

## Hardened Compact Media Converter

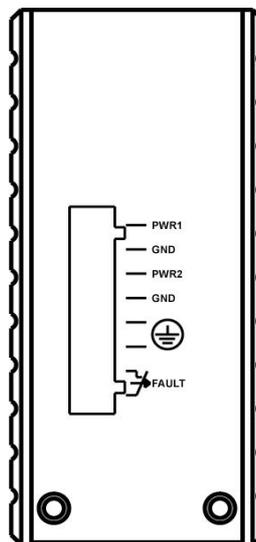


This quick installation guide describes how to install and use the hardened compact Media Converter. Capable of operating at temperature extremes of -40 to +75°C, this is the media converter of choice for harsh environments constrained by space.

## Physical Description

### Terminal Block and Power Inputs

| Terminal Block Assignment |  |
|---------------------------|--|
| PWR1                      | Power Input 1 (10 to 48VDC)  |
| GND                       | Power Ground   |
| PWR2                      | Power Input 2 (10 to 48VDC)  |
| GND                       | Power Ground   |
|                           | Earth Ground   |
|                           | 1. The relay opens if PWR1 or PWR2 fails<br>2. The relay opens if the Port Link is Down<br>(When the Link Down Alarm is Enabled) |



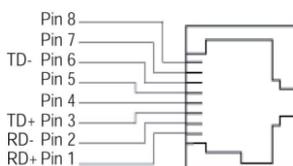
While only one power source is required to power up the media converter, two power sources offer redundancy for those mission critical applications. (PWR1 and PWR2)

The terminals labeled Fault are connected to a dry contact. The dry contact is normally closed when either power source is connected and active. When no power is applied, the dry contact is normally open.

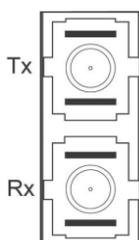
## 10/100BaseTX and 100BaseFX Connectors

### 10/100BaseTX Connections:

| Pin | Regular Ports            | Uplink Port              |
|-----|--------------------------|--------------------------|
| 1   | Receive Data + (input)   | Transmit Data + (output) |
| 2   | Receive Data - (input)   | Transmit Data - (output) |
| 3   | Transmit Data + (output) | Receive Data + (input)   |
| 4   | NC                       | NC                       |
| 5   | NC                       | NC                       |
| 6   | Transmit Data - (output) | Receive Data - (input)   |
| 7   | NC                       | NC                       |
| 8   | NC                       | NC                       |



### 100BaseFX Connections:



The Tx (transmit) port of device 1 is connected to the Rx (receive) port of device 2, and the Rx (receive) port of device 1 to the Tx (transmit) port of device 2.

## LED's and DIP Switch

### LED Status:

| LEDs    | State    | Indication   |
|---------|----------|--|
| FAULT   | Steady   | Power or ports function abnormally                                       |
|         | Off      | Power and ports function normally  |
| PWR1    | Steady   | Power on (PWR stands for POWER)  |
|         | Off      | Power off  |
| PWR2    | Steady   | Power on (PWR stands for POWER)  |
|         | Off      | Power off  |
| 10/100  | Steady   | 100Mbps network connection   |
|         | Off      | 10Mbps network connection  |
| LFP     | Steady   | LFPT function enabled  |
|         | Off      | LFPT function disabled   |
| LNK/ACT | Steady   | Network connection established (LNK stands for LINK)                     |
|         | Flashing | Transmitting or receiving data (ACT stands for ACTIVITY)                 |
|         | Off      | Neither a network connection established nor transmitting/receiving data |
| FDX/COL | Steady   | Connection in full duplex mode (FDX stands for FULL-DUPLEX)              |
|         | Flashing | Collision occurred (COL stands for COLLISION)                            |
| FDX/COL | Steady   | Connection in full duplex mode (FDX stands for FULL-DUPLEX)              |
|         | Off      | Connection in half-duplex mode   |

### DIP Switch Settings:

| Pos. | Down(0)                         | Up(1)                          |
|------|---------------------------------|--------------------------------|
| 1    | Disable Link-fault-pass-through | Enable Link-fault-pass-through |
| 2    | RJ45 Auto Negotiation Enabled   | RJ45 Forced Mode               |
| 3    | RJ45 Forced to 100Mbps          | RJ45 Forced to 10Mbps          |
| 4    | RJ45 Forced to Full Duplex      | RJ45 Forced to Half Duplex     |
| 5    | Fiber Forced to Full Duplex     | Fiber Forced to Half Duplex    |
| 6    | Disable Link Down Alarm         | Enable Link Down Alarm         |



**Link-fault-pass-through**  
**Link-Fault-Pass-Through Overview**

When two Media Converters are connected via their fiber ports

**Link Fault of the FX port:**

A Link Fault condition will be sensed on the RJ45 port whenever the media converter detects a Link Fault condition on the Fiber port. *(The 10/100, LNK/ACT, and FDX/COL LED's will be off.)*

**Link Fault of the TX port:**

The Media Converter A: A Link Fault condition will be sensed on the FX port whenever the media converter detects a Link Fault condition on the TX port. Thus, the 100, LNK/ACT, and FDX/COL LEDs of the TX port of the Media Converter A would be off.

The Media Converter B: A Link Fault condition will be informed to the FX port of the Media Converter B. Then a Link Fault condition will be sensed on the TX port of the Media Converter B whenever the Media Converter B detects a Link Fault condition on the FX port. Thus, the 100, LNK/ACT, and FDX/COL LEDs of the Media Converter B would be off.

| Link Fault of the FX Port |     |         |         |         |         |         |
|---------------------------|-----|---------|---------|---------|---------|---------|
|                           |     | TX Port |         |         | FX Port |         |
| LEDs                      | PWR | 100     | LNK/ACT | FDX/COL | LNK/ACT | FDX/COL |
| Media Converter A         | ON  | OFF     | OFF     | OFF     | OFF     | OFF     |
| Media Converter B         | ON  | OFF     | OFF     | OFF     | OFF     | OFF     |

| Link Fault of the TX port of the Media Converter A |     |         |         |         |         |         |
|--|-----|---------|---------|---------|---------|---------|
|  |     | TX Port |         |         | FX Port |         |
| LEDs   | PWR | 100     | LNK/ACT | FDX/COL | LNK/ACT | FDX/COL |
| Media Converter A                                  | ON  | OFF     | OFF     | OFF     | ON      | ON      |
| Media Converter B                                  | ON  | OFF     | OFF     | OFF     | OFF     | OFF     |

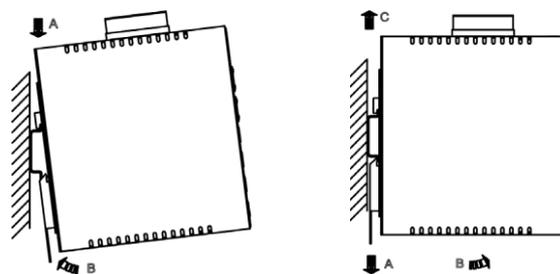
**Functional Description**

- Meets NEMA TS1/2 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 converter between 10/100BaseTx and 100BaseFx
- Support 802.3/802.3u/802.3x. Auto-negotiation: 10/100Mbps, Full/half-duplex; Auto MDI/MDIX.
- 100BaseFX: Multi mode SC or ST type; Single mode SC type.
- DIP switch for configuring link-fault-pass-through, fixed speed, full/half duplex and link down alarm
- Store-and-forward mechanism
- Non-blocking full wire-speed forwarding rate
- Support broadcast storm filtering
- Back-pressure & IEEE 802.x compliant flow control
- Alarms for power failure by relay output.
- Redundant 10-48 VDC terminal block power inputs.
- Supports DIN-rail mounting installation.
- Front panel LED status.
- Field Wiring Terminal: Use Copper Conductors Only, 60/75°C, 12-24 AWG torque value 7 lb-in.
- -40°C to 75°C (-40°F to 167°F) operating temperature range. Tested for functional operation @ -40°C to 85°C (-40°F to 185°F). UL1604 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 74°C (165°F).

- Supports DIN-rail or Panel Mounting installation.
- UL1604 Class I, Division 2 Classified for use in hazardous locations (Applicable to versions with Terminal Block power option).
- This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D OR non-hazardous locations only.
- WARNING – EXPLOSION HAZARD – Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.
- WARNING – EXPLOSION HAZARD – Substitution of components may impair suitability for Class I, Division 2.

**Assembly, Startup, and Dismantling**

- Assembly: 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.
- Startup: Connect the supply voltage to start up the media converter via the terminal block.
- Dismantling: Pull out the lower edge and then remove the media switch from the DIN rail.



**Specifications**

|                                   |  |
|-----------------------------------|--|
| Applicable Standards              | IEEE 802.3 10BaseT, IEEE 802.3u 100BaseTX & 100BaseFX  |
| Fixed Ports                       | (1) TX port, (1) FX port   |
| Speed 10BaseT 100BaseTX/FX        | 10/20Mbps for half/full-duplex<br>100/200Mbps for half/full-duplex   |
| Switching Method                  | Store-and-Forward  |
| Forwarding rate                   | 14,880/148,800pps for 10/100Mbps   |
| Cable 10BaseT 100BaseTX 100BaseFX | 2-pair UTP/STP Cat. 3, 4, 5 up to 100m<br>2-pair UTP/STP Cat. 5 up to 100m<br>MMF (50 or 62.5µm), SMF (9 or 10µm)  |
| LED Indicators                    | Per Unit - PWR1, PWR2, FAULT, LFP<br>Per Port - TX: LNK/ACT, FDX/COL, 100<br>FX: LNK/ACT, FDX/COL  |
| Dimensions                        | 2 x 4.3 x 5.4 in. (5 x 11 x 13.6cm)  |
| Weight                            | 0.6 Kg   |
| Power                             | Terminal Block: 200mA @ 24VDC, 10-48VDC  |
| Power Consumption                 | 4.8W Max.  |
| Operating Temperature             | -40°C to 75°C. Tested for functional operation at -40°C to 85°C. UL1604 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 74°C. |
| Storage Temperature               | -45°C to 93°C  |
| Humidity                          | 10 to 95%, non-condensing  |
| Safety                            | Hazardous locations: Class I, Division 2 group A, B, C & D   |
| Emissions                         | FCC Part 15, Class A<br>EN61000-6-3, EN61000-6-2   |

**Standards**

|   |
|---|
| ESD Standard (EN61000-4-2)  |
| Radiated FRI Standards (EN61000-4-3)                                |
| Burst Standards (EN61000-4-4)                                       |
| Surge Standards (EN61000-4-5)                                       |
| Induced RFI Standards (EN61000-4-6)                                 |
| Magnetic Field Standards (EN61000-4-8)                              |
| Voltage Dips Standards (EN61000-4-11)                               |
| Environmental Test Compliance:                                      |
| Vibration Resistance (IEC 60068-2-6 Fc)                             |
| Shock (IEC 60068-2-27 Ea)   |
| Free Fall (IEC 60068-2-32 Ed)                                       |
| NEMA TS1/2 Environmental requirements for traffic control equipment |

