Signamax™ Connectivity Systems

Hardened Compact Switch

User's Guide

Model: 065-7401
065-7402
065-7405
065-74051
065-74052

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 -10℃ to +60℃, 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.
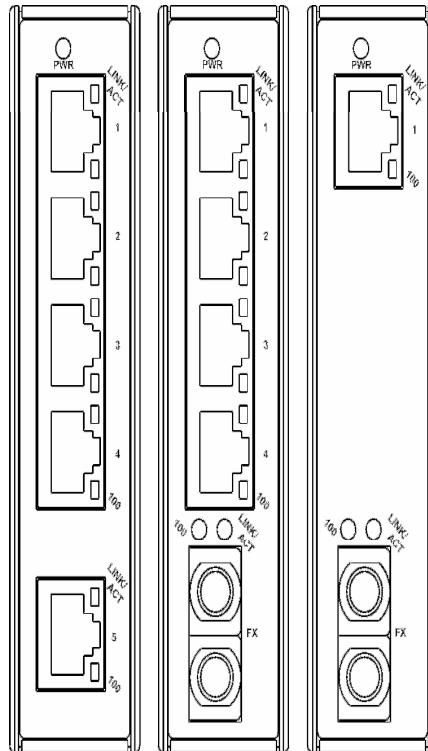
In this manual, you will find:

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

Table of Contents

Product Overview

Hardened Compact Switch

Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

- ✓ **This Switch**
- ✓ **User's Manual**

Product Highlights

Basic Features

- 5-port 10/100Base-TX or 4-port 10/100Base-TX plus 1-port 100Base-FX.
- Available in media converter format with 1-port 10/100Base-TX and 1-port 100Base-FX.
- Support IEEE802.3/802.3u/802.3X.
- Auto-negotiation: 10/100Mbps, Full/half-duplex; Auto MDI/MDIX.
- Support 2K MAC addresses.
- Store-and-forward mechanism.
- Full wire-speed forwarding rate and non-blocking mechanism.
- Broadcast storm filtering.
- Operating voltage and Max. current consumption: 12VDC @ 0.71A, 24VDC @ 0.37A, 48VDC @ 0.22A.
- Power consumption: 10.56W Max.
- Power Supply: DC Terminal Block power input, 10-48VDC with polarity protection.
- Plastic compact DIN-Rail Industrial case design.
- DIN-Rail mounting ability.

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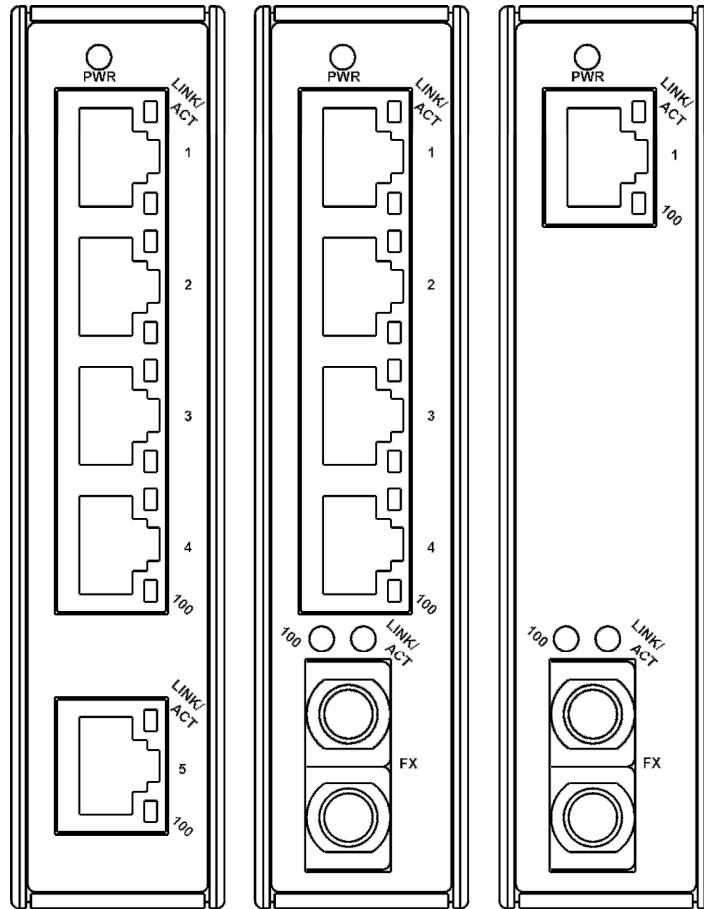
LED	State	Indication
10/100TX or 100FX		
LNK/ACT (Green)	Steady	A valid network connection established. LNK stands for LINK.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
100 (Yellow)	Steady	Light solid yellow for a port transferring at 100Mbps.
	Off	The port is transferring at 10Mbps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

Physical Ports

This switch provides:
- Five 10/100BaseTX ports
- Four 10/100BaseTX ports + one 100BaseFX port
- One 10/100BaseTX port + one 100BaseFX port

CONNECTIVITY
- RJ-45 connectors
- SC or ST connecto 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 -10 to 60 degrees Celsius.

-   The relative humidity should be less than 90 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 Terminal Block	
PWR	Power Input
GND	Power Ground
⏚	Earth Ground

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	100/200 Mbps	MMF (50 or 62.5µm)	2 km
100BaseFX	SC, ST	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 (PWR)
	Per port –
	   LNK/ACT – (Green) 10/100TX or 100FX
	   100 – (Yellow) 10/100TX or 100FX

Dimensions	W26mm × D70mm × H110mm Compact Size
Net Weight	0.2kg approx.
Power	Terminal Block: 10-48VDC
Operating Voltage & Max. Current Consumption	12VDC @ 0.71A, 24VDC @ 0.37A, 48VDC @ 0.22A
Power Consumption	10.56W max.
Operating Temperature	-10℃ to 60°C
Storage Temperature	-25℃ to 85℃
Humidity	10%-90% 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)

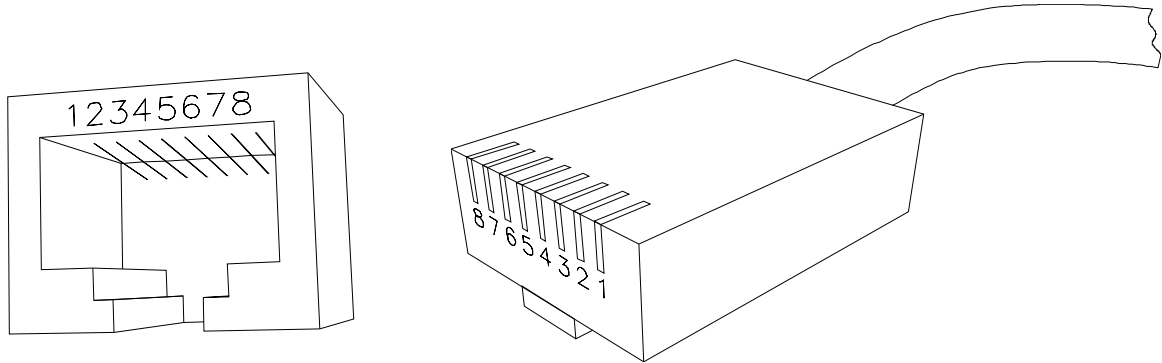| |
|---|
| Voltage Dips Standards (IEC 61000-4-11) |
| Environmental Test Standards: |
| Vibration Resistance (IEC 60068-2-6) |
| Shock (IEC 60068-2-27) |
| Free Fall (IEC 60068-2-32) |

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