

Optical Passives (ISP) OP35M4-CFx, OP35D4-CFx

DWDM Mux and Demux Modules 4 Channels on 100 GHz-spaced ITU Grid

FEATURES

- 4-channel optical mux and demux modules with cascade ports for daisy-chaining of multiple modules
- Groups of channels specifically selected for use with AT3545G series Full Spectrum DWDM Transmitters
- Flat-top passband
- High optical isolation
- Mux and demux pairs optimized for minimum combined insertion loss across all channels
- SC/APC connectors ensure performance repeatability, compatibility, and easy installation and maintenance
- Line monitoring tap (-20 dB from mux output or demux input)
- Industry's highest packaging density (up to 32 modules per chassis)
- Occupies one half-depth slot
- LGX chassis-compatible

PRODUCT OVERVIEW

ARRIS'S OP35M4-CFx and OP35D4-CFx series 4-channel DWDM multiplexers and demultiplexers facilitate DWDM architectures. DWDM technology can dramatically increase network capacity without requiring additional fiber be deployed for super-trunking or narrowcasting applications. ARRIS supports DWDM architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1) for 40 channels from Channel 20 to Channel 59. This particular group of 4-channel mux and demux products are intended for use with ARRIS'S AT3545G Full Spectrum DWDM Transmitters and are available with four different combinations of four DWDM channels.

Ask us about the complete Access Technologies Solutions portfolio:

ISP-OP35M4/D4

Fiber-Deep

DOCSIS[®] 3.1

Node Segmentation

HPON[™]/RFoG

FTTx







Characteristics Specification Physical	SPECIFICATIONS		
Pyskal Site (0.4 kg) Oberstions 6.5° D x 5.3° H x 10° W [AU] [1.55 cm x 3.5 cm x 2.5 cm] Weigh 0.8 lis (0.4 kg) Desting Temperature Range -0.0° Cto 1.85° C [-0° T to 1.40° F] Jorage Temperature Range -0.0° Cto 1.85° C [-0° T to 1.40° F] Optical [all models] - Pairatalian dependent loss, max 0.2 dl (< 0.1 dl typ] Ropew thanding, max (any input port of the MS +	Characteristics	Specification	
Denetations 6.5° D × 3.7° H × 1.0° W (HRU (ISS cm × 1.3.5 cm × 2.5 cm) Environmental 0°C to +0°C (-4° to +19 <t)< td=""> Environmental 0°C to +0°C (-4° to +19<t)< td=""> Storage Temperature Range -0°C to +0°C (-4° to +19<t)< td=""> Humility 5% to 95% non condencing Operating Temperature Range -0°C to +0°C (-4° to +19<t)< td=""> Humility 5% to 95% non condencing Operating Temperature Range -0.2°C to +0°C (-4°T to +19<t)< td=""> Rature Nos, min 45.6° Channel spacing 0.2°C (-0.1°C H to +19°C) Rande spacing 0.0°C HI (10 g/m) Power hunding, max (any nout, port, port) 26.8°C Power hunding, max (any nout, port, port,</t)<></t)<></t)<></t)<></t)<>	Physical		
Weight 0.8 lbs (0.4 kg) Forkrammenta -20°C to 450°C (-4°T to -1487) Storage Temperature Range -20°C to 450°C (-4°T to -1487) Storage Temperature Range -20°C to 450°C (-4°T to -1487) Forkrammenta -20°C to 450°C (-10°C to -1487) Forkrammenta -20°C to 480°C (-10°C to -1487) Forkrammenta -20°C to 480°C (-10°C to -1487) Forkrammenta -20°C to 480°C (-10°C to -1480°C to	Dimensions	6.5" D x 5.3" H x 1.0" W (3	RU) (16.5 cm x 13.5 cm x 2.5 cm)
Environmental -20°C to 45°C (-4°T to 140°F) Gorparitor Range -40°C to 45°C (-4°T to 140°F) Gorparitor Range -40°C to 45°C (-4°T to 140°F) Stronge Strongesture Range 40°C to 45°C (-4°T to 140°F) Gorbard Strongesture Range 50 80°F strongesture Range Optical Indedel 50 80°F strongesture Range Raybe With passband 0.2 80 (< 0.1 80 kpc)	Weight	0.8 lbs (0.4 kg)	
Operature Range -20°C to 45°C (-4°T to -148°T) Storage Tomperature Range -20°C to 45°C (-4°T to -148°T) Humildry Sto 05% non-condensity Operated Ial models	Environmental		
Storage Temperature Range -40°C to 48°C (-40°F to 188′F) Humidity Sk to 95% non-odensing Optical lat models)	Operating Temperature Range	-20°C to +65°C (-4°F to +1	49°F)
Humidity 5% 5% non condensing Optical Lail mosts, min 45 dB Polarization dependent loss, max 0.2 dB (< 0.1 dB typ)	Storage Temperature Range	-40°C to +85°C (-40°F to +	-185°F)
Optical lan models) 45 dB Polarization dependent loss, max 0.2 dB (< 0.1 dB typ)	Humidity	5% to 95% non-condensing	g 5
Return loss, min 45.dB Polarization dependent loss, max 0.2 dB (< 0.1 dB typ)	Optical (all models)		
Poleitation dependent loss, max 0.2 dll (-0.1 dll Vp) Ripple within passband 0.0 Grlz (ITU grid) Channel spacing 100 Grlz (ITU grid) Power handling, max (any input port) 24.34 dlln Wavelength passthrough 1420-1610 m Insertion losses, max ² (dll) OP35MA Grs. 19.9 AS Or35M Grs. 19.9 AS OP35M Grs. 19.9 AS Or35M Grs. 19.9 AS Or35M Grs. 19.9 AS Or35M Grs. 19.9 AS OWDM INP to Chy yOUT 1.8 N/A DWDM INP to Chy yOUT 1.4 1.4 DWDM INP to Chy yOUT 1.4 1.4 OWDM INP to Chy yOUT 0.8 0.6 Paired 0.6 0.6 Pastand @ 0.5 dll (m) 4.0.12 1.0.12 Informity, max (dlg) 5. N/A Directivity, joput ports, min (dls) 45. N/A Solaton, adjacent channel, min (dls) N/A 30 Solaton, adjacent channel, min (dls) KA 30 Solaton, adjacent channel, min (dls) N/A 30 Model OP35M - CFx-199-AS (for x = 1, 2, 3 or 4): OWDM INP (input form previous mux) The -20 ddl (Sit tapt ext point from DWDM OUT)	Return loss, min	45 dB	
Bitple within passband 0.5 dB Channel spacing 100 GHz (ITU grid) Power handling, mak (any input port) 24.8 dBm Wavelength passthrough 1420-1610 nm Insertion losses, max ¹ (dB) Mox Module Demax Module OP35D4.CFx-1:99.AS (with -20 dB T.P.) (With -20 dB T.P.) (With -20 dB T.P.) Ch yr INP to DWDM OUT 1.8 N/A DWDM NIP to Ch yr OUT N/A 1.8 DWDM NIP to DWDM OUT 1.4 1.4 DWDM OUT 0.20 dB Tap Ratio, max ¹ (dB) 2.9 2.9 DWDM OUT 0.20 dB Tap Ratio, max ¹ (dB) 0.6 0.6 Drest mine (mine (dB) 0.8 0.8 Paired insertion (dB) 45 N/A Directivity, input ports, min (dB) 45 N/A Isolation, non-adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface VVVDM VIT com previous mux) Chyd (A channel Adjanus) Optical Interface VVVDM VIT (output f	Polarization dependent loss, max	0.2 dB (< 0.1 dB typ)	
Channel spacing 100 GHz (ITU grid) Power handling, max (any input port) 24.8 dBm Vavelength passitrough 1420-1610 nm Insertion losses, max ¹ (dB) Mux Module Demux Module OP35DA CFx+1-99.AS (with -20 dB T.P.) OP35DA CFx+1-99.AS (with -20 dB T.P.) (with -20 dB T.P.) Ch yr INP to DWDM OUT 1.8 N/A DWDM INP to Chyp OUT 1.4 1.4 DWDM NUP to DWDM OUT 0.6 0.6 Paired 0.6 0.6 Passidu d0 0.5 dB (m) 5.5 N/A Directivity, input ports, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 30 DyPical Interface <td>Ripple within passband</td> <td>0.5 dB</td> <td></td>	Ripple within passband	0.5 dB	
Power handling, max (any input port) 24.8 dBm Wavelength passtrough 1420-1610 mm Insertion Iosses, max ¹ (dB) Mtx Module Demux Module OP3SNA (-CK-1-99-AS) (With -20 dB T.P.) (With -20 dB T.P.) Ch y INP to DWDM OUT 1.8 N/A DWDM INP to DWD OUT 1.8 N/A Paired insertion Ioss ² 2.9 2.9 DWDM INP to DWDM OUT 1.4 1.4 DWDM INP to DWDM OUT 0.6 0.6 DWDM INP to DWDM OUT 1.4 1.4 Module 0.8 0.8 Paired 0.6 0.6 Directivity, pass through port, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical Instrace DWDM INP (nput from p	Channel spacing	100 GHz (ITU grid)	
Wavelength passthrough 1420-1610 nm Irrsertion losses, max ² (dB) Mux Module OP35D4-CFx-199-AS (wth - 20 dB T.P.) OP yINP to DWDM OUT 1.8 N/A DWDM INP to DWDM OUT 1.8 N/A DWDM INP to Chy yOUT N/A 1.8 DWDM INP to Chy yOUT 1.4 1.4 DWDM INP to DWDM OUT 1.4 1.4 DWDM INP to DWDM OUT 0.6 0.6 DWDM INP to DWDM OUT 0.6 0.6 Paired insertion (dB) 0.6 0.6 Passband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 45 N/A Isolation, non-adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical connectors SC/APC OWDM OUT (output to fiber network or network) Optical direct funnel, min (dB) • DWDM OUT (output to fiber network or net max) • DWDM OUT (output to fiber network or net max) • DWDM OUT (output to fiber network or net max) • DWDM INP (input from fiber network or net max) • DWDM INP (input from fiber network or net max) </td <td>Power handling, max (any input port)</td> <td>24.8 dBm</td> <td></td>	Power handling, max (any input port)	24.8 dBm	
Insertion losses, max ¹ (dB) Mux Module OP35M4-CFx-199-AS (with -20 dB 7.P.) Demux Module OP35M4-CFx-199-AS (with -20 dB 7.P.) Ch yr INP to DWDM OUT 1.8 N/A DWOM INP to Ch yr OUT 1.8 N/A Paired insertion loss ¹ 2.9 2.9 DWOM INP to DWDM OUT 1.4 1.4 DWOM INP to 200B Tap Itakio, max ¹ (dB) 20.4 20.4 Module 0.8 0.8 Paired Insertion loss ¹ 0.6 0.6 Paired Insertion loss 0.6 0.6 Paired Insertion loss of the formation of the	Wavelength passthrough	1420–1610 nm	
$\begin{tabular}{ c c c } \hline OP35M4-(Fr.1-99-AS & O$	Insertion losses. max ¹ (dB)	Mux Module	Demux Module
(with -20 dB T.P.) (with -20 dB T.P.) Ch yy IND TO DUDM OUT 1.8 N/A DWDM INP to Ch yy OUT N/A 1.8 Paired insertion loss ¹ 2.9 2.9 DWDM INP to Ch yy OUT 1.4 1.4 DWDM INP to DWDM OUT 1.4 1.4 DWDM OUT to -20 dB Tap Ratio, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) 0.6 0.6 Paired 0.6 0.6 Paired 0.6 0.6 Paired 0.6 0.6 Paired 0.6 0.6 Directivity, input ports, min (dB) 5.5 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical interface OWDM UVI (to run previous mux) Optical interface Optical interface DWDM INP (input from previous mux) Other optical connectors SC/APC Model OP3504-CFx-1-99-AS (for x = 1, 2, 3 or 4): DWDM INP (input from		OP35M4-CFx-1-99-AS	OP35D4-CFx-1-99-AS
Ch y/ INP to DWOM OUT 1.8 N/A DWDM INP to Ch yy OUT N/A 1.8 DWDM INP to Ch yy OUT 1.4 1.4 DWDM INP to DWDM OUT 1.4 1.4 DWDM INP to DWDM OUT 1.4 1.4 DWDM OUT to -20 dB Tap Ratio, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) 0.6 0.6 Pasiband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 45 N/A Directivity, pass-through port, min (dB) 45 N/A Solation, non-adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical connectors SC/APC Channel add inputs for Custom Channel Group x) Optical connectors SC/APC DWDM INP (input from previous mux) Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from Ther network or previous demux) • DWDM INP (input from fiber network or reture mux) • DWDM OUT (or ext demux) • TP -20 dB (1% tap, test point from DWDM OUT) • DWDM OUT (or ext demux) • TP -20 dB (1% tap, test point from DWDM O		(with –20 dB T.P.)	(with –20 dB T.P.)
DWDM INP to Ch yy OUT N/A 1.8 Paired insertion loss ² 2.9 2.9 DWDM INP to DWDM OUT 1.4 1.4 DWDM INP to DWDM OUT 1.4 1.4 DWDM INP to DWDM OUT 0.4 20.4 Uniformity, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) 0.6 0.6 Paired 0.6 0.6 Pasted @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 45 N/A Directivity, pass-through port, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical Interface Optical Interface Optical Connectors Optical Connectors SC/APC NUMM OUT Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM ND (INP (input from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from DWDM OUT)	Ch yy INP to DWDM OUT	1.8	N/A
Paired insertion loss ² 2.9 2.9 DWD NUP to DWDM OUT 1.4 1.4 DWDM OUT to 2.0 dB Tap Ratio, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) 0.8 0.8 Module 0.6 0.6 Paired 0.6 0.6 Passband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) A/A 30 Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical terface Optical terface 0 Optical connectors SC/APC SC/APC Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from prevork or next mux) • Dr -20 dB (1% tap, test point from DWDM OUT) • DWDM INP (input for outputs for Custom Channel Group x) • DWDM VIC (to next demux) • DWDM MUT (to next demux) • DWDM MUT (to next demux) • DWDM MUT (to next demux) • DWDM MUT (to next demux) • DWDM MUT (to next demux) • DWDM MUT (to next demux)	DWDM INP to Ch yy OUT	N/A	1.8
DWDM INP to DWDM 0UT 1.4 1.4 DWDM OUT to -20 dB Tap Ratio, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) 0.8 0.8 Paired 0.6 0.6 Passband @ 0.5 dB (nm) 10.12 10.12 Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical Interface	Paired insertion loss ²	2.9	2.9
DWDM OUT to -20 dB Tap Ratio, max ¹ (dB) 20.4 20.4 Uniformity, max ¹ (dB) .8 0.8 Paired 0.6 0.6 Passbard @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical Interface Optical Interface 0 Optical connectors SC/APC SC/APC Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Ustor next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM NIP (input from from revious demux) • Ch yy (4 channel drop outputs of Custom Channel Group x) • DWDM OUT (output ton fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM NIP (input from free network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM OUT (output to fiber network or next mux) • CP + 20 dB (1% tap, test point from DWDM OUT) It U	DWDM INP to DWDM OUT	1.4	1.4
Uniformity, max ¹ (dB) Module 0.8 0.8 Paired 0.6 0.6 Passband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, ajacent channel, min (dB) N/A 30 Isolation, ajacent channel, min (dB) N/A 45 Optical Interface Optical Interface Optical Interface Optical Connectors SC/APC Solation, adi inputs for vert mux) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (a channel adi inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • DP -20 dB (1% tap, test point from DWDM OUT) • DWDM OUT (output to fiber network or next mux) • DP -20 dB (1% tap, test point from DWDM OUT) • DWDM OUT (output of the retwork or previous demux) • Ch yy (a channel adi ropu outputs for Custom Channel Group x) • DWDM OUT (output to next demux) • DVDM OUT (output to next demux) • DWDM OUT (output to next demux) • DVDM OUT (output to next demux) • DWDM OUT (output to next demux)	DWDM OUT to -20 dB Tap Ratio, max ¹ (dB)	20.4	20.4
Module 0.8 0.8 Paired 0.6 0.6 Passband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 55 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 30 Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (a channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or net mux) • Ch yy (a channel add inputs for Custom Channel Group x) • DWDM NUP (input from fiber network or net mux) • Ch yy (a channel add op outputs for Custom Channel Group x) • DWDM NUP (input from fiber network or previous demux) • Ch yy (a channel add op outputs for Custom Channel Group x) • DWDM NUP (input from fiber network or previous demux) • Ch yy (a channel add op outputs for Custom Channel Group x) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM OUT) • TP -20 dB (1% tap, test point from DWDM INP) • TU Channel Plans CF1 Channel Add DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which ou	Uniformity, max ¹ (dB)		
Paired 0.6 0.6 Passbard @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, popt ports, min (dB) 45 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, adjacent channel, min (dB) N/A 45 Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (a channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (a channel drop outputs for Custom Channel Group x) • DWDM OUT (output to fiber network or previous demux) • Ch yy (a channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM INP of the following custom channel groups: • CF1 (chs 20, 21, 24, and 29 • CF2 Chs 35, 45, 52, and 54 VCTEC • CF4 Chs 51, 57, 58, and 59	Module	0.8	0.8
Passband @ 0.5 dB (nm) ± 0.12 ± 0.12 Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 33, 44, 34, and 47 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59	Paired	0.6	0.6
Directivity, input ports, min (dB) 55 N/A Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (a channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP ~20 dB (1% tap, test point from DWDM OUT) • DWDM NDV (input from fiber network or previous demux) • DWDM NDV (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • TP ~20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM OUT (to next demux) • TP ~20 dB (1% tap, test point from DWDM INP) • TP ~20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups:	Passband @ 0.5 dB (nm)	± 0.12	± 0.12
Directivity, pass-through port, min (dB) 45 N/A Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface 0 Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • DWDM INP (input from DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G. 694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59	Directivity, input ports, min (dB)	55	N/A
Isolation, adjacent channel, min (dB) N/A 30 Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • DWDM OUT (output to fiber network or next mux) • DWDM OUT (output to fiber network or next mux) • DWDM OUT (output to fiber network or next mux) • DWDM NPP (input from fiber network or next mux) • DWDM NPP (input from fiber network or previous demux) • DWDM OUT (to next demux) • DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59	Directivity, pass-through port, min (dB)	45	N/A
Isolation, non-adjacent channel, min (dB) N/A 45 Optical Interface SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DVDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM INP (input from fiber network or previous demux) • TP -20 dB (1% tap, test point from DWDM INP) • TP -20 dB (1% tap, test point from DWDM INP) TU Channel Plans • CF1 Chs 20, 21, 24, and 29 • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF1 Chs 35, 42, 52, and 54 • CF3 Chs 33, 34, 4nd 47 • CF2 Chs 35, 42, 52, and 54 </td <td>Isolation, adjacent channel, min (dB)</td> <td>N/A</td> <td>30</td>	Isolation, adjacent channel, min (dB)	N/A	30
Optical Interface Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) • DWDM OUT (output to fiber network or previous demux) • DWDM NIP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM NIP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59 • CF4 Chs 51, 57, 58, and 59	Isolation, non-adjacent channel, min (dB)	N/A	45
Optical connectors SC/APC Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM INP (input from fiber network or previous demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • DWDM INP (input from fiber network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 32, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF2 Chs 33, 34, 4, and 47 • CF4 Chs 51, 57, 58, and 59	Optical Interface		
Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4) • DWDM INP (input from previous mux) • Ch yy (4 channel add inputs for Custom Channel Group x) • DWDM OUT (output to fiber network or next mux) • DWDM INP (input from fiber network or previous demux) • TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59	Optical connectors	SC/APC	
 Ch yy (4 channel add inputs for Custom Channel Group x) DWDM OUT (output to fiber network or next mux) TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): DWDM INP (input from fiber network or previous demux) Ch yy (4 channel drop outputs for Custom Channel Group x) DWDM OUT (to next demux) TP -20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 	Model OP35M4-CFx-1-99-AS (for x = 1, 2, 3 or 4)	 DWDM INP (input from 	previous mux)
 DWDM OUT to their network or next mux) TP -20 dB (1% tap, test point from DWDM OUT) Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): DWDM INP (input from fiber network or previous demux) Ch yy (4 channel drop outputs for Custom Channel Group x) DWDM OUT (to next demux) TP -20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 		Ch yy (4 channel add in	puts for Custom Channel Group x)
Model OP35D4-CFx-1-99-AS (for x = 1, 2, 3 or 4): • DWDM INP (input from fiber network or previous demux) • DWDM INP (input from fiber network or previous demux) • Ch yy (4 channel drop outputs for Custom Channel Group x) • DWDM OUT (to next demux) • TP -20 dB (1% tap, test point from DWDM INP) ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF4 Chs 51, 57, 58, and 59 • CF4 Chs 51, 57, 58, and 59		 DWDIVI OUT (output to TP -20 dB (1% tap, test 	noint from DWDM OUT)
Induct OF 35D4-CLA-1-95-AS (IoT X = 1, 2, 5 of 4). Ch yy (4 channel drop outputs for Custom Channel Group x) DWDM OUT (to next demux) TP -20 dB (1% tap, test point from DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 NOTES 	Model $OP25D4_CEx_{1}Q_{0}AS$ (for $x = 1, 2, 2, or 4):$	DWDM INP (input from	fiber network or previous demus
DWDM OUT (to next demux) TP –20 dB (1% tap, test point from DWDM INP) TU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59	Nodel of 5504 erx 1 55 A5 (101 x = 1, 2, 5 01 4).	Ch vv (4 channel drop of the second sec	butputs for Custom Channel Group x)
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ITU Channel Plans ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59		 TP –20 dB (1% tap, test 	point from DWDM INP)
ARRIS supports DWDM network architectures with a variety of products having 100 GHz center frequency spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59	ITU Channel Plans		
spacing on the standard DWDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS 4-channel Optical Mux and Demux Modules (for which outputs can be cascaded from one back plate to another) are available for the following custom channel groups: • CF1 Chs 20, 21, 24, and 29 • CF2 Chs 35, 42, 52, and 54 • CF3 Chs 23, 33, 44, and 47 • CF4 Chs 51, 57, 58, and 59		ARRIS supports DWDM ne	twork architectures with a variety of products having 100 GHz center frequency
 CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 		spacing on the standard D	WDM ITU Grid (ITU-T G.694.1). OP35M4-CFx-1-99-AS and OP35D4-CFx-1-99-AS
 CF1 Chs 20, 21, 24, and 29 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 		4-channel Optical Mux and	a Demux Modules (for which outputs can be cascaded from one back plate to
 CF2 Chs 35, 42, 52, and 54 CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59 		 CF1 Chs 20. 21. 24. and 	29
CF3 Chs 23, 33, 44, and 47 CF4 Chs 51, 57, 58, and 59		 CF2 Chs 35, 42, 52, and 	54
CF4 Chs 51, 57, 58, and 59		• CF3 Chs 23, 33, 44, and	47
	NOTES.	 CF4 Chs 51, 57, 58, and 	59

1. Including connectors;

2. Paired insertion loss when combined with 4-ch demux module from Ch yy INP to Ch yy OUT, and vice-versa

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	С	P	3	5	*	4	-	С	F	*	-	1	-	9	9] –	Α	S	
Optical Passive DWDM Mux/Demux Module																			
* = Module Type (M = Mux, D = Demux)																			
4-channel Module																			
CF* = Custom DWDM ITU Channel Group (* = 1, 2, 3 or 4)																			
Cascade (Pass-through) Port and -20 dB Test Port present, and SC/APC Connectors																			

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