
Ethernet

MC2GT1GX1SFP-M SERIES – FIBER OPTIC GIGABIT ETHERNET TRANSCEIVER ENGINEERING SPECIFICATIONS

PART 1 – GENERAL

1.01 SUMMARY

- A. Fiber Optic Ethernet Transceiver (Media Converter)

1.02 SECTION INCLUDES

- A. MC2GT1GX1SFP-M Series Gigabit Ethernet Transceiver

1.03 REFERENCES

- A. Underwriters Laboratory (UL)
B. Underwriters Laboratory Canada (ULC)
C. European Union Compliance (CE)

1.04 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide an Ethernet transceiver system that transmits bi-directional 10, 100, or 1000Mbps data over multimode or single mode fiber connections.
1. The system shall utilize MC2GT1GX1SFP-M media converter package along with an SFP modules capable of bi-directional data transmission of 10, 100, or 1000Mbps on one or two optical fibers, depending on the SFP module selected. (See Table C, page 3.)

1.05 SUBMITTALS

- A. Product Data: Manufacturer's printed product data sheet for each type of Transmitter/Receiver specified.
- B. Detail Drawings: Electrical and optical connect drawings. Product mounting template.
- C. Manufacturer's Installation and Operating Manual: Printed installation and operating information for each type of Transmitter/Receiver specified.
- D. Warranty: Manufacturer's Printed Warranty

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in unopened factory packaging with Manufacturer's bar coding to the job site.
- B. Inspect product upon delivery to assure that specified products have been received.
- C. Store in original packaging in a climate controlled environment. Storage Temperature not to exceed: -40° C to +85° C

1.07 PROJECT/SITE CONDITIONS

- A. Temperature Requirements: Products shall operate in an environment with an ambient temperature range of -40° C to +75° C without the assistance of fan-forced cooling.
- B. Humidity Requirements: Products shall operate in an environment with relative humidity of 0% to 95% (non-condensing). If product is installed in condensation conditions, unit shall have conformal coating applied to the printed circuit board.

1.08 WARRANTY

- A. Meridian Technologies Inc. warrants the product to be free of factory defects under manufacture's

warranty for a period of 5 years from the date of purchase.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Acceptable Manufacturer: Meridian Technologies Inc., 700 Elmont Rd., Elmont, NY 11235 USA;
- B. Telephone: 516-285-1000;
- C. Fax 516-285-6300;
- D. Email: sales@meridian-tech.com .
- E. Internet: www.meridian-tech.com
- F. Substitutions: Not Permitted
- G. All units shall be supplied from a single manufacturer.

2.02 MANUFACTURED UNITS

- A. Model Number Descriptions: Reference Table A: Product Number Descriptions
- B. Model Compatibility Chart: Reference Table B: Product Compatibility Chart

2.03 GENERAL SPECIFICATIONS

- A. The Ethernet Gigabit data transceiver system shall consist of a Meridian Technologies Inc. MC2GT1GX1SFP-M series media converter and a Meridian Technologies Inc. SFP module. The module shall support the transmission of 10, 100, or 1000 Mbps employing singlemode or multimode optical fiber. The module shall support the Ethernet data interface and be IEEE 802.3 compliant. The unit is set to auto-negotiate data rates and can be used for half duplex or full duplex transmission. The module shall require no in-field optical adjustments or in-line attenuators to ease installation. The module shall provide power and fiber link status indicating LED's for monitoring proper system operation. The modules shall provide automatic re-settable solid-state current limiters and independent voltage regulators on each module to reduce the chance of a single point failure of the system. The module shall have an MTBF of >100,000 hours and operate in an environment of -40° C to +75° C and relative humidity between 0% to 95% (non-condensing). The module shall be UL and ULC listed and CE marked. The circuit board shall be UL 94 flame rated and meet all PCI standards. All PC boards shall be designated with part number, PC board number and show appropriate revision number. Housing shall be of all metal construction. All LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.

2.04 DATA SPECIFICATIONS

- A. Data Interface: Ethernet IEEE802.3
- B. Data Rate: 10/100/1000 Mbps
- C. Operation Mode: Full or Half Duplex

2.05 OPTICAL SPECIFICATIONS

- A. Determined by SFP selection – see Table C, page 3.

2.06 STATUS INDICATORS

- A. Power: On/Green – Off/Off
- B. Fiber Link: Fiber connection/Green – No Fiber Connection/Red

2.07 CONNECTORS

- A. Determined by SFP module selected – see Table C, page 3.
- B. Power: Screw Clamp Terminal Strip.
- C. Data: RJ-45

2.08 ELECTRICAL SPECIFICATIONS

- A. Power: Surface Mount:
12-48VDC @ 200 mA at 6 pin terminal block.
- B. Current Protection: Automatic re-settable solid-state current limiters
- C. Voltage Regulation: Solid-state, Independent on each board
- D. Circuit Board: UL 94 flame rated and meets all IPC standards.

2.09 MECHANICAL SPECIFICATIONS

- A. Surface Mount Dimensions: 5.68” x 3.74” x 1.03” (144.3 x 95 x 26mm)
- B. Finish: Module shall be constructed of a metal enclosure with all connections and indicators silk-screened directly on unit.
- C. Weight: 0.8lb (380gm)

2.10 ENVIRONMENTAL SPECIFICATIONS

- A. MTBF: >100,000 Hours
- B. Operating Temp: -40° C to +75° C
- C. Storage Temp: -40° C to +85° C
- D. Relative Humidity: 0% to 95% (non-condensing). If product is installed under condensation conditions, unit shall have conformal coating applied to the printed circuit board. (Add -C to model number for conformal coated printed circuit board)

2.11 REGULATORY AGENCIES/APPROVALS AND LISTINGS

- A. Underwriters Laboratory (UL)
- B. Underwriters Laboratory Canada (ULC)
- C. UL 94-flame rated PCB board
- D. European Listed (CE)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Inspect modules before installation.
- B. Modules shall be free of any cosmetic defects or damage.
- C. All optical connectors shall be covered with dust caps and remain on the module until installing cable connectors to module.
- D. Shipping box shall include the module, power supply and operations manual.

3.02 PREPARATION

- A. Standalone Module (Surface Mount)
 - 1. Shall be mounted on a properly prepared surface adequate for the size and weight of module. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved

detail drawings and in compliance with the Meridian Technologies Inc. mounting template and installation manual.

B. DIN Rail Mount Module

- 1. Shall be mounted on a properly installed DIN Rail adequate for the size and weight of the module. The placement of the unit shall allow provision for cable installation and maintenance as indicated on the approved detail drawings and in compliance with the Meridian Technologies Inc. mounting template and installation manual.

C. Optical Fibers

- 1. Caution: NEVER look into the end of an active optical fiber when using laser light output. Eye damage can occur. Wear eye protection when cleaving, terminating, and splicing fiber.
- 2. The number and type (multimode or single-mode) of optical fiber shall meet the requirements of the Meridian Technologies Inc. SFP model number from identified in Table C.
- 3. All optical fiber cables shall be properly installed and terminated with the mating optical connectors. The optical link shall be tested with either a power meter, at a minimum, or OTDR to ensure the link budget (overall path loss) plus an added 3dB of optical safety margin does not exceed the optical power budget.
- 4. All optical connectors on cable shall be cleaned in compliance to optical connector manufactures specifications and covered with dust caps until connection to the fiber optic module.

3.03 INSTALLATION

- A. General: Locate fiber optic modules as indicated on the approved detail drawings and install module in compliance with the Meridian Technologies Inc. installation and operations manual.

3.04 TESTING

- A. Testing the Fiber Optic Ethernet Link.
 - 1. Verify that the data leads and optical fibers are properly connected.
 - 2. Make sure that power is applied to all fiber optic modules, controllers, and receiver drivers or other equipment used in the system.
 - 3. Successful data link operation should be confirmed at this point by communicating with other equipment.

3.05 CLEANING

- A. Follow all instructions for proper use of solvents and adhesives used for termination and splicing.
- B. At completion of the installation, dispose of all fiber scraps properly.

MANUFACTURED UNITS REFERENCE TABLES

Table A: Product Numbers

Part #	Description
MC22GT1GX1SFP-M	10/100/1000mbps Ethernet Transceiver

Table B: Product Compatibility Chart

Part #	Description
MC22GT1GX1SFP-M	10/100/1000mbps Ethernet transceiver
US8GT8	8-port 10/100/1000mbps Ethernet unmanaged switch
US5GT4GX1	4-port 10/100/1000TX (RJ45) + 1000 SFP port Ethernet unmanaged switch
US8GT8POEH	8-port 10/100/1000TX (RJ45), PoE+ (30Watt)
MS8GT4GX4	4-port 10/100/1000TX (RJ45) + 1 port 100FX SFP w/Link Fault Pass-through

Table C: SFP Module Compatibility Chart

Part #:	Description
MM8585G	1.25gbps, 850nm Tx/Rx, 550m, 2 MM LC connectors
MM1315G	1.25gbps, 1310nm Tx, 1550nm Rx, 550m, 1 MM SC connector
MM1513G	1.25gbps, 1550nm Tx, 1310nm Rx, 550m, 1 MM SC connector
SM1313G20	1.25gbps, 1310nm Tx/Rx, 20km, 2 SM LC connectors
SM1313G40	1.25gbps, 1310nm Tx/Rx, 40km, 2 SM LC connectors
SM1313G60	1.25gbps, 1310nm Tx/Rx, 60km, 2 SM LC connectors
SM1315G20	1.25gbps, 1310nm Tx, 1550nm Rx, 20km, 1 SM SC connector
SM1513G20	1.25gbps, 1550nm Tx, 1310nm Rx, 20km, 1 SM SC connector
SM1315G40	1.25gbps, 1310nm Tx, 1550nm Rx, 40km, 1 SM SC connector
SM1513G40	1.25gbps, 1550nm Tx, 1310nm Rx, 40km, 1 SM SC connector
SM1315G60	1.25gbps, 1310nm Tx, 1550nm Rx, 60km, 1 SM SC connector
SM1513G60	1.25gbps, 1550nm Tx, 1310nm Rx, 60km, 1 SM SC connector