NS2052-8P-2C User Manual

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Product documentation

Please consult the following web link to retrieve the electronic version of the product documentation. The manuals are available in several languages.

Contact information

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Content

Package contents

Thank you for purchasing IFS industrial 8-Port 10/100TX 802.3at PoE+ plus 2-Port Gigabit TP/SFP combo Ethernet Switch, NS2052-8P-2C. In the following sections, the term “Industrial PoE+ Switch” means the NS2052-8P-2C.

Open the box of the Industrial PoE+ Switch and carefully unpack it. The box should contain the following items:

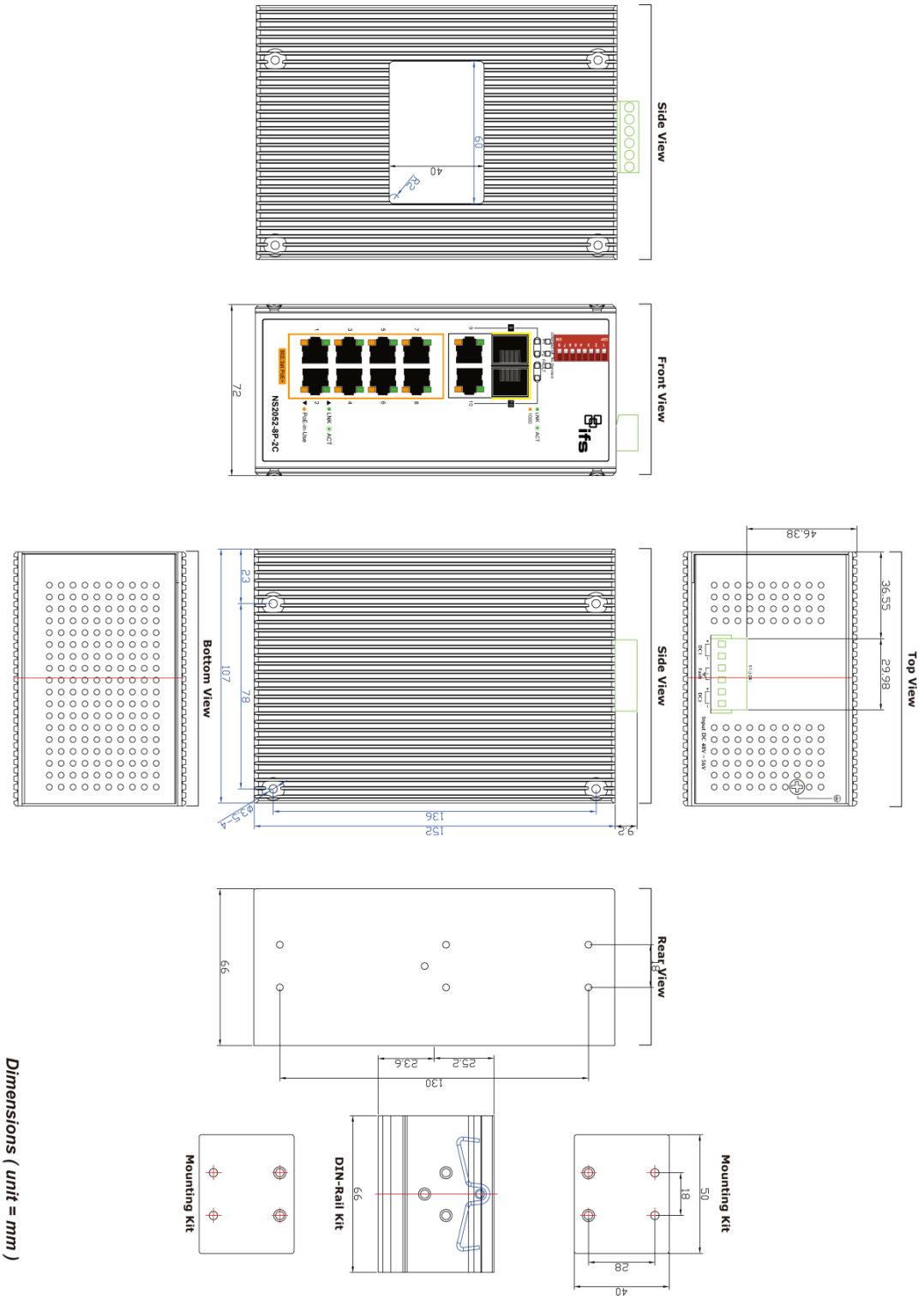
- 1 Industrial PoE+ switch
- 1 User manual
- 1 DIN rail kit
- 1 Wall mounting kit

If any of these are missing or damaged, contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

Hardware introduction

Physical dimensions

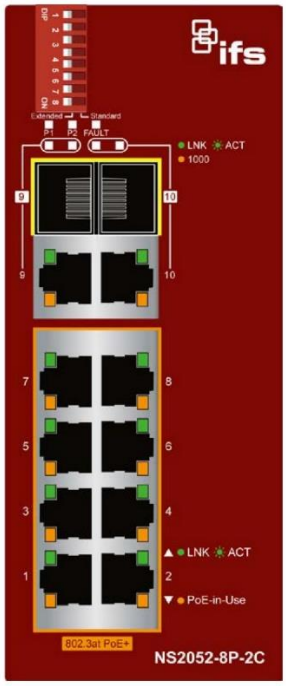
The physical dimensions (W x D x H) are: 66 x 107 x 152 mm



Switch front panel

The front panel of the Industrial PoE+ Switch consists of eight 10/100/BASE-TX ports featuring 30-watt 802.3at PoE+, and two additional Gigabit copper/SFP combo interfaces for Gigabit Ethernet extension and video uplink. The LED indicators are also located on the front panel of the Industrial PoE+ Switch.

Below is the front panel of Industrial PoE+ Switch (NS2052-8P-2C).



Fast Ethernet TP interfaces (Port 1 to port 8)

10/100BASE-TX copper, RJ45 twisted-pair: Up to 100 m.

Gigabit TP/SFP Combo Interfaces (Port 9 to port 10)

10/100/1000BASE-T copper, RJ45 twisted-pair: Up to 10 m.

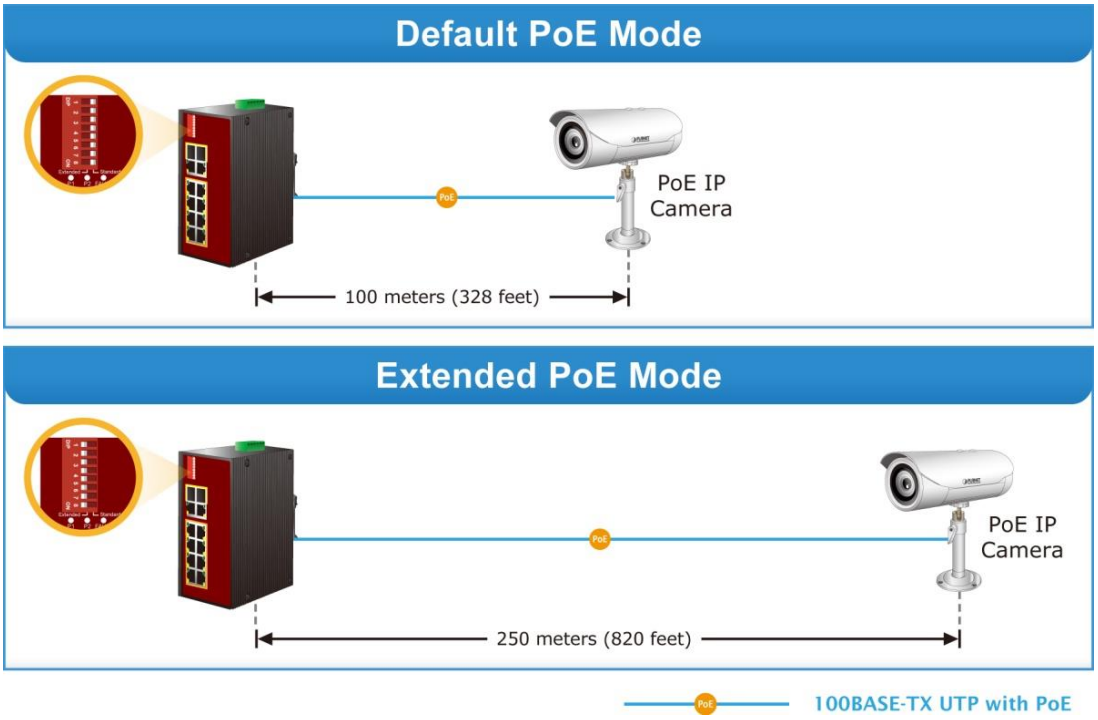
Gigabit SFP/SFP Combo Interfaces (Port 9 to port 10)

1000BASE-SX/LX mini-GBIC slot, SFP (small factor pluggable) transceiver module: From 550 m (multi-mode fiber) to 2/10/20/40/80/120 kilometers (single-mode fiber).

DIP switch

The Industrial PoE+ Switch has a built-in solid DIP switch that provides **“Standard**” and **“Extend”** operation modes. The Industrial PoE+ Switch operates as a normal IEEE 802.af/at PoE+ Switch in the **“Standard”** operation mode.

In the **“Extend”** operation mode, the Industrial PoE+ Switch operates on a per-port basis at 10 Mbps full duplex operation but can support 30 W PoE power output up to 250 m overcoming the 100 m limit on Ethernet UTP cable. With this brand-new feature, the Industrial PoE+ Switch provides an additional solution for 802.3af/at PoE+ distance extension.



LED indicators

Table 1: System

LED	Color	Function
P1	Green	Lit: Indicates power 1 has power.
P2	Green	Lit: Indicates power 2 has power.
FAULT	Red	Lit: Indicates neither power 1 nor power 2 has power.

Table 2: Per 802.3at PoE+ 10/100BASE-TX Interface (Port 1 to Port 8)

LED	Color	Function
LNK/ACT	Green	Lit: Indicates the link through that port is successfully established at 10 Mbps or 100 Mbps. Blinking: Indicates that the switch is actively sending or receiving data over that port.
PoE- in-Use	Orange	Lit: Indicates the port is providing DC in-line power. Off: Indicates the connected device is not a PoE powered device (PD).

Table 3: Per 10/100/1000BASE-T Interface (Shared with Port 9 to Port 10)

LED	Color	Function
LNK/ACT	Green	Lit: Indicates the link through that port is successfully established at 10/100/1000 Mbps. Blinking: Indicates that the switch is actively sending or receiving data over that port.
1000	Orange	Lit: Indicates the link through that port is successfully established at 1000 Mbps. Off: Indicates the link through that port is successfully established at 10/100 Mbps.

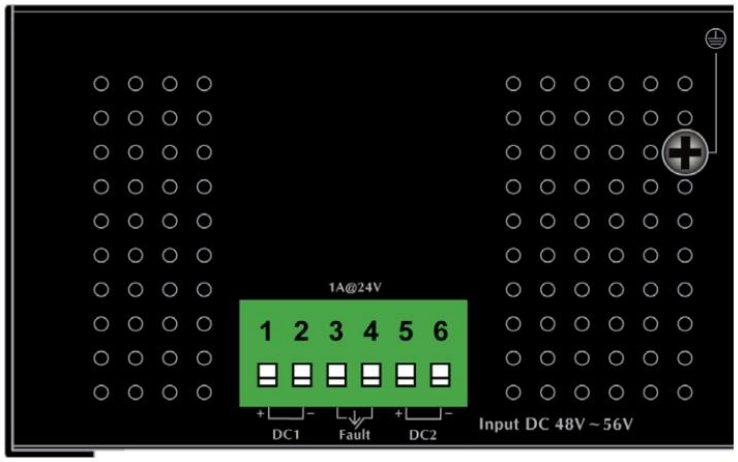
Table 4: Per 1000X SFP Slot (Shared with Port 9 to Port 10)

LED	Color	Function
LNK/ACT	Green	Lit: Indicates the link through that port is successfully established at 1000 Mbps. Blinking: Indicates that the switch is actively sending or receiving data over that port.
1000	Orange	Lit: Indicates the link through that port is successfully established at 1000 Mbps. Off: Indicates the link through that port is not established.

Switch upper panel

The upper panel of the Industrial PoE+ Switch consists of one terminal block connector within two DC power inputs.

Below is the upper panel of the Industrial PoE+ Switch.

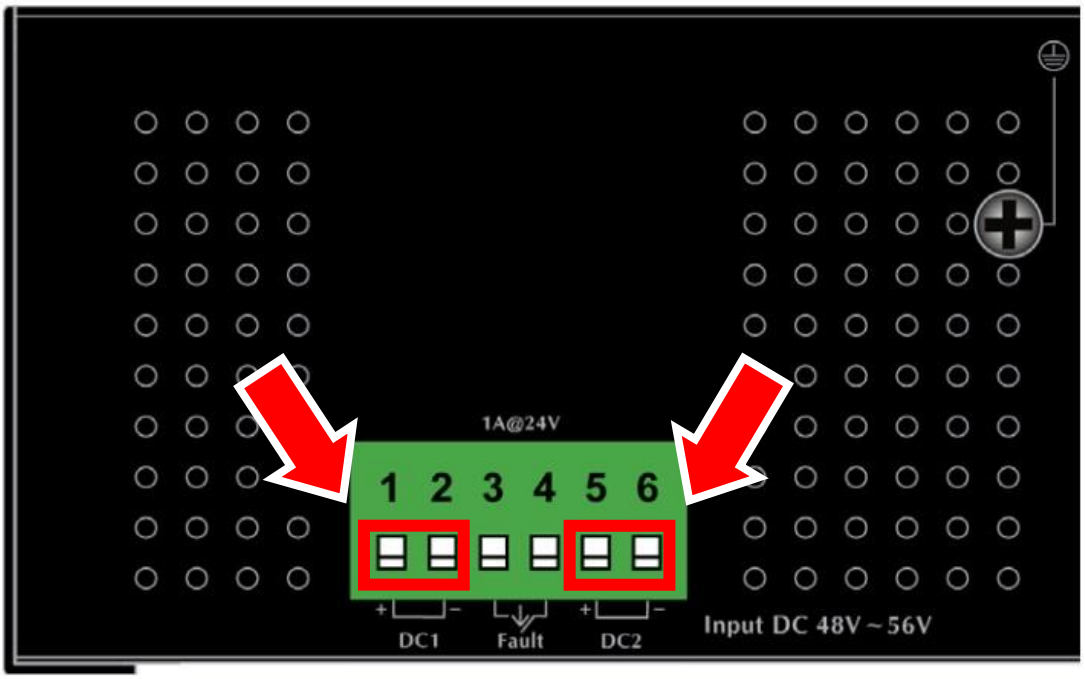


Wiring the Power Inputs

The 6-contact terminal block connector on the top panel of Industrial PoE+ Switch is used for two DC redundant power inputs. Follow the steps below to insert the power wire.

WARNING: When performing any of the procedures like inserting the wires or tightening the wire-clamp screws, make sure the power is OFF to prevent from getting an electric shock.

1. Insert positive and negative DC power wires into Contacts 1 and 2 for Power 1, or Contacts 5 and 6 for Power 2.



2. Tighten the wire-clamp screws to prevent the wires from loosening.

1 2 3 4 5 6

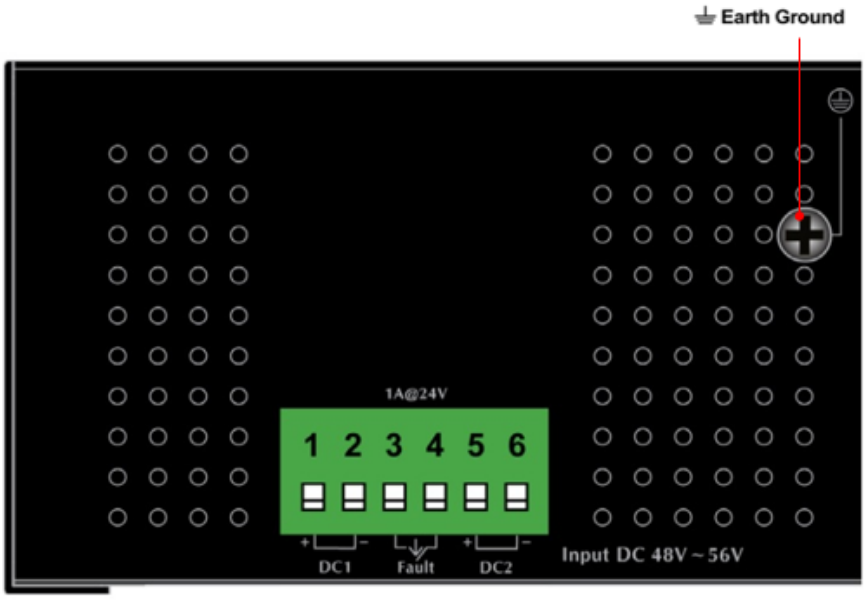
Power 1 Fault Power 2

+ - + -

Note: The wire gauge for the terminal block should be between 12 and 24 AWG. The DC power input range is 48 to 56 VDC.

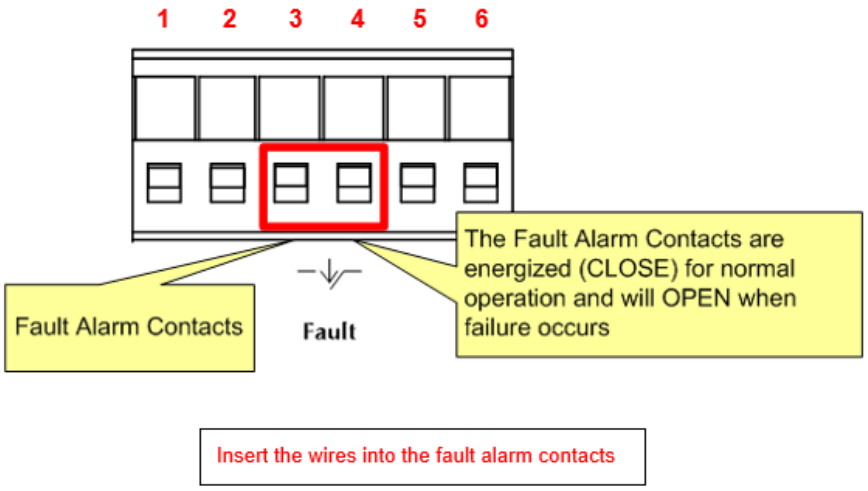
Grounding the Device

For equipment protection, the device must be properly grounded, otherwise a lightning strike could severely damage the equipment.



Wiring the fault alarm contact

The fault alarm contacts are in the middle of the terminal block connector as shown below. When the wires are inserted, the Industrial PoE+ Switch will detect the fault status of the power failure and open the circuit. The following illustration shows an application example for wiring the fault alarm contacts.



Note: The wire gauge for the terminal block should be between 12 and 24 AWG. Alarm relay circuit accepts up to 30 V with a maximum current of 3 A.

Product features

- **Physical port**
  - Eight 10/100BASE-TX Fast Ethernet RJ45 ports with IEEE 802.3at/af PoE+ injector function (Port-1 to Port-8)
  - Two 10/100/1000BASE-T Gigabit Ethernet RJ45 ports (Port-9 and Port-10)
  - Two 1000BASE-X mini-GBIC/SFP slots for SFP type auto detection (Port-9 and Port-10)
- **Power over Ethernet**
  - Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
  - Backward compatible with IEEE 802.3af Power over Ethernet
  - Up to eight ports of IEEE 802.3af/802.3at devices powered
  - 240 W PoE budget
  - Supports PoE power up to 30 W for each PoE port
  - Auto detects PD
  - Circuit protection prevents power interference between ports
  - Remote power feeding up to 100 m
- **Industrial case and installation**
  - IP30 metal case
  - DIN-rail and wall-mount designs
  - 48 to 56 VDC, redundant power with reverse polarity protection
  - Supports 6000 VDC Ethernet ESD protection
  - -40 to 75C° operating temperature
- **Switching**
  - Hardware-based 10/100 Mbps (half/full duplex), 1000 Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
  - Features Store-and-Forward mode with wire-speed filtering and forwarding rates
  - IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
  - 16K MAC address table size
  - 10K jumbo frame
  - IEEE 802.1Q VLAN transparency
  - Hardware-based DIP switch for “Standard” and “Extend” mode selection; the “Extend” mode features 30-watt PoE transmission distance of 250 m at speed of 10 Mbps
  - Automatic address learning and address aging
  - Supports CSMA/CD protocol

Installation

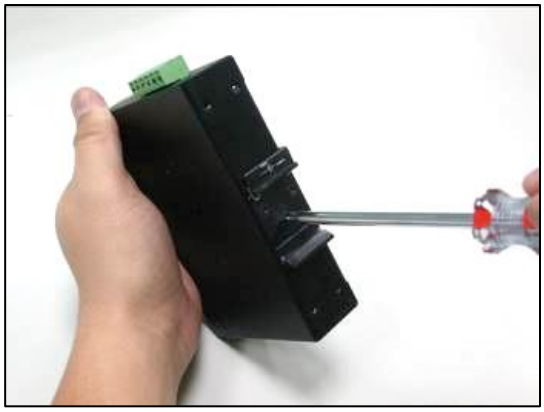
This section describes the functionalities of the Industrial PoE+ Switch's components and guides you to installing it on the DIN-rail and wall. Basic knowledge of networking is assumed. Read this section completely before continuing.

Note: The following pictures show how to install the device. However, the device in the pictures is not NS2052-8P-2C.

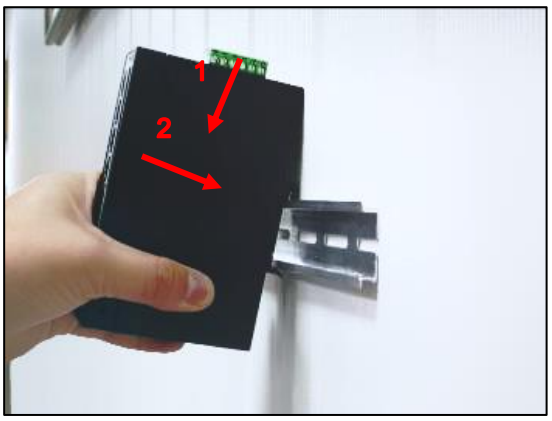
DIN-rail mounting installation

The DIN-rail bracket is screwed on the Industrial PoE+ Switch when out of factory. When replacing the wall-mount application with DIN-rail application, Industrial PoE+ Switch is needed. Refer to the following figures to screw the DIN-rail bracket on the Industrial PoE+ Switch. To hang the Industrial PoE+ Switch, follow these steps:

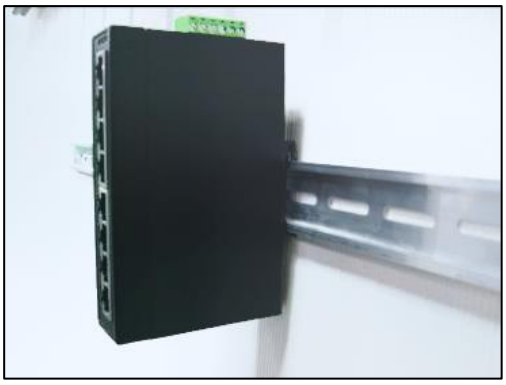
1. Screw the DIN-rail bracket on the Industrial PoE+ Switch.



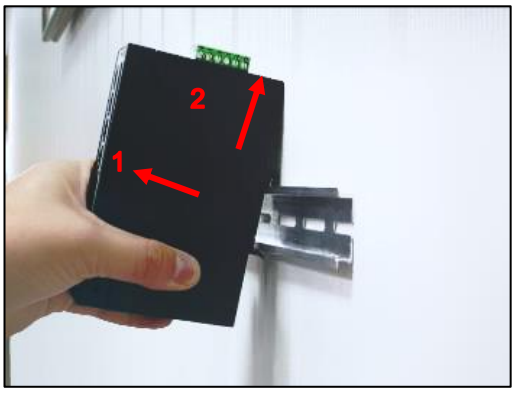
2. Lightly insert the bottom of the switch into the track.



3. Make sure the DIN-rail bracket is tightly secured on the track.



4. Refer to the following procedure to remove the Industrial PoE+ Switch from the track.

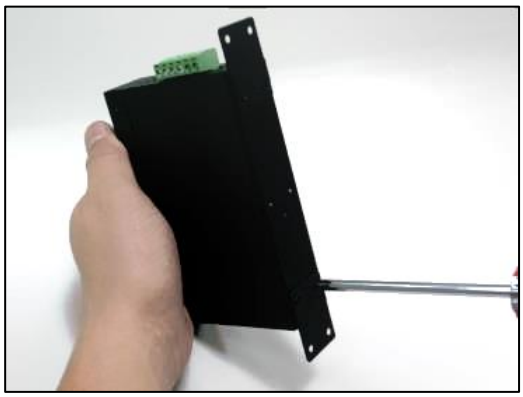


5. Lightly pull out the bottom of the switch for removing it from the track.

Wall-mount plate mounting

To install the Industrial PoE+ Switch on the wall, follow the instructions described below.

1. To remove the DIN-rail bracket from the Industrial PoE+ Switch, loosen the screws to remove the DIN-rail bracket.
2. Place the wall-mount plate on the back panel of the Industrial PoE+ Switch.



3. Use the screws to screw the wall-mount plate on the Industrial PoE+ Switch.

4. Use the hook holes at the corners of the wall-mount plate to hang the Industrial PoE+ Switch on the wall.
5. To remove the wall-mount plate, reverse the steps above.

Installing the SFP transceiver

This section describes how to insert an SFP transceiver into an SFP slot.

The SFP transceivers are hot-pluggable and hot-swappable. You can plug in and out the transceiver to/from any SFP port without having to power down the Industrial PoE+ Switch, as shown below.

IFS Industrial PoE+ Switch supports 1000 Mbps mode with both single mode and multi-mode SFP transceivers.

1. Before connecting Industrial PoE+ switch to the other network device, make sure both sides of the SFP transceivers are with the same media type, for example, 1000BASE-SX to 1000BASE-SX, 1000BASE-LX to 1000BASE-LX.
2. Check whether the fiber-optic cable type matches with the SFP transceiver requirement.
    - To connect to 1000BASE-SX SFP transceiver, use the multi-mode fiber cable with one side being the male duplex LC connector type.
    - To connect to 1000BASE-LX or 1000BASE-BX SFP transceiver, use the single-mode fiber cable with one side being the male duplex LC connector type

Connecting the fiber cable

1. Insert the duplex LC connector into the SFP transceiver.
2. Connect the other end of the cable to a device with a SFP transceiver installed.
3. Check the LNK/ACT LED of the SFP slot on the front of the Industrial PoE+ Switch. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link fails.

Note: It is recommended to use IFS SFPs on the Industrial PoE+ Switch. If you insert an SFP transceiver that is not supported, the Industrial PoE+ Switch will not recognize it.

Removing the transceiver module

1. Make sure there is no network activity by consulting or checking with the network administrator. Or through the management interface of the switch/converter (if available) to disable the port in advance.
2. Gently remove the fiber optic cable.
3. Turn the lever of the SFP series module to a horizontal position.
4. Pull out the module gently through the lever.

Note: Never pull out the module without pulling the lever or the push bolts on the module. Directly pulling out the module with force could damage the module and the SFP module slot of the Industrial PoE+ Switch.

Troubleshooting

This section contains information to help you solve issues. If the Industrial PoE+ Switch is not functioning properly, make sure the Industrial PoE+ Switch was set up according to instructions in this manual.

The per port LED is not lit

Solution: Check the cable connection of the Industrial PoE+ Switch.

Per port LED is lit, but the traffic is irregular

Solution: Check whether the attached device is not set to dedicated full duplex. Some devices use a physical or software switch to change duplex modes. Auto-negotiation may not recognize this type of full-duplex setting.

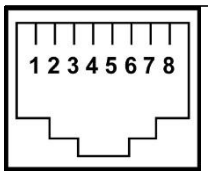
Why the Industrial POE+ Switch does not connect to the network

Solution: Check each port LED on the Industrial PoE+ Switch. Try another port on the Industrial PoE+ Switch. Make sure that the cable is installed properly and is the correct type. Turn off the power. After a while, turn on the power again.

Appendix A: Networking connection

PoE RJ45 port pin assignments (End-span)

Table 5: PoE RJ45 port pin assignments (End-span)



PIN NO	RJ45 POWER ASSIGNMENT
1	˙Power +
2	˙Power +
3	˙Power -
6	˙Power -
PIN NO	RJ45 POWER ASSIGNMENT

Switch’s RJ45 pin assignments

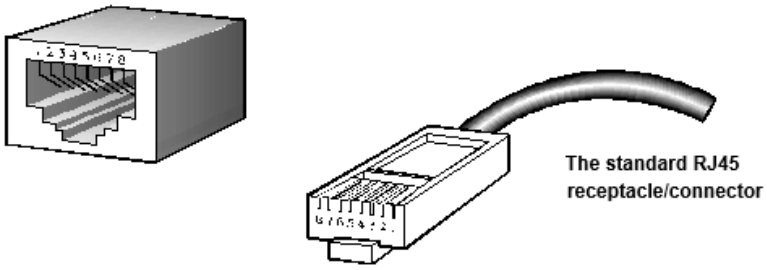
Table 6: 1000Mbps, 1000BASE-T

Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Table 7: 10/100Mbps, 10/100BASE-TX

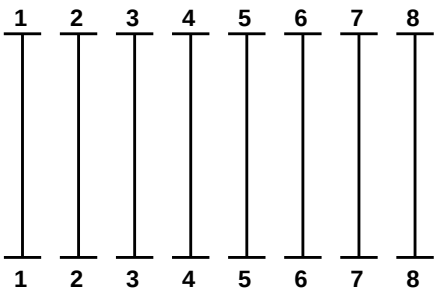
RJ45 Connector pin assignment		
Contact	MDI Media Dependent Interface	MDI-X Media Dependent Interface -- Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

RJ45 cable pin assignments



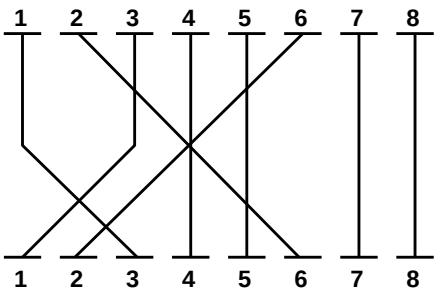
There are eight wires on a standard UTP/STP cable, and each wire is color-coded. The following shows the pin allocation and color of straight-through cable and crossover cable connection:

Straight-through Cable



	SIDE 1	SIDE 2
SIDE 1	1 = White / Orange	1 = White / Orange
	2 = Orange	2 = Orange
	3 = White / Green	3 = White / Green
	4 = Blue	4 = Blue
	5 = White / Blue	5 = White / Blue
	6 = Green	6 = Green
	7 = White / Brown	7 = White / Brown
	8 = Brown	8 = Brown
SIDE 2		

Crossover Cable



	SIDE 1	SIDE 2
SIDE 1	1 = White / Orange	1 = White / Green
	2 = Orange	2 = Green
	3 = White / Green	3 = White / Orange
	4 = Blue	4 = Blue
	5 = White / Blue	5 = White / Blue
	6 = Green	6 = Orange
	7 = White / Brown	7 = White / Brown
	8 = Brown	8 = Brown
SIDE 2		

Make sure your connected cables are with the same pin assignment and color as the above picture before deploying the cables into your network.

Fiber optic cable connection parameter

The wiring details are shown below:

Table 8: 1000X fiber optic cables

Standard	Fiber type	Cable specifications
1000BASE-SX (850 nm)	Multi-mode	50/125 µm or 62.5/12 5µm
1000BASE-LX (1300 nm)	Multi-mode	50/125 µm or 62.5/125 µm
	Single mode	9/125 µm

Table 9: Wiring Distances

Standard	Fiber	Diameter (micron)	Modal bandwidth (MHz * km)	Max. distance (meters)
1000BASE- SX	MM	62.5	100	220
		62.5	200	275
		50	400	500
		50	500	550
1000BASE- LX	MM	62.5 50	5 4	550
		50	5	
	SM	9	N/A	5000*

Technical specifications

Product	NS2052-8P-2C
Hardware specifications:	
Fast Ethernet copper ports	Eight 10/100BASE-TX RJ45 auto-MDI/MDI-X ports (Port-1 to Port-8)
Gigabit Ethernet copper ports	Two 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (shared with Port-9 and Port-10)
SFP/mini-GBIC slots	Two 1000BASE-SX/LX/BX SFP interfaces (shared with Port-9 and Port-10)
PoE injector port	Eight ports with 802.3af/802.3at PoE+ injector function (Port-1 to Port-8)
Switch architecture	Store-and-Forward
Switch fabric	5.6 Gbps/non-blocking
Switch throughput@64 bytes	4.1 Mbps @64 bytes
MAC address table	16K entries
Shared data buffer	4 Mb SRAM
Flow control	IEEE 802.3x pause frame for full duplex. Back pressure for half duplex Back pressure for half duplex
Jumbo frame	10 Kbytes
DIP switch (Port 1 to Port 8)	Standard mode: 30 W PoE transmission distance of 100 m at speed of 10/100 Mbps Extend mode: 30 W PoE transmission distance of 250 m at speed of 10 Mbps
LED	3 x LEDs for system and power: Green: DC Power 1 Green: DC Power 2 Red: Power fault alarm 2 x LED for PoE Copper Port (Port-1~Port-8): Green: LNK/ACT (10/100 Mbps) Orange: PoE-In-Use 2 x LED for 10/100/1000T Copper Port (Port-9~Port-10): Green: LNK/ACT Orange: 1000 2 x LED for per mini-GBIC interface (Port-9~Port-10) Green: LNK/ACT Orange: 1000
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1 Pin 3/4 for power fault alarm Pin 5/6 for Power 2
Alarm	One relay output for power failure. Alarm relay current carry ability: 1 A @ 24 VAC

Power requirements	48 to 56 VDC, 5.5 A (max.) (>51 VDC for PoE+ output recommended)
Power consumption/ dissipation	19 W, 64BTU (Standby without PoE function) at 56 VDC power input 23 W, 78BTU (Full loading without PoE function) at 56 VDC power input 244 watts, 832 BTU (Full loading with PoE function) at 56 VDC power input
Dimensions (W x D x H)	66 x 107 x 152 mm
Weight	916 g
ESD protection	6K VDC
Enclosure	IP30 aluminum case
Installation	DIN-rail kit and wall-mount kit
Power over Ethernet:	
PoE standard	IEEE 802.3at PoE Plus/PSE
PoE power supply type	End-span
Power pin assignment	1/2(+), 3/6(-)
PoE power output	IEEE 802.3af Standard - Per port 48 to 51 VDC (depending on the power supply), max. 15.4 W IEEE 802.3at Standard - Per port 51 to 56 VDC (depending on the power supply), max. 30 W
PoE Power Budget	Dual power input: maximum 240 W (depending on power input)
Max. number of Class 2 PDs	8
Max. number of Class 3 PDs	8
Max. number of Class 4 PDs	8
Regulatory compliance:	
Regulatory compliance	FCC Part 15 Class A, CE
Stability testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3z Gigabit SX/LX IEEE 802.3x Flow Control and Back Pressure IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus
Operating temperature	-40 to +75C°
Storage temperature	-40 to +85C°
Humidity	5 to 95% (non-condensing)

Important information

Limitation of liability

To the maximum extent permitted by applicable law, in no event will Carrier be liable for any lost profits or business opportunities, loss of use, business interruption, loss of data, or any other indirect, special, incidental, or consequential damages under any theory of liability, whether based in contract, tort, negligence, product liability, or otherwise. Because some jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages the preceding limitation may not apply to you. In any event the total liability of Carrier shall not exceed the purchase price of the product. The foregoing limitation will apply to the maximum extent permitted by applicable law, regardless of whether Carrier has been advised of the possibility of such damages and regardless of whether any remedy fails of its essential purpose.

Installation in accordance with this manual, applicable codes, and the instructions of the authority having jurisdiction is mandatory.

While every precaution has been taken during the preparation of this manual to ensure the accuracy of its contents, Carrier assumes no responsibility for errors or omissions.

Product Warnings

YOU UNDERSTAND THAT A PROPERLY INSTALLED AND MAINTAINED ALARM/SECURITY SYSTEM MAY ONLY REDUCE THE RISK OF EVENTS SUCH AS BURGLARY, ROBBERY, FIRE, OR SIMILAR EVENTS WITHOUT WARNING, BUT IT IS NOT INSURANCE OR A GUARANTEE THAT SUCH EVENTS WILL NOT OCCUR OR THAT THERE WILL BE NO DEATH, PERSONAL INJURY, AND/OR PROPERTY DAMAGE AS A RESULT.

THE ABILITY OF CARRIER PRODUCTS, SOFTWARE OR SERVICES TO WORK PROPERLY DEPENDS ON A NUMBER OF PRODUCTS AND SERVICES MADE AVAILABLE BY THIRD PARTIES OVER WHICH CARRIER HAS NO CONTROL AND FOR WHICH CARRIER SHALL NOT BE RESPONSIBLE INCLUDING, BUT NOT LIMITED TO, INTERNET, CELLULAR AND LANDLINE CONNECTIVITY; MOBILE DEVICE AND OPERATING SYSTEM COMPATIBILITY; MONITORING SERVICES; ELECTROMAGNETIC OR OTHER INTERFERENCE, AND PROPER INSTALLATION AND MAINTENANCE OF AUTHORIZED PRODUCTS (INCLUDING ALARM OR OTHER CONTROL PANEL AND SENSORS).

ANY PRODUCT, SOFTWARE, SERVICE OR OTHER OFFERING MANUFACTURED, SOLD OR LICENSED BY CARRIER, MAY BE HACKED, COMPROMISED AND/OR CIRCUMVENTED AND CARRIER MAKES NO REPRESENTATION, WARRANTY, COVENANT OR PROMISE THAT ITS PRODUCTS (INCLUDING SECURITY PRODUCTS), SOFTWARE, SERVICES OR OTHER OFFERINGS WILL NOT BE HACKED, COMPROMISED AND/OR CIRCUMVENTED.

CARRIER DOES NOT ENCRYPT COMMUNICATIONS BETWEEN ITS ALARM OR OTHER CONTROL PANELS AND THEIR WIRELESS OUTPUTS/INPUTS INCLUDING BUT NOT LIMITED TO, SENSORS OR DETECTORS UNLESS REQUIRED BY

APPLICABLE LAW. AS A RESULT THESE COMMUNICATIONS MAY BE INTERCEPTED AND COULD BE USED TO CIRCUMVENT YOUR ALARM/SECURITY SYSTEM.

THE EQUIPMENT SHOULD ONLY BE OPERATED WITH AN APPROVED POWER ADAPTER WITH INSULATED LIVE PINS.

DO NOT CONNECT TO A RECEPTACLE CONTROLLED BY A SWITCH.

THIS UNIT INCLUDES AN ALARM VERIFICATION FEATURE THAT WILL RESULT IN A DELAY OF THE SYSTEM ALARM SIGNAL FROM THE INDICATED CIRCUITS. THE TOTAL DELAY (CONTROL UNIT PLUS SMOKE DETECTORS) SHALL NOT EXCEED 60 SECONDS. NO OTHER SMOKE DETECTOR SHALL BE CONNECTED TO THESE CIRCUITS UNLESS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

WARNING! The equipment should only be operated with an approved power adapter with insulated live pins.

Caution: Risk of explosion if battery is replaced by an incorrect type. Dispose of batteries according to the instructions. Contact your supplier for replacement batteries.

Warranty Disclaimers

CARRIER HEREBY DISCLAIMS ALL WARRANTIES AND REPRESENTATIONS, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTIES, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(USA only) SOME STATES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. YOU MAY ALSO HAVE OTHER LEGAL RIGHTS THAT VARY FROM STATE TO STATE.

CARRIER DOES NOT MAKE ANY CLAIMS OR WARRANTIES TO YOU OF ANY KIND REGARDING ANY PRODUCT, SOFTWARE OR SERVICE'S POTENTIAL, ABILITY, OR EFFECTIVENESS TO DETECT, MINIMIZE, OR IN ANYWAY PREVENT DEATH, PERSONAL INJURY, PROPERTY DAMAGE, OR LOSS OF ANY KIND WHATSOEVER.

CARRIER DOES NOT REPRESENT TO YOU THAT ANY PRODUCT (INCLUDING SECURITY PRODUCTS), SOFTWARE, SERVICE OR OTHER OFFERING MAY NOT BE HACKED, COMPROMISED AND/OR CIRCUMVENTED.

CARRIER DOES NOT WARRANT THAT ANY PRODUCT (INCLUDING SECURITY PRODUCTS), SOFTWARE OR SERVICE MANUFACTURED, SOLD OR LICENSED BY CARRIER WILL PREVENT, OR IN ALL CASES PROVIDE ADEQUATE WARNING OF OR PROTECTION FROM, BREAK-INS, BURGLARY, ROBBERY, FIRE, OR OTHERWISE.

CARRIER DOES NOT WARRANT TO YOU THAT ITS SOFTWARE OR PRODUCTS WILL WORK PROPERLY IN ALL ENVIRONMENTS AND APPLICATIONS AND DOES NOT WARRANT ANY PRODUCTS AGAINST HARMFUL ELECTROMAGNETIC INTERFERENCE INDUCTION OR RADIATION (EMI, RFI, ETC.) EMITTED FROM EXTERNAL SOURCES

CARRIER DOES NOT PROVIDE MONITORING SERVICES FOR YOUR ALARM/SECURITY SYSTEM (“MONITORING SERVICES”). IF YOU ELECT TO HAVE MONITORING SERVICES YOU MUST OBTAIN SUCH SERVICE FROM A THIRD PARTY AND CARRIER MAKES NO REPRESENTATION OR WARRANTY WITH RESPECT TO SUCH SERVICES INCLUDING WHETHER OR NOT THEY WILL BE COMPATIBLE WITH THE PRODUCTS, SOFTWARE OR SERVICES MANUFACTURED, SOLD OR LICENSED BY CARRIER.

Intended Use

Use this product only for the purpose it was designed for; refer to the data sheet and user documentation. For the latest product information, contact your local supplier or visit us online at firesecurityproducts.com.

The system should be checked by a qualified technician at least every 3 years and the backup battery replaced as required.

Advisory messages

Advisory messages alert you to conditions or practices that can cause unwanted results. The advisory messages used in this document are shown and described below.

WARNING: Warning messages advise you of hazards that could result in injury or loss of life. They tell you which actions to take or to avoid in order to prevent the injury or loss of life.

Caution: Caution messages advise you of possible equipment damage. They tell you which actions to take or to avoid in order to prevent the damage.

Note: Note messages advise you of the possible loss of time or effort. They describe how to avoid the loss. Notes are also used to point out important information that you should read.