

**Model 1931/2931 Series**

**Model 1936/2936 Series**

## **Single and Dual-Channel Optical Meters**



## **Start Up Guide**



**Newport®**  
Experience | Solutions



## User's Manual and Future Updates

Dear Customer,

This Start Up Guide contains essential information, including safety precautions and start up procedures, needed to get your new power meter up and running. Please review it prior to unpacking and powering up the instrument.

Other important information regarding the use and operation of the power meter is included in the complete User's Manual. The complete User's Manual in Adobe PDF format, and the instrument software drivers, are included on the accompanying CD. You can also view a copy of the User's Manual, and obtain the instrument software drivers, on the Newport web site.

In an effort to keep the 193x/293x-C Series Optical Meters optimized for your applications, Newport will on occasion update existing and add new features to this instrument. To utilize this new functionality will require an update to the instrument's firmware, which can be easily accomplished by the user, as described in the User's Manual.

Please check the product page on the Newport web site ([www.Newport.com](http://www.Newport.com)) for newer versions of the firmware and the User's Manual. Call your local Newport application specialist if you need support with locating or downloading these files.

Enjoy your new instrument!

First printing 2006

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This start up guide has been provided for information only and product specifications are subject to change without notice. Any change will be reflected in future printings.

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USA

Part No. 45192-02, Rev. C

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# 1 Safety Precautions

Please carefully read the following important safety precautions prior to unpacking and operating this equipment. In addition, please refer to the complete User's Manual for additional important notes and cautionary statements regarding the use and operation of the equipment.

## 1.1 Symbols and Definitions

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The following are definitions of symbols that are used throughout this Start Up Guide to call your attention to important information regarding your safety, the safety and preservation of your equipment or an important tip.

	<p style="text-align: center;"><b>WARNING</b></p> <p>Situation has the potential to cause bodily harm or death.</p>
	<p style="text-align: center;"><b>CAUTION</b></p> <p>Situation has the potential to cause damage to property or equipment.</p>
	<p style="text-align: center;"><b>ELECTRICAL SHOCK</b></p> <p>Hazard arising from dangerous voltage. Any mishandling could result in irreparable damage to the equipment, and personal injury or death.</p>

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### NOTE

Additional important information the user or operator should consider.

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## 1.2 General Warnings

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Observe these general warnings when operating or servicing this equipment:

- Heed all warnings on the unit and in the operating instructions.
- Do not use this equipment in or near water.
- This equipment is grounded through the grounding conductor of the power cord.
- Route power cords and other cables so they are not likely to be damaged.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp lint-free cloth.
- Lockout all electrical power sources before servicing the equipment.

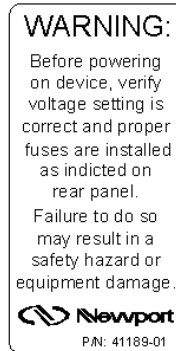
- To avoid fire hazard, use only the specified fuse(s) with the correct type number, voltage and current ratings as referenced in the appropriate locations in the service instructions or on the equipment. Only qualified service personnel should replace fuses.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Qualified service personnel should perform safety checks after any service.

### 1.3 General Cautions

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Observe these cautions when operating or servicing this equipment:

- Before applying power, carefully read the warning label placed over the AC power input receptacle in back of the instrument.



*Figure 1 AC Receptacle Warning Label*

- If this equipment is used in a manner not specified in this manual, the protection provided by this equipment may be impaired.
- To prevent damage to equipment when replacing fuses, locate and correct the problem that caused the fuse to blow before re-applying power.
- Do not block ventilation openings.
- Do not position this product in such a manner that would make it difficult to disconnect the power cord.
- Use only the specified replacement parts.
- Follow precautions for static sensitive devices when handling this equipment.
- This product should only be powered as described in the manual.
- There are no user-serviceable parts inside the 193x/293x Series Optical Power Meters.
- To prevent damage to the equipment, read the instructions in the equipment manual for proper input voltage.
- Adhere to good laser safety practices when using this equipment.

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## 1.4 Unpacking and Handling

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It is recommended that the Models 193x/293x Series Optical Power Meters be unpacked in a lab environment or work site. Unpack the system carefully; small parts and cables are included with the instrument. Inspect the box carefully for loose parts before disposing of the packaging. You are urged to save the packaging material in case you need to ship your equipment in the future.

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## 1.5 Inspection for Damage

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The Models 193x/293x Series Optical Power Meters are carefully packaged at the factory to minimize the possibility of damage during shipping. Inspect the box for external signs of damage or mishandling. Inspect the contents for damage. If there is visible damage to the instrument upon receipt, inform the shipping company and Newport Corporation immediately.



### **WARNING**

**Do not attempt to operate this equipment if there is evidence of shipping damage or you suspect the unit is damaged. Damaged equipment may present additional hazards to you. Contact Newport technical support for advice before attempting to plug in and operate damaged equipment.**

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## 1.6 Parts List

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The following is a list of parts included with the 193x/293x Series Optical Power Meters:

1. User's Manual (softcopy in CD)
2. Start-up Guide (Hardcopy)
3. Software Drivers and Utilities (CD)
4. Power cord
5. Two fuses

If you are missing any hardware or have questions about the hardware you have received, please contact Newport Corporation.

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## 1.7 Choosing and Preparing a Suitable Work Surface

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The Models 193x/293x Series Optical Power Meters may be placed on any reasonably firm table or bench during operation. The front legs of the unit can be pulled out to tilt the unit at an angle, if desired.

Provide adequate distance between the 193x/293x Series Optical Power Meters and adjacent walls for ventilation purposes. Approximately 2-inch spacing for all surfaces is adequate.

## 1.8 Electrical Requirements

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Before attempting to power up the unit for the first time, the following precautions must be followed:



### WARNING

To avoid electrical shock hazard, connect the instrument to properly earth-grounded, 3-prong receptacles only. Failure to observe this precaution can result in severe injury.

- Have a qualified electrician verify the wall socket that will be used is properly polarized and properly grounded.
- Set the mains selector tumbler to the voltage that matches the power outlet AC voltage.
- Verify the correct rated fuses are installed according to the fuse marking on the rear panel.

## 1.9 Power Supplies

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AC power is supplied through the rear panel input power connector that provides in-line transient protection and RF filtering. The input power connector contains the fuses and the switch to select series or parallel connection of the transformer primaries for operation at 100VAC, 120VAC, 220VAC or 240VAC. The product is shipped with the setting on 110V. Please make sure you select the right setting according to your AC voltage level. Also, please make sure you insert the right fuses. The product is shipped with a spare of fuses for the 220VAC/240VAC settings.




### CAUTION

Permanent damage will occur to the power meter if the input power connector settings are at either 100 or 120VAC and applied power is above 180VAC RMS



## 2 System Start Up

### 2.1 Startup Procedure

	<p><b>WARNING</b></p> <p>To avoid electrical shock hazard, connect the instrument to properly earth-grounded, 3-prong receptacles only. Failure to observe this precaution can result in severe injury.</p>
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Provided that the power meter has been installed in an appropriate environment and its power cord is connected to a working electrical outlet, power-up the power meter by pressing the power button on the lower left corner of the front panel.

For precise accuracy, 193x/293x Series power meters should be allowed to warm up for one hour before being used for measurements.

### 2.2 Front Panel Keys

The front panel keys are organized in three groups (see Figure 2).

- Navigation Keys
- Reconfigurable (also called Soft) Keys
- Escape (ESC) Key

Besides these keys, the front panel has a Power switch and a USB connector on the left side of the instrument.



Figure 2 Front Panel keys

## 2.2.1 Understanding the Main Screen

The main screen is displayed after startup. The middle portion of the main screen is a real-time display of power measured in last used units, and the lower half of the main screen is a row of four labels for actions that the keys below them will activate. The top of this screen has the channel settings for the focus channel and a smaller reading for the non-focus channel (B in the figure).

When an annunciator label is visible, its function is enabled. If the annunciator appears on the display as an unlabeled key, the function it represents is currently disabled. Annunciators loosely correspond to keypad keys, which are used either alone or in combination with the navigation and selection keys to control annunciator functions.

## 2.3 Rear Panel Layout

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### 2.3.1 Elements That Vary by Model (on back panel)

Single-channel power meters have the processing electronics installed on CH A, while dual-channel power meters have both CH A and CH B installed.

#### Input Connectors

The input connectors are on the rear panel. 193x-C and 293x-C power meter models support input from external detectors through DB15 detector connectors. Input channels on dual-channel power meters are labeled “CH A” and “CH B”.

A Trigger input offers the possibility of synchronizing the power meter measurements with external events.

#### Output Connectors

Power meters in the 193x/293x-C series support one analog output for each channel. Analog output enables direct monitoring of a detector through an oscilloscope or voltmeter.

On the rear panel there are also trigger outputs, one for each channel. The user can use these outputs to synchronize external equipment with events related to the power meter measurements.

### 2.3.2 Panel Layout

The rear panel is a brushed aluminum plate with input and output connectors for the following cable types:

- 15-Pin D-Sub Optical Detector Input, Channel A (193x-C/293x-C)
- BNC Analog Output, Channel A (193x-C/293x-C)
- BNC Trigger Output, Channel A (193x-C/293x-C)
- 15-Pin D-Sub Optical Detector Input, Channel B (293x-C)
- BNC Analog Output, Channel B (293x-C)
- BNC Trigger Output, Channel B (293x-C)

- BNC Trigger Input
- USB (Universal Serial Bus) Device
- 9-Pin D-Sub RS-232

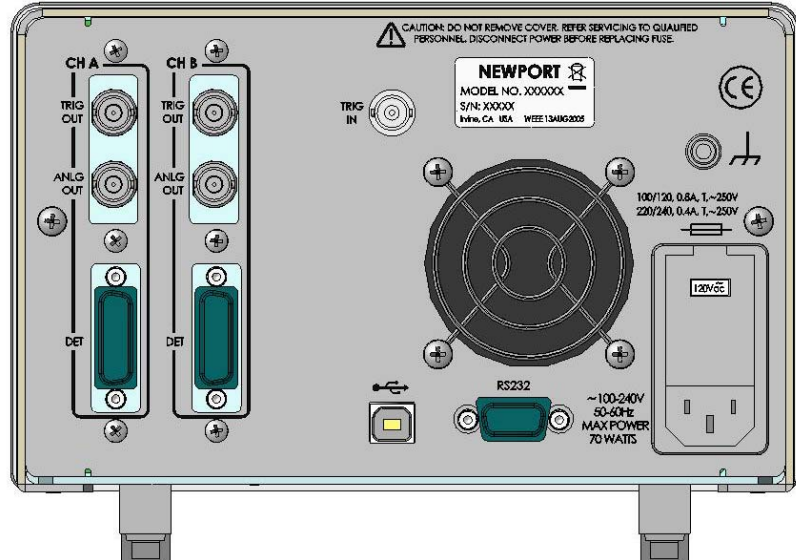


Figure 3 2936-C Rear Panel Layout

The rear panel also has an AC input power connector (IPC) with a standard three-prong socket and voltage setting switch.

The unit can also be grounded with a circular metal shell connector.

Markings on the rear panel identify electrical requirements for the Optical Power Meter and potential hazards associated with using it.

## NOTE

For the listed optional connectors some units may have a cover in place of the non-functional connector.



## CAUTION

Change the voltage settings switch to the proper AC voltage supply. Do not operate with a line voltage that is not within  $\pm 10\%$  of the line setting. Too low of an input voltage may cause excessive ripple on the DC supplies. Too high of an input voltage will cause excessive heating.

**CAUTION**

There are no user-serviceable parts inside the power meter. Work performed inside the power meter by persons not Authorized by Newport may void the warranty.

**WARNING**

To avoid electrical shock hazard, connect the instrument to properly earth-grounded, 3-prong receptacles only. Failure to observe this precaution can result in severe injury.

### 2.3.3 Changing Voltage Settings

The 193x/293x-C Series can operate on several different supply voltages. Before powering up the unit, check the facility AC voltage supply, and select the appropriate setting according to the procedure below.

Use the following procedure to change the 193x/293x Series voltage setting:

1. Ensure that the 193x/293x Series is turned OFF and disconnected from the AC power source.
2. Disconnect the power cord from the AC power input connector on the back of the 193x/293x Series.
3. Using a small screwdriver, insert and press down into the notch at the top of the power entry module to pry the door open.
4. Carefully remove the voltage selector drum.
5. Rotate the voltage selector until the appropriate voltage will be viewed through the voltage window.

**CAUTION**

Do not rotate the voltage selector drum while the drum is inserted in its location. By doing so, you may bend the contacts behind the drum, making the unit inoperable.

6. Reinsert the voltage selector drum.
7. If necessary, change the fuses according to the procedure found in the Manual under 'Replacing Fuses'.

**CAUTION**

Match the voltage setting to fuse sizing. Failure to do so may result in damage to the power meter. Do not exceed 250VAC on the line input.

8. Close the power entry module.
9. Verify the correct voltage is displayed through the voltage window.
10. Connect the AC power input cord to the AC power input connector on the back of the 193x/293x Series.

## 2.4 Firmware Upgrade Procedure

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Firmware Upgrade is an easy, straight-forward process. Simply copy firmware files (PM293xAPP.EXE and XMLFILEx.XML) to a WinCE compatible USB Flash Drive and then plug it into the USB connector on the front of the instrument. Then wait a few seconds for the instrument to recognize the USB Flash Drive. The power meter will detect the new firmware files and will ask if you want to download the files. Press the “Yes” softkey to start the upgrade process. The power meter will instruct you to restart once the upgrade is successful. Restart the power meter by turning it OFF and back ON. The power meter will restart running the new firmware.

Press the <SETUP/ENTER> key and then Softkeys <SYSTEM> and <ABOUT> to verify that the power meter is running the appropriate firmware version. For example, the firmware version for the 1931-C could be 2.0.10 and firmware for the 1936-C could be 1.0.4. Note that these versions may not be the latest at the time you are performing a firmware upgrade.

New firmware files may be available either through the Newport web site (<http://www.newport.com>) at the product page or through your local Newport application specialist.

## 2.5 PC Operation of Instrument

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### NOTE

**Before plugging the instrument into a PC via a USB communication port, please make sure that the USB Drivers are installed.**

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Run Setup.exe from the Software CD that came with your product. The installation program will configure the PC with the 193x/293x Series USB drivers.

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## 3 Maintenance, Service and Support

### 3.1 Enclosure Cleaning


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	<p><b>WARNING</b></p> <p>To avoid electrical shock hazard, connect the instrument to properly earth-grounded, 3-prong receptacles only. Failure to observe this precaution can result in severe injury.</p>
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The enclosure should only be cleaned with isopropyl alcohol or a mild soapy water solution applied to a damp lint-free cloth.

### 3.2 Service and Technical Support

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	<p><b>CAUTION</b></p> <p><b>DO NOT OPEN COVER.</b> There are no user serviceable parts inside the 193x/293x Series Optical Power Meters. Work performed by persons not authorized by Newport Corporation will void the warranty.</p> <p>Calibration accuracy is warranted for a period of one year. After one year, the unit should be returned to Newport Corporation for recalibration and NIST trace ability re-certification.</p>
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To obtain information regarding factory service, contact Newport Corporation's Service Department or your Newport representative. Please have the following information available:

- Instrument model number (on the rear panel)
- Instrument serial number (on rear panel)
- Description of the problem
- Your contact information

To help our Technical Support Representatives diagnose your problem, please note the following conditions:

- Is the system used for manufacturing or research and development?
- What was the state of the system right before the problem?
- Have you seen this problem before? If so, how often?

- Can the system continue to operate with this problem? Or is the system non-operational?
- Can you identify anything that was different before this problem occurred?

### **Technical Support Contact Information**

#### **North America & Asia**

#### **Newport Corporation Service Dept.**

1791 Deere Ave. Irvine, CA 92606

Telephone: (949) 253-1694

Telephone: (800) 222-6440 x31694

#### **Europe**

#### **Newport/Micro-Controle S.A.**

Zone Industrielle

45340 Beaune la Rolande, FRANCE

Telephone: (33) 02 38 40 51 56

#### **Asia**

#### **Newport Opto-Electronics**

#### **Technologies**

253 Aidu Road, Bld #3, Flr 3, Sec C,

Shanghai 200131, China

Telephone: +86-21-5046 2300

Fax: +86-21-5046 2323

### **Return Procedure**

If there are any defects in material or workmanship or a failure to meet specifications, promptly notify Newport's Returns Department within the warranty period by calling 1-800-222-6440 or by visiting our website at [www.newport.com/returns](http://www.newport.com/returns) to obtain a **Return Material Authorization Number (RMA#)**. Return the product to Newport Corporation, freight prepaid, clearly marked with the RMA# and we will either repair or replace it at our discretion. Newport is not responsible for damage occurring in transit and is not obligated to accept products returned without an RMA#.

E-mail: [rma.service@newport.com](mailto:rma.service@newport.com)





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