Wideband Multimode Circulators 400-900 nm

200 µm Core, 0.22 NA to 400 µm Core, 0.39 NA

DATASHEET

Return to the Webpage

Agiltrons' Wideband Multimode Circulators (WMC), designed and manufactured in collaboration with strategic partner, are three-port devices that feature flat spectral response, high efficiency multimode transfer (Port 1 ⟶ Port 2), and multimode transmission (Port 2 ⟷ Port 3). They can be used to combine multiple signals or illumination / detection channels within a single fiber. The all-fiber WMC is an efficient, versatile, and robust solution for multimode light management with applications in diffuse reflectance spectroscopy, fluorescence spectroscopy, and/or optogenetics.

Features

- Flat Isolation Over 100nm
- Low PMD
- OEM and Custom Build Available
- High Reliability
- Polarization Dependent

Applications

- OCT
- Sensor
- Lab Use
- Instruments

Specifications

Parameter		Min	Typical	Max	Unit
Wavelength Range		400		900	nm
Transfer Insertion Loss [1], [2]	Port 1 to 2		≤ 0.8		dB
Transmission Insertion Loss [1], [2]	Port 2 to 3		≤ 0.8		dB
	Port 3 to 2		≤ 0.5		dB
Directivity [1], [3]	Port 1 to 3		≥ 27.0		dB
	Port 3 to 1		≥ 34.0		dB
Isolation [1]	Port 2 to 1		≥ 12.0		dB
Max Power Level [4]		2 W (with Connectors or Bare Fiber) 4 W (Spliced)			
Port Configuration		2 x 1			
Fiber Lead Length and Tolerance [5]		0.8 m +0.075 m/-0.0 m			
Connectors [5], [6]		2.0 mm Narrow Key FC/PC			
Package Size		Ø0.23" x 3.35" (Ø5.8 mm x 85.0 mm)			
Jacket		Ø1.4 mm Hytrel® Loose Tube *			
Pigtail Tensile Load		10 N			
Operating Temperature		0		60	°C
Storage Temperature		-40		85	°C

Notes:

[1]. Specified at room temperature over the bandwidth without connectors using the MWWHF2 LED source.

[2]. Photodarkening may affect long-term performance at lower wavelengths (≤500 nm).

[3]. Back reflection of connector surfaces will reduce directivity.

[4]. Specifies the total maximum power allowed through the component. WMC performance and reliability under high-power conditions must be determined within the user's setup. See Usage Tips for safety and handling information.

[5]. Additional hydroxyl content, lead lengths and connector options available upon request. Contact us with inquiries.

[6]. Blue port connector uses ceramic ferrule. White and red port connectors use stainless steel ferrules.

* Hytrel® is a registered trademark of DuPont Polymers, Inc.

Fiber Specifications

Port (Color)	1 (Blue)	2 (White) 3 (Blue)	Unit
Fiber	FG200UEA	FT400UMT	
Core Diameter (Nominal)	200	400	µm
Core NA	0.22	0.39	
Cladding Diameter	220	425	µm
Hydroxyl Content	High OH	High OH	
Bend Radius (Long Term)	≥ 46	≥ 86	mm

Rev 07/16/25

Wideband Multimode Circulators 400-900 nm

200 µm Core, 0.22 NA to 400 µm Core, 0.39 NA

DATASHEET

Port Color Scheme

Usage Tips

1. Before connecting a component to a system, make sure the light source is turned off. Inspect both the input and output fiber ends; debris or contamination on the end face can lead to fiber damage when operated at high powers.

2. After connecting the component, the system should be tested and aligned using a light source at low power. The system power can be ramped up slowly to the desired output power while periodically verifying all components are properly aligned and that coupling efficiency is not changing with respect to optical launch power.

3. Optical connectors can be removed, and the device can be spliced into a setup for operation at higher optical powers. Fiber ends should always be cleaned and cleaved prior to splicing.

4. Multimode optical performance can be sensitive to bend loss and applied pressure. For optimal performance, apply minimal pressure and respect long-term fiber bend radius recommendations.

Ordering Information

	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Grade**	**Package**	**Power**	**Pass Fiber**	**Reflector Fiber**	**Fiber Cover**	**Connector**
WBC-	Standard = 1 Special = 0	400-900nm = 1 Special = 0	Regular = 1 Special = 0	Regular = 1 Special = 0	Standard = 1 0.5W = N Special = 0	400/0.39 = 1 Special = 0	200/0.26 = 1 Special = 0	1.4 mm tube = 3 Special = 0	None = 1 FC/PC = 2 Special = 0

* Polarization Independent

** Polarization Dependent

NOTE: Red color for special order

P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com