

56 Sparta Avenue • Newton, New Jersey 07860
 (973) 300-3000 Sales • (973) 300-3600 Fax
 www.thorlabs.com



RABH-1600 - October 28, 2015

Item # RABH-1600 was discontinued on October 28, 2015. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

FIBERBENCH ROTATING WAVE PLATE MODULES

- ▶ Quarter- and Half-Wave Retardance Versions
- ▶ Premounted Achromatic Wave Plates
- ▶ Air-Spaced, Epoxy-Free Construction



RABH-600



RABQ-600



Polarization Controller

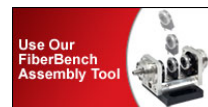
OVERVIEW

Features

- Compound Plate Design
- Crystal Quartz
- Air-Spaced, Epoxy-Free Construction for High-Power Applications
- Engraved Angle Index
- Beam Height is 14.3 mm (9/16") Above the Deck
- Slow Axis is Marked by Engraved Line on the Front of the Housing
- Please Contact Tech Support for Special Requests

Common Specifications

- 4 mm Aperture
- <10 arcsec Beam Deviation
- <λ/4 Wavefront Error
- 20-10 Scratch-Dig Surface Quality
- 360° Rotation
- 1.5° Measurement Precision



The Quarter- and Half-Wave Achromatic Wave Plate Modules feature a compound-plate design that uses Crystal Quartz and MgF₂. The plates are air spaced to provide a high-power beam path that has excellent wavefront error and minimum beam deviation. These modules, which are available with three different AR coatings, are mounted in a magnetic rotation mount, enabling rotation through 360° with a 1.5° resolution. Degree marks are engraved on the side of the housing indicating the wave plate position, while engraved lines on the front face of the housing indicate the slow axis of the wave plate.

The AR coating only contributes an additional insertion loss of 0.1 dB per component. Modules can be removed and replaced with no change in insertion loss. Achromatic wave plates have a flat spectral response that make them ideal for applications that have greater than 20 nm bandwidths. Quarter- and half-wave modules can be added to create polarization controllers, PM fiber launch systems, and other devices.

FiberBench Accessories

FiberPorts	Optic Mounts	Alignment Tools	Polarizers
Beamsplitter Modules	Mirror Modules	Rotating Wave Plates	FiberBenches

APPLICATION

Polarization Controller



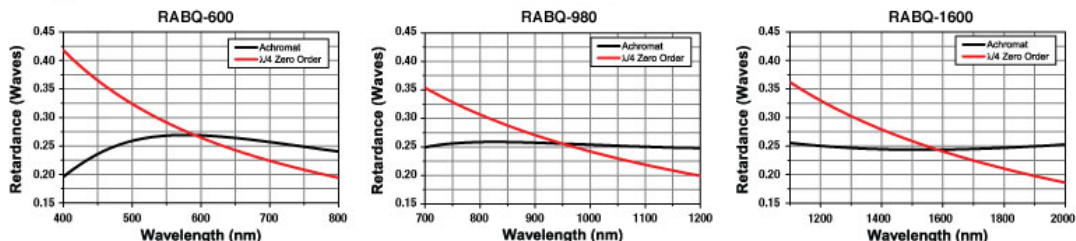
Click to Enlarge

We currently offer a Polarization Controller Kit consisting of the Adjustable U-Bench, two quarter-wave plates, and one half-wave plate. The U-Bench controller has the same function as a paddle controller, while offering a more deterministic and stable polarization manipulation. Since it does not have any hysteresis, it is possible to predict the controller's output State of Polarization (SOP) at any instant in time given only its input SOP. Hysteresis describes the lag that exists between the responding parameter and the changing parameter or, in this case, the time lag between the SOP change and the moving of the fiber paddles.

In any system with hysteresis, like a fiber paddle controller, there is no way to predict the output. When a paddle controller is adjusted, the SOP takes time to stabilize and may not stabilize at the intended value. Furthermore, without a polarimeter, the SOP from the paddle controller cannot be determined directly. With the U-Bench Polarization Controller, any input polarization state can be deterministically rotated into a known output polarization state using a quarter-wave, half-wave, and another quarter-wave plate mounted (in this order) between the two FiberPorts of the Adjustable U-Bench. Each plate can be precisely and continuously rotated through 360°.

Achromatic Quarter-Wave Plate Modules

Comparison of the Theoretical Retardance of an Achromatic Quarter-Wave Plate Versus a Zero Order Quarter-Wave Plate



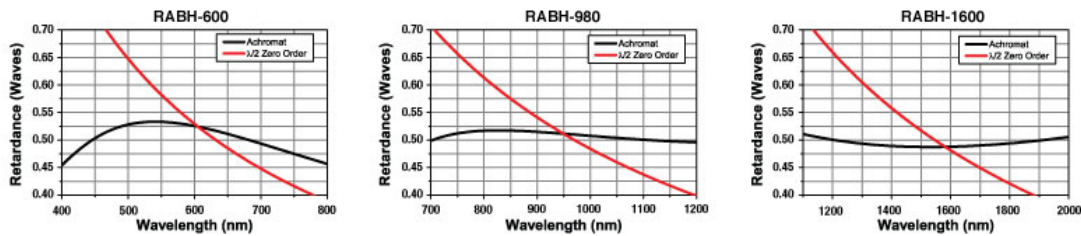
Click to Enlarge

An Excel file with retardance data is available. Extended plot data is available upon request, please contact Tech Support.

Part Number	Description	Price	Availability
RABQ-600	Achromatic 1/4 Wave Plate Module, 400 - 800 nm	\$300.00	Today
RABQ-980	Achromatic 1/4 Wave Plate Module, 700 - 1200 nm	\$300.00	Today
RABQ-1600	Achromatic 1/4 Wave Plate Module, 1100 - 2000 nm	\$300.00	Today

Achromatic Half-Wave Plate Modules

Comparison of the Theoretical Retardance of an Achromatic Half-Wave Plate Versus a Zero Order Half-Wave Plate



Click to Enlarge

An Excel file with retardance data is available. Extended plot data is available upon request, please contact Tech Support.

Part Number	Description	Price	Availability
RABH-600	Achromatic 1/2 Wave Plate Module, 400 - 800 nm	\$300.00	Today
RABH-980	Achromatic 1/2 Wave Plate Module, 700 - 1200 nm	\$300.00	Today
RABH-1600	Achromatic 1/2 Wave Plate Module, 1100 - 2000 nm	\$300.00	Today

Visit the *FiberBench Rotating Wave Plate Modules* page for pricing and availability information:
http://www.thorlabs.com/newgroupage9.cfm?objectgroup_id=3110