

Preface

This hardened media converter provides an affordable solution for rugged and outdoor environments, transportation roadside cabinets, industrial floor operations, multi-tenant dwellings, or Fiber To The Home (FTTH) applications. It is the media converter of choice for harsh environments with space constraints. It is capable of operating at temperature extremes of -29° F to 165° F (-34° C to +74° C).

Plug-and-Play Solution:

The Signamax 065-1895 series hardened media converter is a plug-and-play media converter with a compact case size. There is no complicated software set up required.

This manual describes how to install and use the Signamax 065-1895 series hardened media converters with the Link Fault Signaling (LFS) function. The converters introduced here provide one channel of media conversion between 1000BaseT and 1000BaseSX/LX.

These converters fully comply with IEEE802.3ab 1000BaseT and IEEE802.3z 1000BaseSX/LX standards.

In this manual, you will find:

- Product overview
- Features of the of the 065-1895 series media converters
- Illustrative LED functions
- Installation instructions
- Specifications

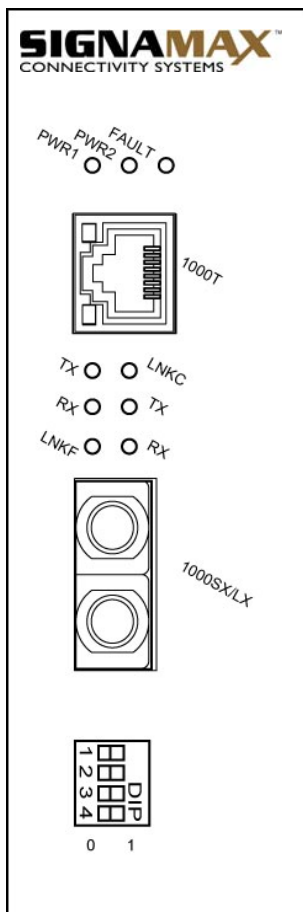
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Introduction

The media converter provides one channel for media conversion between 1000BaseT and 1000BaseSX/LX with the link-fault-pass-through function. This hardened fiber optic solution is perfectly fitted in the industrial applications or rugged environment.

Product Overview



Product Features

- Meets NEMA TS1/TS2 environmental requirements such as temperature, shock, and vibration for traffic control equipment
- Meets IEC61000-6-2 EMC Generic Standard Immunity for industrial environment
- One-channel media conversion between 1000BaseT and 1000BaseSX/LX
- Fiber media allows Multi-mode fiber or Single-mode fiber using SC
- The fiber port should be set to (forced full duplex mode, forced full duplex mode) or (auto mode, forced full duplex mode) when two 1000BaseT and 1000BaseSX/LX one-channel media converters are connected to each other via fiber port
- Auto negotiation and Auto MDIX on TX port
- One DIP switch for configuring Link Fault Signaling (LFS), fixed speed, full/half duplex, and link down alarm
- Non-blocking full wire-speed forwarding rate
- Back-pressure & IEEE802.3x compliant flow control
- Alarms for power and port link down failure by relay output
- Redundant 1.5A 24VDC Terminal Block power inputs; or 3A DC JACK 12VDC with provided 100-240VAC external power supply
- Supports Din-rail or panel mounting installation
- Front panel status LEDs

Packing List

When you unpack this product's package, you will find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to our authorized reseller.

- The Signamax 065-1895 series Hardened Media Converter
- User's Manual on CD-ROM
- Signamax 065-1895 series Hardened Media Converter Quick Installation Guide
- AC to DC Power Adaptor and Power Cable (optional 12 V DC powered models only)

One-Channel Media Converter

Ports

The Converter provides one copper port and one fiber port. The fiber port provides options of Multi-mode fiber or Single-mode fiber using an SC connector.

The copper port uses RJ-45 connector, auto-MDIX, and auto negotiates.

Port Settings

Port settings are made very simple by means of a DIP (Dual Inline Package) switch on the front panel of the hardened media converter.

Default DIP switch settings:



DIP Switch

There are four pins on the DIP switch for port settings. Refer to the table below for more details.

| DIP switch No. | 0 | 1 |
|----------------|-----------------------------------------|----------------------------------------|
| 1 | Disable Link Fault Signaling | Enable Link Fault Signaling |
| 2 | Enable auto negotiation for fiber port | Enable forced mode for fiber port |
| 3 | Disable link down alarm for copper port | Enable link down alarm for copper port |
| 4 | Disable link down alarm for fiber port | Enable link down alarm for fiber port |

Front Panel & LEDs

LED Indicators

The LED indicators give you instant feedback on converter status:

| LED's | State | Indication |
|--------------|----------|-------------------------------------------------------------------------------|
| FAULT | Steady | Power or ports function abnormal |
| | Off | Power and ports function normal |
| PWR1 PWR2 | Steady | Power on PWR stands for POWER |
| | Off | Power off |
| LNKC | Steady | A valid network connection established for copper port LNK stands for LINK |
| | Off | No valid network connection established for copper port |
| LNKF | Steady | A valid network connection established for fiber port LNK stands for LINK |
| | Off | No valid network connection established for fiber port |
| TX | Flashing | Transmitting data TX stands for TRANSMIT |
| | Off | No transmitting data |
| RX | Flashing | Receiving data RX stands for RECEIVE |
| | Off | No data being received |

Installation

This chapter gives step-by-step installation instructions for the Converter.

Selecting a Site for the Equipment

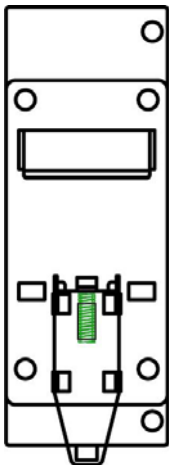
As with any electric device, you should place the equipment where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between -29° to 165° Fahrenheit (-34° to +74° Celsius).
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards for IEC 801-3, Level 2 (3V/M) field strength.
- Make sure that the equipment receives adequate ventilation. Do not block the ventilation holes of the equipment.
- The power outlet should be within 1.8 meters of the product.

DIN Rail Mounting

Fix the DIN rail attachment plate to the back panel of the media converter. Installation: Place the media converter on the DIN rail from above using the slot. Push the front of the media converter toward the mounting surface until it audibly snaps into place.

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



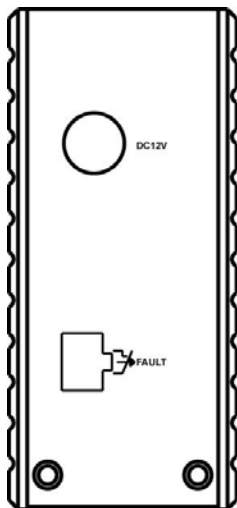
Connecting to Power

Redundant 1.5A 24VDC power inputs or 3A 12VDC Jack:

3A 12VDC Jack

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

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.

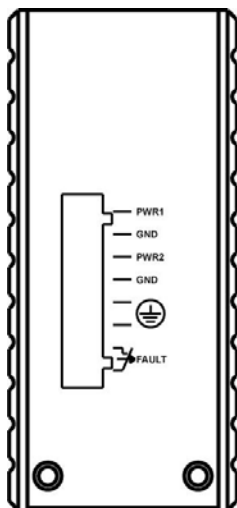


Redundant 1.5A 24VDC Power Inputs

There are two pairs of 1.5A 24VDC power sources that can be used to power up this device. You only need to have one power source connected to run the media converter.















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

Step 2: In order to shut down the media converter, disconnect the power cord.



Alarms for Power and Port Failure

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

| Terminal Assignments | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|--|--|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---|------------|---------------|-------------------------|---|-------------|-----------------|--------------------------|--|--|--|------------------------|--|--|--|-------------------------|
| PWR1 | Power Input 1 (+10~+48DC) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GND | Power Ground | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PWR2 | Power Input 2 (+10~+48DC) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GND | Power Ground | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Earth Ground | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  FAULT | 1. The relay opens if PWR1 or PWR2 fails 2. The relay opens if a Link Fault is detected (if Link Fault Signaling has been Enabled) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th colspan="4">DIP</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>LFS Enable</td> <td>FIBER F. Mode</td> <td>COPPER LNK_DOWN_DetL ON</td> </tr> <tr> <td>0</td> <td>LFS Disable</td> <td>FIBER Auto Mode</td> <td>COPPER LNK_DOWN_DetL OFF</td> </tr> <tr> <td></td> <td></td> <td></td> <td>FIBER LNK_DOWN_DetL ON</td> </tr> <tr> <td></td> <td></td> <td></td> <td>FIBER LNK_DOWN_DetL OFF</td> </tr> </tbody> </table> | | | | DIP | | | |  |  |  |  | 1 | LFS Enable | FIBER F. Mode | COPPER LNK_DOWN_DetL ON | 0 | LFS Disable | FIBER Auto Mode | COPPER LNK_DOWN_DetL OFF | | | | FIBER LNK_DOWN_DetL ON | | | | FIBER LNK_DOWN_DetL OFF |
| DIP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | FIBER LNK_DOWN_DetL ON | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | FIBER LNK_DOWN_DetL OFF | | | | | | | | | | | | | | | | | | | | | | | | |

Special note:

The relay output is normal in an open position when there is no power to the media converter. Please do not connect any power source to this terminal to prevent a shortage to your power supply.

Specifications

| | |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Standards | IEEE 802.3ab 1000BaseT IEEE 802.3z 1000BaseSX/LX |
| Fixed Ports | 1 copper port, 1 fiber port |
| Speed 1000BaseT 1000BaseSX/LX | 2000Mbps for full-duplex 2000Mbps for full-duplex |
| Forwarding rate | 1,488,000pps for 1000Mbps |
| Cable 1000BaseT 1000BaseSX/LX | 4-pair UTP/STP Cat. 5 up to 100m MMF (50 or 62.5µm), SMF (9 or 10µm) |
| LED Indicators | Per Unit- (3 LEDs): PWR1, PWR2, FAULT Per Port- Copper (3 LEDs): LNKC, TX, RX Fiber (3 LEDs): LNKF, TX, RX |
| Dimensions | W50 x D110 x H136 mm |
| Weight | 0.6 Kg |
| Power | DC Jack: 3A 12VDC, External AC/DC required Terminal Block: 1.5A 24VDC, 10-48VDC |
| Power Consumption | 5W Max. |
| Operating Temperature | -34°C ~ 74°C |
| Storage Temperature | -45°C ~ 93°C |
| Humidity | 10 ~ 95%, non-condensing |
| Safety | UL 60950, EN60950, IEC 60950, IEC 61000-6-2 |
| Emissions | FCC Part 15, Class A CE: EN55022 (CISPR22 Class A) EN55024 (CISPR24 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 RFI Standards (IEC 61000-4-6)

Magnetic Field Standards (IEC 61000-4-8)

Voltage Dips Standards (IEC 61000-4-11)

Environmental Test Compliance:

Vibration Resistance (IEC 60068-2-6)

Shock (IEC 60068-2-27)

Free Fall (IEC 60068-2-32)

NEMA TS1/2 Environmental requirements for traffic control equipment