EDS-2016-ML Series

16-port unmanaged Ethernet switches

Features and Benefits

- 10/100BaseT(X) (RJ45 connector), 100BaseFX (multi/single-mode, SC or ST connector)
- QoS supported to process critical data in heavy traffic
- Relay output warning for power failure and port break alarm
- IP30-rated metal housing
- Redundant dual 12/24/48 VDC power inputs
- -40 to 75°C operating temperature range (-T model)

Certifications

Introduction

The EDS-2016-ML Series of industrial Ethernet switches have up to 16 10/100M copper ports and two optical fiber ports with SC/ST connector type options, which are ideal for applications that require flexible industrial Ethernet connections. Moreover, to provide greater versatility for use with applications from different industries, the EDS-2016-ML Series also allows users to enable or disable the Quality of Service (QoS) function, broadcast storm protection, and the port break alarm function with DIP switches on the outer panel.

In addition to its compact size, the EDS-2016-ML Series features 12/24/48 VDC redundant power inputs, DIN-rail mounting, high-level EMI/EMC capability, and an operating temperature range of -10 to 60°C with -40 to 75°C wide temperature models available. The EDS-2016-ML Series has also passed a 100% burn-in test to ensure it will function reliably in the field.

Specifications

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	EDS-2016-ML(-T): 16 EDS-2016-ML-MM-SC(-T): 14 EDS-2016-ML-MM-ST(-T): 14 EDS-2016-ML-SS-SC(-T): 14 Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
100BaseFX Ports (multi-mode SC connector)	EDS-2016-ML-MM-SC(-T): 2
100BaseFX Ports (multi-mode ST connector)	EDS-2016-ML-MM-ST(-T): 2
100BaseFX Ports (single-mode SC connector)	EDS-2016-ML-SS-SC(-T): 2

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3x for flow control IEEE 802.1p for Class of Service

Optical Fiber					
		100BaseFX			
		Multi-Mode		Single-Mode (40 km)	Single-Mode (80 km)
	Fiber Cable Type	OM1	50/125 μm	G.652	G.652
			800 MHz x km		
	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
	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).

DIP Switch Configuration

Ethernet Interface	Quality of Service (QoS) Broadcast storm protection Port break alarm

Input/Output Interface

Alarm Contact Channels	Relay output with current carrying capacity of 1 A @ 24 VDC

Switch Properties

MAC Table Size	8 K
Packet Buffer Size	2 Mbits
Processing Type	Store and Forward

Power Parameters

Connection	1 removable 6-contact terminal block(s)
Input Current	EDS-2016-ML: 0.088 A @ 24 VDC EDS-2016-ML-MM-SC: 0.149 A @ 24 VDC EDS-2016-ML-MM-ST: 0.152 A @ 24 VDC EDS-2016-ML-SS-SC: 0.163 A @ 24 VDC
Input Voltage	12/24/48 VDC Redundant dual inputs
Operating Voltage	9.6 to 60 VDC

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Overload Current Protection	Supported
Reverse Polarity Protection	Supported

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	Non-fiber models: 36 x 135 x 95 mm (1.41 x 5.31 x 3.74 in) Fiber models: 58 x 135 x 95 mm (2.28 x 5.31 x 3.74 in)
Weight	Non-fiber models: 486 g (1.07 lb) Fiber models: 648 g (1.43 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	Standard temp. models: -10 to 60°C (14 to 140°F) 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

Safety	UL 61010-2-201 EN 62368-1(LVD)
EMC	EN 55032/35 EN 61000-6-2/-6-4
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 MHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Hazardous Locations	Class I Division 2 ATEX IECEx
Railway	EN 50121-4
Traffic Control	NEMA TS2
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Maritime	DNV LR ABS NK

MTBF

Time	Non-fiber models: 2,523,953 hrs Fiber models: 2,070,826 hrs
Standards	Telcordia (Bellcore), GB

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Warranty

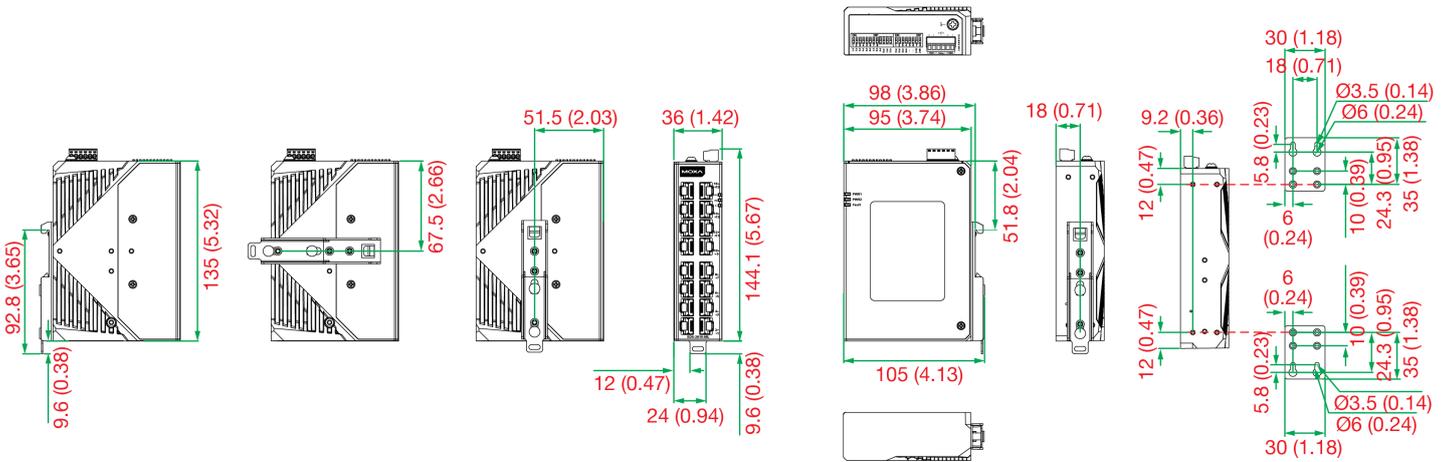|	
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

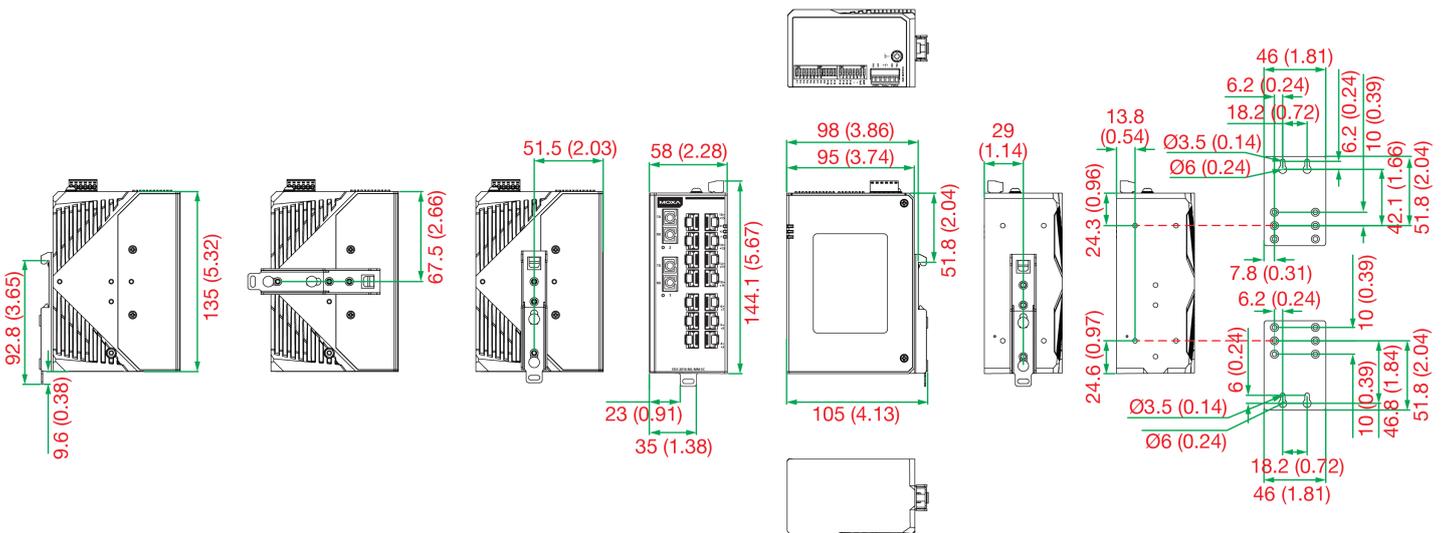|	
Device	1 x EDS-2016-ML Series switch
Installation Kit	4 x cap, plastic, for RJ45 port
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

EDS-2016–ML Copper Series

Unit: mm (inch)

EDS-2016–ML Fiber Series

Unit: mm (inch)

Ordering Information

Model Name	10/100BaseT(X) Ports, RJ45 Connector	100BaseFX Ports Multi-mode, SC Connector	100BaseFX Ports Multi-mode, ST Connector	100BaseFX Ports Single-mode, SC Connector	Operating Temp.
EDS-2016-ML	16	–	–	–	-10 to 60°C
EDS-2016-ML-T	16	–	–	–	-40 to 75°C
EDS-2016-ML-MM-SC	14	2	–	–	-10 to 60°C
EDS-2016-ML-MM-SC-T	14	2	–	–	-40 to 75°C
EDS-2016-ML-MM-ST	14	–	2	–	-10 to 60°C
EDS-2016-ML-MM-ST-T	14	–	2	–	-40 to 75°C
EDS-2016-ML-SS-SC	14	–	–	2	-10 to 60°C
EDS-2016-ML-SS-SC-T	14	–	–	2	-40 to 75°C

Accessories (sold separately)

Power Supplies

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
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
MDR-40-24	DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
MDR-60-24	DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature

Wall-Mounting Kits

WK-30-02	Wall-mounting kit, 2 plates, 4 screws, 30 x 66.8 x 2 mm Applicable Models: EDS-2016-ML EDS-2016-ML-T
WK-46-01	Wall-mounting kit, 2 plates, 8 screws, 46 x 66.8 x 2 mm Applicable Models: EDS-2016-ML-MM-SC EDS-2016-ML-MM-SC-T EDS-2016-ML-MM-ST EDS-2016-ML-MM-ST-T EDS-2016-ML-SS-SC EDS-2016-ML-SS-SC-T

Rack-Mounting Kits

RK-4U	19-inch rack-mounting kit

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