

A RIPLEY® BRAND

RP560

Optical Power Meter User Guide



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Introduction

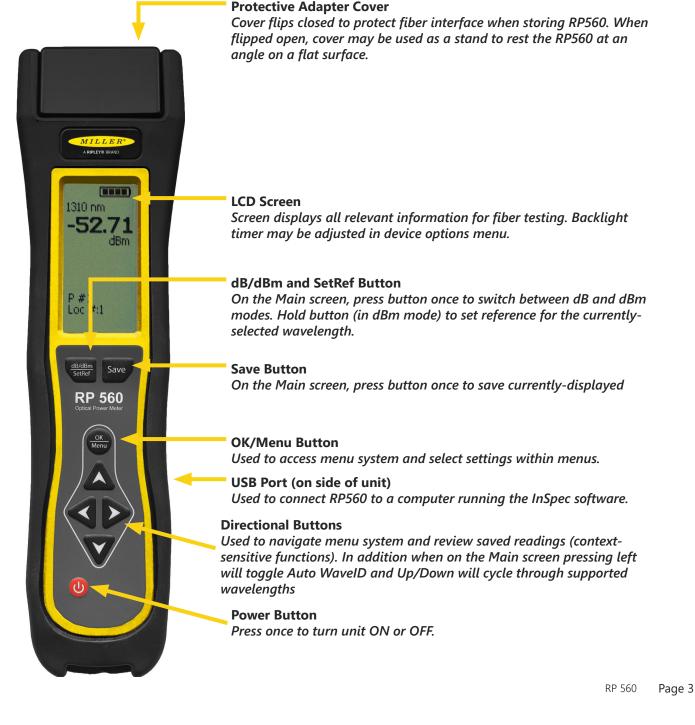


The RP560 is an optical power meter used for verifying the proper function of fiber optic networks. This document will serve as an overview of the major functions and features of the device.



Read and understand all of the instructions and safety information in this manual before operating this tool.

Device Overview



Important Safety Information



Read and understand all of the instructions and safety information in this manual before operating this tool.

Laser Hazard



Avoid eye exposure to open fiber connectors and interfaces when working with fiber systems. They may be connected to a live laser source.

Do not look into the output port of a laser source.

Point fiber endfaces toward non-reflective surfaces to prevent reflection of laser.

Electric Shock Hazard



Pay attention to proper battery polarity. Do not mix battery types or manufacturers.

Do not open the unit with the exception of the battery compartment door.

Use this unit only for its intended purpose as outlined in this document.



Damage to Item Hazard

Do not leave item in direct sunlight or near heat sources, submerge in water, or subject unit to strong impact.

Cover the fiber interface with the flip-cap when not in use.



Do not throw this product away.

Contact your local recycling station to dispose of properly.

Understanding the Main screen

* 1 310 nm	Battery Indicator The battery indicator displays the current battery level. The four segments will disappear as the battery level decreases to indicate remaining battery power.	Bluetooth [®] Indicator When this icon is displayed, Bluetooth functionality is turned on. Bluetooth features are explained elsewhere in this document.
-88.88 dBm	Wavelength 1 Display The incoming power level (dBm) or the loss value (dB) of the primary wavelength is shown here.	Wavelength Indicator 1 Displays either the selected wavelength or the wavelength recognized by the RP560 (Auto-ID mode only).
1550 nm -88.88 dBm	Wavelength 2 Display The incoming power level (dBm) or the loss value (dB) of the secondary wavelength is shown here.	Wavelength Indicator 2 <i>Displays the wavelength recognized</i> <i>by the RP560 (Auto-ID mode only).</i>
P #1 Loc #:23 2kHz Auto	Location Indicator The next available data slot in the project folder is displayed here.	Project Indicator Displays the project folder to which readings will be saved.
Ţ	Tone Indicator If a modulated tone is present on the fiber being tested, 2kHz, 1kHz, or 270Hz will be shown, depending on the modulated tone.	Auto-ID Indicator The word "Auto" is displayed when the power meter is in the automatic wavelength identification mode.

The Main screen of the RP560 acts as the general user interface for fiber testing.

Up to two wavelengths may be displayed at one time, but it is important to note that the dual wavelength view only functions when the RP560 is set to Auto-ID mode and it is currently receiving a signal from an DLS 6XX-series light source that is **ALSO** set to Auto-ID mode and transmitting two wavelengths.

The Auto-ID mode allows users to automatically switch to the correct wavelength being transmitted on the fiber. Novice users may find this feature helpful if they do not understand the difference between wavelengths.

Similarly, the Auto-ID mode allows two wavelengths to be tested at once. When the compatible light source transmits both wavelengths, the RP560 will recognize the output power of both wavelengths individually and provide a dBm power level or dB loss value for each wavelength.

In all other measurement modes, only one wavelength/measurement will be displayed.

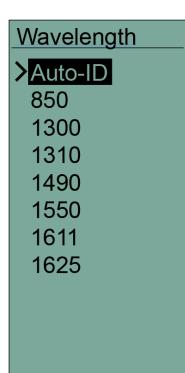
Wavelengths

Press the OK/Menu button to access the Main Menu



Use the Up/Down arrow buttons to move the cursor to the option you would like to explore. Press the Left arrow button to go back to the Main screen. Press the OK/Menu button or the Right arrow button to select an option.

Press the OK or Right arrow button to select the Wavelength menu.



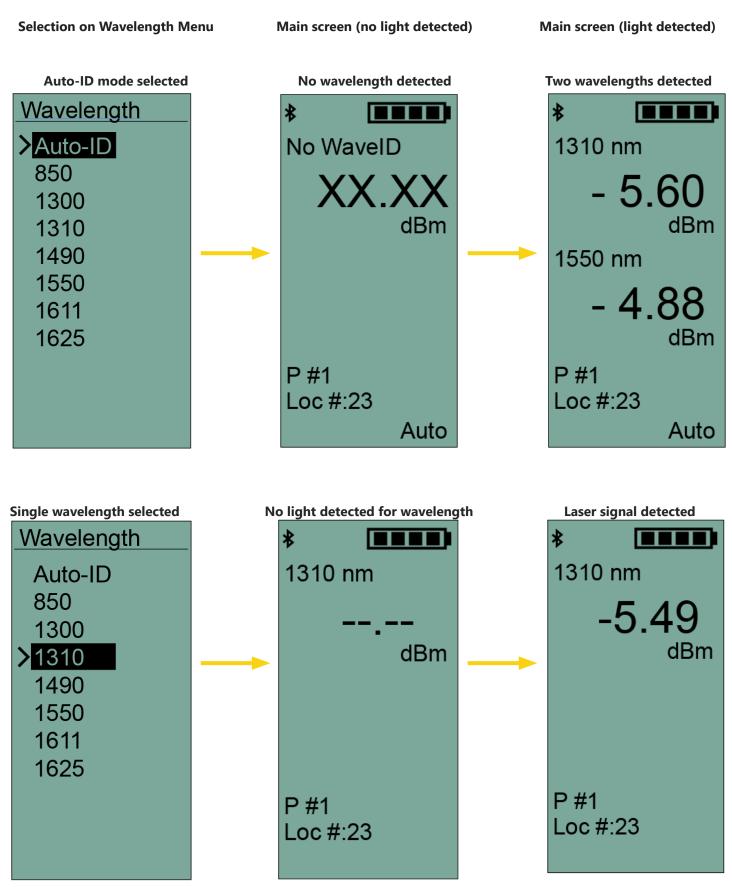
The Wavelength menu shows all measurable wavelengths.

The currently-selected option is highlighted. The cursor may be moved up and down the list with the Up/Down arrow buttons.

Press the OK button or the Right arrow button to select the wavelength that the cursor indicates.

Press the Left arrow button to return to the Main Menu, and once again to return to the Main device screen.

The Main screen of the RP560 will adjust based on the wavelength mode selected. See below for examples of different states the Main screen may display.



Projects

Press the OK/Menu button to access the Main menu.



Use the Up/Down arrow buttons to move the cursor to the option you would like to explore. Press the Left arrow button to go back to the Main screen. Press the OK/Menu button or the Right arrow button to select an option.

Press the OK or Right arrow button to select the Project menu.



The Project menu allows you to view and edit all readings saved to the various project folders on the RP560.

The cursor may be moved up and down the list with the Up/ Down arrow buttons.

Press the OK button or the Right arrow button to select the option that the cursor indicates.

Press the Left arrow button to return to the Main Menu, and once again to return to the Main device screen.

The "View" option allows you to view and delete readings in the current project folder.

"Sync BT" and "Sync USB" will transfer all readings in the project folder to the InSpec software (Android[™], Apple[®] iOS, Windows[®]).

"Clear Saves" deletes ALL readings in the current folder.

"Change" allows you to select a different project folder for testing and/or editing.

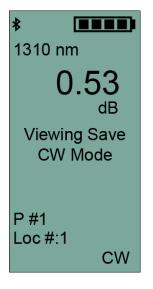
Select "View" to see all saved readings in the current folder.

Project	Readings
➤View Sync BT Sync USB Clear Saves Change	>1 0.53 2 1.24 3 0.89 4 6.20 5 0.57

The readings will be displayed in numerical order. The numbers in the left column are automatically assigned as the Save button is pressed on the Main screen of the RP560. In the example at left, 5 readings have been saved.

Use the Up/Down arrow buttons to navigate through the list. Over 500 readings may be saved in each project folder.

Press the OK/Menu button or the Right arrow button to see a detailed view of the currently-selected reading.



In the detailed view, all information relevant to the reading is displayed onscreen.

The wavelength, measurement, measurement mode (dB/dBm), project folder, save location, and wavelength mode (CW or Auto) are all shown.

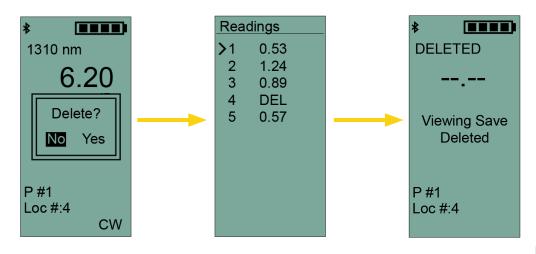
Use the Up/Down arrow buttons to cycle through the saved readings.

Use the Left arrow button to return to the list view.

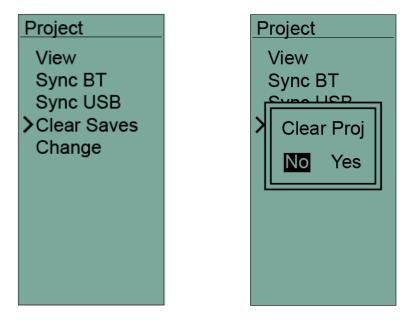
Press the OK/Menu or Right arrow button when viewing a saved reading to delete the reading. A confirmation dialog will pop up to ensure readings are not deleted accidentally.

Use the arrow buttons to select Yes or No. The reading will be deleted if Yes is selected using the OK/Menu button.

Deleted readings will be indicated in the list and in the detailed view.



Move the cursor to the "Clear Saves" option. Press the OK/Menu button or the Right arrow button to bring up the confirmation dialog. Selecting "Yes" will delete all readings in the project folder.



Move the cursor to the "Change" option. Press the OK/Menu button or the Right arrow button to bring up the Project Selection menu. Select a project from the list using the OK/Menu or Right arrow button to change the folder where readings are saved.

The selected project will be highlighted.

Project	Proj Select
View	Project 1
Sync BT Sync USB	>Project 2 Project 3
Clear Saves	Project 4
>Change	

Settings

Press the OK/Menu button to access the Main menu. Then select Settings.



Settings

Bluetooth Beeper Tone Detect Backlight The Settings menu allows you to change several user settings on the RP560.

The cursor may be moved up and down the list with the Up/ Down arrow buttons.

Press the OK button or the Right arrow button to select the option that the cursor indicates.

Press the Left arrow button to return to the Main Menu, and once again to return to the Main device screen.

The "Bluetooth" option allows you to turn Bluetooth functionality ON or OFF. Factory default setting is OFF.

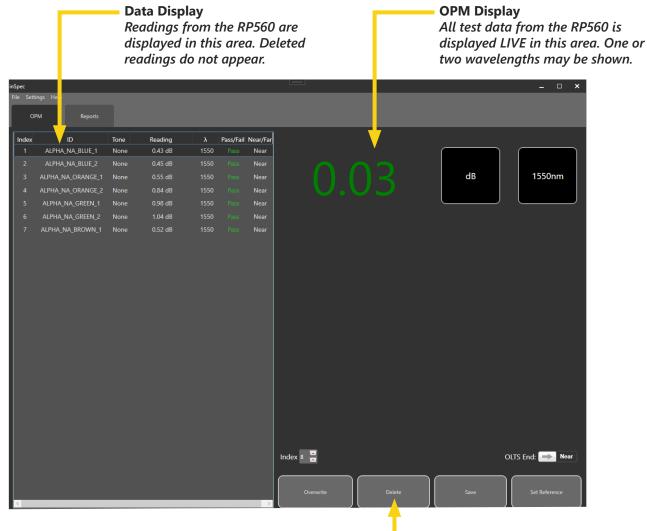
"Beeper" turns the audible alert ON and OFF. Factory default setting is ON.

"Tone Detect" turns the detector for 2kHz, 1kHz, and 270Hz ON or OFF. When set to OFF, the RP560 will not indicate if a modulated signal is received. Factory default setting is ON.

"Backlight" allows you to set the timeout for the screen backlight. Options include OFF (never turns on), 5 seconds, 15 seconds, and 30 seconds. The selected option will be highlighted. Factory default setting is 15 seconds.

Integration with Windows InSpec

Plug the RP560 into a Windows PC running the new InSpec software to offload saved data and create reports.



nport			×
Readings		OLTS End: 🛑	Near
ID	Reading	λ	dB/dBm
ALPHA_NA_BROWN_2	-60.02	1310	dBm
ALPHA_NA_GREY_1	-58.59	1310	dBm
ALPHA_NA_GREY_2	-56.3	1310	dBm
ALPHA_NA_WHITE_1	-59.37	1310	dBm
ALPHA_NA_WHITE_2	-0.371	310	dB
BETA_NA_RED_1	-0.221	310	dB
BETA_NA_RED_2	-0.281	310	dB
<	_	_	>
Cancel			Import

Editing Controls *These buttons allow saving and editing of the data in this window.*

The RP560 may be used in either the LIVE mode (saving readings as you go) or you may offload the existing readings on an RP560 into the InSpec software

To offload readings saved on the RP560 into the InSpec software, navigate to the Menu>Projects and select Sync USB on the RP560 unit.

The dialog box shown here will appear in the InSpec window on your computer. By default, all readings will be imported. To import only selected readings, hold CTRL on the keyboard and click the readings to be imported: they will be highlighted. Users can also hold the Shift key and click the first and last reading in a range to select the entire range. Click Import when ready to sync readings into InSpec.

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	1	None	-60.02 dBm	1310		Near
2	2	None	-58.59 dBm	1310		Near
3	3	None	-56.3 dBm	1310		Near
4	4	None	-59.37 dBm	1310		Near

The left side of the window displays the readings from the RP560 after they have been synced into the software. Any readings that were Deleted from the RP560 will be omitted from the synced data.

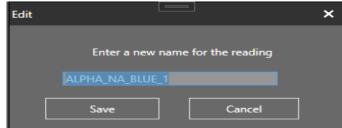
If the software is being used to save data during the fiber test, the buttons onscreen can be used to perform the tests. Note that the live information from the RP560 Main screen is displayed on the right side of the window. Wavelength

Click here to change the measured wavelength. Changes will be mirrored on the RP560. dB/dBm Click here to switch between dB and dBm measurement modes. dB 1310nm Click-and-hold for 2 seconds to set reference when in dBm mode (or click Set Ref button below). Changes will be mirrored on the RP560. Delete Click to delete selected reading(s). They cannot be OLTS End: Near Index 9 recovered. This does not affect readings saved to the RP560 internal memory. Save

Click to save the current reading. The reading will appear in the data window on the left side of the screen. The saved data that is synced into the software or saved live can be edited for final reporting in the Reports tab.



Double-click on any one reading to edit the "ID" column for that reading. Or select the reading and click "Edit Selected".



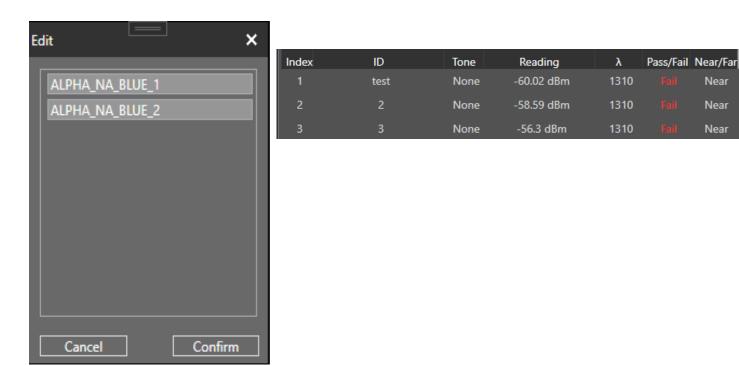
The ID column changes are shown immediately.

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	test	None	-60.02 dBm	1310		Near
2	2	None	-58.59 dBm	1310		Near

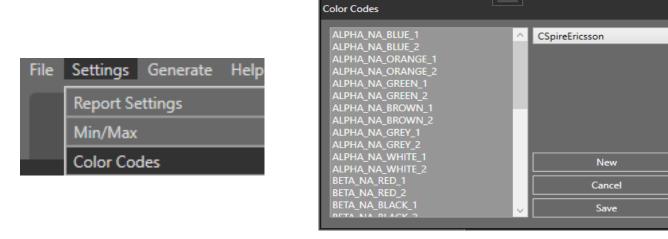
Use the CTRL key on the computer keyboard and click multiple readings to select multiple readings for editing. To select a range of readings, click the first reading in the range, hold the Shift key on the computer keyboard, and click the last reading in the range.

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	test	None	-60.02 dBm	1310		Near
2	2	None	-58.59 dBm	1310		Near
3	3	None	-56.3 dBm	1310		Near
4	4	None	-59.37 dBm	1310		Near
5	5	None	-0.391 dB	310		Near

With multiple readings selected, click the Edit button to bring up the multi-editor. Edit the information and click "Confirm" to change the ID for multiple items.



To choose or create color codes, click Settings>Color Codes.



Click the dropdown box to select from preset color codes, or click "New" to create your own color codes which can be used in the future.

When using a Custom option, enter the color codes in the white space on the left side of the window. Each line represents an indexed location. Click "Save" when finished.

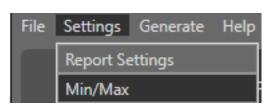
Color Codes	×
this would be reading 1 this would be 2 3 4 five so on and so on	test color code ~
	New
	Cancel
	Save

The color codes entered or selected will fill the available readings. For example, the Custom setting has 6 entries, but only 5 readings are saved. Any additional readings are indexed as usual.

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	This would be reading 1	None	-60.02 dBm	1310		Near
2	This would be 2	None	-58.59 dBm	1310		Near
3	3	None	-56.3 dBm	1310		Near
4	4	None	-59.37 dBm	1310		Near
5	Five	None	-0.391 dB	310		Near
6	So on and So on	None	-0.371 dB	310		Near
7	7	None	-0.221 dB	310		Near
8	8	None	-0.281 dB	310	Fail	Near

×

To change the Pass/Fail column, click **Settings>Min/Max**.





Loss minimum is usually set to 0. A maximum of 3 is standard for most fiber tests. Set Min and Max to any values as needed, then click "Apply".

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	This would be reading 1	None	-60.02 dBm	1310		Near
2	This would be 2	None	-58.59 dBm	1310		Near
3	3	None	-56.3 dBm	1310		Near
4	4	None	0.24 dB	1310		Near
5	Five	None	0.24 dB	1310		Near
6	So on and So on	None	0.24 dB	1310	Pass	Near

Any readings which fall within the Min/Max range provided will be given a PASS designation. Readings that do not fall within the range will be given a FAIL designation.

To change the Report Settings, click **Settings>Report Settings**.

Report Settings		×
Clear Headers Clear Data Reset To D	efaults	
Customer Name Contact Nan	e	MILLER®
		A RIPLEY® BRAND
Testing Company 	•	
Test Location Comments		Browse Report Type
Scope Power Meter 		✓ Use Current Time Save Exit

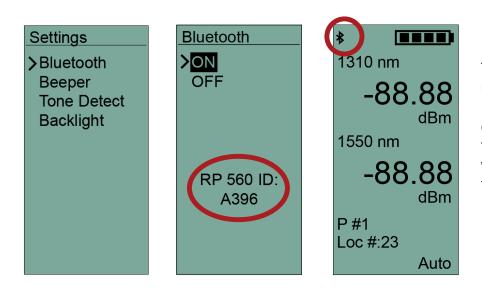
All information in the dark and light boxes are editable. The default settings are shown above. Click "Reset to Defaults" to return to this arrangement of information. Enter all info as needed and click Save to have the information appear on reports.

The Ripley Miller logo will appear on reports. Click Browse to choose a different logo to place on the report, if desired.

Changeing the selected "Report Type" will change what format the reports are generated as. Currently PDF, HTML, XML, and Excel are supported

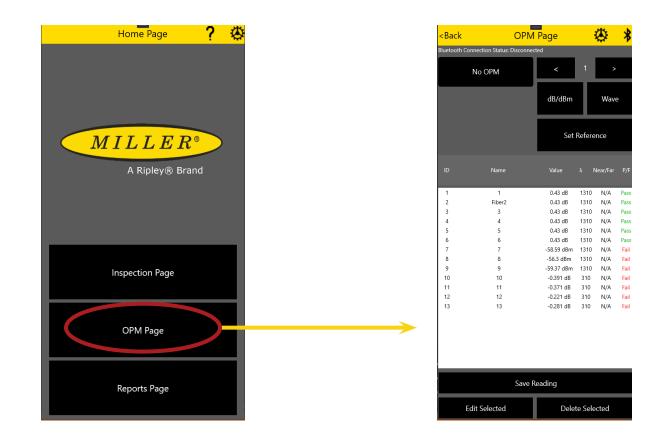
Integration with Mobile InSpec

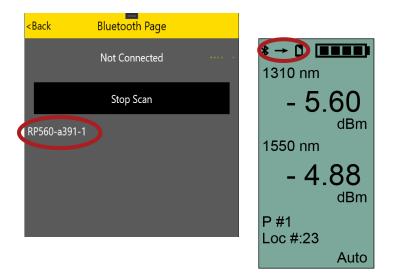
Ripley's InSpec application can be downloaded from the Google Play, Amazon, Apple, or Microsoft store, Allowing you to connect the RP560 to a smartphone via Bluetooth to perform live testing or to share data for fast reporting.



To turn the Bluetooth feature ON, navigate to the Settings menu, select Bluetooth, and Select ON. The RP560 device ID is shown on this screen; take note of it. The Bluetooth icon will be shown on the main screen of the RP560.

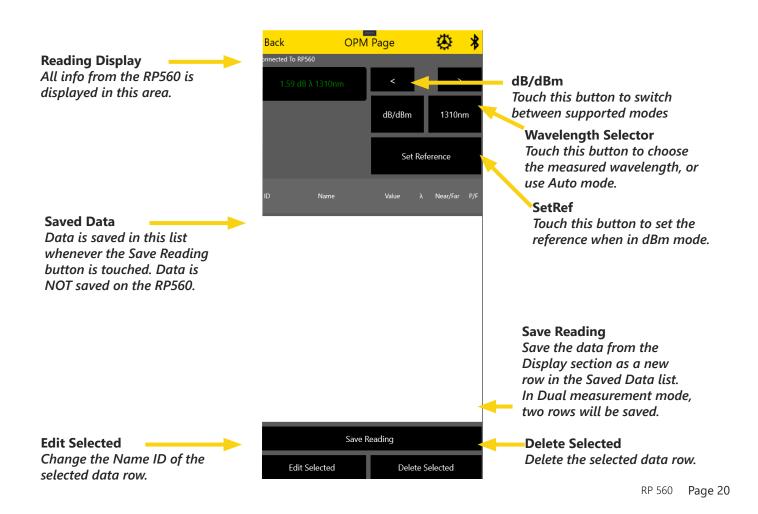
Open the InSpec app on your Android device. Touch the "OPM Page" button to access the OPM page of the app. Touch the icon in the top right corner of the screen and select "Bluetooth" to access Bluetooth settings.





Touch the Scan button, and select your RP560 unit when it appears in the list. When the RP560 is connected to the Android device via Bluetooth, a connection icon will appear on the RP560 screen.

The diagram below shows the features of the main screen of the InSpec app. All changes to the RP560 streamed data will be mirrored on the physical RP560 unit.



Touch a saved reading to select it from the list; it will be highlighted. Touch Edit Selected to edit that reading. Use the onscreen keyboard to enter a new name, then select OK. The new name will appear in the "Name ID" column. Any reading in the list can be deleted by selecting it and touching Delete Selected.

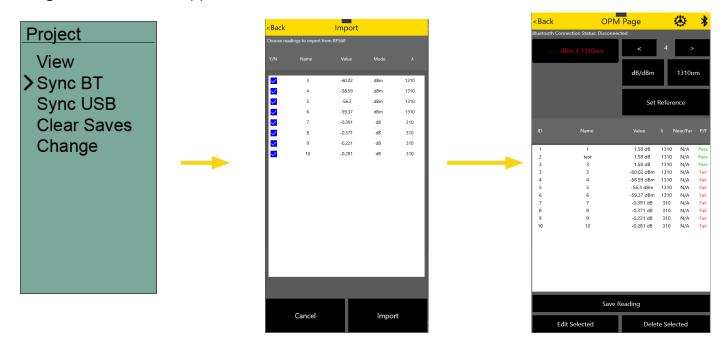
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<back< th=""><th></th><th>Page</th><th>4</th><th>E 🔧</th><th></th><th><back< th=""><th>OP</th><th>M Page</th><th>-</th><th>*</th><th></th><th></th><th>1 Page</th><th></th><th>ж</th><th></th></back<></th></back<>		Page	4	E 🔧		<back< th=""><th>OP</th><th>M Page</th><th>-</th><th>*</th><th></th><th></th><th>1 Page</th><th></th><th>ж</th><th></th></back<>	OP	M Page	-	*			1 Page		ж	
Connected To R	RP560	_				Connected	To RP560				<back< th=""><th></th><th>Page</th><th></th><th>٨</th><th>*</th></back<>		Page		٨	*
1.58 d	dB λ 1310nm	<	4	>		1.5		<	4 >		Connected	To RP560 58 dB λ 1310nm	<	4	>	
		dB/dBm	13	10nm				dB/dBm	1310nm	1			dB/dBm		1310n	m
		Set	Reference	2				Set I	Reference				Se	t Refer	ence	
ID	Name	Value	λ Near			ID	Name	Value	λ Near/Far	P/F	ID	Name	Value	λ	Near/Far	P/F
1	1	1.58 dB 1.58 dB	1310 N 1310 N			1	Edit Selected R	eading	(A	Pass	1	1	1.58 dB	1310	N/A	Pass
3	3	1.58 dB	1310 N			3	Please enter a new n	ame for the selected	reading (A	Pass	2	test 3	1.58 dB 1.58 dB	1310 1310	N/A	Pass Pass
							ОК	Cancel			-					
	Save F	Reading										Save	Reading			
Edi	t Selected	Dele	ete Selecte	d				Delet				Edit Selected	Del	ete Sel	ected	

To set PASS/FAIL limits for testing, touch the icon in the top right corner of the screen, and select OPM Settings. The currently-set Min and Max will be displayed. Touch the Set button to set the Min and Max, then touch Confirm. If no values are set, PASS/FAIL is disabled.

	-	<back< th=""><th>OPM Sett</th><th>ings Page</th><th></th></back<>	OPM Sett	ings Page	
<back< th=""><th>OPM Page</th><th>Pas</th><th>ss/Fail</th><th></th><th></th></back<>	OPM Page	Pas	ss/Fail		
		Min	Max	Clear	
		0	3		
			Color Cod	le Options	
		Rename Reading: Code	s To Match Color	Rename Readings	
		SelectedColorCo	de	None	\sim
		Enable bidirection	nal testing		
_					
				N.4. I.N.4	

0.47 dB λ 1310nm

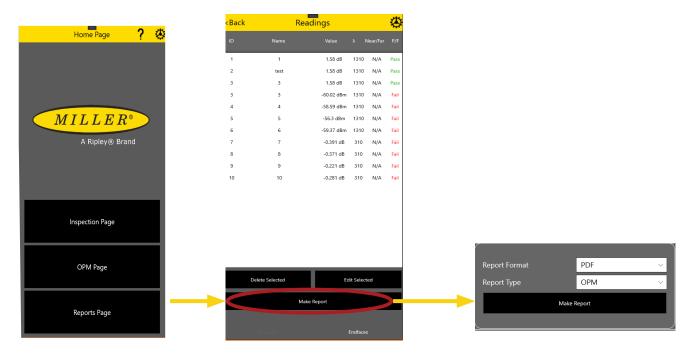
Any readings which fall between the Min and Max values will be displayed in green in the display and the saved data field. Readings which fall outside this range will be displayed in red. Data which has been saved on the RP560 can also be imported into the InSpec app. Navigate to the Project folder with readings saved in it on the RP560 and select Sync BT. The readings will appear in a list on the InSpec app. Choose the readings to import using the checkboxes, then touch Import to bring the data into the app.



To make and send a report from the InSpec app, touch the icon in the top left of the screen and select Reports from the flyout menu.

NOTE: the RP560 data stream will disconnect automatically when the Reports screen is accessed. To restart the data stream and continue testing, follow the connection instructions on page 19.

Delete and/or edit any readings as needed using the buttons onscreen, then touch Make Report. Next select the type of report and format. Finally share the report using whichever method you prefer.



Common Test Procedures

This section provides an overview of common tests and procedures which may be performed with the RP560 optical power meter.

Protective Adapter Cover

The power meter input adapter is covered by a protective cap.



Adapters

The RP560 comes with a 2.5mm universal adapter. The adapter accepts all fiber connectors with 2.5mm ferrules. Common



To remove the 2.5mm adapter, unscrew it from the adapter post on the top of the RP560.



Additional adapters are available from Ripley. All adapters attach to the RP560 by screwing on to the adapter post.



Checking Light Source Output Power - dBm Measurement Mode

The dBm measurement mode is used to evaluate the output power of a laser or LED signal being transmitted on the fiber.



The dBm measurement mode may be used to check the output power of a light source at a specific location in the optical link.





In the example shown here, the fiber has been unplugged from the optical system (transmitting data on the 1310nm wavelength) and plugged into the RP560 power meter. The optical system is still transmitting light on the fiber to the point where it has been unplugged. The RP560 is in the dBm measurement mode and is set to measure the 1310nm wavelength.

The dBm measurement indicates the absolute power of the optical signal. This information is helpful when determining if a piece of equipment will function with the current light input.

For example, if the fiber was unplugged from a network terminal requiring a -7dBm or higher power level to function, it could be deduced that the network terminal in the example shown above will function appropriately because the optical power is higher than -7dBm.

Setting a Reference and Testing for Loss - dB Measurement Mode

If a length of fiber should be tested for Insertion Loss (also commonly called Attenuation or dB Loss),



In the example shown here, a DLS 655 dual laser source is being used to set the reference on the RP560 optical power meter. Any singlemode test jumper can be used, provided the adapters on the DLS 655 and RP560 match the connectors on the test jumper.

The DLS 655 is in the dual wavelength mode. If the RP560 is set to the Auto-ID mode **[Menu>Wavelength>Auto-ID]** then it will recognize both wavelengths at once.

In the dBm mode, the RP560 indicates the output power of the laser source for each wavelength. The DLS 655 is calibrated to put out a -8.0dBm (\pm 2.0dB) signal in the dual wavelength mode. If the signal is in that range, the reference can be set.

Press and **HOLD** the dB/dBm/SetRef button to set the reference for both wavelengths simultaneously.





The RP560 will switch to the dB mode for each wavelength, and the readout will display 0.00dB (± 0.05 dB).

The readout will display the 0.00dB reading any time the DLS 655 and RP560 are connected with no changes to the test jumper. This is the "reference point" for the Insertion Loss Test. When the fiber being tested (highlighted below) is added into the link between the test jumper and RP560, the **LOSS** on the fiber is shown on the RP560 screen. The loss for each wavelength may be different.





Press the Save button to save both readings.

NOTE that the loss readings will be saved individually if two wavelengths are being tested. The Location indicator will increase by 2 each time the Save button is pressed.

Specifications

OPTICAL POWER METER	
Detector Type	-02: InGaAs / -04: Filtered InGaAs
Measurement Range	-02: +6 to -70dBm / -04: +23 to -45dBm
Wavelength Range	850nm to 1650nm
Selectable Wavelengths	850 / 1300 / 1310 / 1490 / 1550 / 1611 / 1625 nm
Resolution	0.01dB
Absolute Accuracy	± 0.25 dB (0dBm, 22C to 25C)
Optical Interface	Universal 2.5mm (Additional Adapters Available)
Display	LCD
Tone ID	2kHz, 1kHz, 330Hz, 270Hz
Storage	10,000+ Measurements, 4 storage folders
Data Transfer	Micro USB or Bluetooth
Power	Push Button Toggle / Auto OFF
Battery	AA - 2 Alkaline Batteries Included
Dimensions	5.8cm x 21.5cm x 3.0cm
Weight	6 oz

Ordering Information - Accessories

Power Meter Adapters

PART NO.	DESCRIPTION
AC 020	2.5 mm Universal Adapter
AC 021	1.25 mm Universal Adapter
AC 026	SC Adapter for Optical Power Meter
AC 027	ST Adapter for Optical Power Meter
AC 028	FC Adapter for Optical Power Meter
AC 029	LC Adapter for Optical Power Meter
AC 126	SC/APC Adapter for Optical Power Meter

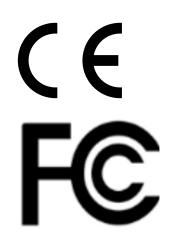
Patch Cord Accessories

PART NO.	DESCRIPTION
AC 500	SM SC-LC - 1m Simplex
AC 501	SM SC-SC - 1m Simplex
AC 502	SM LC-LC - 1m Simplex
AC 550	MM SC-LC - 1m Simplex
AC 552	MM LC-LC - 1m Simplex
AC 600	SC-SC Simplex Bulkhead Adapter
AC 601	LC-LC Simplex Bulkhead Adapter
AC 602	LC-LC Duplex Bulkhead Adapter

Cleaning Tools

PART NO.	DESCRIPTION
AC 089	One-Click Cleaner for 1.25mm & ODC Ferrules / Bulkheads
AC 099	One-Click Cleaner for 2.5mm Ferrules / Bulkheads
AC 090	1.25mm Swabs (100 per Pack)
AC 091	2.5mm Swabs (100 per Pack)
AC 092	SqR Pad & Fiber Wash Pen
AC 190	Cletop Cleaner - Type B - Blue Tape

Certifications and Contact Information



This product conforms with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA). This product was tested by an ISO 17025 accredited laboratory and complies with the following CE directives and standards listed below:

Directives: Electromagnetic Compatibility (2014/30/EU) Low-Voltage (2014/35/EU) Standards: EMC: EN 61326-1:2013 Industrial Safety: EN/IEC61010-1:2010+A1:2016

Contains FCC ID: T9JRN4020

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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Contact Support

contact us with any questions pertaining to this or any other Ripley product.

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