Ultra-Low Latency Optical Router

(2x16) (<1.8ns)

Agiltron all optical routers achieve ultra-low latency that has not been attainable by electronic routers. The 1U system multicasts incoming optical signals and dynamically re-directs them into multiple output ports with built-in optical MEMS switches and amplifiers. These switches are controlled via Ethernet-GUI or RS232-GUI. The fiber output ports are located in the front panel.

The order table includes a list of standard control interfaces. Additionally, we provide a list of commands to assist customer engineers in coding. For those who require it, we offer a code-writing service for customer interfaces at an additional charge.

Features

- Ultra-low latency
- Dynamic switching
- Low optical loss
- Build-in signal booster

Specifications [1]

Parameters	Min	Typical	Max	Unit
Operating Wavelength		1310/1550 ± 50		nm
Insertion Loss [1]	0		6	dB
Latency [2]	1.8		20	ns
Return Loss		45		dB
Cross Talk On/Off Ratio		55		dB
PDL			0.05	dB
Switching Time		10	20	ms
Switch Durability	10^{12}			Cycle
Operating Temperature	0		70	°C
Storage Temperature	-40		85	°C
Electronic Ports	RJ45, USB			
Working Power	DC: 12~48V; AC: 110~220V (50/60 Hz)			
Fiber Type	SMF-28 or equivalent			

Applications

- Algorithmic trading
- Defense systems
- Communication networks
- Data storage

Notes:

[1]. With amplifer

[2]. 1.8ns uses semiconductor amplifiers. 20nm use special fiber amplifier

Rev 05/17/25

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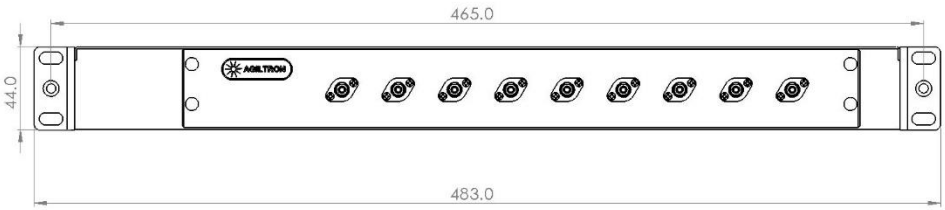
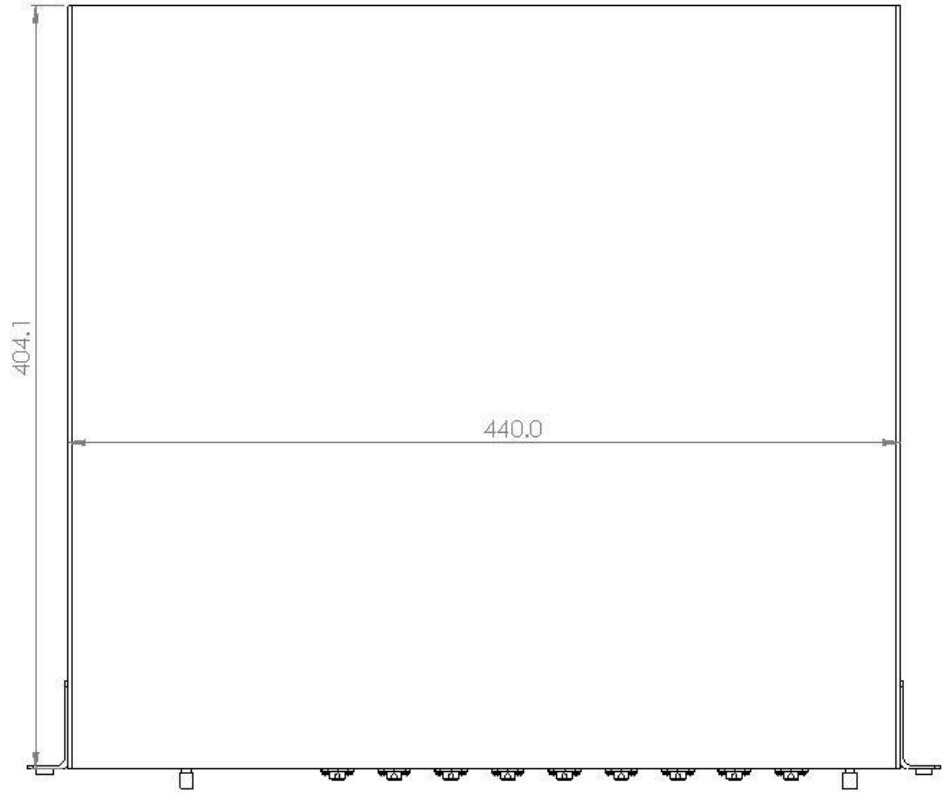
Mechanical Dimensions (Unit: mm)

1RU 19" mount rack typically. The input and output connectors and the control interface are on the front panel, while and power inputs are on the rear panel.

1U Rack Mount





*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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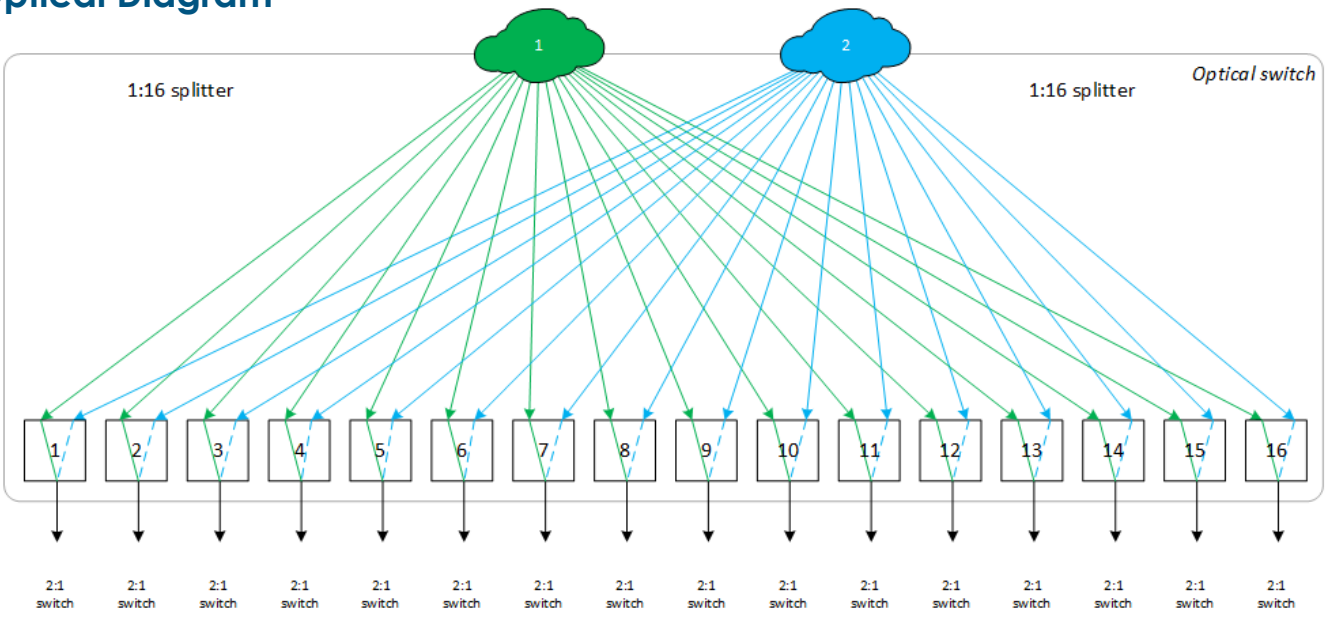
Optical Diagram



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Ordering Information

	☐	☐☐	☐	☐	☐	☐	☐	☐
Prefix	**Input**	**Output**	**Wavelength**	**Latency**	**Package [1]**	**Control**	**Power Supply**	**Connector**
MSWL-	1 = 1 2 = 2 3 = 3 4 = 4	12 = 12 16 = 16 18 = 18 32 = 32	1240-1640nm = 1 1550 = 5 1310 = 3 Special = 0	20ns = 1 1.8ns = 2 Special = 0	1U = 1 Special = 0	RS232 = 2 USB = 3 Ethernet = 4	12V DC = 1 48V DC = 2 110~220V AC = 3 Special = 0	FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Duplex LC/PC = 8 LC/UPC = U MPO = Y Special = 0

[1]. Rack Mount Depth ~ 430mm.

Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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Questions and Answers

Q: If the device were to fail, would the switch continue to pass the fiber light through the switch as configured before failure? When power is restored, does the IN/OUT configuration before failure remain in place?
A: This depends, if one mirror fails, it only affects the light go through that mirror. Yes, when power back up it will go to the previous points

Q: When power is restored, does the IN/OUT configuration before failure remain in place?
A: Yes, when power back up it will go to the previous flightpath

Q: If power to the device were shutoff, would the device continue to pass the fiber light as configured before failure?
A: This function is call latching. We uniquely offer MEMS latching switch but cost more.

Q: With the Ethernet Control Option, does the switch support SNMPv3
A: Yes. This internet standard protocol allows user to write their own control code

Q: With the Ethernet Control Option, what type of encryption does the SNMPv3 use?
A: MD5/DES

Q: With the Ethernet Control Option, could this device be controlled by multiple users at different locations and all users will also see the configuration updates?
A: Yes

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A: Yes

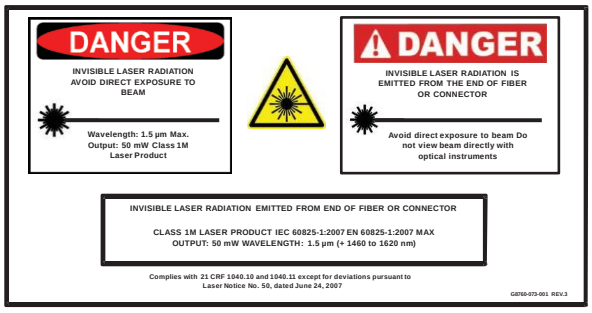
Q: With the Ethernet Control Option, does the user need to install any software on their computer other than a web browser?
A: No

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.

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