damaged during shipping). Using the original packing material ensures that the instrument is properly protected during shipping.

Checking the package contents

- Unpack the instrument and check the package contents:
  - SmartClass™ Fiber instruments (as ordered)
  - PS4 Universal AC/DC Power Supply for SCF
  - RBP2 Rechargeable Battery Pack
  - USB 2.0 cable, USB A to Micro-B
  - SC-2 Soft shoulder case for SCF
  - Quick Start Guide
  - Safety instructions
  - Adapter MTP-APC Female Threaded X-Y Axis Pan-Scroll--REV0 (MPOLS-85P and MPOLP-85P only)
  - Adapter MTP Female Threaded X-Y Axis Pan-Scroll (MPOLP-85P only)
  - Large Tip Case No Foam (MPOLP-85P only)
  - Foam for AT and T large tip case--REVB (MPOLP-85P only)
  - Packaging for SmartClass Fiber Instruments

The latest Operating Manual, and FiberChekPRO reporting software can be downloaded at the Viavi web site http://scf.updatemyunit.net.

Checking for shipping damage

After you unpack the instrument, check to see if it was damaged during shipping. This is particularly likely if the packaging is visibly damaged. If there is damage, do not attempt to operate the instrument. Doing so can cause further damage. In case of damage, please contact your local Viavi sales company. Addresses can be found at www.viavisolutions.com.

Recovery following storage/shipping

Condensation can occur if an instrument that is stored or shipped at a low temperature is brought into a warm room. To prevent damage, wait until no more condensation is visible on the surface of the instrument before powering it up. Do not operate the instrument until it has reached its specified temperature range and wait until it has cooled down if the instrument was stored at a high temperature (see "Specifications" on page 106).

Instrument overview

Fig. 1 Front view MPOLS-85P (left) and MPOLS-85

1	Patch cord microscope (PCM) with FMAE adapter
2	PCM controls: focus control, automated Pass/Fail analysis, magnification control
3	Connector interface
4	Test head cover (green for APC- and gray for PC connectors)
5	3.5 inch touchscreen
6	Key pad (operator control panel)
7	Battery compartment and stand (on rear of instrument)

8	USB 2.0 device port (Type Micro-B)
9	2 USB 2.0 host ports (Type A) and external power supply connector
10	Ethernet port (RJ-45)

Connector panel

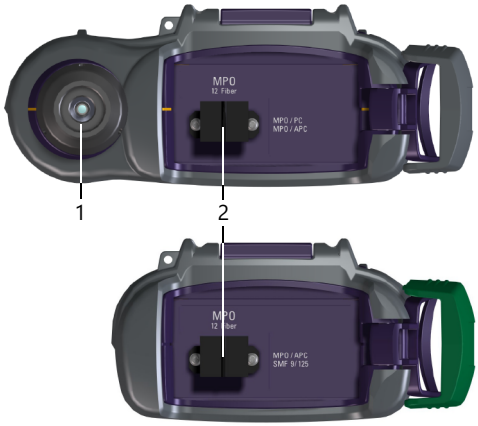


Fig. 2 Connector panel MPOLP-85P (top) and MPOLS-85

1	Patch cord microscope
2	Optical connector: • MPOLP-85, MPOLP-85P: single-mode = APC, multi-mode = PC • MPOLS-85, MPOLS-85P: single-mode = APC

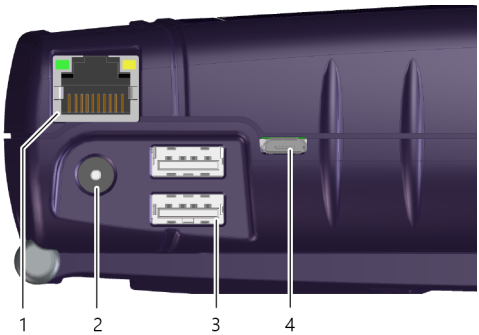


Fig. 3 External power supply connector and communication interfaces

1	Ethernet port (RJ-45)
2	External power supply connector
3	2 USB 2.0 host ports (Type A)
4	USB 2.0 device port (Type Micro-B)

Power supply

The following power sources can be used to operate the MPOLx-84/85 (P) / MPOLx-85P:

- Eight 1.5 V dry batteries
  (Mignon AA size, alkaline type recommended)
- Eight 1.2 V NiMH rechargeable batteries
  (Mignon AA size, no internal charge)
- PS4 Universal AC/DC Power Supply (optional)
- RBP2 Li-Ion Battery Pack (optional)

NOTE: Best Measurement accuracy is achieved when the measurements are performed in battery mode (w/o AC adapter).

Battery operation

⚠ WARNING

Dangers when handling batteries

Handling batteries may be dangerous. Please note the following safety instructions.

- Please note the battery operation safety information in the chapter "Battery operation" on page 14.

Replacing batteries

- Do not replace individual batteries. Always change all eight batteries at the same time.
- Always use eight batteries of the same type; i.e. do not mix rechargeable and non-rechargeable batteries.

Replacing batteries

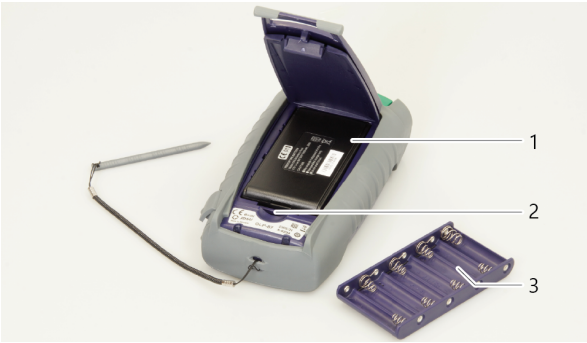


Fig. 4 Replacing the batteries

1	RBP2 Li-Ion Battery Pack
2	Latch lock
3	AA battery tray

The battery compartment is on the back of the instrument.

1. Press down the latch to release and to open the lid of the battery compartment.
2. Insert new batteries in the tray or remove the used batteries from the tray and replace all eight with fresh ones.

NOTE: Take care to insert the batteries correctly. The correct polarity is indicated by a diagram inside the battery compartment.

– or –
Insert new or replace the RBP2 Li-Ion Battery Pack.
– or –
Switch from non-rechargeable batteries to rechargeable ones by replacing the battery tray with a new battery pack (or vice versa).

3. Close the battery compartment.
4. Press the [⏻] key to switch on.

Recharging the batteries

The rechargeable RBP2 Li-Ion Battery Pack recharges when the PS4 Universal AC/DC Power Supply is used to power the instrument. The instrument switches to trickle charging automatically as soon as the RBP2 Li-Ion Battery Pack is fully charged.

NOTE: Rechargeable AA batteries will not be recharged in the instrument. For AA-type rechargeable batteries please use an external charger.

USB interface

If the PS4 Universal AC/DC Power Supply and the USB interface are both connected, the instrument is powered by the PS4 Universal AC/DC Power Supply.

It is not possible to charge the rechargeable AA batteries or the RBP2 Li-Ion Battery Pack via the USB interface, nor can the instrument be powered via the USB interface.

Deep discharge

A rechargeable battery that appears to be dead (unit will not turn on even when connected to external power) may well be in a deep discharge state. It can be fully charged with the following charging cycle:

1. Plug in the power cord for 1–1.5 hours.
   Battery should be partly charged now.
2. Switch the power on.
   If the instrument starts: Let the battery fully charge.
   – or –
   If the instrument does not start:
   Unplug power cord, plug it back in and repeat steps 1 and 2.

NOTE: If the battery is completely deep-discharged, this cycle might need to be repeated up to 3 times.

General tips on using batteries

- Always handle batteries with care.
- Do not drop or damage the batteries or expose them to excessively high temperatures.
- Do not store the batteries for more than one or two days at very high temperatures (e.g. in a vehicle), either separately or inserted in the instrument.
- Do not leave discharged batteries in the instrument for a long time if it is not being used.

Other basic safety precautions are as follows:

- Do not use PS4 Universal AC/DC Power Supply outdoors or in wet or damp locations.
- Connect the PS4 Universal AC/DC Power Supply to the correct mains voltage, as indicated on the rating label.
- Do not allow anything to rest on the power cord, and do not place the product where people can walk on the power cord.

- Avoid using this product during electrical storms. There may be a remote risk of electric shock from lightning.
- Do not use this product in the vicinity of a gas leak or in any explosive environment.
- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous, high-voltage points, and other hazards. Contact qualified service personnel for all service.

Environmental protection

Please dispose of any unwanted dry batteries and rechargeable batteries carefully. They should also be removed from the instrument if it is to be discarded. If facilities in your country exist for collecting such waste or for recycling, please make use of these rather than throwing the batteries out with normal trash. You will often be able to return used batteries to the place where you purchase new ones. Any dry or rechargeable batteries that you purchased from Viavi can be returned to one of our Service Centers for disposal.

Operation with AC power

NOTE: Only the PS4 Universal AC/DC Power Supply may be used to operate the MPOLS-85 with AC power.

To fit the AC line plug adapter:

1. Select the appropriate AC line plug adapter.
2. Slide the AC line plug adapter into the slot.
   The PS4 Universal AC/DC Power Supply is ready for use.

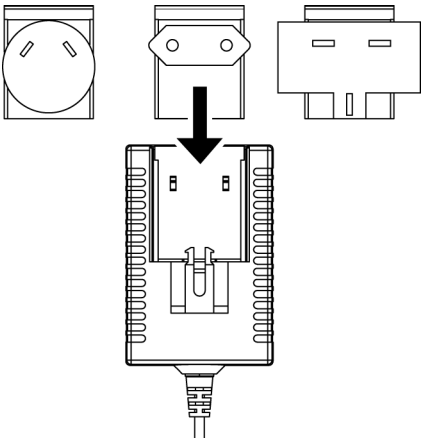


Fig. 5 PS4 Universal AC/DC Power Supply

To change the AC line plug adapter:

1. Squeeze both sides of the PS4 latch lock (see Fig. 5).
2. Push the AC line plug adapter upwards.
3. Slide a different AC line plug adapter into the slot (see Fig. 6).

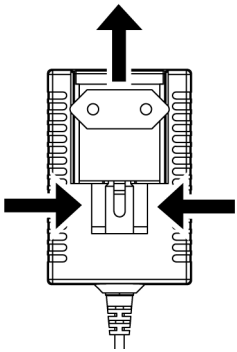


Fig. 6 PS4: Changing the AC line plug adapter

To operate the MPOLx-84/85 (P) with AC power:

1. Connect the PS4 DC power cord to the MPOLx-84/85 (P) external power supply connector.
   (The connector is under the cover on the right side.)
2. Plug the PS4 into the AC line socket.
   The MPOLx-84/85 (P) switches on automatically when powered by the PS4.

NOTE: The PS4 provides power even if dry or rechargeable batteries are inserted in the instrument.
The MPOLx-84/85 (P) cannot be powered via the USB interface.

4 Basic Operation

Switching the instrument on/off

To switch the instrument on:

- Press the [⏻] key to switch on the instrument.

To switch the instrument off:

- Press the [⏻] key to shift the instrument into hibernate mode.

– or –

1. Hold the [⏻] key to open the power off menu.
2. Tap the [Power Off] button or press the central key to switch off the instrument.

Operator control panel

	Press to go to the homescreen.
	Press to open menu.
	Press to go back within an application or cancel input.
	Press to toggle between the inspect view and the test view.
	Press to switch the instrument on and off. LED glows green when the instrument is on.
	Press an arrow key to: • navigate through the menus • change values in the menus Press the central key to: • confirm the selection
	Press to save results.
	Glows red when battery is low.
	Glows red when a measurement is running in the background.
	Glows orange when battery is charged; flashes orange when battery is charging. Turned off when dry batteries are used or battery bay is empty.

Menus and display elements

Home screen

The available menus and functions depend on the selected project type: Test-Tool project (TTP) or Workflow project (WP).

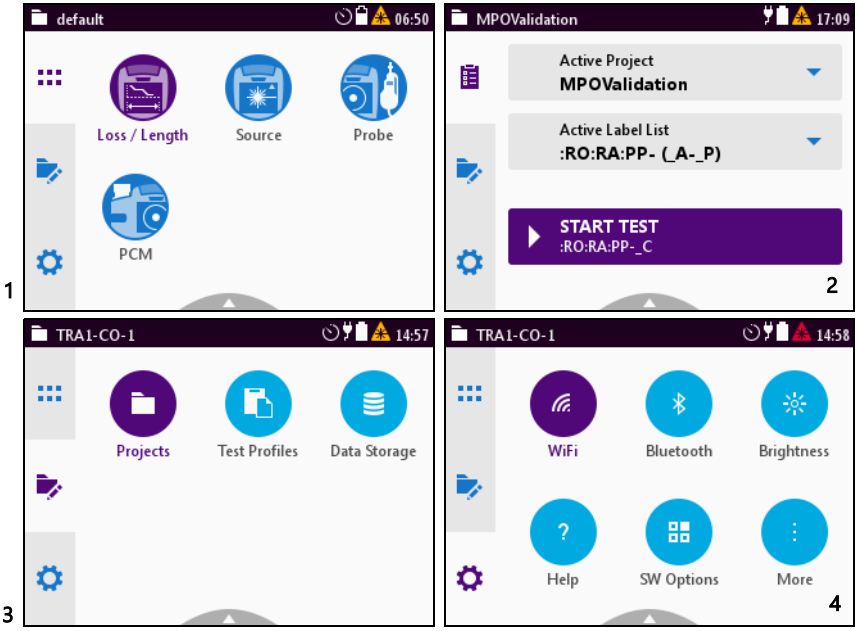


Fig. 7 Home screens: Test-Tool Mode (screen shows Source/PCM version) **(1)**, Workflow Mode **(2)**, Management **(3)**, Settings **(4)**

	Menu	See page
	Dashboard in Test-Tool Mode In this menu you can open test applications.	39
	Dashboard in Workflow Mode In this menu you can activate a label list and start a test.	28
	Management In this menu you can: • manage projects • define a test profile (not supported yet) • get access to stored data • Export and import results via USB	39 and 91
	Settings In this menu you can: • manage WIFI and Bluetooth settings • change instrument settings • open the help • display instrument information • manage software options	32

Test-Tool Mode

The Test-Tool Mode is enabled when a Test-Tool project is activated (for further information see "Managing projects" on page 39).

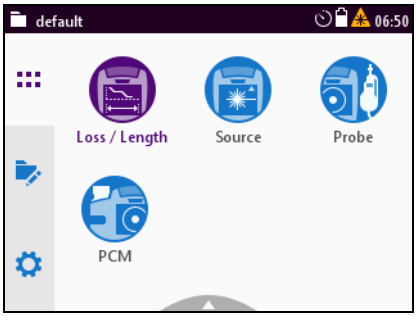


Fig. 8 Dashboard in Test-Tool Mode

	Application	See page
	Loss / Length To determine the total amount of loss or attenuation of a fiber link, the fiber length, and polarity. The selected mode is shown in purple.	45
	Powermeter To install and maintain cables and networks with the broadband power meter.	68
	Source To edit the laser for maintenance and characterization of single-mode and multi-mode networks.	65
	Probe To view and inspect the bulkhead (female) connectors.	74
	PCM (Patch Cord Microscope) (only BN 2326) To view and inspect the patch cord connector of the fiber.	74

Workflow Mode

NOTE: A workflow project can be generated and downloaded to the device only with Viavi's Cloud-based Enterprise Workflow Management Tool CERTiFi. For more information please refer to www.viavisolutions.com

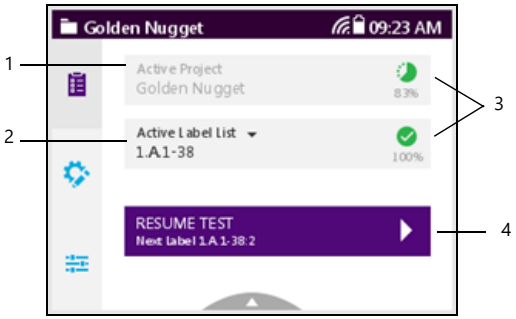


Fig. 9 Dashboard in Workflow Mode

1	**Active project** The name of the active project is displayed. For more information about Workflow mode and to learn how to activate a project see "Selecting a project from the Job Management menu" on page 42 and "Workflow mode" on page 85
2	**Active label list** The name of the active label list is displayed. To activate a label list: Tap the black arrow to open the drop down menu and select a label list. For more information about Workflow mode and to learn how to activate a label list see "Selecting a label list" on page 44 and "Workflow mode" on page 85

3	**Status icons** The status of the complete project, a certain label list, or a single label is shown by icons: **Test not yet started.** **Test in progress. All completed tests have passed. The filled segment of the circle does not represent the actual progress.** **Test in progress. At least one complete task has failed. The filled segment of the circle does not represent the actual progress.** **All test completed and passed.** **All tests completed and at least one failed.**
4	**Start or resume a test** Tap to start a new test or resume an already started test. For more information see "Workflow mode" on page 85

Elements in the top bar

	Project title Indicates the title of the active project
	WIFI Indicates that Wifi is installed. It does not indicate an active Wifi connection.
	Bluetooth Indicates that Bluetooth is installed. It does not indicate an active bluetooth connection.
	External power supply The MPOLx-84/85 (P) is powered by the external AC adapter when this symbol is shown.
	Battery status Indicates the battery charge status. If it is not shown, only the AC adapter is active. Charge state = 100% Charge state = 25% Battery is charging.
	Auto-Off Indicates whether the instrument turns off within a certain time.
	Active laser source Blinking yellow-red indicates that the built-in laser source is active.

Navigating in the menus

- Press the [⌂] key to open the home screen.
  Depending on the active project type the Projects tab shows the available test applications or the active Workflow project.
- Press the [☰] key to open the context-sensitive menu.
  Depending on which application is selected, a different menu opens.

To select a menu item:

1. Press the arrow keys to highlight an item.
2. To confirm, press the center key within the arrow keys.
   – or –
   Tap the desired button on the touchscreen.

To leave a menu without making any changes:

- Press the [↩] key.

NOTE: All actions can be operated via the operator control panel or the touchscreen. The following instructions describe only touchscreen operation.

To toggle between different display modes:

- Tap the display to toggle between the display modes (context-sensitive).

Displaying application information

The Info menu provides information about the displayed test application.

✓ The instrument is in the chosen application mode.

1. Press the [☰] key and tap the [More] button.
2. Tap the [Info] button.
   The application information is displayed.

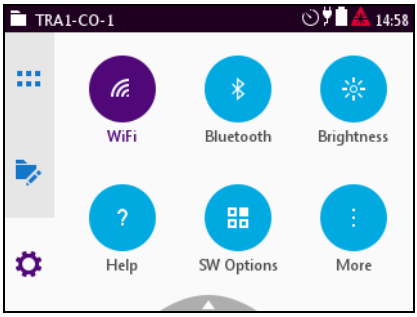
Changing System Settings

In the **Settings** menu you can change instrument settings, get information and help about the instrument, or update the firmware.

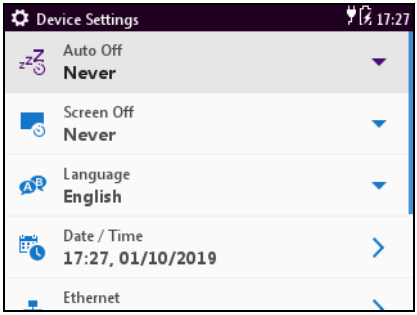
To open the Settings menu:

✓ The home screen is displayed.

1. Select the ⚙ tab.
   The **Settings** *menu opens:*



2. In the ⚙ menu tap the [More] button.
   More setting options are displayed.



The following table gives a short overview of the menu items. These are explained in the following sections.

Icon	Function	See page
	WiFi To configure the wireless local area network. The last selected item is displayed in magenta.	36
	Bluetooth To configure the Bluetooth interface.	36
	Brightness To adjust the display brightness.	33
	Help To show device information	33
	SW Options To check and install software options.	Not yet available, 36
	More To access further instrument settings. See following sections.	33

Adjusting the display brightness

1. In the menu tap the [Brightness] button.
2. Tap a symbol to change the display brightness.
3. Tap [OK].

Showing device information

▶ In the menu tap the [Help] button.
Information about the hardware and software is displayed.

Setting the [Auto-Off] interval

When [Auto-Off] is set, the device will switch off after the selected interval without any user action.

NOTE: [Auto-Off] is only active when no external power supply is connected.

1. In the menu tap the [More] button, then tap [Auto-Off].
2. Select the desired interval.

Setting the [Screen-Off] interval

When [Screen-Off] is set, the display will switch off after the selected interval without any user action.

NOTE: [Screen-Off] is only active when no external power supply is connected.

1. In the ⚙ menu tap the [More] button, then tap [Screen-Off].
2. Select the desired interval.

To switch on the display after it was switched off:

- Just tap the display to switch it on.

Selecting a language

1. In the ⚙ menu tap the [More] button, then tap [Language].
2. Tap the desired language.
   After selecting a new language the instrument has to be restarted.
3. Tap [Yes] to restart the instrument.
   – or –
   Tap [No] to keep the previous language.

Setting date & time

- In the ⚙ menu tap the [More] button, then tap [Date & Time].

To set the date:

1. Tap [Date].
2. Tap [Day], [Month], or [Year].
3. Type in the desired value.
4. Tap [OK].

To set the date format:

1. Tap [Date Format].
2. Select the desired date format.

To set the time:

1. Tap [Time].
2. Tap [Hour], [Minute], or [Second].
3. Type in the desired value.
4. Tap [OK].

To set 24-hour or 12-hour time:

1. Tap [Time Format].
2. Select the desired time format.

Setting the Ethernet protocol

▶ In the ⚙ menu tap the [More] button, then tap [Ethernet].

To select the IP mode:

1. Tap the [IP Mode] button.
2. Select the desired Ethernet mode.

To set the IP address:

✓ The IP mode **Static** is selected.

1. Tap [IP Address].
2. Type in the desired IP address.
3. Tap [OK].

To set the gateway:

✓ The IP mode **Static** is selected.

1. Tap [Gateway].
2. Type in the desired gateway.
3. Tap [OK].

To set the netmask:

✓ The IP mode **Static** is selected.

1. Tap [Netmask].
2. Type in the desired netmask.
3. Tap [OK].

Calibrating the touchscreen

NOTE: Using a pen when calibrating the touchscreen will improve the calibration accuracy.

1. In the ⚙ menu tap the [More] button, then tap [Touchscreen calibration].
2. Follow the given instructions.

Resetting to the factory default values

NOTE: Setting the factory default values does not affect your stored measurement results.

1. In the ⚙ menu tap the [More] button, then tap [Set to default].
2. Tap [Yes] to proceed.
   – or –
   Tap [No] to cancel.

WiFi menu (optional)

▶ In the ⚙ menu tap the [WiFi] button.
Editable settings are displayed
– Enabled: switch WiFi on/off
– Mode: switch between Ad-Hoc / Access Point
Tap [Enabled] to switch WiFi on.
Information on enabled wifi connection is displayed
– SSID:
– IP Address
– Netmask
– MAC Address
– Port

Bluetooth menu (optional)

▶ In the ⚙ menu tap the [Bluetooth] button.
editable settings are displayed
– Enabled: switch Bluetooth on/off
Tap [Enabled] to switch Bluetooth on.
Information on enabled bluetooth connection is displayed
– SSID
– MAC Address
– PIN Code for connection establishment

Installing a software option

1. Connect an USB stick with the corresponding option file.
2. In the ⚙ menu tap the [SW Options] button.
3. Press the [☰] key.
4. Tap [Install from USB].
   The license key is read in from the root directory of the USB stick.
   The option(s) are installed.

Updating the firmware

The latest version of the firmware can be downloaded from the Internet.

To find the latest firmware version:

1. Visit the Viavi web site at http://updatemyunit.net.
2. Select your model from the product line.
3. Open the download area and download the latest firmware. The downloaded update.exe file needs to be executed on a PC.
4. Unzip and save the individual update files to the root directory of an USB flash drive.

To start the firmware update:

✓ The update files have been extracted and are located on the USB flash drive.
✓ The instrument is fully charged or the PS4 Universal AC/DC Power Supply is connected.
✓ The instrument is switched off and not in hibernate mode.

1. Plug the USB flash drive with the extracted update files into one of the instrument USB ports.
2. Hold down the [☰] key and shortly press the [⏻] key to switch the instrument on.
   The firmware update screen appears.
3. Release the [☰] key.
4. Press the center key within the arrow keys to start the update procedure.
5. After Startup, when the Homescreen is displayed, remove the USB flash drive.

Creating screenshots

Screenshots can be stored directly on an USB stick.

To create a screenshot:

1. Connect a USB stick to one of the USB ports on the right side of the device.
   The symbol is displayed at the top of the screen.
2. Long-press both the[⇤] and the[🖫] keys.
   The Save New Screenshot screen is displayed.
3. Enter a file name and use the pencil button to edit the field.

4. Set the **Add Auto-Increment Number** function **ON** or **OFF**.
   If the setting is **ON**, a number is added to the proposed name, ascending each time that a new screenshot is taken.
   Edit the **Auto-Increment Number** field by tapping the pencil button if you want to change the current number.
5. If you are using both USB ports, select **USB1** or **USB2** by tapping the corresponding button.
6. Tap the [Save] button to store the screenshot on the USB stick.
   A directory named
   Screenshots_<device_type><serial_number> is created and the screenshot is saved in PNG format.
   Tap the [Cancel] button to interrupt the creation of the screenshot.

5 MANAGING PROJECTS

Stored Measurements are assigned to a project. Therefore a project first has to be created and set to active. As factory setting one Test-Tool project named **default** is available, which can be edited but not deleted. New projects can be created by copying and changing an existing project or by creating a new one.

With the project some basic information like the project name, a description of the project and how the label is build can be saved.

NOTE: Test-Tool projects can be created and edited on the device. Workflow projects can be created only in Viavi's Cloud-based Enterprise Workflow Management Tool CERTiFi. It needs to be downloaded to the device from a Mobile App. (see "Workflow mode" on page 85).

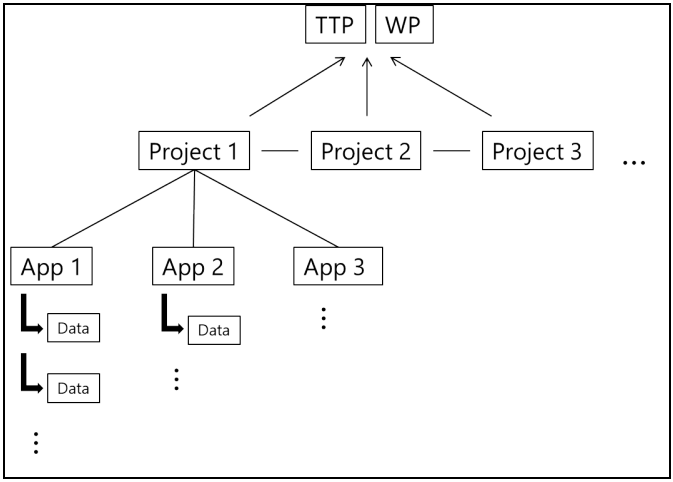


Fig. 10 Project assignments

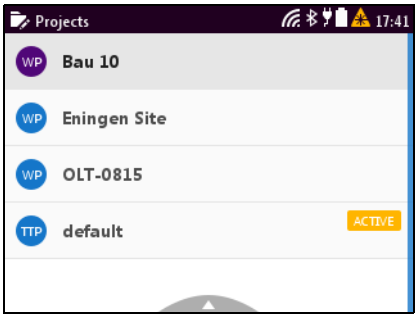
Test-Tool mode

The Test-Tool mode is the "classic" mode when a specific test application is needed instead of executing a predefined test sequence. To start a test application a Test-Tool project first must be selected. Thus, at least one Test-Tool project is defined as default. This section just explains how to select a Test-Tool project and a test application. The various test applications are described in the following chapters.

Selecting a Test-Tool project

✓ The home screen is displayed.

1. Select the tab, then tab the [Projects] button.
   The projects available on the instrument are displayed.



2. Select a project, press the [☰] key and tap [Set Active].
3. Press the [⌂] key to open the test application dashboard menu.
   – or –
   Press the [↩] key and select the ⁞⁞⁞ tab.
4. Open a test application by tapping it.

NOTE: Savings of measurement results are assigned to the selected project.

Creating a new Test-Tool project

1. Press the [⌂] key, select and tap [Projects].
   The Projects list opens. As factory setting only the Test-Tool project **default** *is available.*

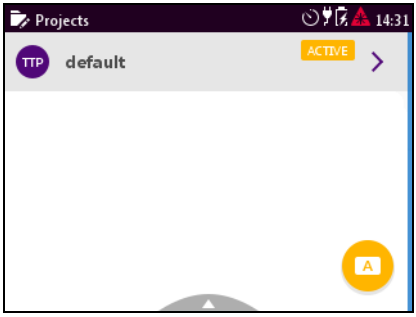
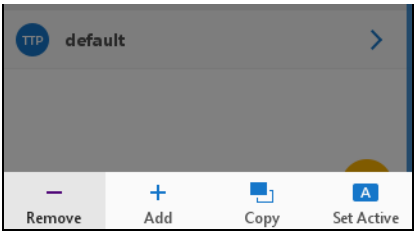


Fig. 11 Projects list with default project.

Adding a new project:

2. Press the [☰] key.
   The edit menu opens.



3. Tap [Add].
   The title edit menu opens.
4. Type in the project title and tap ✓.
   The project is created and displayed in the list.

Copying an existing project:

1. Select the project you wish to copy.
2. Press the [☰] key and tap [Copy].
   The title edit menu opens.
3. Type in the project title and tap ✓.
   The project is created and displayed in the list.

Editing a Test-Tool project

1. Double click the project.
   – or –
   Select a project using the up/down arrow key and press the central key.
   The edit menu opens:

Name	Project name
Description	Project description Will be shown in the projects list below the project name.
Label Prefix	Prefix that will be added to the label.
Label Index	Start index for the label
Auto Increment Label Index	When enabled label index will be incremented automatically with each storage.

2. Edit the fields.
   The changes are immediately effective.
3. Press the [↶] button to close the edit menu.

Deleting a Test-Tool project

1. Select the project you wish to delete.
2. Press the [☰] key and tap [Remove].
3. Tap [Yes] to permanently delete the project.
   The project is deleted and removed from the list.

Activating a Test-Tool project

To assign measurements to a project, the project must be activated. There can always be only one active project.

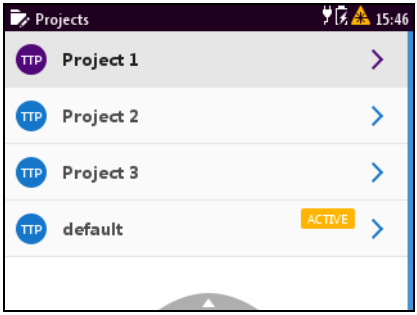
1. Select the project you wish to activate.
2. Tap the button.
   – or –
   Press the [☰] key and tap [Set Active].
   Allow a few seconds until the label **ACTIVE** *is displayed at the selected project.*

Workflow mode

Selecting a project from the Job Management menu

✓ The home screen is displayed.

1. Select the menu, then tab the [Projects] button.
   The projects available on the instrument are displayed.



2. Select a project and press the [ACTIVE] button.
   – or –
   Select a project, press the [☰] key and tap [Set Active]

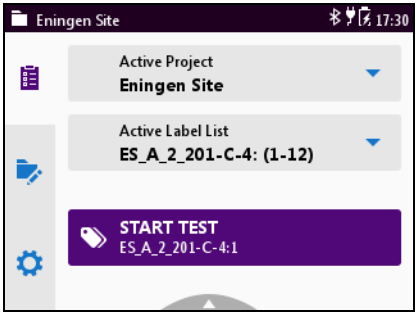
If a Workflow project is already active you also can select a project from the Workflow dashboard (see next section).

Selecting a project from the Workflow dashboard

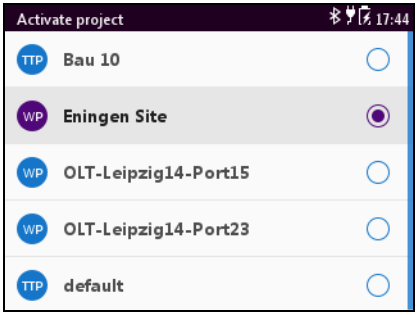
If a Workflow project is already active you can select another project directly from the Workflow dashboard instead of opening the Job Management menu.

To select a project:

✓ The Workflow dashboard is displayed.



1. Tap the displayed project.
   The projects available on the instrument are displayed.



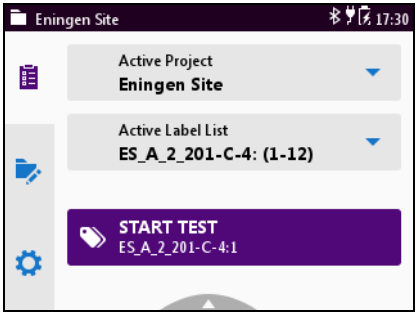
2. Tap a project to activate it.
   The project is set to active immediately.

NOTE: You even can select a Test-Tool project from this menu. When selecting a Test-Tool project the project is set to active immediately and the dashboard is switched to Test-Tool mode.

NOTE: Savings of measurement results are assigned to the selected project.

Selecting a label list

1. Select the menu.
   The active project and the active label list are displayed.



2. Tap the displayed label list.
   The available label lists are displayed.

3. Tap a label list to activate it.
   The selected label list is set to active immediately.

6 LOSS/LENGTH TEST OPERATION

General information

The **Loss/Length** application is used to measure loss, length, and polarity of up to 12 fibers simultaneously. Depending on your specific needs a great variety of test types and settings are available.

NOTE: When a connection is established between MPOLP-85 and MPOLS-85, date and time settings of the MPOLS are synchronized with the MPOLP.

To open the Loss/Length test:

Press the [⌂] key, select ⠿ and tap **Loss/Length**.

How to perform a Loss/Length test

A **Loss/Length** test consists of several steps to achieve reliable results. These steps are:

Step	Action	See page
1	"Adjusting general test settings" E.g. set length unit and tone	46
2	"Defining a test configuration" Define settings like the test type, the referencing method or the limit specifications.	47
4	"Polarity Check"	52
3	"Referencing"	52
5	"Running a test"	56
6	"Referencing and running a test with 24 fiber cabling"	56
7	"Viewing test results"	60
8	"Saving test results"	63

These steps are described in detail in the following sections.

Adjusting general test settings

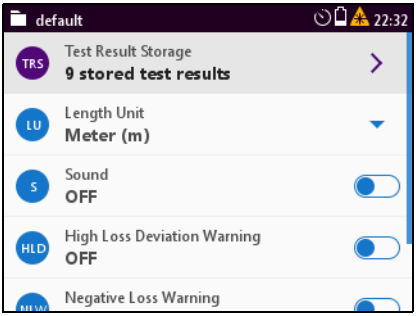


Fig. 12 **More** menu of Loss/Length test

Length unit and tone settings are not configuration specific.

To change the length unit:

✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [Length Unit] button.
4. Tap the desired length unit.

To activate or deactivate the connection sound:

✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [Sound] entry to activate or deactivate the connection sound.

To activate or deactivate the high loss deviation warning:

✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [High Loss Deviation Warning] button to activate or deactivate the warning.

To activate or deactivate the negative loss warning:

✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.

3. Tap the [Negative Loss Warning] button to activate or deactivate the warning.

To activate or deactivate the unsaved result warning:

✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [Unsaved Result Warning] button to activate or deactivate the warning.

Defining a test configuration

In **Loss/Length** mode a test configuration allows you to define various settings like the test reference method or the cable and connector settings. When performing a test a predefined test configuration can be recalled and set to active to assign it.

As factory setting one test configuration named **default** is available, which can be edited but not deleted.

After deleting the test configuration **default**, a new (empty) test configuration called **default** will be created automatically.

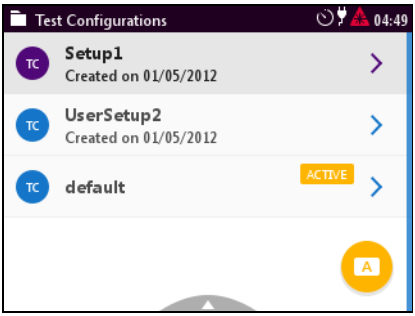
In the [Test Configuration] menu, new configurations can be created or existing configurations can be copied, edited, or deleted.

NOTE: Test configurations can only be created, deleted, or edited with the MPOLP-85/MPOLP-85P. The MPOLS-85/MPOLS-85P only allow displaying the settings of the active test configuration.

Creating a new test configuration

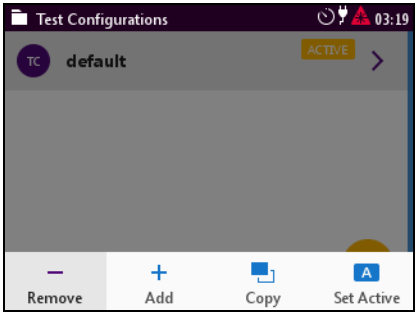
✓ The instrument is in **Loss/Length** mode.

▶ Press the [☰] key and tap the [Test Configuration] button.
The available test confgurations are displayed.



To add a new test configuration:

1. Press the [☰] key.
   The edit menu opens.



2. Tap [Add].
   The title edit menu opens.
3. Type in the title and tap ✓.
   The test configuration is created and displayed in the list.

To copy an existing test configuration:

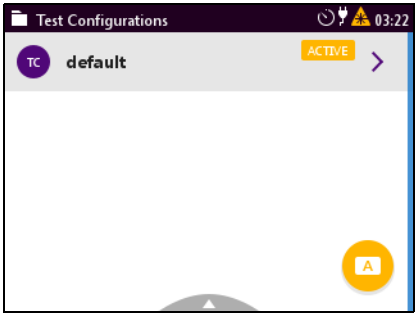
1. Select an existing test configuration if you want to copy its settings to the new test configuration.
2. Press the [☰] key and tap [Copy].
   The title edit menu opens.
3. Type in the title and tap ✓.
   The test configuration is created and displayed in the list.

Activating a test configuration

To assign a test configuration it must be activated. There can always be only one active test configuration.

✓ The instrument is in **Loss/Length** mode.

1. Press the [☰] key and tap the [Test Configuration] button.
   The available test profiles are displayed.



2. To highlight a test configuration tap it once.
   – or –
   Use the arrow keys.
3. Tap the A button.
   – or –
   Press the [☰] key and tap [Set Active].
   Allow a few seconds until the label **ACTIVE** *is displayed at the selected test configuration.*

Deleting a test configuration

✓ The instrument is in **Loss/Length** mode.

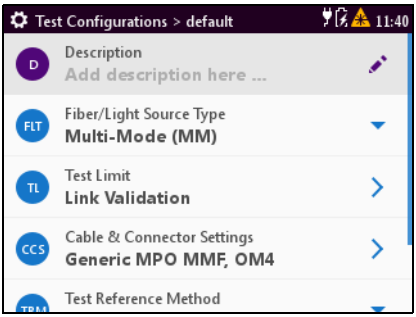
1. Press the [☰] key and tap the [Test Configuration] button.
2. To highlight a test configuration tap it once.
   – or –
   Use the arrow keys.
3. Press the [☰] key and tap the [Remove] button.
4. Tap [Yes] to confirm and permanently delete the configuration.
   The configuration is deleted and removed from the list.

Editing a test configuration

NOTE: You can not change the name of an existing test configuration. To change the name copy the configuration, type in the new name and delete the original configuration.

✓ The instrument is in **Loss/Length** mode.

1. Press the [☰] key and tap the [Test Configuration] button.
   The available test configurations are displayed.
2. Tap and select an entry.
   – or –
   Use the arrow keys to highlight a setup and press the center button.
   The Edit menu opens:

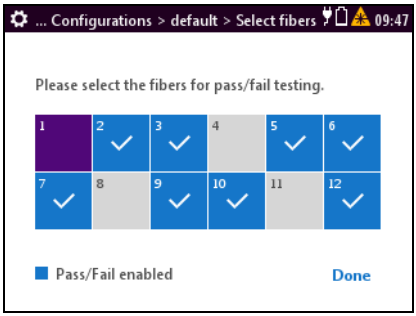


Description	Description of the test configuration. The description will be shown in the test configuration list below the title.
Fiber/Light Source Type	The fiber Type can be configured for **Single-Mode** or **Multi-Mode** measurements.
Test Limit	First select the limit specification/preset from the drop down menu. Then edit the limit settings: • **Expected Polarity:** Select the fiber connection type (see "Polarity Check" on page 52). • **Length:** Enter the length limit (to change the length unit see "To change the length unit:" on page 46). • **Max. Loss:** at 1300 nm and 850 nm
Cable & Connector Settings	Select the cable manufacturer, the cable name and the Connector Type from the respective list. See the indicated refractive Index.
Test Reference Method	Select the reference method: 1 jumper cable or 3 jumper cables (for further information see "Referencing" on page 52).
Pass/Fail Fiber Selection	Select/Deselect different fiber numbers for pass/fail testing.

To select/deselect fibers for pass/fail testing

✓ The instrument is in **Loss/Length** mode.

1. Press the [☰] key and tap the [Test Configuration] button.
   The available test configurations are displayed.
2. Tap and select an entry.
   – or –
   Use the arrow keys to highlight a setup and press the center button.
   The Edit menu opens.
3. Tap the pen to edit the **Pass/Fail Fiber Selection**.
   – or –
   Use the arrow keys to highlight **Pass/Fail Fiber Selection** and press the center button.
   The fiber selection panel opens.



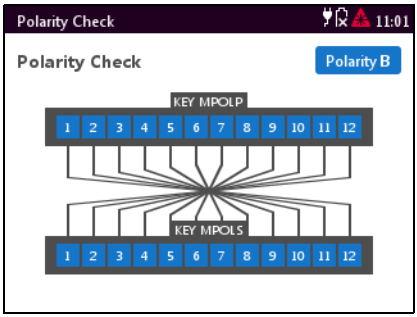
4. Tap a fiber number to deselect and exclude it.
   – or –
   Press the left/right arrows keys to highlight a fiber and press the center key to select/deselect it.
5. To confirm and leave the menu tap [Done] or press the [↶] button.

NOTE: Deselected and excluded fibers are displayed in grey and have no effect on the passed/failed summary. Only the selected fibers are displayed in the menu button.

Polarity Check

✓ The **Loss/Length** application is selected.
✓ Two devices are connected via TRC.

1. Press the [☰] key.
2. Tab the [Polarity Check] button.
   Polarity is measured and the connection type of the 12 fiber cabling is displayed.



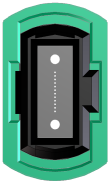
Three different connection types are distinguished:

Polarity	Description
A	straight-through connection 1-1, 2-2, 3-3, 4-4 etc.
B	flipped connection 1-12. 2-11. 3-10, 4-9 etc.
C	pairwise flipped connection 1-2/2-1. 3-4/4-3 etc.

Referencing

For referencing, only use the special test reference cords (TRC) contained as a standard assembly in your MPO test kit.

NOTE: This section describes how to reference 12 fiber cabling. For referencing and measuring 24 fiber cabling see "Referencing and running a test with 24 fiber cabling" on page 56.



To perform the referencing

✓ The **Loss/Length** application is selected.

1. Press the [☰] key and select [Test Configuration].
2. Select a [Test Configuration], tap the [Test Reference Method] menu and select a referencing method:

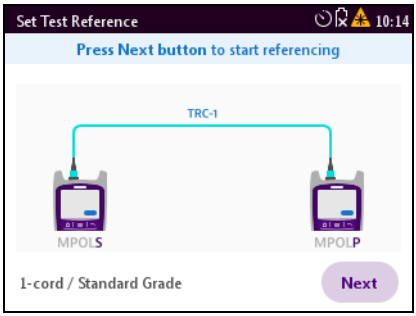


Fig. 13 One jumper cable reference method

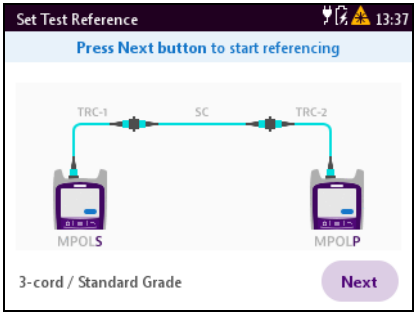


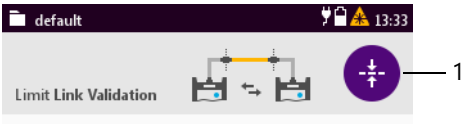
Fig. 14 Three jumper cable reference method

3. Establish proper cabling according to your settings.

If you have changed the referencing method:

If you have changed the referencing method you must reference before you can start a measurement. In this case you can start referencing from the measurement display.

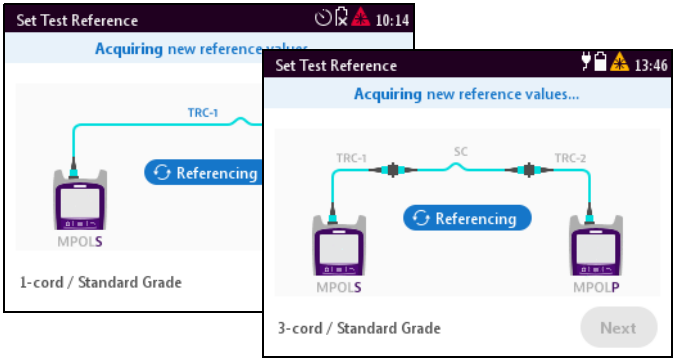
- In the **Loss/Length** measurement display tap the referencing button (1).



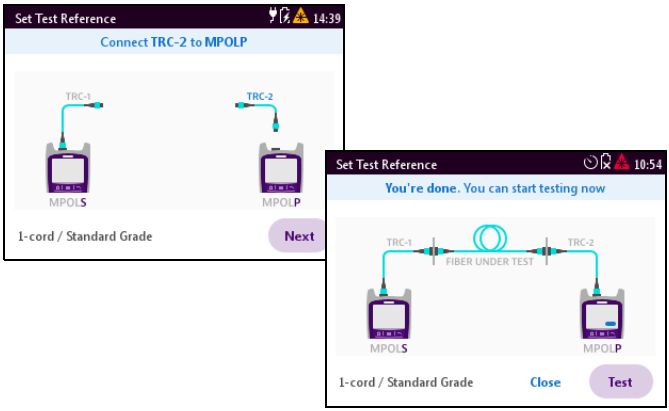
To repeat referencing with the same referencing method:

In this case you start referencing from the menu.

1. In the **Loss/Length** main menu press the [☰] key and select [Set Reference].
2. Tap Next button to start referencing.
   The display informs about the progress.



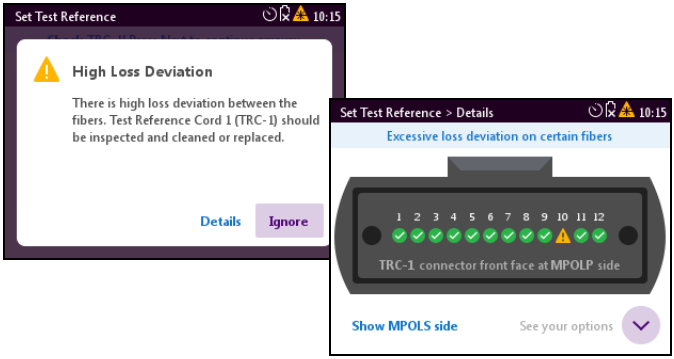
You are requested to disconnect TRC-1 and connect TRC-2



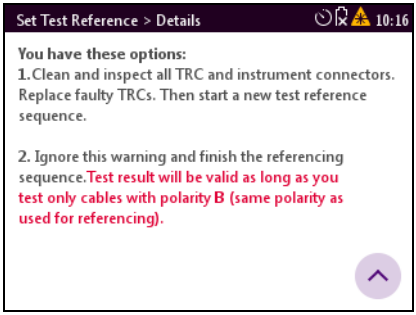
3. Establish a proper connections and tap Next button.
   The Test button to run a test is displayed.
4. To proceed see "Running a test" on page 56.

Referencing under high loss deviation

NOTE: While referencing, the maximum power deviation of the 12 fiber cabling should be in the range of 0.5 dB. Higher deviation leads to the high loss deviation warning.
When this warning is shown, the polarity of your reference measurement should be equal to the expected polarity of the system to be tested, otherwise you might get unreliable measurement results.



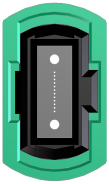
1. Tap [Details] to get information about the affected fiber/s.
2. Tap See your Options Button and follow one of the descriptions to finish referencing.



NOTE: For more information about referencing see "" on page 99.

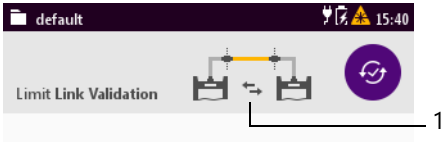
Running a test

NOTE: This section describes how to measure 12 fiber cabling. For referencing and measuring 24 fiber cabling see "Referencing and running a test with 24 fiber cabling" on page 56.

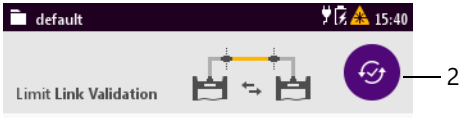


✓ The instrument is in **Loss/Length** mode.

1. Connect your fiber under test.
   The connection icon (1) shows if source and power meter are linked properly.

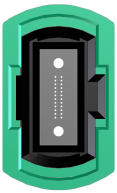


2. To start the test tap the start button (2)



   – or –
   Press the [☰] key and tap the [Auto Test] button.
   The display informs about the progress.
3. To view results go to "Viewing test results" on page 60.

Referencing and running a test with 24 fiber cabling



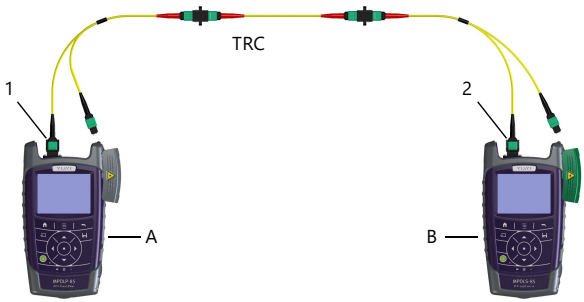
24 fiber cabling can be referenced and tested in two steps with 12 fibers at a time by using the optional available Y-adapters. Please note that the measurement of the 12 fibers must always follow directly after referencing. Since the procedures for referencing and testing are identical to 12 fiber cabling, this section only describes how to connect the Y-adapters and to perform the referencing measurement procedure.

NOTE: For 24 fiber cabling always select the test reference method "3-cord".

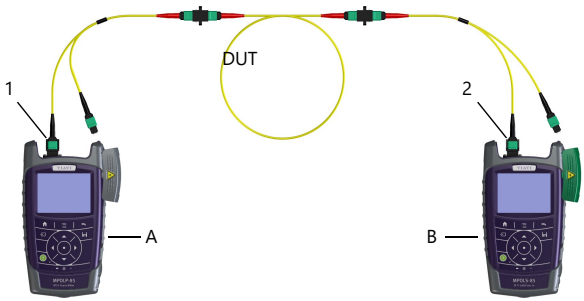
- For referencing details, see "Referencing" on page 52
- For testing details, see "Running a test" on page 56

Referencing and testing the first 12 fibers

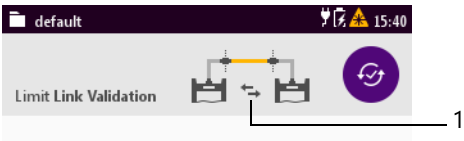
1. Follow the steps 1. and 2. explained in "Referencing" on page 52.
2. Establish a proper connection for the first 12 fibers using the two Y-adapter cables and the 24 pol. Test Reference Cord (TRC). Connect plug **1** to device **A** and plug **2** to device **B**.



3. Follow the explanations in "Referencing" on page 52 for executing a new referencing or repeating a referencing with the same referencing method.
4. After successfully referencing replace the TRC with the fiber under test (DUT).



The connection icon (1) shows if source and power meter are linked properly.



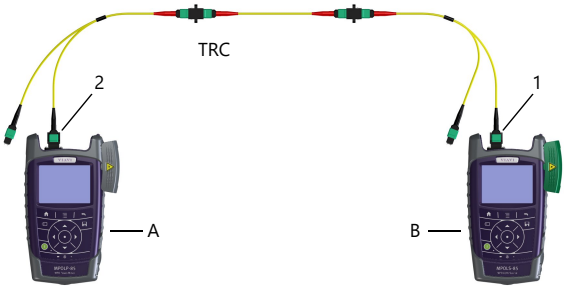
5. To start the test tap the start button (2)

– or –
Press the [☰] key and tap the [Auto Test] button.
The display informs about the progress.

6. To view results go to "Viewing test results" on page 60.

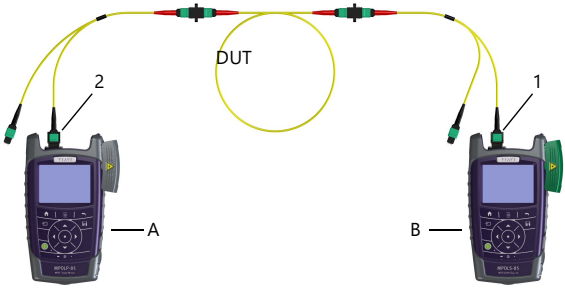
Referencing and testing the second 12 fibers

1. After a successful referencing and testing the first 12 fibers connect the second 12 fibers using the two Y-adapter cables and the 24 pol. Test Reference Cord (TRC). Connect plug **2** to device **A** and plug **1** to device **B**.

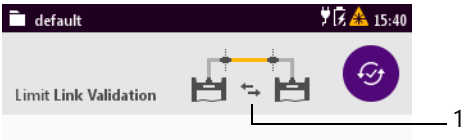


2. In the **Loss/Length** main menu press the [☰] key and select SET REFERENCE.
The display informs about the progress. A short message reports if the referencing was successfully. Your are then requested to connect the test cord.

3. After successfully referencing replace the TRC with the fiber under test (DUT).



The connection icon (1) shows if source and power meter are linked properly.



4. To start the test tap the start button (2)

– or –
Press the [☰] key and tap the [Auto Test] button.
The display informs about the progress.

5. To view results go to "Viewing test results" on page 60.

Viewing test results

After running a test the display gives an overview of the results.

Test result overview

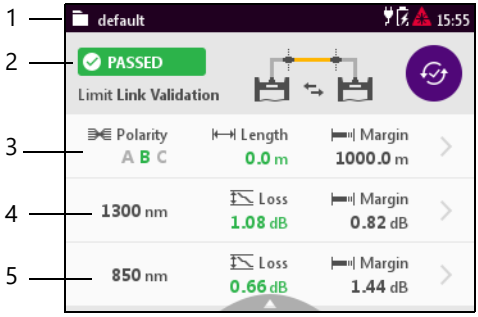


Fig. 15 Test results overview

1	Selected project	
2	Passed/Failed summary • **Pass indication (green):** All measured losses are below or equal the calculated maximum loss **AND** the measured length is shorter or equal to the set length limit **AND** the polarity matches the expected polarity. • **Fail indication (red):** One or more measured losses are above the calculated maximum loss **OR/AND** the measured length is longer than the set length limit. **Note:** Fibers can be excluded from the analysis (see "Editing a test configuration" on page 49).	
3	Length of fiber and polarity Failed values are displayed in red.	Tap to open detailed results display (see "Test result details").
4	Worst margin and loss of 1300 nm	
5	Worst margin and loss of 850 nm	

Test result details

▶ Tap a section in the results overview.
– or –
Press the [☰] key and tap [Detail View].
The results details display opens.

NOTE: When tapping [Detail View] always the polarity page is shown first. When tapping a section in the results overview the respective page is opened.

Polarity test results

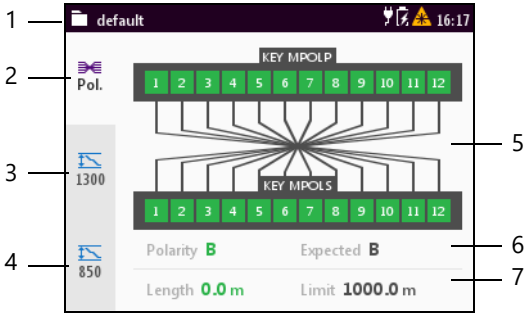


Fig. 16 Display of results details (figure showing polarity page)

1	Selected project
2	Polarity results page is selected
3	Details of wavelength 1300 nm page
4	Details of wavelength 850 nm page
5	Assignment of each fiber and color showing pass/fail
6	Measured and expected polarity as defined in the test configuration
7	Measured length of fibers and length as defined in the test configuration

Loss and margin results of 1300 nm and 850 nm

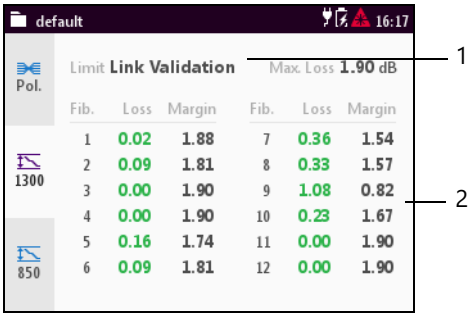


Fig. 17 Display of results details (figure showing 1300 nm)

1	Limit as defined in test configuration
2	Margin and loss results of all 12 fibers

Test result pages with deselected fibers

Deselected fibers are also measured and displayed in the result pages but have no effect on the passed/failed summary. They are always displayed in grey, independent if it is within or beyond its limits.

To deselect fibers see "To select/deselect fibers for pass/fail testing" on page 51.

Example: fibers 2, 3, 4, and 10 are deselected

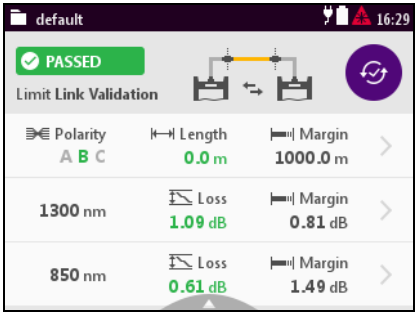


Fig. 18 Results overview with some fibers deselected.

In this example one of the deselected fibers has the largest loss and thus is displayed in the results overview page.

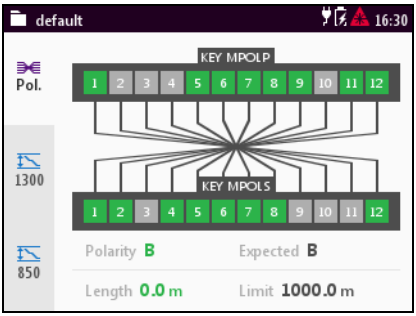


Fig. 19 Polarity result details page with deselected fibers.

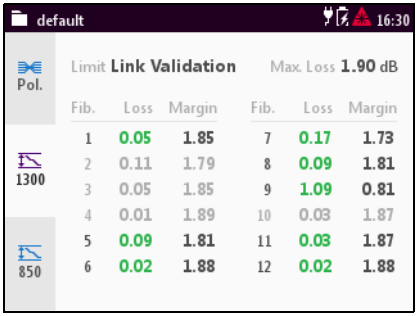


Fig. 20 1300 nm result details page with deselected fibers.

Saving test results

Before starting a measurement a project must be selected and set to active. Thus, all results are assigned to that project when saved. If no project was defined by the user, the instrument will use the Test-Tool project “default”, which is always present.

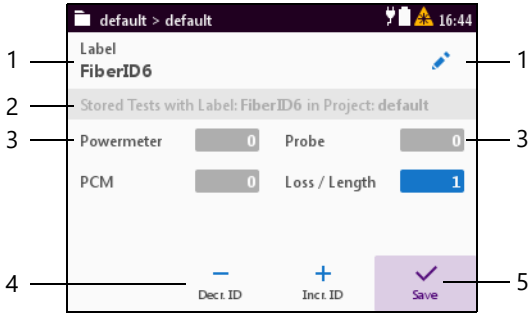
Results are stored simply by pressing the [🖫] key. Each time the key is pressed, the result just displayed will be saved.

NOTE: Instruments with an integrated patch cord microscope (“PCM”) use a specific app, also called “PCM”, to operate that microscope. Therefore, images taken by the PCM can easily be distinguished from images taken by an external probe.

To save results:

✓ The instrument displays the results (overview or details) to be stored.

1. Press the [🖫] key.
   The Save dialog is displayed.



1	Label as defined in the test configuration. ▶ Tap pen to edit label.
2	Shows selected project. Results will be saved to this project.
3	• Probe: Number of already saved probe results. • Powermeter: Number of already saved powermeter results. • PCM: Number of already saved PCM results. • Loss/Length: Number of already saved loss/length results.
4	Decrease / increase label ID
5	Save results

2. Tap the pen in the [Label] field to type a new label. A number will be appended automatically, if not already provided by the user.
3. Tap the [Increment ID] or the [Decrement ID] button to adjust the label number, if needed.
4. Press the [🖫] key again or tap the [Save] button.
   The measurement is stored.

NOTE: If the label ID is not changed, the data set will be saved under the same title. Then the Data can be distinguished by the Timestamp.

7 Source Operation (MPOLS)

Source operation provides following features:

- MPOLS-84: Multi-mode, MPOLS-85: Single-mode
- Sending one wavelength at a time (no Multi-/Auto-λ, no tone)
  – Multi-mode: either 850 nm or 1300 nm
  – Single-mode: either 1310 nm or 1550 nm
- Selecting a fiber for output manually or toggling through all enabled fibers automatically
- Fixed power level
  – Multi-mode: -26 dBm ±1 dB
  – Single-mode: -3 dBm ±1 dB

Measurement display overview

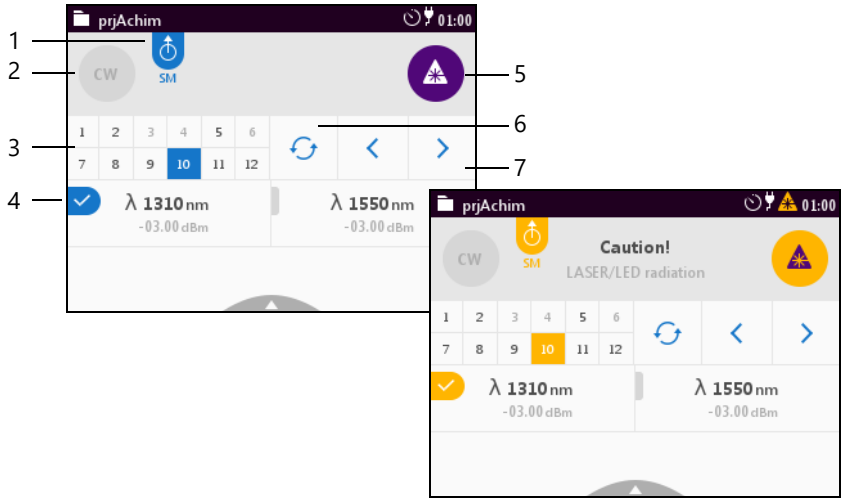


Fig. 21 Measurement display overview, laser off (left) and laser on.

1	MPOLS-84: Multi-mode, MPOLS-85: Single-mode	
2	CW mode only (no Multi-/Auto-λ, no tone)	
3	Fiber panel: deselected fibers are greyed out. The currently active fiber is highlighted in blue (laser off) or yellow (laser on).	
4	Selected wavelength (only one can be selected at a time)	▶ Tap to select wavelength.

5	Laser on/off	▶ Tap to switch laser on/off.
6	Auto fiber output	▶ Tap to start/stop auto fiber output.
7	Manual fiber output	▶ Tap to select previous/next fiber.

Selecting a wavelength

Only one wavelength can be selected at a time.

To select a wavelength:

▶ Tap the desired wavelength.
– or –
Press the [☰] key, tap the [Source Selection] button and tap the desired wavelength (toggle function).

Selecting and deselecting fibers

By selecting/deselecting a fiber the output can be enabled/disabled. When disabled the fiber is greyed out in the fiber panel showed in the measurement display.

To select/deselect a fiber:

1. Press the [☰] key, tap the [Fiber Selection] button.
   The fiber selection panel opens.
2. Tap a fiber to select/deselect it.
   – or –
   Press the left/right arrows keys to highlight a fiber and press the center key to select/deselect it.
3. To leave the menu tap [Done] or press the button.

Changing fiber output manually

NOTE: The fiber output can be changed manually only when auto fiber output is disabled.

To disable auto fiber output:

▶ Tap the button until **ON** disappears.

To change fiber output manually:

▶ Tap the < > buttons to output the previous or next fiber.

NOTE: Only selected fibers are available.
Deselected fibers will be skipped.

Activating auto fiber output

When auto fiber output is activated, the instrument switches automatically output from one fiber to the next in the fiber panel.

NOTE: Only selected fibers will be used.
Deselected fibers will be skipped.

To activate auto fiber output:

- Tap the ON button until **ON** appears.
  To start auto fiber output switch laser on.

Switching the laser on/off

- Tap the button to switch laser on/off.

8 POWERMETER OPERATION (MPOLP)

Powermeter operation provides following features:

- Relative, absolute and Pass/Fail measurement
- Peak hold
- Table and graphic view of measurement values
- Zoom function
- Scalable y-axis in relative mode

Selecting the measurement mode

▶ Tap the button in the upper right corner to toggle between the modes: Relative > Absolute > Pass/Fail > Relative > ...
– or –

1. Press the [☰] key and tap the [Settings] button.
2. Tap the [Measurement Mode] button and select the desired mode from the dropdown menu.
3. To leave the menu, press the button.

Selecting a wavelength

NOTE: The MPOLP-85 is not able to identify the wavelength of the input signal. To ensure that the signal level displayed is properly calibrated the wavelength of the input signal has to be selected manually.

To selecting the wavelength:

1. Press the [☰] key and tap the [Wavelength] button.
2. Tap the desired wavelength.
   The settings menu is closed and the measurement screen is displayed.

Selecting the display mode

▶ Tap the icon in the upper left corner to switch between graphical representation and table view.

Activating the peak hold function

1. Press the [☰] key and tap the [Settings] button.
2. Tap [Peak Hold] to switch on/off function.

Showing the measured values in graphic mode

In graphic mode bars showing the measured levels (depending on the selected measurement mode as absolute, relative or pass/fail results).

When selected the fiber number is highlighted in dark blue (instead of light blue) and the level is shown numerically.

To choose a fiber:

- Press the left/right arrow keys.

Relative measurement mode

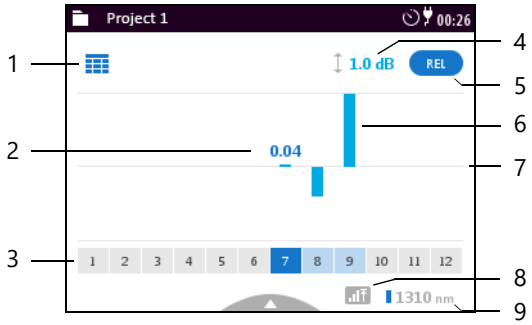


Fig. 22 Measurement display overview, laser off (left) and laser on.

1	Display mode	▶ Tap to switch between table view and graphical view.
2	Numerical value in dB above or below reference value.	
3	Fiber panel	
	1 Fiber without a valid reference level or a valid measurement level. In this case the fiber could be deselected at the Source device.	▶ See "Selecting and deselecting fibers" on page 66 to select fibers.
	8 Fiber with a valid reference level and a valid measurement level.	▶ Press left/right arrow keys to choose fiber.
	7 Fiber chosen. Additionally the numerical measurement value is displayed.	

4	Scaling of Y-axis	▶ See "Adjusting the scaling of the Y-axis" on page 70.
5	Measurement mode. The active mode is displayed.	▶ Tap button to switch between relative, absolute and pass/ fail mode.
6	Graphical representation of measured value relative to reference value.	
7	Reference level	▶ See "Setting the reference value" on page 70.
8	Visual note that a reference level is set.	
9	Selected wavelength	▶ See "Selecting a wavelength" on page 68.

Setting the reference value

✓ The wavelength is set properly.

▶ Press the [☰] key and tap the [Set Reference] button.
The reference value is set to the currently measured value.

Adjusting the scaling of the Y-axis

1. Tap the scale factor at the top of the screen.
2. Tap the desired scaling.
The menu is closed and the measurement screen is displayed.

Absolute measurement mode

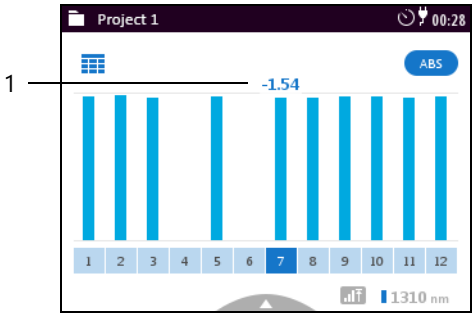


Fig. 23 Overview of screen in absolute measurement mode.

1	Measured absolute level (in dBm). All other elements see "Relative measurement mode" on page 69

To show the measured numerical value of another fiber:

- Press the left/right arrow keys.

Pass/fail measurement mode

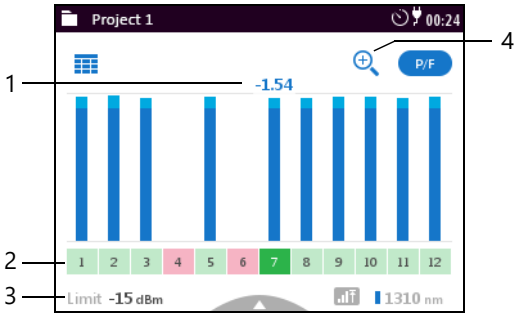


Fig. 24 Overview of screen in pass/fail measurement mode.

1	Attenuation budget to set limit (margin).	▶ To show numerical value of another fiber press left/right arrow keys.
2	Fiber panel	
	1 Fiber passed	
	4 Fiber failed	
	7 Fiber passed and set to show measured result numerically.	▶ To show numerical value of another fiber press left/right arrow keys.
3	Test limit (pass/fail threshold)	▶ See "Setting the test limit" on page 71.
4	Zoom	▶ Tap the magnifier icon to zoom in and out.

Setting the test limit

1. Press the [☰] key and tap [Test Configuration].
2. Tap the desired test configuration and tap [Test Limit].
3. Tap the desired wavelength.
   The edit menu opens.

4. Switch on-screen keyboard to numerics and enter the power limit.
5. Tap the **OK** button and press the button until measurement screen is displayed.

Changing the zoom level

▶ Tap the magnifier icon to zoom in and out.

Saving Powermeter test results

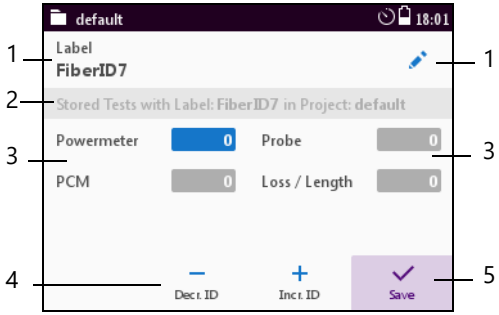
Before starting a measurement a project must be selected and set to active. Thus, all results are assigned to that project when saved. If no project was defined by the user, the instrument will use the Test-Tool project "default", which is always present (see "Managing projects" on page 39).

Results are stored simply by pressing the [🖫] key. Each time the key is pressed, the result just displayed will be saved.

To save results

✓ The instrument displays the test results (overview or details) to be stored.

1. Press the [🖫] key.
   The Save dialog is displayed.



1	Label as defined in the test configuration. ▶ Tap pen to edit label.
2	Shows selected project. Results will be saved to this project.

3	• Probe: Number of already saved probe results. • Powermeter: Number of already saved powermeter results. • PCM: Number of already saved PCM results. • Loss/Length: Number of already saved loss/length results.
4	Decrease / increase label ID
5	Save results

2. Tap the pen in the [Label] field to type a new label. A number will be appended automatically, if not already provided by the user.
3. Tap the [Increment ID] or the [Decrement ID] button to adjust the label number, if needed.
4. Press the [🖫] key again or tap the [Save] button.
   The measurement is stored.

NOTE: When measuring two wavelengths at a time both wavelengths are stored separately. Thus, the ID is incremented by 2.

NOTE: If the label/fiber ID is not changed, the data set will be saved under the same title. Then the Data can be distinguished and sorted by the Timestamp.

9 PROBE/PCM OPERATION

General information

Dirty and/or damaged connectors are often the root cause of optical network problems. The Probe and PCM applications enable industry standard inspection and automated Pass/Fail testing with report generation of optical connectors/adapters in order to ensure industry standard fiber end face quality and cleanliness.

For best workflow efficiency, there are two variants of fiber microscopes available in the MPOx family. The integrated Patch Cord Microscope (PCM), which is best suited for inspecting fiber end faces of patch cords, and the external P5000i Digital Probe, which may be used either for bulkhead inspection or patch cord inspection.

The shortest inspection time is achieved when using one of the MPOLx-85P models with an integrated PCM for patch cord inspection and a P5000i Digital Probe for bulkhead inspection.

Both applications – Probe and PCM – behave essentially the same and are described together below.

NOTE: Only if a P5000i Digital Probe is connected to the instrument the Probe application is fully functional.
All instruments with a trailing "P" in their model name (e.g. OLT-85P) provide PCM functionality.

The build in Patch Cord Microscope (PCM)

The PCM is a microscope used to view and inspect patch cord (male) sides of fiber connectors.

In order to support a wide variety of fiber optic connectors, the PCM provides an exchangeable FMAE adapter. The dedicated QuickCapture key enables either instant triggering of a Pass/Fail test or freezing of the live image. For best workflow adaption, the key action is configurable. The dedicated Magnification Control key provides fast toggling between two microscope magnification levels: low magnification (around 23000 dpi) for overview inspection of the fiber end face, and high magnification (around 46000 dpi) for detailed inspection of the fiber end face.

Fig. 25 Patch cord microscope components

1	FMA-MTPA adapter
2	QuickCapture™ key
3	Focus control
4	Magnification control key

FMA series adapters for the PCM

MPOx devices with the PCM use FMA series adapters to ensure consistent and accurate inspection for a wide variety of connectors and applications. All PCM configurations ship with a 2.5 mm interface included. Kitted configurations may include additional FMAE adapters.

The external P5000i Digital Probe

The P5000i Digital Probe is a portable handheld microscope used to view and inspect both the bulkhead (female) and patch cord (male) sides of fiber connectors, as well as other optical devices, such as transceivers.

The Digital Probe is specially designed to fit and operate comfortably and easily in-hand, allowing the user to inspect hard-to-reach connectors that are installed on the back side of patch panels or inside hardware devices. In order to support a wide variety of fiber optic connectors, the P5000i provides an exchangeable FBPT inspection tip. The dedicated QuickCapture key enables either instant triggering of a Pass/Fail test or freezing of the live image. For best workflow adaption, the key action is configurable. The dedicated Magnification Control key provides fast toggling between two microscope magnification

levels: low magnification (around 23000 dpi) for overview inspection of the fiber end face, and high magnification (around 46000 dpi) for detailed inspection of the fiber end face.

The P5000i Digital Probe kit sold with the MPOLS-85 contains the standard barrel assembly (FBPP-BAP1), standard patch cord tips, and standard bulkhead tips.

Fig. 26 P5000i Digital Probe components

1	Inspection tip
2	Barrel assembly
3	QuickCapture™ key (see "Basic settings" on page 78)
4	Focus Control
5	Magnification Control key (on both sides)
6	USB 2.0 connector
7	1.83 m (6 ft) coil cable

FBPT series tips for the P5000i

The P5000i Digital Probe uses FBPT series inspection tips to ensure consistent and accurate inspection for a wide variety of connectors and applications. These connector-specific and universal inspection tips are interchangeable, which allows the P5000i Digital Probe to interface with different types of fiber connectors.

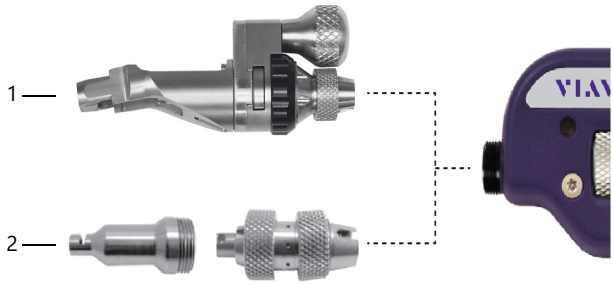


Fig. 27 FBPT series tips for single fiber inspection

1	FBPT-MTPA-L for MPO inspection
2	Barrel assembly (right) and inspection tip (left)

P5000i connection

The Probe application requires a P5000i Digital Probe in order to be fully functional.

NOTE: The P5000 series probe (the predecessor of the P5000i) is not supported.

To connect the probe:

1. Plug your P5000i into either USB port.
   The initialization starts immediately.
2. Connect the P5000i to the fiber being inspected.
3. Press the [⌂] key, then tap the [Probe] button or use the arrows keys.
   – or –
   Press the [⇆] key to toggle between the measurement view and the inspection view.
   After initializing the P5000i will display the live view.

NOTE: In order to save battery power the cameras are switched off 5 minutes after leaving the respective application.

Basic settings

✓ The digital probe is connected to the instrument (the PCM is always connected).
✓ The instrument is in **PCM** or **Probe** mode.

Auto center

When auto center is switched on, the high magnification detail view is automatically centered around the fiber end face center.

To switch on/off auto center:

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap [PCM Settings] or [Probe Settings].
4. Tap [Auto Center] to toggle on/off.

QuickCapture™ key

In order to support different workflows, the functionality of the QuickCapture™ key is configurable. Pressing the key will either freeze the live image or start a test.

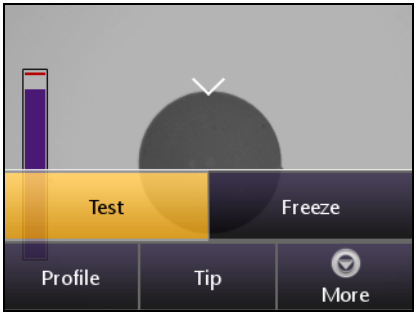
Test	Pressing the key will automatically freeze the live image and perform a test.
Freeze	Pressing the key will automatically freeze the live image.

To set the key:

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap [PCM Settings] or [Probe Settings].
4. Tap [Device Button].
5. Tap the desired key function.

Focus quality bar

When switched on the focus quality is displayed graphically and in real time by a bar on the left side of the screen.



To show/hide the focus quality bar:

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap [PCM Settings] or [Probe Settings].
4. Tap [Show Focus Quality] to show/hide the bar.

Selecting a profile and adapter/tip

About profiles

Profiles contain the analysis parameters from which pass/fail criteria are determined. A number of profiles are supplied with the instrument. Profiles cannot be created in the instrument but with the FiberChekPRO™ software and transferred to the instrument via remote control. Information about creating profiles can be found in the FiberChekPRO™ user manual.

To select a profile:

1. Press the [☰] key.
2. Tap the [Profile] button.
3. Tap the desired profile.

Table. 1 Examples for profiles stored in the instrument by default.

Profile	Pass/fail criteria for ...
E2000	... precision metal ferrule connectors
MM_	.. multi-mode connectors from IEC 61300-3-35
Ribbon_	... single- and multi-mode connectors from IEC 61300-3-35
SFP_	... small form-factor pluggables
SM-UPC	... single-mode UPC connectors from IEC 61300-3-35
SM-APC	... single-mode APC connectors from IEC 61300-3-35
SM_PC	... single-mode PC connectors from IEC 61300-3-35

About adapters/tips

When trying to select an adapter (PCM) or a tip (probe) only these adapters/tips are presented that are supported both by the selected profile and the camera in use. Therefore the profile must be selected prior to the adapter/tip.

Depending on the selected adapter/tip, the camera's illumination LED is set to a precalibrated brightness stored in the camera's memory.

If no matching adapter/tip is available, a standard brightness will still provide an image, while the pass/fail analysis algorithm might not work properly.

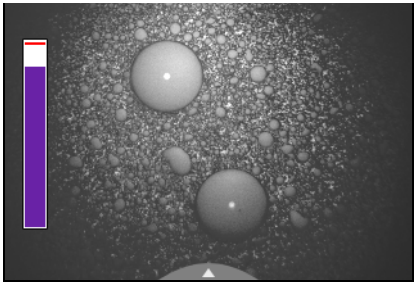
To select a adapter/tip:

1. Press the [☰] key.
2. Tap the [Tip]/[Adapter] button.
3. Select the suitable adapter/tip.

Operation

For MPO tests: positioning the ribbon

- Use the two screws at the FMA-MTPA adapter to position a fiber in the center of the display.



Adjusting the focus

- Use the focus control to adjust the sharpness.

NOTE: The focus quality bar helps you to find the best setting (see "Focus quality bar" on page 79).

Adjusting the magnification

- Press the Magnification Control key to modify the live display from high to low magnification and vice-versa.

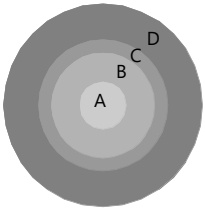
In the high magnification mode, automatic centering is available.

Running a test

- Press the [☰] key and tap the [Test] button.
  – or –
  Press the QuickCapture™ key if the button action is set to **Test**.
  – or –
  Press the central key.
  When the test procedure terminates, the information shown on the display depends on the current overlay setting:

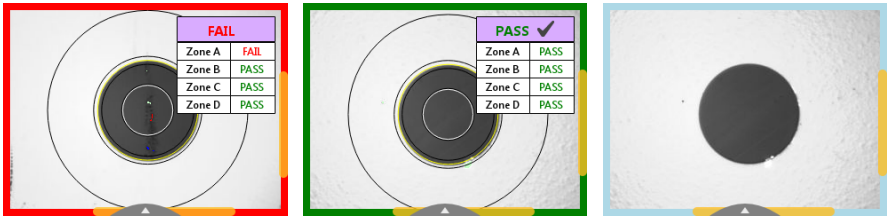
Overlay

- Press the [☰] key and then the [Overlay] button to change the overlay view. Repeat the action until the desired view appears:
  without overlay > with colored edges > with colored edges and legend > without overlay > ...
  A summary of test results is displayed at the upper right of the screen (following figure is just an example and may vary).



Zone	
A	Represents the core zone. It is the area surrounding the core.
B	Represents the cladding zone. It surrounds the majority of the fiber cladding.
C	Represents the epoxy ring.
D	Represents the ferrule zone. It identifies a portion of the ferrule near and around the fiber.

Test result displays and frame colors



Test failed | Test passed | Image frozen

Fig. 28 Pass/Fail analysis, overlay and freeze view

To return to the live image:

- Press the QuickCapture™ key.
  – or –
  Press the [☰] key and tap the [Live] button.

Freezing the image

Once the image is acceptable, you may freeze it instead of running a test. This feature allows you to keep the current view and to store it for future reference. In Freeze mode, the picture has a blue colored frame.

To freeze a view:

- Press the QuickCapture™ key (if it is set to Freeze mode).
  – or –
  Press the [☰] key and tap the [Freeze] button.

To return to the live image:

- Press the QuickCapture™ key.
  – or –
  Press the [☰] key and tap the [Live] button.

Saving Probe/PCM results

Images can easily be saved by pressing the [🖫] key. Each time the key is pressed, the results will be stored.

NOTE: Instruments with an integrated patch cord microscope ("PCM") use a specific app, also called "PCM", to operate that microscope. Therefore, images taken by the PCM can easily be distinguished from images taken by an external digital probe.

NOTE: If the instrument with integrated patch cord microscope is connected to a Digital Probe, the images for the PCM and the Digital Probe will be stored in different folders.

Background

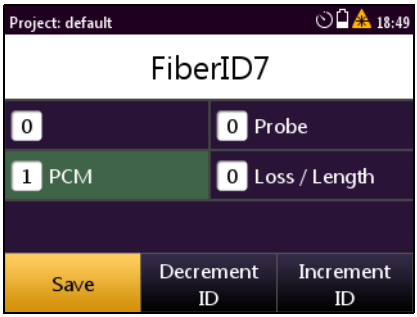
Every saving covers the complete image and overlay data available, regardless of the current screen contents:

- Two JPEG files for high and low magnification
- One XML file for test result description
- One PGM file (compressed) for failed locations
- One container file

When data is requested by the user (e.g. using SCPI), the provided jpg-file is created just in time by the software. This concept helps to save memory space and allows to maintain sharp zone rings for all resolutions (VGA, QVGA and QQVGA).

NOTE: Saved image and overlay data (JPEG, XML, PGM files) can be transferred, displayed and managed via the Smart Reporter software.

1. Select the desired overlay mode.
2. Press the [🖫] key.
   In live view this action triggers the snapshot.
   As file name the label prefix defined in the project settings is showed on top of the display.



3. To edit the file name, tap the name, edit it and tap [OK].
4. To change the ID, tap [Decrement ID] or [Increment ID].
5. Press [Save] to save the results.
   The file is saved in the current active group directory.

10 WORKFLOW MODE

To work in the Workflow mode, tasks are first transferred via the Mobile Application from a mobile device to the MPOLP-85(P). Then the tasks are just executed as set up by the project manager in the Cloud-based Project Management application CERTiFi.

Thus, this chapter just explains how to handle the tasks and routines as part of the Workflow-Mode. The measurements themselves are part of the Test-Tool mode and described in the corresponding chapters.

NOTE: The workflow mode can be enabled only through Viavi's Cloud-based Enterprise Workflow Management Tool CERTiFi. For more information please refer to www.viavisolutions.com

Performing a measurement in Workflow mode

A complete measurement in Workflow mode consists of following steps:

1. Define a project in the Cloud-based application CERTiFi. This is usually done by a project manager.
2. Transfer the project to the instrument via the Mobile App (please refer to the help provided with the App).
3. In the instrument select a project and set it to active.
4. Select a label list (if the project contains more than one) and set it to active.
5. Start the measurement and perform each measurement defined for each label.
6. Save the measurement.
   When synchronized the progress of each measurement is displayed in the Mobile and Cloud Apps.
7. If a test has failed the device under test may be checked and tested again to get a passed result.

These steps are described in detail in the following sections.

Defining a project in the Cloud-based application CERTiFi

This is usually done by a project manager.

NOTE: For further information about the Cloud Application please refer to the help provided with the application.

Loading a project from the Mobile Application

Workflow projects can simply transferred via the Mobile App to the instrument.

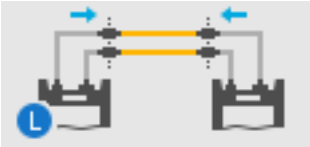
NOTE: For further information about the Mobile Application please refer to the help provided with the application.

Selecting a project on the instrument

For further information about selecting a workflow project and label list on the instrument see "Workflow mode" on page 42.

Establishing a connection

- Establish a connection.
  The icons in the top bar show the status of the connection.



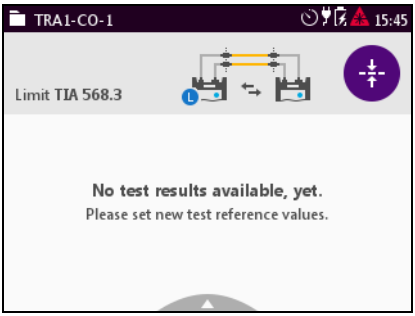
No connection established

Connection established

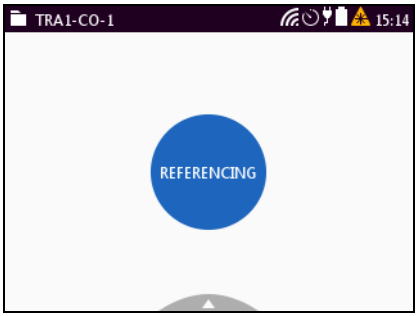
L and **R** show which device is local and which is remote.

Referencing the test setup

When starting the test for the first time or when changing setup you have to run the referencing.



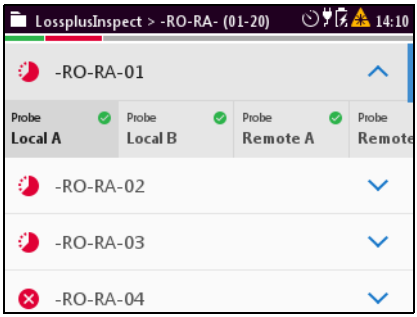
- Tab button to start referencing.
  Display shows that referencing is in progress.



Running a test

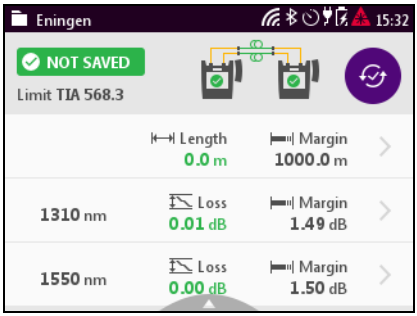
1. In the menu tap the [START TEST] button.
   The labels of the active label list are displayed.

2. Tap the label to be tested.
   The defined tests are displayed. The progress bar on the very top and various icon show the status of each label and the whole project (see "Viewing the test progress" on page 90).



3. Tab the test to be performed (.
   The test is started. Buttons are showing the status: (see "Viewing the test progress" on page 90)

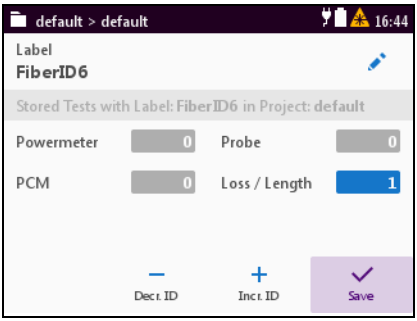
After completion of the measurement the results are displayed in the results overview window (e.g. of a Loss/length test).



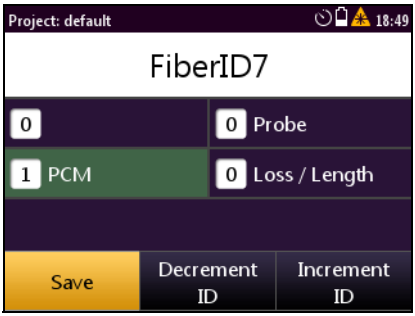
NOTE: To learn more about showing test result details see the descriptions of the test applications in the test tool chapter.

Saving a test

4. To save a test result press the [🖫] button.
   The Save dialog is displayed.



Example: saving a **Loss/Length** test



Example: saving a **PCM** test

5. Tab [Save] to save the test results.

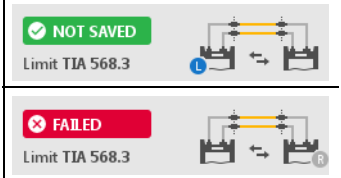
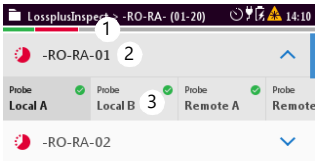
NOTE: Only saved results are reported to the mobile and cloud application. For more information about saving results see the descriptions of each application.

6. Proceed with the next test until all tests defined in the active project are run.

NOTE: A test can be run several times and saved again. If already reported the new results will substitute the previous results in the mobile and cloud app, but not be deleted in the instrument data storage.

Viewing the test progress

The progress of a project is displayed in several ways:

While test is running	
In the test screen: by the PASS or FAIL message	
In the label list: **(1)**: Graphical bar showing overall progress of test (full bar = 100%, green = pass, red = fail) **(2)**: Progress of label **(3)**: Progress of test in selected label	

If a test has failed / repeating a test

When running a workflow project you usually aim to pass all tests. If a test failed or even if a passed test does not show the expected results you can restart the test (e.g. after you have improved the device under test.

To restart a test:

1. Simply tap again the test in the active label.
   The test is run again.
2. Save the results if the test meets your requirements.
   The results are stored in the instrument and the storage ID of the test type is incremented. Already safed results will not be overwritten. After synchronisation with the Mobile and Cloud App the results will be refreshed accordingly.

Managing Workflow projects

Workflow projects only can be created and managed from the web based Project Management Application. The MPOLP-85(P) does not allow to create or edit Workflow projects.

11 DATA MANAGEMENT

NOTE: Results are always stored under the currently selected (active) project. Thus, to display stored results the desired project must be set to active first (see "Managing projects" on page 39).

To select a project see "Selecting a Test-Tool project" on page 40 and "Selecting a project from the Workflow dashboard" on page 43.

Saving results

Saving results is explained in the descriptions of each application.

Selecting test results in Test-Tool or Workflow Mode

Test-Tool project:

1. Select a Test-Tool project containing test results of the desired application.
2. Select the desired application.

Workflow project:

1. Select a Workflow project containing test results of the desired application.
2. Tap [START TEST], open a label from the list and select the desired application.

Data management of Loss/Length tests

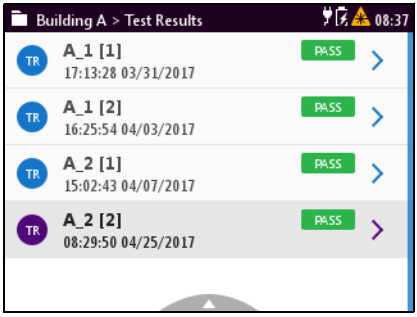
Recalling stored test results

Stored test results are displayed directly from the menu in the **Loss/Length** application.

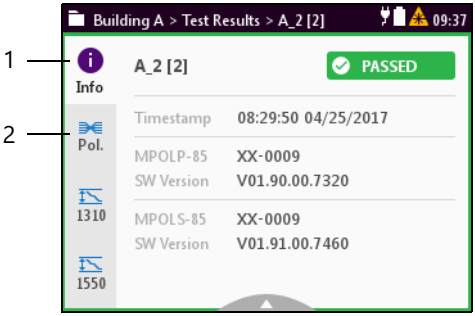
✓ The **Loss/Length** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.

3. Tap the [Test Result Storage] button.
   The list of stored test results is displayed.



4. To select a test result tap it twice or press the arrow keys to highlight a test result and press the center button.
   The info page of the stored test results is displayed.



1	Information about the stored test results: • A_2 [2]: Test label name • PASSED: Passed/failed label. Additionally the window has a green or red frame. • Timestamp: Time and date of the test • XX-0009: Serial number of instruments • V01...: Software version of instruments
2	Display of the stored test results

5. Tap an icon in the left navigation bar to display the test results in detail.
6. The display of the stored test results is identical to the display after running a test. Thus, see "Test result details" on page 60 for detailed information about the test results display.

Deleting stored test results

To delete one data set:

✓ The list of stored test results is displayed.

1. Select the data set to be deleted.
2. Press the [☰] key and tap [Remove].
   The selected data set is deleted and removed from the list.

To delete all stored test results:

✓ The list of stored test results is displayed.

▸ Press the [☰] key and tap [Remove All].
All stored data sets are deleted and removed from the list.

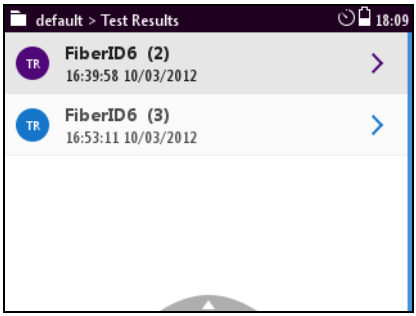
Data management of Powermeter tests

Recalling stored test results

Stored test results are displayed directly from the menu in the **Powermeter** application.

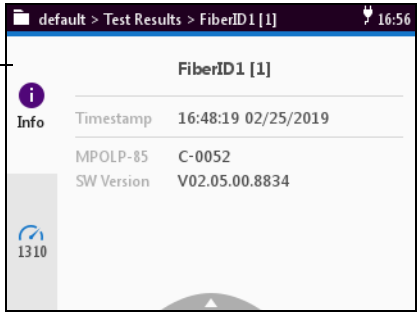
✓ The **Powermeter** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [Test Result Storage] button.
   The list of stored test results is displayed.

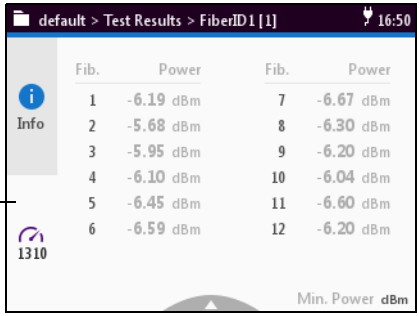


4. To select a test result tap it twice or press the arrow keys to highlight a test result and press the center button.
The info page of the stored test results is displayed.

1



2



1	Information about the stored test results: • FiberID1 [1]: Test label name • Timestamp: Time and date of the test • C-0...: Serial number of instruments • V02...: Software version of instruments
2	Display of the stored test results

5. Tap an icon in the left navigation bar to display the test results in detail.

NOTE: Concerning stored powermeter test results, only one wavelength at a time (850 nm, 1300 nm, 1310 nm or 1550 nm) is saved and displayed.

Deleting stored test results

To delete one data set:

✓ The list of stored test results is displayed.

1. Select the data set to be deleted.
2. Press the [☰] key and tap [Remove].
   The selected data set is deleted and removed from the list.

To delete all stored test results:

✓ The list of stored test results is displayed.

▶ Press the [☰] key and tap [Remove All].
All stored data sets are deleted and removed from the list.

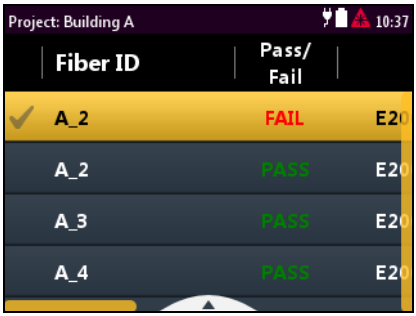
Data management of Probe and PCM tests

Recalling stored test results

Stored test results are displayed directly from the menu in the **Probe/PCM** application.

✓ The **Probe** or **PCM** application is selected.

1. Press the [☰] key.
2. Tap the [More] button.
3. Tap the [Measurement Data] button.
   The list of stored test results is displayed.



To show all columns of the overview:

- Press the right/left arrow keys to show additional information. The displayed information depends on the selected application.

Fiber ID	Test label name
Pass/Fail	Passed/failed label
Profile	Profile label
Adapter	Typ of adapter
Timestamp	Time and date of the test

Managing test results

To select/deselect a test result:

There are several ways to select and deselect test results:

1. Tap an entry once to highlight it, tap it again to select it.
2. Use the up/down arrows to highlight an entry and press the center key to select it.
3. Press the [☰] key and tap the [Select All]button to select all.
4. Press the [☰] key and tap the [Deselect All] button to deselect all.

NOTE: The selection state of the highlighted entry toggles. The check mark in the first column shows in light grey when an entry is deselected and in dark grey when it is selected.

To view test results in full screen:

✓ The measurement data overview is displayed.

1. Select one or more test results from the list.
2. Press the [☰] key and tap the [View Selected] button.
   The first selected result will be displayed.
3. Press the [☰] key and tap the [Next] or [Previous] button to display other results.

To sort the test results:

✓ The measurement data overview is displayed.

1. Press the [☰] key.
2. Tap the [More] button, then tap the [Sort Order] button.
3. Select the desired sorting order.

To show or hide the overview columns:

✓ The measurement data overview is displayed.

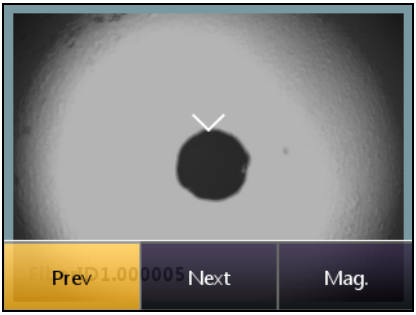
1. Press the [☰] key.
2. Tap the [More] button, then tap the [Show Columns] buttons.
3. Tap any column header to toggle its hide/show status.

To delete stored results from a project:

✓ The measurement data overview is displayed.

1. Select one or more test results.
2. Press the [☰] key.
3. Tap the [Delete Selected] button.
   The selected test results are deleted.

Actions when viewing images



To toggle the image magnification low/high:

▶ Press the [☰] key, then tap the [Mag.] button.
– or –
Tap the image.

To move the image to the area of interest:

▶ Sweep the high magnification image with your finger.
– or –
Press the arrow keys to move the display to the desired direction.

Exporting results to USB

The export function allows to store CSV files and files used exclusively by the Smart Reporter on a USB stick.

To export files:

1. Connect a USB stick to one of the USB ports on the right side of the device.
   The symbol is displayed at the top of the screen.
2. Tap the button.
3. Tap the [Data Storage] button.
4. Tap the [Export Results to USB] button.
   The files are stored in the following directory structure:
   *storage_*<device_type><serial_number>
   <current_date>T<current_time>Z.
   <current_date>T<current_time>Z_<current_date>_001.csv
   default
   <Label>.<Test_No>.<Application>

The CSV file contains the results of a measurement/of various measurements. The application file can be processed by the Smart Reporter.

Making a report

In order to make a report, please download the FiberChekPRO™ or SmartReporter software from the Viavi web site http://updatemyunit.net.

- Connect your instrument to your PC via the USB port and follow the instructions on the screen.

12 MAINTENANCE

⚠ WARNING

Dangerous voltage and invisible laser radiation

Maintenance or cleaning of the instrument while it is connected or operating may damage the instrument or injure you.

- Make sure that the instrument is switched off and disconnected from all power sources and optical radiation sources before maintenance or cleaning.

Cleaning the test port

It is a good idea to check that the optical connections are clean and clean them if necessary before starting measurements. Even very small dust particles on the end surfaces of the plugs or in the test adapters can adversely affect the accuracy of the measurement.

1. Switch off the instrument.
2. The most effective way is to use a specific MPO cleaner (e.g. Senko, SmartCleaner MPO).
3. Another way is to blow out the test adapter with clean compressed air (available in spray cans, e.g. anti-dust spray).

NOTE: Cover the optical connections with the dust cap whenever they are not in use. This prevents them from getting dirty.

Cleaning the instrument

You can clean the instrument by using a soft cloth moistened with a mild solution of detergent.

NOTICE

Water and cleaning fluids

The instrument may be damaged or destroyed if water or cleaning fluids penetrate it.

- Make sure that water or cleaning fluids do not penetrate the instrument.

13 ENVIRONMENTAL COMPLIANCE

This equipment was tested and found to comply with EN61326-1, IEC 61000-4-2, IEC61000-4-3, IEC/CISPR11. The limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

The authority to operate this equipment is conditioned by the requirements that no modifications be made to the equipment unless the changes or modifications are expressly approved by Viavi.

NOTE: To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

NOTE: This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada (IC)

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
1) This device may not cause interference;
2) This device must accept any interference, including interference that may cause undesired operation of the device.

NOTE: Device operation in the band 5150-5250 MHz is for indoor use only.

EU Radio Equipment Directive

In accordance with Article 10.8 of the EU Radio Equipment Directive 2014/53/EU, the following table provides information on the frequency bands and the maximum RF transmit power of this product for sale in the EU:

Frequency range (MHz)	Channels used	Max. Transmit Power (dBm/mW)
2400-2483.5	1-13	ODFM: 19.9 dBm (97.7 mW) CCK: 17.9 dBm (61.7 mW)
5150-5250	36-48	22.9 dBm (195 mW)
5250-5350	52-64	22.9 dBm (195 mW) with TPC[1)] 19.9 dBm (97.7 mW) with TPC
5470-5725	100-140	29.9 dBm (977 mW) with TPC 26.9 dBm (490 mW) non-TPC

1) TPC means Transmit Power Control

KC Marking Directives

Hereby we confirm that the following equipment has been registered and tested under clause 3, Article 58-2 of Radio Wave act of Korea.

Registration Number(s):

R-R-VVS-MPOLx-8x, R-R-VVS-MPOLS-84, R-R-VVS-MPOLS-85

14 REMOTE CONTROL

- Please visit the Viavi web site at http://updatemyunit.net for the latest Remote Command Documentation “SCF RC Docs.exe“ (self extracting zip-file).

15 Ordering Information

MPOLx-84/85 (P) stand alone units

MPOLP-85 Quad Wavelength MPO Optical Power Meter, 850/1300 nm & 1310/1550 nm	BN2329/01
MPOLS-85 Single-mode MPO Optical Light Source, 1310/1550 nm	BN2329/11
MPOLS-84 Multi-mode MPO Optical Light Source, 850/1300 nm	BN2329/14

MPOLP-85P Quad Wavelength MPO Optical Power Meter with PCM, 850/1300 nm & 1310/1550 nm	BN2330/01
MPOLS-85P Single-mode MPO Optical Light Source with PCM, 1310/1550 nm	BN2330/11
MPOLS-84P Multi-mode MPO Optical Light Source with PCM, 850/1300 nm	BN2330/14

Kits

	PCM	P5000i	MPOLP-85	MPOLS-85	MPOLS-84	MPOLP-85P	MPOLS-85P	MPOLS-84P	P5000i	
MPO Single mode Loss Kit	no	no	x	x						BN2329/21
MPO Multimode Loss Kit	no	no	x		x					BN2329/24
MPO Quad Loss Kit	no	no	x	x	x					BN2329/25
MPO Single mode Loss Kit	no	yes	x	x					x	BN2329/31
MPO Multimode Loss Kit	no	yes	x		x				x	BN2329/34
MPO Quad Loss Kit	no	yes	x	x	x				x	BN2329/35
MPO Single mode Loss Kit with PCM	yes	no				x	x			BN2330/21
MPO Multimode Loss Kit with PCM	yes	no				x		x		BN2330/24
MPO Quad Loss Kit with PCM	yes	no				x	x	x		BN2330/25

	PCM	P5000i	MPOLP-85	MPOLS-85	MPOLS-84	MPOLP-85P	MPOLS-85P	MPOLS-84P	P5000i	
MPO Single mode Loss Kit with PCM	yes	yes				x	x		x	BN2330/31
MPO Multimode Loss Kit with PCM	yes	yes				x		x	x	BN2330/34
MPO Quad Loss Kit with PCM	yes	yes				x	x	x	x	BN2330/35

Included items

SmartClass™ Fiber instrument
Soft shoulder case for SmartClass™ Fiber + accessories
Quick Start Manual and Safety Instructions
Eight dry batteries AA size
Additional items in kits:
Cleaning Tool MTP/MPO
Cord kit for testing 12f pinned systems
Soft Shoulder Case for up to 4 SCF Instruments
Rechargeable Battery Pack
PS4 Power Supply
USB Cable
WiFi SW Option
Bluetooth SW Option
USB WiFi and BT Dongles and Card for CERTiFi

Software options

None

Accessories

PS4 Universal AC/DC Power Supply for SmartClass™ Fiber	BN 2305/90.01
RBP2 Li-Ion Battery Pack for SmartClass™ Fiber	BN 2305/90.02
Calibration report	BN 2329/90.03
UC4 hands free carrier for SmartClass™ Fiber	BN 2128/01
UC4P hands free carrier for SmartClass™ Fiber with PCM	BN 2128/02
SCASE2 soft shoulder case for SmartClass™ Fiber	BN 2128/03
USB cable USB-A to Micro USB	K 807
Cord Kit for MPOLx for testing 24f pinned SMF systems	BN2329/90.01
Cord Kit for MPOLx for testing 24f pinned MMF systems	BN2329/90.02

Cord Kit for MPOLx for testing 24f unpinned SMF systems	BN 2329/90.03
Cord Kit for MPOLx for testing 24f unpinned MMF systems	BN 2329/90.04
Cleaning Tool MTP/MPO	ZP-FCL-0271

Digital Probe Microscope

P5000i Digital Probe Microscope with FiberChekPRO software	FBP-P5000I

16 SPECIFICATIONS

General specifications

Fiber inspection	Via P5000i Digital Probe with auto pass/fail analysis
Display	High contrast 3.5" TFT color touchscreen,
Display resolution	320 x 240 pixels (QVGA)
Measurement units	dB, dBm
Data memory	Measurement result memory: 300 MB
Data readout	Via client USB interface or Ethernet
Remote control capability	Via USB
Electrical interfaces	2 USB Type A, 1 USB Micro-B, RJ-45 (Ethernet)
Power supply	Four-way power: NiMH, dry batteries, RBP2 Li-Ion Battery Pack, PS4 Universal AC/DC Power Supply 12 V Internal charging for RBP2 Li-Ion Battery Pack
Optical interface	MPO-12 interface pinned. Compatible with 50/125 µm/PC multi-mode MPO-12, 9/125 µm/APC single-mode MPO-12. MTP adapter with shutter
Recommended recalibration interval	3 years
Size (H x W x D)	MPOLx-84/85 (P): 208 x 112 x 64 mm (8.2 x 4.4 x 2.5 in) MPOLx-85P: 208 x 153 x 64 mm (8.2 x 6.0 x 2.5 in)
Weight	MPOLx-84/85 (P): 750 g MPOLx-85P: 850 g
Temperature range	Operating: +5 °C to +45 °C (41 °F to 113 °F) Storage: -25 °C to +55 °C (-13 °F to 131 °F)

Loss/Length

Test wavelength	Multi-mode: 850/1300 nm Single-mode: 1310/1550 nm
Output power	Multi-mode: -25 to -18 dBm Single-mode: -5 to +2 dBm
Testing time for 12 channels	6 s max.
Loss measurement range	Multi-mode: 0 to 25 dB Single-mode: 0 to 45 dB
Loss measurement accuracy[1)]	±0.15 dB
Loss measurement resolution	0.01 dB
Length measurement range	Multi-mode: 0 to 1000 m Single-mode: 0 to 10 000 m
Length measurement accuracy[2)]	±1.5 m ±1% of length
Length measurement resolution	0.1 m

1) Excluded fiber connector uncertainties
2) Provided that loss of fiber is below 10 dB

Power Meter

	Multi-mode	Single-mode
Selectable wavelengths	850 nm, 1300 nm	1310 nm, 1550 nm
Calibrated wavelengths		
Photo diode	Ge	
Display (Power measurement) range	-50 dBm to +3 dBm	
Display Resolution	0.01 dB	
Maximum permitted input power level	+3 dBm	
Fiber types	50 / 125 µm	9 / 125 µm
Intrinsic uncertainty[1) 2)]	±0.15 dB	
Overall measurement uncertainty[2) 3)](at calibrated wavelengths (+5 °C to +45 °C))	±0.7 dB ±1 nW	±0.6 dB ±1 nW

1) Valid at reference conditions (-22 dBm, 23 °C ±3 K)
2) After a 20 minutes warm-up
3) Excluding connector uncertainty

Detector type	InGaAs
Linearity	±0.15 dB
Wavelength range	850 nm to1550 nm
Measurement units	dB, dBm
Power meter functions	Abs, rel, pass/fail
Warm up time	20 min.

Light Source

	Multi-mode	Single-mode
Optical interface / adapter	MTP-PC	MTP-APC
Source type	LED source	Fabry-Perot laser diode
Wavelengths	850 / 1300 nm[1)]	1310 / 1550 nm[1)]
Spectral width (FWHM)	< 50 nm (850 nm) / < 170 nm (1300 nm)	< 5 / < 5 nm
Spectral width (RMS)	22 / 60 nm	< 5 / < 5 nm
Output power (typical)	-26 dBm	-6 dBm
Launch condition	Encircled Flux compliant to TIA-526-14 and IEC 61280-4-1 [2)]	
Source mode	CW	
Stability 15 min [3) 4)]	±0.05 dB	
Stability 8 h [3) 4)]	±0.25 dB	
Laser safety	IEC 60825-1:2009	
Laser classification	CLASS 1 LASER PRODUCT	

1) Typically +/- 20 nm
2) At the output of the frontend connector. Variations between EF measurement equipment may occur but EF compliance can be expected with a 95 % confidence factor.
Valid for IEC 61280-4-1 at 850 nm.
3) Single channel, between +5 °C to +45 °C with ΔT = ±0.3 K after a 20 minutes warm-up
4) In AC operating mode without rechargeable battery, or rechargeable battery only.

Patch cord microscope

Optical interface	FMAE MPO (many other adapters available)
Auto pass/fail analysis standards	IEC 61300-3-35 and custom limits
Live image	320 x 240 x 8 bit grey, 10 fps
Light source	Blue LED, 100.000+ hours life
Lighting technique	Coaxial
Magnification field-of-view low/high	Horizontal: 740/370 µm Vertical: 550/275 µm
External USB connected P5000i Digital Probe supported.	

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18 PRODUCT REGULATORY COMPLIANCE

Viavi Environmental Management Program

Superb performance and high quality have always characterized Viavi datacom and telecom measurement technology products. In this same world-class tradition, Viavi has an established, proactive program of environmental management.

Environmental management is an integral part of Viavi's business philosophy and strategy requiring the development of long-term, productive solutions to problems in the key areas of economics, technology, and ecology.

A systematic environmental management program at Viavi is essential in regard to environmental policy and enhances cooperation between ourselves and our business partners.

The Viavi Environmental Management Program considers:

Product design and manufacture

Environmental restrictions and requirements are taken into account during planning and manufacture of Viavi products. This attention ranges from the raw materials and finished components selected for use and the manufacturing processes employed, through to the use of energy in the factory, and right on up to the final stages in the life of a product, including dismantling.

Hazardous materials

Viavi avoids or uses with care any hazardous or dangerous material in the manufacturing process or the end product. If the use of a dangerous material cannot be avoided, it is identified in product documentation and clearly labeled on the product itself.

Packaging materials

Preference is given to reusable or biodegradable single-substance packaging materials whenever possible.

Environmental management partnerships

Viavi encourages our customers and suppliers who take this responsibility seriously to join Viavi in establishing their own environmental management programs.

EU WEEE and Battery Directives

This product, and the batteries used to power the product, should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations..

Viavi has established a take-back process in compliance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive, 2012/19/EU, and the EU Battery Directive, 2006/66/EC.

Instructions for returning waste equipment and batteries to JDSU can be found in the WEEE section of **Viavi's Standards and Policies web page** (https://www.viavisolutions.com/en-us/corporate/legal/policies-standards#sustain).

If you have questions concerning disposal of your equipment or batteries, contact JDSU's WEEE Program Management team at WEEE.EMEA@ViaviSolutions.com.

EU REACH

Article 33 of EU REACH regulation (EC) No 1907/2006 requires article suppliers to provide information if a listed Substances of Very High Concern (SVHC) is present in an article above a certain threshold.

For information on the presence of REACH SVHCs in Viavi products, see the Hazardous Substance Control section of **Viavi's Standards and Policies web page**.

EU CE Marking Directives (LV, EMC, RoHS, RE)

This product conforms with all applicable CE marking directives. Please see EU Declaration of Conformity for details.

California Proposition 65

California Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted in November 1986 with the aim of protecting individuals in the state of California and the state's drinking water and environment from excessive exposure to chemicals known to the state to cause cancer, birth defects or other reproductive harm.

For the Viavi position statement on the use of Proposition 65 chemicals in Viavi products, see the Hazardous Substance Control section of **Viavi's Standards and Policies web page**.

RoHS

"中国RoHS"

《电子信息产品污染控制管理办法》（信息产业部，第39号）
附录

本附录按照"中国RoHS"的要求说明了有关电子信息产品环保使用期限的情况，并列出了产品中含有的有毒、有害物质的种类和所在部件。本附录适用于产品主体和所有配件。

环保使用期限：

本标识标注于产品主体之上，表明该产品或其配件含有有毒、有害物质（详情见下表）。

其中的数字代表在正常操作条件下至少在产品生产日期之后数年内该产品或其配件内含有的有毒、有害物质不会变异或泄漏。该期限不适用于诸如电池等易耗品。

有关正常操作条件，请参见产品用户手册。

产品生产日期请参见产品的原始校准证书。

有毒、有害物质的类型和所在部件

元器件 (Component)	有毒、有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
产品主体 (Main Product)						
印刷电路板组件 (PCB Assemblies)	X	O	O	O	O	O
内部配线 (Internal wiring)	O	O	O	O	O	O
显示器 (Display)	O	O	O	O	O	O
键盘 (Keyboard)	O	O	O	O	O	O
塑料外壳零件 (Plastic case parts)	O	O	O	O	O	O
配件 (Accessories)	O	O	O	O	O	O

O：代表该部分中所有均质材料含有的该有毒、有害物质含量低于SJ/T11363-2006标准的限值。
X：代表该部分中所有均质材料含有的该有毒、有害物质含量高于SJ/T11363-2006标准的限值。

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Viavi product specifications and descriptions in this document are subject to change without notice.
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