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SmartClass™ Fiber FBP-HD4i/HD4iP and OLP-82/82P

Inspect, test, certify, and save with one device

USER MANUAL



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REV 0

JDSU

Notice Every effort was made to ensure that the information in this document was accurate at the time of printing. However, information is subject to change without notice, and JDSU reserves the right to provide an addendum to this document with information not available at the time that this document was created.

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Trademarks JDSU is a trademark of JDSU in the United States and other countries.

FCC Information Electronic test equipment is exempt from Part 15 compliance (FCC) in the United States.

European Union Electronic test equipment is subject to the EMC Directive in the European Union. The EN61326 standard prescribes both emission and immunity requirements for laboratory, measurement, and control equipment. This unit has been tested and found to comply with the limits for a Class A digital device.

Independent Laboratory Testing This unit has undergone extensive testing according to the European Union Directive and Standards.

TABLE OF CONTENTS

CHAPTER 1 **INTRODUCTION** 6–7

SmartClass Fiber Devices 6
Key Features and Functions 7

CHAPTER 2 **SAFETY INFORMATION** 8–9

Proper Usage 8
Battery Information 8
Ventilation 9
PS4 Universal AC/DC Power Supply 9

CHAPTER 3 **GETTING STARTED** 10–16

Unpacking the Instrument 10
Packing Material 10
Standalone Units 10
Additional Items in Basic Kits 11
Additional Items in Pro Kits 11
Controls 12
Power Supply 13
Battery Operation 13
Replacing AA Batteries 13
Recharging the Batteries 14
Using or Replacing the RBP2 Li-ION Battery Pack 14
General Tips on Using Batteries 15
Other Basic Safety Precautions 15
Environmental Protection 15
Operation from AC Power 16

CHAPTER 4 **DEVICE SETUP AND CONTROLS** 18–31

Operator Control Panel 18
Input Select Key (ISK) 19
Home Screen Display 20
Navigating in the Menus 21
Home Screen Menu 22
Recall Image 23
Review OPM Data 25
System Settings 26
Brightness 27
Set Date 27
Set Time 28
Auto Off Settings 29
Time Format 29
System Information 29
User Information 30
PC Connect 31

CHAPTER 5 **INSPECTION** 32–38

Hardware Overview 32
P5000i Digital Probe 32
P5000i Activation 33
Integrated Patch Cord Microscope (PCM) 34
PCM Activation 35
Inspection Menu 35
Brightness 36
Profile 36
Test 37
Tip / Adapter 38
Freeze 38
More... 38

CHAPTER 6

OPTICAL POWER MEASUREMENT 42–47
Power Meter Controls 43
dB / dBm 43
SET REF 44
λ (WAVELENGTH) 44
MORE 44
Measuring Optical Power 47
Measuring Absolute Power 47
Measuring Attenuation (Relative Power) 48

SPECIFICATIONS 49

ORDERING INFORMATION 50

INTRODUCTION

1

JDSU's SmartClass Fiber family is the next generation of optical handheld test solutions that allow technicians to inspect, test, certify, and save on a single device. Designed to help users work smarter and faster, the SmartClass Fiber family incorporates the features that technicians rely on every day to deliver best-in-class reliable networks to their customers.

Products in the SmartClass Fiber family include:



HD4i
Digital handheld video display



OLP-82
Digital handheld video display with optical power meter



OLP-87
Digital handheld video display with PON power meter

Key Features and Functions

Description	HD4i	OLP-82	OLP-87
Portable handheld display with 3.5" color touch screen	✓	✓	✓
Simple graphical menu-driven interface	✓	✓	✓
Accepts PASS/FAIL P5000i Probe	✓	✓	✓
Accepts external USB power meter	✓	✓	
Integrated connector certification reporting	✓	✓	✓
On-board storage: Endface images and inspection analysis	✓	✓	✓
User-definable acceptance criteria	✓	✓	✓
Integrated optical power meter		✓	✓
On-board storage: Power meter results		✓	✓
Integrated PON power meter (BPON, EPON, and GPON)			✓
Integrated PASS/FAIL patch cord microscope option	✓ HD4iP	✓ OLP-82P	✓ OLP-87P

This **User Manual** will focus on the **HD4i** and **OLP-82** products.

For further information on the **OLP-87** or other JDSU fiber test tools, visit **www.jdsu.com/test**.

SAFETY INFORMATION

2

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.

Battery Information



Explosion Danger

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



Li-ION Battery Caution

The Li-ION Battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 65°C or incinerate. Replace battery with manufacturer specified battery only. Use of another battery may present a risk of fire or explosion. Dispose of used battery promptly.

! 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



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.



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.



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.



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.

GETTING STARTED

3

Unpacking the Instrument

Packing Material

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

Checking the Package Contents

The following items will be included with each SmartClass Fiber instrument. Kitted packages contain additional items.

NOTE: *For customer specific kits, the contents may vary according to specified configurations.*

Standalone Units

- SmartClass Fiber Instrument
- Soft Bag for SmartClass Fiber and Accessories
- FiberChekPRO Software Installation Disk
- USB Cable USB-A to Micro-USB
- Quick Start Guide and Safety Instructions
- Dry Batteries (8X AA)

Additional Items in Basic Kits

- P5000i Digital Inspection Microscope
- Inspection Tips and Adapters
  (Bulkhead: SC and LC; Patch Cord: 2.5 and 1.25 mm)
- 1.25 mm OPM Adapter (OLP-82/82P only)

Additional Items in Pro Kits

- P5000i Digital Inspection Microscope
- Inspection Tips and Adapters
  (Bulkhead: SC and LC; Patch Cord: 2.5 and 1.25 mm)
- 1.25 mm OPM Adapter (OLP-82/82P only)
- Cleaning Materials for 2.5 and 1.25 mm (Bulkhead and Patch Cord)
- FFL-050 Visual Fault Locator with 2.5 and 1.25 mm Adapter
- Hands-Free Carrier for SmartClass Fiber
- Rechargeable Battery for SmartClass Fiber (Li-ION)
- PS4 Power Supply for SmartClass Fiber (12V)

Controls

Standard *with* **Patch Cord Microscope (PCM)**



❶ Connector interface (OLP-82/82P only)
❷ 3.5 inch color touch screen
❸ Key pad (operator control panel)
❹ LED indicators
❺ Patch Cord Microscope (PCM) with FMAE adapter (HD4iP and OLP-82P only)
❻ Test head cover (OLP-82/82P only)
❼ Battery life indicator
❽ Graphic menu interface
❾ 2x USB2 interfaces, 1x micro-USB interface, external power supply connector
❿ PCM controls (focus control, automated PASS/FAIL analysis, magnification control)

Power Supply

The following power sources can be used to operate SmartClass Fiber devices:

- Eight 1.5 V dry batteries *(Mignon AA size, alkaline type recommended)*
- Eight 1.2 V NiMH rechargeable batteries *(Mignon AA size)*
- PS4 Universal AC/DC Power Supply *(optional)*
- RBP2 Li-ION Battery Pack *(optional)*

Battery Operation



Dangers when Handling Batteries

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

! Please note the battery operation safety information in Chapter 2.

NOTE: *The battery compartment is on the back of the instrument.*

Replacing AA 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.



AA batteries fully loaded in back

1. Open the lid of the battery compartment.
2. Insert new batteries or remove the used batteries and replace them with fresh ones.
3. Close the battery compartment.
4. Press the ⏻ key to switch on.

Recharging the Batteries

The rechargeable RBP2 Li-ION Battery Pack will be 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 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. For ordering information, see page 49.*

Using or Replacing the RBP2 Li-ION Battery Pack

1. Open the lid of the battery compartment.
2. Remove the AA battery tray (FITP-RBT1) or existing FBP2 Li-ION battery

NOTES:

- Dispose of used batteries promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.







3. Replace with (FITP-RBP2)
   - **IMPORTANT:** Replace Li-ION Battery with FITP-RBP2 only.
4. Close the battery compartment.
5. Press the ⏻ key to switch on.

RBP2 Li-ION Battery Pack installed

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 fitted in the instrument.
- Do not leave discharged batteries in the instrument for a long time if it is not being used.
- Dispose of used batteries promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

Other Basic Safety Precautions

- 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 ratings label.
- Do not allow anything to rest on the power cord, and do not locate 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 and repair.

Environmental Protection

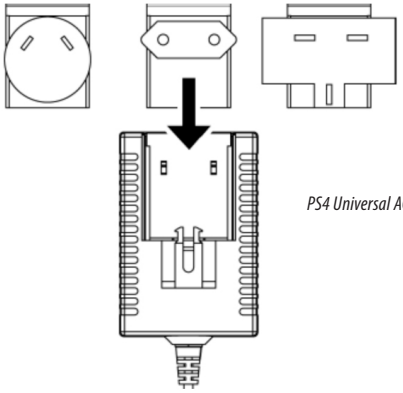
Please dispose of any unwanted dry batteries and rechargeable batteries carefully. They should also be removed from the instrument if it is to be scrapped. If facilities in your country exist for collecting such waste or for recycling, please make use of these rather than throwing the batteries in with 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 JDSU 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 SmartClass Fiber device from AC power.*

To fit the AC line plug adapter:

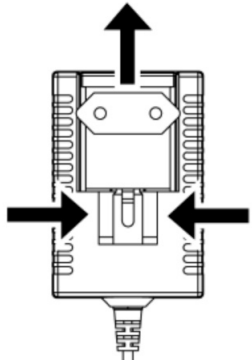
1. Select the appropriate AC line plug adapter.
2. Slide the AC line plug adapter into the slot.



PS4 Universal AC/DC Power Supply is ready for use

To change the AC line plug adapter:

1. Squeeze both sides of the PS4 latch lock.
2. Push the AC line plug adapter upwards.
3. Slide a different AC line plug adapter into the slot.



To operate the SmartClass Fiber device from AC power:

1. Connect the PS4 DC power cord to the DC power socket on the device. *(The socket is under the cover on the right side.)*
2. Plug the PS4 into the AC line socket.

   NOTE: *The PS4 provides power even if dry or rechargeable batteries are fitted in the instrument.*

DEVICE SETUP AND CONTROLS

4

Operator Control Panel

	**HOME** - Press to go to the home screen
	**MENU** - Press to open a menu
	**BACK** - Press to go back one step
	**INPUT SELECT KEY (ISK)** - Press for fast toggling between device functions ** See page 19 for more information on using the ISK.*
	**POWER** - Press to switch the instrument ON and OFF ***NOTE:*** *LED glows GREEN when the instrument is ON.*
	**ARROW KEYS** • Press to navigate through the menus • Press to change values in the menus **CENTER KEY** • Press to confirm the selection
	**SAVE** - Press to save results
	**LOW BATTERY** - Glows *RED* when battery is low
	**TEST IN PROCESS** - Glows *RED* when a measurement is running in the background
	**CHARGE** - Glows *AMBER* when battery is charging; If the power is OFF, charging will continue with no LED indicator



Input Select Key (ISK)

The **Input Select Key** allows users to inspect, test, certify, and save results quickly on the Smart Class Fiber device. Using this feature **drives the user's behavior** by incrementally stepping them through each application as it should be used in a **proper testing workflow**. Pressing the ISK will immediately switch to the next application that is used in a typical workflow. Once pressed, a small icon will appear on the screen for a few seconds to indicate the application that is now active.

1. Press  from the Home Screen ➡ switches to **PCM Inspection** *(or the next available application)*

2. Press  from an active application ➡ switches to the next available application as follows*:

PCM Inspection ➡ Probe Inspection ➡ USB OPM ➡ On-board OPM



NOTES:

* *Each application will only appear if it is available on the device, either on-board or via USB connection.*

Home Screen Display



OLP-82P Home Screen shown with P5000i Probe and MP-series USB OPM attached via USB

	**Battery Status** - Indicates the battery charge level / status.
	**Optical Power Meter (OPM)** - Activates the on-board OPM to view optical power measurement results, edit acceptance criteria, and view saved results.
	**Inspect (PCM)** - Activates the integrated Patch Cord Microscope (PCM) to inspect and analyze fiber endfaces, detect scratches and defects, and provide PASS/FAIL results. The PCM is ideal for inspecting male fiber connectors such as patch cords and test leads.
	**Inspect (Probe)** - Activates the handheld P5000i Digital Probe microscope to inspect and analyze fiber endfaces, detect scratches and defects, and provide PASS/FAIL results. The probe is ideal for inspecting connectors located behind bulkheads.
	**USB Optical Power Meter (OPM)** - Activates OPM devices (such as MP-60 or MP-80) that are connected to one of the USB ports to view optical power measurement results, edit acceptance criteria, and view saved results.

Navigating in the Menus

Press the **MENU** key to open the context-sensitive menu.

Depending on which application is in the foreground, 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*** press the desired button on the touch screen.

To leave a menu:

- Press the **BACK** key.

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

Home Screen Menu



BRIGHTNESS	**BRIGHTNESS** - Adjusts the brightness of the display
MORE...	**MORE...** - Access additional features and functions universal to the device: • RECALL IMAGE • REVIEW OPM DATA • SYSTEM SETTINGS • USER INFO • PC CONNECT

BRIGHTNESS

Adjusts the brightness of the display.

Once the BRIGHTNESS button is selected:

1. Press the  left (darker) or right (brighter) **ARROW KEYS** to adjust the brightness level.

2. Press the  **CENTER KEY** to confirm your selected brightness level - ***OR*** use the touch screen as follows:

- Tap the desired arrow buttons to adjust the brightness level
- Tap the OK button to confirm your selected brightness level

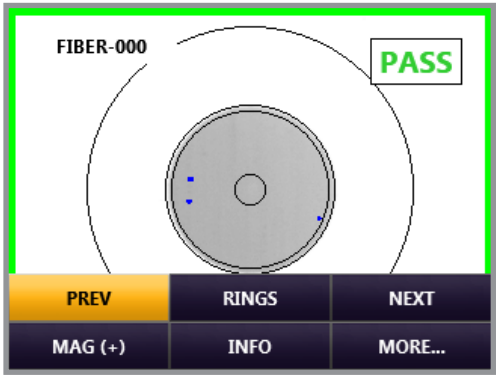
Recall Image



Opens list of fiber images saved on the device. Select one or multiple saved fiber images to view further details including analysis results.

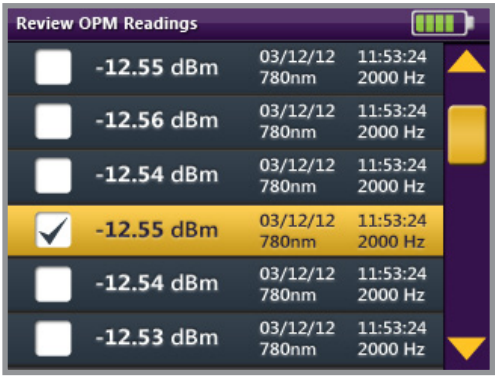
Once RECALL IMAGE is selected:

- Press the up and down **ARROW KEYS** to browse through the list of saved images
- Press the **CENTER KEY** to select one or multiple saved fiber images
- Press the **MENU** key to select any of the following:
  - **SELECT ALL:** Selects all saved fiber images. When selected, a check indicator will appear in the selection box to the left of the image name.
  - **CLEAR ALL:** Clears all check indicators in the selection boxes.
  - **DELETE:** Deletes any items with a check indicator in the selection box.



- **VIEW:** Opens the saved image for all selected items starting with whatever image is highest in the list of saved fiber images. Once a saved image appears, users can press the MENU button for additional options:
  - **PREV:** Opens the previous fiber image selected from the list of saved fiber images *(if applicable)*.
  - **MAG:** Toggles between low and high magnification
  - **NO OVERLAY / RINGS / RINGS + TABLE:** Toggles between overlay view options for the selected image.
    - **NO OVERLAY** = Image only view
    - **RINGS** = Image with overlay of zones and defects
    - **RINGS + TABLE:** Image with overlay of zones, defects, and a summary table with the analysis result for each zone
- **INFO:** Provides further information on the displayed fiber image
- **NEXT:** Opens the next fiber image selected from the list of saved fiber images *(if applicable)*.

Review OPM Data



Opens list of OPM data saved on the device. Each saved result includes the following:

- Measurement value
- Date saved (day/month/year)
- Time saved (hour:minute:second)
- Wavelength
- Frequency *(if applicable)*

Press the **MENU** key to select any of the following:

- **SELECT ALL:** Selects all saved fiber images. When selected, a check indicator will appear in the selection box to the left of the image name.
- **DELETE:** Deletes any items with a check indicator in the selection box.

System Settings



Opens a list of general system settings. When pressed the following menu will appear:

BRIGHTNESS	Adjusts the brightness of the display
DATE	Adjusts the date
TIME	Adjusts the time
AUTO OFF	Adjusts the automatic switch-off period of the device
TIME FORMAT	Selects between 24-hour or 12-hour time
SYSTEM INFORMATION	Displays further information about the device

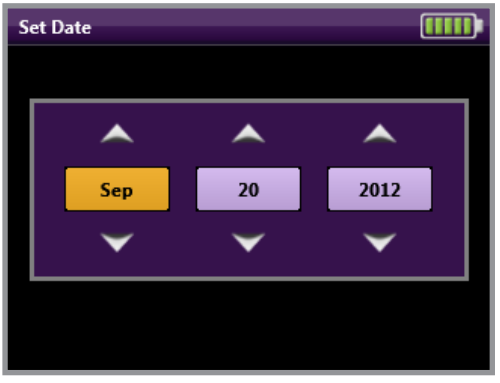
BRIGHTNESS

See the **BRIGHTNESS** section (page 22) earlier in this manual for operation details.

DATE

Once DATE is selected, three fields will appear as follows: [MONTH] [DAY] [YEAR]

To set the date:



1. Select one of the fields to edit

   NOTE: *The editable field will be highlighted YELLOW.*

   - Press the  left or right **ARROW KEYS** to select a field, ***OR***
     - Tap the desired field on the touch screen.

2. Once selected, press the  up or down **ARROW KEYS** *(on either the control panel or the touch screen)* to adjust the desired field.

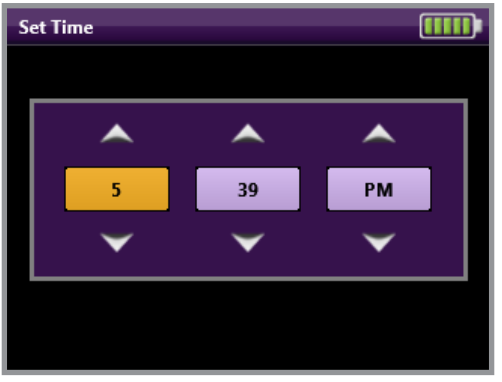
3. Press the  **CENTER KEY** to confirm.

TIME

Once **TIME** is selected, fields will appear as follows:

- 12-hour time format: [HOUR] [MINUTE] [AM/PM]
- 24-hour time format: [HOUR] [MINUTE]

To set the time:



1. Select one of the fields to edit

NOTE: *The editable field will be highlighted YELLOW.*

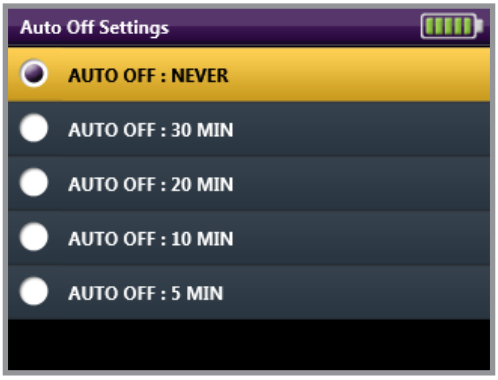
- Press the  left or right **ARROW KEYS** to select a field, ***OR***
  - Tap the desired field on the touch screen.

2. Once selected, press the  up or down **ARROW KEYS** *(on either the control panel or the touch screen)* to adjust the desired field.

3. Press the  **CENTER KEY** to confirm.

AUTO OFF

Once AUTO OFF is selected, the following list will appear:



- Chose the desired time duration from the list to determine when the device will automatically turn OFF.
- Press the  **CENTER KEY** or tap the touch screen to select the desired time limit.

TIME FORMAT

Select the desired time format (24-hour or 12-hour) that the device will display:

- Press the  **CENTER KEY** or tap the touch screen to select the desired format.

SYSTEM INFORMATION

Displays further information (*e.g.* Serial Number, Board Revision, Firmware Version, Battery Strength, Up time) about the device. This screen is informational only and does not include anything that can be changed.

USER INFO



The **USER INFO** menu allows you to enter information about your organization, including the company name, address, customer, location, job ID, operator, cable ID, fiber ID, and any comments about the job.



To edit any of these fields, select the desired field via **NAVIGATION KEYS** or touch screen and enter the data using the alpha-numeric keypad on the screen.

PC CONNECT

PC CONNECT is used to establish or re-establish a connection between the device and a PC using the included USB-A to Micro-USB cable. Once connected, users can export any of the stored data from the device to the PC using the included FiberChekPRO™ software program.

The device will automatically establish connection with the PC once both ends of the USB-A (connects to PC) to Micro-USB cable (connects to device) are connected. Once connected, a message will appear on the device's display screen stating that it is connected to the PC. If this connection is lost, this message will disappear. The connection will be re-established by selecting PC CONNECT.

INSPECTION

5

Hardware Overview

Inspection of fiber optic interconnects is essential for the optimal performance and longevity of fiber optic connectivity. SmartClass Fiber devices have the capability to inspect end faces, provide PASS/FAIL analysis, and store the results directly on the device. Inspecting fiber endfaces with SmartClass Fiber devices is accomplished with a **P5000i Digital Analysis Microscope**. In addition, certain configurations are equipped with an Integrated **Patch Cord Microscope (PCM)** on the device.

P5000i Digital Probe

The **P5000i** is a compact probe microscope connects directly to the device via USB2. It is specially designed to fit comfortably 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.

P5000i Probe Microscope Controls

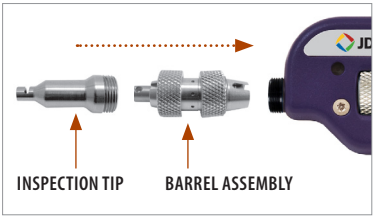


QuickCapture Button	Instantly captures and analyzes the fiber image.
Focus Control	Allows the user to adjust focus manually of the live fiber end face image on the display.
Magnification Control	Allows the user to switch between LOW and HIGH magnifications of the fiber end face image.

NOTE: *For further information on the P5000i please refer to the printed* ***FiberChekPRO Quick Start Guide*** *that is included with the P5000i.*

P5000i Activation

1. Select the appropriate FBPT tip that corresponds to the connector type and side being inspected and attach to probe.



FBPT Series Tips for the P5000i

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

2. Plug your P5000i into a USB port on the device.

3. Connect the P5000i with the fiber being inspected.

4. Press the **HOME** key, then select 

INSPECT (Probe).

Integrated Patch Cord Microscope (PCM)

Certain SmartClass Fiber devices are also configured with an additional on-board PCM, which allows users to inspect both ends of a fiber connection much faster than with a single probe microscope.



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 connectors and applications. All PCM configurations ship with an included 2.5 mm interface. Kitted configurations include additional FMAE adapters.

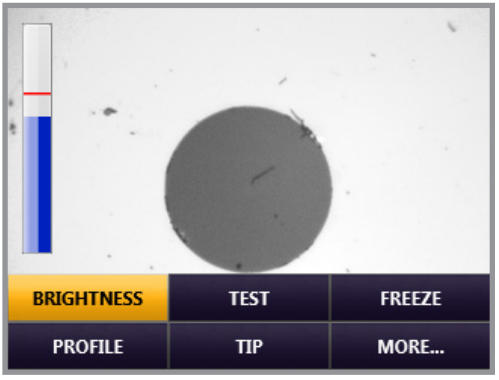
QuickCapture Button	Instantly captures and analyzes the fiber image.
Focus Control	Allows the user to adjust focus manually of the live fiber end face image on the display.
Magnification Control	Allows the user to switch between LOW and HIGH magnifications of the fiber end face image.

PCM Activation

1. Select the appropriate FMAE adapter that corresponds to the connector type and side being inspected and attach to PCM.

2. Press the **HOME** key, then select INSPECT **INSPECT (PCM)**.

INSPECTION MENU (for both P5000i and PCM)



Once the inspection application is active for either the P5000i or PCM, it can display a live view of the fiber end face that it is connected to. The Inspection menu contains all the options necessary for setting up and using the inspection application.

Press the **MENU** key to select any of the following:

BRIGHTNESS	**BRIGHTNESS** - Adjusts the brightness of the display
PROFILE	**PROFILE** - Selects the desired PROFILE which contains the analysis parameters by which PASS/FAIL criteria are determined
TEST	**TEST** - Initiates the automated PASS/FAIL test process
TIP	**TIP / ADAPTER** - Selects the best optical settings for the type of tip or adapter that is attached to the microscope
FREEZE	**FREEZE** - Freezes a live image
MORE...	**MORE...** - Access additional inspection options as follows: • RECALL IMAGE • MICROSCOPE SETTINGS • IMAGE SAVE OPTIONS • SYSTEM SETTINGS • USER INFO

BRIGHTNESS

Adjusts the brightness of the display. See page 22 for more details.

PROFILE

Allows the user to select from various PROFILES, which contain the analysis parameters by which PASS/FAIL criteria are determined. Users can select from several pre-configured PROFILES already on the device. The pre-configured profiles match the PASS/FAIL criteria in the IEC visual inspection standard, IEC-61300-3-35. All of these profiles are factory set and cannot be edited or removed.

- **SM UPC** (IEC-61300-3-35)
- **SM APC** (IEC-61300-3-35)
- **MM** (IEC-61300-3-35)
- **Ribbon, SM APC** (IEC-61300-3-35)
- **Ribbon, MM** (IEC-61300-3-35)
- **SM PC** (IEC-61300-3-35)

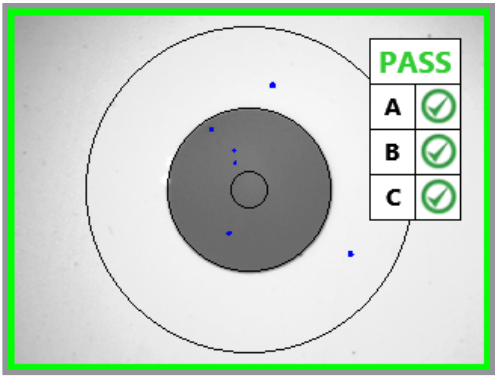
Additional profiles can be created, added, and/or removed from the SmartClass Fiber device when used in conjunction with the included FiberChekPRO software program. For further information on profiles, see the FiberChekPRO user manual on the included software installation disk or visit **http://www.jdsu.com/inspect** and download the "FiberChekPRO" software.

TEST

Initiates the automated PASS/FAIL test process.

NOTE: *Initiating a test can also be done by pressing the QuickCapture button directly on the P5000i Probe or PCM.*

Once the test is complete. The result will flash on the screen as either PASS or FAIL. In addition, the outside edge of the image will be highlighted in either GREEN (to indicate PASS) or RED (to indicate FAIL).



When in the Test view, pressing the [MENU] button again gives the following additional options:

LIVE	Returns to a LIVE view of the image
VIEW	Toggles overlay view options (3 states): • **NO OVERLAY** = image only view • **RINGS** = image with overlay of zones and defects • **RINGS + TABLE** = image with overlay of zones, defects, and a summary table with the analysis result for each zone
MAG	Toggles between HIGH(+) or LOW (-) magnification
MORE...	Access additional inspection options ***NOTE:*** *This is the same list of options that can be accessed at the Inspection Menu when in a LIVE state (see page 35).*

TIP / ADAPTER

Allows the user to select the best optical settings for the type of FBPT Tip or FMAE adapter that is attached to their microscope.

Text displays "TIP"	**TIP** - When using P5000i
Text displays "ADAPTER"	**ADAPTER** - When using PCM

Users can select from the list of pre-configured optical settings. For further information on optical settings, see the FiberChekPRO user manual on the included software installation disk or visit **http://www.jdsu.com/inspect** and download the "FiberChekPRO" software.

FREEZE

Allows the user to freeze a live image. Once the image is frozen, pressing the [MENU] button again gives the following additional options:

LIVE	Returns to a LIVE view of the image
MAG	Toggles between HIGH(+) or LOW (-) magnification
MORE...	Access additional inspection options ***NOTE:*** *This is the same list of options that can be accessed at the Inspection Menu when in a LIVE state (see page 35).*

MORE...

Access additional features and functions associated with inspection:

- **RECALL IMAGE**

  Opens list of fiber images saved on the device. Select one or multiple saved fiber images to view further details including analysis results. See page 23 for more details.

- **MICROSCOPE SETTINGS**

  Opens a list of system settings specific to the microscope functionality. When selected, the following options will appear:



AUTO CENTER	• Check box to turn AUTO CENTER ON • Uncheck box to turn OFF
DEVICE BUTTON	Selects the desired function of the QuickCapture button • **TEST** = initiates the automated PASS/FAIL test process • **CAPTURE** = freezes image
SHOW FOCUS METER	• Check box to turn FOCUS METER ON • Uncheck box to turn OFF ***NOTE:*** *The FOCUS METER is a visual gauge that aids the users in finding the optimal focus point. As the image comes into focus, the length of the blue bar increases. A red line will show the highest level achievable for each endface. Optimal focus level is reached when the blue bar is closest to the red line at the highest point possible.*

- **IMAGE SAVE OPTIONS**

  Allows the user to specify how they want to save an image. Options include the following:

FILE NAME BASE	Allows user to define a base level name for saved images. Selecting this option opens an alphanumeric keypad for entering the base level text.
ARCHIVING METHOD	Select from one of the 3: • **VERIFY BUTTON BEFORE SAVE** *(displays a confirmation box before saving an image)* • **ONE BUTTON SAVE** *(saves the image immediately upon pressing the save button)* • **SAVE RESULTS IF PASS** *(automatically saves the image if the inspection test result is a PASS)*

- **SYSTEM SETTINGS**

  Shortcut to the SYSTEM SETTINGS. See page 26 for further details.

- **USER INFO**

  Shortcut to the USER INFO. See page 30 for further details.

Page intentionally left blank.

OPTICAL POWER MEASUREMENT

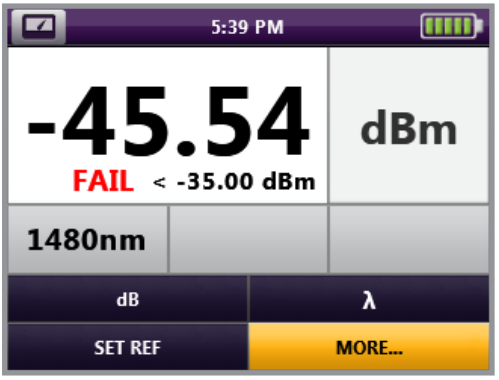
6

Optical Power Meter

The OLP-82 and OLP-82P models feature a built-in Optical Power Meter (OPM) with multiple calibrated wavelengths from 780 to 1625 nm. The simple, straightforward and intuitive user interface offers a well-organized solution for measuring optical power and saving results with a portable device.



Power Meter Controls



dB	**dB / dBm** - Switches between Absolute (dBm) and Relative (dB) power level unit
SET REF	**SET REF** - Stores a reference power level
λ	**λ** - Select active wavelength
MORE...	**MORE...** - Access additional OPM options as follows: • EDIT WAVELENGTH TABLE • REVIEW OPM DATA • ENABLE WATTS DISPLAY • ENABLE OPM + IMAGE LINK • SYSTEM SETTINGS • USER INFO

dB / dBm

Switches between Absolute (dBm) and Relative (dB) power level unit. For further information on Absolute and Relative Power, see the Measuring Optical Power section on page 47.

NOTE: *The device can also display values in Watts. To activate this option, check* ***ENABLE WATTS DISPLAY*** *in the* ***MORE…*** *menu.*

SET REF

Stores a reference power level.

NOTE: *This is used when measuring attenuation (relative power). For further information on measuring Relative Power, see the Measuring Optical Power section on page 47.*

λ (WAVELENGTH)

Selects the desired active wavelength for testing.

NOTE: *The wavelength values that appear in this list is managed in the* ***EDIT WAVELENGTH TABLE*** *under* ***MORE…*** *(see next section for details).*

MORE...

Access additional OPM options as follows:

- **EDIT WAVELENGTH TABLE**



Upon selection, a list of all the wavelengths will appear as shown above. Each wavelength in this list will include the following:

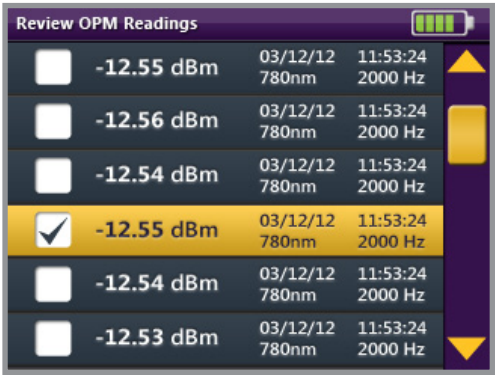
- **Checkbox** > Located on the left side. Checked items will appear on the WAVELENGTH λ list on the main OPM screen. Press the  **CENTER KEY** or use the touchscreen to check or uncheck this box.

- **Wavelength value**
- **REF** > Displays a stored reference value (in dBm)
- **Limit** > Displays a set limit value *(if defined)*. For further details, see the **ENTER LIMIT** section below.

• Press the  **MENU** button for the following:

- **ADD WAVELENGTH λ** > Activates a numeric keypad to enter additional wavelengths
- **ENTER REFERENCE** > Activates a numeric keypad to manually enter a Reference Threshold
- **DELETE WAVELENGTH** > Deletes the current highlighted wavelength
- **ENTER LIMIT** > Activates a numeric keypad for entering a threshold for the lowest acceptable value. If the OPM value being measured is lower than the acceptable threshold, then the word FAIL will appear on the MAIN OPM screen with an explanation that is below the acceptable limit.

- **REVIEW OPM DATA**



Opens list of OPM data saved on the device. Each saved result includes the following:

- Measurement value
- Date saved (day/month/year)
- Time saved (hour:minute:second)
- Wavelength
- Frequency

Press the **MENU** button to determine the following:

- **SELECT ALL** > Selects all saved fiber images. When selected, a check indicator will appear in the selection box to the left of the image name
- **DELETE** > Deletes any items with a check indicator in the selection box

- **ENABLE WATTS DISPLAY**

  Check this box to include WATTS as one of the measurement values.

- **ENABLE OPM + IMAGE LINK**

  Check this box to group the current OPM reading with the last saved inspection image. All saved OPM readings will be grouped together with the last saved inspection image, until a new image is stored.

- **SYSTEM SETTINGS**

  Shortcut to the SYSTEM SETTINGS. See page 26 for further details.

- **USER INFO**

  Shortcut to the USER INFO. See page 30 for further details.

Measuring Optical Power

Measuring Absolute Power

Absolute power (measured in dBm) is the amount of optical power present in the system. The source of this power is the transmitter or transceiver sending information through the system. This test determines whether the signal has enough power to operate the receiver or transceiver at the end of the link.

To measure absolute power:

1. Select dBm from the menu.
2. Press Select the active wavelength *(as described in the WAVELENGTH section below)*.
3. The optical power measurement is displayed on the power meter display.

Measuring Attenuation (Relative Power)

Relative power level (attenuation measurement) is the amount of power lost (attenuated) by the optical link being tested, measured in dB. The source of this power is typically a handheld optical light source. This test determines whether the optical link is constructed properly, either as a qualification test or when troubleshooting the network.

To measure attenuation, you must:

1. Get a reference measurement by selecting **SET REF** on the menu. Once the reference is set, **0.00 dB** is displayed in the main OPM window. The referenced value will also appear on the display.

2. Get an attenuation measurement:

   a) **Disconnect reference fiber 1** from the power meter (DO NOT disconnect reference fiber 1 from the light source [OLS])

   b) **INSPECT** and if necessary, **CLEAN** all ends of the system port

   c) **Connect reference fiber 1** to the system port

   d) **INSPECT** and if necessary, **CLEAN** all ends of reference fiber 2

   e) **INSPECT** and if necessary, **CLEAN** the fiber at the far end of the optical fiber link

   f) **Connect reference fiber 2** to the system port

   g) The **attenuation measurement** (insertion loss) of the optical link is displayed in the main window of the power meter

SPECIFICATIONS

General

General technical (Typical at 25°C)	
Weight	1.2 lb (1.4 lb for PCM version)
Dimensions (H x W x D)	
OLP-82/HD4i	20.83 x 11.18 x 6.35 cm (8.2 x 4.4 x 2.5 in)
OLP-82P/HD4iP	20.83 x 152.4 x 6.35 cm (8.2 x 6.0 x 2.5 in)
Video display	3.5 in color LCD, 4:3 ratio
Keypad	11+2 dome-buttons membrane panels 4 LED indicators
Connector	USB 2.0 (2 x host, Type A; 1 x device, Micro-B)
Power source	12V 2A adapter, battery (8X AA alkaline or rechargeable Li-ION), USB port
Run time	
Rechargeable Li-ION = minimum)	8 hours
8X AA alkaline	5 hours
Power mode	Active, Auto-off
Auto-shutoff time	user programmable
Charge time	
AC adaptor	8 hours
Saved images	> 1000
Saved OPM data	> 10,000
Certification	CE, IEC/EN61326
Warranty	1 year

OPM

General technical (Typical at 25°C)	
Display range	
Standard	–65 to +10 dBm
High power	–50 to +26 dBm
Max. input level permitted	
Standard	+10 dBm
High power	+26 dBm
Standard wavelength settings	850, 980, 1300, 1310, 1490, 1550, 1625 nm
Intrinsic uncertainty[1]	±0.20 dB (±5%)
Linearity[1]	±0.06 dB (–50 to +5 dBm)
Wavelength range	780 to 1700 nm
Wavelength and modulation	
Result display	dBm, dB, MW
Resolution	0.01 dB
Modulation frequencies	270Hz, 1000Hz, 2000Hz
Sensor	InGaAs

Video Display

General technical (Typical at 25°C)	
Live image	320 x 240 x 8 bit gray, 10 fps
Light source	Blue LED, 100,000+ hour life
Lighting technique	Coaxial
Low-magnification field-of-view (FOV)	
Horizontal	740 µm
Vertical	550 µm
High-magnification field-of-view (FOV)	
Horizontal	370 µm
Vertical	275 µm

ORDERING INFORMATION

Standalone Units

Part Number	Description
FBP-HD4i	HD4i Digital Handheld Video Display
FBP-HD4iP	HD4i Digital Handheld Video Display, Dual-Mag Patch Cord Module
2315/05	OLP-82 Digital Handheld Video Display, Integrated Optical Power Meter
2315/03	OLP-82 Digital Handheld Video Display, Integrated High-Power Optical Power Meter
2316/01	OLP-82P Digital Handheld Video Display, Dual-Mag Patch Cord Module, Integrated OPM
2316/03	OLP-82P Digital Handheld Video Display, Dual-Mag Patch Cord Module, Integrated High-Power OPM

Kits

Part Number	Description
FBP-SD4i	HD4i Basic Kit
FBP-SD4i-PRO	HD4i Pro Kit
FBP-SD4iP	HD4iP Basic Kit
FBP-SD4iP-PRO	HD4iP Pro Kit
FIT-8201	OLP-82 Basic Kit
FIT-8201-PRO	OLP-82 Pro Kit
FIT-82P01	OLP-82P Basic Kit
FIT-82P01-PRO	OLP-82P Pro Kit
FIT-82P03	OLP-82P High Power, Basic Kit
FIT-82P03-PRO	OLP-82P High Power, Pro Kit

Included Items

Standalone Units

SmartClass Fiber Instrument
Soft Bag for SmartClass Fiber and Accessories
FiberChekPRO Software Installation Disk
USB Cable USB-A to Micro-USB
Quick Start Manual and Safety Instructions
Dry Batteries (8x)

Additional Items in Basic Kits

P5000i Digital Inspection Microscope
Inspection Tips and Adapters (Bulkhead: SC and LC, Patch Cord: 2.5 and 1.25 mm)
1.25 mm OPM Adapter OLP-82/82P

Additional Items in Pro Kits

P5000i Digital Inspection Microscope
Inspection Tips and Adapters (Bulkhead: SC and LC, Patch Cord: 2.5 and 1.25 mm)
1.25 mm OPM Adapter OLP-82/82P
Cleaning Materials for 2.5 and 1.25 mm (Bulkhead and Patch Cord)
Hands-Free Carrier for SmartClass Fiber
Rechargeable Battery for SmartClass Fiber (Li-ION)
FFL-050 Visual Fault Locator with 2.5 and 1.25 mm Adapter
Power supply for SmartClass Fiber (12V)

Accessories

Part Number	Description
FBPP-PS4	Power Supply for Smart Class Fiber (12 V)
FITP-RBP2	Rechargeable Battery for SmartClass Fiber (Li-ION)
FITP-RCG1	Kit: RBP2 Rechargeable Battery, PS4 Power Supply
FITP-RBT1	Replacement Battery Tray
FITP-UC4	UC4 Hands-Free Carrier for SmartClass Fiber
FITP-UC4P	UC4P Hands-Free Carrier for SmartClass Fiber with PCM
VPP-UPP12	Adapter U12 for OLP-82/82P
VPP-UPP25	Adapter U25 for OLP-82/82P
FBPP-SCASE2	SCASE2 Soft Shoulder Case for SmartClass Fiber Tools

Test and Measurement Regional Sales

NORTH AMERICA	LATIN AMERICA	ASIA PACIFIC	EMEA	www.jdsu.com/inspect
TEL: 1 866 228 3762	TEL: +1 954 688 5660	TEL: +852 2892 0990	TEL: +49 7121 86 2222	
FAX: 1 301 353 9216	FAX: +1 954 345 4668	FAX: +852 2892 0770	FAX: +49 7181 86 1222	

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