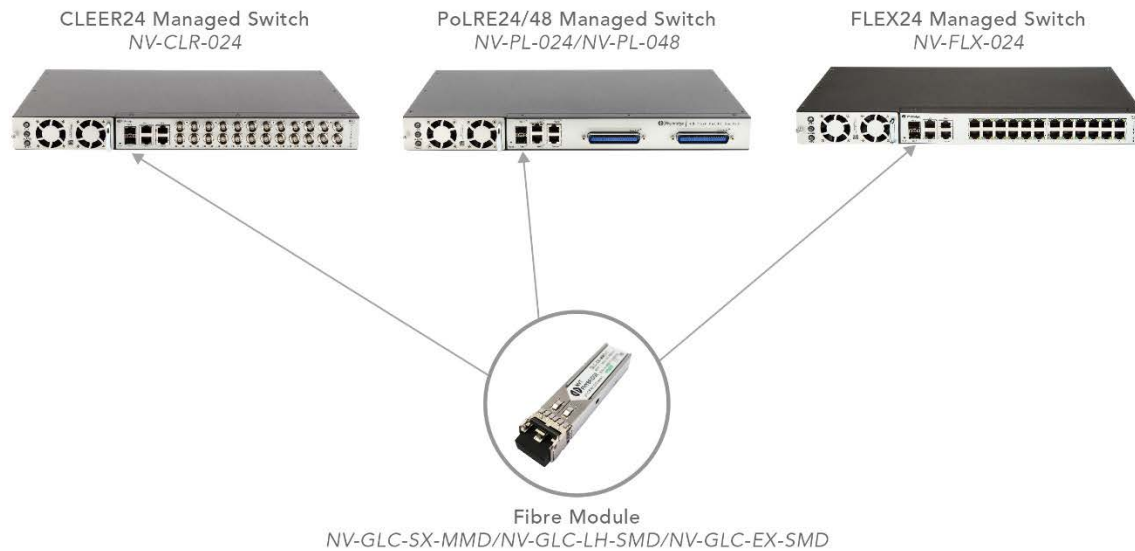


## GLC-SX-MMD GBIC Transceiver Module 1000Base-SX SFP Dual LC

Part Number: NV-GLC-SX-MMD



### Product Features

- Hot-pluggable SFP footprint
- 850nm VCSEL laser transmitter
- Up to 550m on 50/125µm MMF, 500m on 62.5/125µm MMF
- Digital Diagnostic Monitoring Function
- Metal enclosure for lower EMI
- Single +3.3V power supply
- Low power dissipation <600mW
- Commercial operating temperature range: 0°C to +70°C

### Applications

- 1.25Gb/s 1000Base-SX Ethernet
- 1.063Gb/s Fibre Channel

### General

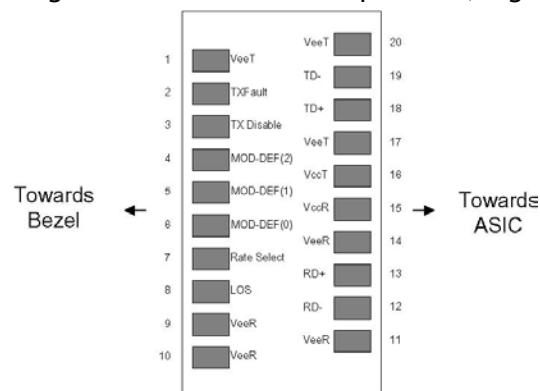
Small Form Factor Pluggable (SFP) transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). They simultaneously comply with 1.25Gb/s 1000Base-SX Ethernet and 1.063Gb/s Fibre Channel.

## 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=3.3 Volts)

| Parameter                         | Symbol         | Min | Typ | Max       | Unit    | Ref. |
|-----------------------------------|----------------|-----|-----|-----------|---------|------|
| <b>Transmitter</b>                |                |     |     |           |         |      |
| Output Opt. Power                 | PO             | -9  | -   | -3        | dB<br>m | 1    |
| Optical Wavelength                | $\lambda$      | 830 | 850 | 860       | nm      |      |
| Spectral Width                    | $\sigma$       | -   | -   | 0.8<br>5  | nm      |      |
| Side Mode Suppression Ratio       | SMSR           | 30  | -   | -         | dB      |      |
| Optical Rise/Fall Time            | tr/tf          | -   | -   | 175       | ps      | 2    |
| Deterministic Jitter Contribution | TX $\Delta$ DJ | -   | -   | 0.0<br>7  | UI      | 3    |
| Total Jitter Contribution         | TX $\Delta$ TJ | -   | -   | 0.0<br>07 | UI      |      |
| Optical Extinction Ratio          | ER             | 9   | 10  | -         | dB      |      |
| <b>Receiver</b>                   |                |     |     |           |         |      |
| Average Rx Sensitivity            | RSENS          | -   | -   | -20       | dB<br>m | 4    |
| Maximum Received Power            | RXMAX          | -2  | -   | -         | dB<br>m |      |
| Optical Center Wavelength         | $\lambda$ C    | 770 | 850 | 860       | nm      |      |
| LOS De-Assert                     | LOSD           | -   | -   | -24       | dB<br>m |      |
| LOS Assert                        | LOSA           | -35 | -   | -         | dB<br>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  $\Delta$ DJ.
4. Measured with PRBS 27–1 at 10–12 BER.

## III. General Specifications

| Parameter                                                | Symbol | Min | Typ | Max        | Units  | Ref. |
|----------------------------------------------------------|--------|-----|-----|------------|--------|------|
| Data Rate                                                | BR     | -   | -   | 1250       | Mb/sec | 1    |
| Bit Error Rate                                           | BER    | -   | -   | $10^{-12}$ |        | 2    |
| Max. Supported Link Length on 50/125 $\mu$ m MMF @ 1.25G | LMAX   | -   | -   | 550        | m      | 3    |

#### Notes:

1. 1.25G and 1.063G compliant.
2. Tested with a PRBS 27-1 data pattern.
3. Dispersion limited per FC-PI-2 Rev. 10

#### IV. Compliance and Agency Approval

|                    |                                                                  |
|--------------------|------------------------------------------------------------------|
| <b>EMC</b>         | Emissions: FCC Part 15, EN 55032:2012<br>Immunity: EN 55024:2010 |
| <b>Safety</b>      | EN 60825-1:2014<br>21 CFR Part 1040.10:2013                      |
| <b>Environment</b> | 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).

