



A RIPLEY® BRAND

RP460

Optical Power Meter User Guide



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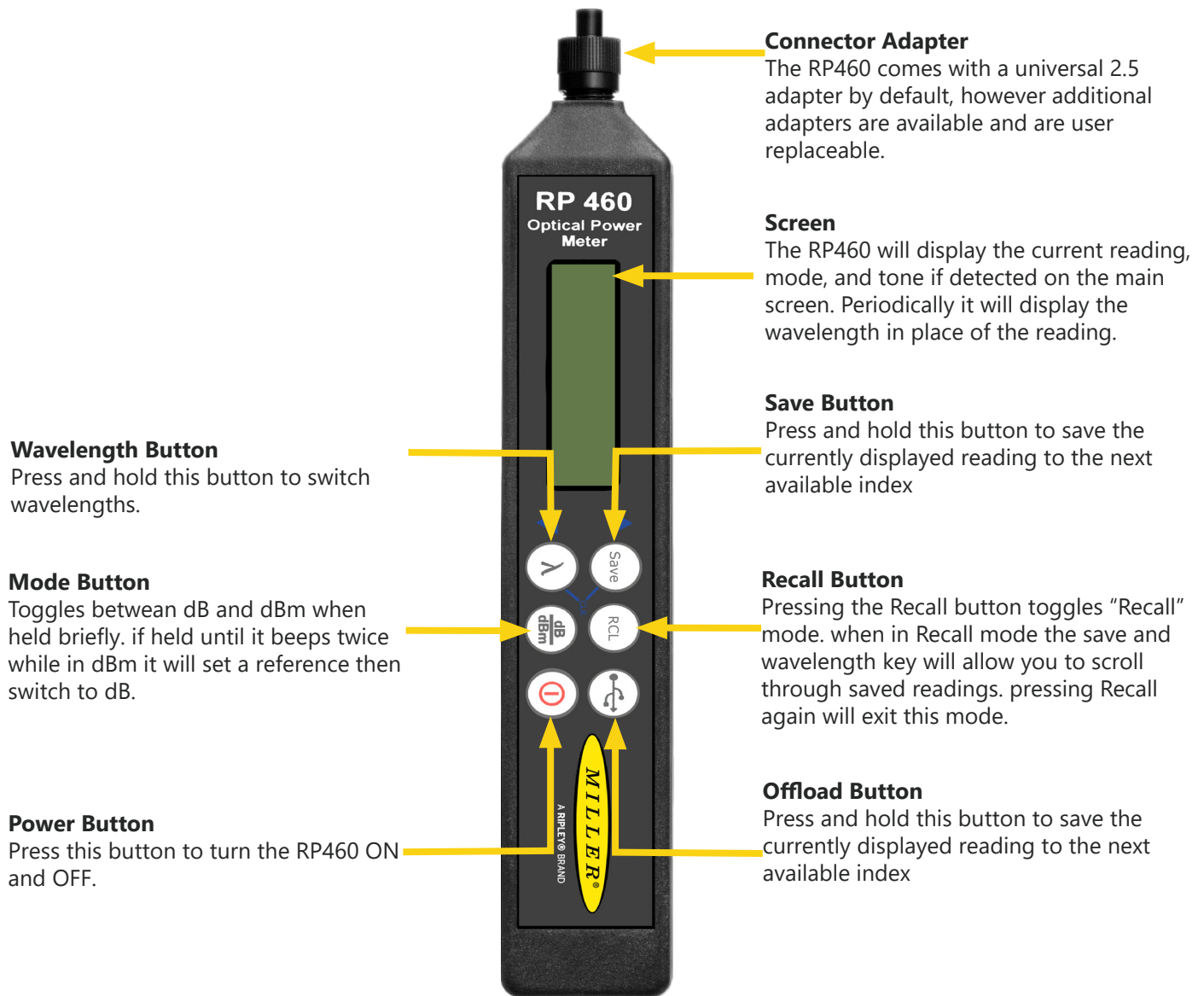
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Introduction



The RP460 Optical Power Meter is an ultra low cost, and compact power meter used for verifying both absolute and relative power across any given fiber. This document will serve as an overview of the major features and functions of the device and will offer tips for trouble shooting common issues in optical networks. if you are looking for a device that can communicate with IOS and Android take a look at the RP560.

Device Overview



Connector Adapter

The RP460 comes with a universal 2.5 adapter by default, however additional adapters are available and are user replaceable.

Screen

The RP460 will display the current reading, mode, and tone if detected on the main screen. Periodically it will display the wavelength in place of the reading.

Save Button

Press and hold this button to save the currently displayed reading to the next available index

Recall Button

Pressing the Recall button toggles "Recall" mode. when in Recall mode the save and wavelength key will allow you to scroll through saved readings. pressing Recall again will exit this mode.

Offload Button

Press and hold this button to save the currently displayed reading to the next available index

Wavelength Button

Press and hold this button to switch wavelengths.

Mode Button

Toggles between dB and dBm when held briefly. if held until it beeps twice while in dBm it will set a reference then switch to dB.

Power Button

Press this button to turn the RP460 ON and OFF.

Important Safety Information



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



Laser/LED 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 or LED 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.

Setting Reference

Caution: Invisible LED/Laser Radiation

Please note that wavelengths used by optical laser sources are not visible to the human eye. Do not look directly into any fiber connector that may be live or any companion light source.

Since the light is invisible to the eye, the eye's natural blink reflex is suppressed. This can cause damage to the retina.

To set a reference first connect the RP45 and companion light source as shown below. Ensure the unit is in dBm and you are reading the correct output power for the laser/LED you are using (Ripley Lasers are calibrated at -5 (or -8 with tone on) and LEDs are calibrated at -22 (or 25 with tone on)). Next press and hold the Mode Button until you hear a short beep then a long beep. After this verify that the power meter now reads within .05 of 0 and is in dB mode.



Basic Testing

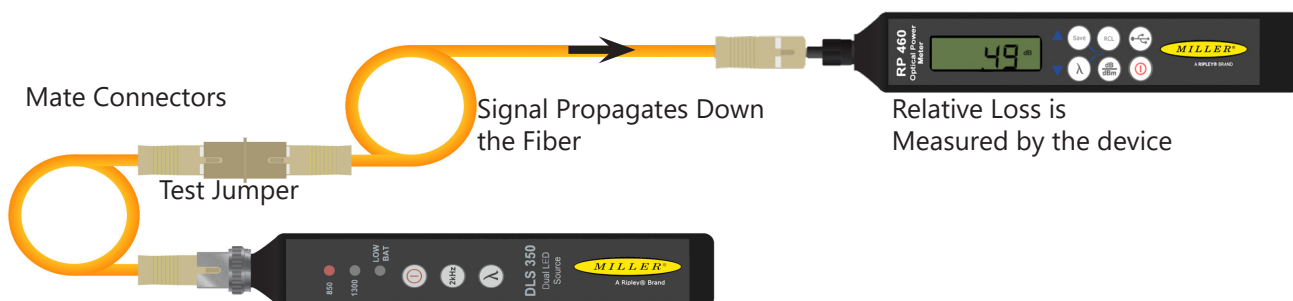
Absolute Measurements

The RP460 can be used to view the Absolute Power of a fiber by first ensuring the correct wavelength is selected, and that the unit is in dBm, then plugging the fiber into the power meter. The absolute power will be displayed in dBm on the screen along with any tone detected.



Relative/ Loss Measurements

The RP460 can also be used to view relative power, or loss across a fiber. To do this you have to first set a reference as described above and put the unit into dB mode. Next attach the fiber you want to measure inbetween the test jumper, and RP460 as shown below. This will show the relative loss in dB on the RP460.



Notes

Audible Alerts

the RP460 emits an audible beep each time a major function is used. To disable most beeps, ensure the unit is OFF. Press and hold the Save button, and turn the unit on. to re enable beeps just repeat this process.

Disable Auto Off

The RP460 turns off automatically if no buttons are pressed for minutes. To bypass this feature, hold the Power button for 3 seconds when powering on. A series of beeps will indicate that the units Auto Off feature has been disabled.

Reviewing Saved Readings

By pressing the "RCL" button you can enter Recall mode. While in Recall mode the "Save" and "Wavelength" buttons navigate up and down through your saved readings. each reading has a location indicated by a 4-digit number (0000, 0001,0002, etc) the data cycles at either end so scrolling down from 0 will give you your last saved reading while up from there will return you to the start of the list. Pressing "RCL" at any time will return you to Live mode.

Deleteing Saved Readings

Pressing and holding the Save and Wavelength keys while not in Recall Mode will clear all saved readings. the screen will flash 0000 to indicate that the memory has been cleared.

Maintenance

Low Battery

the RP460 provides over 100 hours of continued use under normal conditions. When the BATT indicator is shown on the device screen, the CR2 battery should be replaced or recharged if you have chosen rechargeable CR2 batteries.

Optical Connector Interface

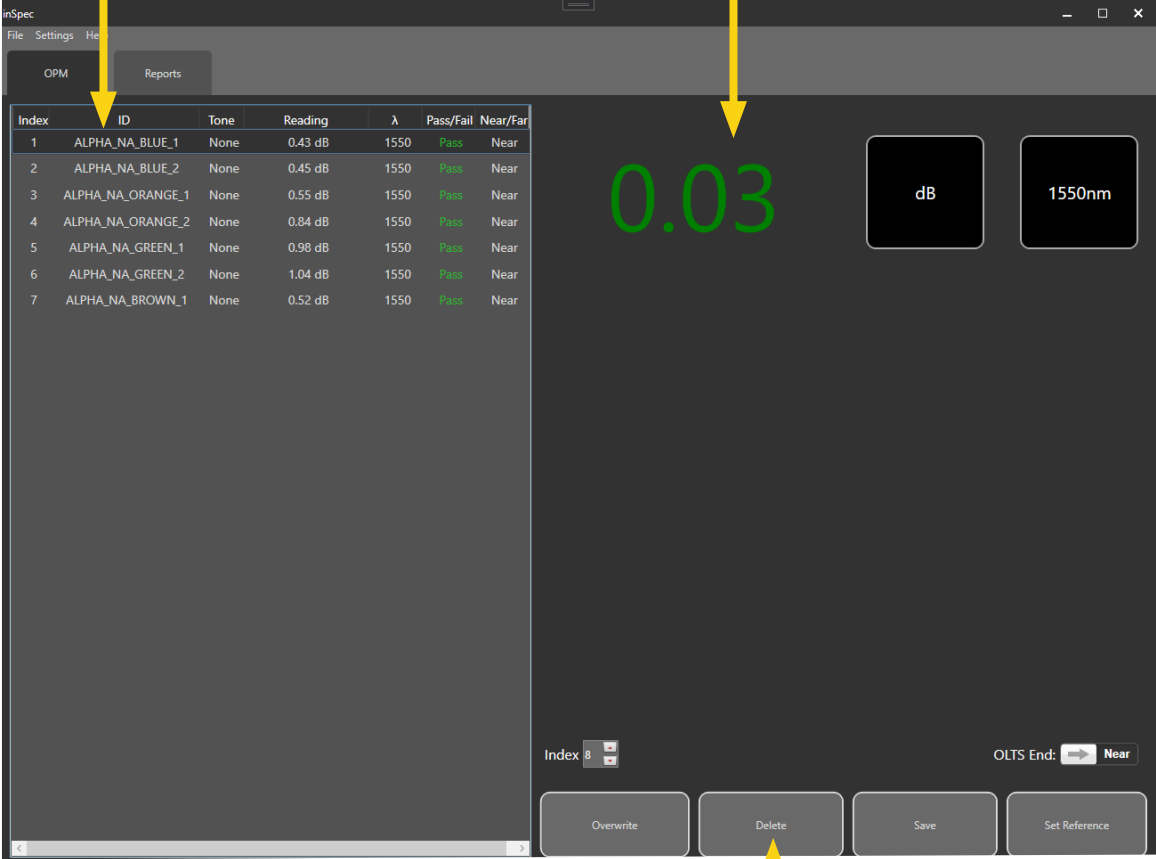
The RP460 is equipped with a universal connector adapter that is compatible with many popular style connectors. The connector adapter interface should be kept covered and protected from contamination. Care must be taken to avoid objects that may damage the glass surface of the detector mount. if scratches or breaks occur on the surface, please contact Ripley for proper repair and re-calibration.

Integration with Windows InSpec

Plug the RP 460 into a Windows PC running the new InSpec software to offload saved data and create reports.

Data Display
Readings from the RP 460 are displayed in this area. Deleted readings do not appear.

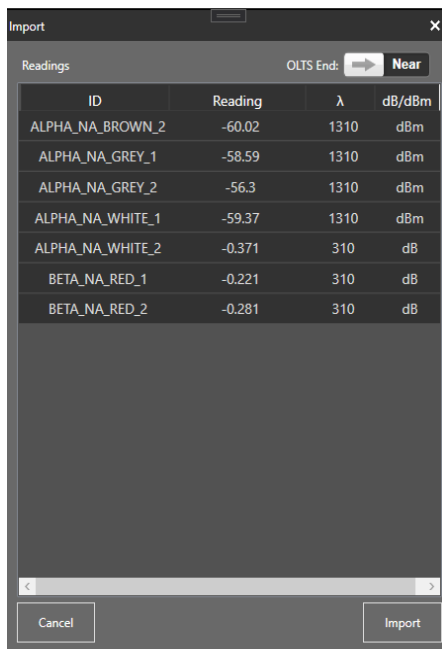
OPM Display
All test data from the RP 460 is displayed LIVE in this area.



The screenshot shows the InSpec software interface. On the left, there is a table with columns: Index, ID, Tone, Reading, λ, Pass/Fail, and Near/Far. The table contains 7 rows of data. On the right, there is a large OPM display showing a large green number '0.03' and two buttons labeled 'dB' and '1550nm'. Below the table, there are buttons for 'Overwrite', 'Delete', 'Save', and 'Set Reference'. The 'Delete' button is highlighted with a yellow arrow.

Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	ALPHA_NA_BLUE_1	None	0.43 dB	1550	Pass	Near
2	ALPHA_NA_BLUE_2	None	0.45 dB	1550	Pass	Near
3	ALPHA_NA_ORANGE_1	None	0.55 dB	1550	Pass	Near
4	ALPHA_NA_ORANGE_2	None	0.84 dB	1550	Pass	Near
5	ALPHA_NA_GREEN_1	None	0.98 dB	1550	Pass	Near
6	ALPHA_NA_GREEN_2	None	1.04 dB	1550	Pass	Near
7	ALPHA_NA_BROWN_1	None	0.52 dB	1550	Pass	Near

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



The screenshot shows the 'Import' dialog box in InSpec software. It has a title bar 'Import' and a close button. Below the title bar, there is a 'Readings' section with a table of data. The table has columns: ID, Reading, λ, and dB/dBm. The table contains 7 rows of data. Below the table, there are 'Cancel' and 'Import' buttons. The 'Import' button is highlighted with a yellow arrow.

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

The RP 460 may be used in either the LIVE mode (saving readings as you go) or you may offload the existing readings on an RP 460 into the InSpec software

To offload readings saved on the RP 460 into the InSpec software, Press the Offload button on the unit while connected

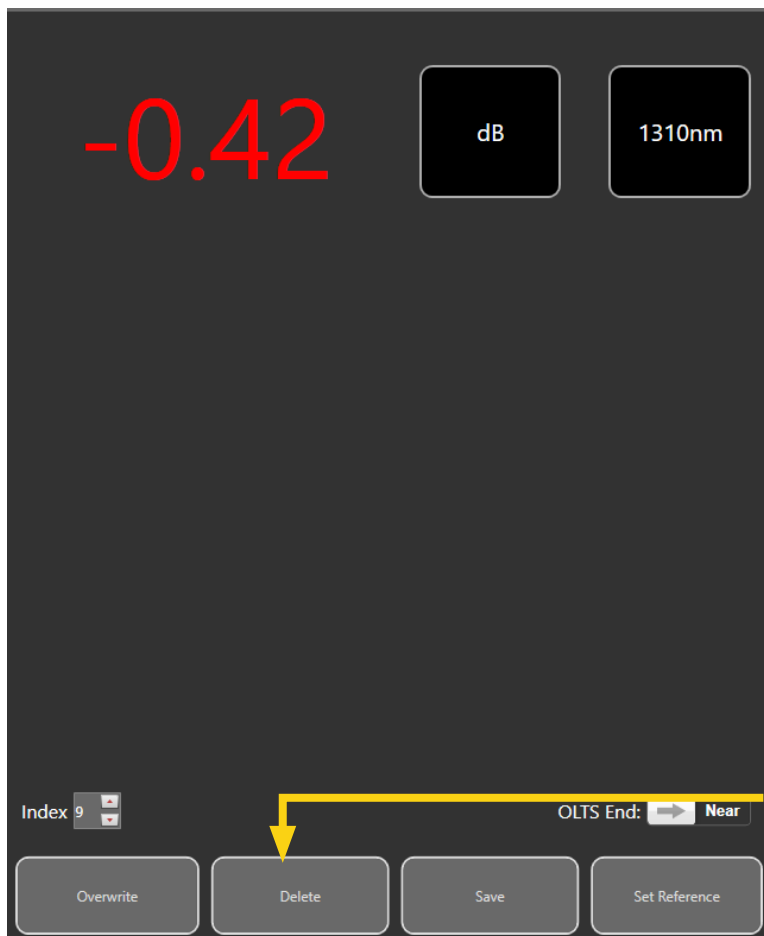


The dialog box shown here will appear in the InSpec window on your computer. By default, all readings will be imported. To import only selected readings, hold CTRL on the keyboard and click the readings to be imported: they will be highlighted. Users can also hold the Shift key and click the first and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

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

The left side of the window displays the readings from the RP460 after they have been synced into the software.

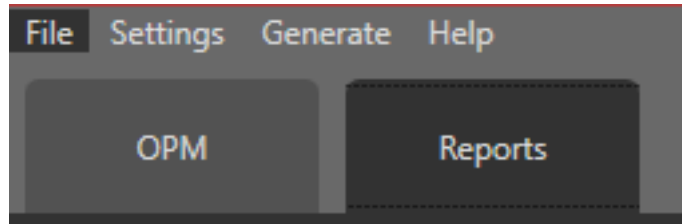
If the software is being used to save data during the fiber test, the buttons onscreen can be used to perform the tests. Note that the live information from the RP460 Main screen is displayed on the right side of the window. And that the wavelength and mode can only be changed on the unit.



Delete
 Click to delete selected reading(s). They cannot be recovered. This does not affect readings saved to the RP460 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.



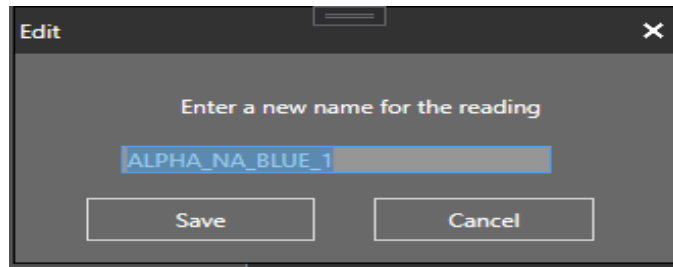
Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	1	None	-60.02 dBm	1310	Fail	Near
2	2	None	-58.59 dBm	1310	Fail	Near
3	3	None	-56.3 dBm	1310	Fail	Near
4	4	None	-59.37 dBm	1310	Fail	Near
5	5	None	-0.391 dB	310	Fail	Near
6	6	None	-0.371 dB	310	Fail	Near
7	7	None	-0.221 dB	310	Fail	Near
8	8	None	-0.281 dB	310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

Below the table are two buttons: "Edit" and "Delete".

Edit
Edit multiple readings.

Delete
Delete selected reading(s).

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



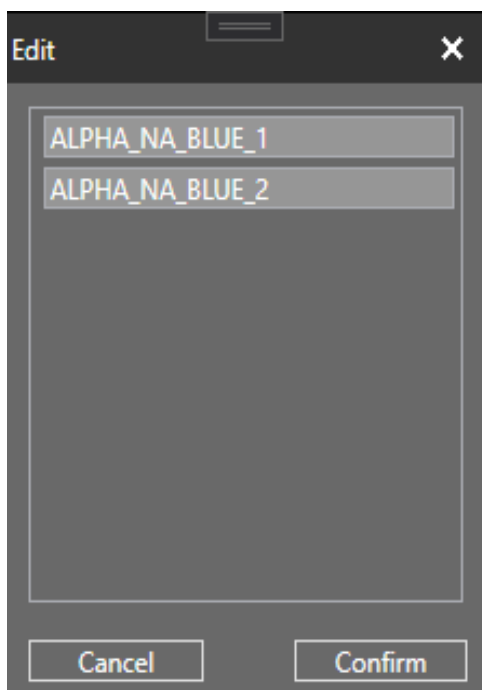
The ID column changes are shown immediately.

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

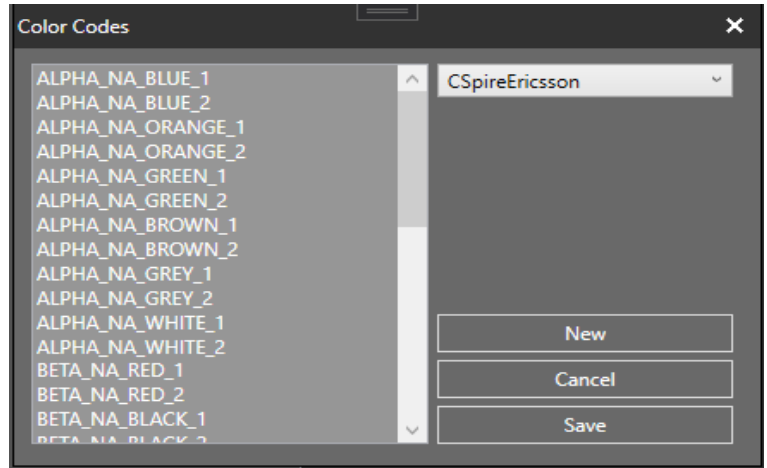
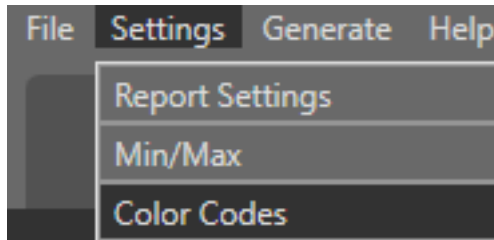
Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	test	None	-60.02 dBm	1310	Fail	Near
2	2	None	-58.59 dBm	1310	Fail	Near
3	3	None	-56.3 dBm	1310	Fail	Near
4	4	None	-59.37 dBm	1310	Fail	Near
5	5	None	-0.391 dB	310	Fail	Near

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.



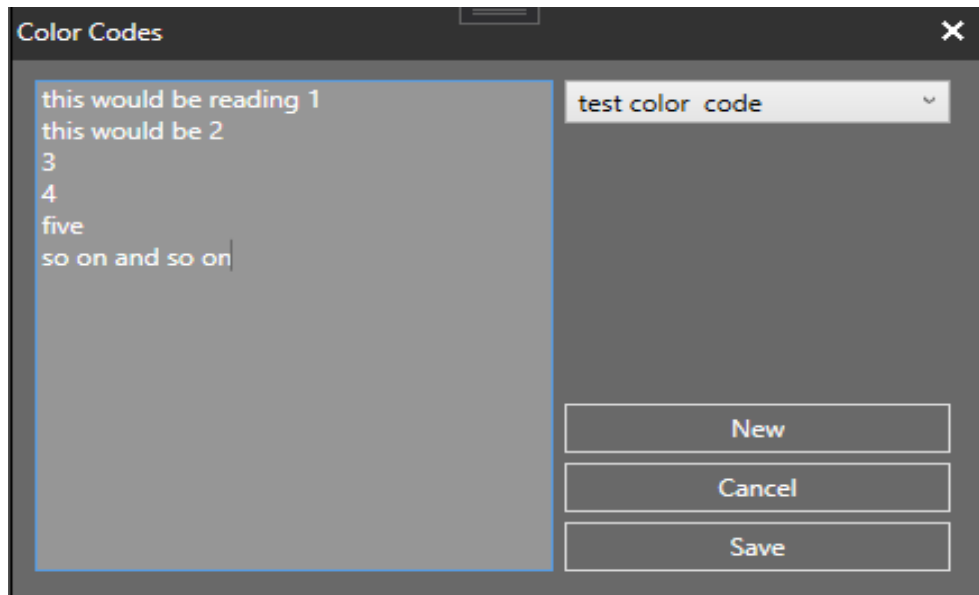
Index	ID	Tone	Reading	λ	Pass/Fail	Near/Far
1	test	None	-60.02 dBm	1310	Fail	Near
2	2	None	-58.59 dBm	1310	Fail	Near
3	3	None	-56.3 dBm	1310	Fail	Near

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.

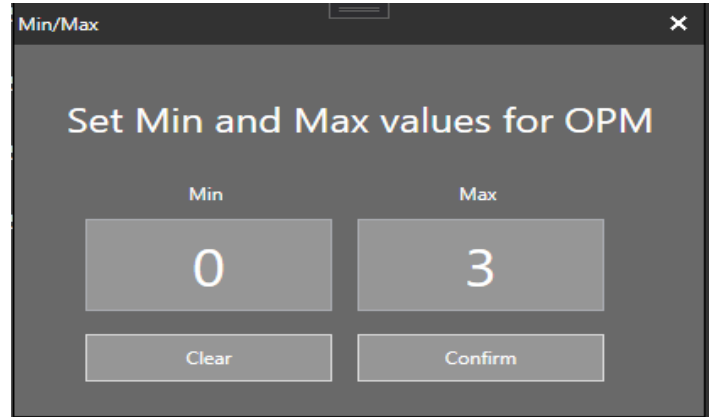
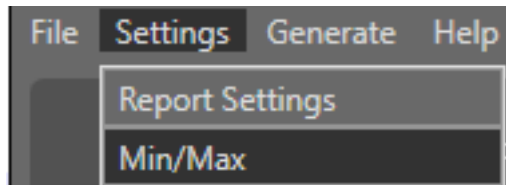
When using a Custom option, enter the color codes in the white space on the left side of the window. Each line represents an indexed location. Click "Save" when finished.



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	Fail	Near
2	This would be 2	None	-58.59 dBm	1310	Fail	Near
3	3	None	-56.3 dBm	1310	Fail	Near
4	4	None	-59.37 dBm	1310	Fail	Near
5	Five	None	-0.391 dB	310	Fail	Near
6	So on and So on	None	-0.371 dB	310	Fail	Near
7	7	None	-0.221 dB	310	Fail	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	Fail	Near
2	This would be 2	None	-58.59 dBm	1310	Fail	Near
3	3	None	-56.3 dBm	1310	Fail	Near
4	4	None	0.24 dB	1310	Pass	Near
5	Five	None	0.24 dB	1310	Pass	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 Defaults

Customer Name Contact Name

Testing Company Testers Name

Test Location Comments

Scope Power Meter

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Browse...

Report Type PDF

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.

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

Certifications, Accessories, and Contact Info

Calibration Certificates

The RP460 comes calibrated and should be recalibrated every 2 years. Included with the RP460 is a calibration certificate, and free recalibration within 2 years of the date of purchase. To start the calibration process simply call or email technical support!

Warranty

The RP460 comes with a 2 year warranty for any manufacturer defects or damage due to reasonable use. To start the RMA process simply email or call technical support!

Optical Power Meter Accessories

OPM Adapters	
Part Number	Description
AC 020	2.5 mm Universal Adapter
AC 021	1.25 mm Universal Adapter
AC 026	SC Adapter
AC 027	ST Adapter
AC 028	FC Adapter
AC 029	LC Adapter

Patch Cord & Battery Accessories	
Part Number	Description
AC 500	SM SC-LC - 1m Simplex
AC 505	SM SC-ASC - 1m Simplex
AC 501	SM SC-SC - 1m Simplex
AC 502	SM LC-LC - 1m Simplex
AC 600	SC-SC - Simplex Bulkhead
AC 601	LC-LC - Simplex Bulkhead
AC 602	LC-LC - Duplex Bulkhead
AC300	CR2 Non-Chargeable Battery Pack (Pack of 5)
AC 310	CR2 Rechargeable Battery Charger w/2 Batteries
AC 311	CR2 Non-Chargeable Battery (Pack of 1)
AC 312	CR2 Rechargeable Battery (Pack of 1)

Specifications	
Detector Type	-02:InGaAs/ -04: Filtered InGaAs
Measurement Range	-02: +6 to -70 dBm / -04: +23 to -45 dBm
WavelengthRange	850 nm to 1650nm
Selectable Wavelengths	850 / 1300 / 1310 / 1490 / 1550 / 1611 / 1625
Resolution	0.01 dB
Absolute Accuracy	± 0.25dB (23°C ± 2°at 0dBm)
Optical Interface	Universal 2.5mm (Additional Adapters Available)
Display	LCD
Tone ID	2 kHz
Power	Push Button Toggle/Auto Off
Storage Temperature	-10°C to +55°C
Battery	-30°C to +70°C
Dimensions	6.1" x 0.94" x 0.75" (15.5cm x 2.38cm x 1.9cm)
Weight	3 oz (85.4 g)
Storage	4000+ Measurements
Data Transfer	Mini-USB (Live Readings or Data Offload)

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




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.

Contact Support

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

 **Call Us:**
(603) 524-8350

 **Email Us:**
tech.support@odm.ripley-tools.com

 **Visit Us Online:** www.ripley-tools.com