

# 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

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

#### 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

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

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

#### DIP Switches:

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

**LED Indicators:** PWR1, PWR2, FAULT, 10/100M (TP port), 100M (fiber port)

**Alarm Contact:** 1 relay output with current carrying capacity of 1 A @ 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 <sup>a</sup>	40 km <sup>c</sup>	80 km <sup>d</sup>
	4 km <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 single-mode fiber optic cable
- d. 9/125 μm single-mode fiber optic cable (80 km)

#### Power Requirements

##### Input Voltage:

EDS-305/308: 24 VDC (12 to 48 VDC), redundant dual inputs  
 EDS-309: 24 VDC (12 to 45 VDC), redundant dual inputs  
 EDS-316: 12/24/48 VDC (9.6 to 60 VDC), redundant dual inputs

##### Input Current:

EDS-305: 0.13 A @ 24 V  
 EDS-305-M/S: 0.17 A @ 24 V  
 EDS-308: 0.13 A @ 24 V  
 EDS-308-M/S: 0.21 A @ 24 V  
 EDS-308-MM/SS: 0.26 A @ 24 V  
 EDS-309-3M: 0.31 A @ 24 V

EDS-316: 0.27 A @ 24 V

EDS-316-M/S/MM/SS/MS: 0.44 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, 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

EDS-316 Series: 1140 g

**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

**EMI:** FCC Part 15 Subpart B Class A, EN 55022 Class A

**EMS:**

EN 61000-4-2 (ESD) Level 3, EN 61000-4-3 (RS) Level 3,

EN 61000-4-4 (EFT) Level 3, EN 61000-4-5 (Surge) Level 3,

EN 61000-4-6 (CS) (EDS-305/308: Level 2; EDS-309/316: Level 3)

**Marine:** DNV, 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

**Database:** MIL-HDBK-217F, GB 25°C

**Warranty**

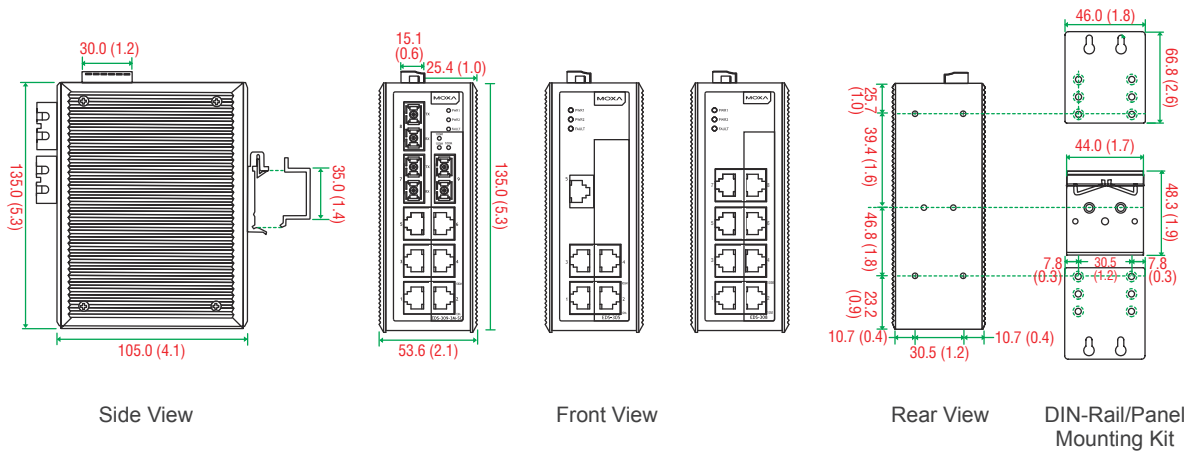
**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

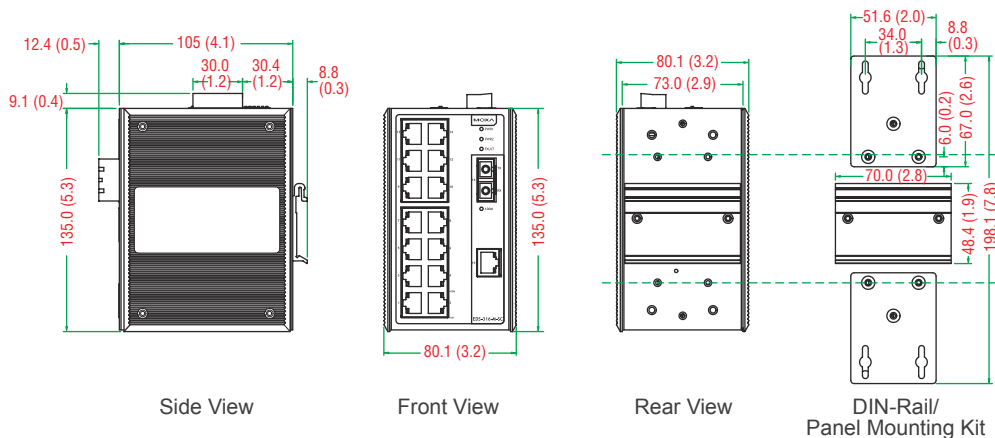
**Dimensions**

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

Unit: mm (inch)



**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
<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

**WK-46:** Wall mounting kit

**RK-4U:** 4U-high 19" rack mounting kit

### 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