# Optical Passives (OSP)

## DP95Mxx

## 10, 20, and 40-channel OSP DWDM Muxes

## FEATURES

- 10-, 20-, and 40-channel optical mux cassettes
- Outdoor mux companions to ARRIS DP35D-Series indoor LGX DWDM demux modules
- Temperature hardened (-40°C to +85°C) compact field enclosures for outside-plant mounting in existing splice trays
- 100-GHz DWDM ITU channel spacing (ITU-T G694.1)
- EXP express port for adding wavelengths outside the DWDM C band (available on selected models)
- UPG upgrade port for adding wavelengths within the DWDM C band (available on selected models)
- Separate -20 dB test ports with SC/APC connectors for Tx and Rx signal monitoring (available on selected models)
- LC/APC, LC/UPC, SC/APC, or no connectors options for all other optical ports


## PRODUCT OVERVIEW

ARRIS's DP95M-Series DWDM optical multiplexer cassettes are intended for applications in non-controlled outdoor environments. They are typically paired with compatible headend/hub-based DP35D-Series indoor LGX DWDM de-multiplexer modules.

The DP95M-Series is designed to multiplex 10, 20, or 40 DWDM wavelengths with 100-GHz frequency spacing on the DWDM ITU Grid (ITU-T G.694.1). Some models also have an EXP express port (for insertion of other wavelengths outside the C-band), a UPG upgrade port (for cascading of other DWDM wavelengths), and separate -20 dB test point line monitoring taps (for Tx and Rx signal paths).

These compact, ruggedized, anodized aluminum cassettes have been designed for use in an outside-plant environment for mounting into existing splice trays like the Tyco FOSC-series. All pigtail fibers are color-coded and individually labeled to ensure proper installation and wavelength management.

## SPECIFICATIONS

| Characteristics | Specification | | |
|---|---|---|---|
| **Physical** | | | |
| Dimensions | **xx = channel count** | **s = Cassette case** | **Dimensions (cm)** |
| | xx = 10 | s = M-case | 8.9 L x 4.1 W x 0.9 H |
| | xx = 20 | s = G-case | 9.6 L x 7.8 W x 1.3 H |
| | xx = 40 | s = H-case | 9.6 L x 7.8 W x 1.6 H |
| Weight | 0.8 lbs (0.36 kg) | | |
| **Environmental** | | | |
| Operating Temperature Range (outdoor) | –40°C to +85°C (–40°F to +185°F) | | |
| Storage Temperature Range | –40°C to +85°C (–40°F to +185°F) | | |
| Humidity | 5% to 95% non-condensing | | |
| **Optical Interface** | | | |
| Optical ports | • DWDM ITU channel input ports *(See Table 2 for more details.)*<br>• COM: Output to fiber network<br>• EXP (if applicable): Express port to cascade wavelengths outside DWDM ITU Channels 19-63[1]<br>• UPG (if applicable): Upgrade port to cascade DWDM channels from another DWDM demux[1]<br>• TP-Tx (if applicable): Unidirectional -20 dB tap off COM<br>• TP-Rx (if applicable): Unidirectional -20 dB tap off COM | | |
| Optical connector type of TP-Tx and TP-Rx test ports | SC/APC (with 0.75-meter 900-micron fiber pigtails) | | |
| All other ports' connector options (*See the ORDERING INFORMATION section below for more details.*) | • LC/APC (with 0.75-meter 900-micron fiber pigtails)<br>• LC/UPC (with 0.75-meter 900-micron fiber pigtails)<br>• SC/APC (with 0.75-meter 900-micron fiber pigtails)<br>• No connectors (with 1.5-meter 900 micron fiber pigtails) | | |
| Fiber pigtail labels | • COM fiber: RED labels<br>• All other fibers: YELLOW labels | | |
| Fiber pigtail colors | See Tables 3, 4, and 5. | | |
| **Optical** | | | |
| Channel Spacing | 100 GHz grid (ITU-T G.694.1) | | |
| Channel Passband @ 0.5 dBc points | • Channel xx to COM: Center wavelength +/- 0.125 mm<br>• UPG to COM: 1527.22 – 1564.68 nm. ITU channels 16-63<br>• EXP to COM: 1260-1520 nm and 1570-1635 nm | | |
| Insertion Loss, max *(including connectors; subtract 0.1 dB per connector for devices without connectors)* | • Channel xx to COM: *See Table 1*<br>• Paired: *See Table 1*<br>• UPG to COM: *See Table 1*<br>• EXP to COM: 3 dB<br>• TP-Tx to COM: 20.4 dB<br>• TP-Rx to COM: 20.4 dB | | |
| Module Uniformity, max | 2 dB | | |
| Paired Uniformity, max | 1 dB | | |
| Ripple within passband, max | 0.5 dB | | |
| Return loss, min | 45 dB | | |
| Polarization-dependent loss, max | 0.25 dB | | |
| Thermal wavelength shift, max | 0.002 nm/°C | | |
| Insertion loss change with temperature, max | 0.01 dB/°C | | |
| Power handling, max (any port) | 21.8 dBm | | |

**NOTES:**
1. DP95M40 demux has no EXP or UPG port.

## TABLE 1: INSERTION LOSS[2] (dB), DP95Mxx

| Model Type | Channel Count | Channel Input to COM | Paired Loss[3] | COM to UPG |
|---|---|---|---|---|
| DP95M10S0iA0S (i = 2, 3, 4, or 5) | 10 | 2.8 | 3.8[4] | 2.7 |
| DP95M20S0iB2S (i = N or U) | 20 | 4.7 | 6.6[5] | 4.2 |
| DP95M40S0UZ2S | 40 | 4.8 | 9.4[6] | *N/A* |

**NOTES:**
2. These specifications include optical connector losses. Subtract 0.1 dB per connector for devices without connectors.
3. Insertion loss between mux channel input and the corresponding demux channel output for the pairings in the footnotes below
4. DP95M10S0iA0S mux/DP35D10S0iA1S demux pair
5. DP95M20S0iB2S mux/DP35D20S0iB2S demux pair
6. DP95M40S0UZ2S-0LN mux/DP35D40S0UZ0S-0LN demux pair (both based on arrayed waveguide technology)

| TABLE 2: ITU G.694 CHANNEL TABLE AND CORRESPONDING DP95Mxx MODELS | | | | | |
|---|---|---|---|---|---|
| ITU G.694.1, 02/2012 Channels | | | | | |
| 10-channel DP95M10S0y, y = | 20-channel DP95M20S0y, y = | 40-channel DP95M10S0y, y = | Channel # | Optical frequency (THz) | Wavelength (nm) |
| 2 | N | U | 20 | 192.0 | 1561.419 |
| | | | 21 | 192.1 | 1560.606 |
| | | | 22 | 192.2 | 1559.794 |
| | | | 23 | 192.3 | 1558.983 |
| | | | 24 | 192.4 | 1558.173 |
| | | | 25 | 192.5 | 1557.363 |
| | | | 26 | 192.6 | 1556.555 |
| | | | 27 | 192.7 | 1555.747 |
| | | | 28 | 192.8 | 1554.940 |
| | | | 29 | 192.9 | 1554.134 |
| 3 | | | 30 | 193.0 | 1553.329 |
| | | | 31 | 193.1 | 1552.524 |
| | | | 32 | 193.2 | 1551.721 |
| | | | 33 | 193.3 | 1550.918 |
| | | | 34 | 193.4 | 1550.116 |
| | | | 35 | 193.5 | 1549.315 |
| | | | 36 | 193.6 | 1548.515 |
| | | | 37 | 193.7 | 1547.715 |
| | | | 38 | 193.8 | 1546.917 |
| | | | 39 | 193.9 | 1546.119 |
| 4 | U | | 40 | 194.0 | 1545.322 |
| | | | 41 | 194.1 | 1544.526 |
| | | | 42 | 194.2 | 1543.730 |
| | | | 43 | 194.3 | 1542.936 |
| | | | 44 | 194.4 | 1542.142 |
| | | | 45 | 194.5 | 1541.349 |
| | | | 46 | 194.6 | 1540.557 |
| | | | 47 | 194.7 | 1539.766 |
| | | | 48 | 194.8 | 1538.976 |
| | | | 49 | 194.9 | 1538.186 |
| 5 | | | 50 | 195.0 | 1537.397 |
| | | | 51 | 195.1 | 1536.609 |
| | | | 52 | 195.2 | 1535.822 |
| | | | 53 | 195.3 | 1535.036 |
| | | | 54 | 195.4 | 1534.250 |
| | | | 55 | 195.5 | 1533.465 |
| | | | 56 | 195.6 | 1532.681 |
| | | | 57 | 195.7 | 1531.898 |
| | | | 58 | 195.8 | 1531.116 |
| | | | 59 | 195.9 | 1530.334 |

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## TABLE 3: FIBER PIGTAIL COLORS FOR 10-CHANNEL DP95M10

| Port | Color Codes |
|---|---|
| COM | Blue + Black Stripes |
| UPG | Orange + Black Stripes |
| 20 | Blue |
| 21 | Orange |
| 22 | Green |
| 23 | Brown |
| 24 | Slate |
| 25 | White |
| 26 | Red |
| 27 | Black |
| 28 | Yellow |
| 29 | Violet |
| 30 | Blue |
| 31 | Orange |
| 32 | Green |
| 33 | Brown |
| 34 | Slate |
| 35 | White |
| 36 | Red |
| 37 | Black |
| 38 | Yellow |
| 39 | Violet |
| 40 | Blue |
| 41 | Orange |
| 42 | Green |
| 43 | Brown |
| 44 | Slate |
| 45 | White |
| 46 | Red |
| 47 | Black |
| 48 | Yellow |
| 49 | Violet |
| 50 | Blue |
| 51 | Orange |
| 52 | Green |
| 53 | Brown |
| 54 | Slate |
| 55 | White |
| 56 | Red |
| 57 | Black |
| 58 | Yellow |
| 59 | Violet |

## TABLE 4: FIBER PIGTAIL COLORS FOR 20-CHANNEL DP95M20

| Port | Color Codes |
|---|---|
| COM | White |
| EXP | Black |
| UPG | Orange |
| TP Rx | Aqua |
| TP Tx | Rose |
| 20 | Blue |
| 21 | Orange |
| 22 | Green |
| 23 | Brown |
| 24 | Slate |
| 25 | White |
| 26 | Red |
| 27 | Black |
| 28 | Yellow |
| 29 | Violet |
| 30 | Blue |
| 31 | Orange |
| 32 | Green |
| 33 | Brown |
| 34 | Slate |
| 35 | White |
| 36 | Red |
| 37 | Black |
| 38 | Yellow |
| 39 | Violet |
| 40 | Blue |
| 41 | Orange |
| 42 | Green |
| 43 | Brown |
| 44 | Slate |
| 45 | White |
| 46 | Red |
| 47 | Black |
| 48 | Yellow |
| 49 | Violet |
| 50 | Blue |
| 51 | Orange |
| 52 | Green |
| 53 | Brown |
| 54 | Slate |
| 55 | White |
| 56 | Red |
| 57 | Black |
| 58 | Yellow |
| 59 | Violet |

## TABLE 5: FIBER PIGTAIL COLORS FOR 40-CHANNEL DP95M40

| Port | Color Codes |
|---|---|
| COM | White |
| TP Rx | Aqua |
| TP Tx | Rose |
| 20 | Blue |
| 21 | Orange |
| 22 | Green |
| 23 | Brown |
| 24 | Slate |
| 25 | White |
| 26 | Red |
| 27 | Black |
| 28 | Yellow |
| 29 | Violet |
| 30 | Blue |
| 31 | Orange |
| 32 | Green |
| 33 | Brown |
| 34 | Slate |
| 35 | White |
| 36 | Red |
| 37 | Black |
| 38 | Yellow |
| 39 | Violet |
| 40 | Blue |
| 41 | Orange |
| 42 | Green |
| 43 | Brown |
| 44 | Slate |
| 45 | White |
| 46 | Red |
| 47 | Black |
| 48 | Yellow |
| 49 | Violet |
| 50 | Blue |
| 51 | Orange |
| 52 | Green |
| 53 | Brown |
| 54 | Slate |
| 55 | White |
| 56 | Red |
| 57 | Black |
| 58 | Yellow |
| 59 | Violet |

## ORDERING INFORMATION

| Part Number | Description |
|---|---|
| **DP95M10S0iA0S-1MC-yz** | 10-channel multiplexer with UPG port and no test ports;<br>i = 2, 3, 4, or 5 (See Table 2 above for definitions of ITU channel groups.);<br>yz = 00 (no connectors), AL (LC/APC connectors), or UL (LC/UPC connectors) on all ports |
| **DP95M20S0iB2S-1GB-yz** | 20-channel multiplexer with two uni-directional (TP-Tx and TP-Rx) test ports (with SC/APC connectors) and EXP and UPG ports;<br>i = N or U (See Table 2 above for definitions of ITU channel groups.);<br>yz = 00 (no connectors), AL (LC/APC connectors), AS (SC/APC connectors), or UL (LC/UPC connectors) on all ports other than the test ports |
| **DP95M40S0UZ2S-1HN-yz** | 40-channel multiplexer with two uni-directional (TP-Tx and TP-Rx) test ports (with SC/APC connectors) and no EXP or UPG port; based on arrayed waveguide technology<br>yz = 00 (no connectors), AL (LC/APC connectors), AS (SC/APC connectors), or UL (LC/UPC connectors) on all ports other than the test ports |

## RELATED PRODUCTS

| | |
|---|---|
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# Customer Care

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**Note:** Specifications are subject to change without notice.



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