PTC-101 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

IEC 61850-3 IEEE 1613 CE FC c UL us LISTED

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 (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

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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	
		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 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
d. 9/125 μm single-mode fiber optic cable (80 km)

Power Parameters

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

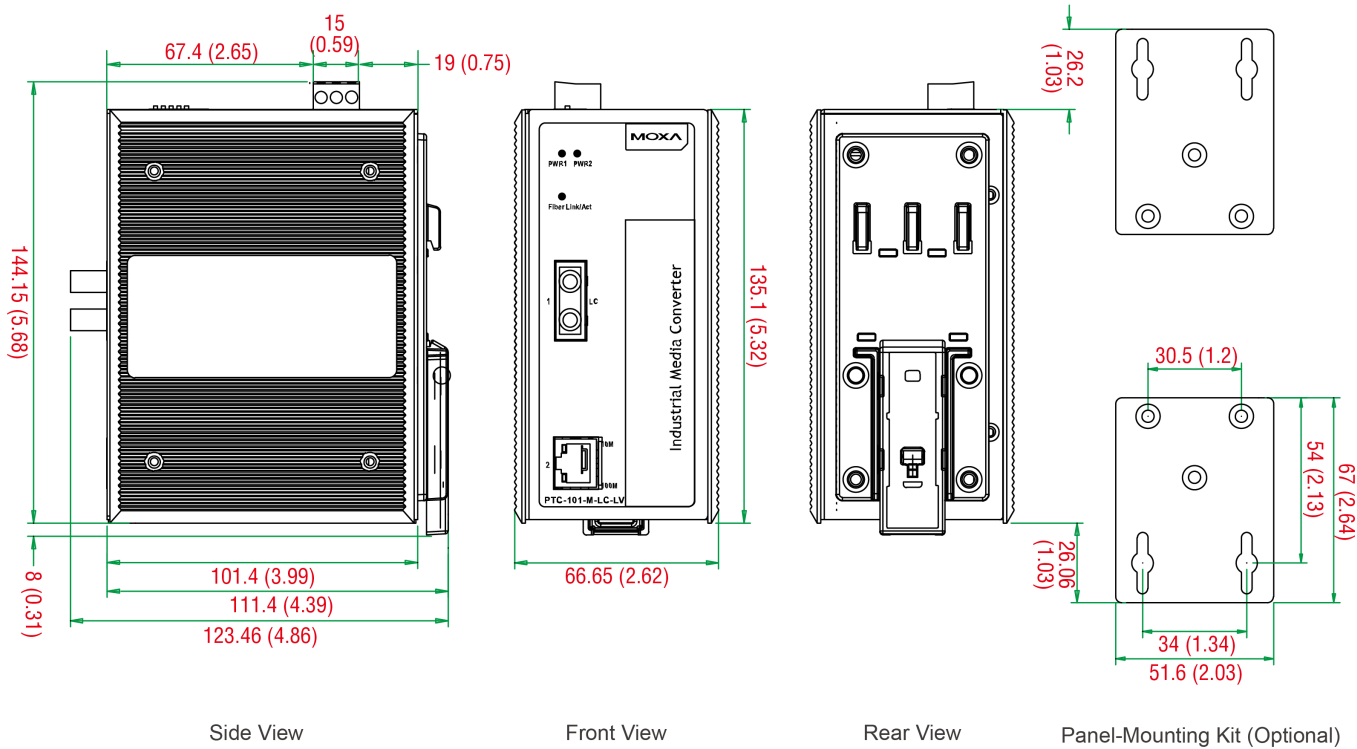| EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV

	IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
	IEC 61000-4-8 PFMF
	IEC 61000-4-11 DIPs
Environmental Testing	IEC 60068-2-1
	IEC 60068-2-14
	IEC 60068-2-2
	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 Series media converter
Documentation	1 x quick installation guide
	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 88-300 VDC
PTC-101-M-ST-HV	Multi-mode ST	85-264 VAC 88-300 VDC
PTC-101-M-LC-HV	Multi-mode LC	85-264 VAC 88-300 VDC
PTC-101-S-SC-HV	Single-mode SC	85-264 VAC 88-300 VDC
PTC-101-S-ST-HV	Single-mode ST	85-264 VAC 88-300 VDC
PTC-101-S-LC-HV	Single-mode LC	85-264 VAC 88-300 VDC

Accessories (sold separately)

DIN-Rail Mounting Kits

20P To 20P Flat Cable-500mm	20-to-20-pin flat cable for connecting the TB 1600 and ioLogik 4000 Series, 50 cm

Wall-Mounting Kits

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