

AAWG 100G DWDM Module

Agiltron's Wavelength Division Multiplexer (WDM) is based on Arrayed Waveguide Grating (AWG) technology. Compared to thin-film filter solutions, this proven approach offers lower insertion loss, higher fiber port counts, optimized spectral profiles, flexible channel configurations, and high channel isolation. This WDM series consists of passive optical multiplexer/demultiplexer modules designed for metro access applications, representing state-of-the-art fiber optic design. The Mux/Demux module supports multiple DWDM wavelengths with 100 GHz channel spacing, enabling efficient multiplexing and demultiplexing in ring or point-to-point network architectures, making it ideal for telecommunications and data networking. The module includes a 1610 nm port for OTDR monitoring, as well as an AUX port supporting the CWDM 1490–1510 nm band, providing additional flexibility for network management and expansion. The system is housed in a 1RU, 19-inch rack-mount chassis, allowing for easy installation and modular deployment. This chassis-based design enables network equipment manufacturers to achieve a scalable, high-density solution for adding WDM capability to both existing and new networks through a simple plug-and-play interface.



Features

- 100 GHz Channel Spacing
- High Channel Isolation
- Low Insertion Loss
- Highly Stable & Reliable

Specifications

Parameters		Min	Typical	Max	Unit
Operation Wavelength		DWDM channels			
Insertion Loss – passband *	Gaussian		≤ 4.5		dB
	Flat top		≤ 6		dB
3dB Bandwidth (nm)	Gaussian		> 0.4		nm
	Flat top		> 0.6		nm
Center Wavelength accuracy			± 0.05		nm
Passband Ripple			≤ 0.05		dB
Isolation @Add/Drop Channel	Adjacent		≥ 30		dB
	Non-adjacent		≥ 40		dB
Durability					
PDL			≤ 0.5		dB
PMD			≤ 0.5		ps
Directivity			≥ 50		dB
Return Loss			≥ 45		dB
Power Handling			500		mW
Operating Temperature		0		+70	°C
Storage Temperature		-40		+85	°C

* Including connectors

Applications

- Add/Drop Channels
- WDM Systems
- CATV Fiberoptic Links



Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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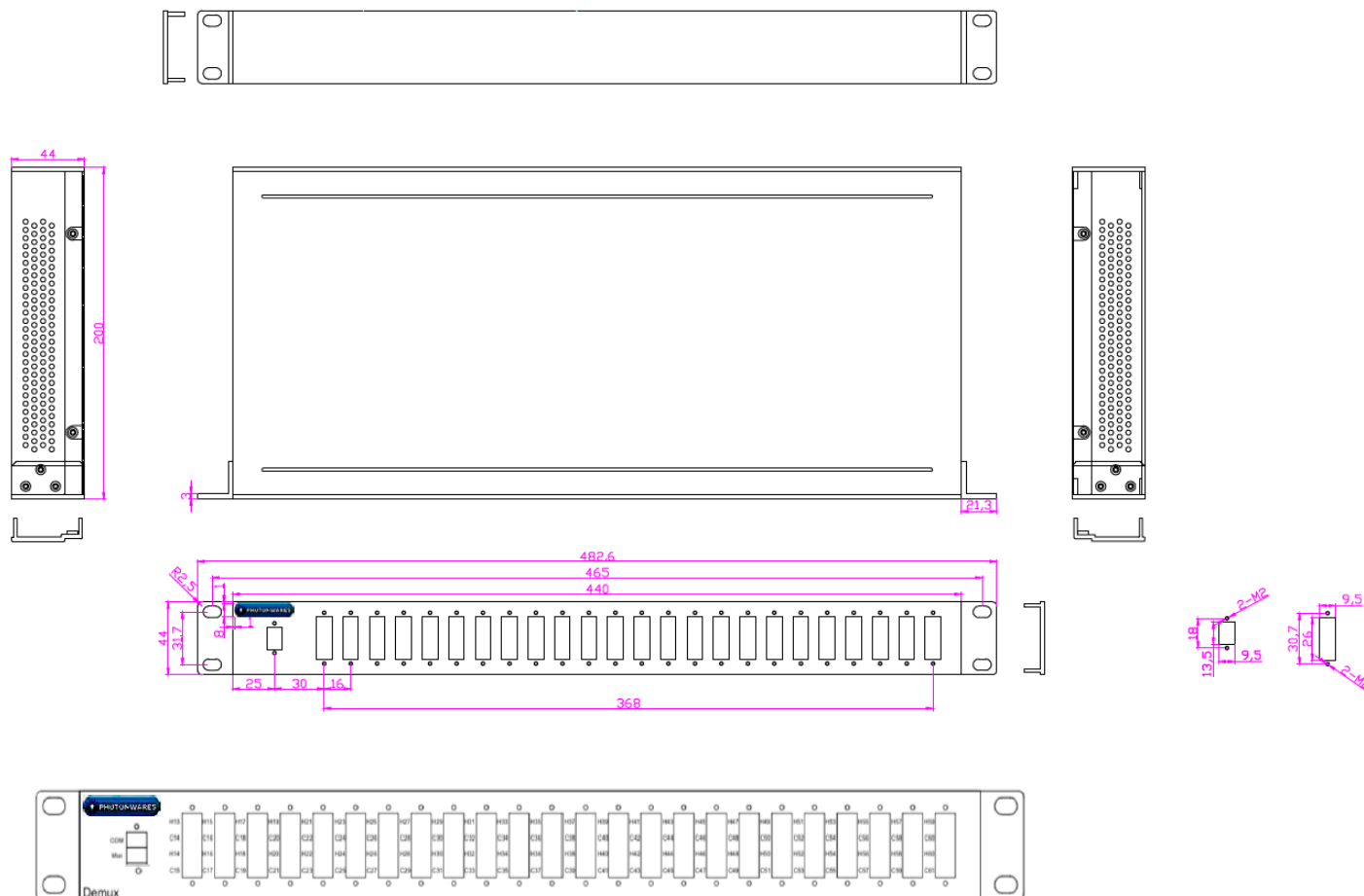
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Mechanical Dimensions (mm)



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

Ordering Information (Part Number)

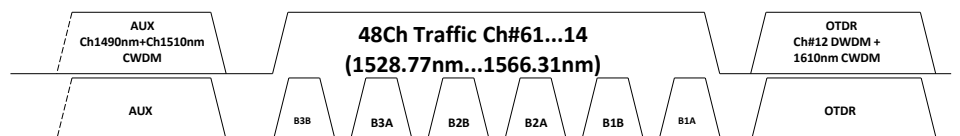
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Prefix	Ch. Spacing	Number of Channels	Type	1st ITU Channel Number ^[1] (for example)	Configuration	OTDR Port	Connector ^[2]
AAWG-	100G = 1	48 = 48 94 = 94 16 = 16 24 = 24	Flat top = 1 Gaussian = 2	1560.61nm = 21 1588.98nm = 23	MUX or DEMUX = 1 MUX+DEMUX = 2	Non = 1 With OTDR port = 2 Special = 0	LC/UPC = 8 Special = 0

[1]. Refer ITU Channel Table

[2]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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Typical Spectrum Utilization

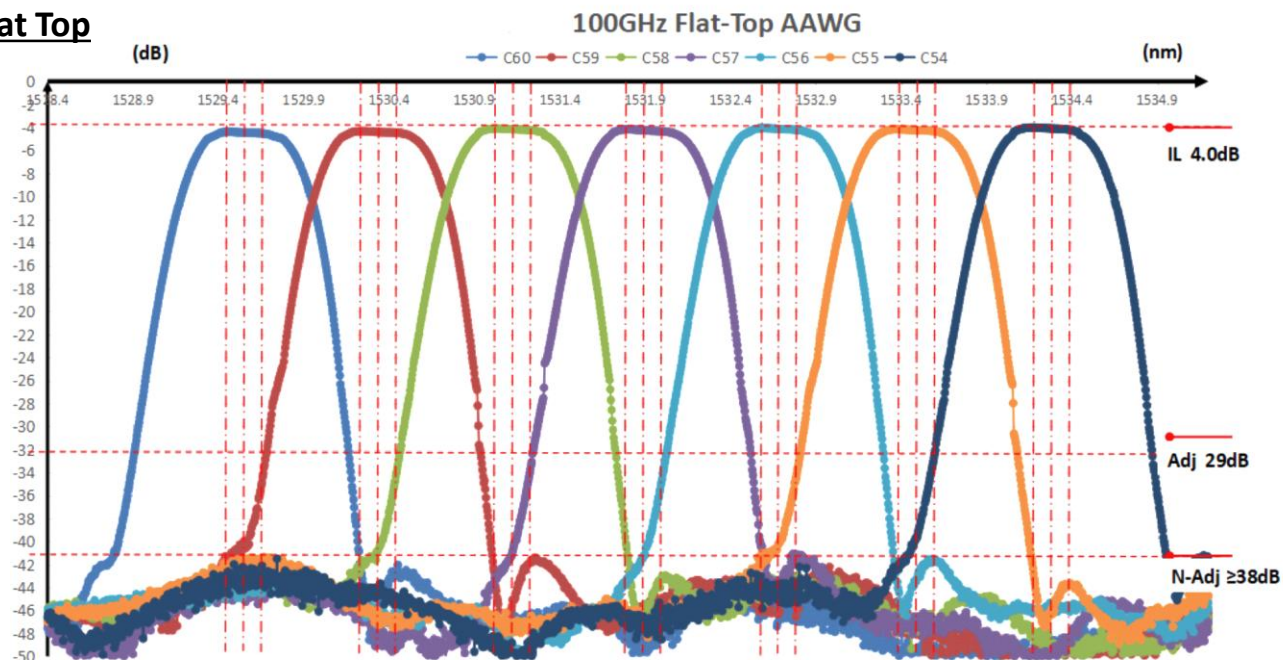


ITU Grid Channels (100 GHz Spacing)					
Channel	Frequency (GHz)	Wavelength (nm)	Channel	Frequency (GHz)	Wavelength (nm)
1	190,100	1577.03	38	193,800	1546.92
2	190,200	1576.20	39	193,900	1546.12
3	190,300	1575.37	40	194,000	1545.32
4	190,400	1574.54	41	194,100	1544.53
5	190,500	1573.71	42	194,200	1543.73
6	190,600	1572.89	43	194,300	1542.94
7	190,700	1572.06	44	194,400	1542.14
8	190,800	1571.24	45	194,500	1541.35
9	190,900	1570.42	46	194,600	1540.56
10	191,000	1569.59	47	194,700	1539.77
11	191,100	1568.77	48	194,800	1538.98
12	191,200	1567.95	49	194,900	1538.19
13	191,300	1567.13	50	195,000	1537.40
14	191,400	1566.31	51	195,100	1536.61
15	191,500	1565.50	52	195,200	1535.82
16	191,600	1564.68	53	195,300	1535.04
17	191,700	1563.86	54	195,400	1534.25
18	191,800	1563.05	55	195,500	1533.47
19	191,900	1562.23	56	195,600	1532.68
20	192,000	1561.42	57	195,700	1531.90
21	192,100	1560.61	58	195,800	1531.12
22	192,200	1559.79	59	195,900	1530.33
23	192,300	1558.98	60	196,000	1529.55
24	192,400	1558.17	61	196,100	1528.77
25	192,500	1557.36	62	196,200	1527.99
26	192,600	1556.55	63	196,300	1527.22
27	192,700	1555.75	64	196,400	1526.44
28	192,800	1554.94	65	196,500	1525.66
29	192,900	1554.13	66	196,600	1524.89
30	193,000	1553.33	67	196,700	1524.11
31	193,100	1552.52	68	196,800	1523.34
32	193,200	1551.72	69	196,900	1522.56
33	193,300	1550.92	70	197,000	1521.79
34	193,400	1550.12	71	197,100	1521.02
35	193,500	1549.32	72	197,200	1520.25
36	193,600	1548.51	73	197,300	1519.48
37	193,700	1547.72			

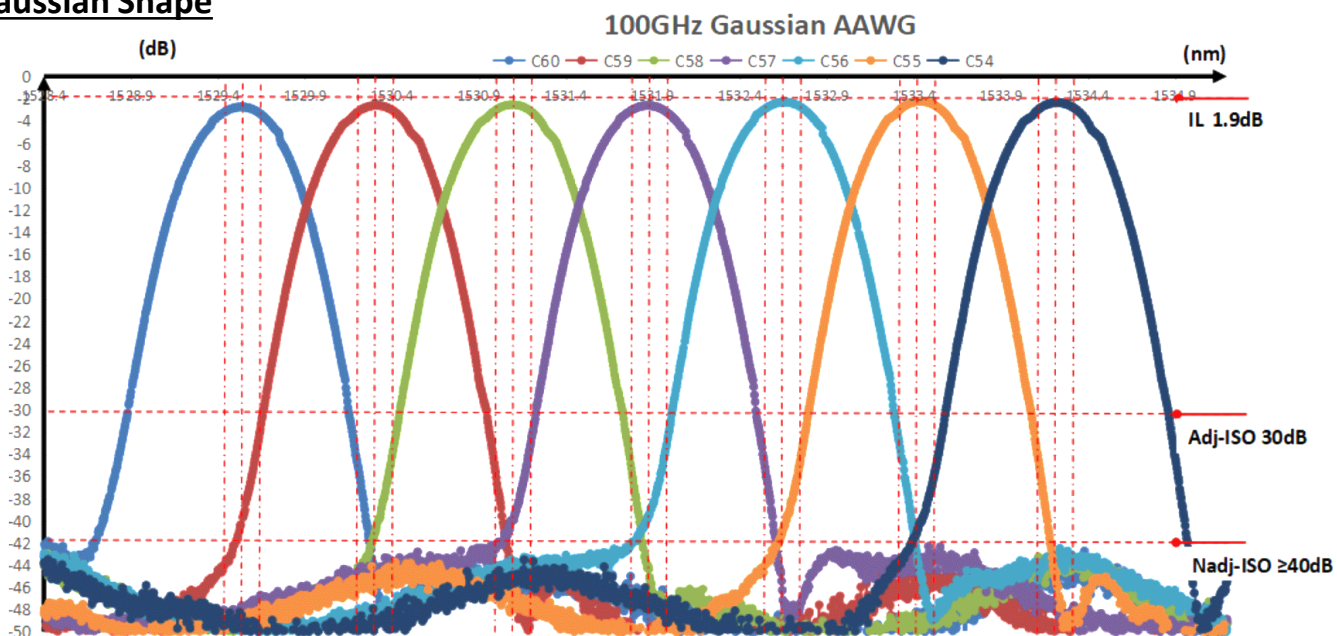
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Typical Spectral

Flat Top



Gaussian Shape



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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 ($<5\ \mu\text{m}$) 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.

Optical Function Path Illustration

Wavelength multiplexing and Demultiplexing can be illustrated below in a single-channel optical add-drop case.

