

# 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 <sup>a</sup><br>4 km <sup>b</sup> | 40 km <sup>c</sup> |
|                               | Saturation                                                                                                                                                                                                           | -6 dBm                                 | -3 dBm             |
|                               | a. 50/125 $\mu$ m, 800 MHz x km fiber optic cable<br>b. 62.5/125 $\mu$ m, 500 MHz x km fiber optic cable<br>c. 9/125 $\mu$ m single-mode fiber optic cable<br>d. 9/125 $\mu$ m single-mode fiber optic cable (80 km) |                                        |                    |

#### Power Parameters

|                             |                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------|
| Input Voltage               | LV-DC models: 20 to 72 VDC<br>HV-AC models: 100 to 240 VAC<br>HV-DC models: 88 to 300 VDC                           |
| Input Current               | LV-DC models: 150 mA @ 20 to 72 VDC<br>HV-AC models: 200 to 350 mA @ 100 to 240 VAC<br>HV-DC models: 47 mA @ 88 VDC |
| Overload Current Protection | Supported                                                                                                           |
| Power Consumption           | LV-DC models: 150 mA @ 20 to 72 VDC<br>HV-AC models: 200 to 350 mA @ 100 to 240 VAC<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 |

|                       |                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------|
|                       | IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |
| 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 <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

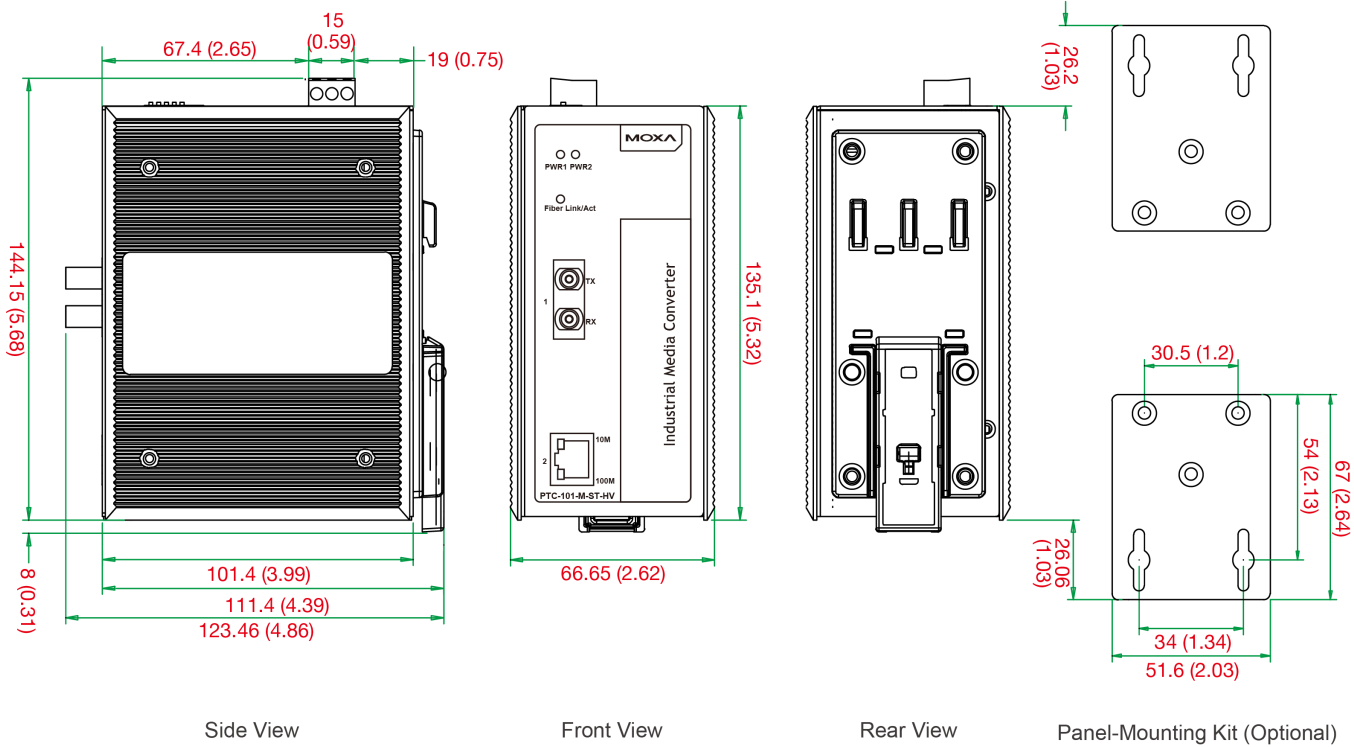
Package Contents

|               |                                                   |
|---------------|---------------------------------------------------|
| 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)



## 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 VAC1088-300 VDC |
| PTC-101-M-ST-HV | Multi-mode ST     | 85-264 VAC1088-300 VDC |
| PTC-101-M-LC-HV | Multi-mode LC     | 85-264 VAC1088-300 VDC |
| PTC-101-S-SC-HV | Single-mode SC    | 85-264 VAC1088-300 VDC |
| PTC-101-S-ST-HV | Single-mode ST    | 85-264 VAC1088-300 VDC |
| PTC-101-S-LC-HV | Single-mode LC    | 85-264 VAC1088-300 VDC |

## Accessories (sold separately)

### DIN-Rail Mounting Kits

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

### Wireless AP Mounting Kits

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

### Wall-Mounting Kits

|          |                                                                 |
|----------|-----------------------------------------------------------------|
| WK-51-01 | Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws |
|----------|-----------------------------------------------------------------|

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