



# **OLP-88/OLP-88P**

## **SmartClass™ Fiber True PON Tester**

**Operating manual**

BN 2327/98.21

2019.06

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](http://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](http://www.viavisolutions.com/en-us/products/network-test-and-certification)

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## **Notes:**

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

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# 1 INTRODUCTION

## OLP-88/OLP-88P TruePON Testers

This manual applies to the models BN 2327/36 and BN 2328/36. The SmartClass™ Fiber OLP-88/OLP-88P/88P TruePON Tester is the first compact handheld test instrument that combines

- a professional PON power meter for qualification, activation, and troubleshooting passive optical networks,
- with automatic pass/fail analysis,
- fiber end face inspection,
- ONU/ONT serial number identification,
- and optional detection of rogue ONUs or ONTs.

The OLP-88/OLP-88P instruments blend a high-performance  $\lambda$ -selective FTTx/PON power meter for B-PON, E-PON, G-PON and automated fiber inspection and test capabilities.

Thanks to the automatic ODN budget class detection, it provides an immediate pass/fail indication and enables to check if the network and customer ONUs/ONTs meet expected specifications at the 1310 nm, 1490 nm, and 1550 nm PON power levels.

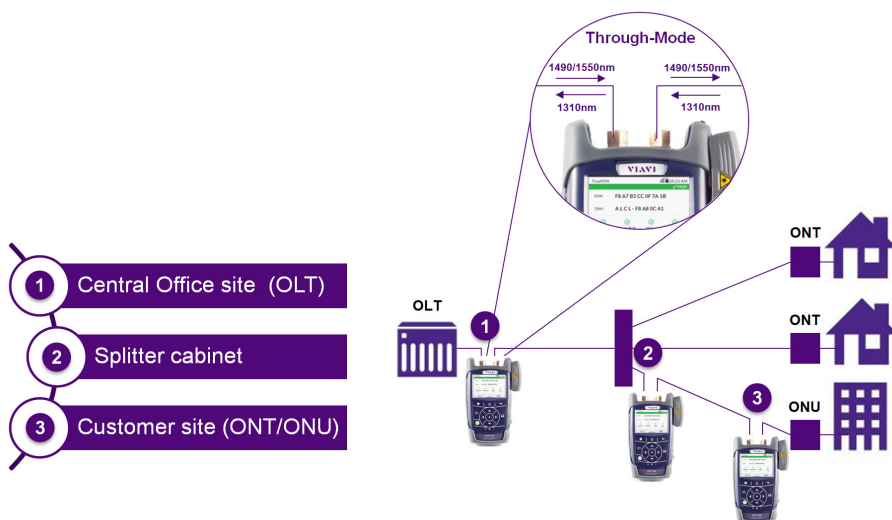


Fig. 1 Performing a measurement in a PON network

An integrated pass/fail analysis feature simplifies standard conformity testing and provides unambiguous measurement result presentation.

For all G-PON systems the ONU/ONT serial number is automatically provided. G-PON systems carrying PON-ID<sup>1</sup>, the OLP-88/OLP-88P/-88P performs insertion loss measurements without referencing, auto setting of pass/fail thresholds based on ODN budget class, and identification of OLT.

Battery operation from AA dry cells or from a rechargeable Li-Ion Battery Pack ensure long operating time in the field and a robust, shock-proof design makes the SmartClass™ Fiber OLP-88/OLP-88P/88P instruments the perfect choice for FTTx/PON testing, even under tough conditions.

Operation from an AC/DC power supply and remote control capabilities via USB 2.0 and Ethernet make the SmartClass™ Fiber OLP-88/OLP-88P/88P instruments even a perfect solution for fixed installations in central offices, in production environments, and on the laboratory workbench.

## Common features

All OLP-88/OLP-88P series PONmeters can connect to single mode fibers (9/125 μm).

Tests on systems from different manufacturers with different connector types are easy to handle due to the interchangeable adapter system.

## Connector type

The connection is made with a contact type connector. Make sure that the connectors used are designated .../APC.

## Selective power measurements

All OLP-88/OLP-88P instruments feature a ports to which PON downstream and upstream links (from OLT, Optical Line Termination and ONT, Optical Network Termination) can be connected. The signals at wavelengths 1310 nm, 1490 nm, and 1550 nm are filtered and measured separately. These power meter ports are calibrated at the respective center wavelength.

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1 PON-ID is G-PON system specific information standardized by ITU-T G.984.3 Amendment 3

## Through path

The through path links the ONT upstream (1310 nm) and OLT downstream (1490 nm and 1550 nm) signals. Thanks to the low insertion loss the OLP-88/OLP-88P can be inserted into the PON network transparently.

## Burst power measurements at 1310 nm

The OLP-88/OLP-88P can also be used to measure burst type signals as found in PON uplink paths at 1310 nm. The average burst power is displayed independently from the burst duty cycle (active/idle). This power meter port is calibrated at the respective center wavelength.

## Differences between the Viavi instruments

		OLP-37	OLP-87	OLP-88/ OLP-88P
<b>Supported services</b>	B-PON, G-PON, E-PON	X	X	X
	XG-PON test capability	–	Special version	–
	CATV Video test capability	X	X	X
	RFoG test capability	X	X	–
	Upstream 1310nm test capability (through mode)	–	X	X
<b>Functions</b>	Broadband power meter	–	X	–
	ONU/ONT identification	–	–	X
	ODN budget class detection and auto threshold setting	–	–	X
	In-service loss-test with auto pass/fail analysis	–	–	X
	OLT identification	–	–	X
	Alien/rogue ONU/ONT detection	–	–	X
<b>Fiber inspection</b>		–	Option	Option

## Operating manual update

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Continuing enhancement and further development of the SmartClass™ Fiber family may mean that this operating manual does not cover all the latest functions of your instrument.

If the operating instructions about features provided 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://updatemyunit.net>.
2. Select your SmartClass™ Fiber model from the product line.
3. Open the download area and download the latest user manual.



## Symbols used in this operating manual

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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 or destruction to 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.

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#### 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**.

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#### 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:

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

## 2 SAFETY INFORMATION

### Warning symbols on the unit

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#### 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

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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

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### **WARNING**

#### **Dangerous laser radiation**

**Laser radiation can cause irreparable damage to eyes and skin.**

The maximum permitted power for the OLP-88/OLP-88P means that the optical input signals can reach hazard level. Bear this in mind when using the OLP-88/OLP-88P. In particular, the instrument is equipped with a through channel that transmits all the optical radiation from the input to the output without attenuation, even when the OLP-88/OLP-88P is switched off.

- ▶ Please note that also in broadband mode light is emitted at the unconnected port.
  - ▶ Always be aware of the hazard level of the instrument to be connected.
  - ▶ Connect all optical fibers before switching on the radiation source.
  - ▶ Switch off the laser source before disconnecting the optical fibers.
  - ▶ Never look directly into the unconnected port of the instrument, the output of a laser source, or an optical fiber connected to a source or a system.
  - ▶ Always cover unused ports.
  - ▶ Be aware that the emitted light is not visible.
  - ▶ Heed the normal precautions for working with laser radiation and consider local regulations.
-

## Battery operation

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### **⚠ 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

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### **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

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### **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. For more information see ["Included items" on page 73](#).

### 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](http://www.viavisolutions.com).

### Recovery following storage/shipping

Condensation can occur if a 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 ["General specifications" on page 71](#)).

## Instrument overview



Fig. 2 Front view OLP-88 and OLP-88P

- |   |  |
|---|--|
| 1 | Patch cord microscope (PCM) with FMAE adapter                                    |
| 2 | PCM controls: focus control, automated Pass/Fail analysis, magnification control |
| 3 | Optical test ports with interchangeable test adapters                            |
| 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)                            |



### Connector panel



Fig. 3 Connector panel

- |   |   |
|---|---|
| 1 | Optical test port 1: Downstream<br>Connection to OLT facing side of the PON   |
| 2 | Optical test port 2: Upstream<br>Connection to ONU/ONT facing side of the PON |

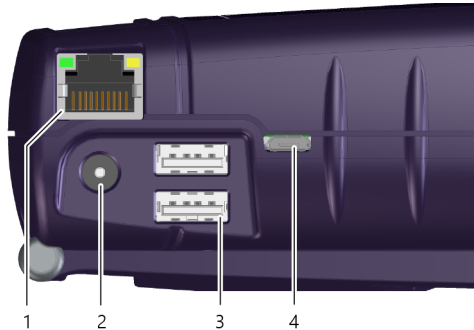


Fig. 4 External power supply connector and communication interfaces

- |   |  |
|---|--|
| 1 | Ethernet port (RJ-45)                  |
| 2 | External power supply connector (12 V) |
| 3 | USB 2.0 host port (Type A)             |
| 4 | USB 2.0 device port (Type Micro-B)     |

## Power supply

The following power sources can be used to operate the OLP-88/OLP-88P:

- 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
- RBP2 Lilon Battery Pack

**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 13](#).

#### 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. 5 Replacing the batteries

- |   |                         |
|---|-------------------------|
| 1 | RBP2 Lilon 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 Lilon 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 Lilon Battery Pack is recharged when the PS4 Universal AC/DC Power Supply is being used to power the instrument. The instrument switches to trickle charging automatically as soon as the RBP2 Lilon 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.  
It is not possible to charge the rechargeable AA batteries or the RBP2 Lilon Battery Pack via the USB interface.

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

### 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 in 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 from AC power

**NOTE:** Only the PS4 Universal AC/DC Power Supply may be used to operate the OLP-88/OLP-88P from 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.*

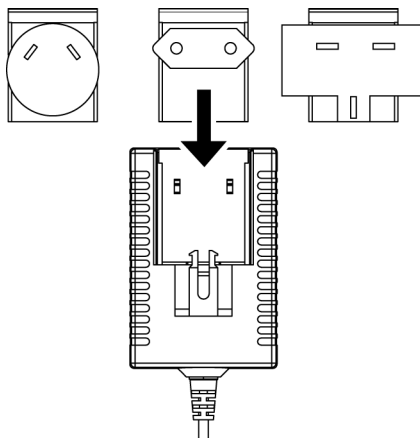


Fig. 6 PS4 Universal AC/DC Power Supply

**To change the AC line plug adapter:**

1. Squeeze both sides of the PS4 latch lock (see Fig. 6).
2. Push the AC line plug adapter upwards.
3. Slide a different AC line plug adapter into the slot (see Fig. 7).

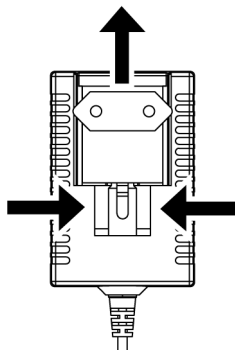


Fig. 7 PS4: Changing the AC line plug adapter

**To operate the OLP-88/OLP-88P from AC power:**

1. Connect the PS4 DC power cord to the OLP-88/OLP-88P external power supply connector.  
(The connector is under the cover on the right side.)
2. Plug the PS4 into the AC line socket.  
*The OLP-88/OLP-88P switches on automatically when powered from the PS4.*

**NOTE:** The PS4 provides power even if dry or rechargeable batteries are inserted in the instrument.  
The OLP-88/OLP-88P cannot be powered via the USB interface.

## Connecting optical cables

---

### Mounting test adapters

Viavi provides a number of test adapters for connecting the OLP-88/OLP-88P to the interface to be tested.

You can connect all standard optical connector types to the instrument using these adapters. The test adapters are suitable for connectors with angled end surfaces (APC).

Contact your local Viavi sales company for available adapter types.

The OLP-88/OLP-88P connector type must match the cable connector type:

- APC: BN 2327/36, BN 2327/36

The PC/APC versions are easily identified by the colors of the name labels on the front:

- PC = blue
- APC = green

### To mount the SENKO test adapter:

- ✓ The optical connectors are properly cleaned (see ["Cleaning the test port" on page 66](#)).
- 1. Open the head cover and remove the protective cap (if still mounted).
- 2. Unscrew the SENKO test adapter and pull it off vertically.
- 3. Place the SENKO test adapter vertically on the optical connector.
- 4. Fix the SENKO test adapter with two screws.
- 5. Repeat the procedure if the instrument is fitted with two ports.
- 6. Fit the fiber optic cable to the test adapter or close the head cover.

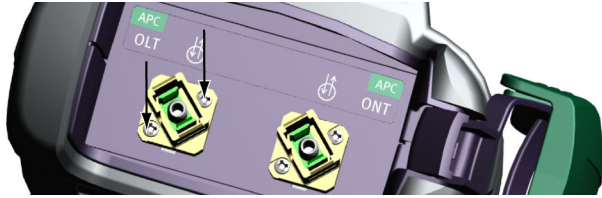


Fig. 8 Mounting the SENKO test adapter



## 4 BASIC OPERATION

### Switching the instrument on/off











#### To switch the instrument on:

- Press the **[ON]** key to switch on the instrument.

#### To switch the instrument off:

- Press the **[ON]** key to shift the instrument into hibernate mode.  
– or –
- 1. Hold the **[ON]** 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: <ul style="list-style-type: none"> <li>• navigate through the menus</li> <li>• change values in the menus</li> </ul> Press the central key to: <ul style="list-style-type: none"> <li>• confirm the selection</li> </ul>
	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

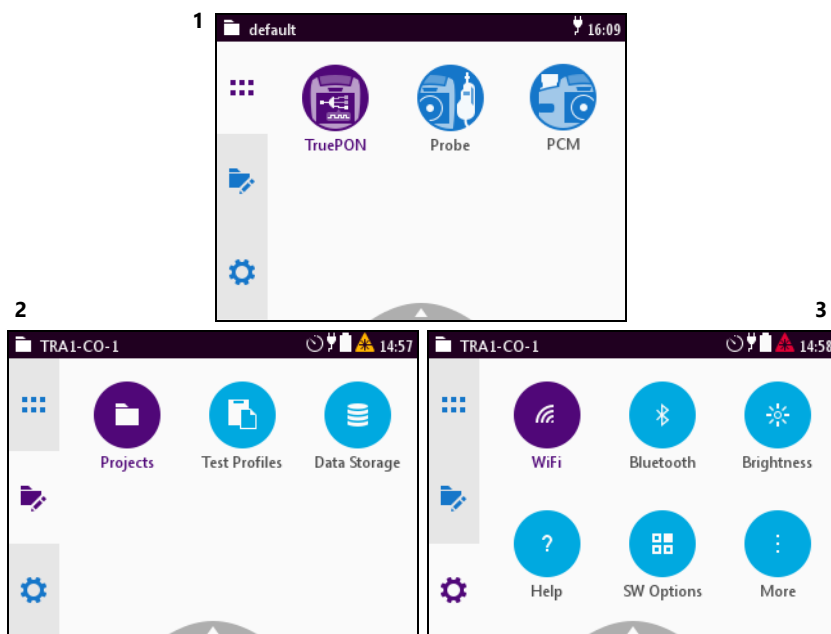





Fig. 9 Home screens: Test applications (screen shows PCM version) (1), Management (2), Settings (3)

	Menu	See page
	<b>Test applications</b> In this menu you can open test applications.	27
	<b>Management</b> In this menu you can: <ul style="list-style-type: none"> <li>• manage projects</li> <li>• define a test profile (not supported yet)</li> <li>• get access to stored data</li> </ul>	37 and 58
	<b>Settings</b> In this menu you can: <ul style="list-style-type: none"> <li>• manage WIFI and Bluetooth settings</li> <li>• change instrument settings</li> <li>• open the help</li> <li>• display instrument information</li> <li>• manage software options</li> </ul>	30

## Test applications

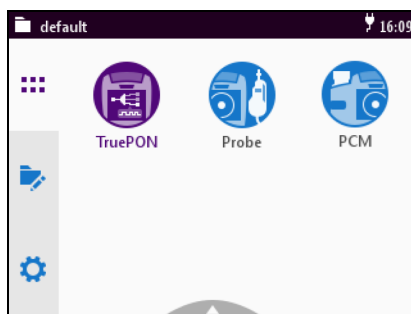
















Fig. 10 Test applications (screen shows PCM version)



	Application	See page
	<b>TruePON</b> To measure power level, identify ONT/OLT/ONUs, detect rogue ONU/ONTs and determine the total amount of loss of a fiber link.	40
	<b>Probe</b> To view and inspect the bulkhead (female) connectors.	48
	<b>PCM (Patch Cord Microscope) (only BN 2326)</b> To view and inspect the patch cord connector of the fiber.	48

### Elements in the top bar

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

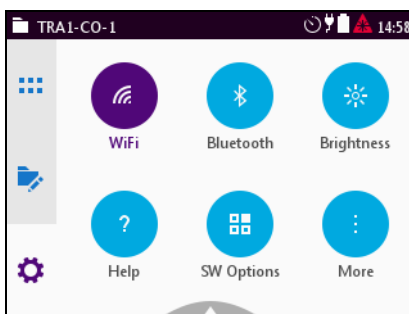
In the **Settings** menu you can change instrument settings, get information and help about the instrument, or update the firmware.

### To open the Settings menu:

✓ The home screen is displayed.

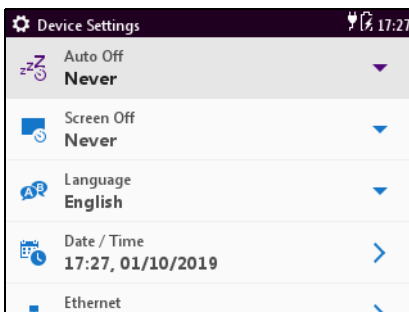
1. Select the  tab.

*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
	<b>WiFi</b> To configure the wireless local area network. The last selected item is displayed in magenta.	34
	<b>Bluetooth</b> To configure the Bluetooth interface.	34
	<b>Brightness</b> To adjust the display brightness.	31
	<b>Help</b> To show device information	31
	<b>SW Options</b> To check and install software options.	Not yet available, 34
	<b>More</b> To access further instrument settings. See following sections.	31

## 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 [Factory Reset].
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 PointTap [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/offTap [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 [Software 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.

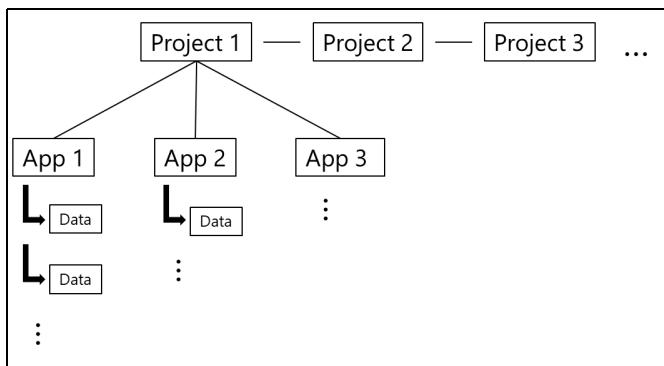



Fig. 11 Project assignments

### Creating a new project

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

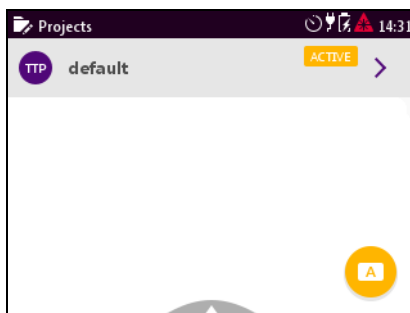
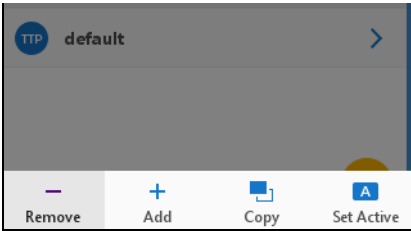


Fig. 12 Projects list with default project.

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 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 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 project

---

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

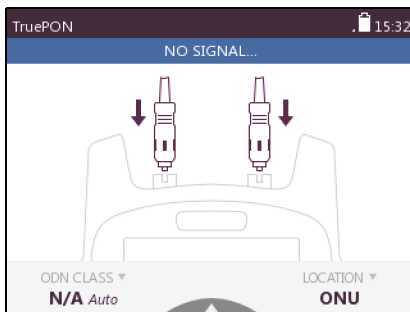
1. Select the project you wish to activate.
2. Tap the  button.  
– or –  
Press the  key and tap **[Set Active]**.  
*Allow a few seconds until the label **ACTIVE** is displayed at the selected project.*

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

## 6 TRUEPON OPERATION

### Preparing the TruePON measurement

- ✓ The homescreen is displayed.
- 1. Tap the [TruePON] button.  
*A message is displayed that no signal is detected.*



- 2. Connect the OLT and ONU/ONT fiber with the particular test port.
- 3. Tap the [ODN CLASS] button.
- 4. To automatically set the ODN budget class, select the **Auto**<sup>1</sup> button.  
– or –  
Select one of the predefined ODN budget classes **B**, **B+**, **C**, or **C+** according to ITU-T G.984.3.  
– or –  
Select the customizable ODN budget class **User**.
- 5. Tap the [LOCATION] button.
- 6. To specify the test location (central office, costumer site, or splitter cabinet), select **OLT**, **ONU/ONT**, or a self-defined location.

<sup>1</sup> Automatic ODN budget class detection requires PON-ID option and PON-ID messages according to ITU-T G.984.3 Amendment 3



## General view of the TruePON application

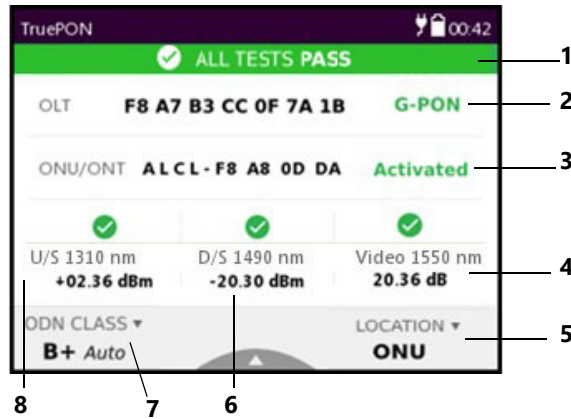


Fig. 13 General view of the TruePON application

- |   |   |
|---|---|
| 1 | Pass/fail summary                                   |
| 2 | PON-ID from OLT                                     |
| 3 | ONU/ONT serial number or Alien/Rogue ONT indication |
| 4 | Pass/fail indicator of RF video signal              |
| 5 | Currently selected test location                    |
| 6 | Pass/fail indicator of G-PON downstream signal      |
| 7 | Currently selected ODN budget class                 |
| 8 | Pass/fail indicator of G-PON upstream signal        |

## G-PON network service activation

### To verify the correct fiber connection (Fig. 13-2 – optional):

An incorrect or no labeling of fiber cables in splitter cabinets can lead to wrong ONT/customer connection.

- ✓ The OLP-88/OLP-88P is connected with the PON network ([“Preparing the TruePON measurement” on page 40](#)).  
*At any network location the OLT ID is displayed.*
- Ensure that the right fiber cable is connected to the right ONT.

**To reduce workflow complexity and test the service-activation (Fig. 13-3):**

Since the service-activation phase is often performed by subcontractors, they must provide test reports for each turn-up. To control the service-activation reports, connect your OLP-88/ OLP-88P.

- ✓ The OLP-88/OLP-88P is connected with the PON network ([“Preparing the TruePON measurement” on page 40](#)).

*The ONU/ONT serial number to customer service contract is displayed.*

**To perform a facilitates service recovery (Fig. 13-3):**

To easily identify and localize a rogue ONU that degrades or disables the service of other customers, connect your OLP-88/ OLP-88P.

- ✓ The OLP-88/OLP-88P is connected with the PON network ([“Preparing the TruePON measurement” on page 40](#)).

*The presence of a rogue/alien ONU/ONT is detected and a message is displayed that the ONU is not compliant.*

- ▶ To facilitates service recovery, isolate the faulty ONU/ONT and replacing it in time.

**To perform the automatic certification (Fig. 13-6, -7, -9):**

To perform a power-level verification at a customer ONT, connect the OLP-88/OLP-88P to certify the service specifications.

- ✓ The OLP-88/OLP-88P is connected with the PON network ([“Preparing the TruePON measurement” on page 40](#)).

*Pass or fail information for downstream and upstream PON power level measurements (1310/1490 nm and 1550 nm) is displayed.*

*With the PON-ID the pass/fail thresholds of the G-PON system is automatically set.*

**To perform a fiber plant qualification (Fig. 13-4):**

During the construction phase, the fiber plant is qualified: end-to-end loss testing ensures that the fiber link complies with the loss budget. To control the qualification several years later, connect your OLP-88/OLP-88P.

- ✓ The OLP-88/OLP-88P is connected with the PON network ([“Preparing the TruePON measurement” on page 40](#)).

*A real time in-service end-to-end loss measurement is performed and the pass or fail information is displayed.*

## Detail views of the TruePON application

- To show detailed **GTC Layer**<sup>1</sup> results, tap the [PON] button.  
– or –  
Tap the [ONU/ONT] button.  
*The following detailed view is displayed.*

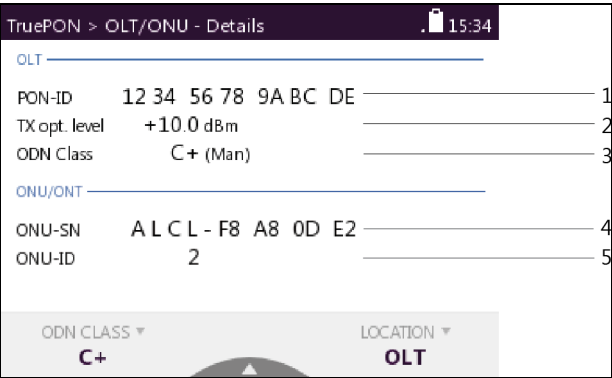


Fig. 14 GTC layer detail view

### OLT data

- 1 PON-ID
- 2 Transmit Optical Level (TOL)
- 3 ODN budget class

### ONU/ONT data

- 4 ONU/ONT serial number
- 5 ONU/ONT ID

- To show detailed **PMD Layer**<sup>2</sup> results for the different wavelengths, tap on [GPON U/S], [GPON D/S], [Video], [ODN Loss] displayed on the screen.  
*A detailed view is displayed.*

1 G-PON Transmission Convergence Layer  
2 Physical Media Dependent Layer



Fig. 15 PMD layer detail view

1	Wavelength
2	Measured power
3	Margin
4	Automatically detected or manually selected ODN budget class
5	Upper threshold
6	Lower threshold

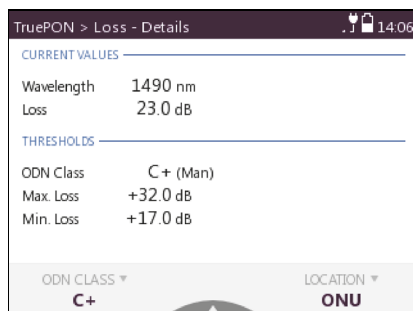


Fig. 16 ODN insertion loss detail view

## Edit the location/threshold settings

---

- ✓ The homescreen is displayed.
- 1. Tap the [TruePON] button.
- 2. Press the [≡] key.
- 3. Tap the [More] button.
- 4. Tap the [LOCATIONS/THRESHOLDS] button.
- 5. Tap the desired test setup, press the [≡] key, and tap the [EDIT] button.
  - or –
  - To copy an existing setup, press the [≡] key, and tap the [COPY] button.
  - or –
  - To create a new setup, press the [≡] key, and tap the [ADD] button.*The desired setup is selected.*
- 6. Adjust the setup settings:
  - Description
  - Thresholds: B, B+, C, C+, USER

## Enabling the pass/fail evaluation

---

- ✓ The homescreen is displayed.
- 1. Tap the [TruePON] button.
- 2. Press the [≡] key.
- 3. Tap the [More] button.
- 4. Tap the [PASS/FAIL SETTINGS] button.
- 5. To enable or disable the pass/fail evaluations, tap on the desired button.

## Changing the serial number format

---

- ✓ The homescreen is displayed.
- 1. Tap the [TruePON] button.
- 2. Press the [≡] key.
- 3. Tap the [More] button.
- 4. Tap the [ONU/ONT SER. NUMB. FORMAT] button.
- 5. To select an ONU/ONT serial number format, tap on the desired button.

## Saving TruePON 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 37).

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

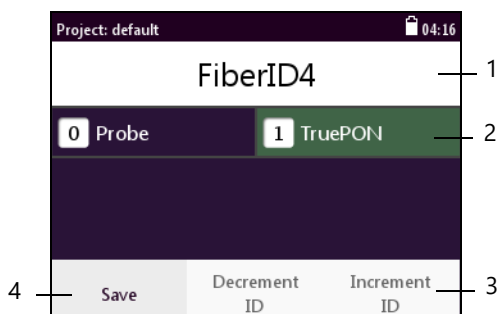
### To save current results:

- ✓ The instrument is in application mode and displays the test results (overview or details) to be stored.

1. Press the **[F]** key.

*The Save dialog is displayed.*

*As file name the label prefix defined in the project settings is showed on top of the display.*



- 1 Defined label name.
  - Tap field to edit label name.
- 2
  - Probe: Number of already saved probe results.
  - PCM: Number of already saved PCM results.
  - True PON: Number of already saved true pon results.
- 3 Decrease / increase label ID
- 4 Save results

2. To edit the label name, tap the field, edit the name and tap **[OK]**.
3. To change the ID, tap **[Decrement ID]** or **[Increment ID]**.
4. Press the **[F]** key again or tap the **[Save]** button.
 

*The measurement is stored in the current active project.*

- 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.

# 7

## 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 endface quality and cleanliness.

For best workflow efficiency, there are two variants of fiber microscopes available in the SmartClass™ Fiber family. The integrated Patch Cord Microscope (PCM), which is best suited for inspecting fiber endfaces of patch cords, and the external P5000i Digital Probe (see [“Accessories” on page 73](#)), which may be used either for bulkhead inspection or patch cord inspection. The shortest inspection time is achieved when using one of the OLP-88/OLP-88PP 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 is the Probe application fully functional. Select an OLP-88/OLP-88PP version in order to get PCM functionality.

### 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 for high level inspection of the fiber endface, and high magnification for detailed inspection of the fiber endface.





Fig. 17 Patch cord microscope components

- |   |                           |
|---|---------------------------|
| 1 | FMAE adapter              |
| 2 | QuickCapture™ key         |
| 3 | Focus Control             |
| 4 | Magnification Control key |

## FMAE series adapters for the PCM

SmartClass™ Fiber devices with the PCM use FMAE 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.

## Features available with the 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 for high level inspection of the fiber endface and high magnification for detailed inspection of the fiber endface.

The P5000i Digital Probe kit sold with the OLP-88/OLP-88P contains the standard barrel assembly (FBPP-BAP1), standard patch cord tips, and standard bulkhead tips. See ["Accessories" on page 73](#).



Fig. 18 P5000i Digital Probe components

1	Inspection tip
2	Barrel assembly
3	QuickCapture™ key
4	Focus Control
5	Magnification Control key
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.

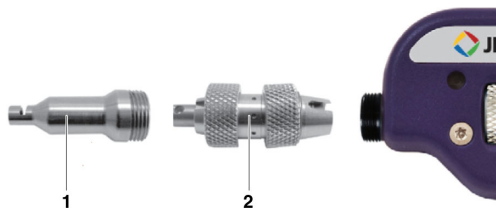


Fig. 19 FBPT series tips for the P5000i

- |   |                 |
|---|-----------------|
| 1 | Inspection tip  |
| 2 | Barrel assembly |

## P5000i connection

The Probe application requires a P5000i Digital Probe in order to be fully functional (see the list of all accessories in [“Accessories” on page 73](#)).

1. Plug your P5000i into a USB port.
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.  
*The P5000i will display the live view.*

## 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:

- |               |   |
|---------------|---|
| <b>Test</b>   | Pressing the key will automatically freeze the live image and perform a test. |
| <b>Freeze</b> | Pressing the key will automatically freeze the live image.                    |

## Camera mode

Set the QuickCapture™ key on the Digital Probe to get a live picture of the result.

**NOTE:** Use the Focus Control key to adjust the focus of the image.

- ✓ The Digital Probe is connected to the instrument.

- To display the live view, tap the [Probe] button.

## File toolbar

---

### Saving a picture

It is possible to save the frozen picture from the Digital Probe.

1. Press the [F] key.
2. Edit the file name.
3. Tap the [OK] button.  
*File is saved in the preselected group.*

## Configuring the Digital Probe

---

1. Tap the [Probe] button.
2. Press the [≡] key to configure the Digital Probe according to the following description.

### Brightness settings

1. Set the luminosity manually using the arrow keys.
  - or –
  - Tap the key [≡] > [Brightness] to tune the luminosity to the desired value.
2. Tap the [OK] button.
  - or –
  - To confirm, press the center key within the arrow keys.

## Test mode

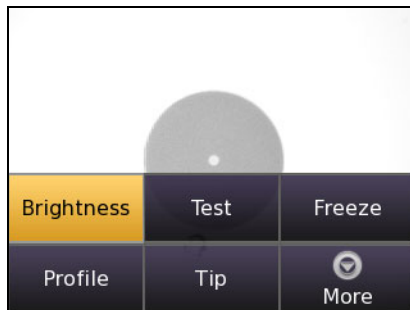
### Launching a test of the connector and fiber end-face

See “Freeze mode” on page 55 for more information on commands available.

**To launch the test with the predefined profile (see “Profile” on page 55):**

1. With the P5000i Digital Probe, use the Focus Control key (see Fig. 18) to adjust the image quality and sharpness.

2. Press the **[≡]** key and tap the **[Test]** button.



– or –

Press the QuickCapture™ key on the Digital Probe if the button action is set to **Test**.

*When the test procedure terminates, the information shown on the display depends on the current overlay setting:*

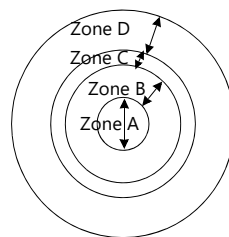
- Press the **[≡]** key and then the **[Overlay]** button to change the overlay view. Repeat the action until the desired view appears.

*Three views can be displayed: without overlay, with colored edges, and colored edges with a legend.*

## Overlay

A summary of test results is displayed at the upper right of the screen.

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



**NOTE:** To return to a Live image, press the QuickCapture™ key or press the **[≡]** key and tap the **[Live]** button to view both the live image and a test result simultaneously.  
If the test has been passed, the image has a green colored frame.  
If failed, the frame is red.

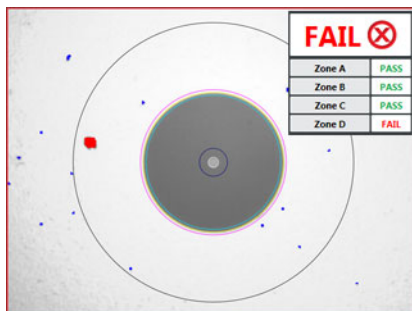


Fig. 20 Pass/Fail analysis – overlay view

### Magnification Control

The Magnification Control allows you to modify the live display from high to low magnification and vice-versa. In the high magnification mode, automatic centering is available.

#### Picture selected: Live

**Test** Allows you to launch a (new) test of the connector (see [“Launching a test of the connector and fiber end-face”](#) on page 52)

**Freeze** Allows you to freeze the live image and to save it later on the disk. Once this key is pressed, the freeze image is automatically set to position 2.

#### Picture selected: Test

Save allows you to save the selected picture in the currently selected group in the disk of the instrument. Press the **[F]** key, enter a name for the JPG file, and validate.

Overlay allows you to display or hide the limits of each zone and the defaults on an image from a test result.

Magnification Control allows you to switch all the images from Digital Probe test results from high to low magnification and vice-versa.

### Saving the test result in a JPG file

Once the test has been performed and the result is displayed on the OLP-88/OLP-88P screen:

1. Press the **[F]** key to save a JPG file of the test result in the currently active group on the OLP-88/OLP-88P.
2. On the edition keypad, enter the name of the JPG file.
3. Press Enter to validate and save the document.

*The file is saved in the current active group directory on the OLP-88/OLP-88P.*

## Freeze mode

Once the image is acceptable (sharpness, luminosity are tuned correctly), you may freeze the picture. This feature allows you to store the resulting picture in order to compare it later to others or save it in a file. In Freeze mode, the picture has a blue colored frame.

**NOTE:** Freezing a result does not store the picture in a file (see [“Saving a picture” on page 52](#)). The result will be lost if the instrument is shut off.

Depending on the QuickCapture™ key setting, this key allows you to freeze the picture or to start a test.

## Profile


1. Press the [≡] key.
2. Tap the [Profile] button.
3. Tap the Profile which will be used for the test of the fiber connector:
  - **E2000:** Pass/Fail criteria for precision metal ferrule connectors.
  - **Ribbon:** Pass/Fail criteria for single-mode and multi-mode connectors from IEC 61300-3-35 standard.
  - **SM-UPC:** Pass/Fail criteria for single-mode UPC connectors from IEC 61300-3-35 standard.
  - **SM-APC:** Pass/Fail criteria for single-mode APC connectors from IEC 61300-3-35 standard.
  - **SM\_PC:** Pass/Fail criteria for single-mode PC connectors from IEC 61300-3-35 standard.
  - **MM:** Pass/Fail criteria for multi-mode connectors from IEC 61300-3-35 standard.
  - **SFP:** Pass/Fail criteria for small form-factor pluggables.

Profiles contain the analysis parameters from which Pass/Fail criteria are determined.

## Tip


1. Press the [≡] key.
2. Tap the [Tip] button.
3. Select the tip set on the Digital Probe to connect fiber for inspection and tap on the tip set.

## More

1. Press the  key.
2. Tap the **[More]** button to view or change the storage location, settings and information of the Digital Probe.

## 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

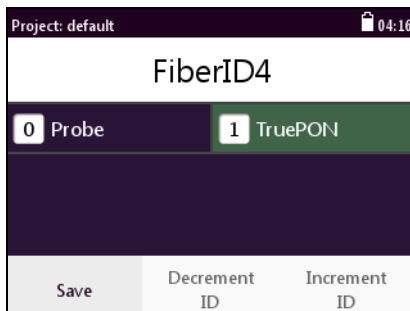
When data is requested by the user (e.g. using SCPI), the provided jpg-file is created just in time by the software. This concept helps to save memory space and allows to maintain sharp zone rings for all resolutions (VGA, QVGA and QQVGA).

**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.*

## 8 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 37).

### Saving results

Saving results is explained in the descriptions of each application.

### Data management of TruePON tests

#### Recalling stored test results

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

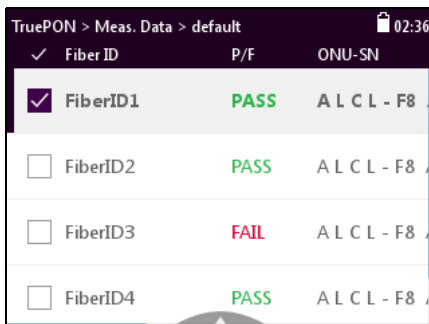
✓ The **TruePON** application is selected.

1. Press the [≡] key.

2. Tap the [More] button.

3. Tap the [Measurement Data] button.

*The list of stored test results is displayed.*



✓ Fiber ID	P/F	ONU-SN
<input checked="" type="checkbox"/> FiberID1	PASS	A L C L - F8
<input type="checkbox"/> FiberID2	PASS	A L C L - F8
<input type="checkbox"/> FiberID3	FAIL	A L C L - F8
<input type="checkbox"/> FiberID4	PASS	A L C L - F8

#### 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.

## Measurement Data of TruePON Test

Fiber ID	Test label name
P/F	Passed/failed label
ONU-SN	ONU Serial Number
PON-ID	OLT Identification

## Managing test results

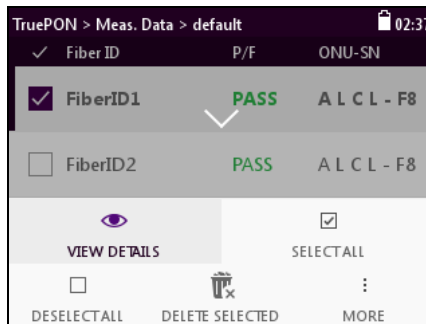


Fig. 21 Measurement data menu

### 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 up when an entry is selected.

### To display the detailed measurement view:

- ✓ The measurement data overview is displayed.
1. Select one or more test results from the list.
  2. Press the [≡] key and tap the [View Details] button.  
*The first selected result will be displayed.*
  3. Use the arrow keys to select between the detailed views **Power**, **IL**, **OLT** or **ONU/ONT**

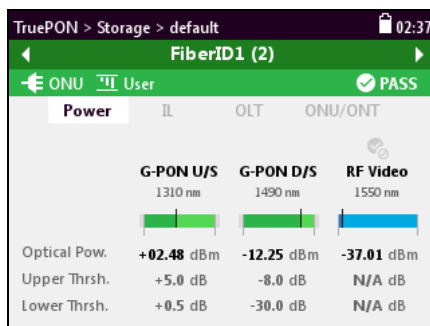


Fig. 22 Detail view **Power**

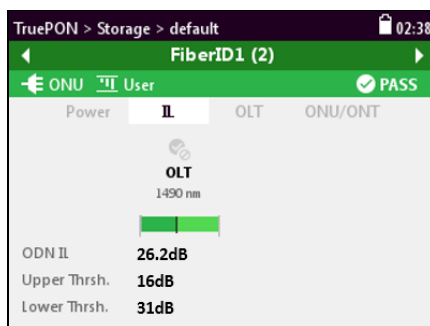


Fig. 23 Detail view **IL**

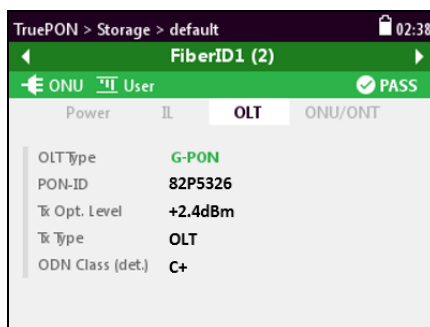


Fig. 24 Detail view **OLT**

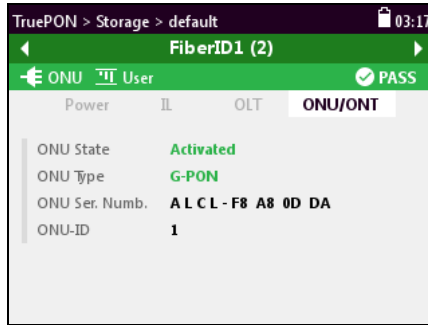


Fig. 25 Detail view **ONU/ONT**

### To delete one data set:

- ✓ The list of stored test results is displayed.
- 1. Select one or more test results to be deleted.
- 2. Press the [≡] key and tap the [Delete Selected] button.  
*The selected data set is deleted and removed from the list.*

### To delete all stored test results:

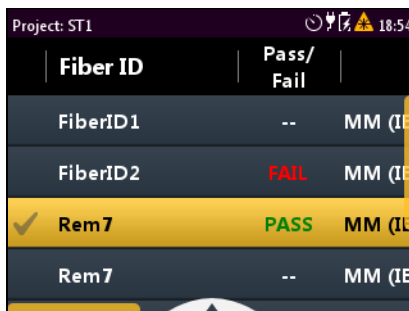
- ✓ The list of stored test results is displayed.
- 1. Press the [≡] key and tap the [Select All] button to select all.
- 2. Press the [≡] key again and tap the [Delete Selected] button.  
*All stored data sets are deleted and removed from the list.*

## 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.*



Fiber ID	Pass/ Fail	Profile
FiberID1	--	MM (IE
FiberID2	FAIL	MM (IE
✓ Rem7	PASS	MM (IL
Rem7	--	MM (IE

### 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.

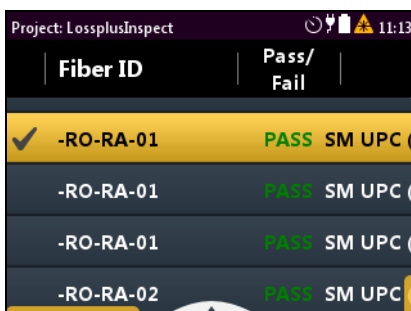
<b>Fiber ID</b>	Test label name
<b>Pass/Fail</b>	Passed/failed label
<b>Profile</b>	Profile label
<b>Adapter</b>	Typ of adapter
<b>Timestamp</b>	Time and date of the test

## Selecting/Deselecting test results

Test results first must be selected before they can be viewed or deleted. A selected entry is flagged by the check mark in the first column.

### To select one test:

1. To select a test, tap it twice.  
– or –  
Press the arrow keys to highlight the test and press the center key  
*The check mark shows the selected test.*



Fiber ID	Pass/ Fail	Profile
✓ -RO-RA-01	PASS	SM UPC (
-RO-RA-01	PASS	SM UPC (
-RO-RA-01	PASS	SM UPC (
-RO-RA-02	PASS	SM UPC (

**To select multiple tests:**

- ▶ Repeat step 1 to select multiple entries.

**To select all tests:**

- ▶ Press the [≡] key and tap [Select All].

**To deselect all tests:**

- ▶ Press the [≡] key and tap [Deselect All].

**Displaying test results**

**NOTE:** When selecting multiple tests, all selected tests can be viewed one after another without switching back to the list and selecting another test.

**To display a test result:**

1. Select one, multiple or all tests.
2. Press the [≡] key and tap the [View Selected] button.  
*The test results are displayed in full screen.*

**To view the next test result:**

- ✓ The selected test result is displayed in full screen.
1. Press the center key.  
– or –
  2. Press the [≡] key and tap the [Next] button.

**To view the previous test result:**

- ✓ The selected test result is displayed in full screen.
- ▶ Press the [≡] key and tap the [Prev] button.


**Sorting 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.

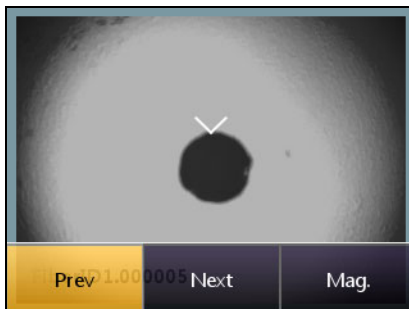
**Show/hiding the overview columns**

- ✓ The measurement data overview is displayed.
1. Press the [≡] key.
  2. Tap the [More] button, then tap the [Shown Columns] button.
  3. Tap any column header to toggle its hide/show status.


## Deleting stored results from a project

- ✓ The measurement data overview is displayed.
- 1. Select one, multiple or all tests.
- 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.

## 9 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. Remove the test adapter from the optical connection.  
*The plug end surface is now accessible.*
3. Wipe off the plug end surface using a cotton bud soaked in isopropanol.  
*This cleaning method is very effective and leaves no residue.*
4. 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

If the instrument gets dirty through use, you can clean it 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.

# 10 REMOTE CONTROL

## Remote Command Documentation

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

# 11 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 <sup>1)</sup> 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

# 12 SPECIFICATIONS

## Functionality

### General

<b>Two-port through mode</b>		X
<b>Power measurements<sup>1)</sup></b>		Downstream OLT signal (1490 nm)
		Upstream ONT signal (1310 nm burst mode)
		Downstream RF video signal (1550 nm)
<b>G-PON data analysis<sup>2)</sup></b>		
	PON-ID option	ODN class detection and auto threshold setting
	PON-ID option	Power margin test with auto pass/fail analysis
	PON-ID option	In-service insertion loss test with auto pass/fail analysis
	PON-ID option	OLT identification
	X	Identification of ONT serial number <sup>3)</sup>
	Alien-ONT option	Detection of alien ONTs <sup>3)</sup>
<b>Fiber inspection</b>		
	Option	Via external P5000i Digital Probe
	OLP-88/OLP-88PP version	Via integrated patch cord microscope

1) For B-PON (ITU-T G.983), E-PON (IEEE 802.3), G-PON (ITU-T G.984) signals

2) Optional with or G-PON signals according ITU-T G.984.3 Amendment 3

3) For G-PON signals according ITU-T G.984 (without PON-ID)

## Technical specifications

### FTTx measurements

<b>Power measurements</b>		
<b>Upstream 1310 nm<sup>1)</sup></b>	Power measurement range	-40 to +13 dBm
	Maximum permitted input level	17 dBm
	Spectral passband	1290 to 1330 nm
<b>Downstream 1490 nm</b>	Power measurement range	-40 to +7 dBm
	Maximum permitted input level	9 dBm
	Spectral passband	1480 to 1500 nm
<b>RF video signals</b>	Power measurement range	-40 to +26 dBm
	Maximum permitted input level	+27 dBm
	Spectral passband	1550 to 1560 nm
<b>G-PON data analysis at 1490 nm</b>		-30 to +7 dBm
<b>Pass-through insertion loss<sup>2)</sup></b>		<1.5 dB
<b>Power uncertainty<sup>2)</sup></b>		±0.5 dB
<b>Calibrated wavelengths</b>		1310, 1490, 1550 nm

1) Burst mode: -35 to +13 dBm

2) At 23 °C ±3 °C, at 1310/1490/1550 nm, at -7 dBm

## General specifications

Display	High contrast 3.5" TFT color touchscreen
Display resolution	0.01 dB / 0.001 $\mu$ W
Live image	320 x 240 pixels, 8 bit gray, 10 fps
Measurement units	dB, dBm, W, pass/fail
ORL	>60 dB
Fiber inspection (option)	Via external P5000i Digital Probe
Threshold sets	According ITU-T G.984.3, user specific-thresholds
Data memory	Up to 10,000 PON results (> 1000 including inspection)
Data readout	Via client USB interface
Electrical interfaces	2 USB Type A, 1 USB Micro-B, Ethernet
Wireless connection	Wifi client
Power supply	Four-way power: NiMH, dry batteries, RBP2 Lilon Battery Pack, PS4 Universal AC/ DC Power Supply 12 V with interchange- able wall plug for EU, UK, US and AU
Battery (Li-Ion Battery Pack)	3.7 V, 20 Wh
Battery life (Li-Ion Battery Pack)	> 12 h
Optical connectors	Interchangeable adapter SC/APC (optional: FC, ST and LC adapters)
Recommended recalibration interval	3 years
Size (H x W x D) OLP-88/OLP-88P	208 x 112 x 64 mm (8.2 x 4.4 x 2.5 in)
Size (H x W x D) OLP-88/OLP-88PP	208 x 153 x 64 mm (8.2 x 6.0 x 2.5 in)
Weight	750 g/850 g (1.6 lbs/1.85 lbs)
Operating temperature range	-5 °C to +45 °C (23 °F to 113 °F)
Storage temperature range	-25 °C to +55 °C (-13 °F to 131 °F)

## EMC

EMC Standard Emission Immunity	IEC 61326:2002 Class B Equipment IEC 61326, Table 1
--------------------------------	---

## Patch cord microscope specifications

Optical interface	FMAE LC duplex (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	Horizontal 740/370 $\mu$ m
field-of-view	
low/high	Vertical 550/275 $\mu$ m
External USB connected P5000i Digital Probe supported.	

## PS4 Universal AC/DC Power Supply

---

Power supply type	FW 75550/12
Nominal line voltage range	100 to 240 VAC
Nominal line frequency range	47 to 63 Hz
Power consumption	Max. 8.5 W
Output	12 V DC / 2 A
Temperature range	0 to +40°C

Condensation – even occasional – is not tolerable.



# 13 ORDERING INFORMATION

## OLP-88/OLP-88P stand alone unit

<b>OLP-88</b>	BN 2327/36
TruePON Tester, 1310/1490/1550 nm	
<b>OLP-88P</b>	BN 2328/36
TruePON Tester, 1310/1490/1550 nm, with patch cord microscope	

## Included items

### Stand alone units

- SmartClass™ Fiber instrument with APC connector
- 2 SC optical adapters
- Soft shoulder case for SmartClass™ Fiber + accessories
- Quick Start Manual and Safety Instructions
- Rechargeable RBP2 Lilon Battery Pack for SmartClass™ Fiber
- PS4 Universal AC/DC Power Supply for SmartClass™ Fiber (12 V)

## Hardware options

WiFi option including USB WiFi adapter	BN 2327/90.11
P5000i Digital Probe with FiberChek PRO software and four tips	FBP-P5000I

## Software options

OLP-88/OLP-88P Alien ONT detection SW-option	BN 2327/94.01
OLP-88/OLP-88P GPON-ID test SW-option	BN 2327/94.02

## Accessories

PS4 Universal AC/DC Power Supply for SmartClass™ Fiber	BN 2305/90.01
RBP2 Lilon Battery Pack for SmartClass™ Fiber	BN 2305/90.02
Calibration report	BN 2305/90.03
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

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## 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](mailto: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**.

"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 <sup>6+</sup> )	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	○	○	○	○	○
内部配线 (Internal wiring)	○	○	○	○	○	○
显示器 (Display)	○	○	○	○	○	○
键盘 (Keyboard)	○	○	○	○	○	○
塑料外壳零件 (Plastic case parts)	○	○	○	○	○	○
配件 (Accessories)	○	○	○	○	○	○

○：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  
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