

# EDS-305/308/309/316 Series

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



- > Redundant dual 24 VDC power inputs
- > Relay output warning for power failure and port break alarm
- > Broadcast storm protection
- > Transmits VLAN tagged packets transparently
- > -40 to 75°C operating temperature range (T models)



## Introduction

The EDS-316/309/308/305 are 16, 9, 8, and 5-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/Zone 2). The switches comply with FCC, TÜV, UL,

and CE standards, and come in two model types: standard operating temperature range of 0 to 60°C, and extended operating temperature range of -40 to 75°C. Both models undergo a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control. The EDS-316/309/308/305 series Ethernet 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

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

### Interface

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

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

**LED Indicators:** PWR1, PWR2, Fault, 10/100M (TP port), 100M (Fiber port)

**DIP Switch:** Port break alarm mask

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

### Optical Fiber

	100BaseFX		
	Multi Mode	Single Mode	Single Mode, 80 km
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-10 dBm	0 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm	-34 dBm
Link Budget	12 dB	29 dB	29 dB
Typical Distance	5 km, 2 km (EDS-316-T) <sup>a</sup>	40 km <sup>c</sup>	80 km <sup>d</sup>
	4 km, 2 km (EDS-316-T) <sup>b</sup>		
Saturation	-6 dBm	-3 dBm	-3 dBm

- a. 50/125 μm, 800 MHz\*km fiber optic cable
- b. 62.5/125 μm, 500 MHz\*km fiber optic cable
- c. 9/125 μm, 3.5 PS/(nm\*km) fiber optic cable
- d. 9/125 μm, 19 PS/(nm\*km) fiber optic cable

### Power Requirements

#### Input Voltage:

24 VDC (12 to 45 VDC), redundant inputs (EDS-316/309)

24 VDC (12 to 48 VDC), redundant inputs (EDS-308/305)

#### (Input Current @ 24 V):

0.27A (EDS-316), 0.44A (EDS-316A, EDS-316-M, EDS-316A-S, EDS-316A-MM, EDS-316-SS, EDS-316-MS), 0.29A (EDS-309), 0.13A (EDS-308), 0.25A (EDS-308-M, EDS-308-S, EDS-308-MM, EDS-308-SS), 0.13A (EDS-305), 0.17A (EDS-305-M, EDS-305-S)

#### Overload Current Protection:

1.6A (EDS-308-M, EDS-308-S, EDS-308-MM, EDS-308-SS, EDS-316, EDS-316-M, EDS-316-MM, EDS-316-MS, EDS-316-S, EDS-316-SS)  
1.1A (EDS-305, EDS-305-M, EDS-305-S, EDS-308)

**Connection:** Removable 6-pin terminal block

**Reverse Polarity Protection:** Present

### Physical Characteristics

**Casing:** IP30 protection, metal case

#### Dimensions (W x H x D):

EDS-316 series: 80.5 x 135 x 105 mm (3.16 x 5.31 x 4.13 in.)

EDS-309/308/305 series: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in.)

**Weight:** EDS-316 series: 1140 g

EDS-309/308/305 series: 630 g

**Installation:** DIN-Rail mounting, wall mounting (optional kit)

### Environmental Limits

**Operating Temperature:** 0 to 60°C (32 to 140°F),

-40 to 75°C (-40 to 167°F) for T models

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

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

**Regulatory Approvals**

**Safety:**

EDS-316 series: UL508, UL60950-1, EN60950-1  
 EDS-309/308/305 series: UL508, UL60950-1, CSA C22.2 No. 60950-1, EN60950-1

**Hazardous Location:**

UL/cUL Class 1, Division 2, Groups A, B, C and D (EDS-316 Pending);  
 ATEX Class 1, Zone 2, Ex nC IIC (EDS-316/309/308 Pending)

**Maritime:** DNV, GL

**EMI:** FCC Part 15, CISPR (EN55022) class A

**EMS:** EN61000-4-2 (ESD), level 3  
 EN61000-4-3 (RS), level 3  
 EN61000-4-4 (EFT), level 3  
 EN61000-4-5 (Surge), level 3  
 EN61000-4-6 (CS), level 3

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

**Free Fall:** IEC 60068-2-32

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

**MTBF:** EDS-316 series: 257,000 hrs

EDS-309 series: 396,000 hrs

EDS-308 series: 255,000 hrs

EDS-305 series: 422,000 hrs

Database: MIL-HDBK-217F, GB 25°C

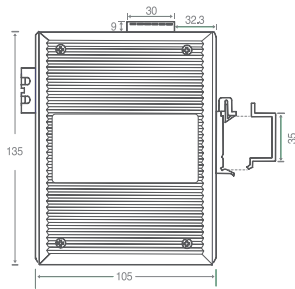
\*Please check Moxa's website for the most up-to-date certification status.

**Warranty**

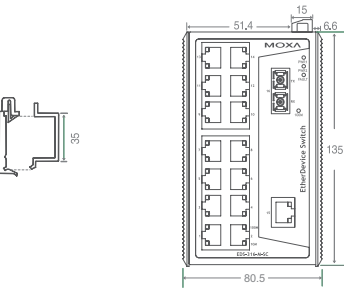
5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**

**[ EDS-316 series ]**

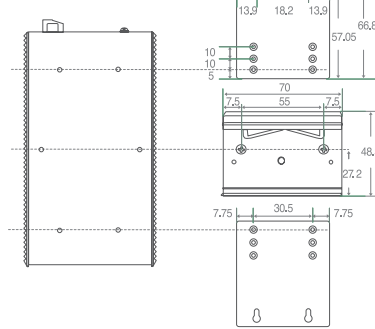


Side View



DIN-Rail Kit

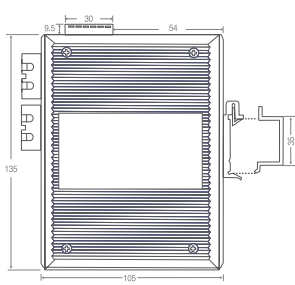
Front View



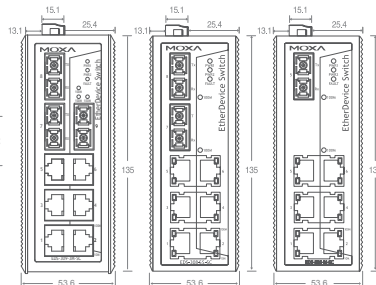
Rear View

Mounting Kit

**[ EDS-309/308/305 series ]**

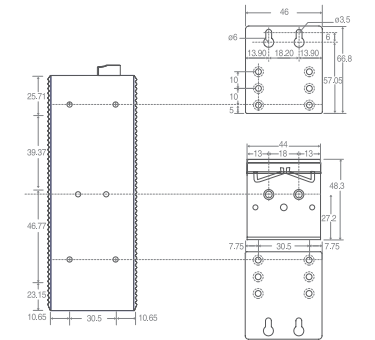


Side View



DIN-Rail Kit

Front View



Rear View

Mounting Kit

**: Ordering Information**

Product Model		Port Interface				
Standard Temperature (0 to 60°C)	Extended 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-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	EDS-316-MS-SC-T	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-MS-SC-80		14	1			1
EDS-316-S-SC-80		15				1
EDS-316-SS-SC-80		14				2
EDS-316-SS-SC-40/80		14			1	1
<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-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	EDS-308-S-SC-80-T	7				1
EDS-308-SS-SC-80	EDS-308-SS-SC-80-T	6				2
<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

**Optional Accessories**

- **DR-4524:** 45W/2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
- **DR-75-24:** 75W/3.2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
- **DR-120-24:** 120W/5A DIN-Rail 24 VDC power supply, 88 to 132 VAC/176 to 264 VAC input by switch
- **WK-46:** Wall mounting kit
- **RK-4U:** 4U-high 19" rack mounting kit