

# TRC-2190 Series

## 18-slot rackmount chassis managed media converter



- > 19-inch chassis for rackmount use
- > 18 slots for high density applications
- > Supports dual power input with redundancy
- > Fanless chassis design reduces servicing costs
- > SNMP/web console for easy management
- > -20 to 55°C operating temperature range



### : Introduction

The TRC-2190 series provides 18 slots for media converter modules from the CSM-400 series of Ethernet-to-fiber management modules. It also supports SNMP/web console for remote management and monitoring. A TRC-2190 chassis comes with one AC or DC power

input, with an optional redundant power expansion module available for greater reliability. The TRC-2190 series' power input module supports a fanless chassis design, as well as a -20 to 55°C operating temperature range.

### : Specifications

#### Ethernet Interface

**Number of Ports:** 2

**Speed:** 10/100 Mbps, auto MDI/MDIX

**Connector:** 8-pin RJ45

**Magnetic Isolation Protection:** 1.5 kV built-in

#### USB Interface

**Number of Ports:** 1

**USB Standard:** USB 1.1/2.0 standard

**Connector:** USB Type B

#### Software

**Network Protocols:** ICMP, IP, TCP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP

**Configuration Options:** SNMP/HTTP/Telnet/USB/SSH/HTTPS

#### Physical Characteristics

**Housing:** SECC (1.2 mm)

**Dimensions:** 440 x 260 x 77 mm (18.6 x 11 x 3.3 in)

**Weight:** 5.2 kg (11.4 lbs), with one power module installed

**Number of Slots:** 18 slots on the front for slide-in modules, 2 slots on the back for power supply modules

#### Environmental Limits

**Operating Temperature:** -20 to 55°C (-4 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:** Universal 100 to 240 VAC (47 to 63 Hz) or ±48 VDC (36 to 53 VDC and -36 to -53 VDC)

**Power Consumption:**

Max. Output: 3.2A @ 36VDC

#### Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1

**EMC:** CE, FCC

**EMI:** EN 55032 Class A, FCC Part 15 Subpart B Class A

**EMS:**

EN 61000-4-2 (ESD) Contact: 4 kV; Air: 8 kV

EN 61000-4-3 (RS) 80 MHz to 1 GHz: 3 V/m

EN 61000-4-4 (EFT) Power: 1 kV; Signal: 0.5 kV

EN 61000-4-5 (Surge) Power: 1 kV; Signal: 0.5 kV

EN 61000-4-6 (CS) 150 kHz to 80 MHz: 3 V/m

EN 61000-4-8 (PFMF)

EN 61000-4-11 (DIPS)

**Green Product:** RoHS, CRoHS, WEEE

**MTBF** (mean time between failures)

**Time:** 1,055,112 hrs

**Standard:** Telcordia (Bellcore), GB

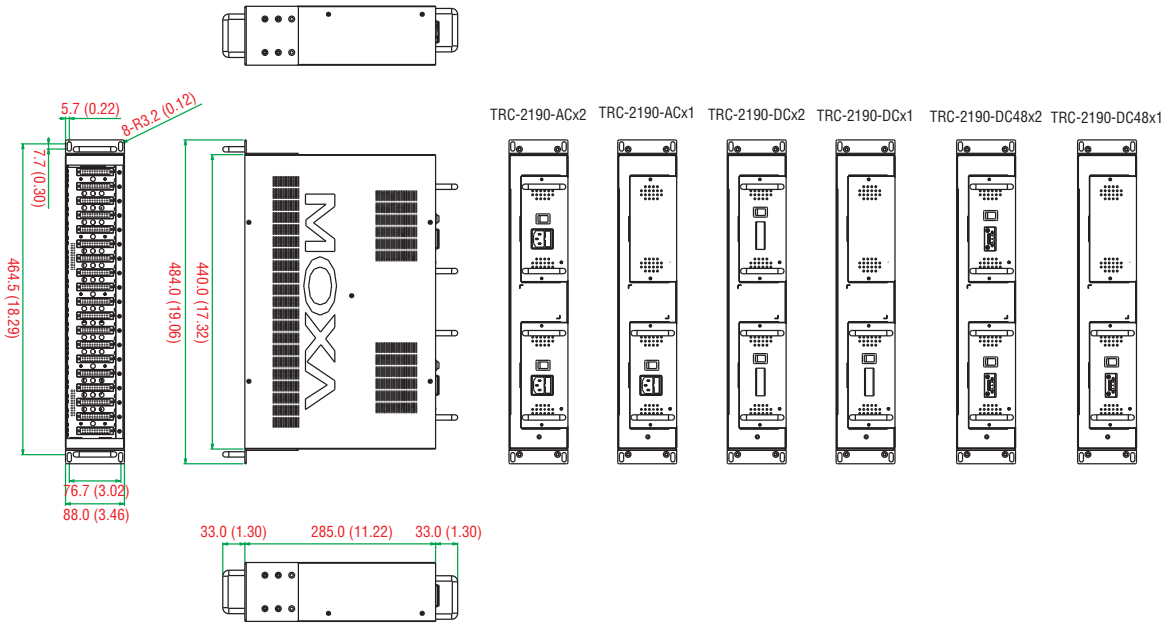
#### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Dimensions

Unit: mm (inch)



## Ordering Information

### Available Models

**TRC-2190-AC:** 2U rackmount chassis, with a single 110 to 240 VAC input, 18 slots on the front panel, and CSM-MN01 managed module

**TRC-2190-DC-48V:** 2U rackmount chassis, with a single 36 to 53 VDC input, 18 slots on the front panel, and CSM-MN01 managed module

**Note:** You must purchase at least one slide-in module for use with the TRC-2190 18-slot rackmount chassis

### Available Slide-in Modules

**CSM-200-1213:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode ST connector

**CSM-200-1214:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode SC connector

**CSM-200-1218:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, single-mode SC connector

**TCF-142-M-SC-RM:** RS-232/422/485 to multi-mode fiber slide-in module converter, SC connector

**TCF-142-M-ST-RM:** RS-232/422/485 to multi-mode fiber slide-in module converter, ST connector

**TCF-142-S-SC-RM:** RS-232/422/485 to single-mode fiber slide-in module converter, SC connector

**TCF-142-S-ST-RM:** RS-232/422/485 to single-mode fiber slide-in module converter, ST connector

**CSM-400-1213:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, multi-mode ST connector, -20 to 55°C

**CSM-400-1213-T:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, multi-mode ST connector, -40 to 75°C

**CSM-400-1214:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, multi-mode SC connector, -20 to 55°C

**CSM-400-1214-T:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, multi-mode SC connector, -40 to 75°C

**CSM-400-1218:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, single-mode SC connector, -20 to 55°C

**CSM-400-1218-T:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, single-mode SC connector, -40 to 75°C

**CSM-400-1224:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, WDM-A single-mode SC connector, -20 to 55°C

**CSM-400-1224-T:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, WDM-A single-mode SC connector, -40 to 75°C

**CSM-400-1225:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, WDM-B single-mode SC connector, -20 to 55°C

**CSM-400-1225-T:** 10/100BaseT(X) to 100BaseFX slide-in managed module converter, WDM-B single-mode SC connector, -40 to 75°C

### Optional Accessories (can be purchased separately)

**PWR-2190-AC:** Redundant power supply, 110 to 240 VAC

**PWR-2190-DC48V:** Redundant power supply, 36 to 53 VDC

**ME-10-T:** Standalone 1-slot chassis with redundant 12 to 48 VDC power inputs

**Note:** You must purchase at least one slide-in module for use with the ME-10-T 1-slot standalone chassis.

**Plate-1:** Face plate to cover unused front panel slots (required for all unused slots)

### Package Checklist

- 1 TRC-2190 with single power input
- Power cord (for TRC-2190-AC only)
- 18 face plates
- User's manual (printed)
- Warranty card

### PWR-2190-AC

Redundant power supply, 110 to 240 VAC



#### Physical Characteristics

**Dimensions:** 157.4 x 123.3 x 70 mm (18.6 x 11 x 3.3 in.)

**Gross Weight:** 0.5 kg (1.1 lb)

#### Environmental Limits

**Operating Temperature:** -20 to 55°C (-4 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:** Universal 100 to 240 VAC 47-63 Hz

**Max. Power Output:** 3.5 A @ 12 VDC

### PWR-2190-DC-48V

Redundant power supply, 48 VDC



#### Physical Characteristics

**Dimensions:** 157.4 x 123.3 x 70 mm (18.6 x 11 x 3.3 in.)

**Gross Weight:** 0.5 kg (1.1 lb)

#### Environmental Limits

**Operating Temperature:** -20 to 55°C (-4 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:** 48 VDC

**Max. Power Output:** 5.4 A @ 12 VDC

### ME-10-T

Standalone 1-slot chassis with redundant 12 to 48 VDC power inputs



#### Physical Characteristics

**Dimensions:** 180.1 x 89.4 x 28.5 mm (7.09 x 3.52 x 1.12 in)

**Gross Weight:** 0.7 kg (1.54 lb)

#### Environmental Limits

**Operating Temperature:** -40 to 75°C (-40 to 167°F)

**Storage Temperature:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

#### Power Requirements

**Input Voltage:** 12 to 48 VDC

**Max. Power Output:** 0.43 A @ 12 VDC

### Plate-1

Face plate to cover unused front panel slots (required for all unused slots)



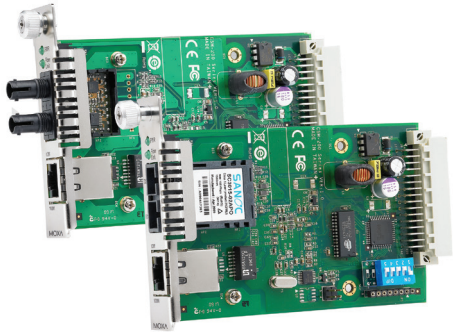
#### Physical Characteristics

**Dimensions:** 180.1 x 89.4 x 28.5 mm (7.09 x 3.52 x 1.12 in)

**Gross Weight:** 0.2 kg (0.44 lb)

# CSM-200 Series

**10/100BaseT(X) to 100BaseFX slide-in modules for the NRack System™**



- > LFP (Link Fault Pass-through) and FEF (Far End Fault)
- > Two different operation modes
  - Store-and-Forward
  - Pass Through
- > Auto Negotiation
- > Plug and Play
- > Hot-swap



## Introduction

The CSM-200/400 modules are slide-in Ethernet-to-fiber media converters for the NRack System™. The modules provide media

conversion from 10/100BaseT(X) to 100BaseFX (SC/ST connectors), and can be installed in any NRack System™ chassis.

## Specifications

### Technology

#### Standards:

IEEE 802.3 for 10BaseT

IEEE 802.3u for 100BaseT(X), 100BaseFX

#### Interface

**RJ45 Ports:** 10/100BaseT(X)

**Fiber Ports:** 100BaseFX (SC/ST connectors)

**LED Indicators:** PWR, Fiber Link, 10/100M (TP port)

**DIP Switches:**

DIP	Function	ON	OFF
1	Auto Negotiation	Enable	Disable
2	Force TP Speed	100 Mbps	10 Mbps
3	Force TP Duplex	Full Duplex	Half Duplex
4	Link Fault Pass Through	Enable	Disable
5	Operating Mode	Store-and-Forward	Pass Through

**Dimensions:** 86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)

#### Weight:

Product only:

CSM-200-1213: 115 g (0.25 lb)

CSM-200-1214/1218: 125 g (0.28 lb)

Packaged:

CSM-200-1213: 170 g (0.37 lb)

CSM-200-1214/1218: 180 g (0.40 lb)

#### Environmental Limits

**Operating Temperature:** 0 to 55°C (32 to 131°F)

**Storage Temperature:** -20 to 75°C (-4 to 167°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

#### Power Requirements

**Input Voltage:** 12 VDC

**Input Current:** 180 mA @ 12 VDC max.

#### Standards and Certifications

**Safety:** UL 60950-1

**EMC:** EN 55032/24

**EMI:** CISPR 32, FCC Part 15B Class A

**EMS:**

EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV

EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m

EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV

EN 61000-4-5 (Surge): Power: 1 kV; Signal: 0.5 kV

EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m

EN 61000-4-8 (PFMF)

EN 61000-4-11

**Firefall:** IEC 60068-2-32

**MTBF** (mean time between failures)

**Time:** 1,454,560 hrs

**Standard:** Telcordia (Bellcore), GB

#### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

### Optical Fiber

Fiber Cable Type	100BaseFX		
	OM1	Multi-Mode	Single-Mode
		50/125 μm 800 MHz*km	G.652
Typical Distance	4 km	5 km	40 km
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1

**Note:** When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.

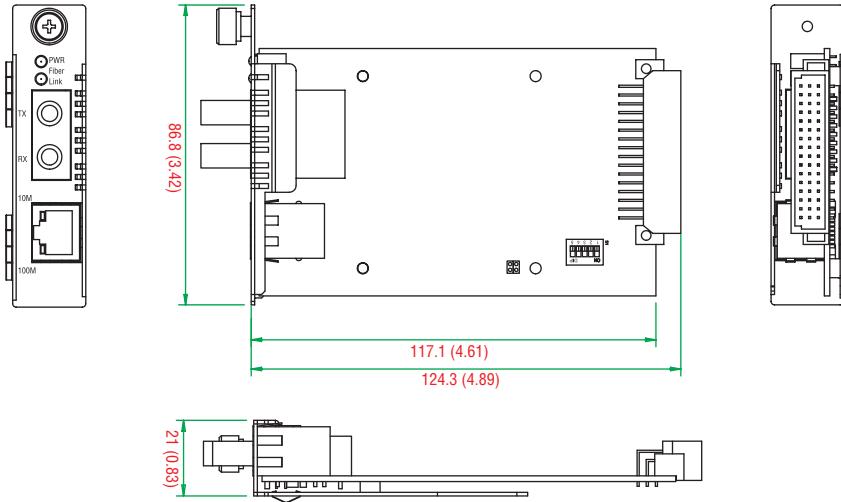
**Note:** Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).

### Physical Characteristics

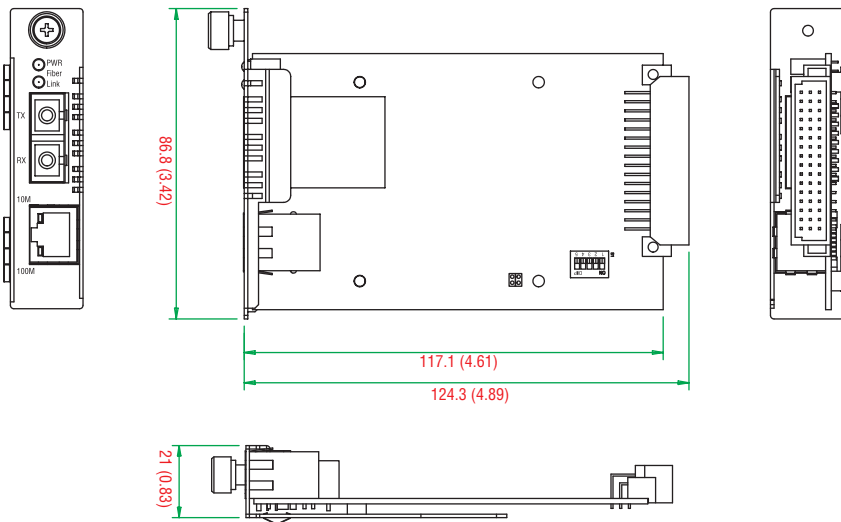
**Dimensions**

Unit: mm (inch)

**CSM-200-1213**



**CSM-200-1214/CSM-200-1218**



**: Ordering Information**

**Available Models**

**CSM-200-1213:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode ST connector

**CSM-200-1214:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode SC connector

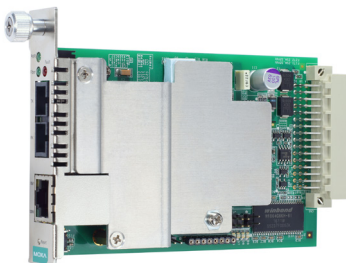
**CSM-200-1218:** 10/100BaseT(X) to 100BaseFX slide-in module media converter, single-mode SC connector

**Package Checklist**

- 1 CSM-200 media converter
- Quick installation guide (printed)
- Warranty card

# CSM-400 Series

**10/100BaseT(X) to 100BaseFX slide-in modules for the NRack System™**



- > LFP (Link Fault Pass-through) and FEF (Far End Fault)
- > Supports Store-and-Forward mode and Pass Through mode
- > Auto Negotiation
- > Supports IEEE 802.3AH OAM protocol
- > Plug and Play
- > Hot-swap
- > IP-based remote management
- > Supports WDM type modules



## Introduction

The CSM-400 modules are slide-in Ethernet-to-fiber managed media converters for the NRack System™. The modules provide media conversion from 10/100BaseT(X) to 100BaseFX (with SC/ST connectors), and can be installed in any NRack System™ chassis. The

CSM-400 modules support LFP and FEF for easily tracing network link failures, and support store-and-forward and pass through modes, 802.3AH OAM for remote management and monitoring, as well as WDM-type fiber modules to reduce fiber cable cost.

## Specifications

### Technology

#### Standards:

IEEE 802.3 for 10BaseT  
IEEE 802.3u for 100BaseT(X), 100BaseFX

#### Interface

**RJ45 Ports:** 10/100BaseT(X)  
**Fiber Ports:** 100BaseFX (SC/ST connectors)  
**LED Indicators:** PWR, Fiber Link, 10/100M (TP port)

#### Optical Fiber

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 μm 800 MHz*km	G.652
Typical Distance		4 km	5 km	40 km
Wave-length	Typical (nm)	1300		1310
	TX Range (nm)	1260 to 1360		1280 to 1340
	RX Range (nm)	1100 to 1600		1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20		0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34
	Link Budget (dB)	12		29
	Dispersion Penalty (dB)	3		1

**Note:** When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.  
**Note:** Compute the “typical distance” of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).

### Physical Characteristics

**Dimensions:** 86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)

#### Weight:

Product only:  
CSM-400-1213/1214/1218: 115 g (0.25 lb)  
CSM-400-1224/1225: 125 g (0.28 lb)

#### Packaged:

CSM-400-1213/1214/1218: 170 g (0.37 lb)  
CSM-400-1224/1225: 180 g (0.40 lb)

### Environmental Limits

#### Operating Temperature:

Standard Models: -20 to 55°C (-4 to 131°F)  
Wide Temp. Models: -40 to 75°C (-40 to 167°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  
**Input Current:** 220 mA @ 12 VDC max.

### Standards and Certifications

**Safety:** UL 60950-1  
**EMC:** EN 55032/24  
**EMI:** CISPR 32, FCC Part 15B Class A  
**EMS:**  
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV  
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m  
EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV  
EN 61000-4-5 (Surge): Power: 1 kV; Signal: 0.5 kV  
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m  
EN 61000-4-8 (PFMF)  
EN 61000-4-11

**Freefall:** IEC 60068-2-32

**MTBF** (mean time between failures)

**Time:** 1,454,560 hrs

**Standard:** Telcordia (Bellcore), GB

### Warranty

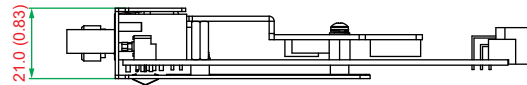
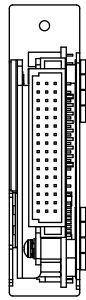
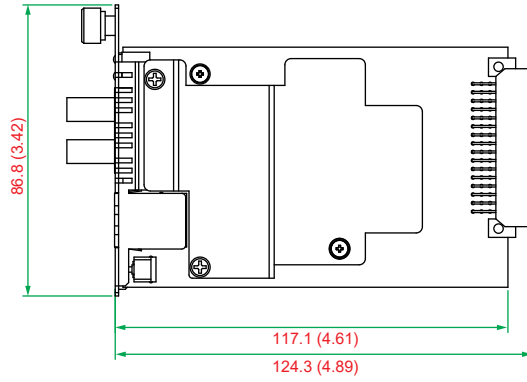
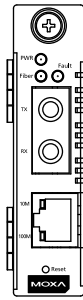
**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

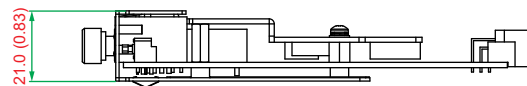
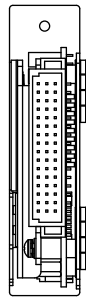
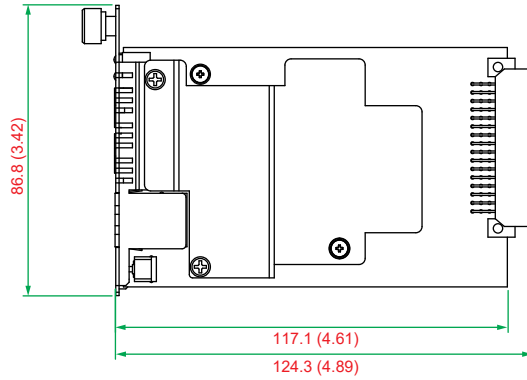
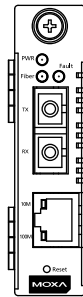
Dimensions

Unit: mm (inch)

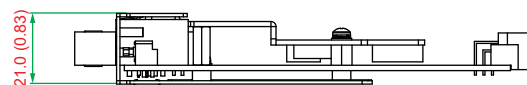
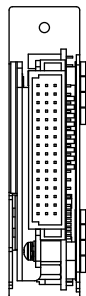
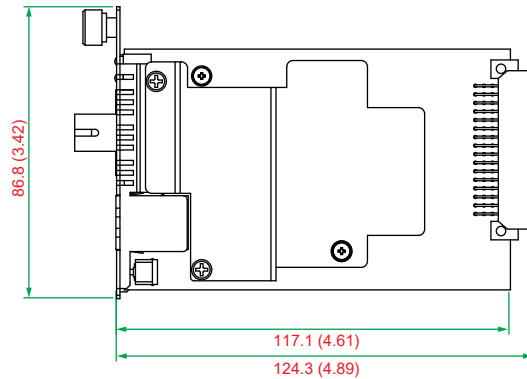
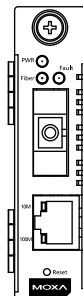
**CSM-400-1213**



**CSM-400-1214  
CSM-400-1218**



**CSM-400-1224  
CSM-400-1225**



## : Ordering Information

### Available Models

**CSM-400-1213:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, multi-mode ST connector, -20 to 55°C

**CSM-400-1213-T:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, multi-mode ST connector, -40 to 75°C

**CSM-400-1214:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, multi-mode SC connector, -20 to 55°C

**CSM-400-1214-T:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, multi-mode SC connector, -20 to 55°C

**CSM-400-1218:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -40 to 75°C

**CSM-400-1218-T:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -20 to 55°C

**CSM-400-1224:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, WDM-A single-mode SC connector, -20 to 55°C

**CSM-400-1224-T:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, WDM-A single-mode SC connector, -40 to 75°C

**CSM-400-1225:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, WDM-B single-mode SC connector, -20 to 55°C

**CSM-400-1225-T:** 10/100BaseT(X) to 100BaseFX slide-in management module converter, WDM-B single-mode SC connector, -40 to 75°C

### Package Checklist

- 1 CSM-400 media converter
- Quick installation guide (printed)
- Warranty card