

# 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
- > -40 to 75°C operating temperature range (T models)



## Introduction

The EDS-305/308/309/316 Ethernet switches provide an economical solution for your industrial Ethernet connections. These 5, 8, 9, and 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 1 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 0 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-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:

EDS-305/309: 1K  
 EDS-308: 2K  
 EDS-316: 4K

#### Packet Buffer Size:

EDS-305: N/A  
 EDS-308: 768 Kbit  
 EDS-309: 512 Kbit  
 EDS-316: 1.25 Mbit

### 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

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

### Power Requirements

#### Input Voltage:

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

#### Operating Voltage:

EDS-305: 12 to 48 VDC  
 EDS-308/309/316: 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: 0.07 A @ 24 V
- EDS-308-M/S: 0.12 A @ 24 V
- EDS-308-MM/SS: 0.15 A @ 24 V
- EDS-309-3M: 0.26 A @ 24 V
- EDS-316: 0.34 A @ 24 V
- EDS-316-M/S/MM/SS/MS: 0.40 A @ 24 V

**Overload Current Protection:**

- EDS-305 Series: 1.1 A
- EDS-308 Series and EDS-309 Series: 3 A
- EDS-316 Series: 1.6 A

**Connection:** 1 removable 6-pin terminal block

**Reverse Polarity Protection:** Supported

**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**

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

**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, 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 55032/24

**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 GHz, 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:  
EDS-305: 3 V  
EDS-308/309/316: 10 V
- IEC 61000-4-8

**Marine:**

- EDS-305: DNV-GL
- EDS-308/309: IEC 60945
- EDS-316: IEC 60945, Pending: DNV-GL

**Shock:** IEC 60068-2-27

**Freefall:** IEC 60068-2-32

**Vibration:** IEC 60068-2-6

**MTBF (mean time between failures)**

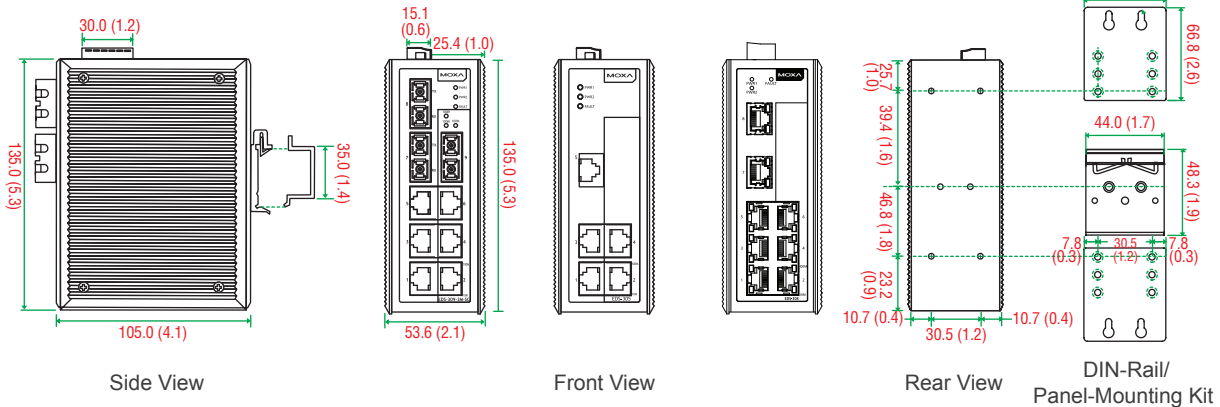
**Time:**

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

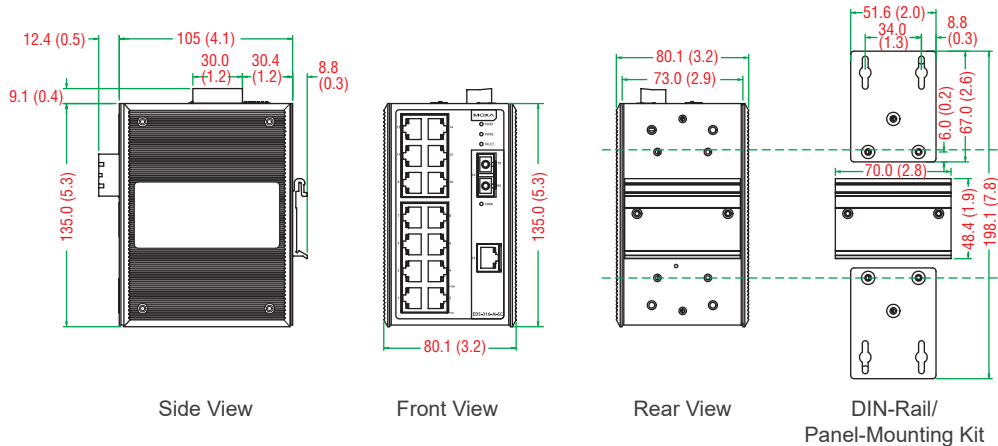
**Standard:** MIL-HDBK-217F, GB 25°C

**Dimensions**

**EDS-305/308/309 Series**



**EDS-316 Series**



## Ordering Information

Available Models		Port Interfaces				
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
<b>EDS-305 Series</b>						
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
<b>EDS-308 Series</b>						
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
<b>EDS-309 Series</b>						
EDS-309-3M-SC	EDS-309-3M-SC-T	6	3	–	–	–
EDS-309-3M-ST	EDS-309-3M-ST-T	6	–	3	–	–
<b>EDS-316 Series</b>						
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-46-01:** 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