

EDS-316 Series

16-port unmanaged Ethernet switches



Features and Benefits

- Relay output warning for power failure and port break alarm
- Broadcast storm protection
- -40 to 75°C wide operating temperature range (-T models)

Certifications



Introduction

The EDS-316 Ethernet switches provide an economical solution for your industrial Ethernet connections. These 16-port switches come with a built-in relay warning function that alerts network engineers when power failures or port breaks occur. In addition, the switches are designed for harsh industrial environments, such as the hazardous locations defined by the Class I Div. 2 and ATEX Zone 2 standards.

The switches comply with FCC, UL, and CE standards and support either a standard operating temperature range of -10 to 60°C or a wide operating temperature range of -40 to 75°C. All switches in the series undergo a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control applications. The EDS-316 switches can be installed easily on a DIN rail or in a distribution box.

Specifications

Input/Output Interface

Alarm Contact Channels	1 relay output with current carrying capacity of 1 A @ 24 VDC
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Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	EDS-316 models: 16 EDS-316-MM-SC/MM-ST/MS-SC/SS-SC models: 14 EDS-316-SS-SC-80 models: 14 EDS-316-M-SC/M-ST/S-SC models: 15 All models support: Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
100BaseFX Ports (multi-mode SC connector)	EDS-316-M-SC models: 1 EDS-316-MM-SC models: 2 EDS-316-MS-SC models: 1
100BaseFX Ports (multi-mode ST connector)	EDS-316-M-ST models: 1 EDS-316-MM-ST models: 2
100BaseFX Ports (single-mode SC connector)	EDS-316-MS-SC models: 1 EDS-316-S-SC models: 1 EDS-316-SS-SC models: 2
100BaseFX Ports (single-mode SC connector, 80 km)	EDS-316-SS-SC-80 models: 2

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control																																																																				
Optical Fiber	<table><tr><th colspan="2" rowspan="2"></th><th colspan="3">100BaseFX</th></tr><tr><th colspan="2">Multi-Mode</th><th>Single-Mode (40 km)</th><th>Single-Mode (80 km)</th></tr><tr><th rowspan="2">Fiber Cable Type</th><th rowspan="2">OM1</th><th>50/125 μm</th><th rowspan="2">G.652</th><th rowspan="2">G.652</th></tr><tr><th>800 MHz x km</th></tr><tr><th colspan="2">Typical Distance</th><td>4 km</td><td>5 km</td><td>40 km</td><td>80 km</td></tr><tr><th rowspan="3">Wavelength</th><th>Typical (nm)</th><td colspan="2">1300</td><td>1310</td><td>1550</td></tr><tr><th>TX Range (nm)</th><td colspan="2">1260 to 1360</td><td>1280 to 1340</td><td>1530 to 1570</td></tr><tr><th>RX Range (nm)</th><td colspan="2">1100 to 1600</td><td>1100 to 1600</td><td>1100 to 1600</td></tr><tr><th rowspan="4">Optical Power</th><th>TX Range (dBm)</th><td colspan="2">-10 to -20</td><td>0 to -5</td><td>0 to -5</td></tr><tr><th>RX Range (dBm)</th><td colspan="2">-3 to -32</td><td>-3 to -34</td><td>-3 to -34</td></tr><tr><th>Link Budget (dB)</th><td colspan="2">12</td><td>29</td><td>29</td></tr><tr><th>Dispersion Penalty (dB)</th><td colspan="2">3</td><td>1</td><td>1</td></tr><tr><td colspan="6"> 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). </td></tr></table>							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).					
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DIP Switch Configuration

Ethernet Interface	Port break alarm
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Switch Properties

Packet Buffer Size	1.25 Mbits
MAC Table Size	4 K
Processing Type	Store and Forward

Power Parameters

Input Voltage	12/24/48 VDC Redundant dual inputs
Input Current	0.34 A (EDS-316) @ 24 VDC 0.35 A (EDS-316-S-SC) @ 24 VDC 0.35 A (EDS-316-M-SC, EDS-316-M-ST) @ 24 VDC 0.40 A (EDS-316-SS-SC) @ 24 VDC 0.39 A (EDS-316-MM-SC, EDS-316-MM-ST) @ 24 VDC
Connection	1 removable 6-contact terminal block(s)
Operating Voltage	9.6 to 60 VDC
Reverse Polarity Protection	Supported
Overload Current Protection	Supported

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	80.1 x 135 x 105 mm (3.15 x 5.31 x 4.13 in)
Weight	1140 g (2.52 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	Standard 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	EN 62368-1 UL 508 UL 60950-1 CSA C22.2 No. 60950-1
EMC	EN 55032/35
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: 1 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	ATEX Class I Division 2
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Maritime	DNV

MTBF

Time	EDS-316 models: 2,226,219 hrs EDS-316-MM/MS/SS models: 1,904,659 hrs EDS-316-M/S models: 2,048,802 hrs
Standards	MIL-HDBK-217F

Warranty

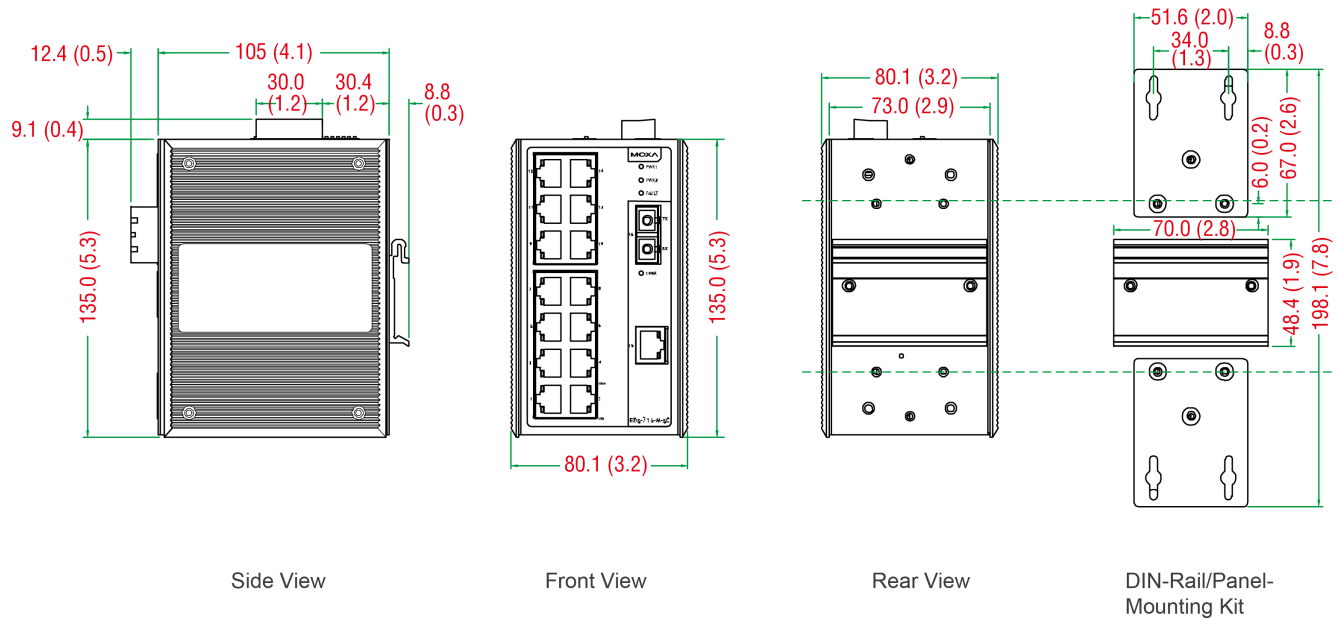
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x EDS-316 Series switch
Installation Kit	4 x cap, plastic, for RJ45 port 1 x cap, plastic, for SC fiber port (-M-SC/S-SC models) 2 x cap, plastic, for SC fiber port (-MS-SC/MM-SC models) 1 x cap, plastic, for ST fiber port (-M-ST models) 2 x cap, plastic, for ST fiber port (-MM-ST models)
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

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-316	16	–	–	–	-10 to 60°C
EDS-316-T	16	–	–	–	-40 to 75°C
EDS-316-M-SC	15	1	–	–	-10 to 60°C
EDS-316-M-SC-T	15	1	–	–	-40 to 75°C
EDS-316-M-ST	15	–	1	–	-10 to 60°C
EDS-316-M-ST-T	15	–	1	–	-40 to 75°C
EDS-316-MM-SC	14	2	–	–	-10 to 60°C
EDS-316-MM-SC-T	14	2	–	–	-40 to 75°C
EDS-316-MM-ST	14	–	2	–	-10 to 60°C
EDS-316-MM-ST-T	14	–	2	–	-40 to 75°C
EDS-316-MS-SC	14	1	–	1	-10 to 60°C
EDS-316-S-SC	15	–	–	1	-10 to 60°C
EDS-316-S-SC-T	15	–	–	1	-40 to 75°C

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-316-SS-SC	14	–	–	2	-10 to 60°C
EDS-316-SS-SC-80	14	–	–	2	-10 to 60°C
EDS-316-SS-SC-T	14	–	–	2	-40 to 75°C

Accessories (sold separately)

Power Supplies

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
HDR-60-24	60 W/2.5 A DIN-rail 24 VDC power supply, universal 85 to 264 VAC or 120 to 370 VDC input voltage, -30 to 70°C operating temperature
NDR-120-24	120 W/5.0 A DIN-rail 24 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-120-48	120 W/2.5 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-240-48	240 W/5.0 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature

Wall-Mounting Kits

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

RK-4U	19-inch rack-mounting kit
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