

TRC-190 Series

19-inch rackmount chassis media converter



- > 19-inch chassis for rackmount use
- > 19 slots for high density applications
- > Supports dual power input with redundancy
- > Fanless chassis design reduces servicing costs



Introduction

The TRC-190 series provides 19 slots for media converter modules from the CSM-200 series of Ethernet-to-fiber modules and TCF-142-RM series of serial-to-fiber modules. A TRC-190 chassis comes with one AC or DC power input, with an optional redundant power

expansion AC or DC module available for greater reliability. The PWR-190-AC and PWR-190-DC-48 power modules can be installed at the same time.

Specifications

Physical Characteristics

Housing: SECC (1.2 mm)
Dimensions: 440 x 260 x 88 mm (17.32 x 10.24 x 3.46 in)
Weight: 5.2 kg (11.4 lb), with one power module installed
Number of Slots: 19 slots on the front for slide-in modules, 2 slots at the back for power supply modules

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°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:
 75 W max. (when all slots are occupied and in use)

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
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

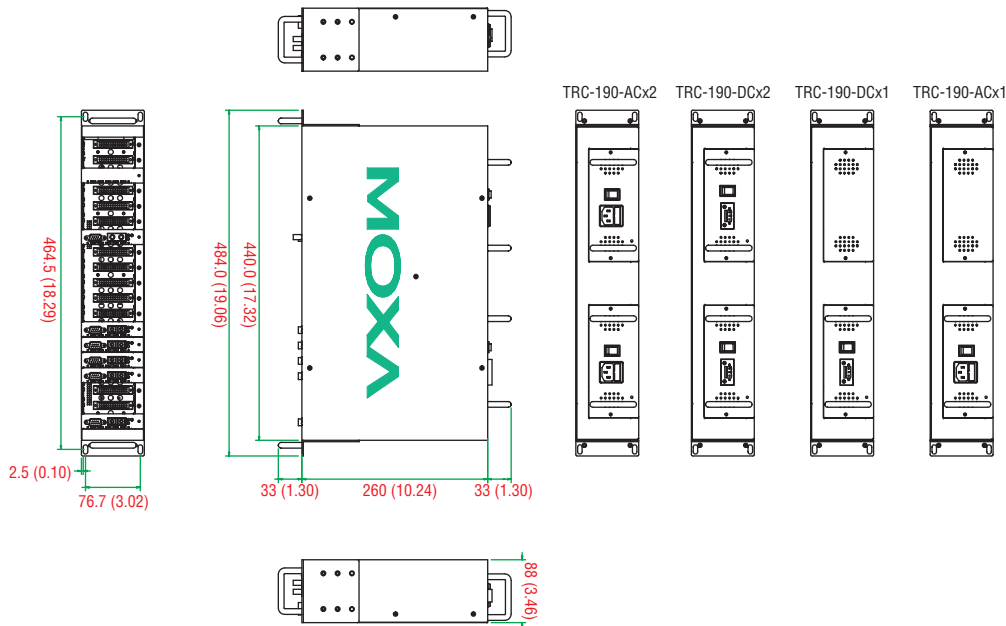
Time: 1,055,112 hrs
Standard: Telcordia (Bellcore), GB

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



: Ordering Information

Available Models

TRC-190-AC: Rack chassis, 2U, single 110 to 240 VAC input, with 19 slots on front panel

TRC-190-DC-48: Rack chassis, 2U, single 36 to 53 VDC input, with 19 slots on front panel

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

Optional Accessories (can be purchased separately)

PWR-190-AC: 110 to 240 VAC power supply for the TRC-190-AC

PWR-190-DC-48: 36 to 53 VDC power supply for the TRC-190-DC-48

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

Package Checklist

- 1 TRC-190 with single power input
- Power cord (for the TRC-190-AC only)
- 18 units of face plate and screws
- Rackmount kit
- Quick installation guide (printed)
- Warranty card

PWR-190-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: 0 to 60°C (32 to 140°F)

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

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

Power Requirements

Input Voltage: 110 to 240 VAC (100 to 240 VAC max.) @ 47-63 Hz

Max. Input Current: 0.31 A @ 240 VAC (when all slots are occupied and in use)

PWR-190-DC-48

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: 0 to 60°C (32 to 140°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 (36 to 53 VDC max.)

Max. Input Current: 1.5 A @ 48 VDC (when all slots are occupied and in use)

Plate-1

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



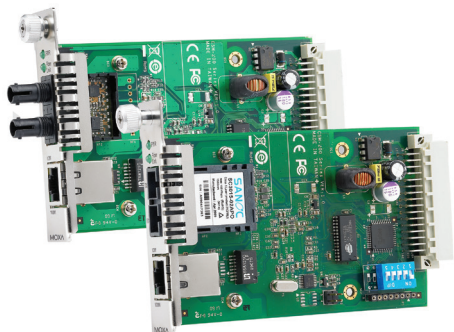
Physical Characteristics

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

Physical Characteristics

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

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

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

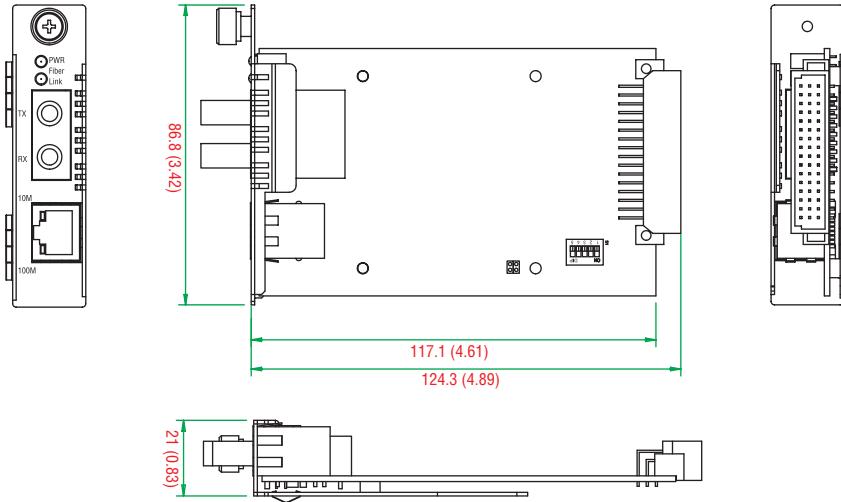
Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.

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

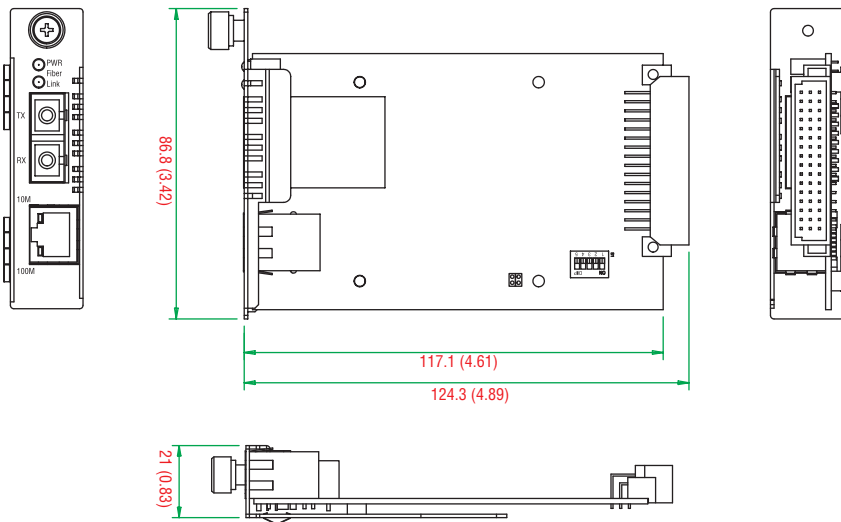
Dimensions

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