Coexistence (WDM) Element
LGX Modules

AFL's WDM Coexistence modules provide scalable wavelength management for combining existing FTTx service with next-generation PON technologies, allowing overlay of upgraded services onto existing OSP fiber plant infrastructure. Passive circuit design utilizes proven thin-film filter technology featuring low insertion loss, high isolation and superior environmental stability. Modules can be installed in standard LGX chassis and are available with LCA or SCA bulkheads. Multiple module types allow GPON coexistence with XGS-PON, NG-PON2 and/or RF Video. Upgrade port provides flexible next-generation access or PtP WDM for additional services. An OTDR port is available in all configurations.

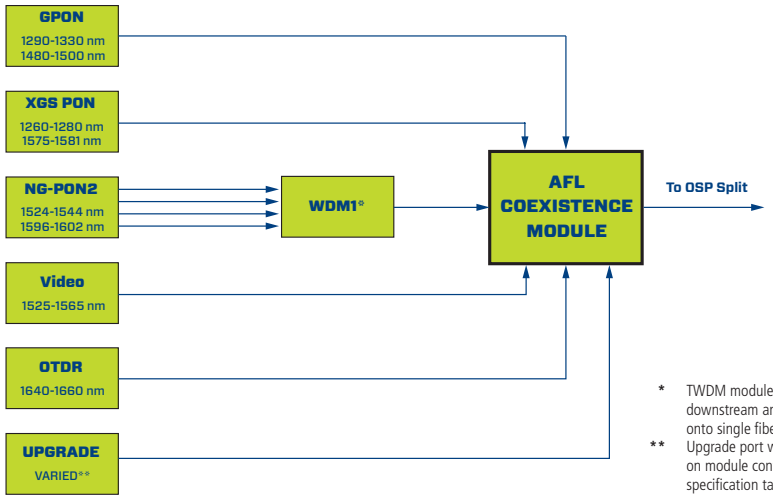
Features

- LCA/SCA Connectivity in single width LGX
- Low insertion loss/high isolation
- Epoxy-free optical path
- Flexible Upgrade port
- Optional OTDR monitoring

Applications

- FTTx Networks
- PON System Upgrades
- Access Network Convergence
- Service Expansion

Diagram



* TWDM module combining the 4 NG-PON2 downstream and upstream wavelengths onto single fiber.

** Upgrade port wavelengths varied based on module configuation type. See detailed specification table.

Ordering Information

CONFIGURATION	MODULE	AFL NO.	CONNECTOR	CIRCUITS	COEXISTENCE PORTS					
TYPE 1	LGX 1 SLOT	CE-A-CEx1-X-L01-ASC0-2	SC/APC	2	COM	GPON	UPG	–	–	–
		CE-A-CEx1-X-L01-ALC0-6	LC/APC	6						
TYPE 2	LGX 1 SLOT	CE-A-CEx2-X-L01-ASC0-2	SC/APC	2	COM	GPON	XGS	UPG	–	–
		CE-A-CEx2-X-L01-ALC0-6	LC/APC	6						
TYPE 3	LGX 1 SLOT	CE-A-CEx3-X-L01-ASC0-2	SC/APC	2	COM	GPON	VIDEO	UPG	–	–
		CE-A-CEx3-X-L01-ALC0-6	LC/APC	6						
TYPE 4	LGX 1 SLOT	CE-A-CEx4-X-L01-ASC0-2	SC/APC	2	COM	GPON	XGS	NG-PON2	UPG	–
		CE-A-CEx4-X-L01-ALC0-4	LC/APC	4						
TYPE 5	LGX 1 SLOT	CE-A-CEx5-X-L01-ASC0-2	SC/APC	2	COM	GPON	XGS	VIDEO	UPG	–
		CE-A-CEx5-X-L01-ALC0-4	LC/APC	4						
TYPE 1/OTDR	LGX 1 SLOT	CE-A-CEx1-T-L01-ASC0-2	SC/APC	2	COM	GPON	UPG	OTDR	–	–
		CE-A-CEx1-T-L01-ALC0-6	LC/APC	6						
TYPE 2/OTDR	LGX 1 SLOT	CE-A-CEx2-T-L01-ASC0-2	SC/APC	2	COM	GPON	XGS	UPG	OTDR	–
		CE-A-CEx2-T-L01-ALC0-4	LC/APC	4						
TYPE 3/OTDR	LGX 1 SLOT	CE-A-CEx3-T-L01-ASC0-2	SC/APC	2	COM	GPON	VIDEO	UPG	OTDR	–
		CE-A-CEx3-T-L01-ALC0-4	LC/APC	4						
TYPE 4/OTDR	LGX 1 SLOT	CE-A-CEx4-T-L01-ASC0-1	SC/APC	1	COM	GPON	XGS	NG-PON2	UPG	OTDR
		CE-A-CEx4-T-L01-ALC0-2	LC/APC	2						
TYPE 5/OTDR	LGX 1 SLOT	CE-A-CEx5-T-L01-ASC0-1	SC/APC	1	COM	GPON	XGS	VIDEO	UPG	OTDR
		CE-A-CEx5-T-L01-ALC0-2	LC/APC	2						

Coexistence (WDM) Element *LGX Modules*

Optical Specifications* — CEx1, CEx1 OTDR and CEx2, CEx2 OTDR

PARAMETER	REQUIREMENT							
	CEx1 OTDR		CEx1 OTDR		CEx2		CEx2 OTDR	
Temperature and Input Power								
Max Input Power Rating	300 mW							
Operating Temperature/Humidity – ISP	-10°C to 65°C / 5 to 95% RH							
Operating Temperature/Humidity – OSP	-40°C to 85°C / 5 to 95% RH							
Storage Temperature/Humidity	-40°C to 85°C / 5 to 95% RH							
Optical Passband								
Optical Passband	1260 nm to 1660 nm							
OTDR Passband	N/A		1640 nm to 1660 nm		N/A		1640 nm to 1660 nm	
GPON Passband	1290 nm to 1330 nm 1480 nm to 1500 nm							
XGS-PON Passband	N/A		N/A		1260 nm to 1280 nm 1575 nm to 1581 nm			
UPG/NGA Passband	1260 nm to 1280 nm 1520 nm to 1660 nm		1260 nm to 1280 nm 1520 nm to 1630 nm		1520 nm to 1561 nm 1594 nm to 1660 nm		1520 nm to 1561 nm 1594 nm to 1630 nm	
Insertion Loss	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.
Max IL – Common to OTDR Port	N/A	N/A	0.8 dB	1.3 dB	N/A	N/A	0.8 dB	1.3 dB
Max IL – Common to GPON Port	0.8 dB	1.3 dB	1.4 dB	1.9 dB	0.8 dB	1.3 dB	1.4 dB	1.9 dB
Max IL – Common to XGS-PON Port	1.2 dB	1.7 dB	1.8 dB	2.3 dB	1.2 dB	1.7 dB	1.8 dB	2.3 dB
Max IL – Common to UPG/NGA Port	1.2 dB	1.7 dB	1.8 dB	2.3 dB	1.2 dB	1.7 dB	1.8 dB	2.3 dB
Max Passband Ripple	0.5 dB							
Isolation								
Min Isolation – Common to OTDR Port	N/A		15 dB		N/A		15 dB	
Min Isolation – Common to GPON Port	30 dB							
Min Isolation - Common to XGS-PON Port	N/A				30 dB			
Min Isolation – Common to UPG/NGA Port	12 dB							
Max PDL (all ports)	0.25 dB							
Max PMD (all ports)	0.25 ps							
Min Directivity (all ports)	50 dB							
Min Return Loss (all ports)	SCAPC: 45 dB No Conn: 45 dB		SCAPC: 45 dB No Conn: 45 dB		SCAPC: 45 dB No Conn: 45 dB		SCAPC: 45 dB No Conn: 45 dB	

NOTE:
* Unless otherwise noted, optical specification applies across operating temperature and optical bandpass.

continued

Coexistence (WDM) Element *LGX Modules*

Optical Specifications* — CEx3, CEx3 OTDR and CEx4, CEx4 OTDR

PARAMETER	REQUIREMENT							
	CEx3		CEx3 OTDR		CEx4		CEx4 OTDR	
Temperature and Input Power								
Max Input Power Rating	300 mW							
Operating Temperature/Humidity – ISP	-10°C to 65°C / 5 to 95% RH							
Operating Temperature/Humidity – OSP	-40°C to 85°C / 5 to 95% RH							
Storage Temperature/Humidity	-40°C to 85°C / 5 to 95% RH							
Optical Passband								
Optical Passband	1260 nm to 1660 nm							
OTDR Passband	N/A		1640 nm to 1660 nm		N/A		1640 nm to 1660 nm	
GPON Passband	1290 nm to 1330 nm 1480 nm to 1500 nm							
Video Passband	1525 nm to 1565 nm				N/A			
XGS-PON Passband	N/A				1260 nm to 1280 nm 1575 nm to 1581 nm			
NG-PON2 Passband	N/A				1524 nm to 1544 nm 1596 nm to 1603 nm			
UPG/NGA Passband	1260 nm to 1280 nm 1344 nm to 1457 nm 1570 nm to 1660 nm				1613 nm to 1630 nm			
Insertion Loss	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.
Max IL – Common to OTDR Port	N/A	N/A	0.8 dB	1.3 dB	N/A	N/A	0.8 dB	1.3 dB
Min Isolation – Common to GPON Port	0.8 dB	1.3 dB	1.4 dB	1.9 dB	0.8 dB	1.3 dB	1.4 dB	1.9 dB
Max IL – Common to Video Port	1.2 dB	1.7 dB	1.8 dB	2.3 dB	N/A	N/A	N/A	N/A
Max IL – Common to XGS-PON Port	N/A	N/A	N/A	N/A	1.2 dB	1.7 dB	1.8 dB	2.3 dB
Max IL – Common to NG-PON2 Port	N/A	N/A	N/A	N/A	1.4 dB	1.9 dB	2.0 dB	2.5 dB
Max IL – Common to UPG/NGA Port	1.2 dB	1.7 dB	1.8 dB	2.3 dB	1.4 dB	1.9 dB	2.0 dB	2.5 dB
Max Passband Ripple	0.5 dB							
Isolation								
Min Isolation – Common to OTDR Port	N/A		15 dB		N/A		15 dB	
Min Isolation – Common to GPON Port	30 dB							
Min Isolation – Common to Video Port	30 dB				N/A			
Min Isolation – Common to XGS-PON Port	N/A				30 dB			
Min Isolation – Common to NG-PON2	N/A				30 dB			
Min Isolation – Common to UPG/NGA Port	12 dB							
Max PDL (all ports)	0.25 dB							
Max PMD (all ports)	0.25 ps							
Min Directivity (all ports)	50 dB							
Min Return Loss (all ports)	SCAPC: 45 dB No Conn: 45 dB							

NOTE:

***** Unless otherwise noted, optical specification applies across operating temperature and optical bandpass.

continued

Coexistence (WDM) Element *LGX Modules*

Optical Specifications* — CEx5, CEx5 OTDR

PARAMETER	REQUIREMENT			
	CEx5		CEx5 OTDR	
Temperature and Input Power				
Max Input Power Rating	300 mW			
Operating Temperature/Humidity – ISP	-10°C to 65°C / 5 to 95% RH			
Operating Temperature/Humidity – OSP	-40°C to 85°C / 5 to 95% RH			
Storage Temperature/Humidity	-40°C to 85°C / 5 to 95% RH			
Optical Passband				
Optical Passband	1260 nm to 1660 nm			
OTDR Passband	N/A		1640 nm to 1660 nm	
GPON Passband	1290 nm to 1330 nm 1480 nm to 1500 nm			
Video Passband	1525 nm to 1565 nm			
XGS-PON Passband	1260 nm to 1280 nm 1575 nm to 1581 nm			
UPG/NGA Passband	1344 nm to 1457 nm 1590 nm to 1660 nm			
Insertion Loss	w/ Conn.	w/o Conn.	w/ Conn.	w/o Conn.
Max IL – Common to OTDR Port	N/A	N/A	0.8 dB	1.3 dB
Max IL – Common to GPON Port	0.8 dB	1.3 dB	1.4 dB	1.9 dB
Max IL – Common to Video Port	1.2 dB	1.7 dB	1.8 dB	2.3 dB
Max IL – Common to XGS-PON Port	1.4 dB	1.9 dB	2.0 dB	2.5 dB
Max IL – Common to UPG/NGA Port	1.4 dB	1.9 dB	2.0 dB	2.5 dB
Max Passband Ripple	0.5 dB			
Isolation				
Min Isolation – Common to OTDR	N/A		15 dB	
Min Isolation – Common to GPON Port	30 dB			
Min Isolation – Common to XGS-PON Port	30 dB			
Min Isolation – Common to NG-PON2	30 dB			
Min Isolation – Common to UPG/NGA Port	12 dB			
Max PDL (all ports)	0.25 dB			
Max PMD (all ports)	0.25 ps			
Min Directivity (all ports)	50 dB			
Min Return Loss (all ports)	SCAPC: 45 dB No Conn: 45 dB			

NOTE:

* Unless otherwise noted, optical specification applies across operating temperature and optical bandpass.

Contact AFL for further details.