PTC-101 Series

IEC 61850-3 and EN50155 Ethernet-to-fiber media converters

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

EN50155   IEC 61850-3 / IEEE 1613   c(UL)us LISTED   RoHS   CE FC

: 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.

: 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/LC connectors)
LED Indicators: PTC-101-HV series: PWR1, Fiber Link, 10/100M (TP port)
PTC-101-LV series: PWR1, PWR2, Fiber Link, 10/100M (TP port)
DIP Switches:

DIP No.	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 Throuth	Enable	Disable
5	Operating Mode	Store-and-Forward	Pass Through

The default setting for all DIP switches is ON.

Alarm Contact: One relay output with current carrying capacity of 1 A @ 24 VDC

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] 4 km [b]	40 km [c]
Saturation	-6 dBm	-3 dBm

a. 50/125 μm, 800 MHz*km fiber optic cable
b. 62.5/125 μm, 500 MHz*km fiber optic cable
c. 9/125 μm, 3.5 PS/(nm*km) fiber optic cable

Physical Characteristics
Housing: Aluminum, IP30 protection
Dimensions: 122.5 x 90 x 20 mm (4.82 x 3.54 x 0.79 in)
Weight:
Product only: 690 g
Packaged: 875 g

Environmental Limits
Operating Temperature: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 85°C (-40 to 185°F)

Power Requirements
Input Voltage:

	Power Supply Type	Power Consumption	Fuse Rating
LV - DC	20 to 72 VDC	170 mA @ 20 VDC	3.15A(T) 2
HV - AC	85 to 264 VAC	73 mA @ 85 VAC	3.15A(T) 2
HV - DC	88 to 300 VDC	47 mA @ 88 VDC	3.15A(T) 2

Connection: Removable terminal block
Overload Current Protection: 1.6 A (protects against two signals shorted together)
Reverse Polarity Protection: Present

Regulatory Approvals
Safety: UL 60950-1
EMI: FCC Part 15, CISPR (EN55022) class A
EMS:
EN61000-4-2 Edition 1.2: 2001-04 (Level 4)
EN61000-4-3: 1995+A1: 2001
IEC 61000-4-3: 2002+A1: 2002 (Level 3)
EN61000-4-4: 2004 (Level 4)
EN61000-4-5: 2001-04 (Level 4)
EN61000-4-6: 2004-11 (Level 3)
EN61000-4-8: 2001-03 (Level 5)
EN61000-4-11: 2004-03 (Criteria B)
Power Automation: IEC 61850-3, IEEE 1613
Rail Traffic: EN50155/EN50121-4
Note: Refer to the "Environmental Type Tests" table below for more detailed information.

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

Environmental Type Tests			
Test	**Description**		**Test Levels**
IEC 60068-2-1	Cold, operating (power ON/OFF)	Test Ad	-40°C, 48 hours
IEC 60068-2-3	Damp heat, steady state, operating	Test Ca	85°C, 95% R.H., 24 hours
IEC 60068-2-14	Changing temperature, operating	Test Nb	-40 to 85°C, Ramp rate: 3°C/min, 8 cycles
IEC 60068-2-48 IEC 60068-2-1	Cold, storage	Test Ad	-40°C, 12 hours
IEC 60068-2-48 IEC 60068-2-3	Damp heat, steady state, storage	Test Ca	90°C, 95% R.H., 24 hours
IEC 60068-2-32 ISTA-2A	Freefall, package	Test Ed	90 cm
IEC 60068-2-34	Random vibration, package	Test Fd	3 grms (5 to 500 Hz)
IEC 61850-3 IEC 60870-2-2 IEC 60068-2-6 IEC 60721-3-3	Vibration, operating	Class Cm (3M6, 4M6)	20 m/s² (9 to 200 Hz) 15 m/s² (200 to 500 Hz)
IEC 61850-3 IEC 60870-2-2 IEC 60068-2-27 IEC 60721-3-3	Shock, operating	Class Cm (3M6, 4M6)	300 m/s², 11 ms

Dimensions

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

Side View   Front View   Rear View   Panel Mounting Kit (Optional)
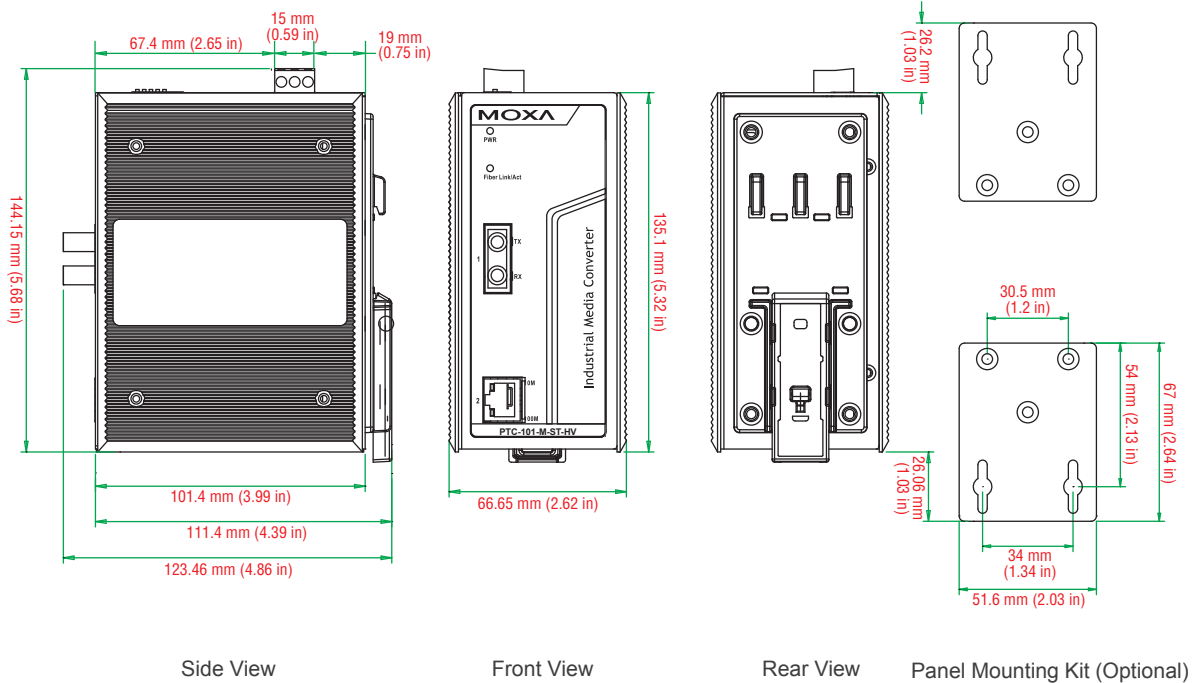
: Ordering Information

Available Models

PTC-101-M-SC-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with SC connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-M-ST-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with ST connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-M-LC-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with LC connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-S-SC-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with SC connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-S-LC-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with LC connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-S-ST-LV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with ST connector, dual redundant power inputs (20-70 VDC), -40 to 85°C operating temperature
PTC-101-M-SC-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with SC connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature
PTC-101-M-ST-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with ST connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature
PTC-101-M-LC-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi-mode with LC connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature
PTC-101-S-SC-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with SC connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature
PTC-101-S-ST-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with ST connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature
PTC-101-S-LC-HV: Industrial 10/100BaseT(X) to 100BaseFX media converter, single-mode with LC connector, 1 isolated power supply (88-300 VDC or 85-264 VAC), -40 to 85°C operating temperature

Package Checklist

- PTC-101 series media converter
- Hardware Installation Guide (printed)
- Warranty Card