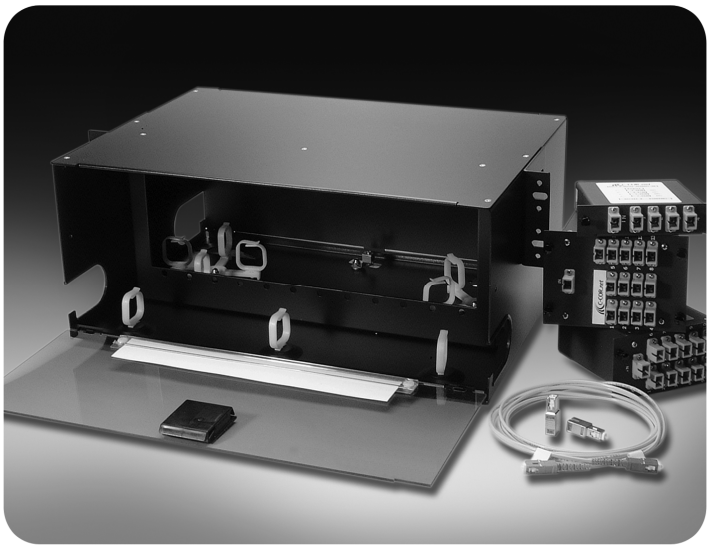
ARRIS Optical Passives and Accessories

Solution Overview



FEATURES

- Full line of optical passives and accessories
- High stability
- High reliability

SOLUTION OVERVIEW

ARRIS offers a complete line of DWDMs, CWDMs, WDMs, Couplers, and Optical Shelves. Optical passives and accessories options include:

- dense wavelength division multiplexers (DWDMs) in 1x2, 1x4, 1x8, and 1x16 configurations
- coarse wave division multiplexers (CWDMs) in 20 nm and 40 nm spaced 1x4 configurations and 20 nm spaced 1x8 and 1x10 configurations
- 4-port add-drop multiplexers in 100 GHz, 200 GHz, and CWDM configurations
- single-channel 3-port add-drop multiplexers in 100 GHz, 200 GHz, and CWDM configurations
- 1310/1550 nm wavelength division multiplexers (WDMs)
- optical couplers
- optical accessories

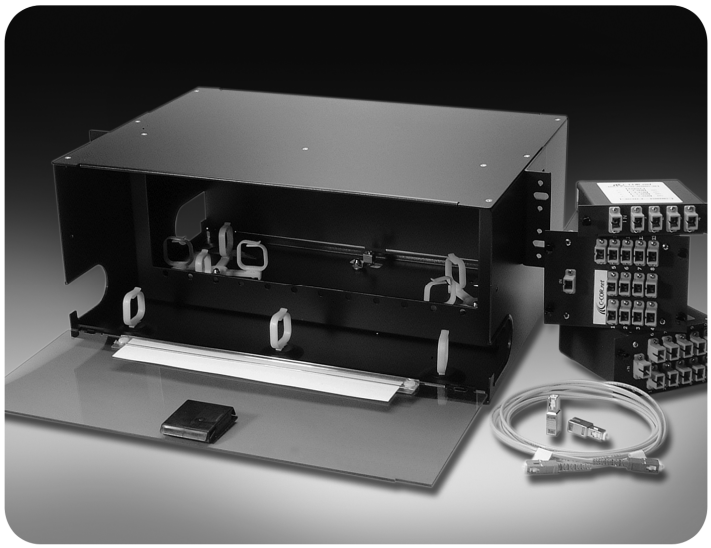
Optical Shelf

The OS1000 is a 4-rack unit (4RU) telecommunications industry standard (Lucent LGX-style) optical organization shelf. The OS1000 can be mounted in both 19-inch and 23-inch telecommunications bays. Each OS1000 can accept 12 single-width coupler cards, 12 WDM modules, or 12 patch panel plates, each with 6 connectors. If the OS1000 is used only as a patch panel, it can accommodate up to 72 optical interconnects. Each optical module or patch panel plate occupies the same panel space allowing flexibility for configuring the OS1000 with any combination of modules.

Optical Shelf Features

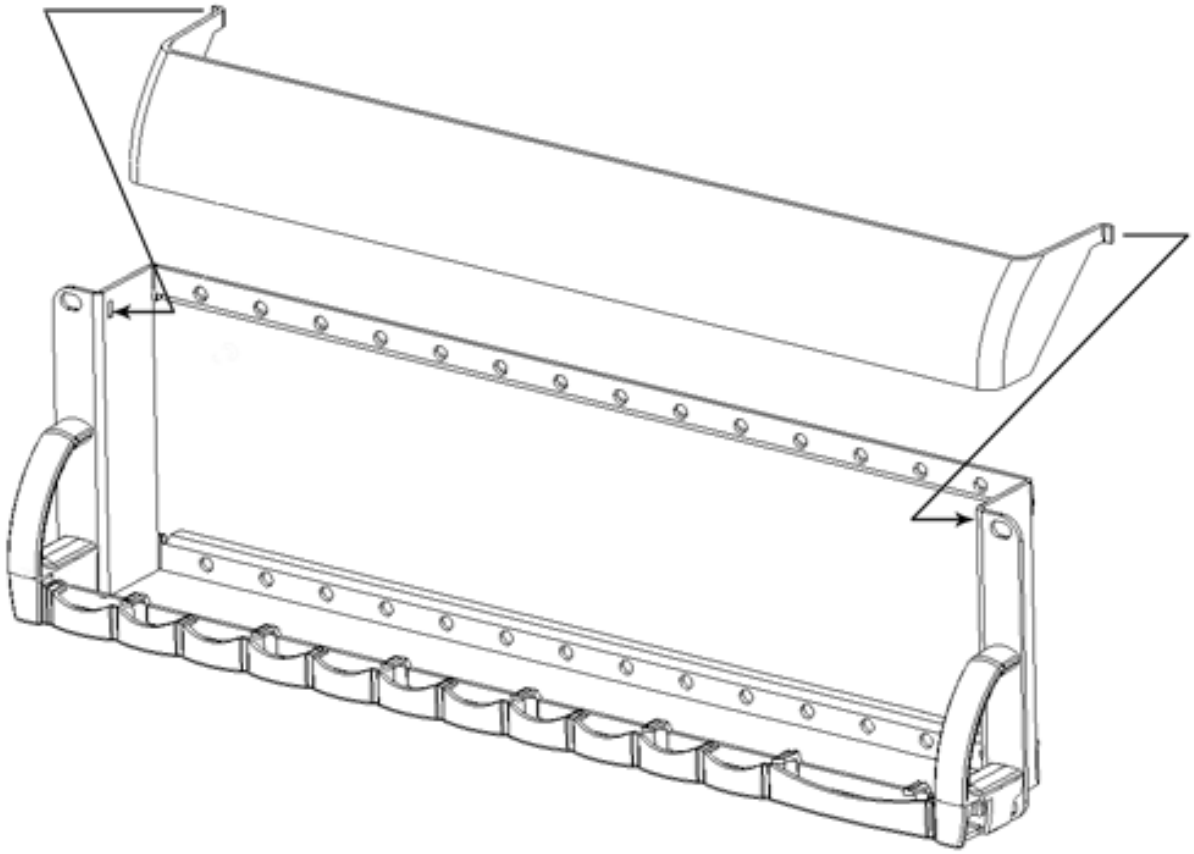
- Universal enclosure with up to 72 interconnects or patches, 12 coupler/splitter cards, 12 WDM modules, or any combination of these modules
- Fiber protection organization with strain relief and bend radius guides
- Universal mounting in either a 19-inch or 23-inch rack
- Removable transparent doors with a formatted label for identifying fiber terminations
- Convenient connector/adapter access
- Interchangeable connector panels and bulkheads

SPECIFICATIONS OPTICAL SHELF (OS1000)	
Dimensions, without mounting bracket (W x H x D)	17.0 x 6.97 x 12.0 in. (43.2 x 17.7 x 30.5 cm)
Dimensions, with mounting bracket (W x H x D)	19.0 x 6.97 x 12.0 in. (48.3 x 17.7 x 30.5 cm)
Operating Temperature	–40° to 85°C (–40° to 185°F)
Storage Temperature	–40° to 85°C (–40° to 185°F)
Relative Humidity, max.	95%, noncondensing



The OS0500 is a 3-rack unit (3RU) telecommunications industry standard (Lucent LGX-style), high-density optical passive shelf with 14 slots.

SPECIFICATIONS OPTICAL SHELF (OS0500)	
Dimensions (W x H x D)	48.3 x 13.2 x 11.4 cm (19.0 x 5.2 x 4.5 in.)
Operating Temperature	–40° to 85°C (–40° to 185°F)
Storage Temperature	–40° to 85°C (–40° to 185°F)
Dimensions	LGX single-width: 15.8 x 12.9 x 2.9 cm (6.2 x5.1 x 1.1 in.) LGX double-width: 15.8 x 12.9 x 5.8 cm (6.2 x 5.1 x 2.3 in.) LGX triple-width: 15.8 x 12.9 x 8.7 cm (6.2 x 5.1 x 3.4 in.) Non-LGX: contact ARRIS for dimensions



DWDM/CWDM Modules

ARRIS DWDMs/CWDMs enable simultaneous transmission of optical signals at multiple wavelengths on one fiber. The wavelengths are located in the CWDM region (1430 to 1620 nm) or the DWDM region (1528 to 1563 nm). DWDMs/CWDMs can be used in either unidirectional or bidirectional applications, and therefore, can serve as a mux or demux simultaneously for different wavelengths, typically using demuxes at each end to achieve adequate channel isolation.

For typical inside plant applications, each DWDM is packaged in an LGX-style enclosure. Four-port add-drop modules and 1x2 and 1x4 DWDMs are single-width modules, 1x8 DWDMs are double-width modules, and 1x16 DWDMs are quadruple-width modules. Each DWDM can be used individually or mounted into another enclosure suitable for mounting multiple cards in a headend equipment rack.

A flat-box package option is also available, which provides standard or user-specified fiber pigtail lengths, as well as various connector options and fiber types.

Features

- Allow simultaneous transmission of optical signals in the CWDM and DWDM regions over one optical fiber
- DWDM product offerings available with flat insertion loss characteristics
- Superior isolation and low insertion loss
- Upgrade ports available on selected models
- Standard connector options available
- LGX-style and flat-box style enclosures for a variety of applications

ORDERING INFORMATION OPTICAL DWDM/CWDM

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
O	x	x	x	x	x	x	x	x	x	x	x	x	x	x

1	Type
M	Multiplexer
D	Demultiplexer

2	Technology
C	CWDM—15 nm bandwidth
D	DWDM

3-4	Number of Wavelengths Filtered	
02	2 wavelengths	a
04	4 wavelengths	
08	8 wavelengths	
10	10 wavelengths	b
16	16 wavelengths	c

a) Must select "D" in #2 block, Technology. Must select "L" in #5 block, Package.
b) Must select "C" in #2 block, Technology.
c) Must select "D" in #2 block, Technology, and "0" in #9 block, Upgrade Port Options.

5	Package	
A	Flat box: 1x4 and 1x8 (8.8 x 31 x 50 mm)	a,b
B	Flat box: 1x2 (9 x 18 x 120) 1x4, 1x8, and 1x10 (8 x 80 x 120 mm) 1x16 (15 x 80 x 120 mm)	a
L	LGX enclosure: 1x2 and 1x4, single width (29 x 129 x 175 mm) 1x8 and 1x10, double width (58 x 129 x 175 mm) 1x16, triple width (116 x 129 x 175 mm)	

a) Must select "C" in #2 block, Technology.
b) Must select "04" or "08" in #3–4 block, Number of Wavelengths Filtered.

6	Channel Spacing	
1	100 GHz	a
2	200 GHz	a
3	20 nm	b
4	40 nm	b

a) Must select "D" in #2 block, Technology.
b) Must select "C" in #2 block, Technology.

7-8	Wavelength Options	
SB	Splitband, 2 inputs: ITU channels 27 and 31	a
BC	Broadcast, 2 inputs: ITU channel 40; Red channels 21–35	a
RB	Red/Blue, 2 inputs: 8 Red (ITU 21–35); 8 Blue (ITU 45–59)	b
xx	DWDM	c
UL	CWDM upper/lower wavelengths (1471, 1491, 1591, 1611 nm)	c
43	1431 nm CWDM wavelength	c
45	1451 nm CWDM wavelength	c
47	1471 nm CWDM wavelength	c
49	1491 nm CWDM wavelength	c
51	1511 nm CWDM wavelength	c
53	1531 nm CWDM wavelength	c
55	1551 nm CWDM wavelength	c
57	1571 nm CWDM wavelength	c
59	1591 nm CWDM wavelength	c
61	1611 nm CWDM wavelength	c

a) Must select "D" in #2 block, Technology, "2" in #3–4 block, Number of Wavelengths Filtered, "2" in #6 block, Channel Spacing, and "F" in #10 block, Insertion Loss. Refer to ITU Grid chart.
b) Must select "D" in #2 block, Technology, "2" or "16" in #3–4 block, Number of Wavelengths Filtered, "2" in #6 block, Channel Spacing, and "F" in #10 block, Insertion Loss. Refer to ITU Grid chart.
c) Select lowest DWDM/CWDM ITU Grid channel. Next consecutive channels are used, depending on wavelengths filtered. Refer to ITU Grid chart for DWDM.

9	Upgrade Port Options
0	None
1	Upper channels (includes all channels higher than selection)
2	Lower channels (includes all channels lower than selection)

10	Insertion Loss
T	Tilted
F	Flat

11	Connector Options	
1	SC/APC	
2	SC/UPC	
3	FC/APC	
4	FC/UPC	
6	No connector	a

a) Must select "B" in #5 block, Package, and "00" in #13–14 block, Fiber Length.

12	Fiber Type	
B	900 µm buffered	a
J	3 mm jacketed	b
blank	Not applicable	c

a) Must select "A" or "B" in #5 block, Package.
b) Must select "B" in #5 block, Package.
c) Must select "L" in #5 block, Package.

13-14	Fiber Length	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a

a) Must select "L" in #5 block, Package

SPECIFICATIONS

ITU Channel	Wavelength (nm)
Red Channels	
21	1560.61
22	1559.79
23	1558.98
24	1558.17
25	1557.36
26	1556.96
27	1555.75
28	1554.94
29	1554.13
30	1553.33
31	1552.52
32	1551.72
33	1550.92
34	1550.12
35	1549.32
36	1548.51
Not used with RED/BLUE filtering	
37	1547.72
38	1546.92
39	1546.12
40	1545.32
41	1544.53
42	1543.73
43	1542.94
44	1542.14
Blue Channels	
45	1541.35
46	1540.56
47	1539.77
48	1538.98
49	1538.19
50	1537.40
51	1536.61
52	1535.82
53	1535.04
54	1534.25
55	1533.47
56	1532.68
57	1531.90
58	1531.12
59	1530.33

NOTE:
This table presents 100 GHz (0.8 nm) spaced wavelengths. Odd numbered channels are the 200 GHz (1.6 nm) spaced wavelengths.

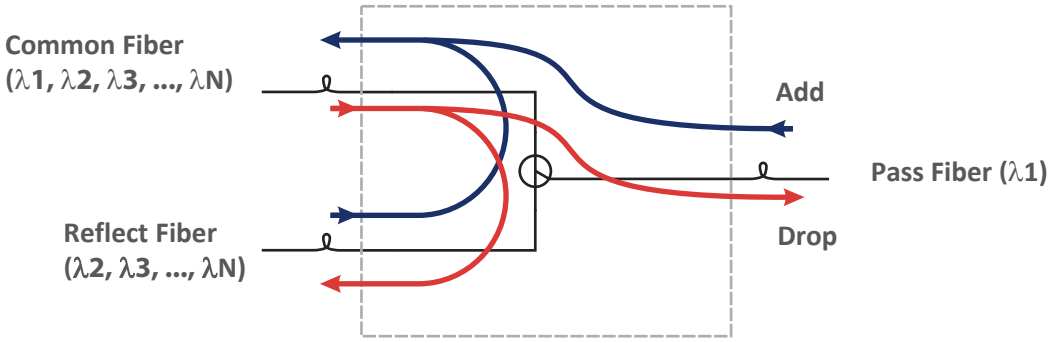
Single Channel 3-Port Optical Add-Drop Multiplexers

ARRIS OADM series optical add-drop multiplexers are 3-port, single channel multiplexers that add or drop a preselected wavelength from an optical fiber containing a number of wavelengths, which are located in either the CWDM wavelength region (1430 to 1610 nm) or the DWDM wavelength region (1530 to 1560 nm). For most inside plant applications, the OADM's single-width protective enclosure allows it to be used either independently or mounted with other optical cards in an LGX-style optical shelf, such as the ARRIS OS1000. For most outside plant applications, OADMs are packaged in either a splice-tube or a flat-box type package, which is suitable for mounting inside a splice enclosure or a fiber management tray. In addition, standard or user-specified fiber pigtail lengths are provided, as well as various connector options and fiber types.

Features

- User-selectable add-drop wavelengths in the CWDM and DWDM wavelength regions
- Low insertion loss and high isolation
- Available with standard connector options
- LGX-style, splice-tube, or flat-box enclosure types

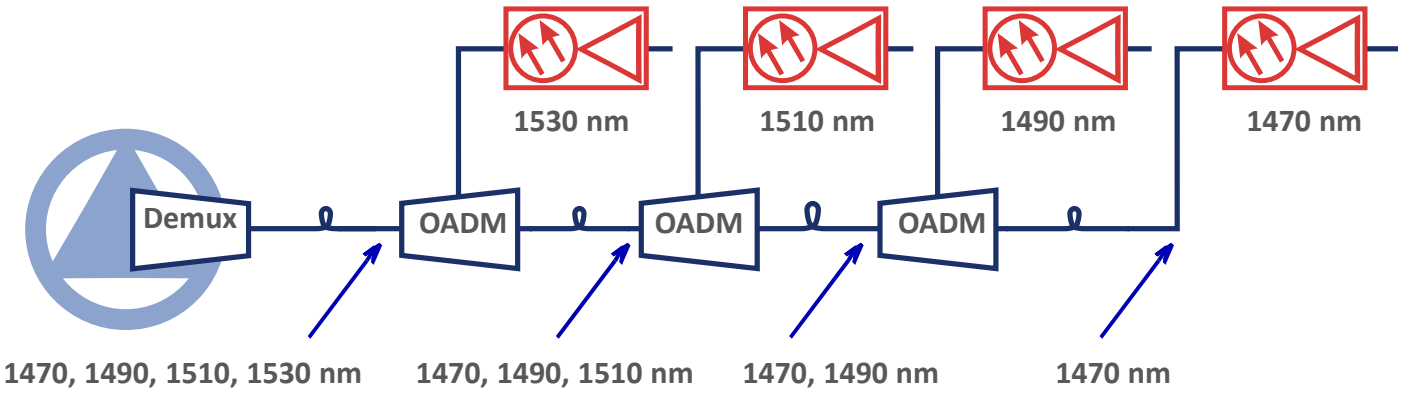
OADM Functional Block Diagram



Common Fiber passes all wavelengths, including the user-selected added or dropped channel.
Reflect Fiber passes all wavelengths except user selected wavelength.
Pass Fiber allows the user-selected wavelength to be added or dropped from the common fiber.

System Application Example

The OADM can potentially be used in an HFC node daisy chaining application in systems with a limited number of available fibers from the HFC nodes to the headend or hub site. In this application, node return paths centered on different wavelengths are combined, a single wavelength at a time, using 3-port OADMs.



ORDERING INFORMATION OADM SERIES ADD-DROP MULTIPLEXER

				1	2	3	4	5	6	7	8	9	10	11	12
O	A	D	M	x	x	x	x	x	x	x	x	x	x	x	x

1	Technology
C	CWDM—15 nm bandwidth
D	DWDM — 100 GHz spacing
E	DWDM — 200 GHz spacing

2-3	ITU Wavelength Filtered
xx	ITU Grid DWDM channel number
43	1431 nm CWDM wavelength
45	1451 nm CWDM wavelength
47	1471 nm CWDM wavelength
49	1491 nm CWDM wavelength
51	1511 nm CWDM wavelength
53	1531 nm CWDM wavelength
55	1551 nm CWDM wavelength
57	1571 nm CWDM wavelength
59	1591 nm CWDM wavelength
61	1611 nm CWDM wavelength

4	Package
S	Splice tube (5 mm diameter)
B	Flat box (9 x 16 x 90 mm)
L	LGX enclosure, single width (29 x 129 x 175 mm)

5	Connector Types	
1	SC/APC	
2	SC/UPC	
3	FC/APC	
4	FC/UPC	
6	No connector	a

a) Must select "S" or "B" in #4 block, Package, and "00" in each Fiber Length block.

6	Fiber Type	
B	900 µm buffered	a
J	3 mm jacketed	b
blank	Not applicable	c

a) Must select "S" or "B" in #4 block, Package.
b) Must select "B" in #4 block, Package.
c) Must select "L" in #4 block, Package.

7-8	Fiber Length (Common)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a

a) Must select "L" in #4 block, Package

9-10	Fiber Length (Add-Drop or Pass)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a

a) Must select "L" in #4 block, Package

11-12	Fiber Length (Reflect)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a

a) Must select "L" in #4 block, Package

Wavelength Division Multiplexers

WDMs are passive optical products that enable simultaneous transmission of two wavelengths in the 1310 nm region, the 1550 nm region, and the CWDM region (1460 to 1620 nm), with options available for 20 dB or 40 dB of optical isolation between the two wavelength ports.

For most inside plant applications, each WDM is packaged in a small, single-width sheet metal enclosure, which mounts into an industry standard LGX-style shelf, such as the ARRIS OS1000 optical shelf. For LGX enclosures, each WDM can be used individually or it can be mounted into another enclosure suitable for mounting multiple passive optical products in a headend equipment rack.

For most outside plant applications, each WDM is packaged in a splice-tube or flat-box package, which is suitable for mounting in a splice enclosure or fiber management tray. For outside plant applications, standard or user specified fiber pigtail lengths are provided, as well as various connector options and fiber types (900 µm loose tube or buffered and 3 mm jacketed).

Features

- Allows simultaneous transmission of optical signals in the 1310 nm, 1550 nm, and CWDM regions over one optical fiber
- Low insertion loss with two available performance grades, standard and high isolation
- Available with standard connector options
- LGX-style, splice-tube, or flat-box enclosure types

Applications

In most system applications, the WDM will be used to combine signals in the 1310 nm region, the 1550 nm region, or the CWDM region (1460 to 1620 nm) onto a single optical fiber. WDMs are typically used to conserve fiber usage in system applications in which fibers are limited. WDMs can be used for unidirectional and bidirectional transport applications. Unidirectional transport applications typically consist of two transmitters (1310 and 1550 nm region), which are combined using the WDM onto a single fiber and sent to a receiving node where the signals are demultiplexed, using another WDM, and sent to separate receivers. Bidirectional transport applications typically consist of end to end applications where a transmitter and a receiver (1310 and 1550 nm region) reside at each end of the network and are combined using WDMs for single fiber transport.

For inside plant applications, the WDM will typically be installed in a temperature controlled, inside plant application, such as a headend or hub site. For outside plant applications, the WDM will typically be installed in a non-temperature controlled environment, such as a splice enclosure or node fiber management tray.

ORDERING INFORMATION WDM

					1	2	3	4	5	6	7	8	9	10	11
W	D	M	3	5	x	x	x	x	x	x	x	x	x	x	x

1	Performance	
S	Standard isolation (20 dB)	
M	Moderate isolation (30 dB)	a
H	High isolation (40 dB)	b
	a) Must select "C" in #2 block, Bandwidth. *b) Must select "B" or "L" in #3 block, Package*	

2	Bandwidth	
C	CWDM band (1310 ± 40 nm, 1460–1620 nm)	a
N	Narrowband (1310 ± 20 nm, 1550 ± 20 nm)	
W	Wideband (1310 ± 40 nm, 1550 ± 40 nm)	
	a) Must select "M" in #1 block, Performance.	

3	Package
S	Splice tube: Std. isolation, narrowband (3 mm diameter) Other options (5 mm diameter)
B	Flat box: 9 x 16 x 90 mm
L	LGX enclosure: single width (29 x 129 x 175 mm)

4	Connector Types	
1	SC/APC	
2	SC/UPC	
3	FC/APC	
4	FC/UPC	
6	No connector	a
	a) Must select "S" or "B" in #3 block, Package, and "00" in each Fiber Length block.	

5	Fiber Type	
B	900 µm buffered	a
J	3 mm jacketed	b
blank	Not applicable	c
	a) Must select "S" or "B" in #3 block, Package. *b) Must select "B" in #3 block, Package.* *c) Must select "L" in #3 block, Package.*	

6-7	Fiber Length (Common)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a
	a) Must select "L" in #3 block, Package	

8-9	Fiber Length (1310 nm)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a
	a) Must select "L" in #3 block, Package	

10-11	Fiber Length (1550 nm or CWDM band)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a
	a) Must select "L" in #3 block, Package	

OC Series Optical Couplers

ARRIS OC series dual window optical couplers are based on an array of up to seven optical 1x2 coupler/splitters packaged in a protective enclosure. Each card has 1 or 2 inputs and 2 to 32 outputs, depending on the model, and can pass wavelengths in the 1310 nm and 1550 nm regions. Cards can be added in series to accommodate more than eight outputs. The optical loss from the input to each output can be varied to maximize the efficiency of the optical links.

For most inside plant applications, each coupler's protective enclosure allows it to be used either independently or mounted with other optical cards in an LGX-style optical shelf, such as the ARRIS OS1000 optical shelf. Couplers with up to five outputs are single-width cards, using one slot in an optical shelf. Cards with six to eight outputs are double-width cards, using two slots in an optical shelf.

For most outside plant applications, the couplers are packaged in either a splice-tube or a flat-box type package, which is suitable for mounting inside a splice enclosure or a fiber management tray. In addition, standard or user-specified fiber pigtail lengths are provided, as well as various connector options and fiber types.

The OC series couplers allow one transmitter to serve multiple receivers. In certain applications, the couplers may be used instead to combine optical signals.

Features

- Allow one transmitter to serve multiple receivers
- Available with standard connector options
- LGX-style, splice-tube, or flat-box enclosure types
- A 2x2 coupler card is available for easy optical combining/splitting

ORDERING INFORMATION OC SERIES OPTICAL COUPLER

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
O	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

1	Passband Window
C	CWDM band (1310 ± 40 nm, 1460–1620 nm)
S	Standard (1310 ± 40 nm, 1550 ± 40 nm)

2	Optical Input	
1	One input	
2	Two inputs	a

a) Available for 50/50 split only. Must select "2" in #3 block, Optical Outputs, and "9XXXXXX" in #5–11 block, Coupler Configuration Number.

3	Optical Outputs	
2	2 outputs, single-width module	
3	3 outputs, single-width module	
4	4 outputs, single-width module	
5	5 outputs, single-width module	
6	6 outputs, dual-width module	
7	7 outputs, dual-width module	
8	8 outputs, dual-width module	
9	9 outputs, dual-width module	a
0	10 outputs, dual-width module	a
A	11 outputs, dual-width module	a
B	12 outputs, triple-width module	a
C	13 outputs, triple-width module	a
D	14 outputs, triple-width module	a
E	15 outputs, triple-width module	a
F	16 outputs, triple-width module	a

a) Balanced split only. Must select "BXXXXXX" in #5–11 block, Coupler Configuration Number.

4	Package	
S	Splice tube (3 mm diameter)	a
B	Flat box: 1x2 (9 x 16 x 90 mm) 1x3 through 1x10 (11 x 76 x 102 mm) 1x11 through 1x16 (11 x 102 x 142 mm)	
L	LGX enclosure: Single width (29 x 129 x 175 mm) Double width (58 x 129 x 175 mm) Triple width (116 x 129 x 175 mm)	

a) Available for 1x2 and 2x2 configurations only.

5-11	Coupler Configuration Number (A leg/B leg)	
9	50/50 split	
8	45/55 split	
7	40/60 split	
6	35/65 split	
5	30/70 split	
4	25/75 split	
3	20/80 split	
2	15/85 split	
1	10/90 split	
0	5/95 split	
X	Coupler unused	
B	Balanced split only	a

a) Must select "9" through "F" in #3 block, Optical Outputs, and "BXXXXXX" in this block, #5–11, Coupler Configuration Number.

12	Connector Options	
1	SC/APC	
2	SC/UPC	
3	FC/APC	
4	FC/UPC	
6	No connector	a

a) Must select "S" or "B" in #4 block, Package, and "00" in #14–15 block, Fiber Length.

13	Fiber Type	
B	900 µm buffered	a
J	3 mm jacketed	b
blank	Not applicable	c

a) Must select "S" or "B" in #4 block, Package.
b) Must select "B" in #4 block, Package.
c) Must select "L" in #4 block, Package.

14-15	Fiber Length (Input)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	
00	Standard length, 1.0 m	
02	2.0 m length	
blank	Not applicable	a

a) Must select "L" in #4 block, Package

16--17	Fiber Length (Output 1)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	a
00	Standard length, 1.0 m	a
02	2.0 m length	
blank	Not applicable	a,b

a) Options #16–17 and #18–19 only required if Output 1 and Output 2 fiber lengths differs from Input fiber length.
b) Must select "L" in #4 block, Package

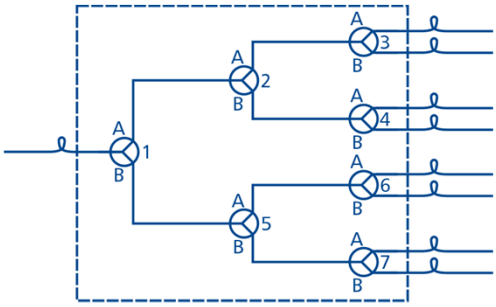
18-19	Fiber Length (Output 2)	
xx	Length in cm, 30 cm minimum length in 5 cm increments	a
00	Standard length, 1.0 m	a
02	2.0 m length	
blank	Not applicable	a,b

a) Options #16–17 and #18–19 only required if Output 1 and Output 2 fiber lengths differs from Input fiber length.
b) Must select "L" in #4 block, Package.

COUPLER CONFIGURATION INDEX

ID	"A" Leg			"B" Leg		
	% Opt. Pwr. from Input	Typical Loss (dB)	Worst Case Loss (dB)	% Opt. Pwr. from Input	Typical Loss (dB)	Worst Case Loss (dB)
9	50	3.1	3.5	50	3.1	3.5
8	45	3.6	4.2	55	2.7	3.3
7	40	4.1	4.7	60	2.3	2.8
6	35	4.7	5.3	65	2.0	2.4
5	30	5.4	6.0	70	1.6	2.0
4	25	6.1	6.8	75	1.4	1.7
3	20	7.1	7.9	80	1.0	1.4
2	15	8.4	9.3	85	0.8	1.1
1	10	10.1	11.3	90	0.6	0.9
0	5	13.2	14.9	95	0.4	0.6
X	—	—	—	—	—	

NOTE: "X" means no coupler is used in this position. Specified losses do not include connector loss.



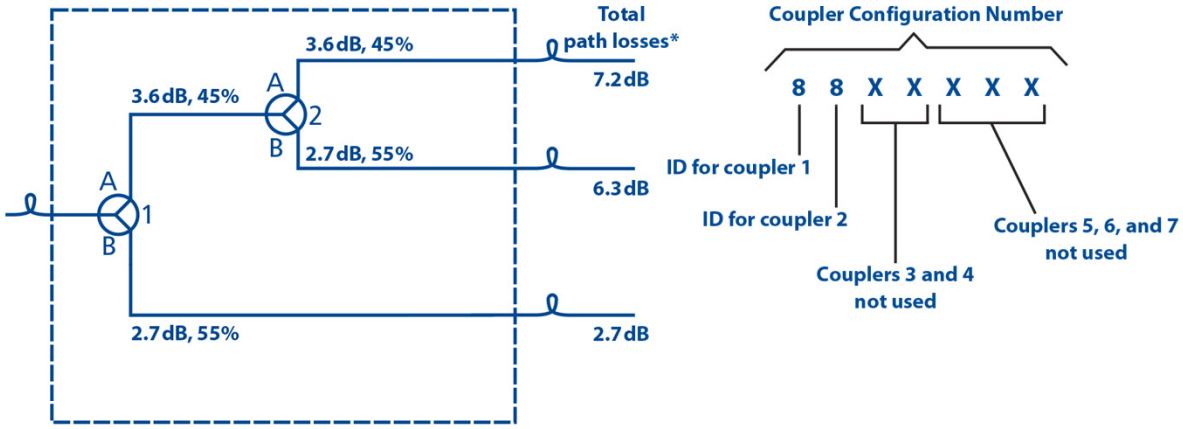
1x8 Coupler Template

"A" Leg = Leg with higher loss (lower %).
"B" Leg = Leg with lower loss (higher %).
When sketching out a coupler model, always put the "A" leg at the top as shown.

Coupler Configuration Examples

Following are two examples of the many possible model numbers for OC series couplers.

OCS13L88XXXXX1B00 Example

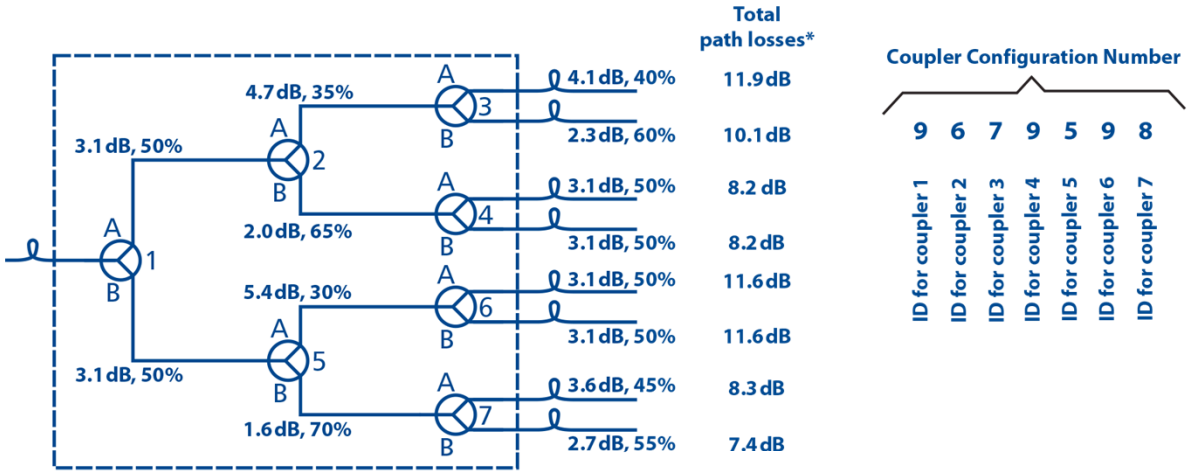


* Losses are typical and do not include connector losses.

As with all models, coupler 1 is the first coupler at the input. The only other coupler used here is coupler 2. Note that the higher-loss legs (“A”) are always drawn at the top.

Now look at the model number. The “3” indicates three outputs. The "88XXXXX" comprises the seven-digit “coupler configuration number.” (See “Coupler Configuration Index” on page 12 for values represented by the ID numbers.)

OCS18L96795981B00 Example



* Losses are typical and do not include connector losses.

This model uses all seven couplers. Note that the higher-loss legs (“A”) are always drawn at the top.
Now look at the model number above this illustration. The first “8” indicates eight outputs. The "9679598" comprises the “coupler configuration number.” (See “Coupler Configuration Index” on page 12 for values represented by the ID numbers.)

Optical Switch

The OSW series 1x2 optical switch is an LGX style plug-in module in a single-width enclosure—compatible with the ARRIS OS1000 optical shelf—that provides automatic switching between signal sources. The optical switch autosenses the loss of light on the active port and toggles the optic switch, transferring from the active to the alternate port.

OSW series optical switches:

- create a self-healing network architecture
- facilitate automatic and cost-effective network backup and redundancy, thus increasing system reliability and reducing system down time
- support a variety of applications with its adjustable optic threshold, –20 to 0 dBm range
- provide flexibility in operation with remote monitoring and dual operating modes

This optical switch is dual-mode selectable. In Mode 1, Port A functions as the primary port and, by design, offers higher quality performance than the redundant path at Port B. If the light at Port A fails, the unit switches automatically to Port B. When the light is restored to Port A, the unit also switches back to Port A.

In Mode 2, the performance of the primary and redundant paths are equal. If the current active port is Port A and the light fails, the unit switches automatically to Port B. When the light is restored to Port A, the switch remains in the redundant position until the light at Port B fails. Then, the unit automatically switches back to the primary Port A.

Status LEDs indicate active port feeding switch output. The switch offers an optical input range of –20 to 20 dBm. The entire module yields a low insertion loss: 1.5 dB typical, 2.0 dB maximum. A single wall power pack provides 12 V at 800 mA.

			1	2	3	4	5
O	S	W	1	X	2	L	x

1-3	Switch Type
1x2	1x2 optical switch

4	Optical Input
L	LGX enclosure: Single width (29 x 129 x 175 mm)

5	Connector Options
1	SC/APC
2	SC/UPC
3	FC/APC
4	FC/UPC

Plug-in Optical Attenuators

Plug-in fixed optical attenuators are available from 1 dB to 30 dB in 1 dB steps. Optical attenuators can be ordered for 1310 nm or 1550 nm systems and with either SC/APC (8° angled), SC/UPC, FC/APC (8° angled), or FC/UPC connectors.

ORDERING INFORMATION

Model Number	Attenuation Level (dB)	Model Number	Attenuation Level (dB)
P35ATN-0.5-xx	0.5	P35ATN-016-xx	16.0
P35ATN-001-xx	1.0	P35ATN-017-xx	17.0
P35ATN-1.5-xx	1.5	P35ATN-018-xx	18.0
P35ATN-002-xx	2.0	P35ATN-019-xx	19.0
P35ATN-2.5-xx	2.5	P35ATN-020-xx	20.0
P35ATN-003-xx	3.0	P35ATN-021-xx	21.0
P35ATN-004-xx	4.0	P35ATN-022-xx	22.0
P35ATN-005-xx	5.0	P35ATN-023-xx	23.0
P35ATN-006-xx	6.0	P35ATN-024-xx	24.0
P35ATN-007-xx	7.0	P35ATN-025-xx	25.0
P35ATN-008-xx	8.0	P35ATN-026-xx	26.0
P35ATN-009-xx	9.0	P35ATN-027-xx	27.0
P35ATN-010-xx	10.0	P35ATN-028-xx	28.0
P35ATN-011-xx	11.0	P35ATN-029-xx	29.0
P35ATN-012-xx	12.0	P35ATN-030-xx	30.0
P35ATN-013-xx	13.0		
P35ATN-014-xx	14.0		
P35ATN-015-xx	15.0		

NOTE: "xx" = connectors option. "AS" = SC/APC, "US" = SC/UPC, "AF" = FC/APC, "UF" = FC/UPC. All APC connectors are 8° angle polished.

Fiber Optic Bulkheads

Fiber optic bulkheads are available as both straight coupler bulkheads for FC, SC, LC, and LC Duplex connector types, and as a hybrid FC to SC adapter.

		1	2	3	4	5
O	B	x	x	x	x	x

1	Switch Type
S	Straight coupler
H	Hybrid adapter

2-3	Optical Input	
FF	FC to FC	a
SS	SC to SC	a
LC	LC to LC	a
LCD	LC to LC duplex	a
FS	FC to SC	b

a) Must select "S" in #1 block, Adapter Type.
b) Must select "H" in #1 block, Adapter Type.

Fiber Optic Patchcords

Fiber optic patchcords are 3 mm jacketed fibers in lengths as shown below that are connectorized on both ends.

ORDERING INFORMATION	
Model Number	Patchcord Length (meters)
xx-001-xx	1.0
xx-003-xx	3.0
xx-005-xx	5.0
xx-010-xx	10.0
xx-030-xx	30.0

NOTE: "xx" = connectors option. "AS" = SC/APC, "US" = SC/UPC, "AF" = FC/APC, "UF" = FC/UPC. All APC connectors are 8° angle polished.

Connectorized Fiber Optic Pigtails

Fiber optic pigtails are 3 mm jacketed patchcords in lengths as shown below that are connectorized on one end and bare on the other end.

ORDERING INFORMATION	
Model Number	Pigtail Length (meters)
xx-001	1.0
xx-003	3.0
xx-005	5.0
xx-010	10.0
xx-030	30.0

NOTE: "xx" = connectors option. "AS" = SC/APC, "US" = SC/UPC, "AF" = FC/APC, "UF" = FC/UPC. All APC connectors are 8° angle polished.

RELATED PRODUCTS	
CHP Max5000®	Trans Max® Hub
HPON™	Installation Services
Optical Nodes	

Customer Care

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

Note: Specifications are subject to change without notice.

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