Signamax™ Connectivity Systems

Hardened Compact Ethernet Switch

User Guide

Model: 065-7408
065-74081
065-74082
065-74084

Preface

A member of the growing family of rugged switches, this switch addresses a need for a smaller switch. This switch provides an affordable solution for rugged and outdoor environment, transportation road-side cabinet, industrial floor shop, multitenant dwellings or Fiber To The Home (FTTH) applications. Capable of operating at temperature extremes of -34℃ to +74℃, this is the switch of choice for harsh environments constrained by space.

Plug-and-Play Solution:
The switch is a plug-and-play Fast Ethernet Switch in compact size. It doesn't have any complicated software to set up.

This manual describes how to install and use the hardened compact Ethernet Switch. This switch integrates full wire speed switching technology. This switch brings the answer to complicated hardened networking environments.

To get the most out of this manual, you should have an understanding of Ethernet networking concepts.

In this manual, you will find:

- Features on the switch
- Illustrative LED functions
- Installation instructions
- Specifications

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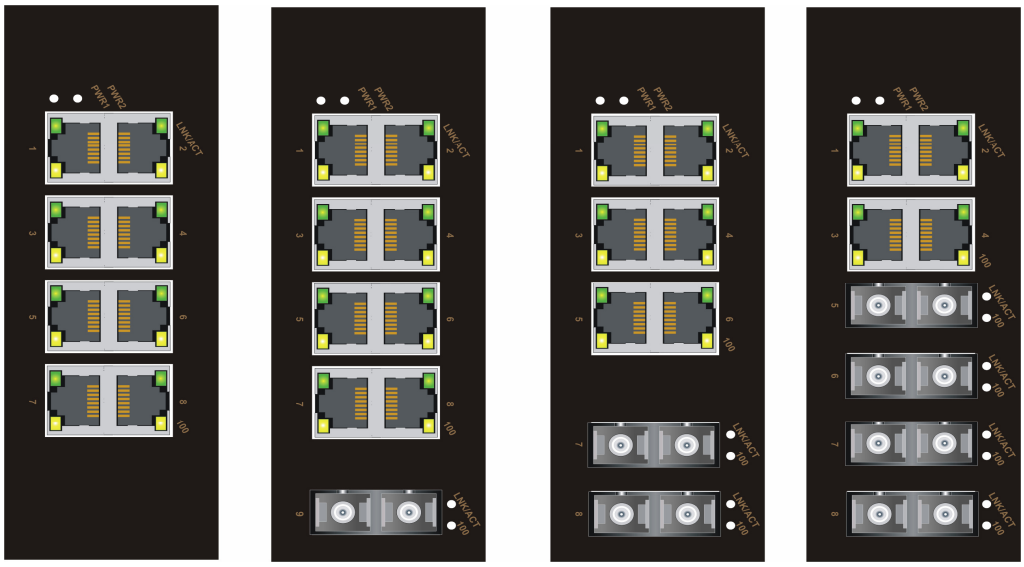
Product Overview

Product Highlights

Basic Features

- Meets NEMA TS2 Environmental requirements such as temperature, shock, and vibration for traffic control equipment.
- Meets IEC61000-6-2 EMC Generic Standard Immunity for industrial environment.
- Support 802.3/802.3u/802.3X.
- Auto-negotiation: 10/100Mbps, Full/half-duplex; Auto MDI/MDIX.
- Support 2K MAC addresses.
- Provides 96K bytes memory buffer.
- Alarms for power failure by relay output.
- Operating voltage and Max. current consumption: 12VDC @ 0.99A, 24VDC @ 0.55A.
- Power consumption: 13.2W Max.
- Power Supply: Redundant DC Terminal Block power inputs or 12VDC DC JACK with 124-240VAC external power supply.
- Supports Din-rail mounting installation.

Front Panel Display



①Power Status (PWR1, PWR2)

These LEDs come on when the switch is properly connected to power and turned on.

②Port Status LEDs

The LEDs display status for each respective port.

LED	State	Indication
10/100TX or 100FX		
LNK/ACT (Green)	Steady	A valid network connection established. LNK stands for LINK.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
100 (Yellow)	Steady	Light solid yellow for a port transferring at 100Mbps.
	Off	The port is transferring at 10Mbps If this LED is dark.

Physical Ports

This switch provides:

- Eight 10/100BaseTX ports
- Eight 10/100BaseTX ports + one 100BaseFX port
- Six 10/100BaseTX ports + two 100BaseFX ports
- Four 10/100BaseTX ports + four 100BaseFX ports

Connectivity

- RJ-45 connectors
- SC, ST, VF-45 or MT-RJ connector on 100BaseFX fiber port.

Installation

This chapter gives step-by-step instructions about how to install the switch:

Selecting a Site for the Switch

As with any electric device, you should place the switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between -34 to 74 degrees Celsius.

- The relative humidity should be less than 95 percent, non-condensing.

- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards.

- Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on each side of the switch

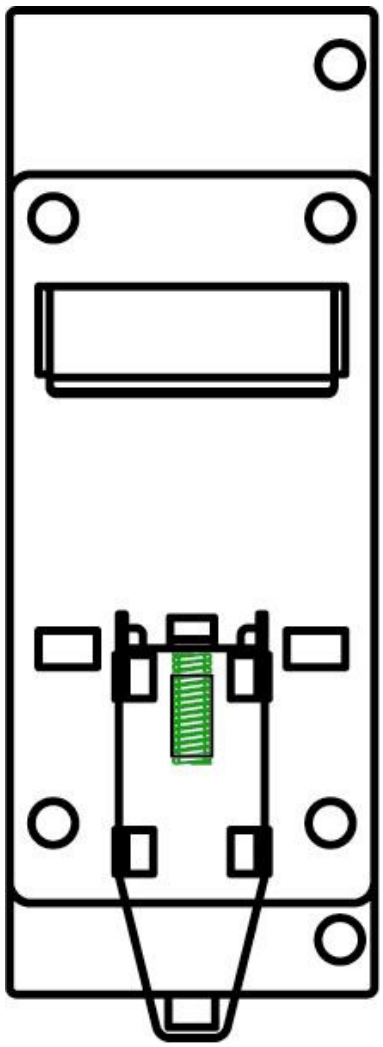
- The power outlet should be within 1.8 meters of the switch.

DIN Rail Mounting

Fix the DIN rail attachment plate to the back panel of the switch.

Installation: Place the switch on the DIN rail from above using the slot. Push the front of the switch toward the mounting surface until it audibly snaps into place.

Removal: Pull out the lower edge and then remove the switch from the DIN rail.



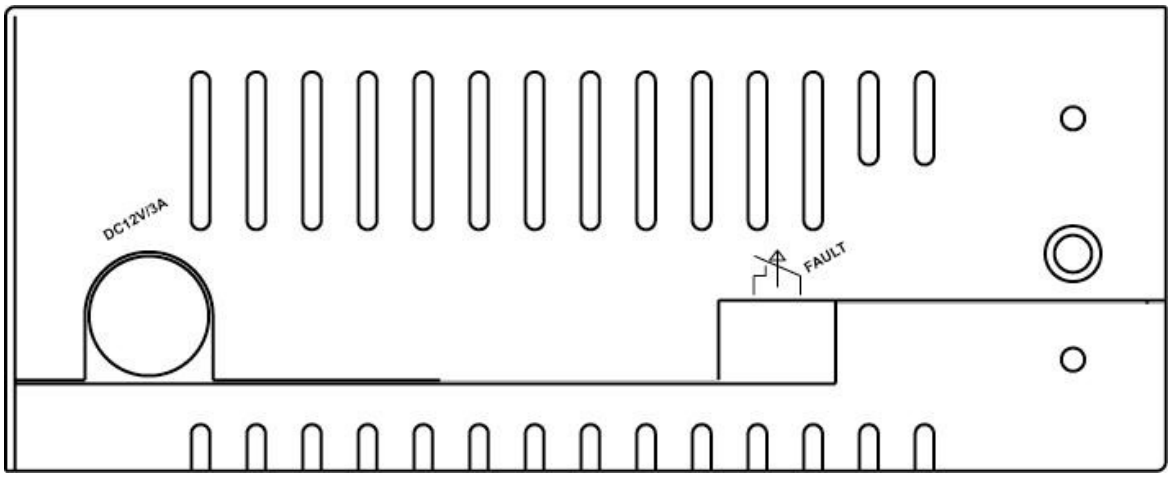
Connecting to Power

Redundant DC Terminal Block Power Inputs or 12VDC DC Jack:

12VDC DC Jack

Step 1: Connect the supplied AC to DC power adapter to the receptacle on the topside of the switch.

Step 2: Connect the power cord to the AC to DC power adapter and attach the plug into a standard AC outlet with the appropriate AC voltage.

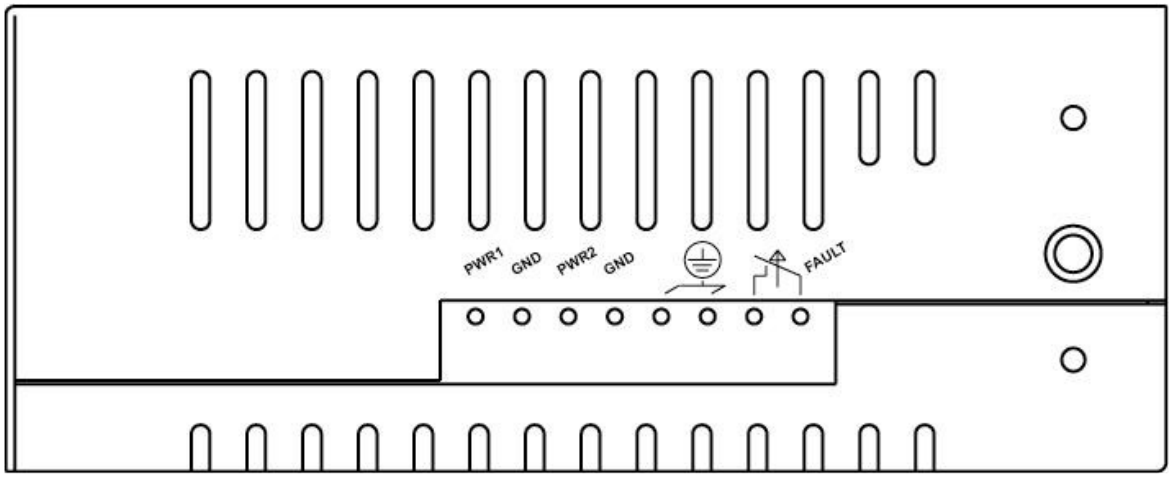


Redundant DC Terminal Block Power Inputs

There are two pairs of power inputs can be used to power up this device. You only need to have one power input connected to run the switch.

Step 1: Connect the DC power cord to the plug-able terminal block on the switch, and then plug it into a standard DC outlet.

Step 2: Disconnect the power cord if you want to shut down the switch.



Alarms for Power Failure

Step 1: There are two pins on the terminal block are used for power failure detection. It provides the normally closed output when the power source is active. Use this as a dry contact application to send a signal for power failure detection.

The Terminal Block	
PWR1	Power Input 1 (+24VDC)
GND	Power Ground
PWR2	Power Input 2 (+24VDC)
GND	Power Ground
	Earth Ground
	The relay opens if PWR1 or PWR2 fails (1A)

Special note:
The relay output is normal open position when there is no power to the switch. Please do not connect any power source to this terminal to prevent the shortage to your power supply.

Connecting to Your Network

Cable Type & Length

It is necessary to follow the cable specifications below when connecting the switch to your network. Use appropriate cables that meet your speed and cabling requirements.

Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
10BaseT	RJ-45	10/20 Mbps	2-pair UTP/STP Cat. 3, 4, 5	100 m
100BaseTX	RJ-45	100/200 Mbps	2-pair UTP/STP Cat. 5	100 m
100BaseFX	SC, ST, VF-45, MT-RJ	100/200 Mbps	MMF (50 or 62.5µm)	2 km
100BaseFX	SC	100/200 Mbps	SMF (9 or 10µm)	15, 40, or 75 km

Cabling

Step 1: First, ensure the power of the switch and end devices is turned off.

<Note> Always ensure that the power is off before any installation.

Step 2: Prepare cable with corresponding connectors for each type of port in use.

<Note> To connect two regular RJ-45 ports between switches or hubs, you need a cross-over cable.

Step 3: Consult the previous section for cabling requirements based on connectors and speed.

Step 4: Connect one end of the cable to the switch and the other end to a desired device.

Step 5: Once the connections between two end devices are made successfully, turn on the power and the switch is operational.

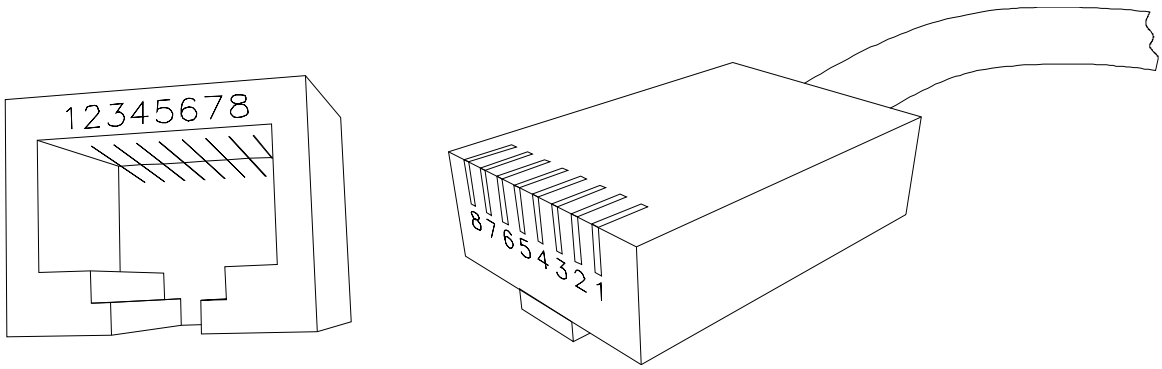
Specifications

Hardened Compact Switch	10/100BaseT/TX auto-negotiating ports with RJ-45 connectors, 100BaseFX fiber ports
Applicable Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX/FX
Switching Method	Store-and-Forward
Forwarding Rate 10BaseT: 100BaseTX/FX:	 10 / 20Mbps half / full-duplex 100 / 200Mbps half / full-duplex
Performance	148,80pps for 10Mbps 148,800pps for 100Mbps
Cable 10BaseT: 100BaseTX: 100BaseFX:	 2-pair UTP/STP Cat. 3, 4, 5 2-pair UTP/STP Cat. 5 Up to 100m (328ft) MMF (50 or 62.5µm), SMF (9 or10µm)
LED Indicators	Per unit – Power status (PWR1, PWR2) Per port – LNK/ACT – (Green) 10/100TX or 100FX 100 – (Yellow) 10/100TX or 100FX
Dimensions	W135mm × D125mm × H50mm Compact Size
Net Weight	0.8kg approx.
Power	DC Jack: 12VDC, External AC/DC required Terminal Block: 10-30VDC
Operating Voltage & Max. Current Consumption	12VDC @ 0.99A, 24VDC @ 0.55A
Power Consumption	13.2W max.
Operating Temperature	-34℃ to 74° C
Storage Temperature	-45℃ to 93℃
Humidity	10%-95% non-condensing
Safety	UL/CUL 60950, EN60950, IEC 60950, IEC61000-6-2
Emissions	FCC Class A, CE Class A

Standards
ESD Standard (IEC 61000-4-2)
Radiated FRI Standards (IEC 61000-4-3)
Burst Standards (IEC 61000-4-4)
Surge Standards (IEC 61000-4-5)
Induced (Conducted) RFE Standards (IEC 61000-4-6)
Magnetic Field Standards (IEC 61000-4-8)
Voltage Dips Standards (IEC 61000-4-11)
Environmental Test Standards: Vibration Resistance (IEC 60068-2-6) Shock (IEC 60068-2-27) Free Fall (IEC 60068-2-32)

Appendix A – Connector Pinouts

Pin arrangement of RJ-45 connectors:



RJ-45 Connector and Cable Pins

The following table lists the pinout of 10/100BaseT/TX ports.

Pin	Regular Ports	Uplink port
1	Input Receive Data +	Output Transmit Data +
2	Input Receive Data -	Output Transmit Data -
3	Output Transmit Data +	Input Receive Data +
4	NC	NC
5	NC	NC
6	Output Transmit Data -	Input Receive Data -
7	NC	NC
8	NC	NC