

T Model 74010

Motorized Filter Wheel



User's Manual

Oriel[®]
INSTRUMENTS

A Newport Corporation Brand

 **Newport**

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1. INTRODUCTION

The 74010 is a 6-position motorized filter wheel. It holds up to six 1.0 inch (25.4 mm) diameter filters or other optical components.

The 74010 filter wheel is designed to operate with the Oriel Cornerstone™ 130 and Cornerstone™ 260 monochromators, as well as the MS260i™ spectrographs. The filter wheel can be commanded through the utility software included with the monochromator or spectrograph or Oriel TRACQ™ Basic software.

The 74009 optional hand controller may be used with the monochromator or spectrograph to control the filter wheel. If the monochromator is equipped with RS232 and GPIB interfaces, direct low level communications may also be established.

The monochromator or spectrograph can be connected to one filter wheel. If multiple filter wheels are required or a monochromator / spectrograph is not being used, Oriel Instruments offers stand-alone controllers that operate via TTL, RS232, GPIB or manual push-button. Contact an Oriel Sales Engineer or regional representative for more information.

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2. BASIC INSTALLATION

2.1 UNPACKING THE FILTER WHEEL

Carefully unpack the motorized filter wheel. It is suggested to save the packaging in case it is necessary to transport or ship the instrument.

Inside the package are the following items:

- Motorized Filter Wheel Assembly
- 2 ft (0.6 m) long ribbon cable
- Filter ring wrench
- Filter holder wrench
- Light stopper element
- (6) filter spacers
- This instruction manual

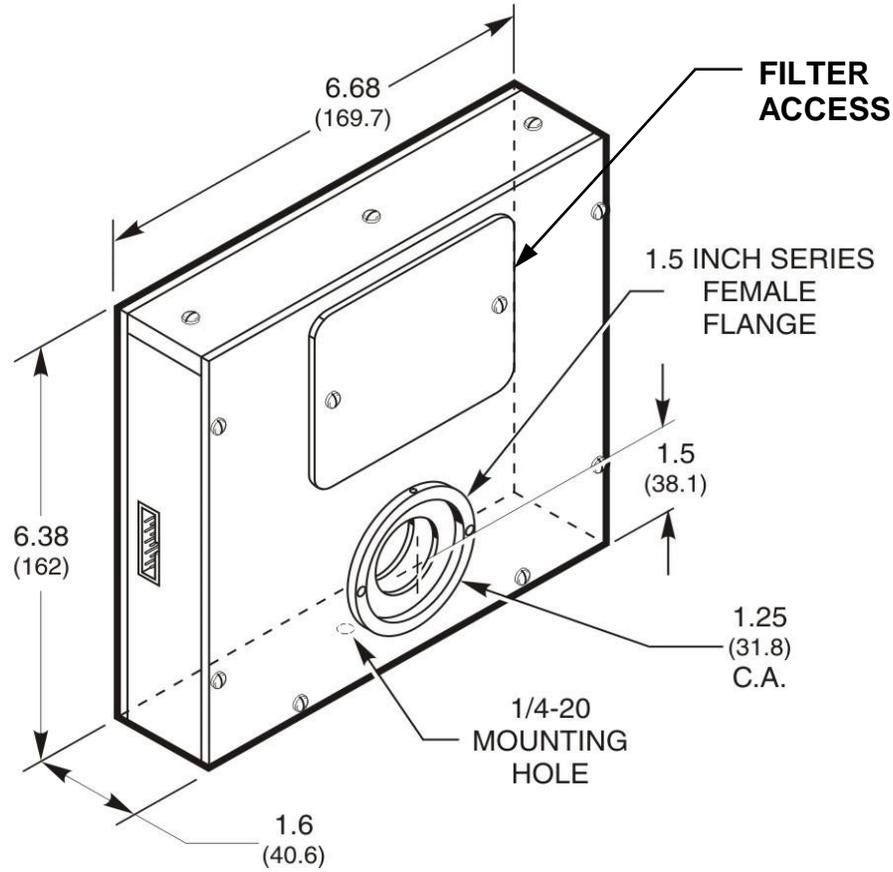


FIGURE 1: Dimensions

2.2 FILTER INSTALLATION

The filter wheel allows mounting of up to six optical components in holders. The positions where these holders are screwed into the wheel are engraved as numbers 1 through 6 on the wheel itself.

If less than six optical components are to be used, be sure to keep all filter holders securely installed in the filter wheel while operating. This will ensure proper balancing of the unit.

If the optics being installed require that a specific side face towards the light source, refer to Section 2.3 for determining input and output ports before proceeding. Once that has been determined, care should be taken in ensuring that the optic is installed so that it will oriented correctly in relation to the light source.

Equipment and Tools needed:

- Motorized filter wheel assembly
- Wrench, for retaining rings
- Optical components intended for installation into wheel
- Philips screwdriver
- Pen and paper
- Light blocking element (optional)
- Filter spacers, for optical components less than 0.1" (2.5 mm) thk

1. Decide which optical components are to be installed at each position on the filter wheel. Write down which component will be located at each position. Keep the paper in a safe but accessible location near the filter wheel. A sample chart is shown on the following page.
2. Remove the side cover from the filter wheel assembly by unscrewing the two screws. See Figure 1.
3. There are six filter holders mounted on the filter wheel. Remove the filter holders by using the filter holder wrench to unscrew them from the filter wheel. The wheel can be manually rotated to access all holders.
4. To mount the optics, use the special filter wrench to unscrew the retaining ring from the back of the filter holder.
5. Insert the optic and a filter spacer, if needed. Screw in the retaining ring so the optic is held firmly in place.
6. Screw the filter holder into the appropriate position on the filter wheel. Tighten with the filter holder wrench enough to ensure that the holders will not become loose during use.
7. Repeat steps 4 and 5 for the other optical components.
8. Install the side cover using the 6-32 x 3/8 pan head screws. The filter wheel is now ready for use.

74010 Filter Wheel Serial Number _____		
Position	Optic Part Number	Description
1		
2		
3		
4		
5		
6		

FIGURE 2: Filter Chart Example

2.3 MOUNTING THE FILTER WHEEL

You can mount the filter wheel one of two ways: directly to an Oriel instrument (i.e. light source, monochromator) via the male or female 1.5 Inch Series flange, or to an optical rod.

Direct Flange Mounting

Fig. 1 shows a diagram of the filter wheel. One side has a 1.5 Inch Series Female flange the other side has a 1.5 Inch Series male flange. The filter wheel may be mounted directly to an Oriel instrument or other mating hardware via one of the flanges.

To flange mount the filter wheel:

1. Identify the flange type (male or female) of the Oriel instrument / hardware to which the filter wheel will be mated to.
2. If the filter wheel's female flange will be used, loosen the set screws on this flange. If the male flange of the filter wheel will be used, loosen the set screws on the mating component's female flange.
3. Fit the flanges of the two components together and tighten the set screws.

Rod Mounting

Rod mounting allows one to place the filter wheel almost anywhere on an optical table with ¼-20 threaded holes.

To rod mount the filter wheel:

1. Determine where the filter wheel is to be located.
2. Secure a rod holder to the optical table or base plate.
3. Turn the filter wheel upside down. Remove the set screw from the mounting hole on the bottom surface (refer to Figure 1).
4. Attach a #1/4-20 optical rod to the filter wheel.
5. Insert the rod-mounted filter wheel into a rod holder.

3. FILTER WHEEL OPERATION

Refer to the user's manual that came with the monochromator, spectrograph or TRACQ™ software for information on filter wheel selection.

1. Make certain the monochromator or spectrograph power switch is off. Connect the ribbon cable between the filter wheel and the instrument.
2. Turn the power on at the monochromator or spectrograph. The filter wheel will automatically go to the last position it was at before it was powered down.

NOTE:

The filter wheel is designed to advance positions.

It cannot be operated in the reverse direction.

To go down in position number, the wheel will rotate in the forward direction until the desired position is reached.

4. REPLACEMENT ITEMS

All items needed to use the filter wheel with an Oriel monochromator or spectrograph are included. In the event that an item is misplaced, contact Oriel Instruments or the regional representative to purchase replacement items.

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
77371-2-2900	Wrench for retaining rings
90031364	Wrench for filter holders
77371-2-2008	Light stopper element
74010-1020	Ribbon cable
90031365	Spacer
74010-2-2012	Filter holder
244-6040-501	Retaining ring

5. SPECIFICATIONS

Filter Wheel Size:	6.68 x 6.38 x 1.6 inches (169.7 x 162.1 x 40.6 mm)
Input/output ports:	1.5 Inch Series male and female flange, 1 each
Mounting:	Flange mount (male and female) Rod mount (#1/4-20 mounting thread)
Number of positions:	6
Filter diameter:	1 inch (25.4 mm)
Filter thickness	0.4 inch (10.2 mm) max 0.1 inch (2.5 mm) min *
Clear aperture:	0.9 inch (23 mm)
Speed:	<2 s per position

- * For filters less than 0.1 inch (2.5 mm) thick, the 90031365 filter spacer is required. Six spacers are included with the filter wheel.

6. EU DECLARATION OF CONFORMITY

EC DECLARATION OF CONFORMITY

Manufacturer's name: Newport Corporation
Manufacturer's address: 1791 Deere Avenue
Irvine, CA 92606 USA

Declares that the product:

Product Name: ORIEL[®] Motorized Filter Wheel
Model Number: 74010

Type of equipment: Electrical equipment for measurement, control and laboratory use in industrial locations

conforms to the following Product Specifications:

Safety: EN 61010-1:2010
EMC: EN 61326-1:2006+cor:2008+cor:2010

complies with the following Directives:

2004/108/EC EMC Directive
2006/95/EC Low Voltage Directive

and accordingly, carries the CE mark

CE mark affixed: Beaune; May 25, 2011



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WARRANTY AND SERVICE CONTACTING ORIEL INSTRUMENTS

Oriel Instruments belongs to Newport Corporation's family of brands. Thanks to a steadfast commitment to quality, innovation, hard work and customer care, Newport is trusted the world over as the complete source for all photonics and laser technology and equipment.

Founded in 1969, Newport is a pioneering single-source solutions provider of laser and photonics components to the leaders in scientific research, life and health sciences, photovoltaics, microelectronics, industrial manufacturing and homeland security markets.

Newport Corporation proudly serves customers across Canada, Europe, Asia and the United States through 9 international subsidiaries and 24 sales offices worldwide. Every year, the Newport Resource catalog is hailed as the premier sourcebook for those in need of advanced technology products and services. It is available by mail request or through Newport's website. The website is where one will find product updates, interactive demonstrations, specification charts and more.

To obtain information regarding sales, technical support or factory service, United States and Canadian customers should contact Newport Corporation directly.

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Technical assistance: oriel.tech@newport.com

Repair Service: rma.service@newport.com

Customers outside of the United States must contact their regional representative for all sales, technical support and service inquiries. A list of worldwide representatives can be found on Newport's website: <http://www.newport.com>.

REQUEST FOR ASSISTANCE / SERVICE

Please have the following information available when requesting assistance or service:

Contact information for the owner of the product.
Instrument model number (located on the product label).

Product serial number and date of manufacture (located on the product label).
Description of the problem.

To help Oriel's Technical Support Representatives diagnose the problem, please note the

following:

Is the system used for manufacturing or research and development?

What was the state of the system right before the problem?

Had this problem occurred before? If so, when and how frequently?

Can the system continue to operate with this problem, or is it non-operational?

Were there any differences in the application or environment before the problem occurred?

REPAIR SERVICE

This section contains information regarding factory service for this product. The user should not attempt any maintenance or service of the system beyond the procedures outlined in this manual. This product contains no user serviceable parts other than what is noted in this manual. Any problem that cannot be resolved should be referred to Oriel Instruments.

If the instrument needs to be returned for service, a Return Material Authorization (RMA) number must be obtained prior to shipment to Oriel Instruments. This RMA number must appear on both the shipping container and the package documents.

Return the product to Oriel Instruments, freight prepaid, clearly marked with the RMA number and it either will be repaired or replaced at Oriel's discretion.

Oriel is not responsible for damage occurring in transit. The Owner of the product bears all risk of loss or damage to the returned Products until delivery at Oriel's facility. Oriel is not responsible for product damage once it has left the facility after repair or replacement has been completed.

Oriel is not obligated to accept products returned without an RMA number. Any return shipment received by Oriel without an RMA number may be reshipped by Newport, freight collect, to the Owner of the product.

NON-WARRANTY REPAIR

For Products returned for repair that are not covered under warranty, Newport's standard repair charges shall be applicable in addition to all shipping expenses. Unless otherwise stated in Newport's repair quote, any such out-of-warranty repairs are warranted for ninety (90) days from date of shipment of the repaired Product.

Oriel will charge an evaluation fee to examine the product and determine the most appropriate course of action. Payment information must be obtained prior to having an RMA number assigned. Customers may use a valid credit card, and those who have an existing account with Newport Corporation may use a purchase order.

When the evaluation had been completed, the owner of the product will be contacted and notified of the final cost to repair or replace the item. If the decision is made to not proceed with the repair, only the evaluation fee will be billed. If authorization to perform the repair or provide a replacement is obtained, the evaluation fee will be applied to the final cost. A revised purchase order must be submitted for the final cost. If paying by credit card, written authorization must be provided that will allow the full repair cost to be charged to the card.

WARRANTY REPAIR

If there are any defects in material or workmanship or a failure to meet specifications, notify Oriel Instruments promptly, prior to the expiration of the warranty.

Except as otherwise expressly stated in Oriel's quote or in the current operating manual or other written guarantee for any of the Products, Oriel warrants that, for the period of time set forth below with respect to each Product or component type (the "Warranty Period"), the Products sold hereunder will be free from defects in material and workmanship, and will conform to the applicable specifications, under normal use and service when correctly installed and maintained. Oriel shall repair or replace, at Oriel's sole option, any defective or nonconforming Product or part thereof which is returned at Buyer's expense to Oriel facility, provided, that Buyer notifies Oriel in writing promptly after discovery of the defect or nonconformity and within the Warranty Period. Products may only be returned by Buyer when accompanied by a return material authorization number ("RMA number") issued by Oriel, with freight prepaid by Buyer. Oriel shall not be responsible for any damage occurring in transit or obligated to accept Products returned for warranty repair without an RMA number. Buyer bears all risk of loss or damage to the Products until delivery at Oriel's facility. Oriel shall pay for shipment back to Buyer for Products repaired under warranty.

WARRANTY PERIOD

All Products (except consumables such as lamps, filters, etc.) described here are warranted for a period of twelve (12) months from the date of shipment or 3000 hours of operation, whichever comes first.

Lamps, gratings, optical filters and other consumables / spare parts (whether sold as separate Products or constituting components of other Products) are warranted for a period of ninety (90) days from the date of shipment.

WARRANTY EXCLUSIONS

The above warranty does not apply to Products which are (a) repaired, modified or altered by any party other than Oriel; (b) used in conjunction with equipment not provided or authorized by Oriel; (c) subjected to unusual physical, thermal, or electrical stress, improper installation, misuse, abuse, accident or negligence in use, storage, transportation or handling, alteration, or tampering, or (d) considered a consumable item or an item requiring repair or replacement due to normal wear and tear.

DISCLAIMER OF WARRANTIES; EXCLUSIVE REMEDY

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terms of this warranty shall not be binding on Oriel unless reduced to writing and approved by an expressly an authorized officer of Newport.

LOANER / DEMO MATERIAL

Persons receiving goods for demonstrations or temporary use or in any manner in which title is not transferred from Newport shall assume full responsibility for any and all damage while in their care, custody and control. If damage occurs, unrelated to the proper and warranted use and performance of the goods, recipient of the goods accepts full responsibility for restoring the goods to their original condition upon delivery, and for assuming all costs and charges.

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