# NSM-205FT/NSM-205FC/NSM-205FCS

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

### Introduction:

The NSM-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 NSM-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.  (NSM-205FCS Only).

NSM-205Fx provides 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 automatically support the NSM-205Fx's power needs. NSM-205 contains "soft start" function with overload protection, high-low voltage protection.

### 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.
- Redundant Power Inputs +10 ~ +30V DC
  Power failure alarm by relay output
- DIN rail mount and Screw hole for wall mounting kit.

### Specifications:

- Compatibility: IEEE 802.3, IEEE802.3u, IEEE802.3x
- Interface:
  NSM-205FT: 10/100 Base-T(X) and 100 Base-FX(ST Connector; Multi-mode)
  NSM-205FC: 10/100 Base-T(X) and 100 Base-FX(SC Connector; Multi-mode)
  NSM-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
- 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: 73 x 110 x 102 mm (W x H x D)
- Power requirements: +10 to 30V DC (Removable Terminal Block)
  Alarm Contact: One relay output with current carrying capacity of 2A @ 30 VDC
- 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 |
|---|---|---|
| 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 | Green On | Power is being supplied to power input PWR2 |
| | Green Off | Power is **not** being supplied to power input PWR2 |
| PWR1 | Yellow On | Power is being supplied to power input PWR1 |
| | Yellow Off | Power is **not** being supplied to power input PWR1 |
| FAULT | 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 |
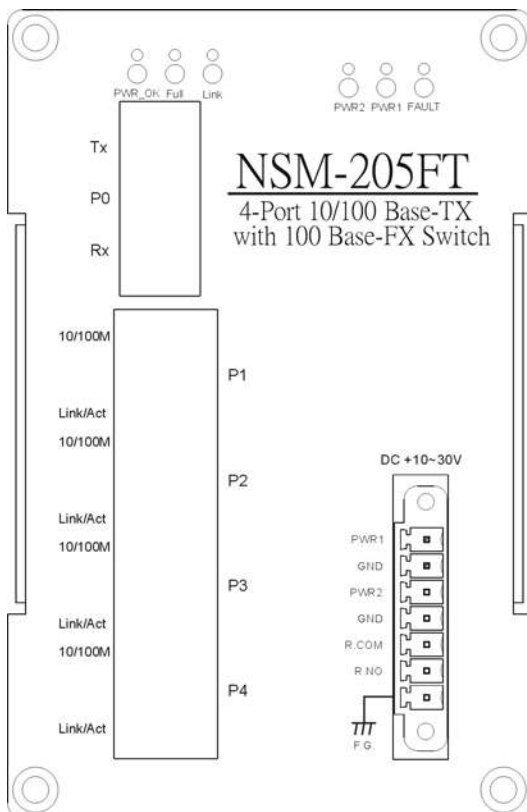


### Redundant Power Inputs:

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

### Soft start Power Inputs:

Integrated "soft-start" function that limits the in-rush current to the device being powered. **Delay time + Rise time = 2 second at power on.**

### Pin Function For Terminal Block:

External power supply is connected using the removable terminal block:

**PWR1** : Power input 1 (+10 to +30Vdc)
**PWR2** : Power input 2 (+10 to +30Vdc)
**GND** : Ground
**R.COM** : Common(Form "A" Relay) for Alarm contact.

**R.NO** : Normal Open (Form "A" Relay) for Alarm contact.
**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.
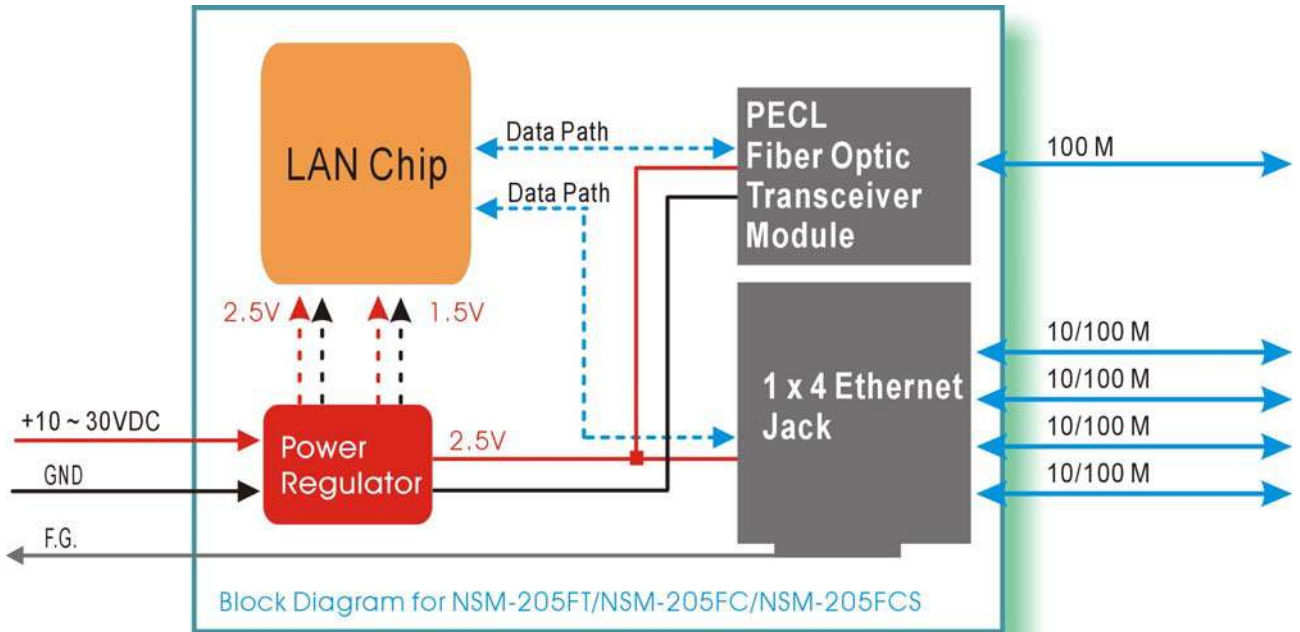
**Figure:**
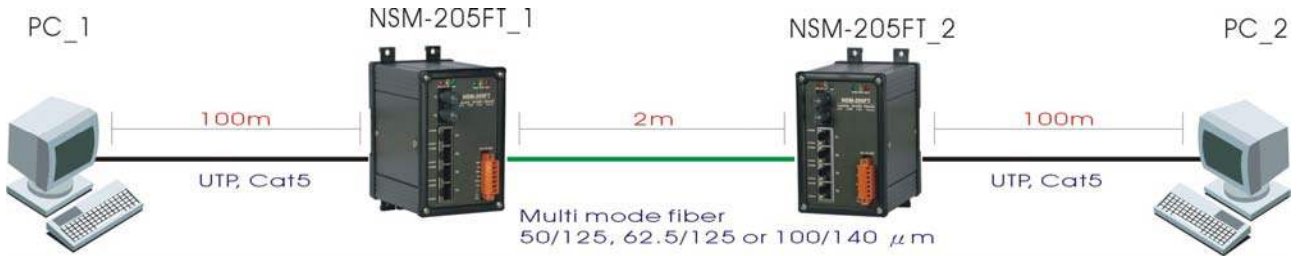


## Full / Half-Duplex Selection:

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 NSM-205Fx via Jumper. (Default: full-duplex).

| JP1 Jumper | Description |
|---|---|
|  <br> **3**　　**2**　　**1** | **Full-duplex  ( Default)** <br><br> Transmission Distance: 2Km |
|  <br> **3**　　**2**　　**1** | **Half-duplex** <br><br> Transmission Distance: 412m |

## Block Diagram:



Block Diagram for NSM-205FT/NSM-205FC/NSM-205FCS

## Dimensions: