

# Optical Node Series

Small Form-factor Pluggables (SFP)  
Digital Return Field Hardened SFPs

## FEATURES

- Simplified logistics with Small Form-factor Pluggable (SFP) optics
- Tailor network demands with 1310, CWDM or DWDM optics
- For use in ARRIS Digital Return Path Transmitters:
  - OM4DTX-SFP-242-5A8
  - OM4DTX-SFP-265-5A8
  - OM4DTX-SFP-185-5A8
  - OM3DTX-SFP-242-5A6
  - OM3DTX-SFP-265-5A6
  - OM3DTX-SFP-185-5A6



## PRODUCT OVERVIEW

Small Form-factor Pluggable, MSA compliant optics are available in a variety of technologies designed to satisfy a wide range of network requirements. ARRIS provides these 3.7 Gbps, industrial temperature-rated SFP transmitters to ensure the overall link performance is maintained. For short links less than 10 km, a low-power 1310 nm SFP is available that delivers a lower-cost solution than analog return transmitters on a per RF stream basis. To take advantage of longer links up to 40 km, CWDM SFPs are available in 18 wavelengths. With the addition of ruggedized optical passives, multiple wavelengths can be aggregated for fiber savings.

For greater distances up to 80 km, DWDM SFPs are available in 42 ITU wavelengths to maximize wavelength aggregation and design flexibility. Optical amplification can be utilized to extend distances as required by network designs. When utilizing network designs with Service Group Aggregation (SGA) an SFP transceiver option is available for connecting to downstream nodes.

## SPECIFICATIONS

Characteristics	Specifications <sup>1</sup>		
	Min.	Typ.	Max.
<b>1310 nm DFB SFP Specifications</b>			
Input Voltage, Vdc	—	3.3	—
Power Consumption, W	—	—	1.0
Data Rate, Gbps	—	—	2.125
Supported Link Length, km	—	10 (on SMF-28 or equivalent)	—
Hot Plug	—	In/Out	—
Transmitter			
Transmitter Type	—	Fabry-Perot	—
Center Wavelength, nm	—	1310	—
Optical Output Power, dBm	-6	—	—
Receiver			
Receiver Sensitivity (Input Power), dBm	-18	—	—
Receiver Overload (Input Power), dBm	—	—	0
Optical Center Wavelength, nm	—	1310	—
Return Loss, dB	12	—	—
Regulatory	—	Class 1 product IEC-60825-1. Complies with 21 CFR 1040.10 and 21 CFR 1040.11	
<b>CWDM SFP Specifications</b>			
Input Voltage, Vdc	—	3.3	—
Power Consumption, W	—	—	1.75
Data Rate, Gbps	1	—	2.125
Supported Link Length, km <sup>2</sup>	—	60 (on SMF-28 or equivalent)	—
Hot Plug	—	In/Out	—
Transmitter			
Transmitter Type	—	Uncooled CWDM DFB	—
Transmitter Extinction Ratio, dB	9	—	—
CWDM Optical Wavelengths, nm	—	15	—
Optical Output Power, dBm	-1	—	—
Receiver			
Receiver Sensitivity at 2X FC, dBm <sup>3</sup>	—	—	-21
Input Power, dBm	—	—	-3
Optical Center Wavelength, nm	1260	—	1620
Regulatory	—	Class 1 devices per FDA/CDRH and IEC-825-1 laser safety regulations	
<b>DWDM SFP Specifications</b>			
Input Voltage, Vdc	—	3.3	—
Power Consumption, W	—	—	1.5
Data Rate, Gbps	1	—	2.125
Supported Link Length, km <sup>4</sup>	—	120 (on SMF-28 or equivalent)	—
Hot Plug	—	In/Out	—
Transmitter			
Transmitter Type	—	Cooled DFB	—
Transmitter Extinction Ratio, dB	9	—	—
DWDM Channels	—	40 (20 through 59)	—
Optical Output Power, dBm	+3	—	—
Optical Extinction Ratio, dB <sup>5</sup>	8.2	—	—
Dispersion Penalty, dB	—	3	—
Receiver			
Receiver Sensitivity, dBm	—	—	-29
Input Power, dBm	—	—	-8
Optical Center Wavelength, nm	1525	—	1565
Regulatory	—	Class 1 devices per FDA/CDRH and IEC-825-1 laser safety regulations	
<b>Environmental</b>			
Case Operating Temperature	-40 to 85°C (-40 to 185°F)		
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Storage Relative Humidity, %	5		95

## NOTES:

- ARRIS provides assurance of digital return link performance only when using an ARRIS supplied SFP.
- Dispersion limitation only. Actual transmission distance is also dictated by the power budget of each transmission link.
- Measured with a PRBS of 2<sup>7</sup>-1 at 1x10<sup>-12</sup> BER and 9 dB extinction ratio.
- Dispersion limitation only. Actual transmission distance is also dictated by the power budget of each transmission link. EDFAs and Dispersion Compensation Modules are suitable for use with the TR4580-xx-PI.
- PRBS 2<sup>23</sup>-1 at 2.125 Gbps, BER < 10<sup>-12</sup>, 120 km SMF-28.

## SFP ORDERING INFORMATION

Part Number	Description
<b>1310 nm SFP Transceiver<sup>1</sup></b>	
TR4000-PI <sup>2</sup>	SFP Environment Hardened 92° C, 1310 nm LC/PC Transceiver
<b>CWDM SFP Transceivers<sup>1</sup></b>	
TR4440B-1270-PI <sup>3</sup>	SFP Environment Hardened 92° C, 1270 nm LC/PC CWDM Transceiver
TR4440B-1290-PI	SFP Environment Hardened 92° C, 1290 nm LC/PC CWDM Transceiver
TR4440B-1310-PI	SFP Environment Hardened 92° C, 1310 nm LC/PC CWDM Transceiver
TR4440B-1330-PI	SFP Environment Hardened 92° C, 1330 nm LC/PC CWDM Transceiver
TR4440B-1350-PI	SFP Environment Hardened 92° C, 1350 nm LC/PC CWDM Transceiver
TR4440B-1430-PI	SFP Environment Hardened 92° C, 1430 nm LC/PC CWDM Transceiver
TR4440B-1450-PI	SFP Environment Hardened 92° C, 1450 nm LC/PC CWDM Transceiver
TR4440B-1470-PI	SFP Environment Hardened 92° C, 1470 nm LC/PC CWDM Transceiver
TR4440B-1490-PI	SFP Environment Hardened 92° C, 1490 nm LC/PC CWDM Transceiver
TR4440B-1510-PI	SFP Environment Hardened 92° C, 1510 nm LC/PC CWDM Transceiver
TR4440B-1530-PI	SFP Environment Hardened 92° C, 1530 nm LC/PC CWDM Transceiver
TR4440B-1550-PI	SFP Environment Hardened 92° C, 1550 nm LC/PC CWDM Transceiver
TR4440B-1570-PI	SFP Environment Hardened 92° C, 1570 nm LC/PC CWDM Transceiver
TR4440B-1590-PI	SFP Environment Hardened 92° C, 1590 nm LC/PC CWDM Transceiver
TR4440B-1610-PI	SFP Environment Hardened 92° C, 1610 nm LC/PC CWDM Transceiver
<b>DWDM SFP Transmitters<sup>1</sup></b>	
TR4580-20-PI <sup>4</sup>	SFP Environment Hardened 92° C, CH 20, 1561.42 nm LC/PC DWDM Transmitter
TR4580-21-PI	SFP Environment Hardened 92° C, CH21, 1560.61 nm LC/PC DWDM Transmitter
TR4580-22-PI	SFP Environment Hardened 92° C, CH22, 1559.79 nm LC/PC DWDM Transmitter
TR4580-23-PI	SFP Environment Hardened 92° C, CH23, 1558.98 nm LC/PC DWDM Transmitter
TR4580-24-PI	SFP Environment Hardened 92° C, CH24, 1558.17 nm LC/PC DWDM Transmitter
TR4580-25-PI	SFP Environment Hardened 92° C, CH25, 1557.36 nm LC/PC DWDM Transmitter
TR4580-26-PI	SFP Environment Hardened 92° C, CH26, 1556.56 nm LC/PC DWDM Transmitter
TR4580-27-PI	SFP Environment Hardened 92° C, CH27, 1555.75 nm LC/PC DWDM Transmitter
TR4580-28-PI	SFP Environment Hardened 92° C, CH28, 1554.94 nm LC/PC DWDM Transmitter
TR4580-29-PI	SFP Environment Hardened 92° C, CH29, 1554.13 nm LC/PC DWDM Transmitter
TR4580-30-PI	SFP Environment Hardened 92° C, CH30, 1553.33 nm LC/PC DWDM Transmitter
TR4580-31-PI	SFP Environment Hardened 92° C, CH31, 1552.52 nm LC/PCDWDM Transmitter
TR4580-32-PI	SFP Environment Hardened 92° C, CH32, 1551.72 nm LC/PC DWDM Transmitter
TR4580-33-PI	SFP Environment Hardened 92° C, CH33, 1550.92 nm LC/PC DWDM Transmitter
TR4580-34-PI	SFP Environment Hardened 92° C, CH34, 1550.12 nm LC/PC DWDM Transmitter
TR4580-35-PI	SFP Environment Hardened 92° C, CH35, 1549.32 nm LC/PC DWDM Transmitter
TR4580-36-PI	SFP Environment Hardened 92° C, CH36, 1548.51 nm LC/PC DWDM Transmitter
TR4580-37-PI	SFP Environment Hardened 92° C, CH37, 1547.72 nm LC/PC DWDM Transmitter
TR4580-38-PI	SFP Environment Hardened 92° C, CH38, 1546.92 nm LC/PC DWDM Transmitter
TR4580-39-PI	SFP Environment Hardened 92° C, CH39, 1546.12 nm LC/PC DWDM Transmitter
TR4580-40-PI	SFP Environment Hardened 92° C, CH40, 1545.32 nm LC/PC DWDM Transmitter
TR4580-41-PI	SFP Environment Hardened 92° C, CH41, 1544.53 nm LC/PC DWDM Transmitter
TR4580-42-PI	SFP Environment Hardened 92° C, CH42, 1543.73 nm LC/PC DWDM Transmitter
TR4580-43-PI	SFP Environment Hardened 92° C, CH43, 1542.94 nm LC/PC DWDM Transmitter
TR4580-44-PI	SFP Environment Hardened 92° C, CH44, 1542.14 nm LC/PC DWDM Transmitter
TR4580-45-PI	SFP Environment Hardened 92° C, CH45, 1541.35 nm LC/PC DWDM Transmitter
TR4580-46-PI	SFP Environment Hardened 92° C, CH46, 1540.56 nm LC/PC DWDM Transmitter
TR4580-47-PI	SFP Environment Hardened 92° C, CH47, 1539.77 nm LC/PC DWDM Transmitter
TR4580-48-PI	SFP Environment Hardened 92° C, CH48, 1538.98 nm LC/PC DWDM Transmitter
TR4580-49-PI	SFP Environment Hardened 92° C, CH49, 1538.19 nm LC/PC DWDM Transmitter
TR4580-50-PI	SFP Environment Hardened 92° C, CH50, 1537.40 nm LC/PC DWDM Transmitter
TR4580-51-PI	SFP Environment Hardened 92° C, CH51, 1536.61 nm LC/PC DWDM Transmitter
TR4580-52-PI	SFP Environment Hardened 92° C, CH52, 1535.82 nm LC/PC DWDM Transmitter
TR4580-53-PI	SFP Environment Hardened 92° C, CH53, 1535.04 nm LC/PC DWDM Transmitter
TR4580-54-PI	SFP Environment Hardened 92° C, CH54, 1534.25 nm LC/PC DWDM Transmitter

## SFP ORDERING INFORMATION (CONTINUED)

Part Number	Description
<b>DWDM SFP Transmitters<sup>1</sup> (continued)</b>	
TR4580-55-PI	SFP Environment Hardened 92° C, CH55, 1533.47 nm LC/PC DWDM Transmitter
TR4580-56-PI	SFP Environment Hardened 92° C, CH56, 1532.68 nm LC/PC DWDM Transmitter
TR4580-57-PI	SFP Environment Hardened 92° C, CH57, 1531.90 nm LC/PC DWDM Transmitter
TR4580-58-PI	SFP Environment Hardened 92° C, CH58, 1531.12 nm LC/PC DWDM Transmitter
TR4580-59-PI	SFP Environment Hardened 92° C, CH59, 1530.33 nm LC/PC DWDM Transmitter
<b>DWDM SFP Transceivers<sup>1</sup></b>	
1505585-0015	SFP Environment Hardened 92° C, CH15, 1565.50 nm LC/PC DWDM Transceiver
1505585-0016	SFP Environment Hardened 92° C, CH16, 1564.68 nm LC/PC DWDM Transceiver
1505585-0017	SFP Environment Hardened 92° C, CH17, 1563.86 nm LC/PC DWDM Transceiver
1505585-0018	SFP Environment Hardened 92° C, CH18, 1563.05 nm LC/PC DWDM Transceiver
1505585-0019	SFP Environment Hardened 92° C, CH19, 1562.23 nm LC/PC DWDM Transceiver
1505585-0020	SFP Environment Hardened 92° C, CH20, 1561.42 nm LC/PC DWDM Transceiver
1505585-0021	SFP Environment Hardened 92° C, CH21, 1560.61 nm LC/PC DWDM Transceiver
1505585-0022	SFP Environment Hardened 92° C, CH22, 1559.79 nm LC/PC DWDM Transceiver
1505585-0023	SFP Environment Hardened 92° C, CH23, 1558.98 nm LC/PC DWDM Transceiver
1505585-0024	SFP Environment Hardened 92° C, CH24, 1558.17 nm LC/PC DWDM Transceiver
1505585-0025	SFP Environment Hardened 92° C, CH25, 1557.36 nm LC/PC DWDM Transceiver
1505585-0026	SFP Environment Hardened 92° C, CH26, 1556.56 nm LC/PC DWDM Transceiver
1505585-0027	SFP Environment Hardened 92° C, CH27, 1555.75 nm LC/PC DWDM Transceiver
1505585-0028	SFP Environment Hardened 92° C, CH28, 1554.94 nm LC/PC DWDM Transceiver
1505585-0029	SFP Environment Hardened 92° C, CH29, 1554.13 nm LC/PC DWDM Transceiver
1505585-0030	SFP Environment Hardened 92° C, CH30, 1553.33 nm LC/PC DWDM Transceiver
1505585-0031	SFP Environment Hardened 92° C, CH31, 1552.52 nm LC/PCDWDM Transceiver
1505585-0032	SFP Environment Hardened 92° C, CH32, 1551.72 nm LC/PC DWDM Transceiver
1505585-0033	SFP Environment Hardened 92° C, CH33, 1550.92 nm LC/PC DWDM Transceiver
1505585-0034	SFP Environment Hardened 92° C, CH34, 1550.12 nm LC/PC DWDM Transceiver
1505585-0035	SFP Environment Hardened 92° C, CH35, 1549.32 nm LC/PC DWDM Transceiver
1505585-0036	SFP Environment Hardened 92° C, CH36, 1548.51 nm LC/PC DWDM Transceiver
1505585-0037	SFP Environment Hardened 92° C, CH37, 1547.72 nm LC/PC DWDM Transceiver
1505585-0038	SFP Environment Hardened 92° C, CH38, 1546.92 nm LC/PC DWDM Transceiver
1505585-0039	SFP Environment Hardened 92° C, CH39, 1546.12 nm LC/PC DWDM Transceiver
1505585-0040	SFP Environment Hardened 92° C, CH40, 1545.32 nm LC/PC DWDM Transceiver
1505585-0041	SFP Environment Hardened 92° C, CH41, 1544.53 nm LC/PC DWDM Transceiver
1505585-0042	SFP Environment Hardened 92° C, CH42, 1543.73 nm LC/PC DWDM Transceiver
1505585-0043	SFP Environment Hardened 92° C, CH43, 1542.94 nm LC/PC DWDM Transceiver
1505585-0044	SFP Environment Hardened 92° C, CH44, 1542.14 nm LC/PC DWDM Transceiver
1505585-0045	SFP Environment Hardened 92° C, CH45, 1541.35 nm LC/PC DWDM Transceiver
1505585-0046	SFP Environment Hardened 92° C, CH46, 1540.56 nm LC/PC DWDM Transceiver
1505585-0047	SFP Environment Hardened 92° C, CH47, 1539.77 nm LC/PC DWDM Transceiver
1505585-0048	SFP Environment Hardened 92° C, CH48, 1538.98 nm LC/PC DWDM Transceiver
1505585-0049	SFP Environment Hardened 92° C, CH49, 1538.19 nm LC/PC DWDM Transceiver
1505585-0050	SFP Environment Hardened 92° C, CH50, 1537.40 nm LC/PC DWDM Transceiver
1505585-0051	SFP Environment Hardened 92° C, CH51, 1536.61 nm LC/PC DWDM Transceiver
1505585-0052	SFP Environment Hardened 92° C, CH52, 1535.82 nm LC/PC DWDM Transceiver
1505585-0053	SFP Environment Hardened 92° C, CH53, 1535.04 nm LC/PC DWDM Transceiver
1505585-0054	SFP Environment Hardened 92° C, CH54, 1534.25 nm LC/PC DWDM Transceiver
1505585-0055	SFP Environment Hardened 92° C, CH55, 1533.47 nm LC/PC DWDM Transceiver
1505585-0056	SFP Environment Hardened 92° C, CH56, 1532.68 nm LC/PC DWDM Transceiver
1505585-0057	SFP Environment Hardened 92° C, CH57, 1531.90 nm LC/PC DWDM Transceiver
1505585-0058	SFP Environment Hardened 92° C, CH58, 1531.12 nm LC/PC DWDM Transceiver
1505585-0059	SFP Environment Hardened 92° C, CH59, 1530.33 nm LC/PC DWDM Transceiver
1505585-0060	SFP Environment Hardened 92° C, CH60, 1529.55 nm LC/PC DWDM Transceiver
1505585-0061	SFP Environment Hardened 92° C, CH61, 1528.77 nm LC/PC DWDM Transceiver
1505585-0062	SFP Environment Hardened 92° C, CH62, 1527.99 nm LC/PC DWDM Transceiver

## SFP ORDERING INFORMATION (CONTINUED)

Part Number	Description
<b>Fiber Optic Pigtailed with Bulkhead Connectors</b>	
<b>Opti Max OM2100</b>	
1507005-001	Kit, Opti Max OM2100 LC/UPC to SC/APC 1.6 mm jacketed, 1 meter
<b>Opti Max OM3100</b>	
1505887	Kit, Opti Max OM3100 LC/UPC to SC/APC 1.6 mm jacketed, 0.5 meter
1505888	Kit, Opti Max OM3100 LC/UPC to SC/UPC 1.6 mm jacketed, 0.5 meter
1505893	Kit, Opti Max OM3100 LC/UPC to SC/APC 1.6 mm buffered, 0.5 meter
1505894	Kit, Opti Max OM3100 LC/UPC to SC/UPC 1.6 mm buffered, 0.5 meter
<b>Opti Max OM4100</b>	
1505889	Kit, Opti Max OM4100 LC/UPC to SC/APC 1.6 mm jacketed, 0.5 meter
1505890	Kit, Opti Max OM4100 LC/UPC to SC/UPC 1.6 mm jacketed, 0.5 meter

### NOTES:

1. Must order fiber optic pigtail with bulkhead connectors. Refer to the applicable Opti Max Optical Node Equipment Manual for more information.
2. Replaces legacy ARRIS p/n 1506401.
3. Replaces legacy ARRIS p/n 1506017-TAB.
4. Replaces legacy ARRIS p/n 1505605-TAB.

## RELATED PRODUCTS

CHP Chassis	Optical Patch Cords
Power Supplies	Optical Passives
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## 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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