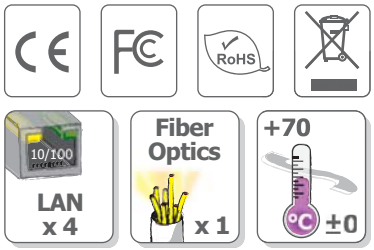
NS-205F/NSM-205F Series

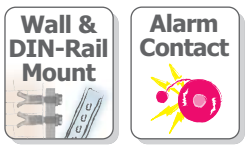
Unmanaged 4-Port Industrial 10/100 Base-T(X) with 100 Base-FX Fiber Switch

Highlight Information

NS-205F/NSM-205F Series



Only for NSM-205F Series



Only for NS-205F Series

NSM-205F Series

NS-205F Series

Introduction

The NS-205F/NSM-205F series is a Unmanaged 4-Port Industrial Ethernet(10/100Base-TX) to Fiber Optics(100Base-FX) switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. It is used Ethernet for transmitting a signal up to 40 Km, and is the perfect solution for applications where transmission must be protected from electrical exposure, surges, lightning or chemical corrosion.
The Ethernet supports 10/ 100M auto-negotiation feature and auto MDI /MDIX function.

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
- 3.2Gbps high performance memory bandwidth
- Frame buffer memory : 512 Kbit
- Integrated look-up engine with dedicated 1 K unicast MAC addresses
- Supports +10~+30Vdc voltage
- Supports operating temperatures from 0 ~ +70°C
- DIN rail mount for industrial usage

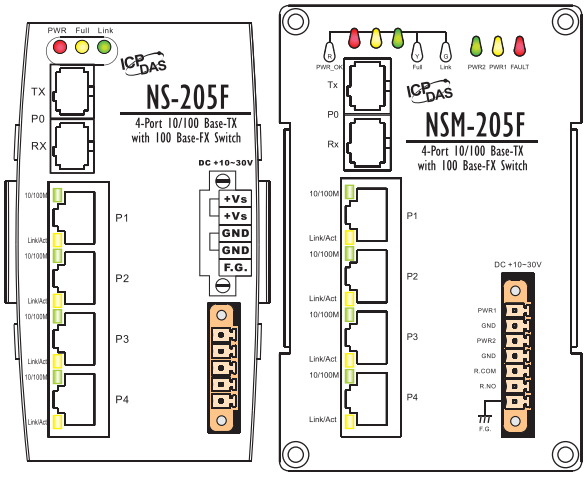
Specifications

Technology		
Standards	IEEE802.3, 802.3u, 802.3x	
Processing Type	Store & forward wire speed switching - no delays	
MAC Addresses	1024	
Memory Bandwidth	3.2 Gbps	
Flow Control	IEEE802.3x flow control, back pressure flow control	
Interface		
RJ45 Ports	10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDIX connection	
Fiber Optic Port	100 Base-FX(Multi-mode; SC connector)	
LED Indicators	10/100M, Link/Act, Full duplex/Half duplex(Fiber Port)	
Ethernet Isolation	1500 Vrms 1 minute	
Frame Ground for EMS Protection	Yes	
Multi Mode Fiber Optic	Multi mode fiber cables: 50/125, 62.5/125 or 100/140 µm	
	Distance: 2 km, (62.5/125 µ mrecommended) for full duplex	
	Wavelength: 1300 or 1310nm	
	Min. TX Output: -20 dBm	
	Max. TX Output: -14 dBm	
	RX Sensitivity: -34 to -31 dBm	
Single Mode Fiber Optic	Single-mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 µm	
	Distance: 15 km, (9/125 µm mrecommended) for full duplex	
	Wavelength: 1300 or 1310nm	
	Min. TX Output: - 15 dBm	
	Max. TX Output: -8 dBm	
	RX Sensitivity: -36 to -31 dBm	
Ethernet Transmission distance	Ethernet: 2-pair UTP/STP Cat.3,4,5, EIA/TIA-568 100-ohm	
	Fast Ethernet: 2-pair UTP/STP Cat. 5, EIA/TIA-568 100-ohm	
Power		
Input Voltage Range	+10 ~ +30VDC (Non-isolation)	
Power Consumption	0.14A@24VDC, +/- 5% arrowed with 100M Full duplex	
LED Indicator	Yes	
Protection	Power reverse polarity protection	
Frame Ground for EMS Protection	Yes	
Mechanical		
Models	NS-205F Series	NSM-205F Series
Case	Plastic	Metal
Flammability	UL 94V-0	IP20
Dimensions (W x H x D)	64mm x 110mm x 98mm	72.5mm x 110mm x 102mm
Installation	DIN-Rail mount	DIN-Rail mount; Wall mounting
Environmental		
Operating Temperature	0°C ~ +70°C	
Storage Temperature	-20°C ~ +85°C	
Ambient Relative Humidity	10% to 90% non-condensing	

LED Functions

NSM-205F Series LED Indicator Functions

LED	Color	Description
PWR_OK	Red On	Core Power is OK
	Red Off	Core Power is Off
Full for P0	Yellow On	Full Duplex
	Yellow Off	Half Duplex
Link for P0	Green On	Link/Act
	Green Off	Not Networking
Ethernet Port (P1 ~ P4)	Yellow On	Link/Act
	Yellow Off	Not Networking
	Green On	Link to 100 Mbps
	Green Off	Link to 10 Mbps
PWR2 PWR1 FAULT	Green On	Power is being supplied to power input PWR2
	Green Off	Power is not being supplied to power input PWR2
	Yellow On	Power is being supplied to power input PWR1
	Yellow Off	Power is not being supplied to power input PWR1
	Red On	Power is not being supplied to power input PWR1 and PWR2
	Red Off	Power is being supplied to power input PWR1 and PWR2



NS-205F Series LED Indicator Functions

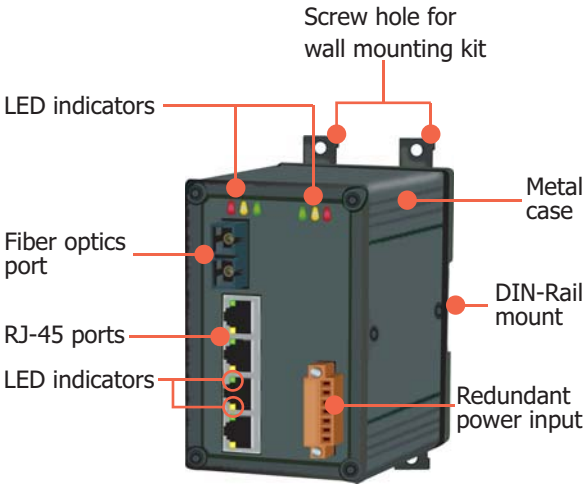
LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Fiber Port (P0)	Yellow On	Full Duplex Mode
	Yellow Off	Half Duplex Mode
	Green On	Link/Act
Ethernet Port (P1 ~ P4)	Green Off Yellow On	Not Networking Link/Act
	Yellow Off	Not Networking
	Green On	Link to 100 Mbps
	Green Off	Link to 10 Mbps

Redundant Power Inputs

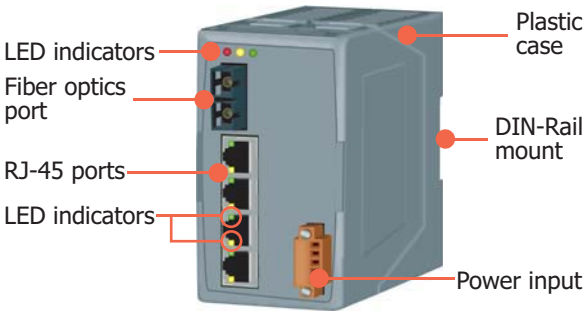
Both power inputs can be connected simultaneously to live DC power sources.
If one power source fails, the other live sourceacts as a backup, and automatically supplies all of NSM-205F Series power needs.

Appearance

NSM-205F Series

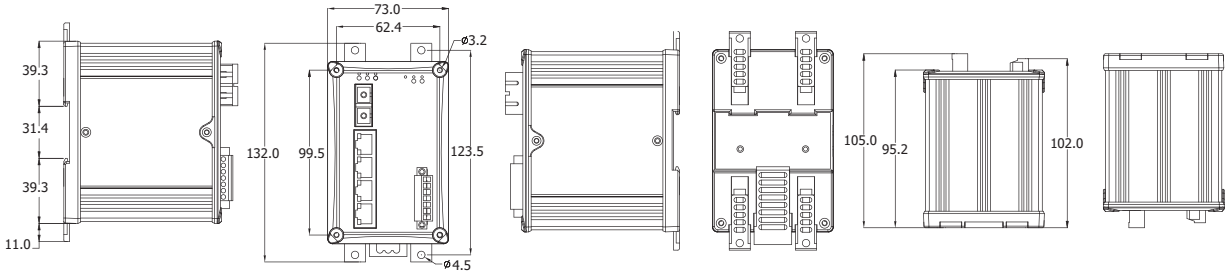


NS-205F Series



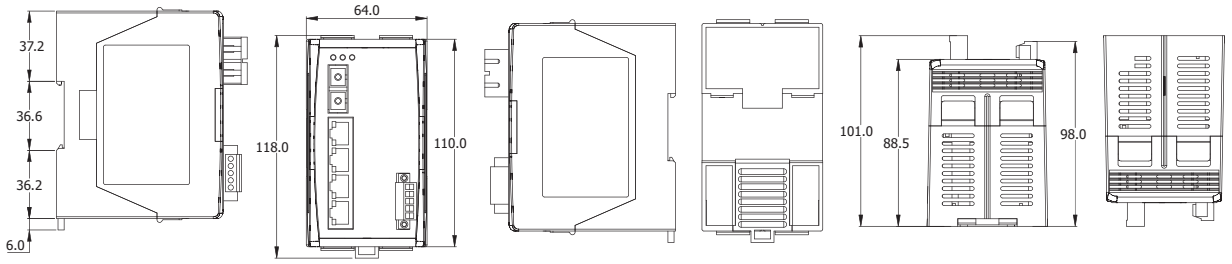
Dimensions (Unit: mm)

NSM-205F Series



Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

NS-205F Series



Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

Ordering Information

NS M -205F ☐☐ - ☐☐ - ☐

M: Metal

	Fiber Port Connector	Single Mode Distance	Operating Temperature
Ordering Code Definition	**T**: Multi mode ST connector **C**: Multi mode SC connector **CS**: Single mode SC connector	**40**: 40 km Standard Models: 15 km	**T**: Operating Temp: -30 to +75°C Standard Models: 0 to 70°C
Models	NS-205FT, NSM-205FT NS-205FC, NSM-205FC NS-205FCS, NSM-205FCS	NS-205FCS-40 NSM-205FCS-40	NS-205FT-T, NSM-205FT-T NS-205FC-T, NSM-205FC-T NS-205FCS-T, NSM-205FCS-T NS-205FCS-40T, NSM-205FCS-40T

Accessories

GPSU06-6	24V/0.25A Power Supply, (No-mounting)
KWM020-1824F	24V/0.75A Power Supply, (No-mounting)
DIN-KA52F	24V/1A Power Supply, (With DIN-Rail mounting)

NS-205FT/NS-205FC/NS-205FCS

4-Port Industrial 10/100 Base-T(X) with 100 Base-FX Switch

Introduction:

The NS-205Fx is an unmanaged 4-Port Industrial Ethernet (10/100Base-TX) witch Fiber (100Base-FX) Switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. It is used Ethernet for transmitting a signal up to 2 Km (6,600 ft), and is the perfect solution for applications where transmission must be protected from electrical exposure, surges, lightning or chemical corrosion.

The NS-205Fx operates at either half or full duplex mode. In full duplex mode, range is 2km with 62.5/ 125μm fiber cables; in half duplex mode, range is 412m with 62.5/ 125μm fiber cables.
Single mode fiber cables:8.3/125, 8.7/125, 9/125 or 10/125 μm; 15 km for full duplex. (NS-205FCS Only)

The Ethernet supports 10/ 100M auto-negotiation feature and auto MDI /MDIX function

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
- 3.2Gbps high performance memory bandwidth
- Frame buffer memory:512 Kbit
- Integrated look-up engine with dedicated 1 K unicast MAC addresses.
- DIN rail mount for industrial usage

Specifications:

- Compatibility: IEEE 802.3, IEEE802.3u, IEEE802.3x
- Interface:
  NS-205FT: 10/100 Base-T(X) and 100 Base-FX(ST Connector; Multi-mode)
  NS-205FC: 10/100 Base-T(X) and 100 Base-FX(SC Connector; Multi-mode)
  NS-205FCS: 10/100 Base-T(X) and 100 Base-FX(SC Connector; Single-mode)
- Ethernet Port: 10/100 Mbps x 4
- Fiber Optic Port: 100 Mbps x 1
- Provides LEDs for network and power monitoring
- ESD Protection:
  8 KV Contact Discharge
  15KV Air-Gap Discharge
- Fiber Optic Transmission distance:
  Multi mode fiber:50/125, 62.5/125 or 100/140 μm
  Multi mode fiber,412 m for half duplex, 2 km for full duplex
  Single mode fiber cables:8.3/125, 8.7/125, 9/125 or 10/125 μm; 15 km for full duplex.
- Ethernet Cables:
  10 Base-T (Cat.3, 4,5 UTP cable; 100m Max.)
  100 Base-TX (Cat.5 UTP cable; 100m Max.)
- Environment:
  Operating Temperature: 0 °C~ +70°C
  Storage Temperature: -20 ~ +85°C
  Relative Humidity: 10% to 90% non-condensing
- Dimensions: 64 x 110 x 98 mm (W x H x D)
- Power requirements: +10 to +30V DC (Removable Terminal Block)
- Power consumption: 0.14A@24Vdc (+/- 5%, arrowed)

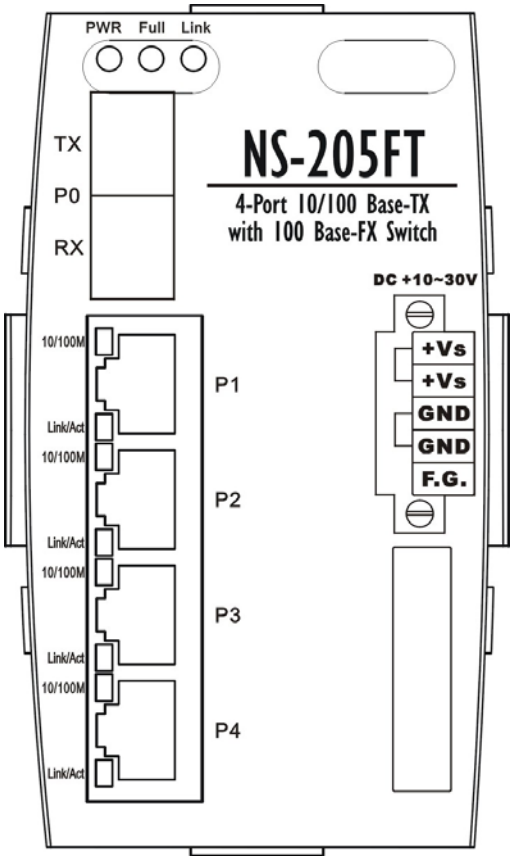
LED functions:

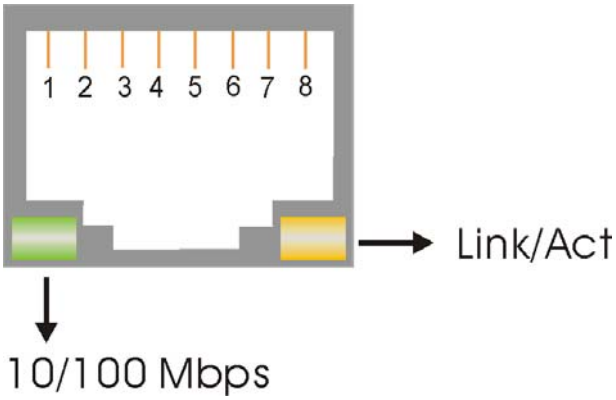
Standard RJ45 female connectors are provided. A standard RJ45 plug cable is necessary to connect your device to the unit since switch that supports auto crossover.

LED	Color	Description
Power	Red On	Power is On
	Red Off	Power is Off
Fiber Port(P0)	Yellow On	Full Duplex
	Yellow Off	Half Duplex
	Green On	Link/Act
	Green Off	Not Networking
Ethernet Port (P1 ~ P4)	Yellow On	Link/Act
	Yellow Off	Not Networking
	Green On	Link to 100 Mbps
	Green Off	Link to 10 Mbps

RJ-45 Pin-Out:

Pin#	Signal Name	Function
1	TD+	Transmit Data
2	TD-	Transmit Data
3	RD+	Receive Data
4	NC	No Connection
5	NC	No Connection
6	RD-	Receive Data
7	NC	No Connection
8	NC	No Connection





Checking Power:

Since the NS-205Fx consumes 3.3W Max, ensure that your power supply is able to meets this demand. The Input voltage range is between +10 and +30VDC. External power supply is connected using the removable terminal block as shown below:

Pin Function For Terminal Block:

External power supply is connected using the removable terminal block:

+Vs : Power input +10 to +30V

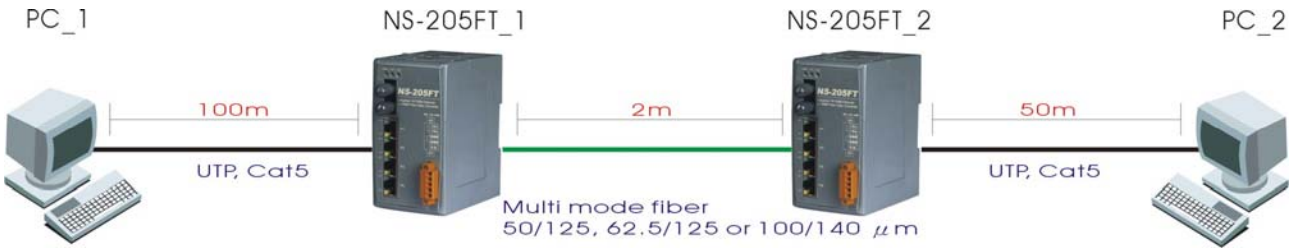
GND : Ground

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.

Application Note:

Figure shows common media conversion system network topologies. This figure is a simple end-to-end configuration; it is easy way to verify proper operation of the media converter(s), assuming that the Network Interface Cards (NIC's) or Ethernet ports in each PC/workstation end link partner are properly configured.

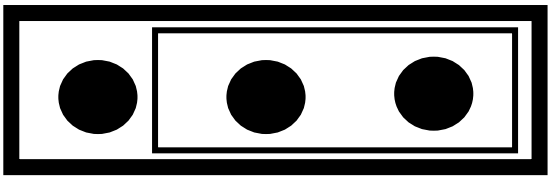
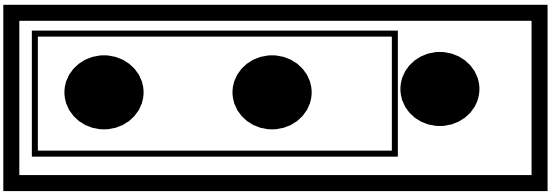
Figure:



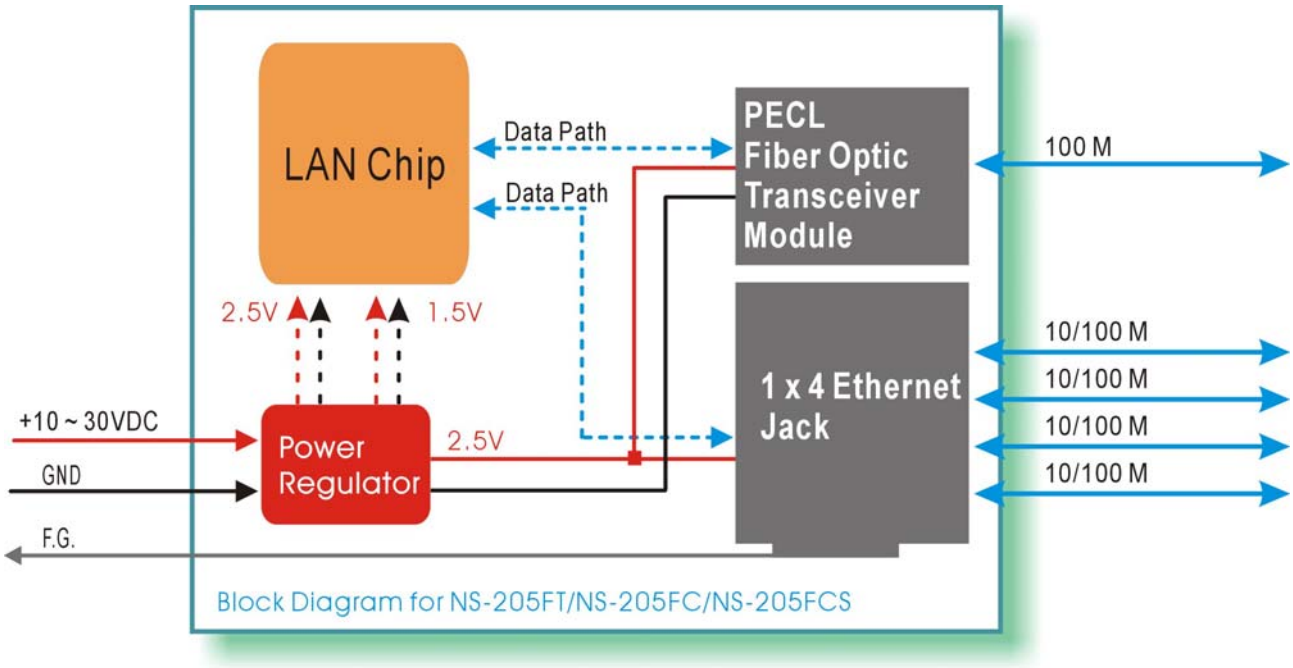
Full / Half-Duplex Selection:

There are two modes of data transmissions, full-duplex and half-duplex transmission. The data can be transmitted in both directions on a single carrier at the same time when you select Full-duplex mode. But the data can only be transmitted in one direction on a single carrier at the same time when you select Half-duplex mode. You may select Full or half-duplex mode according to your equipment requirement.

You can configure full or half-duplex NS-205Fx via Jumper. (Default: full-duplex).

JP1 Jumper	Description
	**Full-duplex (Default)** Transmission Distance: 2Km
	**Half-duplex** Transmission Distance: 412m

Block Diagram:



Dimensions: