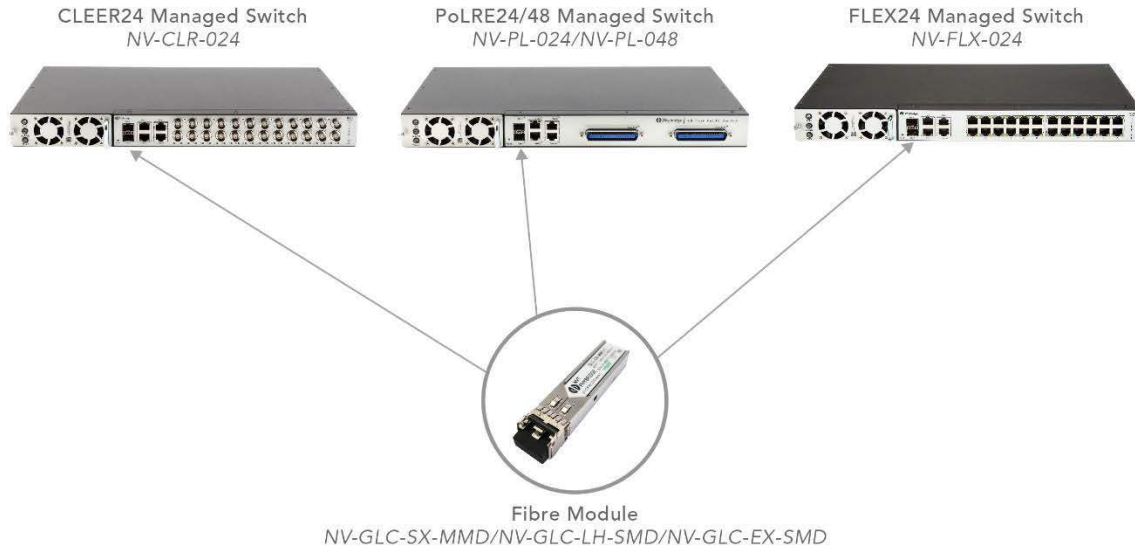


GLC-LH-SMD GBIC Transceiver Module 1000Base-LX/LH Dual LC

Part Number: NV-GLC-LH-SMD



Product Features

- Up to 1.25Gb/s dual data links
- Hot-pluggable SFP footprint
- 1310nm FP laser transmitter
- Duplex LC connector
- Up to 20km on 9/125µm SMF
- Metal enclosure for lower EMI
- Single +3.3V power supply
- Low power dissipation <700mW
- Commercial operating temperature range: 0°C to +70°C

Applications

- 1.25Gb/s 1000Base-LX Ethernet
- 1.06 Gb/s Fibre Channel

General

Small Form Factor Pluggable (SFP) transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). They simultaneously comply with Gigabit Ethernet as specified in IEEE STD 802.3 and 1x Fibre Channel as defined in FC-PI-2 Rev. 10.0.

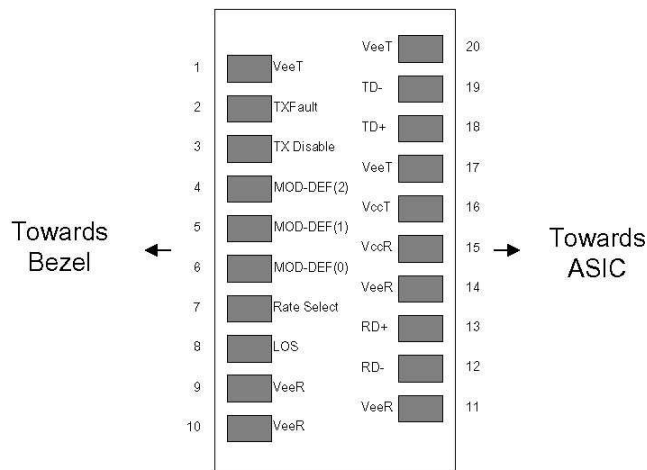
I. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1

2	TX Fault	Transmitter Fault.	
3	TX Disable	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground)	1
10	VeeR	Receiver Ground (Common with Transmitter Ground)	1
11	VeeR	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VeeR	Receiver Ground (Common with Transmitter Ground)	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.
3. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V.
4. MOD_DEF (0) pulls line low to indicate module is plugged in.
5. LOS is LVTTTL output. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



Pinout of Connector Block on Host Board

II. Optical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Power	PO	-9	-	-3	dB m	1
Optical Wavelength	λ	127 5	131 0	1350	nm	
Spectral Width	σ	-	-	3	nm	
Optical Rise/Fall Time	tr/tf	-	170	260	ps	2
Deterministic Jitter Contribution	TX Δ DJ	-	-	0.07	UI	3
Total Jitter Contribution	TX Δ TJ	-	-	0.00 7	UI	
Optical Extinction Ratio	ER	9	-	-	dB	
Receiver						
Average Rx Sensitivity	RSENS	-	-	-24	dB m	4
Maximum Received Power	RXMAX	0	-	-	dB m	
Optical Center Wavelength	λ_C	127 0	-	1600	nm	
LOS De-Assert	LOSD	-	-	-25	dB m	
LOS Assert	LOSA	-36	-	-	dB m	
LOS Hysteresis		0.5	-	-	dB	

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20–80%.
3. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and Δ DJ.
4. Measured with PRBS 2^7-1 at 10^{-12} BER .

III. General Specifications

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Data Rate	BR	-	-	1250	Mb/se c	1
Bit Error Rate	BER	-	-	10^{-12}		2
Max. Supported Link Length on 9/125 μ m SMF @ Gigabit Ethernet	LMAX	-	-	20	km	3,4

Notes:

1. Gigabit Ethernet and 1x Fibre Channel compliant.
2. Tested with a PRBS 2^7-1 data pattern.
3. Dispersion limited per FC-PI-2 Rev. 10.
4. Attenuation of 0.55 dB/km is used for the link length calculations. Please refer to the Optical Specifications in Table IV to calculate a more accurate link budget based on specific conditions in your application.

IV. Compliance and Agency Approval

EMC	Emissions: FCC Part 15, EN 55032:2012 Immunity: EN 55024:2010
Safety	EN 60825-1:2014 21 CFR Part 1040.10:2013
Environment	RoHS Directive 2011/65

V. Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

