

# Your Industrial Ethernet Solutions for Control and Automation

Product  
Catalog

Gigabit Ethernet

Video / Audio  
Ethernet I/O  
DCS / PLC / PAC  
HMI



 MTL  
Instruments  

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MOXA®

Unmanaged Ethernet Switches



## Unmanaged Ethernet Switches

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# 3

## Unmanaged Ethernet Switches

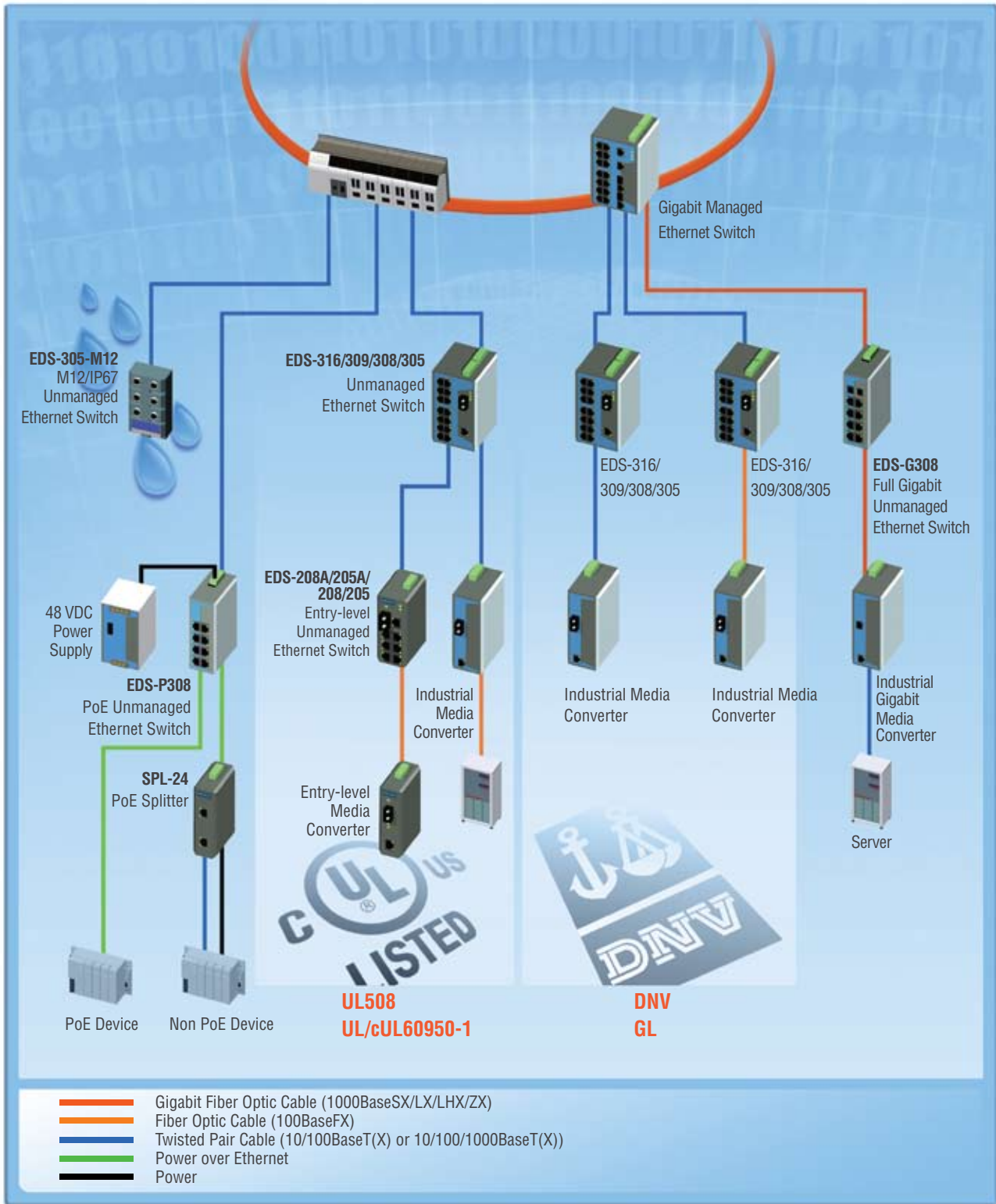
# Unmanaged Switches for Harsh Environments

Adapted for Any Tough Environment

3

Unmanaged Ethernet Switches

Solution Tutorial



**◦ Certified to Meet Industrial Reliability Standards**

Industrial environments often involve unknown, hazardous factors that can influence the operation of Ethernet devices. In fact, some of the factors could cause serious disasters or the loss of life and property.

Many of Moxa's industrial products have received UL508 and UL60950-1 certifications, which were developed to indicate which industrial control and information technology equipment is suitable

for hazardous locations such as maritime environments, mines, oil refineries, and other industrial settings. In addition, UL/cUL Class 1 Division 2, ATEX IIG3 C1Z2, and DNV and GL maritime type approvals have strict standards for testing and determining which devices can be used safely and reliably in these critical environments.

**◦ Special Offerings of M12, IP67, and Power-over-Ethernet Ethernet Switches**

Some industries have special demands, such as tight and robust Ethernet connections or providing power to inaccessible locations.

Moxa offers EDS-305-M12 series to ensure stable connection and EDS-P308 series to fit security and remote applications.

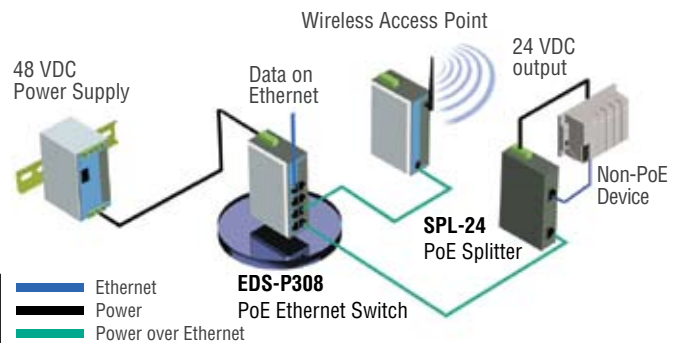
**M12/IP67 Solution**

The EDS-305-M12 is rated to provide IP67-level protection, which means that the Ethernet switch will not be affected by tiny dust particles, dirt, water, humidity, or vibration in most industrial

environments. In addition, the EDS-305-M12 is designed to operate reliably in a temperature range of -40 to 75°C.

**Power-over-Ethernet Solution**

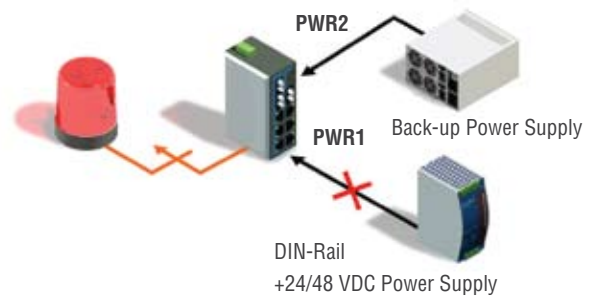
Moxa provides a complete range of solutions for any IEEE 802.3af PoE compliant unit and Ethernet-enabled device. The EDS-P308 and SPL-24 (PoE Splitter) can be used to simplify wiring in the field, and provide a more versatile environment for installing devices. The devices can be placed up to 328 feet (100 m) from a PSE.



**◦ Advanced Features for Enhanced Reliability and Operation**

**Redundant Power Inputs**

The EDS-G308/P308/316/309/308/305/200A series of unmanaged Ethernet switches provide two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source acts as a backup to provide the Ethernet switch's power needs automatically.



**Relay Output Alarm for Port Breaks, Power Failure**

The EDS-G308/P308/316/309/308/305 series of unmanaged Ethernet switches provide relay contact outputs to warn technicians on the shop floor when the power fails or a port link breaks, so that they can respond quickly with appropriate emergency operation procedures.



### Broadcast Storm Protection

Moxa's unmanaged Ethernet switches are protected from receiving too many broadcast packets. During normal use, broadcast packets will be forwarded to all ports except the source port. However, unmanaged Ethernet switches will discard broadcast or multicast packets if the

number of those packets exceeds a threshold in a preset period of time. When the preset time period expires, the switch will then resume receiving broadcast or multicast packets until the threshold is reached again.

### VLAN Tag Packets Transmitted Transparently

The IEEE 802.1Q standard defines a VLAN tag that includes TPID control (information) with an additional 4 bytes inserted into an untagged Ethernet frame. Moxa's unmanaged Ethernet switches can

transmit and receive these data packets without modifying the packets in any way.

### DC or AC Power Input Options

The EDS-G308, EDS-305-M12, and EDS-200A/200 unmanaged Ethernet switches allow users to use either a 24 VDC or 24 VAC power input. The 24 VAC power input is specially designed for applications in the building automation field where the power input source is often

restricted. The EDS-G308, EDS-305-M12 and EDS-200A/200 Ethernet switches are low-cost, versatile solutions suitable for all industrial applications.

## Comparison Chart for Unmanaged Ethernet Switches

Model	Port Interface					Features			Approvals				
	Total Number of Ports	Gigabit Ethernet (10/100/1000 Mbps)	Fast Ethernet (10/100 Mbps)	PoE, Fast Ethernet (10/100 Mbps)	M12/IP67, Fast Ethernet (10/100 Mbps)	Alarm Contact	Power Redundancy	-40 to 75 °C	UL/cUL 60950-1	UL508	EN50155/EN50121-4/EN50121-3-2	UL/cUL Class 1, Div. 2/ATEX Class 1, Zone 2	DNV/GL
EDS-G308	8	8	-	-	-	√	√	√		△		△	△
EDS-P308	8	-	4	4	-	√	√	√		√		△	△
EDS-305-M12	5	-	-	-	5			√		△	△	△	△
EDS-316	16	-	16	-	-	√	√	√	√	√		△	√
EDS-309	9	-	9	-	-	√	√	√	√	√		√/△	√
EDS-308	8	-	8	-	-	√	√	√	√	√		√/△	√
EDS-305	5	-	5	-	-	√	√	√	√	√		√	√
EDS-208A	8	-	8	-	-		√			△			
EDS-205A	5	-	5	-	-		√			△			
EDS-208	8	-	8	-	-				√	√			
EDS-205	5	-	5	-	-					√			

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

# EDS-G308 Series

Preliminary

## 8G-port full Gigabit unmanaged Ethernet switch



- > 8 Gigabit Ethernet ports
- > Fiber optic options for extending distance and electrical noise immunity
- > Redundant dual 24 VDC power inputs
- > 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-G308 series is equipped with 8 Gigabit Ethernet ports and up to 2 fiber optic ports, making it ideal for applications that demand high bandwidth. The EDS-G308 series provides an economical solution for your industrial Gigabit Ethernet connection, and the built-in relay warning function alerts maintainers when power failures or port breaks occur. The EDS-G308 series includes 2 models: one with an operating temperature range of 0 to 60°C, and the other one with an extended

operating temperature range of -40 to 75°C. These 2 models pass through a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control. The EDS-G308 series can be easily installed with DIN-Rail mounting as well as distribution boxes.

### Specifications

#### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
IEEE 802.3u for 100BaseT(X) and 100Base FX,  
IEEE 802.3ab for 1000Base(X),  
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,  
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:** 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection

**Fiber Ports:** 100/1000BaseSFP slot

**LED Indicators:** PWR1, PWR2, FAULT, 10/100/1000M

**DIP Switch:** Port break alarm mask

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

#### Power Requirements

**Input Voltage:**

12/24/48 VDC (9.6 to 60 VDC), 24 VDC (18 to 30 VAC) (47 to 63 Hz) redundant inputs

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

**Reverse Polarity Protection:** Present

#### Physical Characteristics

**Casing:** IP30 protection, metal case

**Dimensions (W x H x D):** 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in.)

**Weight:** 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:**  
UL508 (Pending)

**Hazardous Location:**  
UL/cUL Class 1, Division 2, Groups A, B, C and D (Pending);  
ATEX Class 1, Zone 2, Ex nC IIC (Pending)

**Maritime:** DNV (Pending), GL (Pending)

**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

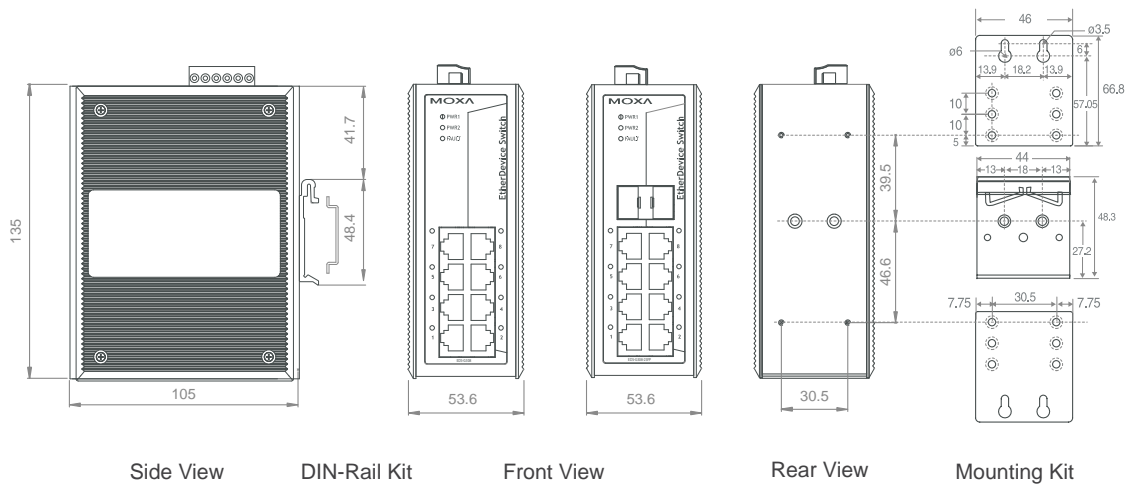
**Vibration:** IEC 60068-2-6

\*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)



Ordering Information

Product Model		Port Interface	
Standard Temperature (0 to 60°C)	Extended Temperature (-40 to 75°C)	Gigabit Ethernet	
		10/100/1000BaseT(X)	Combo port, 10/100/1000BaseT(X) or 100/1000BaseSFP*
EDS-G308	EDS-G308-T	8	
EDS-G308-2SFP	EDS-G308-2SFP-T	6	2

\* EDS-G308-2SFP/EDS-G308-2SFP-T support up to 2 100/1000BaseSFP slots. Please see page 2-23 for the product information of SFP-1G series Gigabit Ethernet SFP modules.

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

# EDS-P308 Series

## 8-port IEEE 802.3af PoE unmanaged Ethernet switch



- > 4 IEEE 802.3af compliant PoE and Ethernet combo ports
- > Provides up to 15.4 watts at 48 VDC per PoE port
- > Intelligent power consumption detection and classification
- > Redundant dual VDC power inputs
- > -40 to 75°C operating temperature range (T models)



### Introduction

The EDS-P308 series switches are smart, 8-port, unmanaged Ethernet switches supporting PoE (Power-over-Ethernet) on ports 1 to 4. They are classified as power source equipment (PSE), and when used in this way, the EDS-P308 switches enable centralization of the power supply and provide up to 15.4 watts of power per port. The switches can be used to power IEEE 802.3af compliant powered devices (PD),

eliminating the need for additional wiring. The EDS-P308 switches support IEEE 802.3/802.3u/802.3x with 10/100M, full/half-duplex, MDI/MDI-X auto-sensing, and provide an economical solution for your industrial Ethernet network. In addition, the built-in relay warning function alerts network engineers when power failures or port breaks occur.

### Specifications

#### Technology

**Standards:** IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) and 100BaseFX, IEEE 802.3x for Flow Control, IEEE 802.3af for Power-over-Ethernet

**Processing Type:** Store and Forward

**Flow Control:** IEEE 802.3x full duplex, 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 connector)

**LED Indicators:** PWR1, PWR2, Fault, 10/100M, PoE

**DIP Switch:** Port break alarm mask

**Alarm Contact:** One relay output with current carrying capacity of 0.5A @ 48 VDC

#### Optical Fiber

	100BaseFX	
	Multi Mode	Single Mode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>
Saturation	-6 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

#### Power Requirements

**Input Voltage:** 48 (46 to 50V) VDC, redundant inputs

**Input Current (@ 48 V):** 1.6A

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

**Overload Current Protection:** 2.5A (@ 48 VDC)

**Reverse Polarity Protection:** Present

#### PoE (per port)

**Max. Output Power:** 15.4W

**Output Voltage:** 44 to 48.5 VDC

**Max. Output Current:** 350 mA

**Max. Overload Protection:** 400 mA

#### Physical Characteristics

**Casing:** IP30 protection, metal case

**Dimensions (W x H x D):** 53.6 × 135 × 105 mm (2.11 × 5.31 × 4.13 in.)

**Weight:** 840 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 model

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

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

#### Regulatory Approvals

**Safety:** UL508

**Hazardous Location:**

UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending);

ATEX Class I, Zone 2, Ex nC IIC (Pending)

**Maritime:** DNV (Pending), GL (Pending)

**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  
 EN61000-4-8  
 EN61000-4-11

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

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

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

**MTBF:** 360,000 hrs

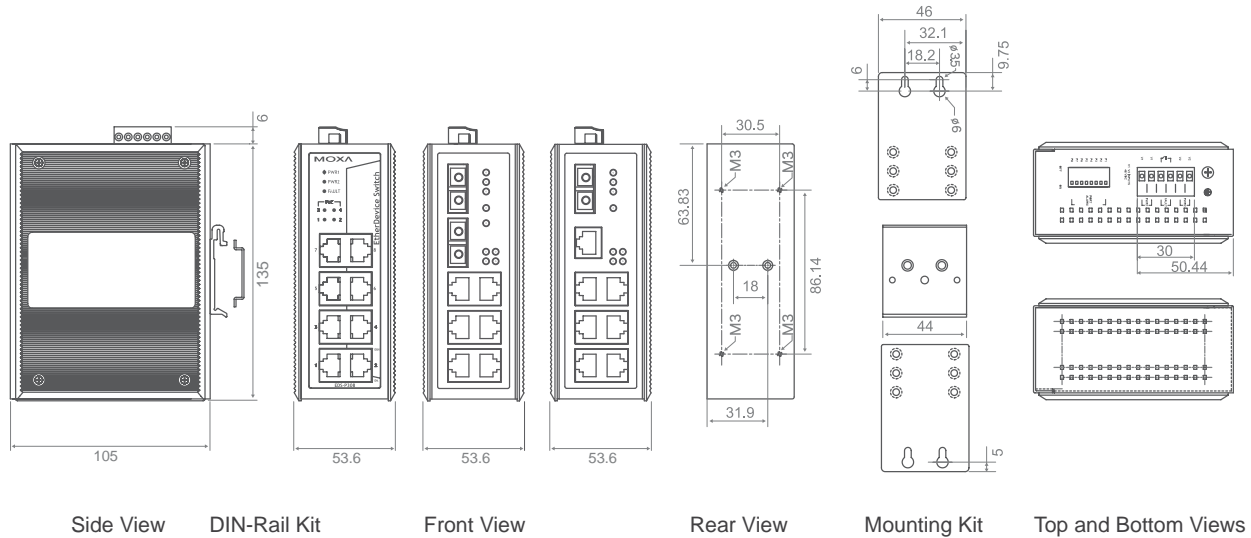
Database: Telcordia (Bellcore), GB

\*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)**



# SPL-24 Series

## IEEE 802.3af PoE splitter



- > IEEE 802.3af compliant, splits power and data from PoE equipment
- > Supports output power up to 12.95 W at 24 VDC
- > Short circuit protection for power output
- > Auto disconnection if power input voltage is too high
- > -40 to 75°C operating temperature range (T models)
- > DIN-Rail mounting ability



**Specifications**

**Technology**

**Standards:** IEEE 802.3 for 10BaseT,  
 IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
 IEEE 802.3af for Power-over-Ethernet

**Interface**

**RJ45 Ports:** 10/100BaseT(X) for PoE IN and DATA OUT  
**LED Indicators:** Power

**Power Requirements**

**Input Voltage:** 44 to 75 VDC  
**Output Voltage:** 24 VDC  
**Output Power:** 12.95W (0.54A @ 24 VDC)  
**Connection:** Removable 3-pin terminal block for output  
**Overload Current Protection:** 400 mA (@ 48 VDC input)  
**Efficiency:** 85% (at 25°C, fully loaded)

**Physical Characteristics**

**Casing:** IP30 protection, plastic case  
**Dimensions (W x H x D):** 24.87 × 100 × 74 mm (0.98 x 3.93 x 2.91 in.)  
**Weight:** 95 g  
**Installation:** DIN-Rail mounting

**Environmental Limits**

**Operating Temperature:** 0 to 60°C (32 to 140°F)  
 -40 to 75°C (-40 to 167°F) for T model  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)

**Regulatory Approvals**

**Safety:** UL508 (Pending)  
**Hazardous Location:**  
 UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending);  
 ATEX Class I, Zone 2, Ex nC IIC (Pending)  
**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  
 EN61000-4-8  
 EN61000-4-11

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

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

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

**MTBF:** 5,100,000 hrs

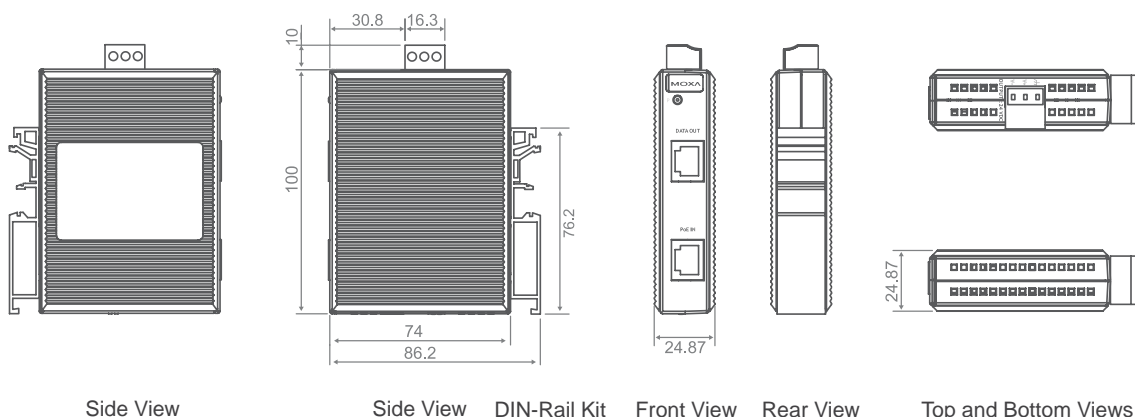
Database: MIL-HDBK-217F, GB 25°C

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

**Warranty**

5 years (see www.moxa.com/warranty for details)

**Dimensions (unit = mm)**



**Ordering Information**

Product Model		Port Interface			
Standard Temperature (0 to 60°C)	Extended Temperature (-40 to 75°C)	PoE, 10/100BaseT(X)	10/100BaseT(X)	100BaseFX	
				Multit Mode, SC Connector	Single Mode, SC Connector
EDS-P308	EDS-P308-T	4	4		
EDS-P308-M-SC	EDS-P308-M-SC-T	4	3	1	
EDS-P308-S-SC	EDS-P308-S-SC-T	4	3		1
EDS-P308-MM-SC	EDS-P308-MM-SC-T	4	2	2	
EDS-P308-SS-SC	EDS-P308-SS-SC-T	4	2		2

**Optional Accessories**

- SPL-24:** PoE splitter, maximum output of 12.95W at 24 VDC, 0 to 60°C
- SPL-24-T:** PoE splitter, maximum output of 12.95W at 24 VDC, -40 to 75°C
- DR-75-48:** 75W/1.6A DIN-Rail 48 VDC power supply with universal 85 to 264 VAC input
- DR-120-48:** 120W/2.5A DIN-Rail 48 VDC power supply with 88 to 132 VAC/176 to 264 VAC input by switch
- WK-46:** Wall mounting kit
- RK-4U:** 4U-high 19" rack mounting kit

# EDS-305-M12 Series

## 5-port M12/IP67 unmanaged Ethernet switch



- > M12 connectors and IP67 rated case
- > 10/100BaseT(X), 4-pin M12 (D-coding), F/H duplex mode, and auto MDI/MDI-X connection
- > Power input: 12 to 45 VDC, 18 to 30 VAC
- > -40 to 75°C operating temperature range (T models)



### Introduction

The EDS-305-M12 series Ethernet switches are IP67 rated for the toughest industrial applications. The EDS-305-M12's rugged packaging and connectors guard against dust, water, and oil. The M12 connectors ensure tight and robust connections and protect your applications from disturbances, such as the vibration and

shock encountered in the transportation industry. In addition, these space-saving switches can be mounted virtually anywhere. Extended operating temperature models for -40 to 75°C operation are also available.

### 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, with IEEE 802.3x full duplex, non-blocking flow control

#### Interface

**M12 Ports:** 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection

**LED Indicators:** Power, LNK/ACT

#### Power Requirements

**Input Voltage:** 12 to 45 VDC, 18 to 30 VAC (47 to 63 Hz)  
**Input Current (@ 24 V):** 0.12A @ 24 VDC; 0.28A @ 24 VAC  
**Connection:** one M12 socket (A-coding), single power input  
**Overload Current Protection, Limited Current:** 1.1A  
**Reverse Polarity Protection:** Present

#### Physical Characteristics

**Casing:** IP67 protection, plastic case  
**Dimensions (W x H x D):** 60 x 125 x 29.6 mm (2.36 x 4.92 x 1.17 in.)  
**Weight:** 250 g  
**Installation:** Field-style mounting, DIN-Rail 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 model  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5% to 95% (non-condensing)

#### Regulatory Approvals

**Safety:** UL508 (Pending)

**Rail Traffic:** EN50155 (Pending), EN50121-4 (Pending), EN50121-3-2 (Pending)

#### Hazardous Location:

UL/cUL Class I, Division 2, Groups A and D (Pending);  
ATEX Class I, Zone 2, Ex nC IIC (Pending)

**Maritime:** DNV (Pending), GL (Pending)

**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 2  
EN61000-4-8  
EN61000-4-11

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

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

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

**MTBF:** 636,000hrs

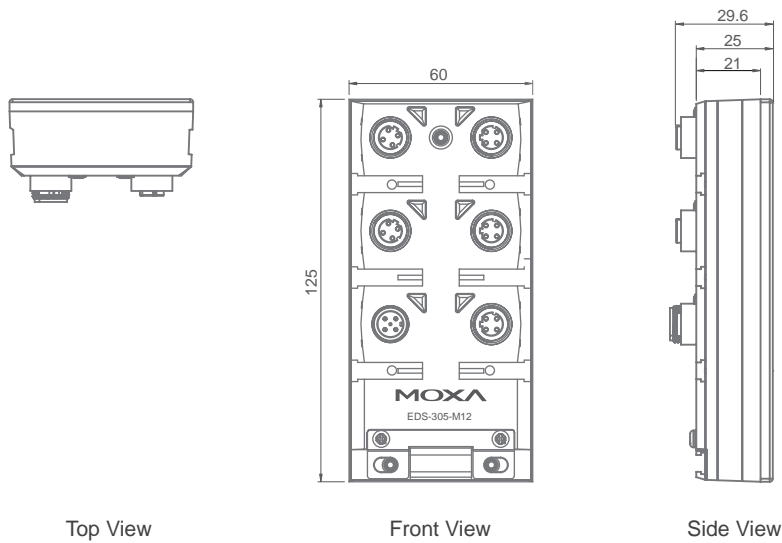
Database: Telcordia (Bellcore), GB

\*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)**




**Ordering Information**

- **EDS-305-M12:** Industrial M12/IP67 unmanaged Ethernet switch with 5 10/100BaseT(X) ports, 0 to 60°C
- **EDS-305-M12-T:** Industrial M12/IP67 unmanaged Ethernet switch with 5 10/100BaseT(X) ports, -40 to 75°C



**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
- **DK-M12-305:** DIN-Rail mounting kit for EDS-305-M12 series
- **M12 Patch Cords and Sensor Connectors:**

**M12 Patch Cords**

	<b>CBL-M12D(MM4P)/RJ45-100 IP67</b>	1-meter M12-to-RJ45 Cat-5E UTP Ethernet cable with waterproof 4-pin D-coded M12 connector
	<b>BL-M12(FF5P)/OPEN-100 IP67</b>	1-meter M12-to-5-pin power cable with waterproof 5-pin A-coded M12 connector

**Sensor Connectors**

	<b>M12D-4P-IP68</b>	Field-installable D-coded screw-in sensor connector, male
	<b>M12A-5P-IP68</b>	Field-installable A-coded screw-in sensor connector, female

# EDS-316/309/308/305 Series

## 16, 9, 8, and 5-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

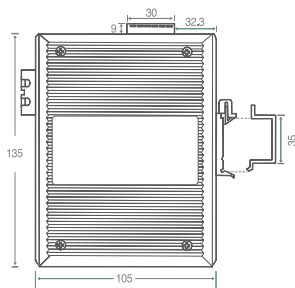
\*Please check Moxa's website for the most up-to-date certification status.

**Warranty**

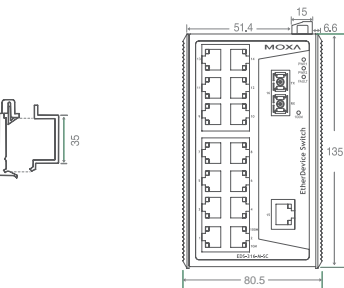
5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**

[ EDS-316 series ]

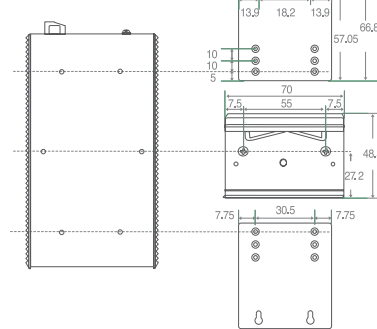


Side View



DIN-Rail Kit

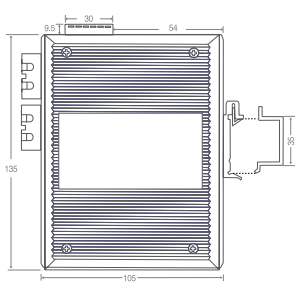
Front View



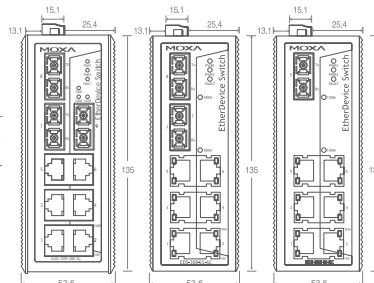
Rear View

Mounting Kit

[ EDS-309/308/305 series ]

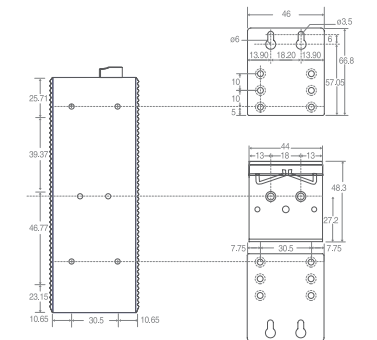


Side View



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

# EDS-208A/205A/208/205 Series

Preliminary

## 8 and 5-port entry-level unmanaged Ethernet switches



- > 10/100BaseT(X) (RJ45 connector), 100BaseFX (Multi mode, SC or ST connector)
- > Supports IEEE 802.3/802.3u/802.3x
- > Redundant dual 12/24/48 VDC, 18 to 30 VAC power inputs (EDS-208A/205A)
- > IP30 metal case (EDS-208A/205A)
- > -10 to 60°C operating temperature range



### Introduction

The EDS-208A/205A and EDS-208/205 are entry-level 8 and 5-port industrial Ethernet switches that support IEEE 802.3 and IEEE 802.3u/x with 10/100M full/half-duplex, MDI/MDI-X auto-sensing. The EDS-208A/205A switches provide 12/24/48 VDC (9.6 to 60VDC), 18 to 30 VAC redundant power inputs that can be connected simultaneously to live DC/AC power sources. In addition, the EDS-208A/205A switches are rated to operate at temperatures ranging from -10 to 60°C, and IP30-rated metal case is rugged enough for any harsh industrial environment. The EDS-208A/205A have DIP switches for enabling or disabling broadcast storm protection, providing another level of flexibility for different industrial applications. The

EDS-208A/205A/208/205 switches are easy to install on a DIN- or in distribution boxes. The DIN-Rail mounting capability and the IP30 case with LED indicators make these plug-and-play switches easy to use and extremely reliable.

#### Comparison Chart for EDS-200A/200 Ethernet Switches

	Power Redundancy	Metal Case	DIP Switch*	Power Range
EDS-200A	√	√	√	12/24/48 VDC (9.6 to 60 VDC)
EDS-200				12 to 45 VDC

\*DIP switch for enabling or disabling broadcast storm protection.

### 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, Full/Half duplex mode, and auto MDI/MDI-X connection

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

**LED Indicators:** Power, 10/100M (TP port), and 100M (Fiber port)

#### Optical Fiber

**Distance:** 0 to 5 km, 1300 nm (50/125 μm, 800 MHz\*km)  
0 to 4 km, 1300 nm (62.5/125 μm, 500 MHz\*km)

**Min. TX Output:** -20 dBm

**Max. TX Output:** -14 dBm

**RX Sensitivity:** -34 to -30 dBm

#### Power Requirements

- EDS-208A/205A series

**Input Voltage:** 12/24/48 VDC (9.6 to 60 VDC), 18 to 30 VAC (47 to 63 Hz)

**Connection:** Removable 4-contact terminal block

**Reverse Polarity Protection:** Present

- EDS-208/205 series

**Input Voltage:** 12 to 45 VDC, 18 to 30 VAC (47 to 63 Hz)

**Input Current (@ 24 V):** 0.12A (EDS-205), 0.14A (EDS-208), 0.23A (EDS-208-M)

**Connection:** Removable 3-contact terminal block

**Overload Current Protection:** 1.1A

**Reverse Polarity Protection:** Present

#### Physical Characteristics

**Casing:** IP30 protection, metal case (EDS-208A/205A), plastic case (EDS-208/205)

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

EDS-208A: 50 x 115 x 70 mm (1.96 x 4.52 x 2.76 in.)

EDS-205A: 30 x 115 x 70 mm (1.18 x 4.52 x 2.76 in.)

EDS-208: 40 x 100 x 74 mm (1.57 x 3.94 x 2.91 in.)

EDS-205: 25 x 100 x 74 mm (0.98 x 3.94 x 2.91 in.)

**Weight:** EDS-208: 170 g

EDS-205: 135 g

**Installation:** DIN-Rail mounting

#### Environmental Limits

**Operating Temperature:** -10 to 60°C (14 to 140°F)

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

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

#### Regulatory Approvals

**Safety:** EDS-208A: UL508 (Pending)

EDS-205A: UL508 (Pending)

EDS-208: UL508, UL60950-1

EDS-205: UL508



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

**EMS:** EN61000-4-2 (ESD)  
 EN61000-4-3 (RS)  
 EN61000-4-4 (EFT)  
 EN61000-4-5 (Surge)  
 EN61000-4-6 (CS)  
 EN61000-4-8  
 EN61000-4-11

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

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

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

**MTBF:** EDS-208: 368,000 hrs  
 Database: MIL-HDBK-217F, GB 25°C  
 EDS-205: 323,000 hrs  
 Database: Telcordia (Bellcore), GB

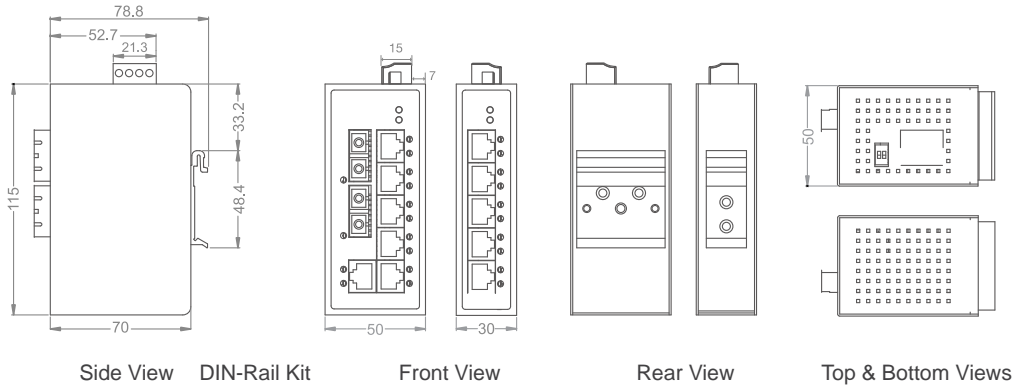
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**Warranty**

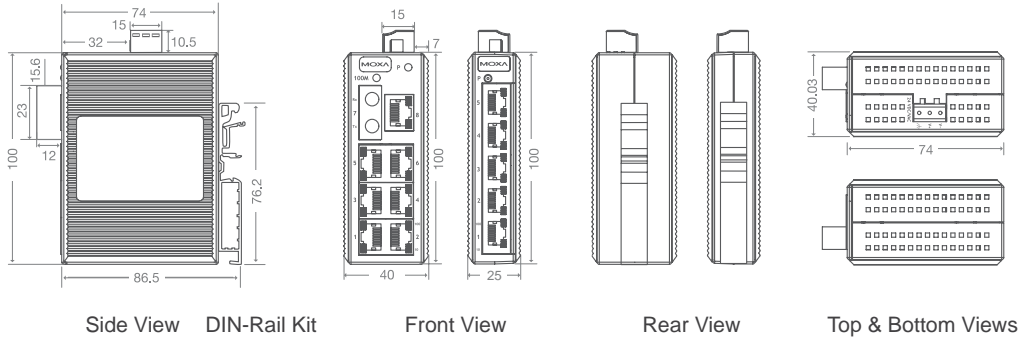
5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**

[ EDS-208A/205A ]



[ EDS-208/205 ]



**: Ordering Information**

Product Model	Port Interface		Case Material	Power Range	
	10/100BaseT(X)	100BaseFX			
Standard Temperature (-10 to 60°C)		Multi Mode, SC Connector	Multi Mode, ST Connector		
	<b>EDS-208A/205A Series</b>				
EDS-205A	5			Metal	12/24/48 VDC (9.6 to 60 VDC)
EDS-208A	8			Metal	12/24/48 VDC (9.6 to 60 VDC)
EDS-208A-M-SC	7	1		Metal	12/24/48 VDC (9.6 to 60 VDC)
EDS-208A-M-ST	7		1	Metal	12/24/48 VDC (9.6 to 60 VDC)
<b>EDS-208/205 Series</b>					
EDS-205	5			Plastic	12 to 45 VDC
EDS-208	8			Plastic	12 to 45 VDC
EDS-208-M-SC	7	1		Plastic	12 to 45 VDC
EDS-208-M-ST	7		1	Plastic	12 to 45 VDC

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