

XGSPON/XGPON/GPON Combo OLT SFP+ Transceiver

Up to 20KM, Tx1490/1577nm/Rx1270/1310nm

XG(S)PON/GPON Combo OLT SFP+ N2/C+



10/2.5/1.25G SFP+
XG(S)GPON OLT
transceiver

Tx1490/1577nm
Rx1270/1310nm

Up to 20KM

0°C~+70°C

SC/UPC
Connector

DDM
Function

XG(S)-PON OLT N2
GPON OLT C+

Hot
Pluggable

Overview

The XG(S)PON/GPON Combo OLT SFP+ Transceiver module is designed for triple play use, supporting XGS-PON, XG-PON and GPON transmissions up to a 20km distance. It incorporates a High power 1577nm EML and High power 1490nm DFB and High sensitivity 1270nm/1310nm APD . This makes that the module can work at bi-directional data links with a TX of 9.953Gbps and a Burst Mode of RX 9.953G/2.488Gbps, as well as bi-directional data links with a TX of 2.488Gbps and a Burst Mode of RX 1.244Gbps. This offers more options and connectivity in combination with the AirLive XGSPON OLT-8XGS OLT for which this module is recommended.

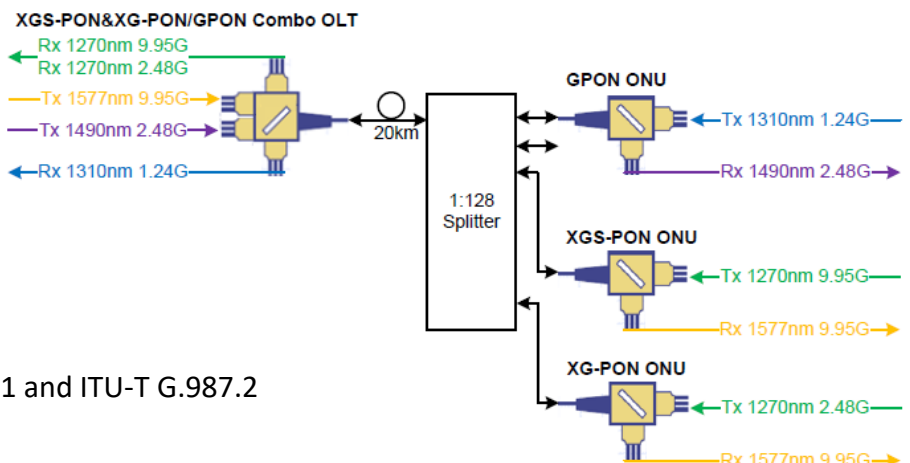
The transceiver combines a GPON OLT SFP Class C+ module + a XG(S)-PON SFP+ N2 module + WDM1R all into one. Offering more flexibility in the applications which can be used with the module.

Features

- XGS-PON 1577nm 9.953G continuous-mode transmitter with EML laser, 1270nm 9.953G & 2.488G burst-mode receiver with APD-TIA (with RESET), with GPON 1490nm 2.488G continuous-mode transmitter with DFB laser, 1310nm 1.244G burst-mode receiver with APD-TIA (with RESET)
- 2-wire interface for integrated digital diagnostic monitoring
- Digital receiving signal strength indication (RSSI)
- SFP+ MSA package with SC/UPC receptacle optical interface
- + 3.3V power supply
- Support 20km transmission distance with SMF
- 0 to 70°C operating case temperature
- ESD protection
- DDM Supported

Standards

- Complies with SFF-8472
- Complies with ITU-T G.9807.1 and ITU-T G.987.2
- Complies with ITU-T G.984.2



Recommended Operating Condition

Recommended Operating Condition					
Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature		-40		85	°C
Operating Case Temp		0		70	°C
Storage Humidity		5		90	%
Operating Relative Humidity		5		85	%
Power Supply Voltage		3.135	3.3	3.465	V
Power Supply Consumption				3	W
Bit Rate for Tx 1577nm			9.953		Gbps
Bit Rate for Rx 1270nm		2.488	9.953		Gbps
Bit Rate for Tx 1490nm			2.488		Gbps
Bit Rate for Rx 1310nm			1.244		Gbps

XGS-PON Transmitter Optical Characteristics

XGS-PON Transmitter Optical Characteristics						
Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
TX Central Wavelength	λ_c	1575	1577	1580	nm	
Spectrum Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Mean Launched Power		+4		+7	dBm	
Mean Launched Power (TX Off)				-39	dBm	
Extinction Ratio	ER	8.2			dB	
Transmitter Mask	Compliant with ITU-T G.9807.1					

XGS-PON Receiver Optical Characteristics

XGS-PON Receiver Optical Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receive Wavelength	λ_c	1260	1270	1280	nm	
Sensitivity	SEN			-29.0	dBm	Note 1
Overload		-8			dBm	
SD Assert Level	SDA			-30	dBm	
SD De-assert Level	SDD	-43		-28.5	dBm	
SD Hysteresis		0.5			dB	

Note:

1. PRBS 2³¹-1@9.953G, ER=8.2, BER<10⁻³

GPON Transmitter Optical Characteristics

GPON Transmitter Optical Characteristics						
Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
TX Central Wavelength	λ^c	1480	1490	1500	nm	
Spectrum Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Mean Launched Power		+3		+7	dBm	
Mean Launched Power (TX Off)				-39	dBm	
Extinction Ratio	ER	8.2			dB	
Transmitter Mask	Compliant with ITU-T G.984.2					

GPON Receiver Optical Characteristics

GPON Receiver Optical Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Wavelength	λ^c	1290	1310	1330	nm	
Sensitivity	SEN			-30	dBm	Note 1
Sensitivity	SEN			-32	dBm	Note 2
Overload		-12		0	dBm	
SD Assert Level	SDA			-33	dBm	
SD De-assert Level	SDD	-43			dBm	
SD Hysteresis		0.5			dB	

Note:

1. PRBS 2²³-1@1.244G, ER=10, BER<10⁻¹⁰
2. PRBS 2²³-1@1.244G, ER=10, BER<10⁻⁴

Electrical Characteristics

Electrical Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
XGS-PON Data Input Swing Differential		120		800	mV	
XGS-PON Data Output Swing Differential		400		800	mV	
GPON Data Input Swing Differential		200		1600	mV	
GPON Data Output Swing Differential		1100		2000	mV	
Data Differential Impedance		90	100	110	Ω	
LVTTL Output High		2.4		Vcc	V	
LVTTL Output Low		0		0.4	V	
LVTTL Input High		2.0		Vcc+0.3	V	
LVTTL Input Low		0		0.8	V	

RSSI Timing Characteristics

RSSI Timing Characteristics					
Parameter	Symbol	Min.	Typ.	Max.	Unit
ONU Package Length	Tont	1	1.2	1.7	μ s
RSSI Trigger Delay	Ttd	100	300	800	ns
RSSI Trigger Pulse Width (Tw)	Tw	600	800	1000	ns
Internal I ² C Delay (Tp)	Tp			0	μ s
RSSI Input Power Range	Pmon	Sensitivity		Overload	dBm

Model	AirLive XG(S)PON/GPON Combo OLT SFP+ N2/C+
<p>Hardware</p> <ul style="list-style-type: none"> • Power Supply Voltage: 3.135V~3.465V Typical Power Supply Voltage: 3.3V • Standard Complies with SFF-8472 Complies with ITU-T G.9807.1 and ITU-T G.987.2 Complies with ITU-T G.984.2 • Transmitter (Electrical - Optical) Optical Center Wavelength XGS-PON: - Min.:1575nm - Typical: 1577nm - Max.: 1580nm Data Rate: - 9.953Gbps Optical Center Wavelength GPON: - Min.:1480nm - Typical: 1490nm - Max.: 1500nm Data Rate: - 2.488Gbps Receiver –(Optical, Electrical) Operating Wavelength XG/XGS-PON: - Min. 1260nm - Typical: 1270nm - Max. 1280nm Data Rate: - 2.488Gbps - 9.953Gbps Operating Wavelength GPON: - Min. 1290nm - Typical. 1310nm - Max. 1330nm Data Rate: - 1.244Gbps RSSI Timing Specification ONU Package Length (Tont): Min. 1us, Typ. 1.2us, Max. 1.7us RSSI Trigger Delay (Ttd): Min. 100ns, Typ. 300ns, Max. 400ns RSSI Trigger Pulse Width (Tw): Min. 600ns, Typ. 800ns, Max. 1000ns Internal I²C Delay (Tp): Max. 500us RSSI Input Power Range (Pmon): Min. Sensitivity, Max. Overload 	<p>Environment</p> <ul style="list-style-type: none"> • Operating Case Temperature: 0°C to +70°C • Storage Temperature: -40°C to +85°C • Operating Relative Humidity: 5%~85%, non-condensing • Storage Relative Humidity: 5%~90%, non-condensing <p>Standard package of SFP</p> <ul style="list-style-type: none"> • Product size: 67.90 x 13.65 x 8.50 mm(L*W*H) • Package size: TBD cm(L*W*H) • Package Weight: N.W: TBD kg; G.W:TBD kg • Package content: 1 x Module <p>Standard carton package</p> <ul style="list-style-type: none"> • Quantity: 10 pcs / 1 Blister • Dimensions TBD cm(L*W*H) • Weight TBD kg <p>Ordering Information</p> <ul style="list-style-type: none"> • Model: AirLive XG(S)PON/GPON Combo OLT SFP+ N2/C+ • Name: XGSPON&XGPON/GPON Combo OLT SFP+ Transceiver Optical Module 10G/2.5G/1.25G 20KM Tx1490/1577nm/Rx1270/1310nm



* Specification will be changed without prior notice

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