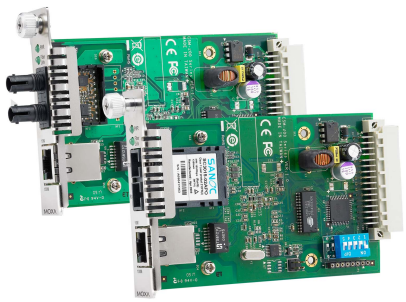
# CSM-200 Series

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



### Features and Benefits

- LFP (Link Fault Pass-Through) and FEF (Far End Fault)
- Two different operation modes: store-and-forward and pass-through
- Auto-negotiation
- Plug and play
- Hot-swappable

### Certifications

## Introduction

The CSM-200 slide-in Ethernet-to-fiber media converters are designed 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

Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | CSM-200-1213: Multi-mode SC connector |
| 100BaseFX Ports (multi-mode ST connector) | CSM-200-1214: Multi-mode ST connector |
| 100BaseFX Ports (single-mode SC connector) | CSM-200-1218: Single-mode SC connector |
| Magnetic Isolation Protection | 1.5 kV (built-in) |

| | |
|---|---|
| Standards | IEEE 802.3u for 100BaseT(X) and 100BaseFX |

Optical Fiber

| | | 100BaseFX | | |
|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 µm 800 MHz x km | G.652 |
| Typical Distance | | 4 km | 5 km | 40 km |
| Wavelength | 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).

## Power Parameters

| | |
|---|---|
| Input Current | 180 mA @ 12 VDC |
| Input Voltage | 12 VDC |
| Overload Current Protection | Supported |
| Power Consumption | 180 mA @ 12 VDC |

## Physical Characteristics

| | |
|---|---|
| Dimensions | 86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in) |
| Weight | Packaged:<br>CSM-200-1213: 170 g (0.37 lb)<br>CSM-200-1214/1218: 180 g (0.40 lb)<br><br>Product only:<br>CSM-200-1213: 115 g (0.25 lb)<br>CSM-200-1214/1218: 125 g (0.28 lb) |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | 0 to 55°C (32 to 131°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m |

| | |
|---|---|
| | IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-14<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 1,454,560 hrs |
| Standards | Telcordia (Bellcore), GB |

### Warranty

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

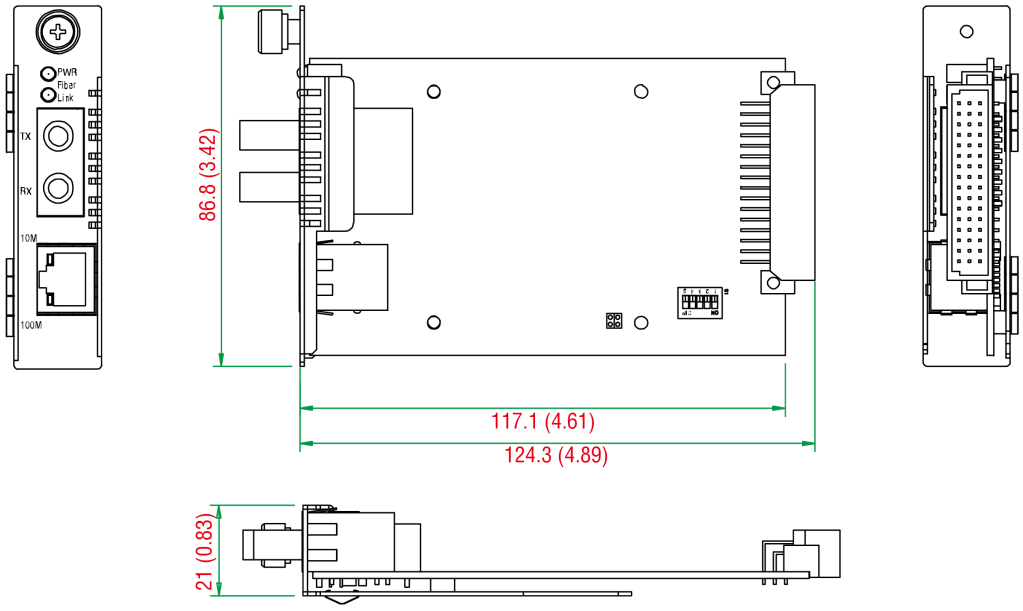
### Package Contents

| | |
|---|---|
| Device | 1 x CSM-200 Series module |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

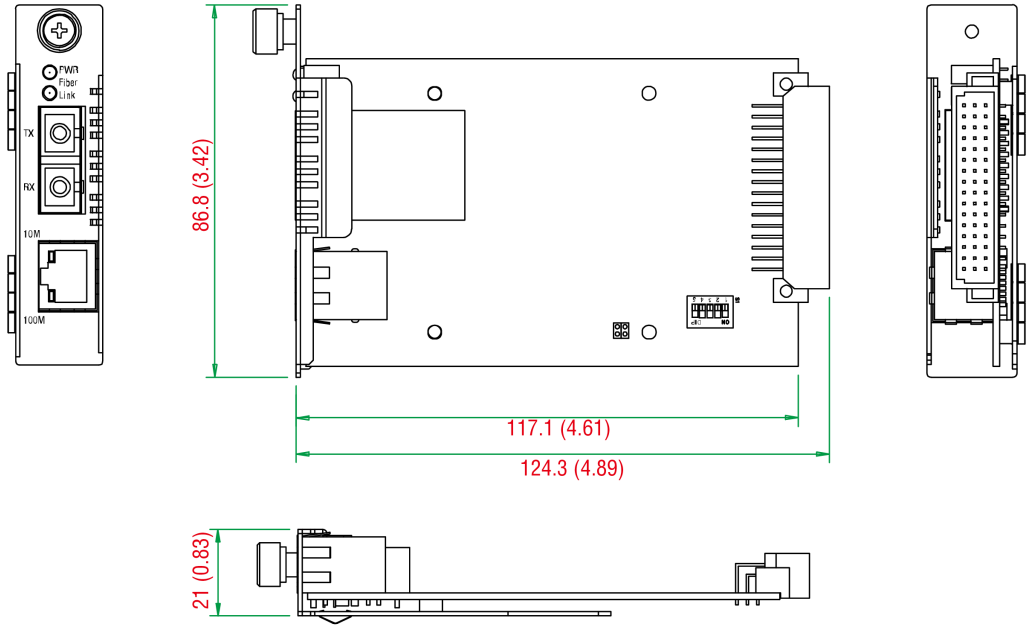
## Dimensions

### CSM-200-1213

Unit: mm (inch)



Unit: mm (inch)

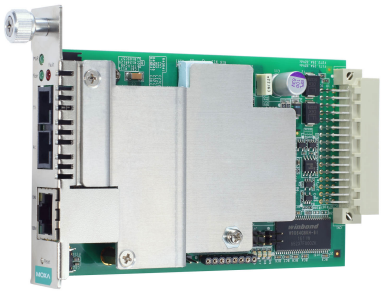



## Ordering Information

| Model Name | Fiber Module Type |
|---|---|
| CSM-200-1213 | Multi-mode ST |
| CSM-200-1214 | Multi-mode SC |
| CSM-200-1218 | Single-mode SC |

# CSM-400 Series

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



### Features and Benefits

- 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-swappable
- IP-based remote management
- Supports WDM type modules

### Certifications

## Introduction

The CSM-400 Series consists of 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, 802.3AM OAM for remote management and monitoring, as well as WDM-type fiber modules to reduce fiber cable cost.

## Specifications

Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | CSM-400-1213: 1<br>CSM-400-1213-T: 1 |
| 100BaseFX Ports (multi-mode ST connector) | CSM-400-1214: 1<br>CSM-400-1214-T: 1 |
| 100BaseFX Ports (single-mode SC connector) | CSM-400-1218: 1<br>CSM-400-1218-T: 1 |
| 100BaseFX Ports, WDM-A Single-Mode SC Connector | CSM-400-1224: 1<br>CSM-400-1224-T: 1 |
| 100BaseFX Ports, WDM-B Single-Mode ST Connector | CSM-400-1225: 1<br>CSM-400-1225-T: 1 |

Optical Fiber

| | | 100BaseFX | | | 100 BaseFX WDM-A | 100 BaseFX WDM-B |
|---|---|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode | | |
| Fiber Cable Type | | OM1 | 50/125 µm | G.652 | | |
| | | | 800 MHz x km | | | |
| Typical Distance | | 4 km | 5 km | 40 km | 20 km | 20 km |
| Wave-length | Typical (nm) | 1300 | | 1310 | 1310/1550 | 1550/1310 |

| | | 100BaseFX | | | 100 BaseFX WDM-A | 100 BaseFX WDM-B |
|---|---|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode | | |
| Fiber Cable Type | | OM1 | 50/125 µm | G.652 | | |
| | | | 800 MHz x km | | | |
| Optical Power | TX Range (nm) | 1260 to 1360 | | 1280 to 1340 | 1280 to 1340 | 1480 to 1600 |
| | RX Range (nm) | 1100 to 1600 | | 1100 to 1600 | 1480 to 1600 | 1280 to 1340 |
| | TX Range (dBm) | -10 to -20 | | 0 to -5 | -5 to -15 | -5 to -15 |
| | RX Range (dBm) | -3 to -32 | | -3 to -34 | -3 to -32 | -3 to -32 |
| | Link Budget (dB) | 12 | | 29 | 17 | 17 |
| | Dispersion Penalty (dB) | 3 | | 1 | 1 | 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).

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| Standards | IEEE 802.3u for 100BaseT(X) and 100BaseFX |

### Power Parameters

| | |
|---|---|
| Input Current | 220 mA @ 12 VDC |
| Input Voltage | 12 VDC |
| Overload Current Protection | Supported |
| Power Consumption | 220 mA @ 12 VDC |

### Physical Characteristics

| | |
|---|---|
| Dimensions | 86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in) |
| Weight | Packaged:<br>CSM-400-1213/1214/1218 Series: 170 g (0.37 lb)<br>CSM-400-1224/1225 Series: 180 g (0.40 lb)<br><br>Product only:<br>CSM-400-1213/1214/1218 Series: 115 g (0.25 lb)<br>CSM-400-1224/1225 Series: 125 g (0.28 lb) |

### Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: -20 to 55°C (-4 to 131°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

### Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |

| | |
|---|---|
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-14<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 1,454,560 hrs |
| Standards | Telcordia (Bellcore), GB |

### Warranty

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

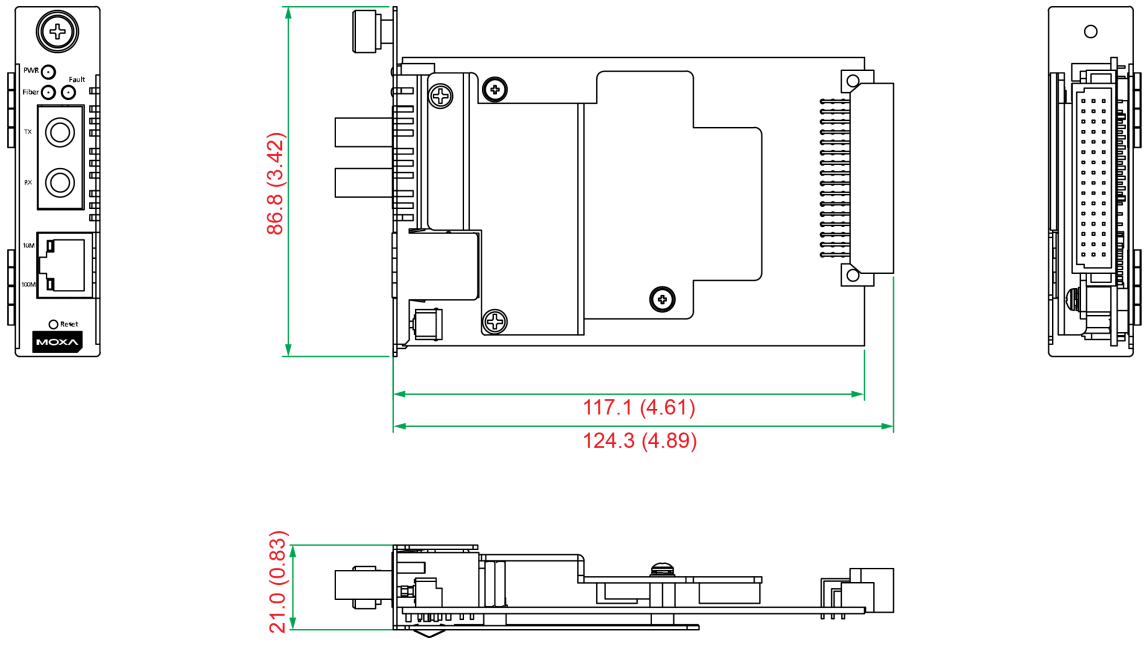
### Package Contents

| | |
|---|---|
| Device | 1 x CSM-400 Series module |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

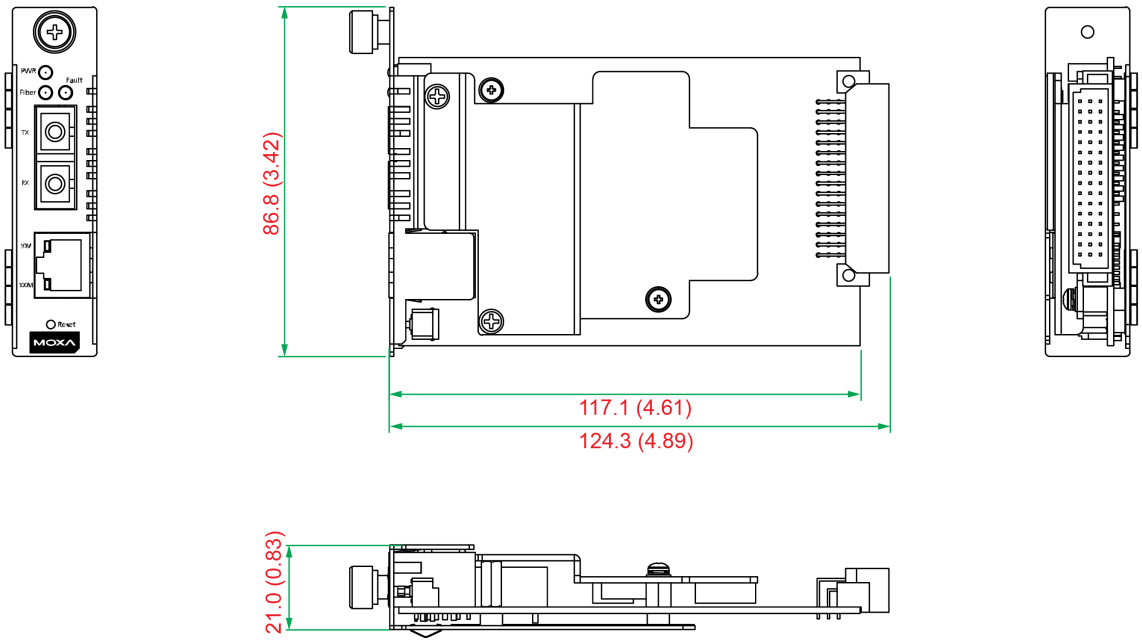
### CSM-400-1213

Unit: mm (inch)



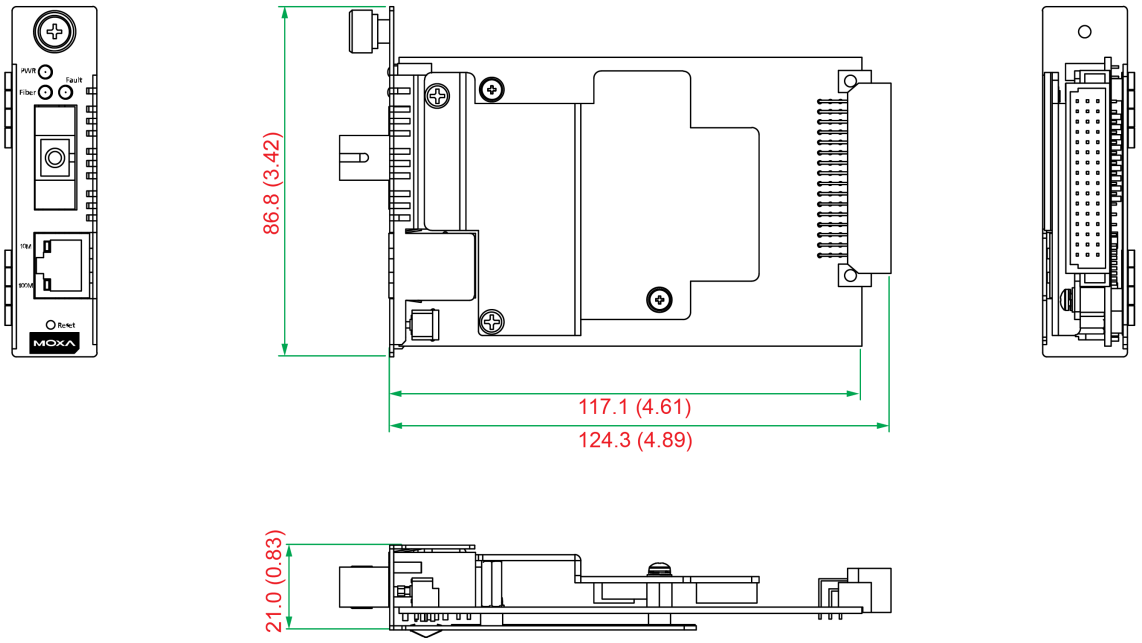
### CSM-400-1214, CSM-400-1218

Unit: mm (inch)




### CSM-400-1224, CSM-400-1225

Unit: mm (inch)




## Ordering Information

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| CSM-400-1213 | -20 to 55°C | Multi-mode ST |
| CSM-400-1213-T | -40 to 75°C | Multi-mode ST |
| CSM-400-1214 | -20 to 55°C | Multi-mode SC |
| CSM-400-1214-T | -40 to 75°C | Multi-mode SC |
| CSM-400-1218 | -20 to 55°C | Single-mode SC |

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| CSM-400-1218-T | -40 to 75°C | Single-mode SC |
| CSM-400-1224 | -20 to 55°C | WDM-A single-mode SC |
| CSM-400-1224-T | -40 to 75°C | WDM-A single-mode SC |
| CSM-400-1225 | -20 to 55°C | WDM-B single-mode SC |
| CSM-400-1225-T | -40 to 75°C | WDM-B single-mode SC |

# IMC-21 Series

*Entry-level industrial 10/100BaseT(X)-to-100BaseFX media converters*

### Features and Benefits

- Multi-mode or single-mode, with SC or ST fiber connector
- Link Fault Pass-Through (LFPT)
- DIP switches to select FDX/HDX/10/100/Auto/Force

### Certifications

## Introduction

The IMC-21 industrial media converters are entry-level 10/100BaseT(X)-to-100BaseFX media converters designed to provide reliable and stable operation in harsh industrial environments. The converters are a cost-effective solution that run on either a 12 or 48 VDC power input and can operate reliably in temperatures ranging from -10 to 60°C. The rugged hardware design ensures that your Ethernet equipment can withstand demanding industrial conditions. The IMC-21 converters are easy to mount on a DIN rail or in distribution boxes.

## Specifications

Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | IMC-21-M-SC: 1 |
| 100BaseFX Ports (multi-mode ST connector) | IMC-21-M-ST: 1 |
| 100BaseFX Ports (single-mode SC connector) | IMC-21-S-SC: 1 |

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| Optical Fiber | |

| | | 100BaseFX | | |
|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 µm 800 MHz x km | G.652 |
| Typical Distance | | 4 km | 5 km | 40 km |
| Wavelength | 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).

## Power Parameters

| | |
|---|---|
| Input Current | 300 mA @ 12 VDC |
| Input Voltage | 12 to 48 VDC |
| Overload Current Protection | Supported |
| Power Consumption | 300 mA @ 12 VDC |

## Physical Characteristics

| | |
|---|---|
| Housing | Plastic |
| IP Rating | IP30 |
| Dimensions | 25 x 109 x 97 mm (0.98 x 4.29 x 3.82 in) |
| Weight | 125 g (0.27 lb) |
| Installation | DIN-rail mounting |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | -10 to 60°C (14 to 140°F) |
| Storage Temperature (package included) | -40 to 70°C (-40 to 158°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 1 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>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<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 353,000 hrs |
| Standards | MIL-HDBK-217F |

### Warranty

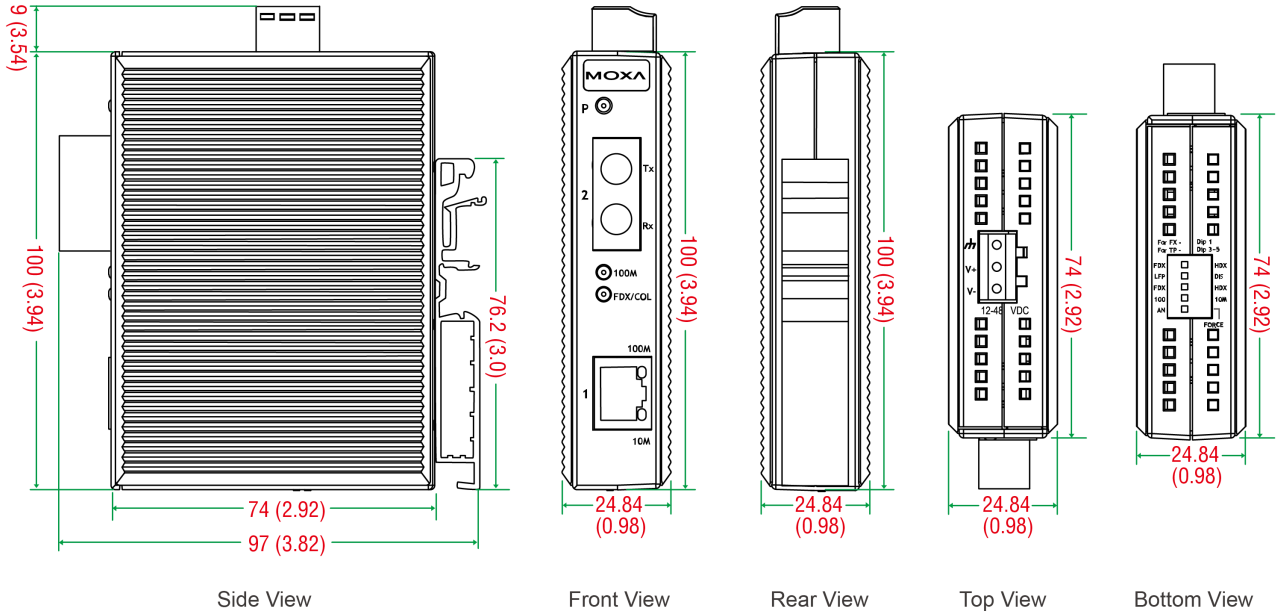
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x IMC-21 Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Front View | Rear View | Top View | Bottom View

## Ordering Information

| Model Name | Fiber Module Type |
|---|---|
| IMC-21-M-SC | Multi-mode SC |
| IMC-21-M-ST | Multi-mode ST |
| IMC-21-S-SC | Single-mode SC |

# IMC-21A Series

*Industrial 10/100BaseT(X)-to-100BaseFX media converters*

### Features and Benefits

- Multi-mode or single-mode, with SC or ST fiber connector
- Link Fault Pass-Through (LFPT)
- -40 to 75°C operating temperature range (-T models)
- DIP switches to select FDX/HDX/10/100/Auto/Force

### Certifications

## Introduction

The IMC-21A industrial media converters are entry-level 10/100BaseT(X)-to-100BaseFX media converters designed to provide reliable and stable operation in harsh industrial environments. The converters can operate reliably in temperatures ranging from -40 to 75°C. The rugged hardware design ensures that your Ethernet equipment can withstand demanding industrial conditions. The IMC-21A converters are easy to mount on a DIN rail or in distribution boxes.

## Specifications

Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | IMC-21A-M-SC Series: 1 |
| 100BaseFX Ports (multi-mode ST connector) | IMC-21A-M-ST Series: 1 |
| 100BaseFX Ports (single-mode SC connector) | IMC-21A-S-SC Series: 1 |

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |

Optical Fiber

| | | 100BaseFX | | |
|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 µm 800 MHz x km | G.652 |
| Typical Distance | | 4 km | 5 km | 40 km |
| Wavelength | 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).

## Power Parameters

| | |
|---|---|
| Input Current | 265 mA @ 12 VDC |
| Input Voltage | 12 to 48 VDC |
| Overload Current Protection | Supported |
| Power Connector | Terminal block |
| Power Consumption | 265 mA @ 12 VDC |

## Physical Characteristics

| | |
|---|---|
| Housing | Metal |
| IP Rating | IP30 |
| Dimensions | 30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in) |
| Weight | 170 g (0.37 lb) |
| Installation | DIN-rail mounting |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: -10 to 60°C (14 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 75°C (-40 to 167°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV |

| | |
|---|---|
| | IEC 61000-4-3 RS: 80 MHz to 1 GHz: 1 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 353,000 hrs |
| Standards | MIL-HDBK-217F |

### Warranty

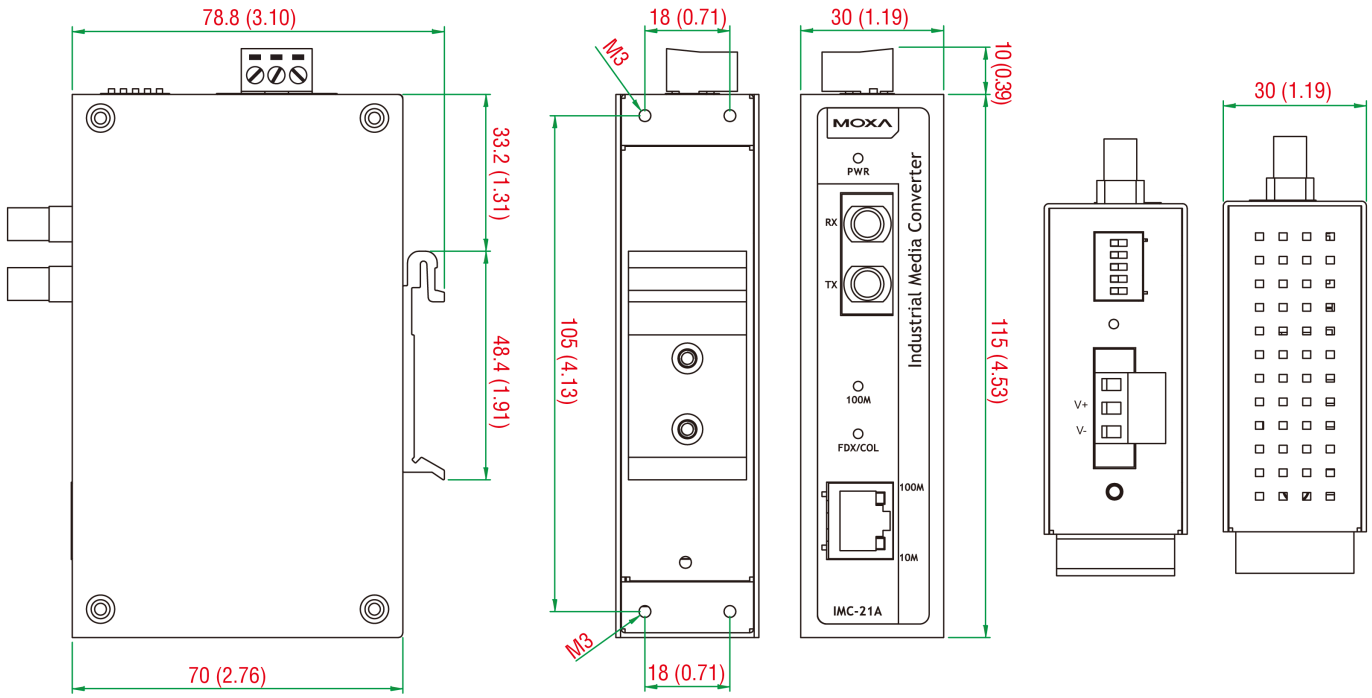
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x IMC-21A Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Rear View | Front View | Top View | Bottom View

## Ordering Information

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| IMC-21A-M-SC | -10 to 60°C | Multi-mode SC |
| IMC-21A-M-ST | -10 to 60°C | Multi-mode ST |
| IMC-21A-S-SC | -10 to 60°C | Single-mode SC |
| IMC-21A-M-SC-T | -40 to 75°C | Multi-mode SC |
| IMC-21A-M-ST-T | -40 to 75°C | Multi-mode ST |
| IMC-21A-S-SC-T | -40 to 75°C | Single-mode SC |

# IMC-21GA Series

*Industrial Gigabit Ethernet-to-fiber media converters*

### Features and Benefits

- Supports 1000Base-SX/LX with SC connector or SFP slot
- Link Fault Pass-Through (LFPT)
- 10K jumbo frame
- Redundant power inputs
- -40 to 75°C operating temperature range (-T models)
- Supports Energy-Efficient Ethernet (IEEE 802.3az)

### Certifications

## Introduction

The IMC-21GA industrial Gigabit media converters are designed to provide reliable and stable 10/100/1000BaseT(X)-to-100/1000Base-SX/LX or selected 100/1000Base SFP module media conversion. The IMC-21GA supports IEEE 802.3az (Energy-Efficient Ethernet) and 10K jumbo frames, allowing it to save power and enhance transmission performance. All IMC-21GA models are subjected to a 100% burn-in test, and they support a standard operating temperature range of 0 to 60°C and an extended operating temperature range of -40 to 75°C.

## Specifications

### Ethernet Interface

| | |
|---|---|
| 10/100/1000BaseT(X) Ports (RJ45 connector) | 1 |
| 1000BaseSFP Slots | IMC-21GA models: 1 |
| 1000BaseSX Ports (multi-mode SC connector) | IMC-21GA-SX-SC models: 1 |
| 1000BaseLX Ports (single-mode SC connector) | IMC-21GA-LX-SC models: 1 |
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| Optical Fiber | |

| | 1000BaseSX | 1000BaseLX |
|---|---|---|
| Wavelength | 850 nm | 1310 nm |
| Tx Output (dBm) | -3 to -10 | -3 to -9 |
| Rx Sensitivity (dBm) | -3 to -20 | -3 to -21 |
| Link Budget (dBm) | 10 | 12 |
| Typical Distance | 500 m | 10 km |

### Power Parameters

| | |
|---|---|
| Input Current | 285 mA @ 12 VDC |
| Input Voltage | 12 to 48 VDC |
| Overload Current Protection | Supported |

| | |
|---|---|
| Power Connector | Terminal block |
| Power Consumption | 285 mA @ 12 VDC |

## Physical Characteristics

| | |
|---|---|
| Housing | Metal |
| Dimensions | 30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in) |
| Weight | 170 g (0.37 lb) |
| Installation | DIN-rail mounting |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: -10 to 60°C (14 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 75°C (-40 to 167°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 1 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

## MTBF

| | |
|---|---|
| Time | 2,762,058 hrs |
| Standards | MIL-HDBK-217F |

## Warranty

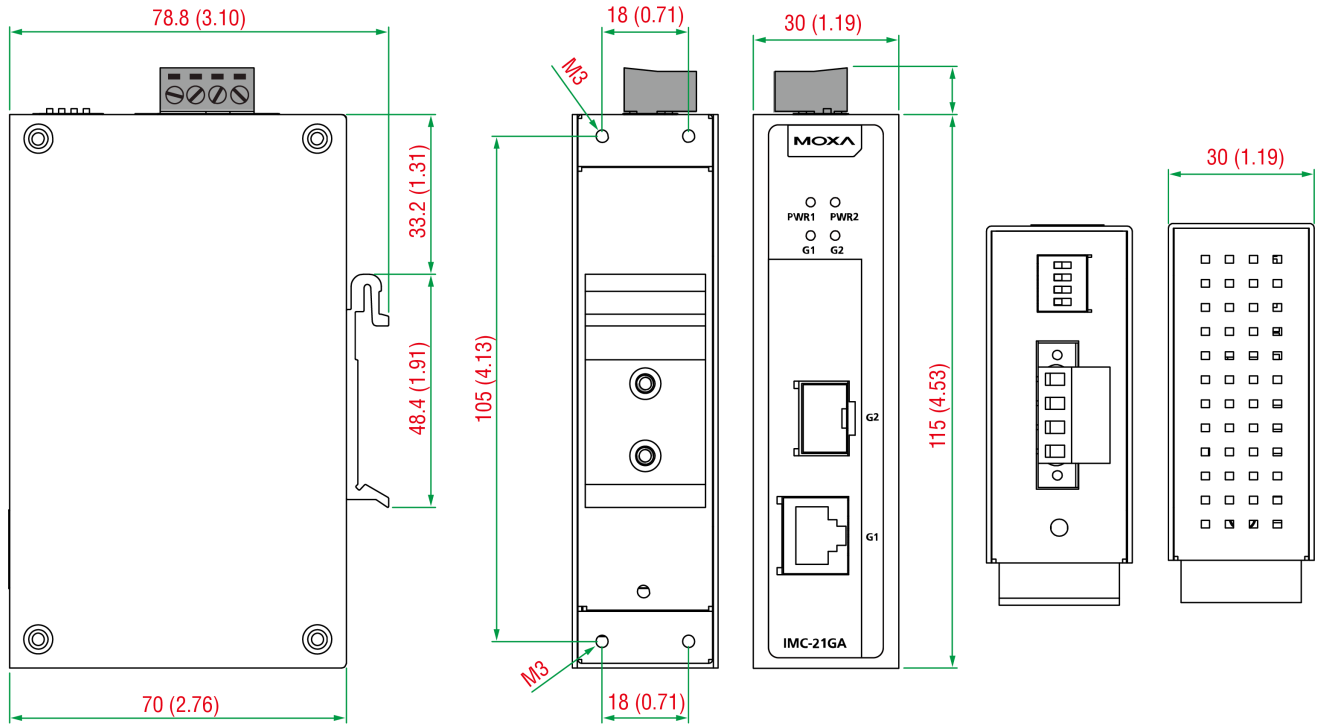
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

## Package Contents

| | |
|---|---|
| Device | 1 x IMC-21GA Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Rear View | Front View | Top View | Bottom View

## Ordering Information

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| IMC-21GA | -10 to 60°C | SFP |
| IMC-21GA-T | -40 to 75°C | SFP |
| IMC-21GA-SX-SC | -10 to 60°C | Multi-mode SC |
| IMC-21GA-SX-SC-T | -40 to 75°C | Multi-mode SC |
| IMC-21GA-LX-SC | -10 to 60°C | Single-mode SC |
| IMC-21GA-LX-SC-T | -40 to 75°C | Single-mode SC |

## Accessories (sold separately)

### SFP Modules

| | |
|---|---|
| SFP-1G10ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G10ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1G10BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G10BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |

| | |
|---|---|
| | Applicable Models:<br>IMC-21GA-T |
| SFP-1G20ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G20ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1G20BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G20BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1G40ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G40ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1G40BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1G40BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1GLHLC-T | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1GLHXLC | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GLHLC | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GLXLC-T | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1GZXLC | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |

| | |
|---|---|
| SFP-1GEZXLC-120 | SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GLSXLC | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GLSXLC-T | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1GLXLC | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GLHXLC-T | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1GEZXLC | SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature<br><br>Applicable Models:<br>IMC-21GA |
| SFP-1GZXLC-T | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1FELLC-T | SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1FEMLC-T | SFP module with 1 100Base multi-mode with LC connector for 4 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |
| SFP-1FESLC-T | SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature<br><br>Applicable Models:<br>IMC-21GA-T |

### Wall-Mounting Kits

| | |
|---|---|
| WK-30 | Wall-mounting kit, 2 plates, 4 screws, 40 x 30 x 1 mm |

### Power Supplies

| | |
|---|---|
| DR-75-24 | 75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°C operating temperature |
| DR-4524 | 45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50° C operating temperature |
| DR-120-24 | 120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature |

# IMC-101 Series

*Industrial Ethernet-to-fiber media converters*


### Features and Benefits

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- Link Fault Pass-Through (LFPT)
- Power failure, port break alarm by relay output
- Redundant power inputs
- -40 to 75°C operating temperature range (-T models)
- Designed for hazardous locations (Class 1 Div. 2/Zone 2, IECEx)

### Certifications

## Introduction

The IMC-101 industrial media converters provide industrial-grade media conversion between 10/100BaseT(X) and 100BaseFX (SC/ST connectors). The IMC-101 converters' reliable industrial design is excellent for keeping your industrial automation applications running continuously, and each IMC-101 converter comes with a relay output warning alarm to help prevent damage and loss. The IMC-101 media converters are designed for harsh industrial environments, such as in hazardous locations (Class 1, Division 2/Zone 2, IECEx, DNV, and GL Certification), and comply with FCC, UL, and CE standards. Models in the IMC-101 Series support an operating temperature from 0 to 60°C, and an extended operating temperature from -40 to 75°C. All IMC-101 converters are subjected to a 100% burn-in test.

## Specifications

### Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | IMC-101-M-SC/M-SC-IEX Series: 1 |
| 100BaseFX Ports (multi-mode ST connector) | IMC-101-M-ST/M-ST-IEX Series: 1 |
| 100BaseFX Ports (single-mode SC connector) | IMC-101-S-SC/S-SC-80/S-SC-IEX/S-SC-80-IEX Series: 1 |
| Magnetic Isolation Protection | 1.5 kV (built-in) |

Optical Fiber

| | | 100BaseFX | | | |
|---|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode (40 km) | Single-Mode (80 km) |
| Fiber Cable Type | | OM1 | 50/125 µm 800 MHz x km | G.652 | G.652 |
| Typical Distance | | 4 km | 5 km | 40 km | 80 km |
| Wavelength | Typical (nm) | 1300 | | 1310 | 1550 |
| | TX Range (nm) | 1260 to 1360 | | 1280 to 1340 | 1530 to 1570 |
| | RX Range (nm) | 1100 to 1600 | | 1100 to 1600 | 1100 to 1600 |
| Optical Power | TX Range (dBm) | -10 to -20 | | 0 to -5 | 0 to -5 |
| | RX Range (dBm) | -3 to -32 | | -3 to -34 | -3 to -34 |

| | | 100BaseFX | | | |
|---|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode (40 km) | Single-Mode (80 km) |
| Fiber Cable Type | | OM1 | 50/125 µm 800 MHz x km | G.652 | G.652 |
| | Link Budget (dB) | 12 | | 29 | 29 |
| | Dispersion Penalty (dB) | 3 | | 1 | 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).

## Power Parameters

| | |
|---|---|
| Input Current | 320 mA @ 12 VDC |
| Input Voltage | 12 to 45 VDC |
| Overload Current Protection | Supported |
| Power Connector | Terminal block |
| Power Consumption | 320 mA @ 12 VDC |

## Physical Characteristics

| | |
|---|---|
| IP Rating | IP30 |
| Housing | Metal |
| Dimensions | 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in) |
| Weight | 630 g (1.39 lb) |
| Installation | DIN-rail mounting |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: 0 to 60°C (32 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |

| | |
|---|---|
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |
| Hazardous Locations | -IEX models: IECEx |

### MTBF

| | |
|---|---|
| Time | 401,000 hrs |
| Standards | MIL-HDBK-217F |

### Warranty

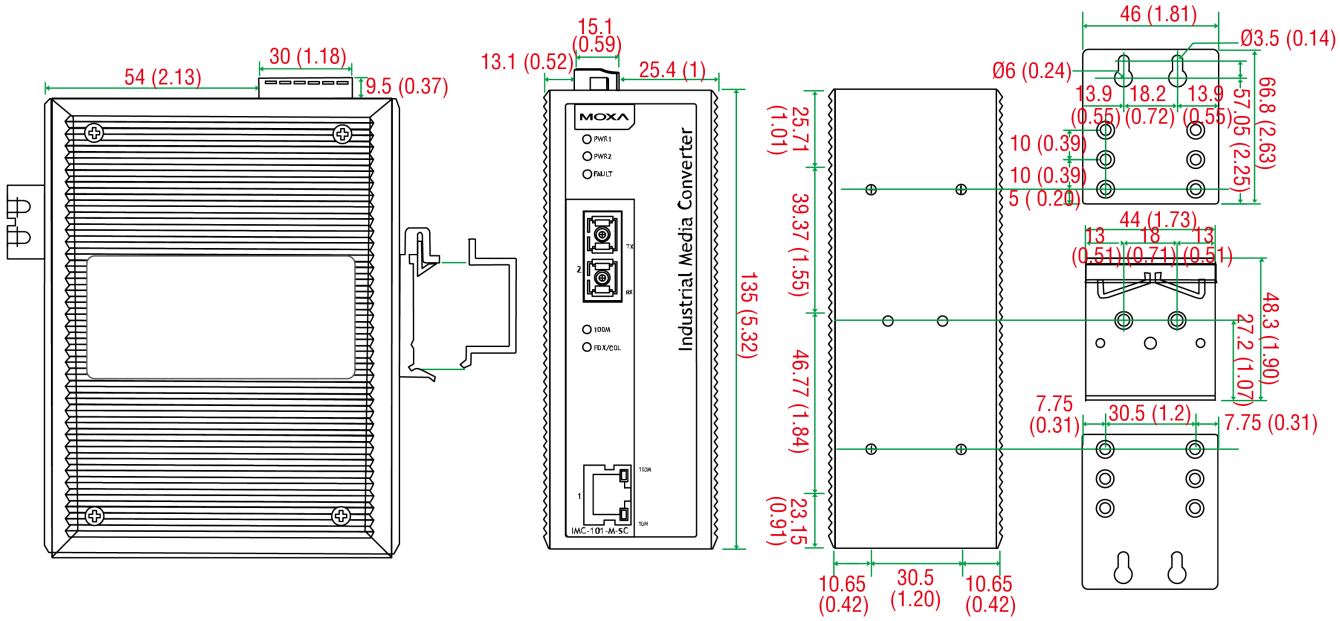
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x IMC-101 Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Front View | Rear View | Panel-Mounting Kit

## Ordering Information

| Model Name | Operating Temp. | Fiber Module Type | IECEx | Fiber Transmission Distance |
|---|---|---|---|---|
| IMC-101-M-SC | 0 to 60°C | Multi-mode SC | – | 5 km |
| IMC-101-M-SC-T | -40 to 75°C | Multi-mode SC | – | 5 km |
| IMC-101-M-SC-IEX | 0 to 60°C | Multi-mode SC | ✓ | 5 km |
| IMC-101-M-SC-T-IEX | -40 to 75°C | Multi-mode SC | ✓ | 5 km |
| IMC-101-M-ST | 0 to 60°C | Multi-mode ST | – | 5 km |
| IMC-101-M-ST-T | -40 to 75°C | Multi-mode ST | – | 5 km |

| Model Name | Operating Temp. | Fiber Module Type | IECEx | Fiber Transmission Distance |
|---|---|---|---|---|
| IMC-101-M-ST-IEX | 0 to 60°C | Multi-mode ST | ✓ | 5 km |
| IMC-101-M-ST-T-IEX | -40 to 75°C | Multi-mode ST | ✓ | 5 km |
| IMC-101-S-SC | 0 to 60°C | Single-mode SC | – | 40 km |
| IMC-101-S-SC-T | -40 to 75°C | Single-mode SC | – | 40 km |
| IMC-101-S-SC-IEX | 0 to 60°C | Single-mode SC | ✓ | 40 km |
| IMC-101-S-SC-T-IEX | -40 to 75°C | Single-mode SC | ✓ | 40 km |
| IMC-101-S-SC-80 | 0 to 60°C | Single-mode SC | – | 80 km |
| IMC-101-S-SC-80-T | -40 to 75°C | Single-mode SC | – | 80 km |

## Accessories (sold separately)

### Power Supplies

| | |
|---|---|
| DR-4524 | 45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50° C operating temperature |
| DR-120-24 | 120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature |
| DR-75-24 | 75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°C operating temperature |

### DIN-Rail Mounting Kits

| | |
|---|---|
| DK-DC50131-01 | DIN-rail mounting kit, 6 screws |

### Wall-Mounting Kits

| | |
|---|---|
| WK-46 | Wall-mounting kit, 2 plates, 8 screws, 46.5 x 66.8 x 1 mm |
| WK-51-01 | Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm |

### Rack-Mounting Kits

| | |
|---|---|
| RK-4U | 19-inch rack-mounting kit |

# IMC-101G Series

*Industrial Gigabit Ethernet-to-fiber media converters*


### Features and Benefits

- 10/100/1000BaseT(X) and 1000BaseSFP slot supported
- Link Fault Pass-Through (LFPT)
- Power failure, port break alarm by relay output
- Redundant power inputs
- -40 to 75°C operating temperature range (-T models)
- Designed for hazardous locations (Class 1 Div. 2/Zone 2, IECEx)
- More than 20 options available[1]

### Certifications

## Introduction

The IMC-101G industrial Gigabit modular media converters are designed to provide reliable and stable 10/100/1000BaseT(X)-to-1000BaseSX/LX/LHX/ZX media conversion in harsh industrial environments. The IMC-101G's industrial design is excellent for keeping your industrial automation applications running continuously, and each IMC-101G converter comes with a relay output warning alarm to help prevent damage and loss. All IMC-101G models are subjected to a 100% burn-in test, and they support a standard operating temperature range of 0 to 60°C and an extended operating temperature range of -40 to 75°C.

## Specifications

| Ethernet Interface | |
|---|---|
| 10/100/1000BaseT(X) Ports (RJ45 connector) | 1 |
| 100/1000BaseSFP Ports | 1 |
| Magnetic Isolation Protection | 1.5 kV (built-in) |

| Power Parameters | |
|---|---|
| Input Current | 220 mA @ 12 VDC |
| Input Voltage | 12 to 45 VDC |
| Overload Current Protection | Supported |
| Power Connector | Terminal block |
| Power Consumption | 220 mA @ 12 VDC |

| Physical Characteristics | |
|---|---|
| Housing | Metal |
| Dimensions | 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in) |
| Weight | 630 g (1.39 lb) |
| Installation | DIN-rail mounting |

1. See the SFP-1G Series datasheet for details.

## Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: 0 to 60°C (32 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |
| Hazardous Locations | Standard models: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2<br>-IEX models: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2, IECEx, UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2 |

## MTBF

| | |
|---|---|
| Time | 500,540 hrs |
| Standards | Telcordia (Bellcore), GB |

## Warranty

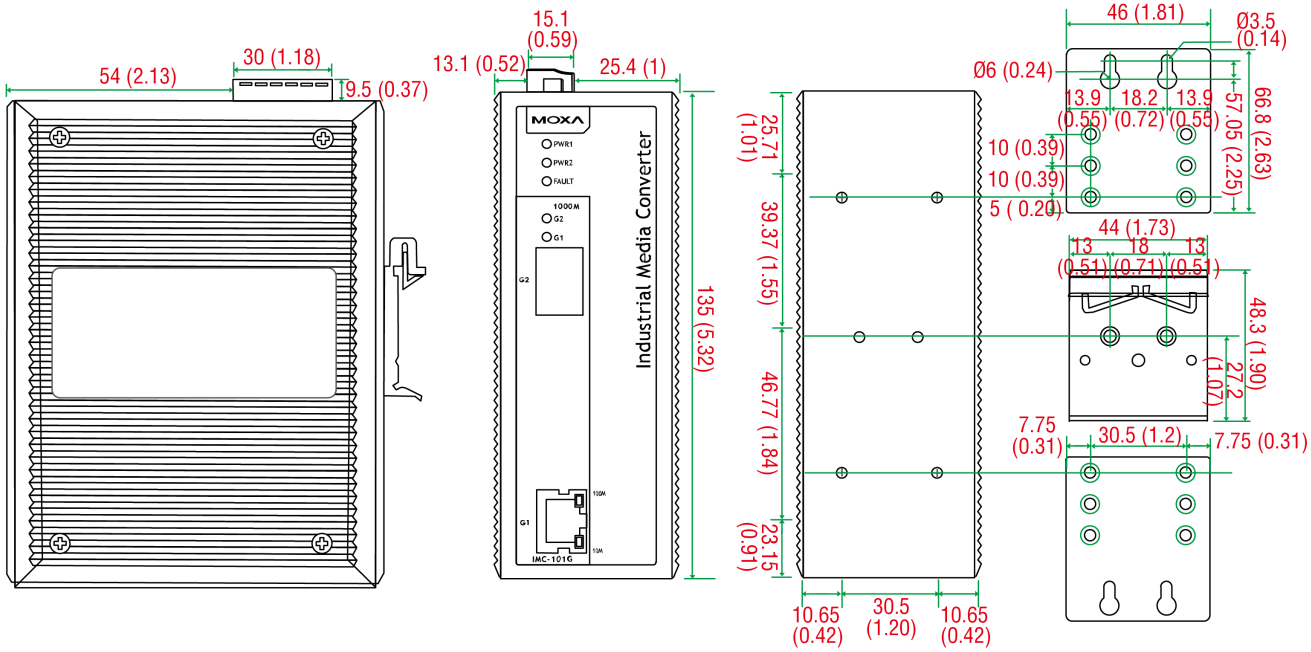
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

## Package Contents

| | |
|---|---|
| Device | 1 x IMC-101G Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Front View | Rear View | Panel-Mounting Kit

## Ordering Information

| Model Name | Operating Temp. | IECEx Supported |
|---|---|---|
| IMC-101G | 0 to 60°C | – |
| IMC-101G-T | -40 to 75°C | – |
| IMC-101G-IEX | 0 to 60°C | ✓ |
| IMC-101G-T-IEX | -40 to 75°C | ✓ |

## Accessories (sold separately)

### SFP Modules

| | |
|---|---|
| SFP-1G10ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |
| SFP-1G10ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G10BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G10BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G20ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |
| SFP-1G20ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G20BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G20BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G40ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |

| | |
|---|---|
| SFP-1G40ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G40BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G40BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1GEZXLC | SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature |
| SFP-1GEZXLC-120 | SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHLC | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHLC-T | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature |
| SFP-1GLHXLC | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHXLC-T | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature |
| SFP-1GSXLC | SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, 0 to 60°C operating temperature |
| SFP-1GSXLC-T | SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, -40 to 85°C operating temperature |
| SFP-1GLSXLC | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature |
| SFP-1GLSXLC-T | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, -40 to 85°C operating temperature |
| SFP-1GZXLC | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature |
| SFP-1GZXLC-T | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature |
| SFP-1GLXLC | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature |
| SFP-1GLXLC-T | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature |

### Rack-Mounting Kits

| | |
|---|---|
| RK-4U | 19-inch rack-mounting kit |

### Wall-Mounting Kits

| | |
|---|---|
| WK-46 | Wall-mounting kit, 2 plates, 8 screws, 46.5 x 66.8 x 1 mm |

### Power Supplies

| | |
|---|---|
| DR-75-24 | 75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°C operating temperature |
| DR-120-24 | 120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature |
| DR-4524 | 45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50° C operating temperature |

# IMC-P101 Series

*IEEE 802.3af PoE Ethernet-to-fiber media converters*

### Features and Benefits

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- IEEE 802.3af-compliant PoE PSE equipment
- Power failure alarm by relay output
- Supports store-and-forward mode and pass-through mode
- -40 to 75°C operating temperature range (-T models)
- Redundant dual DC power inputs

### Certifications

## Introduction

IMC-P101 Ethernet-to-fiber media converters provide Ethernet media conversion from 10/100BaseT(X) to 100BaseFX (with SC or ST connectors). These converters are classified as power source equipment (PSE), and when used in this way, they provide up to 15.4 watts to IEEE 802.3af-compliant powered devices (PDs), eliminating the need for additional wiring. The IMC-P101 converters support IEEE 802.3/802.3u/802.3x with 10/100M, full/half-duplex, and MDI/MDI-X auto-sensing, providing a complete solution for your industrial Ethernet network.

## Specifications

Ethernet Interface

| | |
|---|---|
| 100BaseFX Ports (multi-mode SC connector) | IMC-P101-M-SC Series: 1 |
| 100BaseFX Ports (multi-mode ST connector) | IMC-P101-M-ST Series: 1 |
| 100BaseFX Ports (single-mode SC connector) | IMC-P101-S-SC Series: 1 |
| 100BaseFX Ports (single-mode ST connector) | IMC-P101-S-ST Series: 1 |

Optical Fiber

| | | 100BaseFX | | |
|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 µm | G.652 |
| | | | 800 MHz x km | |
| Typical Distance | | 4 km | 5 km | 40 km |
| Wavelength | Typical (nm) | 1300 | | 1310 |
| | TX Range (nm) | 1260 to 1360 | | 1280 to 1340 |
| | RX Range (nm) | 1100 to 1600 | | 1100 to 1600 |

| | | 100BaseFX | | |
|---|---|---|---|---|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 µm | G.652 |
| | | | 800 MHz x km | |
| 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).

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| PoE Ports (10/100BaseT(X), RJ45 connector) | 1 |

### Power Parameters

| | |
|---|---|
| Input Current | 130 mA @ 48 VDC |
| Input Voltage | 46 to 57 VDC |
| Overload Current Protection | Supported |
| Power Consumption | 130 mA @ 48 VDC |

### Physical Characteristics

| | |
|---|---|
| Housing | Metal |
| Dimensions | 144.5 x 122.3 x 51.65 mm (5.69 x 4.81 x 2.03 in) |
| Weight | 710 g (1.56 lb) |
| Installation | DIN-rail mounting |

### Environmental Limits

| | |
|---|---|
| Operating Temperature | Standard Models: 0 to 60°C (32 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

### Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-2<br>IEC 60068-2-3 |

| | |
|---|---|
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 435,210 hrs |
| Standards | Telcordia (Bellcore), GB |

### Warranty

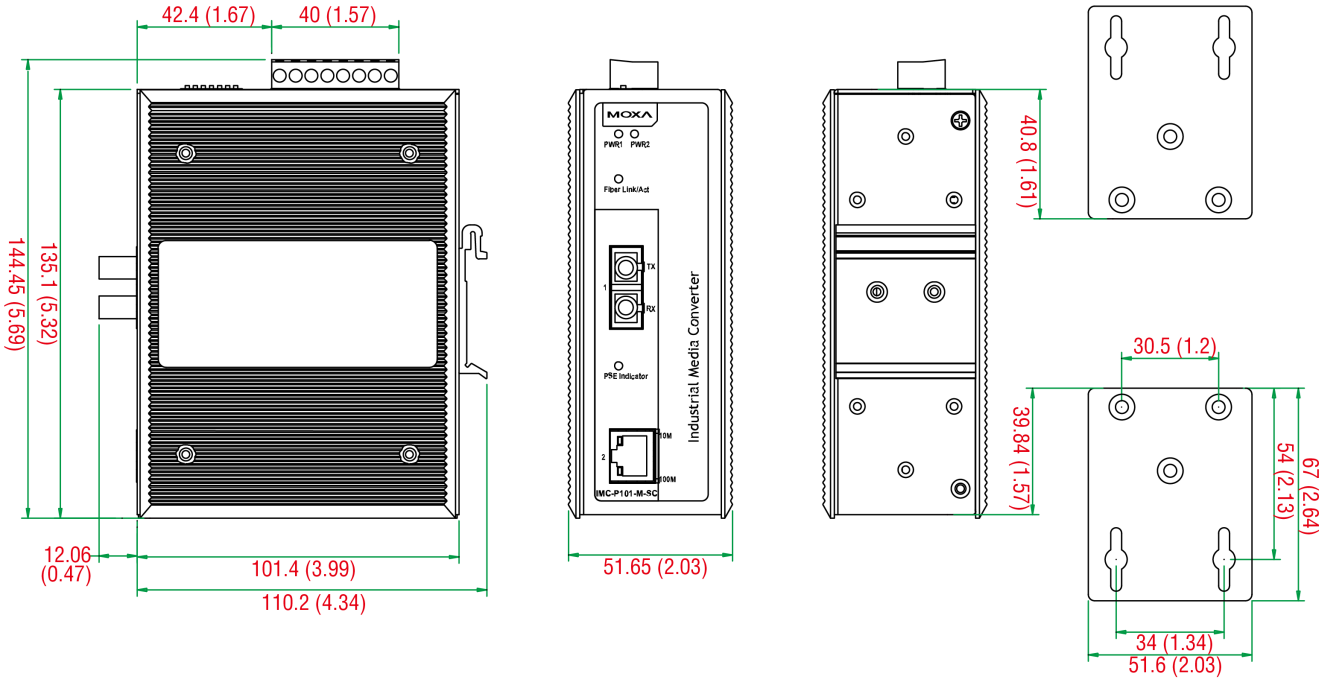
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x IMC-P101 Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Front View | Rear View | Panel-Mounting Kit (Optional)

## Ordering Information

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| IMC-P101-M-SC | 0 to 60°C | Multi-mode SC |
| IMC-P101-M-ST | 0 to 60°C | Multi-mode ST |
| IMC-P101-S-SC | 0 to 60°C | Single-mode SC |
| IMC-P101-S-ST | 0 to 60°C | Single-mode ST |
| IMC-P101-M-SC-T | -40 to 75°C | Multi-mode SC |
| IMC-P101-M-ST-T | -40 to 75°C | Multi-mode ST |

| Model Name | Operating Temp. | Fiber Module Type |
|---|---|---|
| IMC-P101-S-SC-T | -40 to 75°C | Single-mode SC |
| IMC-P101-S-ST-T | -40 to 75°C | Single-mode ST |

## Accessories (sold separately)

### Rack-Mounting Kits

| | |
|---|---|
| RK-4U | 19-inch rack-mounting kit |

### Wall-Mounting Kits

| | |
|---|---|
| WK-46 | Wall-mounting kit, 2 plates, 8 screws, 46.5 x 66.8 x 1 mm |

# PTC-101-M12 Series

*IEC 61850-3 and railway Ethernet-to-fiber media converters*

### Features and Benefits

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- Link Fault Pass-Through (LFPT)
- Power failure alarm by relay output (LV model only)
- -40 to 85°C operating temperature range
- Redundant dual DC power inputs (LV model only)
- Integrated high-reliability power supply eliminates the need for external power transformer
- Compliant with EN 50121-4
- Complies with all EN 50155 mandatory test items[1]

### Certifications

EN 50155 EN 50121-4 c UL us LISTED CE

## Introduction

The PTC-101 Ethernet-to-fiber media converters convert from 10/100BaseT(X) to 100BaseFX. Models are available with either SC, ST, or LC connectors. The PTC-101 converters eliminate the need for additional wiring, and support IEEE 802.3 and IEEE 802.3u/x protocols with 10/100M, full/half-duplex, and MDI/MDI-X auto-sensing to provide a total solution for your industrial Ethernet networks. The PTC-101 is compliant with mandatory sections of EN 50155, covering operating temperature, power input voltage, surge, ESD, and vibration, as well as conformal coating and power insulation, making the switches suitable for a variety of industrial applications.

## Specifications

| Ethernet Interface | |
|---|---|
| 10/100BaseT(X) Ports (M12 D-coded 4-pin female connector) | 1 |
| 100BaseFX Ports (single-mode SC connector) | PTC-101-M12-S-SC Series: 1 |
| 100BaseFX Ports (single-mode ST connector) | PTC-101-M12-S-ST Series: 1 |

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Compliance.pdf

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| Optical Fiber | |

| | 100BaseFX |
|---|---|
| | Single-Mode |
| Wavelength | 1310 nm |
| Max. TX | 0 dBm |
| Min. TX | -5 dBm |
| RX Sensitivity | -34 dBm |
| Link Budget | 29 dB |
| Typical Distance | 40 km |
| Saturation | -3 dBm |

a. 50/125 µm, 800 MHz x km fiber optic cable.

## Power Parameters

| | |
|---|---|
| Input Current | 170 mA @ 20 VDC |
| Input Voltage | 20 to 72 VDC |
| Overload Current Protection | Supported |
| Power Consumption | 170 mA @ 20 VDC |

## Physical Characteristics

| | |
|---|---|
| Housing | Metal |
| Dimensions | 152.15 x 126.46 x 66.65 mm (5.99 x 4.86 x 2.62 in) |
| Weight | Packaged: 875 g (1.92 lb)<br>Product only: 690 g (1.52 lb) |
| Installation | DIN-rail mounting |
| Protection | -CT models: PCB conformal coating |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | -40 to 85°C (-40 to 185°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-14<br>IEC 60068-2-2<br>IEC 60068-2-3 |

| | |
|---|---|
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 1,211,613 hrs |
| Standards | MIL-HDBK-217F |

### Warranty

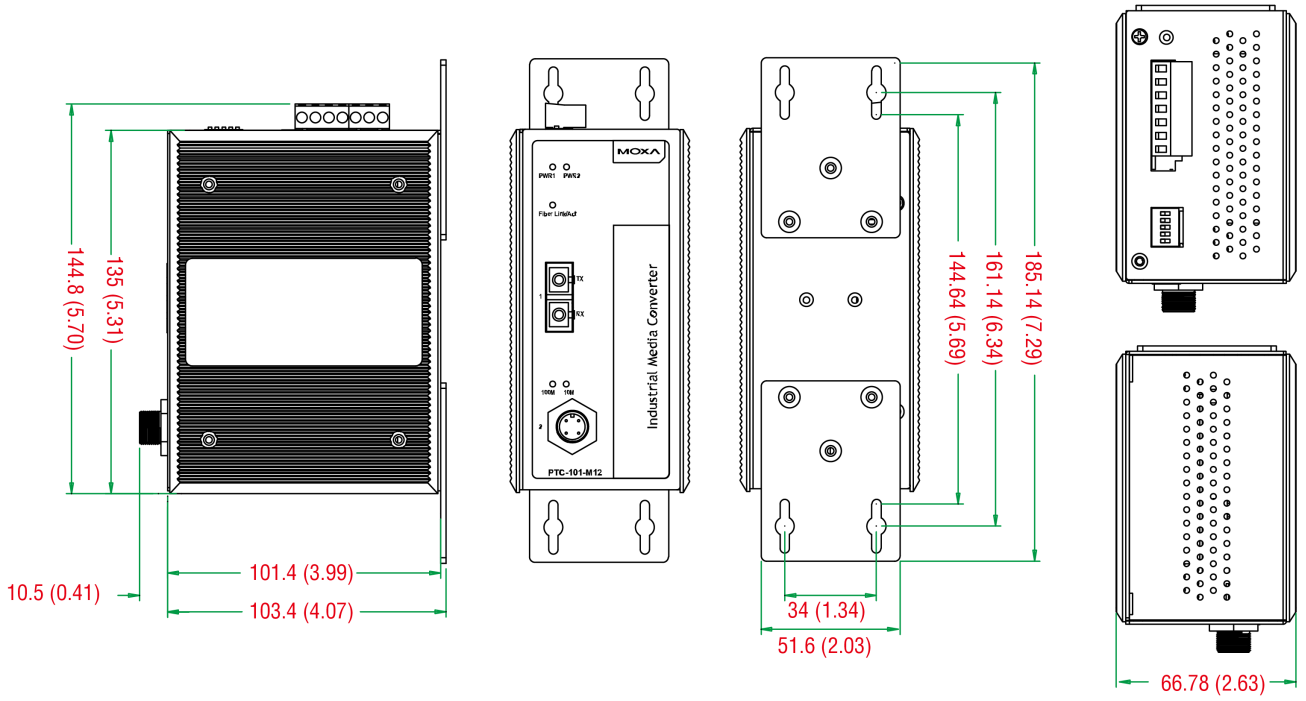
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x PTC-101-M12 Series media converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




Side View | Front View | Panel-Mounting Kit (Optional) | Top and Bottom View

## Ordering Information

| Model Name | Fiber Module Type | Conformal Coating |
|---|---|---|
| PTC-101-M12-S-SC-LV-T | Single-mode SC | – |
| PTC-101-M12-S-ST-LV-T | Single-mode ST | – |
| PTC-101-M12-S-SC-LV-CT-T | Single-mode SC | ✓ |
| PTC-101-M12-S-ST-LV-CT-T | Single-mode ST | ✓ |

## Accessories (sold separately)

### Wireless AP Mounting Kits

| | |
|---|---|
| DK-DC50131 | DIN-rail mounting kit |

### DIN-Rail Mounting Kits

| | |
|---|---|
| DK-DC50131-01 | DIN-rail mounting kit, 6 screws |

### Wall-Mounting Kits

| | |
|---|---|
| WK-51 | Wall-mounting kit |
| WK-51-01 | Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm |

# PTC-101 Series

*IEC 61850-3 Ethernet-to-fiber media converters*

### Features and Benefits

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- Link Fault Pass-Through (LFPT)
- Power failure alarm by relay output (LV model only)
- -40 to 85°C operating temperature range
- Redundant dual DC power inputs (LV model only)
- Integrated high-reliability power supply eliminates the need for external power transformer

### Certifications

## Introduction

The PTC-101 Ethernet-to-fiber media converters convert from 10/100BaseT(X) to 100BaseFX. Models are available with either SC, ST, or LC connectors. The PTC-101 converters eliminate the need for additional wiring, and support IEEE 802.3 and IEEE 802.3u/x protocols with 10/100M, full/half-duplex, and MDI/MDI-X auto-sensing to provide a total solution for your industrial Ethernet networks. The PTC-101 is compliant with mandatory sections of IEC 61850-3, covering operating temperature, power input voltage, surge, ESD, and vibration, as well as conformal coating and power insulation, making the media converters suitable for a variety of industrial applications.

## Specifications

Ethernet Interface

| | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 1 |
| 100BaseFX Ports (multi-mode SC connector) | PTC-101-M-SC-HV/M-SC-LV: 1 |
| 100BaseFX Ports (multi-mode ST connector) | PTC-101-M-ST-HV/M-ST-LV: 1 |
| 100BaseFX Ports (single-mode SC connector) | PTC-101-S-SC-HV/S-SC-LV: 1 |
| 100BaseFX Ports (single-mode ST connector) | PTC-101-S-ST-HV/S-ST-LV: 1 |
| 100BaseFX Ports (multi-mode LC connector) | PTC-101-M-LC-HV/M-LC-LV: 1 |
| 100BaseFX Ports (single-mode LC connector) | PTC-101-S-LC-HV/S-LC-LV: 1 |

| | |
|---|---|
| Magnetic Isolation Protection | 1.5 kV (built-in) |
| Optical Fiber | |

| | 100BaseFX | |
|---|---|---|
| | Multi-Mode | Single-Mode |
| Wavelength | 1300 nm | 1310 nm |
| Max. TX | -10 dBm | 0 dBm |
| Min. TX | -20 dBm | -5 dBm |
| RX Sensitivity | -32 dBm | -34 dBm |
| Link Budget | 12 dB | 29 dB |
| Typical Distance | 5 km[a]<br>4 km[b] | 40 km[c] |
| Saturation | -6 dBm | -3 dBm |

a. 50/125 µm, 800 MHz x km fiber optic cable
b. 62.5/125 µm, 500 MHz x km fiber optic cable
c. 9/125 µm single-mode fiber optic cable

## Power Parameters

| | |
|---|---|
| Input Voltage | LV-DC models: 20 to 72 VDC<br>HV-AC models: 85 to 264 VAC<br>HV-DC models: 88 to 300 VDC |
| Input Current | LV-DC models: 170 mA @ 20 VDC<br>HV-AC models: 73 mA @ 85 VDC<br>HV-DC models: 47 mA @ 88 VDC |
| Overload Current Protection | Supported |
| Power Consumption | LV-DC models: 170 mA @ 20 VDC<br>HV-AC models: 73 mA @ 85 VDC<br>HV-DC models: 47 mA @ 88 VDC |

## Physical Characteristics

| | |
|---|---|
| Housing | Metal |
| Dimensions | 152.15 x 126.46 x 66.65 mm (5.99 x 4.86 x 2.62 in) |
| Weight | Packaged: 875 g (1.92 lb)<br>Product only: 690 g (1.52 lb) |
| Installation | DIN-rail mounting |

## Environmental Limits

| | |
|---|---|
| Operating Temperature | -40 to 85°C (-40 to 185°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m |

| | |
|---|---|
| | IEC 61000-4-8 PFMF<br>IEC 61000-4-11 DIPs |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-14<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, UL 60950-1 |
| Vibration | IEC 60068-2-6 |
| Power Substation | IEC 61850-3 |

### MTBF

| | |
|---|---|
| Time | 1,211,613 hrs |
| Standards | MIL-HDBK-217F |

### Warranty

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

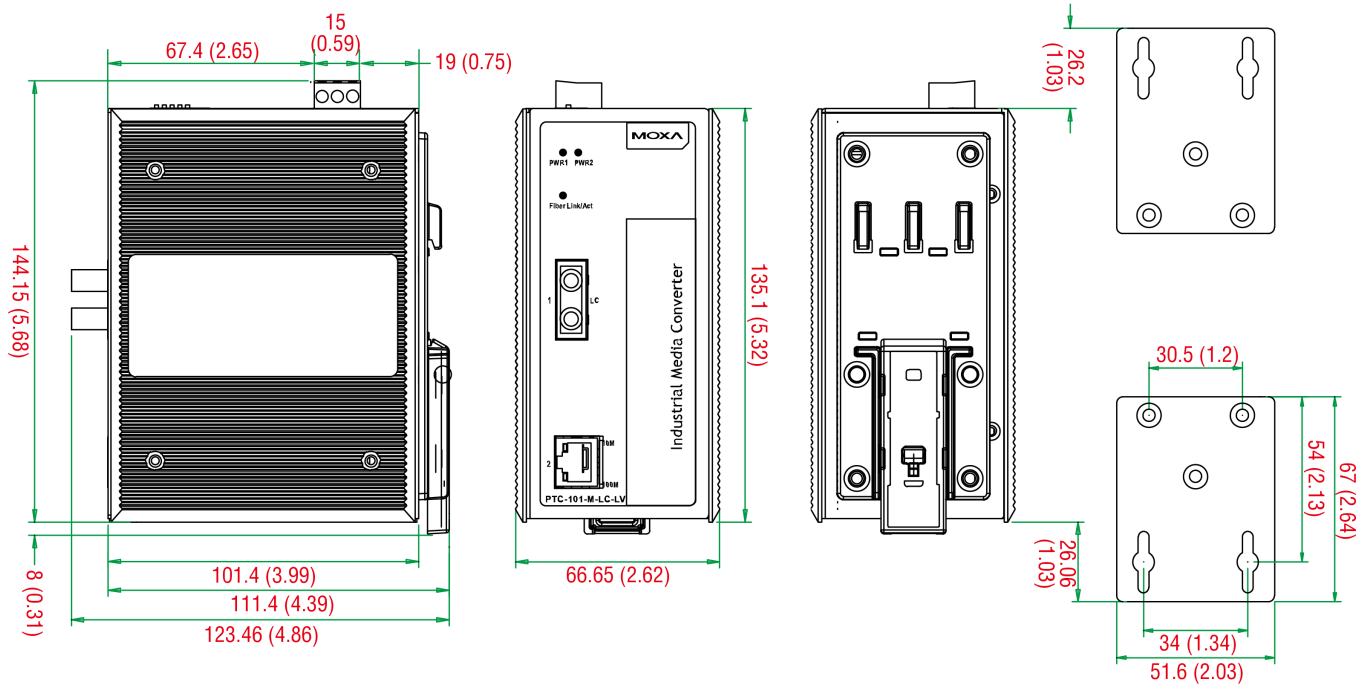
### Package Contents

| | |
|---|---|
| Device | 1 x PTC-101 Series media converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

**PTC-101-M-ST-HV (other models available by request)**

Unit: mm (inch)




Side View | Front View | Rear View | Panel-Mounting Kit (Optional)

## Ordering Information

| Model Name | Fiber Module Type | Input Voltage |
|---|---|---|
| PTC-101-M-SC-LV | Multi-mode SC | 20-72 VDC |
| PTC-101-M-ST-LV | Multi-mode ST | 20-72 VDC |
| PTC-101-M-LC-LV | Multi-mode LC | 20-72 VDC |
| PTC-101-S-SC-LV | Single-mode SC | 20-72 VDC |
| PTC-101-S-ST-LV | Single-mode ST | 20-72 VDC |
| PTC-101-S-LC-LV | Single-mode LC | 20-72 VDC |
| PTC-101-M-SC-HV | Multi-mode SC | 85-264 VAC<br>88-300 VDC |
| PTC-101-M-ST-HV | Multi-mode ST | 85-264 VAC<br>88-300 VDC |
| PTC-101-M-LC-HV | Multi-mode LC | 85-264 VAC<br>88-300 VDC |
| PTC-101-S-SC-HV | Single-mode SC | 85-264 VAC<br>88-300 VDC |
| PTC-101-S-ST-HV | Single-mode ST | 85-264 VAC<br>88-300 VDC |
| PTC-101-S-LC-HV | Single-mode LC | 85-264 VAC<br>88-300 VDC |

## Accessories (sold separately)

### Wireless AP Mounting Kits

| | |
|---|---|
| DK-DC50131 | Din-rail mounting kit |

### DIN-Rail Mounting Kits

| | |
|---|---|
| DK-DC50131-01 | DIN-rail mounting kit, 6 screws |

### Wall-Mounting Kits

| | |
|---|---|
| WK-51 | Wall-mounting kit |
| WK-51-01 | Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm |

# TRC-190 Series

*19-inch rackmount chassis media converters*

### Features and Benefits

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

### Certifications

## Introduction

The TRC-190 rackmount chassis 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 to enhance reliability. The PWR-190-AC and PWR-190-DC-48 power modules can be installed at the same time.

## Specifications

### Power Parameters

| | |
|---|---|
| Input Voltage | TRC-190-AC: 110 to 240 VAC<br>TRC-190-DC-48: 36 to 53 VDC<br>Redundant dual inputs |
| No. of Power Inputs | 2 |
| Overload Current Protection | Supported |
| Power Consumption | TRC-190-AC: 0.9 A @ 110 VAC<br>TRC-190-DC-48: 2.1 A @ 48 VDC |

### Physical Characteristics

| | |
|---|---|
| Dimensions | 440 x 260 x 88 mm (17.32 x 10.24 x 3.46 in) |
| Installation | 19-inch rack mounting |
| IP Rating | IP30 |
| Weight | 5200 g (11.4 lb) |

### Environmental Limits

| | |
|---|---|
| Ambient Relative Humidity | 5 to 95% (non-condensing) |
| Operating Temperature | 0 to 60°C (32 to 140°F) |
| Storage Temperature (package included) | -20 to 75°C (-4 to 167°F) |

## Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, IEC 60950-1 |
| Vibration | IEC 60068-2-6 |

## MTBF

| | |
|---|---|
| Time | 1,055,112 hrs |
| Standards | Telcordia (Bellcore), GB |

## Warranty

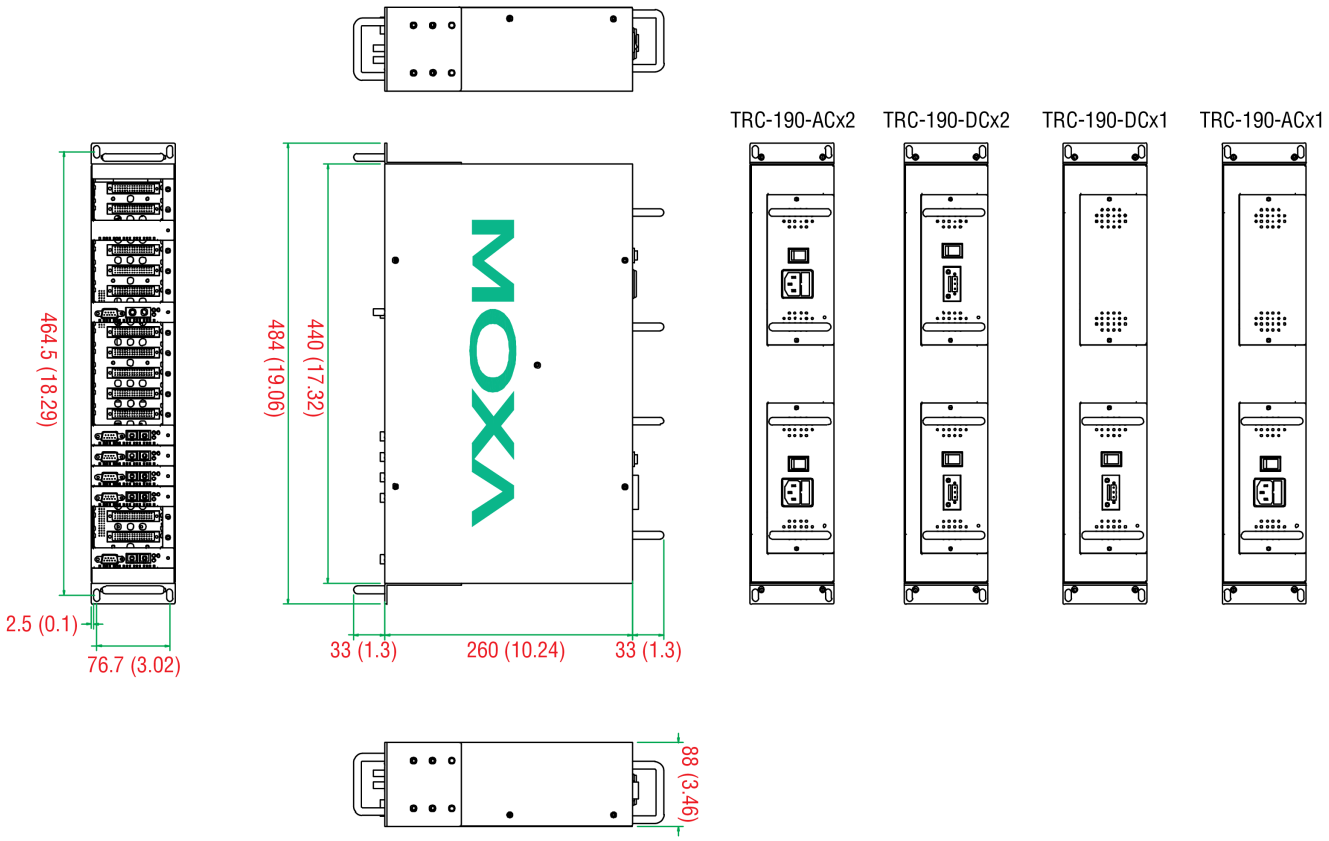
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

## Package Contents

| | |
|---|---|
| Device | 1 x TRC-190 Series converter |
| Bracket | 18 x faceplate and screws |
| Power Supply | 1 x power cord |
| Documentation | 1 x quick installation guide<br>1 x warranty card |
| Note | This product requires additional modules (sold separately) to function. |

## Dimensions

Unit: mm (inch)




## Ordering Information

| Model Name | Input Voltage |
|---|---|
| TRC-190-AC | 100-240 VAC (47-63 Hz) |
| TRC-190-DC-48 | 36-53 VDC |

## Accessories (sold separately)

### Brackets

| | |
|---|---|
| Plate-1 | TRC-190 bracket accessory package, 9 brackets, 9 screws (FMS M3 X 6) |
| BKT-PWR | TRC-190 DIN-rail accessory package, 2 L-shaped metal plates, 8 screws (FMS M4 x 6mm) |

### Communication Modules

| | |
|---|---|
| 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-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 |
| 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, -40 to 75°C |
| CSM-400-1218 | 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -20 to 55°C |
| CSM-400-1218-T | 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -40 to 75°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 |

### Power Cords

| | |
|---|---|
| PWC-C13AU-3B-183 | Power cord with Australian (AU) plug, 1.83 m |
| PWC-C13CN-3B-183 | Power cord with three-prong China (CN) plug, 1.83 m |
| PWC-C13EU-3B-183 | Power cord with Continental Europe (EU) plug, 1.83 m |
| PWC-C13JP-3B-183 | Power cord with Japan (JP) plug, 7A/125V, 1.83 m |
| PWC-C13UK-3B-183 | Power cord with United Kingdom (UK) plug, 1.83 m |
| PWC-C13US-3B-183 | Power cord with United States (US) plug, 1.83 m |

### Power Supplies

| | |
|---|---|
| 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 |

# TRC-2190 Series

*18-slot rackmount chassis managed media converters*

### Features and Benefits

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

### Certifications

## 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 | |
|---|---|
| 10/100BaseT(X) Ports (RJ45 connector) | 2 |

| Ethernet Software Features | |
|---|---|
| Industrial Protocols | SNMPv1/v2c, SNMPv1/v2c Trap |
| Management | DHCP Client, IPv4/IPv6, SNMPv1/v2c, Syslog, TCP/IP, Telnet, TFTP, UDP, Web Console |
| MIB | MIB-II |
| Security | HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH |
| Time Management | NTP Client |

| Power Parameters | |
|---|---|
| Input Voltage | TRC-2190-AC: 110 to 240 VAC, TRC-2190-DC-48V: 36 to 53 VDC |
| No. of Power Inputs | 2 |
| Overload Current Protection | Supported |
| Power Consumption | TRC-2190-AC: 0.9 mA @ 110 VAC<br>TRC-2190-DC-48V: 2.1 mA @ 48 VDC |

| Physical Characteristics | |
|---|---|
| IP Rating | IP30 |
| Dimensions | 440 x 260 x 77 mm (18.6 x 11 x 3.3 in) |

| | |
|---|---|
| Weight | 5.2 g (11.4 lb) |
| Installation | 19-inch rack mounting |

### Environmental Limits

| | |
|---|---|
| Operating Temperature | -20 to 55°C (-4 to 131°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

### Standards and Certifications

| | |
|---|---|
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF |
| Environmental Testing | IEC 60068-2-1<br>IEC 60068-2-14<br>IEC 60068-2-2<br>IEC 60068-2-3 |
| Safety | EN 60950-1, IEC 60950-1 |
| Vibration | IEC 60068-2-6 |

### MTBF

| | |
|---|---|
| Time | 1,055,112 hrs |
| Standards | Telcordia (Bellcore), GB |

### Warranty

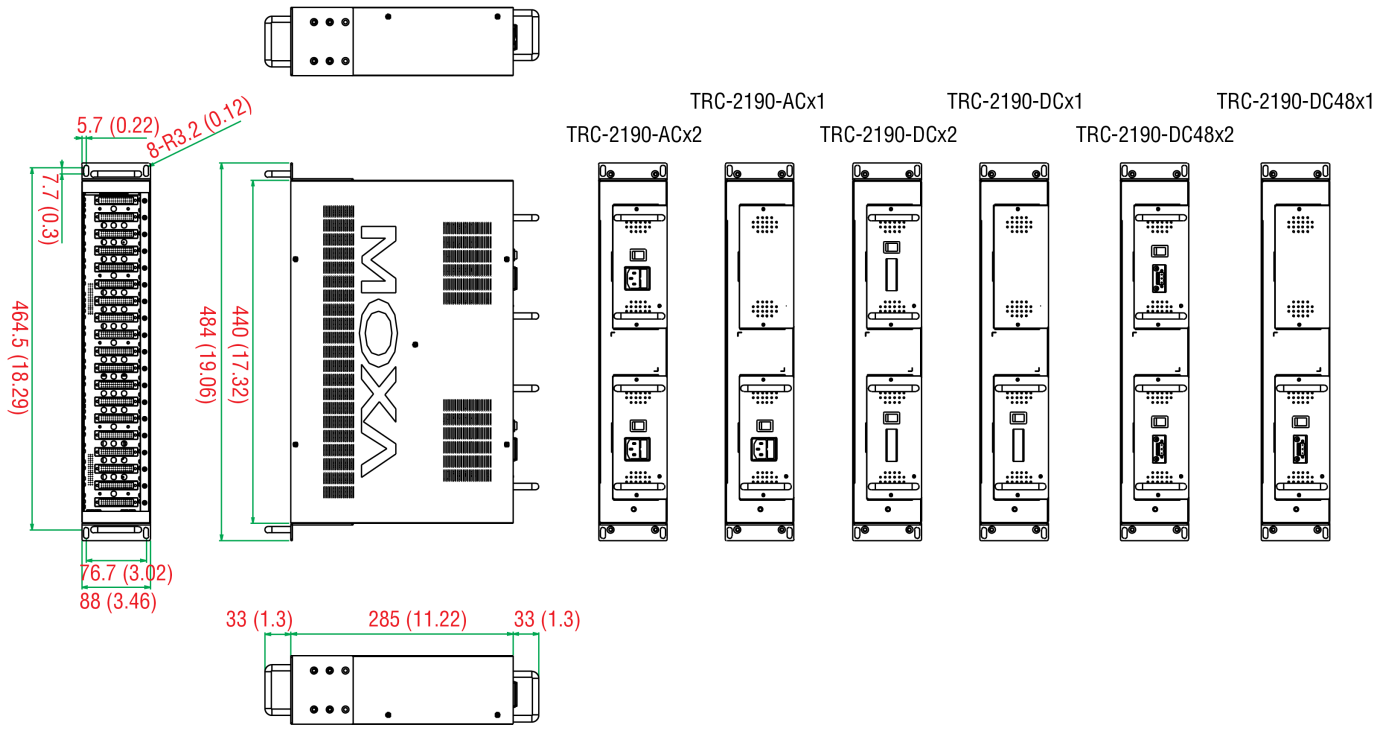
| | |
|---|---|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

### Package Contents

| | |
|---|---|
| Device | 1 x TRC-2190 Series converter |
| Documentation | 1 x quick installation guide<br>1 x warranty card |
| Note | This product requires additional modules (sold separately) to function. |

## Dimensions

Unit: mm (inch)




## Ordering Information

| Model Name | Input Voltage |
|---|---|
| TRC-2190-AC | 100-240 VAC (47-63 Hz) |
| TRC-2190-DC-48V | 36-53 VDC |

## Accessories (sold separately)

### Brackets

| | |
|---|---|
| Plate-1 | TRC-190 bracket accessory package, 9 brackets, 9 screws (FMS M3 X 6) |
| BKT-PWR | TRC-190 DIN-rail accessory package, 2 L-shaped metal plates, 8 screws (FMS M4 x 6mm) |

### Communication Modules

| | |
|---|---|
| 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-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 |
| 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, -40 to 75°C |

| | |
|---|---|
| CSM-400-1218 | 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -20 to 55°C |
| CSM-400-1218-T | 10/100BaseT(X) to 100BaseFX slide-in management module converter, single-mode SC connector, -40 to 75°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 |

### Power Cords

| | |
|---|---|
| PWC-C13AU-3B-183 | Power cord with Australian (AU) plug, 1.83 m |
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| PWC-C13EU-3B-183 | Power cord with Continental Europe (EU) plug, 1.83 m |
| PWC-C13JP-3B-183 | Power cord with Japan (JP) plug, 7A/125V, 1.83 m |
| PWC-C13UK-3B-183 | Power cord with United Kingdom (UK) plug, 1.83 m |
| PWC-C13US-3B-183 | Power cord with United States (US) plug, 1.83 m |

### Power Supplies

| | |
|---|---|
| PWR-2190-AC | 110 to 240 VAC power supply for the TRC-2190-AC |
| PWR-2190-DC-48 | 36 to 53 VDC power supply for the PWR-2190-DC-48 |