CSM-G200 Series
Quick Installation Guide

Version 1.1, July 2022

MOXA®

Overview

Introduction

The CSM-G200 Series is a Gigabit Ethernet to optical fiber slide-in media converter module and is part of the NRack System. It provides Ethernet media conversion from 10/100/1000 BaseT(X) to 100/1000 BaseFX (SFP slot) and can be installed in every chassis of the NRack System.

The CSM-G200 Series includes the following models:

- CSM-G200-1221: 10/100/1000BaseT(X)-to-100/1000BaseSFP slide-in media converter module

Installation

The CSM-G200 media converter slide-in module can be hot-swapped, which means the chassis does not need to be powered off or removed during installation. Align the slide-in module with the chassis installation slot so that the panel fastener screw is at the top of the module. Carefully slide the slide-in module into the slot while aligning the module's circuit board with the installation guide.

Ensure that the slide-in module is firmly seated inside the chassis. Push in and rotate the attached panel fastener screw clockwise to secure the module to the chassis.

Why Convert Ethernet to Fiber

Fiber communication not only extends the communication distance but also provides many helpful features.

- **IMMUNITY FROM ELECTRICAL INTERFERENCE:**
  Electromagnetic interference or radio frequency interference does not affect fiber. Thus, fiber provides a clean communication path and is immune to cross-talk.
- **INSULATION:**
  Optical fiber is an insulator; the glass fiber eliminates the need for using electric currents as the communication medium.
- **SECURITY:**
  Conventional electric means cannot tap fiber. Furthermore, fiber is very difficult to tap into optically. Radio and satellite communication signals can be captured easily for decoding.
- **RELIABILITY & MAINTENANCE:**
  Fiber is immune to adverse temperature and moisture conditions, does not corrode or lose its signal, and is not affected by short circuits, power surges, or static electricity.

Features

- LFP (Link Fault Pass-through)
- FEF (Far End Fault)
- Two different operation modes
  - ➢ Store-and-forward
  - ➢ Pass-through
- Auto negotiation
- Plug and play
- Hot-swap
- Jumbo frame

Package Checklist

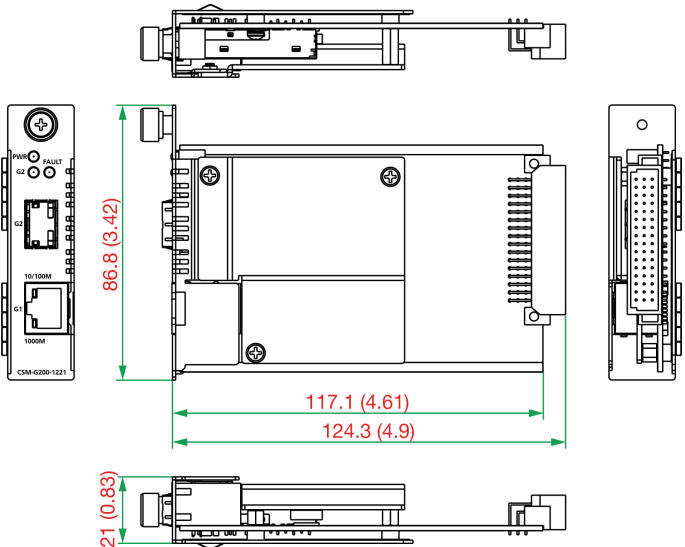Moxa's CSM-G200 Series is shipped with the following items.

- CSM-G200 slide-in media converter module
- Quick installation guide (printed)
- Warranty card

NOTE: Please notify your sales representative if any of the above items are missing or damaged.

Dimensions

CSM-G200-1221

Unit: mm (inch)

Electrostatic Discharge Warning!

To protect the product from damage due to electrostatic discharge, we recommend that you wear a grounding device when handling your CSM-G200 slide-in modules.

Communication Connections

The CSM-G200 Series has one 10/100/1000BaseT(X) Ethernet port and one 100/1000BaseFX (SFP slot) fiber port.

RJ45 Ethernet Port Connection

The CSM-G200 has a 10/100/1000BaseT(X) Ethernet port located on the front panel to connect to Ethernet-enabled devices.

When connected to a 10/100 Mbps Ethernet port, the pinouts and cable wiring diagrams for both the MDI (NIC-type) and MDI-X (HUB/switch-type) ports for both straight-through and crossover Ethernet cables are:
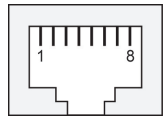
MDI Port Pinouts

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-

MDI-X Port Pinouts

Pin	Signal
1	Rx+
2	Rx-
3	Tx+
6	Tx-

8-pin RJ45

RJ45 (8-pin) to RJ45 (8-pin) Straight-through Cable Wiring

Switch Port			NIC Port
RJ45 Connector	RJ45 Plug Pin 1		**RJ45 Connector**
	Cable Wiring		
Tx+	3 ——————— 3		Rx+
Tx-	6 ——————— 6		Rx-
Rx+	1 ——————— 1		Tx+
Rx-	2 ——————— 2		Tx-

RJ45 (8-pin) to RJ45 (8-pin) Crossover Cable Wiring

Switch Port (NIC Port)			Switch Port (NIC Port)
RJ45 Connector	RJ45 Plug Pin 1		**RJ45 Connector**
	Cable Wiring		
(Rx+) Tx+	3 ——————— 1		Rx+ (Tx+)
(Rx-) Tx-	6 ——————— 2		Rx- (Tx-)
(Tx+) Rx+	1 ——————— 3		Tx+ (Rx+)
(Tx-) Rx-	2 ——————— 6		Tx- (Rx-)
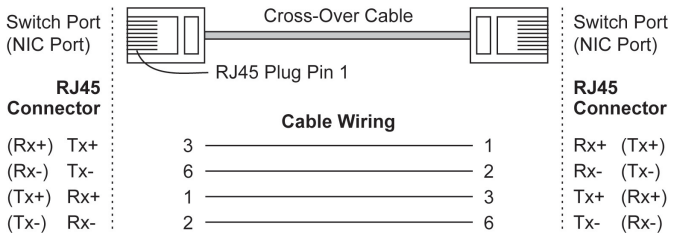
1000BaseT(X) Ethernet Port Connection

1000BaseT(X) data is transmitted on differential TRD+/- signal pairs over copper wires. When connected to a 1000 Mbps Ethernet port, the pinouts and cable wiring diagrams for both the MDI (NIC-type) and MDI-X (HUB/switch-type) ports for both straight-through and crossover Ethernet cables are:
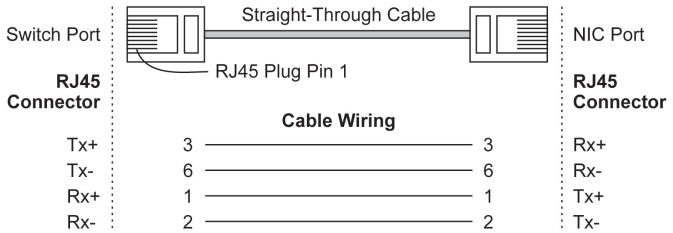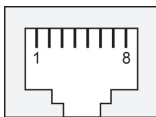
MDI/MDI-X Port Pinouts

| Pin	Signal
1	TRD (0) +
2	TRD (0) -
3	TRD (1) +
4	TRD (2) +
5	TRD (2) -
6	TRD (1) -
7	TRD (3) +
8	TRD (3) -

1000BaseSFP Fiber Port Connections

The Gigabit Ethernet ports on the CSM-G200 are 1000BaseSFP Fiber ports, which require using Gigabit mini-GBIC fiber transceivers to work properly.

The concept behind the LC port and cable is straightforward. Suppose you are connecting devices I and II. Contrary to electrical signals, optical signals do not require a circuit to transmit data. One of the optical lines is used to transmit data from device I to device II, and the other optical line is used to transmit data from device II to device I for full-duplex transmission.

Remember to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II. If you are making your own cable, we suggest you label the two sides of the same line with the same letter (A-to-A and B-to-B, as shown below).
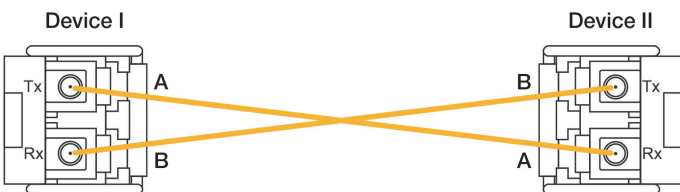
> ⚠️ **ATTENTION**
>
> The CSM-G200 is only compatible with transceiver modules from Moxa's SFP-1G Series and SFP-1FE Series. If you are using the SFP-1FESLC-T, SFP-1FELLC-T, or SFP-1FEMLC-T, use version V1.3 or above to ensure that the CSM-G200 media converter functionality works properly.

ATTENTION

This is a Class 1 Laser/LED product. To avoid causing serious damage to your eyes, do not stare directly into the laser beam.

DIP Switch Settings

DIP	Function	ON (Default)	OFF
1	Force Fiber Speed	Auto	1000 Mbps
2	TP Auto Negotiation	Enable	Disable
3	Force TP Speed	1000 Mbps	100 Mbps
4	Force TP Duplex	Full-duplex	Half-duplex
5	Link Fault Pass-through	Enable	Disable
6	Operating Mode	Store-and-forward	Pass-through
7	Jumbo Frame	Disable	Enable

LED Indicators

LED	Color	State	Function
PWR	Green	On	Power is being supplied to power input.
		Off	Power is not being supplied to power input.
FAULT	Red	On	Communication failed
		Blinking	The device is unable to initialize successfully
		Off	Data is transferring normally
G2	Green	On	FX port's is active.
		Blinking	Data is being transmitted
		Off	FX port is inactive.
10/100M (TP)	Yellow	On	TP port's 10/100 Mbps is active.
		Blinking	Data is being transmitted at 10/100 Mbps.
		Off	TP port's 10/100 Mbps is inactive.
1000M (TP)	Green	On	TP port's 1000 Mbps is active.
		Blinking	Data is being transmitted at 100 Mbps.
		Off	TP port's 1000 Mbps is inactive.

Auto MDI/MDI-X Connection

The Auto MDI/MDI-X function allows users to connect the Moxa CSM-G00's 10/100/1000BaseT(X) ports to any kind of Ethernet device, regardless of the type of Ethernet cable used for the connection. This means that you can use either a straight-through or crossover cable to connect the CSM-G200 to Ethernet devices.

Auto-Negotiation and Speed Sensing

All the CSM-G200's RJ45 Ethernet ports independently support auto-negotiation for transmission speeds of 10 Mbps, 100 Mbps, and 1000 Mbps in operations, according to the IEEE 802.3u standard.

This means that some nodes could operate at 10 Mbps, while other nodes are operating at 100 Mbps or 1000 Mbps. Auto-negotiation takes place when an RJ45 cable connection is made, and then each time a LINK is enabled. The CSM-G200 indicates its capability for using 10 Mbps, 100 Mbps, or 1000 Mbps transmission speeds; the device at the other end of the cable is expected to indicate similarly.

Depending on what type of device is connected, this will cause an agreement to operate at a speed of 10 Mbps, 100 Mbps, or 1000 Mbps.

If the CSM-G200's RJ45 Ethernet port is connected to a non-negotiating device, it will default to a speed of 10 Mbps and half-duplex mode, as required by the IEEE 802.3u standard.

Specifications

Physical Characteristics	
Housing	SPCC
Dimensions	86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)
Environment Limits	
Operating Temperature	0 to 55°C (32 to 131°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Power Requirements	
Input Voltage	12 VDC
Power Consumption	2.23 Watts
Regulatory Approvals	
EMC	CE, FCC
EMI	CISRP 32
	CISRP 35
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
	IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV
	IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV
	IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
	IEC 61000-4-8 PFMF: 30 A/m
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty

⚠️ **사용자안내문**

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