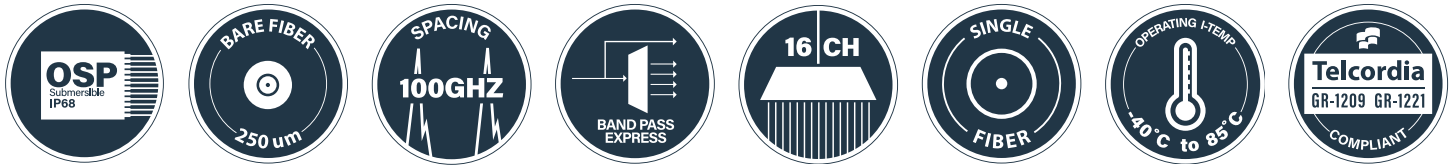


Features:

- DWDM Single Fiber Mux Submersible OSP with Skip, EXP, and OTDR
- Channel Wavelengths: DWDM CH. 25 to CH. 32 + CH. 34 to CH. 41 + EXP
- OTDR Port: 1600nm to 1670nm
- Channel Spacing: 100GHz
- Reliability: Telcordia GR-1209, GR-1221
- Maximum Optical Power: 300mW
- Connector Type - MON Port Only: LC/UPC
- Operating Temperature: -40 to 85°C
- Storage Temperature: -40 to 85°C
- Dimensions: 70mm x 70mm x 8mm



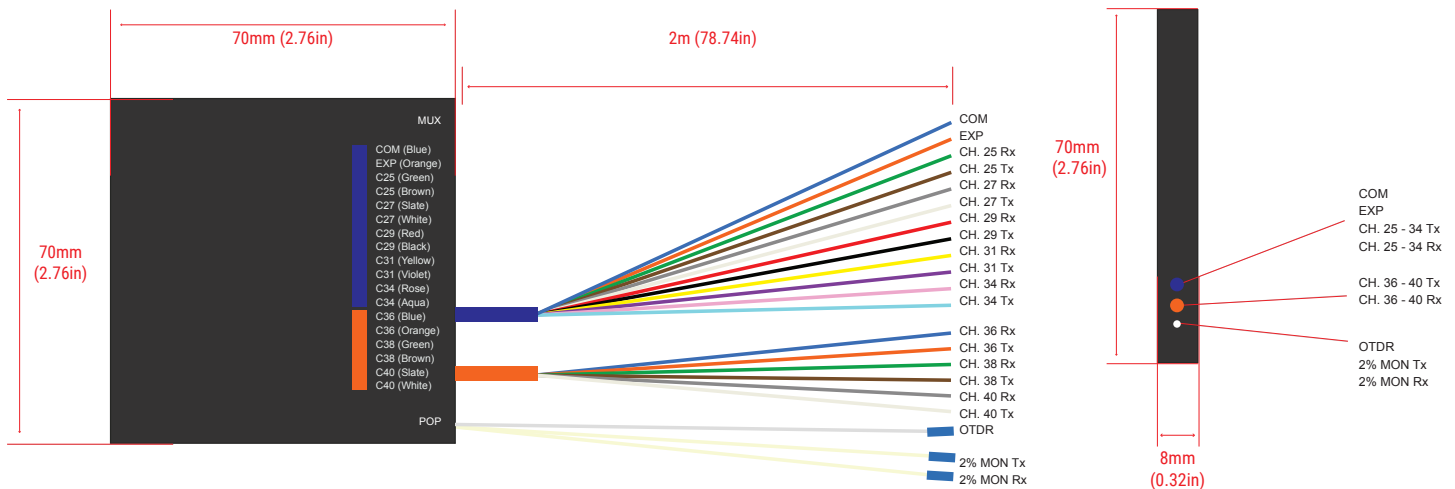
1. Optical Requirements

Parameter	Value
Passband Width, Channel Ports at -0.5dB	ITU \geq 25GHz
Passband Width, Channel Ports at -3dB	ITU \geq 72.5GHz
Passband Width, OTDR Port	1600nm to 1670nm
Band Pass Express, Express Port	1260nm to 1580nm (see exclusions)
Band Pass Express Exclusions (Blocked Frequencies), (Min.)	CH. 24 to CH. 42, 1260nm to 1400nm,
Passband Ripple (Max.)	\leq 0.5dB
Isolation, Adjacent Channel - DWDM (Min.)	\geq 30dB
Isolation, Non-Adjacent Channel - DWDM (Min.)	\geq 40dB
Isolation, OTDR Port	30dB
Isolation, Express Channel (Min.)	\geq 12dB
Return Loss - All Ports (Min., Including Connectors)	\geq 45dB
Directivity - DWDM Ports (Min.)	\geq 50dB
Polarization Dependent Loss (Max.)	\leq 0.2dB
Polarization Mode Dispersion (Max.)	\leq 0.2ps

2. Insertion Loss

Parameter	Value
DWDM Channel Insertion Loss (Typ., Incl. Connectors)	3.9dB
DWDM Channel Insertion Loss (Max., Incl. Connectors)	≤ 4.1dB
OTDR Port Insertion Loss (Typ., Incl. Connectors)	0.8dB
OTDR Port Insertion Loss (Max., Incl. Connectors)	≤ 1.0dB
Express Insertion Loss (Typ., Incl. Connectors)	1.3dB
Express Insertion Loss (Max., Incl. Connectors)	≤ 1.5dB
MON Port Insertion Loss (Incl. Connectors)	23.1dB Rx/19.0dB Tx

3. Mechanical Diagram

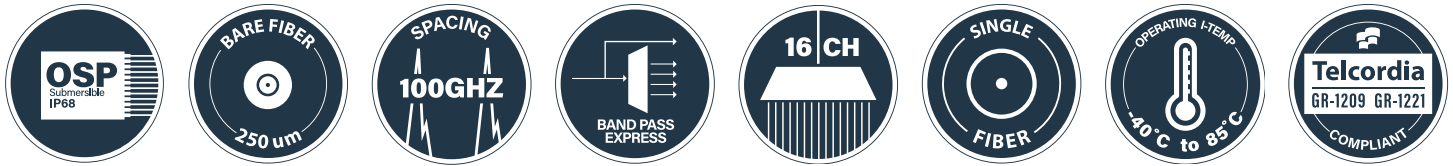


Channel	Typical	Max
Ch. 25 Rx	2.1	2.3
Ch. 25 Tx	2.4	2.6
Ch. 27 Rx	2.7	2.9
Ch. 27 Tx	2.9	3.1
Ch. 29 Rx	3.1	3.3
Ch. 29 Tx	3.3	3.5
Ch. 31 Rx	3.5	3.7
Ch. 31 Tx	3.7	3.9
Ch. 34 Rx	2.4	2.6
Ch. 34 Tx	2.7	2.9

Channel	Typical	Max
Ch. 36 Rx	2.9	3.1
Ch. 36 Tx	3.1	3.3
Ch. 38 Rx	3.3	3.5
Ch. 38 Tx	3.5	3.7
Ch. 40 Rx	3.7	3.9
Ch. 40 Tx	3.9	4.1
EXP	1.3	1.5

Features:

- DWDM Single Fiber Mux Submersible OSP with Skip, EXP, and OTDR
- Channel Wavelengths: DWDM
CH. 25 to CH. 32 + CH. 34 to CH. 41 + EXP
- OTDR Port: 1600nm to 1670nm
- Channel Spacing: 100GHz
- Reliability: Telcordia GR-1209, GR-1221
- Maximum Optical Power: 300mW
- Connector Type - MON Port Only: LC/UPC
- Operating Temperature: -40 to 85°C
- Storage Temperature: -40 to 85°C
- Dimensions: 70mm x 70mm x 8mm



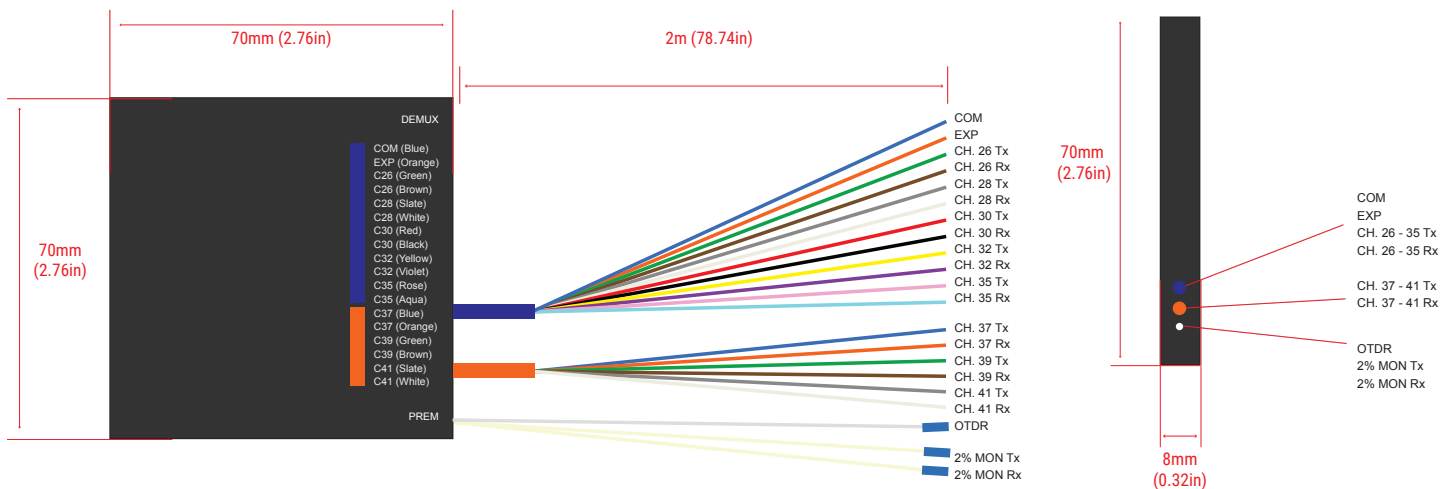
1. Optical Requirements

Parameter	Value
Passband Width, Channel Ports at -0.5dB	ITU \geq 25GHz
Passband Width, Channel Ports at -3dB	ITU \geq 72.5GHz
Passband Width, OTDR Port	1600nm to 1670nm
Band Pass Express, Express Port	1260nm to 1580nm (see exclusions)
Band Pass Express Exclusions (Blocked Frequencies), (Min.)	CH. 24 to CH. 42, 1260nm to 1400nm,
Passband Ripple (Max.)	\leq 0.5dB
Isolation, Adjacent Channel - DWDM (Min.)	\geq 30dB
Isolation, Non-Adjacent Channel - DWDM (Min.)	\geq 40dB
Isolation, OTDR Port	30dB
Isolation, Express Channel (Min.)	\geq 12dB
Return Loss - All Ports (Min., Including Connectors)	\geq 45dB
Directivity - DWDM Ports (Min.)	\geq 50dB
Polarization Dependent Loss (Max.)	\leq 0.2dB
Polarization Mode Dispersion (Max.)	\leq 0.2ps

2. Insertion Loss

Parameter	Value
DWDM Channel Insertion Loss (Typ., Incl. Connectors)	3.9dB
DWDM Channel Insertion Loss (Max., Incl. Connectors)	≤ 4.1dB
OTDR Port Insertion Loss (Typ., Incl. Connectors)	0.8dB
OTDR Port Insertion Loss (Max., Incl. Connectors)	≤ 1.0dB
Express Insertion Loss (Typ., Incl. Connectors)	1.3dB
Express Insertion Loss (Max., Incl. Connectors)	≤ 1.5dB
MON Port Insertion Loss (Incl. Connectors)	23.1dB Rx/19.0dB Tx

3. Mechanical Diagram



Channel	Typical	Max
Ch. 41 Rx	2.1	2.3
Ch. 41 Tx	2.4	2.6
Ch. 39 Rx	2.7	2.9
Ch. 39 Tx	2.9	3.1
Ch. 37 Rx	3.1	3.3
Ch. 37 Tx	3.3	3.5
Ch. 35 Rx	3.5	3.7
Ch. 35 Tx	3.7	3.9
Ch. 32 Rx	2.4	2.6
Ch. 32 Tx	2.7	2.9

Channel	Typical	Max
Ch. 30 Rx	2.9	3.1
Ch. 30 Tx	3.1	3.3
Ch. 28 Rx	3.3	3.5
Ch. 28 Tx	3.5	3.7
Ch. 26 Rx	3.7	3.9
Ch. 26 Tx	3.9	4.1
EXP	1.3	1.5

4. Network Diagram



5. Link Path Chart

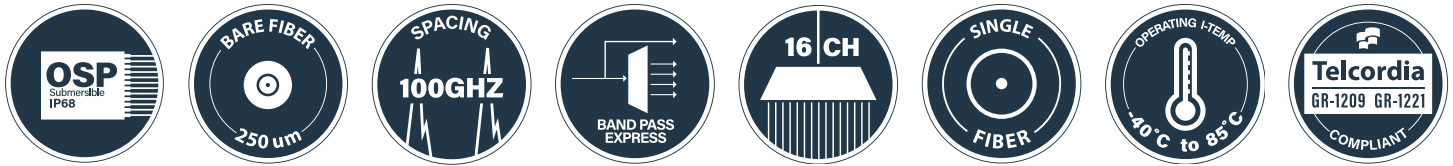
ZS-DW1-DBO116C0-8125-NT-2-S

ZS-DW1-DDO116C0-8125-NT-2-S

Transceiver	Transceiver Port		WDM Filter Channel Label	WDM Port	WDM Internal Channel		WDM Internal Channel	WDM Port	WDM Filter Channel Label	Transceiver Port	Transceiver		
25	Tx	>	25	Rx	25	>	>	25	Tx	26	>	Rx	26
25	Rx	<	25	Tx	26	<	<	26	Rx	26	<	Tx	26
27	Tx	>	27	Rx	27	>	>	27	Tx	28	>	Rx	28
27	Rx	<	27	Tx	28	<	<	28	Rx	28	<	Tx	28
29	Tx	>	29	Rx	29	>	>	29	Tx	30	>	Rx	30
29	Rx	<	29	Tx	30	<	<	30	Rx	30	<	Tx	30
31	Tx	>	31	Rx	31	>	>	31	Tx	32	>	Rx	32
31	Rx	<	31	Tx	32	<	<	32	Rx	32	<	Tx	32
34	Tx	>	34	Rx	34	>	>	34	Tx	35	>	Rx	35
34	Rx	<	34	Tx	35	<	<	35	Rx	35	<	Tx	35
36	Tx	>	36	Rx	36	>	>	36	Tx	37	>	Rx	37
36	Rx	<	36	Tx	37	<	<	37	Rx	37	<	Tx	37
38	Tx	>	38	Rx	38	>	>	38	Tx	39	>	Rx	39
38	Rx	<	38	Tx	39	<	<	39	Rx	39	<	Tx	39
40	Tx	>	40	Rx	40	>	>	40	Tx	41	>	Rx	41
40	Rx	<	40	Tx	41	<	<	41	Rx	41	<	Tx	41

Features:

- DWDM Single Fiber Mux Submersible OSP with Skip, EXP, and OTDR
- Channel Wavelengths: DWDM CH. 43 to CH. 50 + CH. 52 to CH. 59 + EXP
- OTDR Port: 1600nm to 1670nm
- Channel Spacing: 100GHz
- Reliability: Telcordia GR-1209, GR-1221
- Maximum Optical Power: 300mW
- Connector Type - MON Port Only: LC/UPC
- Operating Temperature: -40 to 85°C
- Storage Temperature: -40 to 85°C
- Dimensions: 70mm x 70mm x 8mm



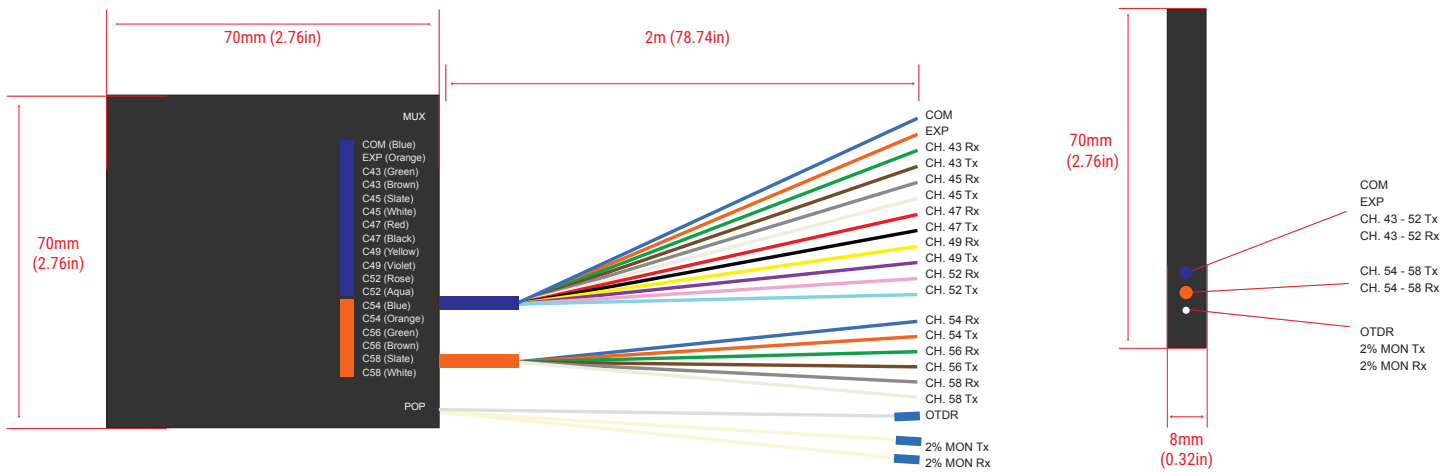
1. Optical Requirements

Parameter	Value
Passband Width, Channel Ports at -0.5dB	ITU \geq 25GHz
Passband Width, Channel Ports at -3dB	ITU \geq 72.5GHz
Passband Width, OTDR Port	1600nm to 1670nm
Band Pass Express, Express Port	1260nm to 1580nm (see exclusions)
Band Pass Express Exclusions (Blocked Frequencies), (Min.)	CH. 42 to CH. 60, 1260nm to 1400nm,
Passband Ripple (Max.)	\leq 0.5dB
Isolation, Adjacent Channel - DWDM (Min.)	\geq 30dB
Isolation, Non-Adjacent Channel - DWDM (Min.)	\geq 40dB
Isolation, OTDR Port	30dB
Isolation, Express Channel (Min.)	\geq 12dB
Return Loss - All Ports (Min., Including Connectors)	\geq 45dB
Directivity - DWDM Ports (Min.)	\geq 50dB
Polarization Dependent Loss (Max.)	\leq 0.2dB
Polarization Mode Dispersion (Max.)	\leq 0.2ps

2. Insertion Loss

Parameter	Value
DWDM Channel Insertion Loss (Typ., Incl. Connectors)	3.9dB
DWDM Channel Insertion Loss (Max., Incl. Connectors)	≤ 4.1dB
OTDR Port Insertion Loss (Typ., Incl. Connectors)	0.8dB
OTDR Port Insertion Loss (Max., Incl. Connectors)	≤ 1.0dB
Express Insertion Loss (Typ., Incl. Connectors)	1.3dB
Express Insertion Loss (Max., Incl. Connectors)	≤ 1.5dB
MON Port Insertion Loss (Incl. Connectors)	23.1dB Rx/19.0dB Tx

3. Mechanical Diagram

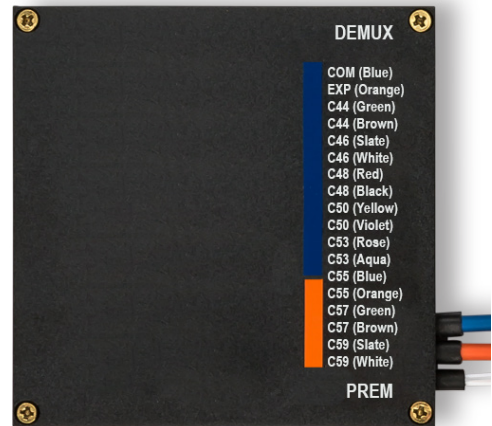


Channel	Typical	Max
Ch. 43 Rx	2.1	2.3
Ch. 43 Tx	2.4	2.6
Ch. 45 Rx	2.7	2.9
Ch. 45 Tx	2.9	3.1
Ch. 47 Rx	3.1	3.3
Ch. 47 Tx	3.3	3.5
Ch. 49 Rx	3.5	3.7
Ch. 49 Tx	3.7	3.9
Ch. 52 Rx	2.4	2.6
Ch. 52 Tx	2.7	2.9

Channel	Typical	Max
Ch. 54 Rx	2.9	3.1
Ch. 54 Tx	3.1	3.3
Ch. 56 Rx	3.3	3.5
Ch. 56 Tx	3.5	3.7
Ch. 58 Rx	3.7	3.9
Ch. 58 Tx	3.9	4.1
EXP	1.3	1.5

Features:

- DWDM Single Fiber Mux Submersible OSP with Skip, EXP, and OTDR
- Channel Wavelengths: DWDM
CH. 43 to CH. 50 + CH. 52 to CH. 59 + EXP
- OTDR Port: 1600nm to 1670nm
- Channel Spacing: 100GHz
- Reliability: Telcordia GR-1209, GR-1221
- Maximum Optical Power: 300mW
- Connector Type - MON Port Only: LC/UPC
- Operating Temperature: -40 to 85°C
- Storage Temperature: -40 to 85°C
- Dimensions: 70mm x 70mm x 8mm



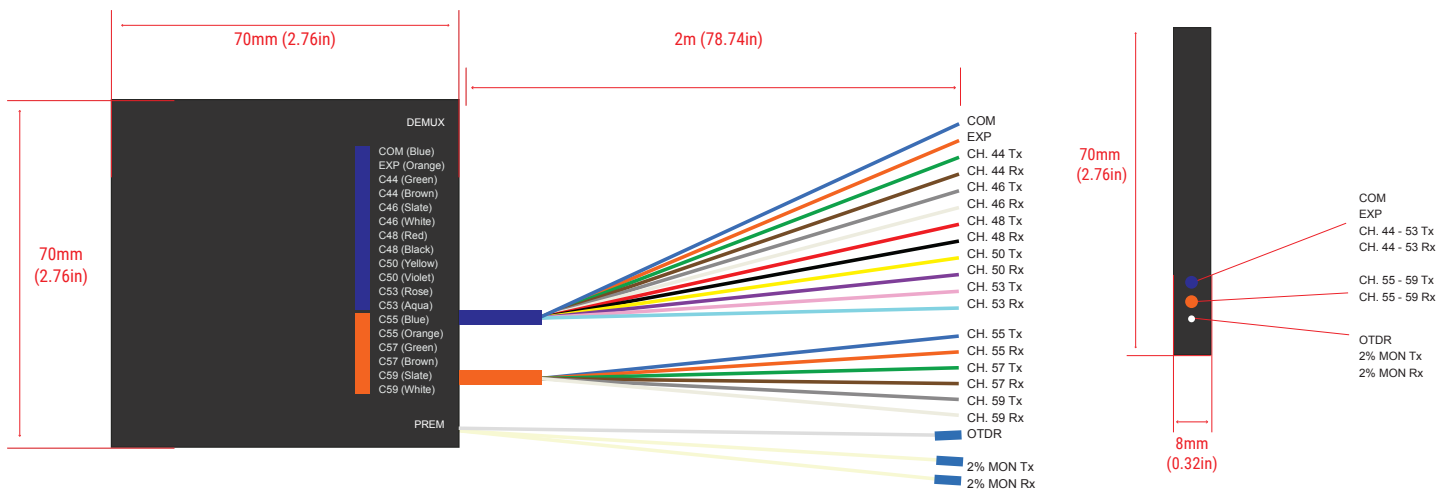
1. Optical Requirements

Parameter	Value
Passband Width, Channel Ports at -0.5dB	ITU \geq 25GHz
Passband Width, Channel Ports at -3dB	ITU \geq 72.5GHz
Passband Width, OTDR Port	1600nm to 1670nm
Band Pass Express, Express Port	1260nm to 1580nm (see exclusions)
Band Pass Express Exclusions (Blocked Frequencies), (Min.)	CH. 42 to CH. 60, 1260nm to 1400nm,
Passband Ripple (Max.)	\leq 0.5dB
Isolation, Adjacent Channel - DWDM (Min.)	\geq 30dB
Isolation, Non-Adjacent Channel - DWDM (Min.)	\geq 40dB
Isolation, OTDR Port	30dB
Isolation, Express Channel (Min.)	\geq 12dB
Return Loss - All Ports (Min., Including Connectors)	\geq 45dB
Directivity - DWDM Ports (Min.)	\geq 50dB
Polarization Dependent Loss (Max.)	\leq 0.2dB
Polarization Mode Dispersion (Max.)	\leq 0.2ps

2. Insertion Loss

Parameter	Value
DWDM Channel Insertion Loss (Typ., Incl. Connectors)	3.9dB
DWDM Channel Insertion Loss (Max., Incl. Connectors)	≤ 4.1dB
OTDR Port Insertion Loss (Typ., Incl. Connectors)	0.8dB
OTDR Port Insertion Loss (Max., Incl. Connectors)	≤ 1.0dB
Express Insertion Loss (Typ., Incl. Connectors)	1.3dB
Express Insertion Loss (Max., Incl. Connectors)	≤ 1.5dB
MON Port Insertion Loss (Incl. Connectors)	23.1dB Rx/19.0dB Tx

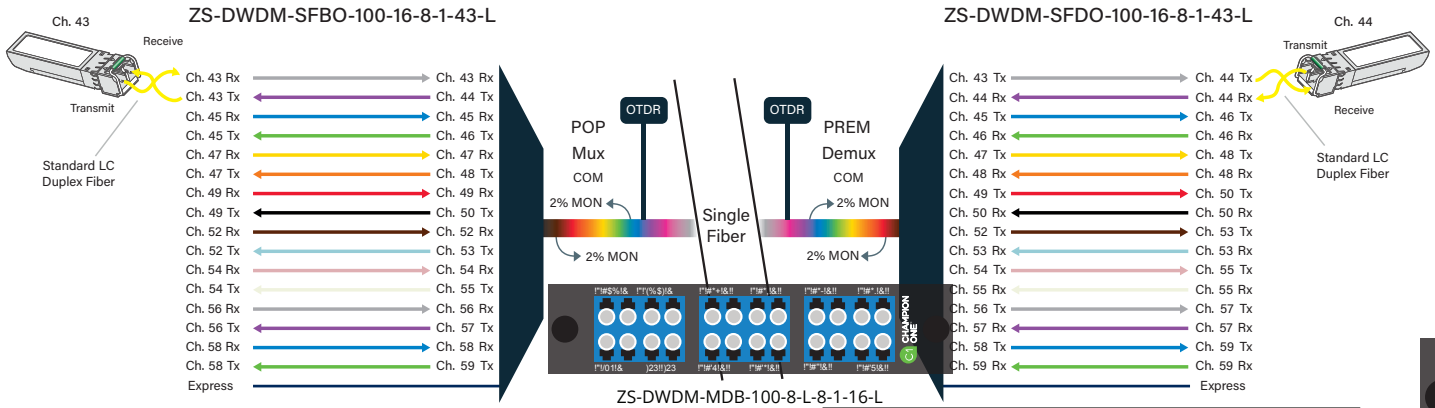
3. Mechanical Diagram



Channel	Typical	Max
Ch. 59 Rx	2.1	2.3
Ch. 59 Tx	2.4	2.6
Ch. 57 Rx	2.7	2.9
Ch. 57 Tx	2.9	3.1
Ch. 55 Rx	3.1	3.3
Ch. 55 Tx	3.3	3.5
Ch. 53 Rx	3.5	3.7
Ch. 53 Tx	3.7	3.9
Ch. 50 Rx	2.4	2.6
Ch. 50 Tx	2.7	2.9

Channel	Typical	Max
Ch. 48 Rx	2.9	3.1
Ch. 48 Tx	3.1	3.3
Ch. 46 Rx	3.3	3.5
Ch. 46 Tx	3.5	3.7
Ch. 44 Rx	3.7	3.9
Ch. 44 Tx	3.9	4.1
EXP	1.3	1.5

4. Network Diagram



5. Link Path Chart

ZS-DW1-DBO116C0-8143-NT-2-S

ZS-DW1-DDO116C0-8143-NT-2-S

Transceiver	Transceiver Port	WDM Filter Channel Label	WDM Port	WDM Internal Channel	WDM Filter Channel Label	WDM Port	Transceiver Port	Transceiver
43	Tx	>	43	Rx	43	>	Rx	44
43	Rx	<	43	Tx	44	<	Tx	44
45	Tx	>	45	Rx	45	>	Rx	46
45	Rx	<	45	Tx	46	<	Tx	46
47	Tx	>	47	Rx	47	>	Rx	48
47	Rx	<	47	Tx	48	<	Tx	48
49	Tx	>	49	Rx	49	>	Rx	50
49	Rx	<	49	Tx	50	<	Tx	50
52	Tx	>	52	Rx	52	>	Rx	53
52	Rx	<	52	Tx	53	<	Tx	53
54	Tx	>	54	Rx	54	>	Rx	55
54	Rx	<	54	Tx	55	<	Tx	55
56	Tx	>	56	Rx	56	>	Rx	57
56	Rx	<	56	Tx	57	<	Tx	57
58	Tx	>	58	Rx	58	>	Rx	59
58	Rx	<	58	Tx	59	<	Tx	59

5. Ordering Information

Root SKU	Part Number	Description
D4S16NA25A9150	ZS-DW1-DBO116C0-8125-NT-2-S	DWDM, Single Module, Single Fiber MUX, 100GHz Spacing, 16 Ch. / 8 Svcs, Express Port, No Connectors Except 900um LC MON and OTDR, 8 skip 1, CH. 25 Start, Module Only, 2m Fibers 70mm x 70mm x 8mm, Submersible
D5S16NA25A9150	ZS-DW1-DDO116C0-8125-NT-2-S	DWDM, Single Module, Single Fiber DEMUX, 100GHz Spacing, 16 Ch. /8 Svcs, Express Port, No Connectors Except 900um LC MON and OTDR, 8 skip 1 CH. 25 Start, Module Only, 2m Fibers 70mm x 70mm x 8mm, Submersible
D4S16NA43A9150	ZS-DW1-DBO116C0-8143-NT-2-S	DWDM, Single Module, Single Fiber MUX, 100GHz Spacing, 16 Ch. / 8 Svcs, Express Port, No Connectors Except 900um LC MON and OTDR, 8 skip 1, CH. 43 Start, Module Only, 2m Fibers 70mm x 70mm x 8mm, Submersible
D5S16NA43A9150	ZS-DW1-DDO116C0-8143-NT-2-S	DWDM, Single Module, Single Fiber DEMUX, 100GHz Spacing, 16 Ch. /8 Svcs, Express Port, No Connectors Except 900um LC MON and OTDR, 8 skip 1 CH. 43 Start, Module Only, 2m Fibers 70mm x 70mm x 8mm, Submersible

6. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>