

EDS-305/308/309/316 Series

5, 8, 9, and 16-port unmanaged Ethernet switches



- > Relay output warning for power failure and port break alarm
- > Broadcast storm protection
- > Transparent transmission of VLAN tagged packets
- > -40 to 75°C operating temperature range (T models)



Introduction

The EDS-305/308/309/316 are 5, 8, 9, and 16-port Ethernet switches that provide an economical solution for your industrial Ethernet connections. The built-in relay warning function alerts network engineers when power failures or port breaks occur, and the switches are designed for harsh industrial environments, such as in hazardous locations (Class 1 Div. 2 / ATEX Zone 2). The switches comply with

FCC, UL, and CE standards, and come in two model types: standard operating temperature range models (0 to 60°C) and wide operating temperature range models (-40 to 75°C). Both models undergo a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control applications. The EDS-305/308/309/316 switches can be installed easily on a DIN-rail or in a distribution box.

Specifications

Technology

Standards:

IEEE 802.3 for 10BaseT
 IEEE 802.3u for 100BaseT(X) and 100BaseFX
 IEEE 802.3x for Flow Control

Processing Type: Store and Forward

Switch Properties

MAC Table Size: 1 K (EDS-305/308/309), 4 K (EDS-316)

Packet Buffer Size: n/a (EDS-305), 512 kbit (EDS-308/309), 1.25 Mbit (EDS-316)

Interface

RJ45 Ports: 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection

Fiber Ports: 100BaseFX ports (SC/ST connector)

DIP Switches:

- Port break alarm mask
- Enable/disable broadcast storm protection (EDS-316)

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

Optical Fiber

Fiber Cable Type	100BaseFX				
	OM1	Multi-Mode		Single-Mode (40 km)	Single-Mode (80 km)
		50/125 μm	800 MHz* Km	G. 652	G. 652
Typical Distance	4 km	5 km	40 km	80 km	
Wave-length	Typical (nm)		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).

Power Requirements

Input Voltage:

EDS-305/308: 24 VDC, redundant dual inputs
 EDS-309: 24 VDC, redundant dual input
 EDS-316: 12/24/48 VDC, redundant dual inputs

Operating Voltage:

EDS-305/308: 12 to 48 VDC
 EDS-309: 12 to 45 VDC
 EDS-316: 9.6 to 60 VDC

Input Current:

- EDS-305: 0.11 A @ 24 V
- EDS-305-M/S: 0.15 A @ 24 V
- EDS-308: 0.11 A @ 24 V
- EDS-308-M/S: 0.18 A @ 24 V
- EDS-308-MM/SS: 0.22 A @ 24 V
- EDS-309-3M: 0.27 A @ 24 V
- EDS-316: 0.23 A @ 24 V
- EDS-316-M/S/MM/SS/MS: 0.38 A @ 24 V

Overload Current Protection:

- EDS-305, EDS-305-M, EDS-305-S, EDS-308: 1.1 A
- EDS-308-M/S/MM/SS, EDS-309 Series, EDS-316 Series: 1.6 A

Connection: 1 removable 6-pin terminal blocks

Reverse Polarity Protection: Present

Physical Characteristics

Housing: Metal

IP Rating: IP30 protection

Dimensions:

- EDS-305/308/309 Series:
53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
- EDS-316 Series:
80.1 x 135 x 105 mm (3.15 x 5.31 x 4.13 in)

Weight:

- EDS-305/308/309 Series: 790 g (1.75 lb)
- EDS-316 Series: 1140 g (2.52 lb)

Installation: DIN-rail mounting, wall mounting (with optional kit)

Environmental Limits

Operating Temperature:

- Standard Models: 0 to 60°C (32 to 140°F)
- Wide Temp. Models: -40 to 75°C (-40 to 167°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety:

- EDS-305 Series: UL 508, UL 60950-1, CSA C22.2 No. 60950-1
- EDS-308/309/316 Series: UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1

Hazardous Location: UL/cUL Class 1 Division 2 Groups A/B/C/D, ATEX Zone 2 Ex nA nC IIC T4 Gc

EMC: EN 55022/24

EMI: CISPR 22, 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 GHz, 3 V/m
- IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
- IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
- IEC 61000-4-6 CS: 3 V (EDS-309/316: 10 V)
- IEC 61000-4-8

Marine: DNV, ABS, GL

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Note: Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)

Time:

- EDS-305 Series: 422,000 hrs
- EDS-308 Series: 255,000 hrs
- EDS-309 Series: 396,000 hrs
- EDS-316 Series: 257,000 hrs

Standard: MIL-HDBK-217F, GB 25°C

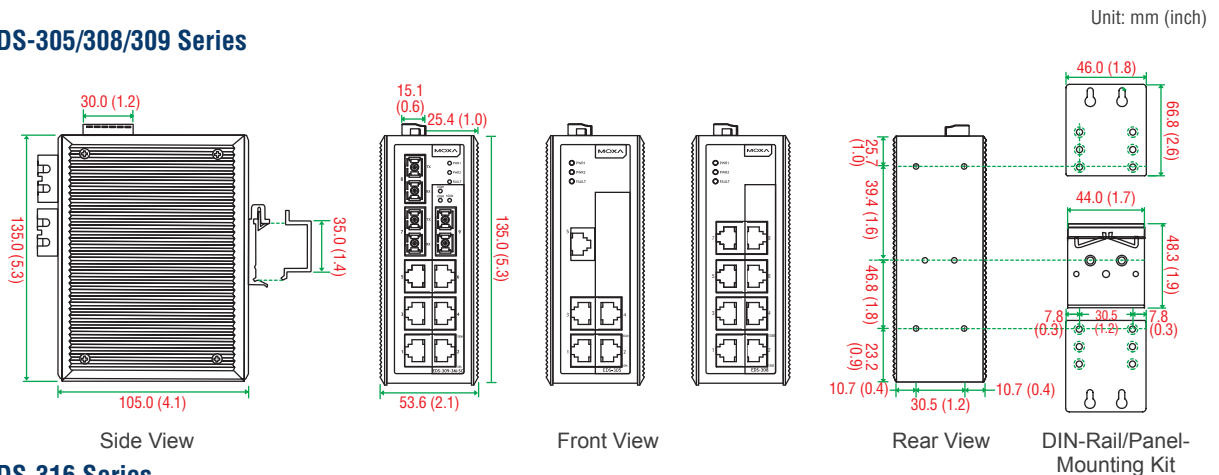
Warranty

Warranty Period: 5 years

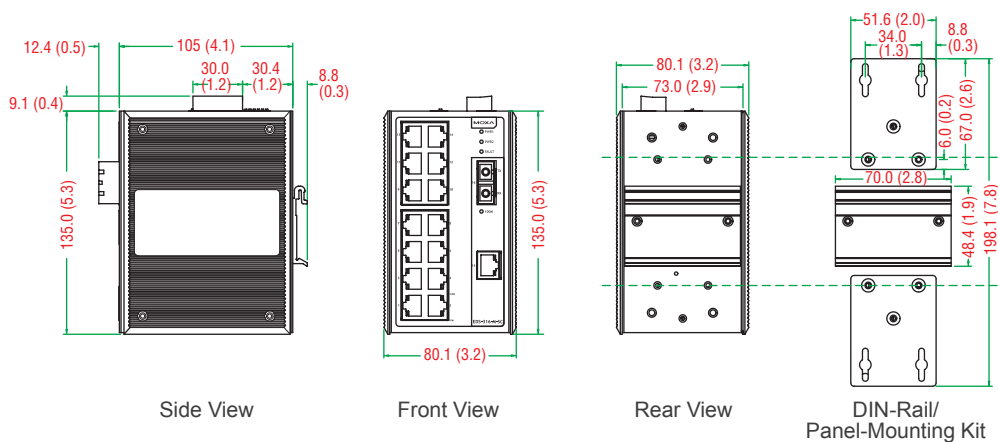
Details: See www.moxa.com/warranty

Dimensions

EDS-305/308/309 Series



EDS-316 Series



Ordering Information

Available Models		Port Interface				
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 75°C)	10/100BaseT(X)	100BaseFX			
			Multi-Mode, SC Connector	Multi-Mode, ST Connector	Single-Mode, SC Connector	Single-Mode, SC Connector, 80 km
EDS-305 Series						
EDS-305	EDS-305-T	5	–	–	–	–
EDS-305-M-SC	EDS-305-M-SC-T	4	1	–	–	–
EDS-305-M-ST	EDS-305-M-ST-T	4	–	1	–	–
EDS-305-S-SC	EDS-305-S-SC-T	4	–	–	1	–
EDS-305-S-SC-80	–	4	–	–	–	1
EDS-308 Series						
EDS-308	EDS-308-T	8	–	–	–	–
EDS-308-M-SC	EDS-308-M-SC-T	7	1	–	–	–
EDS-308-MM-SC	EDS-308-MM-SC-T	6	2	–	–	–
EDS-308-MM-ST	EDS-308-MM-ST-T	6	–	2	–	–
EDS-308-S-SC	EDS-308-S-SC-T	7	–	–	1	–
EDS-308-SS-SC	EDS-308-SS-SC-T	6	–	–	2	–
EDS-308-S-SC-80	–	7	–	–	–	1
EDS-308-SS-SC-80	–	6	–	–	–	2
EDS-309 Series						
EDS-309-3M-SC	EDS-309-3M-SC-T	6	3	–	–	–
EDS-309-3M-ST	EDS-309-3M-ST-T	6	–	3	–	–
EDS-316 Series						
EDS-316	EDS-316-T	16	–	–	–	–
EDS-316-M-SC	EDS-316-M-SC-T	15	1	–	–	–
EDS-316-M-ST	EDS-316-M-ST-T	15	–	1	–	–
EDS-316-MM-SC	EDS-316-MM-SC-T	14	2	–	–	–
EDS-316-MM-ST	EDS-316-MM-ST-T	14	–	2	–	–
EDS-316-MS-SC	–	14	1	–	1	–
EDS-316-S-SC	EDS-316-S-SC-T	15	–	–	1	–
EDS-316-SS-SC	EDS-316-SS-SC-T	14	–	–	2	–
EDS-316-SS-SC-80	–	14	–	–	–	2

Optional Accessories (can be purchased separately)

DR-4524/75-24/120-24: 45/75/120 W DIN-rail 24 VDC power supplies

MDR-40-24/60-24: 40/60 W DIN-rail 24 VDC power supplies, -20 to 70°C operating temperature

RK-4U: 4U-high 19-inch rack-mounting kit

WK-46: Wall-mounting kit, 2 plates with 8 screws

Package Checklist

- EDS-305 or EDS-308 or EDS-309 or EDS-316 switch
- Protective caps for unused ports
- Hardware installation guide (printed)
- Warranty card