

PoE Ethernet Switches

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How PoE works

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PoE Ethernet Switches

There are two basic components in an IEEE 802.3af compliant PoE network:
Power Sourcing Equipment (PSE)

A device that supplies power
Powered Device (PD)

A device that receives and utilizes the power

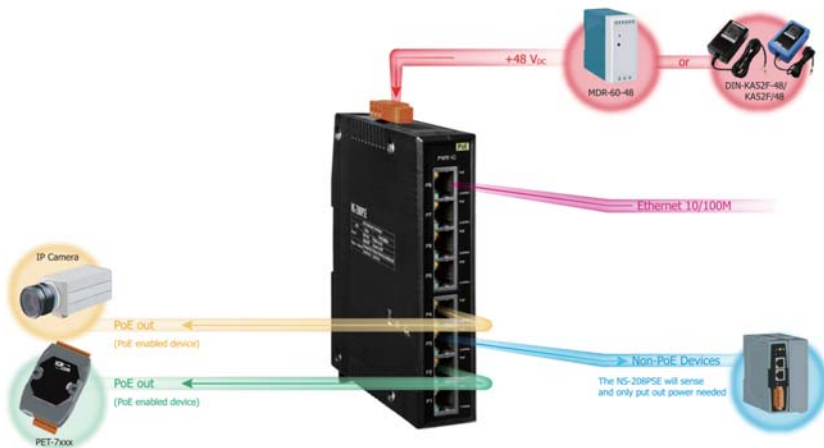
When the PSE connects to a network device, the PSE determines or “discovers” if the device is a PD or not. This prevents non-PoE enabled Ethernet equipment from receiving power, which could cause damage. The PSE applies two small current-limited voltage signals across the cable as it checks for the presence of a characteristic resistance. If resistance is detected, power is provided. A PD may also classify how much power it will require from the PSE. This feature supports the PSE by helping it supply power in an efficient way.

After the PSE has discovered a PD, it supplies 48 V and a maximum current of 350 mA. Voltage may be lost along the cable, depending on distance. However, a minimum of about 13 W is available to each PD, which is adequate power for numerous applications including VoIP telephones, WAPs, security cameras and building automation systems.

Once the PSE begins to provide power, it continuously monitors the PD current draw. Once the PD current consumption drops below a minimum value, for example when the device is unplugged, the PSE discontinues supplying power and the discovery process begins again.

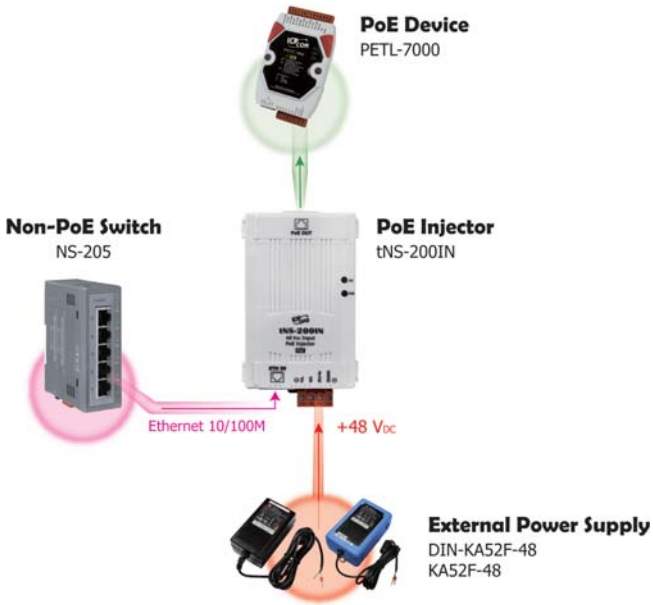
The IEEE 802.3af standard defines two different types of PSEs: endspan and midspan.

An endspan PSE - Integrates the power sourcing functionality with a network switch. Endspans available today look and function exactly the same as any other Ethernet switch, except they can provide PoE in addition to routing data. Since Ethernet data pairs use transformers coupled at each end of the link, DC power can easily be added to the center tap of the transformer without disrupting the data. In this mode of operation, an endspan injects both power and data on pin-pairs 3 and 6 and pin-pairs 1 and 2.



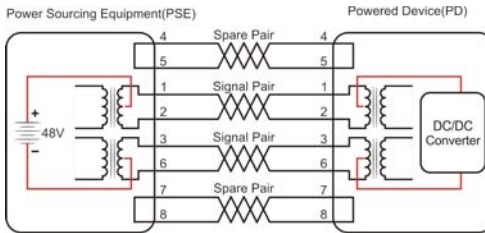
A midspan PSE - Fits in between the switch and the PD. It supplies power over the unused cable pin-pairs 4 and 5 and pin-pairs 7 and 8. Data is routed through the midspan device without modification, as shown in Figure 2. These devices are usually mounted adjacent to the Ethernet switch in an equipment rack. It is important to note that although the PSE can only use pin-pairs assigned from an endspan or a midspan, the PD must have the capability to accept power from both.

Overview

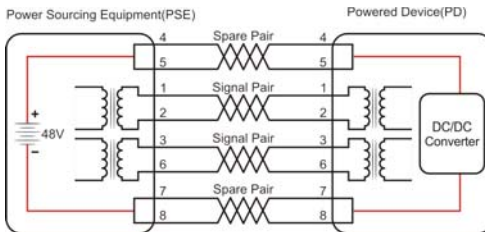


Power is carried over the cabling using two techniques: Mode A and Mode B

Mode A: Power is carried on the same conductors as data. CAT-5 cabling for standard 10BaseT and 100Base-TX Ethernet uses two data/signal pairs connected to pins 1 and 2 and pins 3 and 6 on RJ-45 connectors. Power sourcing equipment superimposes power onto these pins via the center tap of internal signal coupling transformers. In the powered device (PD) the power is derived from these lines using the reverse technique.



Mode B: The twisted pair on pins 4 and 5 is connected to form the positive electric power supply, while the pair on pins 7 and 8 is connected to form the negative supply. Each pair can accommodate either polarity.



The IEEE 802.af standard specifies that all power sourcing equipment and powered devices must be compatible with both methods above. However, only one of the methods may be used at a time.

NS-208PSE/NSM-208PSE

NEW
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8-port Industrial 10/100 Mbps PoE (PSE) Ethernet Switch

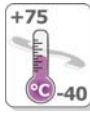
NSM-208PSE



NS-208PSE



Highlight Information >>>



Features >>>>

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 8 PoE ports with Power Sourcing Equipment (PSE) operation
- Auto-detection of PD (powered devices) and automatic power management
- Over-temperature, over-current and over/under-voltage detection
- Supports +46 ~ 55 Vdc power input
- Supports operating temperatures from -40 °C ~ +75 °C
- DIN-Rail
- "-R" stands for products with conformal coating protection

Introduction

The NS-208PSE/NSM-208PSE is an 8-port unmanaged PoE (Power over Ethernet) Industrial Ethernet switch, it supports 8 PoE ports which are classified as power source equipments (PSE). The NS-208PSE/NSM-208PSE makes centralized power supply come true and provides up to 15.4 W of power per port. The NS-208PSE/NSM-208PSE can be used to power IEEE802.3af compliant powered devices (PD) by Ethernet cable and eliminates the need for additional power wiring.

Specifications

Models	NS-208PSE	NSM-208PSE
Technology		
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3af (Power over Ethernet)	
Processing Type	Store & forward; wire speed switching	
MAC Addresses	1024	
Memory Bandwidth	3.2 Gbps	
Frame Buffer Memory	512 Kbit	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Interface		
RJ-45 Ports	10/100 Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection	
LED Indicators	Power, Link/Act, Powered device detect	
Ethernet Isolation	1500 V _{rms} 1 minute	
+/-6 kV EMS Protection	Yes	
Power Input		
Input Voltage Range	+46 ~ +55 V _{dc} for PoE output	
Power Consumption	0.1 A @ 48 V _{dc} without PD loading; 2.8 A @ 48 V _{dc} with PD full loading	
Protection	Power reverse polarity protection	
+/-6 kV ESD Protection	Yes	
Connection	3-Pin Removable Terminal Block	
PoE Technology		
PoE Compliance	100% IEEE 802.3af compliant	
PoE Classification	PSE (Power Sourcing Equipment)	
PoE Voltage	+46 ~ +55 V _{dc} depending on power input	
PoE Power	Up to 15.4 W per port	
PoE Operation	Automatic detection and power management	
PoE Pin Assignments	V+ (Pin 1, 2), V- (Pin 3, 6)	
PoE Disconnect Mode	DC disconnect	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	31 mm x 157 mm x 113 mm	25 mm x 168 mm x 119 mm
Installation	DIN-Rail	
Environment		
Operating Temperature	-40 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	

LED Indicator Functions

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Port 1 ~ Port 8	Orange On	Power Device is detected
	Green On	Link/Act

Pin Function for Terminal Block

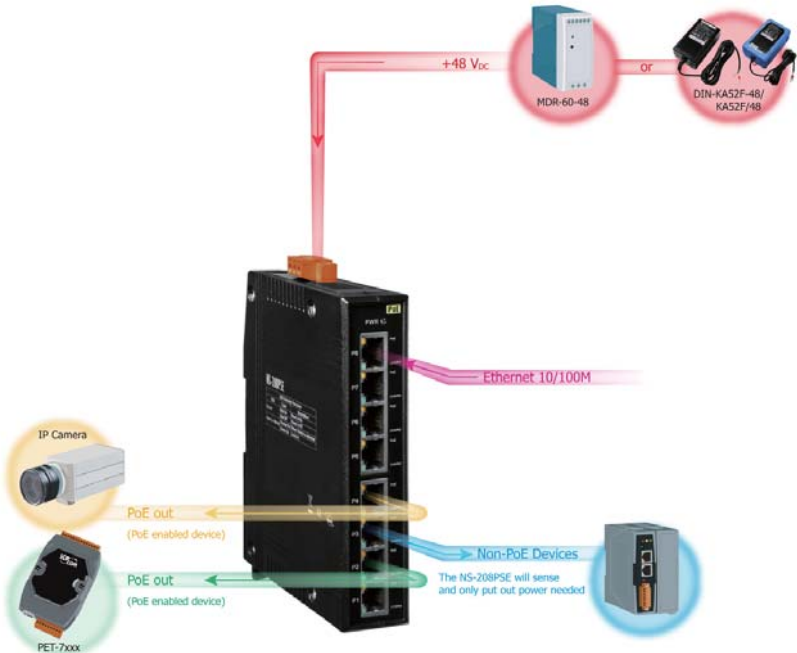
External power supply is connected using the removable terminal block:

PWR: Power input (+46 Vdc ~ +55 Vdc) and should be connected to the power supply (+)

GND: Ground and should be connected to the power supply (-)

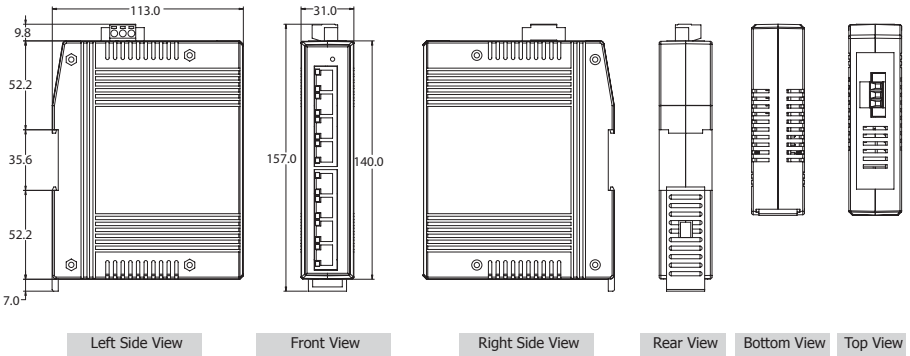
F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and ESD protection.

Applications

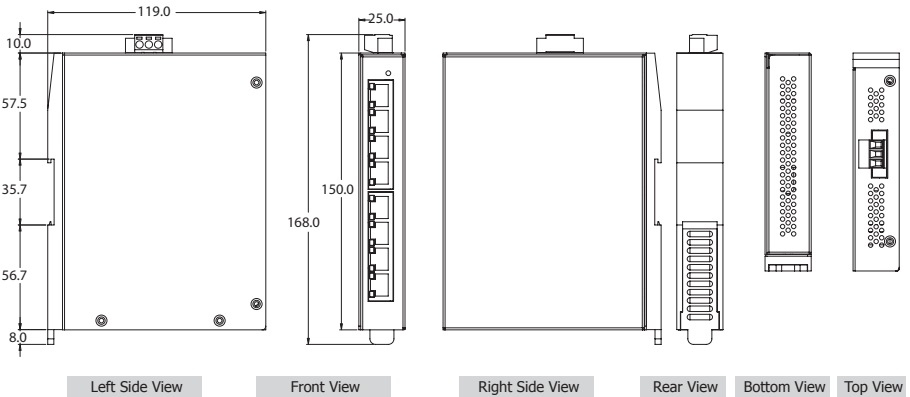


Dimensions (Units: mm)

NS-208PSE series



NSM-208PSE series



Ordering Information

NS-208PSE CR	Unmanaged 8-port Industrial 10/100 Mbps PoE (PSE) Ethernet Switch (RoHS)
NS-208PSE-R CR	NS-208PSE with Conformal coating protection (RoHS)
NSM-208PSE CR	Unmanaged 8-port Industrial 10/100 Mbps PoE (PSE) Ethernet Switch with Metal Casing (RoHS)
NSM-208PSE-R CR	NSM-208PSE with Conformal coating protection (RoHS)

Accessories

MDR-60-48	48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 V/0.52 A, 25 W Power Supply with DIN-Rail Mounting
KA52F-48	48 V/0.52 A, 25 W Power Supply

NS-205PSE-24V/NSM-205PSE-24V

NEW

5-port 10/100 Mbps PoE (PSE) Ethernet Switch with 24 V_{DC} Input

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PoE Ethernet Switches

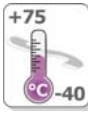
NSM-205PSE-24V



NS-205PSE-24V



Highlight Information



Features

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Supports +18 V_{DC} ~ +32 V_{DC} power input
- Supports operating temperatures from -40 °C ~ +75 °C
- DIN-Rail
- IEEE 802.3af compliant PoE ports
4-PoE Port with power sourcing equipment (PSE) operation Auto-detection of PD (powered devices) and automatic power management over-temperature, over-current and over/under-voltage detection

Introduction

The NS-205PSE-24V/NSM-205PSE-24V is a 5-port unmanaged PoE (Power over Ethernet) Industrial Ethernet switch; it supports 4 PoE ports which are classified as power source equipments (PSE). The NS-205PSE-24V/NSM-205PSE-24V makes centralized power supply come true and provides up to 15.4 W of power per PSE port.

The NS-205PSE-24V/NSM-205PSE-24V is designed with 24 V_{DC} to 48 V_{DC} boost for PoE application where 48 V_{DC} power supply is not available

NS-205PSE-24V/NSM-205PSE-24V

Specifications

Models	NS-205PSE-24V	NSM-205PSE-24V
Technology		
Standards	IEEE 802.3, 802.3u, 802.3x ,802.3af (Power over Ethernet)	
Processing Type	Store & forward; wire speed switching	
MAC Addresses	1024	
Memory Bandwidth	3.2 Gbps	
Frame Buffer Memory	512 Kbit	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Interface		
RJ-45 Ports	10/100 Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection	
LED Indicators	Power, Link/Act, 10/100M, Power Device is detected	
Ethernet Isolation	1500 V _{rms} 1 minute	
+/-6 kV EMS Protection	Yes	
Power Input		
Input Voltage Range	+18 ~ +32 V _{DC} for PoE output	
Power Consumption	0.24 A @ 24 V _{DC} without PD loading 3.2 A @ 24 V _{DC} with PD full loading 4.6 A @ 18 V _{DC} with PD full loading	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Connection	3-Pin Removable Terminal Block	
PoE Technology		
PoE Compliance	100% IEEE 802.3af compliant	
PoE Classification	PSE (Power Sourcing Equipment)	
PoE Voltage	+48 V _{DC}	
PoE Power	Up to 15.4 W per port	
PoE Operation	Automatic detection and power management	
PoE Pin Assignments	V+ (Pin 1, 2), V- (Pin 3, 6)	
PoE Disconnect Mode	DC disconnect	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	31 mm x 157 mm x 113 mm	25 mm x 168 mm x 119 mm
Installation	DIN-Rail	
Environment		
Operating Temperature	-40 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	

LED Indicator Functions

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Port 1 ~ Port 4	Orange On	Power Device is detected
	Green On	Link/Act
Port 5	Yellow On	Link to 100 Mbps
	Green On	Link/Act

Pin Function for Terminal Block

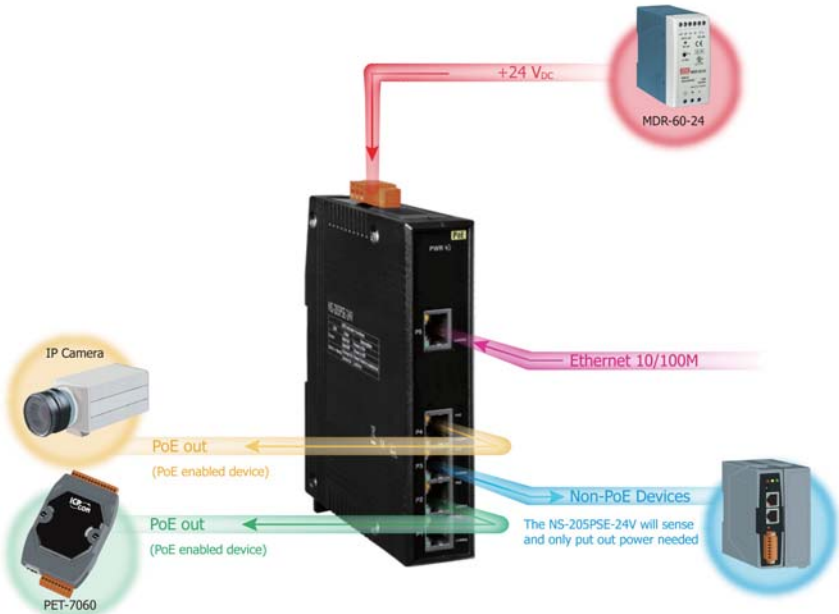
External power supply is connected using the removable terminal block:

PWR: Power input (+18 Vdc ~ +32 Vdc) and should be connected to the power supply (+)

GND: Ground and should be connected to the power supply (-)

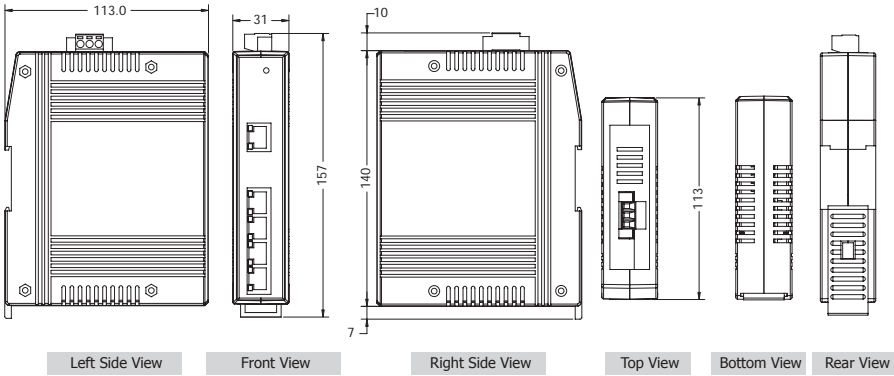
F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and ESD protection.

Applications

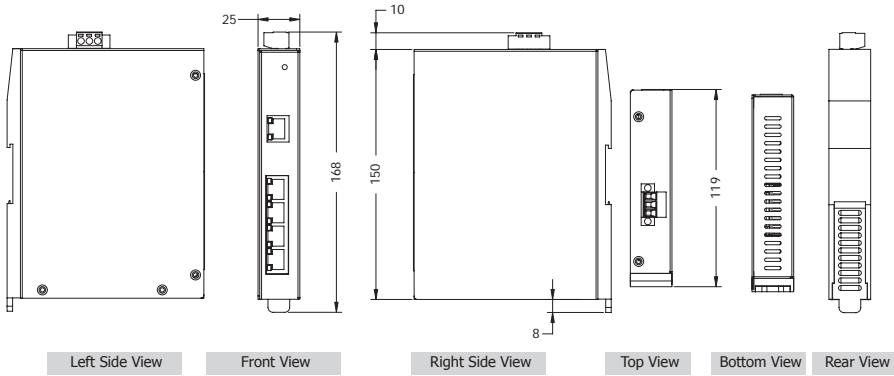


Dimensions (Units: mm)

NS-205PSE-24V series



NSM-205PSE-24V series



Ordering Information

NS-205PSE-24V CR	Unmanaged 5-port 10/100 Mbps PoE (PSE) Ethernet Switch with 24 V _{oc} Input (RoHS)
NSM-205PSE-24V CR	Unmanaged 5-port 10/100 Mbps PoE (PSE) Ethernet Switch with 24 V _{oc} Input; Metal Casing (RoHS)

Accessories

MDR-60-24	24 V/2.5 A, 60 W Power Supply with DIN-Rail Mounting
MDR-20-24	24 V/1.0 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F	24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting

NS-205PF Series/NSM-205PF Series

NEW

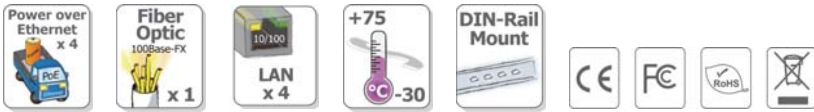
4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port

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PoE Ethernet Switches



Highlight Information >>>



Features >>>

- Provides 1 x 100-FX fiber port plus 4 x PoE ports
- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 4 PoE ports with Power Sourcing Equipment (PSE) operation
- Auto-detection of PD (powered devices) and automatic power management
- Over-temperature, over-current and over/undervoltage detection
- Supports +46 ~ +55 Vdc power input
- Supports operating temperatures from -30 ~ +75°C
- DIN-Rail

Introduction

The NS-205PF/NSM-205PF is a 4-port unmanaged PoE (PSE) with 1 fiber port switch; it supports 4 PoE ports which are classified as power source equipments (PSE). The NS-205PF/NSM-205PF makes centralized power supply come true and provides up to 15.4 W of power per PSE port. Using fiber optics, you can prevent noise from interfering with your system and supports high-speed (100 Mbps) and long-distance (up to 60 km) transmissions.

NS-205PF Series/NSM-205PF Series

Specifications

Models	NS-205PF series	NSM-205PF series
Technology		
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3af (Power over Ethernet)	
Processing Type	Store & forward; wire speed switching	
MAC Addresses	1024	
Memory Bandwidth	3.2 Gbps	
Frame Buffer Memory	512 Kbit	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Ethernet Interface		
RJ-45 Ports	10/100 Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection	
LED Indicators	Power, Link/Act, 10/100M, Power Device is detected	
Ethernet Isolation	1500 V _{rms} 1 minute	
+/-4 kV ESD Protection	Yes	
Fiber Interface (100 Base-FX; SC/ST type)		
Multi-Mode (NS-205PFT/FC; NSM-205PFT/FC)	Multi mode fiber cables: 50/125, 62.5/125 or 100/140 μ m Distance: 2 km, (62.5/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 20 dBm Max. TX Output: -14 dBm Max. RX Sensitivity: -32 dBm Max. RX Overload: -8 dBm Budget: 12 dBm	
Single-Mode (NS-205PFCS; NSM-205PFCS)	Single-mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μ m Distance: 30 km, (9/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 15 dBm Max. TX Output: -8 dBm Max. RX Sensitivity: -34 dBm Max. RX Overload: -5 dBm Budget: 19 dBm	
Single-Mode (NS-205PFCS-60; NSM-205PFCS-60)	Single-mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μ m Distance: 60 km, (9/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 5 dBm Max. TX Output: 0 dBm Max. RX Sensitivity: -35 dBm Max. RX Overload: -5 dBm Budget: 30 dBm	
Power Input		
Input Voltage Range	+46 ~ +55 V _{dc} for PoE output	
Power consumption	0.08 A @ 48 V _{dc} without PD loading; 1.5 A @ 48 V _{dc} with PD full loading	
Protection	Power reverse polarity protection	
+/- 4kV ESD Protection	Yes	
Connection	3-Pin Removable Terminal Block	
PoE Technology		
PoE Compliance	100% IEEE 802.3af compliant	
PoE Classification	PSE (Power Sourcing Equipment)	
PoE Voltage	+48 V _{dc} depending on power input	
PoE Power	Up to 15.4 W per port	
PoE Operation	Automatic detection and power management	
PoE Pin Assignments	V+ (Pin 1, 2), V- (Pin 3, 6)	
PoE Disconnect Mode	DC disconnect	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	31 mm x 157 mm x 113 mm	25 mm x 168 mm x 119 mm
Installation	DIN-Rail	
Environment		
Operating Temperature	-30 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	

LED Indicator Functions

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Port 1 ~ Port 4	Orange On	Power Device is detected
	Green On	Link/Act
Port 5	Green On	Link/Act

Pin Function for Terminal Block

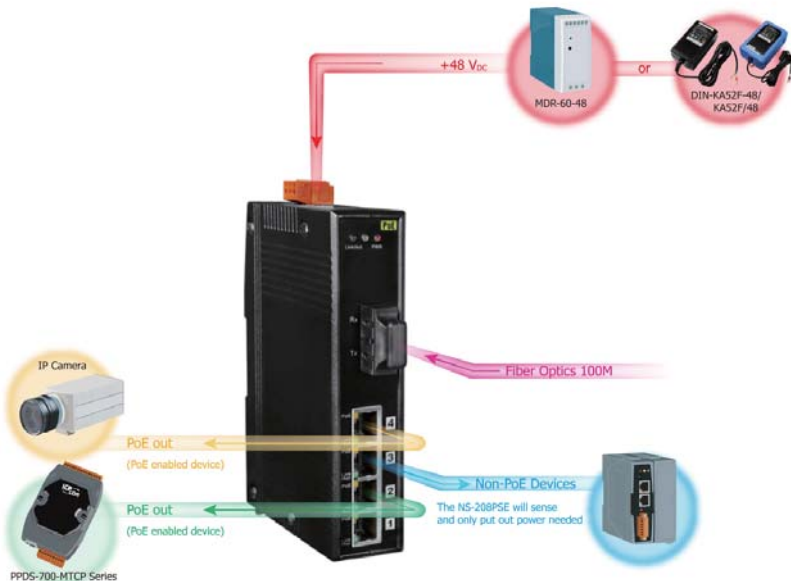
External power supply is connected using the removable terminal block:

PWR: Power input (+46 Vdc ~ +55 Vdc) and should be connected to the power supply (+)

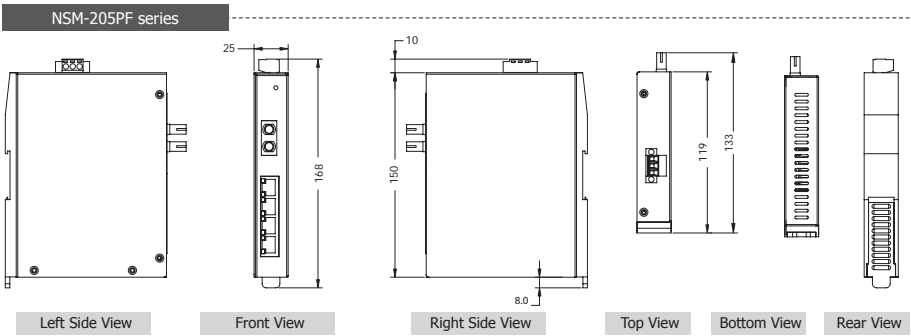
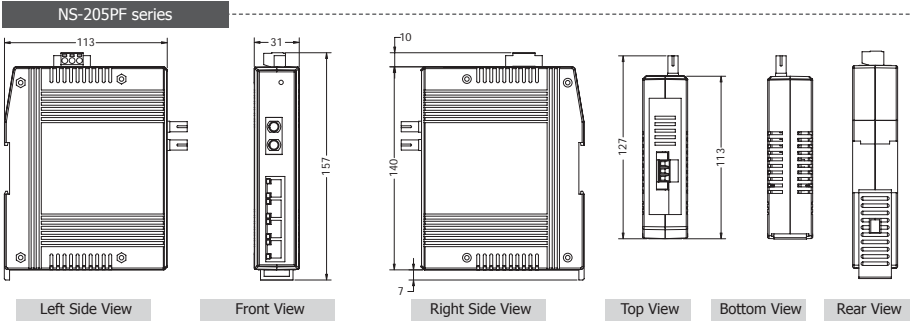
GND: Ground and should be connected to the power supply (-)

F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and ESD protection.

Applications



Dimensions (Units: mm)



Ordering Information

NS-205PFT CR	Multi-mode 2 km, ST Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFC CR	Multi-mode 2 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFCs CR	Single-mode 30 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFCs-60 CR	Single-mode 60 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NSM-205PFT CR	Multi-mode 2 km, ST Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFC CR	Multi-mode 2 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFCs CR	Single-mode 30 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFCs-60 CR	Single-mode 60 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)

Accessories

MDR-60-48	48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 V/0.52 A, 25 W Power Supply with DIN-Rail Mounting
KA52F-48	48 V/0.52 A, 25 W Power Supply

NS-205PF-24V Series/NSM-205PF-24V Series **NEW**

PoE Switch with 1 Fiber port and 24 V_{DC} Input

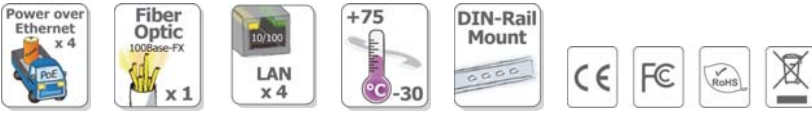
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PoE Ethernet Switches

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|----------------|---|---------------|--|
| NSM-205PFT-24V | NSM-205PFC-24V
NSM-205PFCS-24V
NSM-205PFCS-60-24V | NS-205PFT-24V | NS-205PFC-24V
NS-205PFCS-24V
NS-205PFCS-60-24V |
|----------------|---|---------------|--|



Highlight Information >>>



Features >>>

- Provides 1 x 100-FX fiber port plus 4 x PoE ports
- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 4 PoE ports with Power Sourcing Equipment (PSE) operation
- Auto-detection of PD (powered devices) and automatic power management
- Over-temperature, over-current and over/undervoltage detection
- Supports +18 ~ +32 V_{DC} power input
- Supports operating temperatures from -30 ~ +75°C
- DIN-Rail

Introduction

The NS-205PF-24V/NSM-205PF-24V is a 4-port unmanaged PoE (PSE) Ethernet switch with 1 fiber port; it supports 4 PoE ports which are classified as power source equipments (PSE). The NS-205PF-24V/NSM-205PF-24V makes centralized power supply come true and provides up to 15.4 W of power per PSE port. Using fiber optics, you can prevent noise from interfering with your system and supports long-speed (100 Mbps) and high-distance (up to 60 km) transmissions.

The NS-205PF-24V/NSM-205PF-24V is designed with 24 V_{DC} to 48 V_{DC} boost for PoE application where 48 V_{DC} power supply is not available.

NS-205PF-24V Series/NSM-205PF-24V Series

Specifications

Models	NS-205PF-24V series	NSM-205PF-24V series
Technology		
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3af (Power over Ethernet)	
Processing Type	Store & forward; wire speed switching	
MAC Addresses	1024	
Memory Bandwidth	3.2 Gbps	
Frame Buffer Memory	512 Kbit	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Ethernet Interface		
RJ-45 Ports	10/100 Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection	
LED Indicators	Power, Link/Act, 10/100M, Power Device is detected	
Ethernet Isolation	1500 V _{rms} 1 minute	
+/-4 kV ESD Protection	Yes	
Fiber Interface (100 Base-FX; SC/ST type)		
Multi-Mode (NS-205PFT/FC; NSM-205PFT/FC)	Multi mode fiber cables: 50/125, 62.5/125 or 100/140 μ m Distance: 2 km, (62.5/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 20 dBm Max. TX Output: -14 dBm Max. RX Sensitivity: -32 dBm Max. RX Overload: -8 dBm Budget: 12 dBm	
Single-Mode (NS-205PFCS; NSM-205PFCS)	Single-mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μ m Distance: 30 km, (9/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 15 dBm Max. TX Output: -8 dBm Max. RX Sensitivity: -34 dBm Max. RX Overload: -5 dBm Budget: 19 dBm	
Single-Mode (NS-205PFCS-60; NSM-205PFCS-60)	Single-mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μ m Distance: 60 km, (9/125 μ m recommended) for full duplex Wavelength: 1300 or 1310 nm Min. TX Output: - 5 dBm Max. TX Output: 0 dBm Max. RX Sensitivity: -35 dBm Max. RX Overload: -5 dBm Budget: 30 dBm	
Power Input		
Input Voltage Range	+18 ~ +32 V _{DC} for PoE output	
Power consumption	0.08 A @ 48 V _{DC} without PD loading; 1.5 A @ 48 V _{DC} with PD full loading	
Protection	Power reverse polarity protection	
+/- 4kV ESD Protection	Yes	
Connection	3-Pin Removable Terminal Block	
PoE Technology		
PoE Compliance	100% IEEE 802.3af compliant	
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PoE Pin Assignments	V+ (Pin 1, 2), V- (Pin 3, 6)	
PoE Disconnect Mode	DC disconnect	
Mechanical		
Casing	Plastic (Flammability UL 94V-0)	Metal (IP30 Protection)
Dimensions (W x L x H)	31 mm x 157 mm x 113 mm	25 mm x 168 mm x 119 mm
Installation	DIN-Rail	
Environment		
Operating Temperature	-30 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Ambient Relative Humidity	10% ~ 90% RH, non-condensing	

LED Indicator Functions

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Port 1 ~ Port 4	Orange On	Power Device is detected
	Green On	Link/Act
Port 5	Green On	Link/Act

Pin Function for Terminal Block

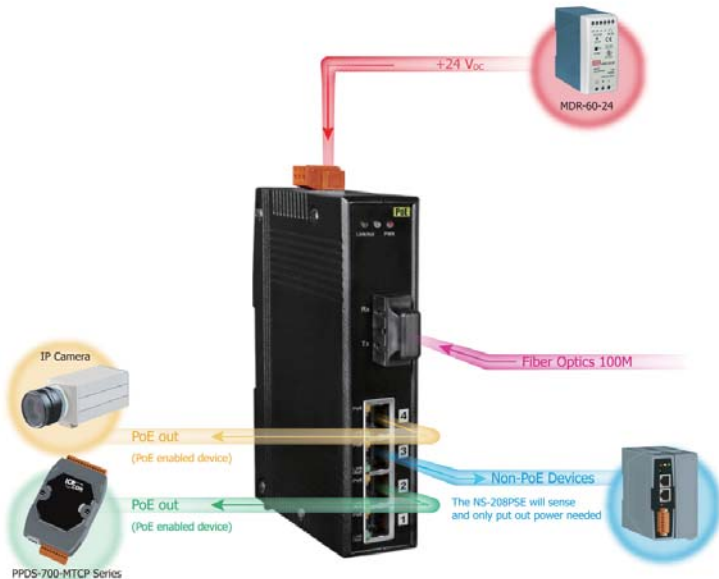
External power supply is connected using the removable terminal block:

PWR: Power input (+18 Vdc ~ +32 Vdc) and should be connected to the power supply (+)

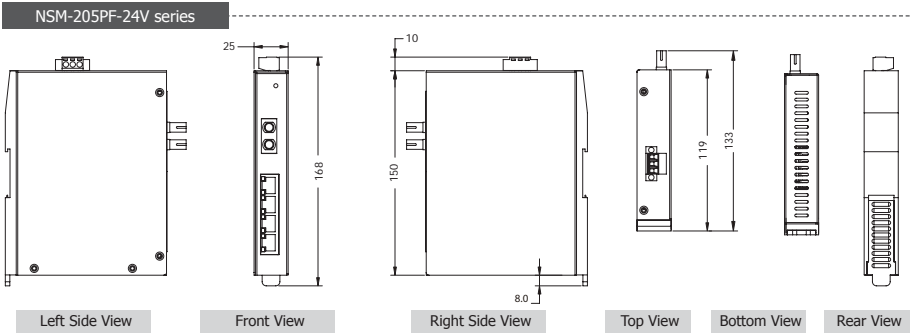
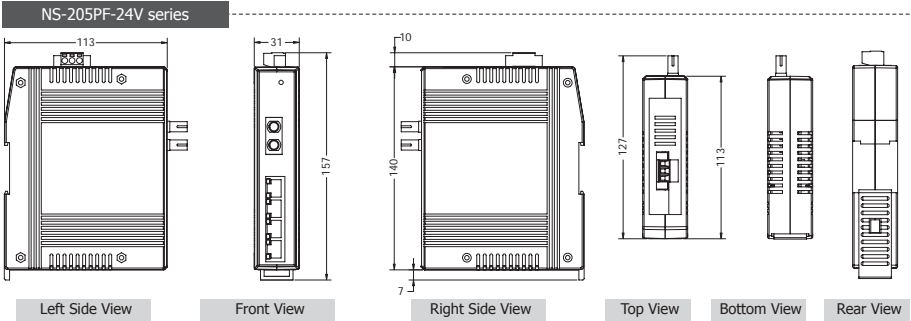
GND: Ground and should be connected to the power supply (-)

F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and ESD protection.

Applications



Dimensions (Units: mm)



Ordering Information

NS-205PFT-24V CR	Multi-mode 2 km, ST Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFC-24V CR	Multi-mode 2 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFC-24V CR	Single-mode 30 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NS-205PFC-60-24V CR	Single-mode 60 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port (RoHS)
NSM-205PFT-24V CR	Multi-mode 2 km, ST Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFC-24V CR	Multi-mode 2 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFC-24V CR	Single-mode 30 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)
NSM-205PFC-60-24V CR	Single-mode 60 km, SC Connector, 4-port 10/100 Mbps PoE (PSE) Ethernet Switch with 1 Fiber port; metal case (RoHS)

Accessories

MDR-60-24	24 V/2.5 A, 60 W Power Supply with DIN-Rail Mounting
MDR-20-24	24 V/1.0 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F	24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting

NSM-208PSE-M12

NEW
3

Unmanaged 8-port PoE Ethernet Switch with M12



Highlight Information ▶▶▶



Features ▶▶▶

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 8 PoE ports with Power Sourcing Equipment (PSE) operation
- Auto-detection of PD (powered devices) and automatic power management
- Over-temperature, over-current and over/under-voltage detection
- Operating temperatures, -40 ~ +75°C
- 8-port 10/100 Mbps M12 type connector with IP40 protection

Introduction

The NSM-208PSE-M12 is designed for industrial applications in harsh environments. The M12 connectors ensure tight, robust connections, and guarantee reliable operation, even for applications that are subject to high vibration and shock.

The NSM-208PSE-M12 PoE switch provide 8 fast Ethernet M12 ports with 8 IEEE 802.3af compliant PoE ports. The switch is classified as power source equipment (PSE) and provide up to 15.4 W of power per port.

The Ethernet switch 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.

Specifications

Technology	
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3af (PoE), 10/100 Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Processing Type	Store & forward
MAC Addresses	1024
Memory Bandwidth	3.2 Gbps
Frame Buffer Memory	512 Kbit
Flow Control	IEEE802.3x flow control, back pressure flow control
Interface	
LED Indicators	PWR, 10/100M, Link/Act, Power Device is detected
Ethernet Isolation	1500 V _{rms} 1 minute
Connection	Female 4-Pin shielded M12 D-coding connector
Power Input	
Input Voltage Range	+46 V _{DC} ~ +53 V _{DC}
Power Consumption	0.12 A @ 48 V _{DC} without PD loading; 3.0 A @ 48 V _{DC} with PD full loading
Protection	Power reverse polarity protection
Connection	Male 5-Pin shielded M12 A-coding connector
PoE Technology	
PoE Compliance	100% IEEE 802.3af compliant
PoE Classification	PSE (Power Sourcing Equipment)
PoE Voltage	+46 ~ +48 V _{DC} depending on power input
PoE Power	Up to 15.4 W per port
PoE Operation	Automatic detection and power management
PoE Pin Assignments	V+ (Pin 1, 3), V- (Pin 2, 4)
PoE Disconnect Mode	DC disconnect
Mechanical	
Casing	Metal with IP40
Dimensions (W x L x H)	190 mm x 56 mm x 100 mm
Installation	Wall Mounting
Environmental	
Operating Temperature	-40 °C ~ + 75 °C
Storage Temperature	-40 °C ~ + 85 °C
Ambient Relative Humidity	10 ~ 95% RH, non-condensing

LED Indicator Functions

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Port1~8	Yellow On	Power Device is detected
	Green On	Link/Act

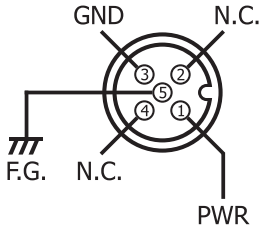
Pin Functions for Power Input

External power supply is connected using the M12 A-coding:

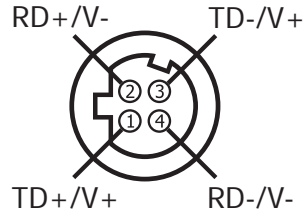
PWR: Power input (+46 ~ +53 V_{DC}) and should be connected to the power supply (+)

GND: Ground and should be connected to the power supply (-)

F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and EMS protection.



Pin Functions for Ethernet Port



Appearance

Female 4-Pin shielded M12 D-coding connector

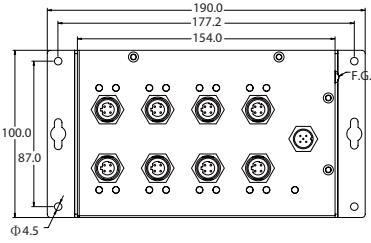


Frame ground screw

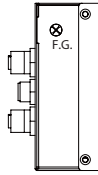


Male 5-Pin shielded M12 A-coding connector

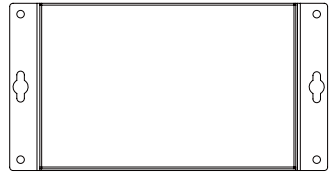
Dimensions (Units: mm)



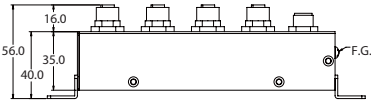
Front View



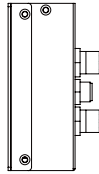
Right Side View



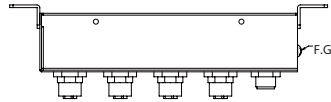
Rear View



Bottom View



Left Side View



Top View

Ordering Information

NSM-208PSE-M12

Unmanaged 8-port PoE Ethernet Switch with M12
Includes M12D-4P-IP68 x 8, A-CAP-M12M x 1, M12A-5P-IP68 and A-CAP-M12F x 1

Accessories

MDR-60-48	48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 V/0.52 A, 25 W Power Supply with DIN-Rail Mounting
KA52F-48	48 V/0.52 A, 25 W Power Supply

M12D-4P-IP68	A-CAP-M12M	M12A-5P-IP68	A-CAP-M12F
4PIO1K0000001	4PIO1K0000002	4PIO1K0000003	4PIO1K0000004

tNS-200IN/tNS-200IN-24V

NEW

PoE injector (RoHS)



Highlight Information ▶▶▶▶



Features ▶▶▶▶

- Auto-detection of PD (powered devices)
- Power Sourcing Equipment (PSE) operation
- Over-temperature, over-current and over/under-voltage detection
- Supplies up to 15.4 W
- No user settings
- Tiny packaging fits on your DIN-Rail
- Cost-effective for tNS-200IN

Introduction

The tNS-200IN/tNS-200IN-24V Single Port PoE Injector supports PoE powered devices in industrial environments. The tNS-200IN/tNS-200IN-24V delivers both data and power over a single standard Ethernet cable to a PoE Powered Device designed to receive both Data and Power through its RJ-45 port connector.

The tNS-200IN-24V is designed with 24 Vdc to 48 Vdc boost for PoE application where 48 Vdc power supply is not available.

Specifications

Models	tNS-200IN	tNS-200IN-24V
Interface		
RJ-45 Ports	1 for Ethernet in, 1 for PoE out	
LED Indicators	Power, Power Device is detected	
Power Input		
Input Voltage	+46 V _{DC} ~ +53 V _{DC}	+18 V _{DC} ~ +32 V _{DC}
Power consumption	0.4 A @ 48 V _{DC} with PD full loading	0.9 A @ 24 V _{DC} with PD full loading
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Connection	4-Pin Removable Terminal Block	
PoE Technology		
PoE Compliance	100% IEEE 802.3af compliant	
PoE Classification	PSE (Power Sourcing Equipment)	
PoE Voltage	+46 ~ +48 V _{DC} depending on power input	
PoE Power	Up to 15.4 W	
PoE Operation	Automatic detection and power management	
PoE Pin Assignments	V+ (Pin 4, 5), V- (Pin 7, 8)	
PoE Disconnect Mode	DC disconnect	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0	
Dimensions (W x L x H)	52 mm x 86 mm x 27 mm	
Installation	DIN-Rail	
Environmental		
Operating Temperature	-40 °C ~ + 75 °C	
Storage Temperature	-40 °C ~ + 85 °C	
Ambient Relative Humidity	10 ~ 90% RH, non-condensing	

LED Indicator Functions

LED	Color	Description
PWR	Red On	Power is On
	Red Off	Power is Off
PoE	Orange On	Power Device is detected

Pin Function for Terminal Block

3

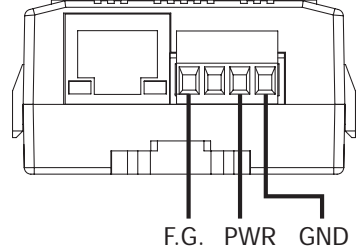
PoE Ethernet Switches

External power supply is connected using the removable terminal block:

PWR: Power input and should be connected to the power supply (+)

GND: Ground and should be connected to the power supply (-)

F.G.: F.G. stands for Frame Ground (protective ground). It is optional. If you use this pin, it can reduce EMI radiation; improve EMI performance and ESD protection.



Applications

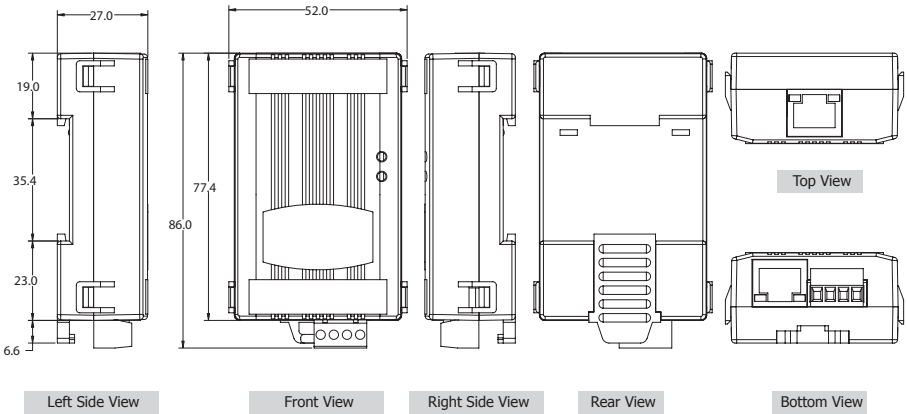


tNS-200IN/tNS-200IN-24V

Appearance



Dimensions (Units: mm)



Ordering Information

tNS-200IN CR	PoE injector for 1 PoE port (uses spare pairs), 48 V _{DC} input (RoHS)
tNS-200IN-24V CR	PoE injector for 1 PoE port (uses unused pairs), 24 V _{DC} input (RoHS)

Accessories

MDR-60-48	48 V/1.25 A, 60 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 V/0.52 A, 25 W Power Supply with DIN-Rail Mounting
KA52F-48	48 V/0.52 A, 25 W Power Supply without DIN-Rail Mounting
DIN-KA52F	24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting