B&B ELECTRONICS

PRODUCT INFORMATION

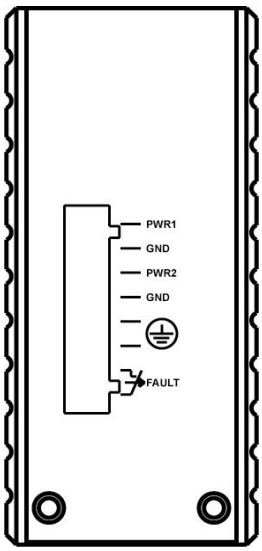
Hardened Compact Media Converter

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
FAULT	1. The relay opens if PWR1 or PWR2 fails 2. The relay opens if the Port Link is Down *(When the Link Down Alarm is Enabled)*



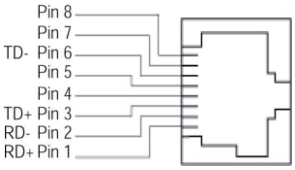
While only one power source is required to power up the media converter, two power sources offer redundancy for those mission critical applications. (PWR1 and PWR2)

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.

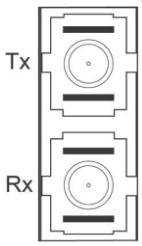
10/100BaseTX and 100BaseFX Connectors

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.

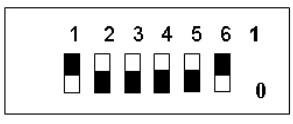
LED's and DIP Switch

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)*
PWR2	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)*
	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



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www.bb-elec.com orders@bb-elec.com support@bb-elec.com
International Office: 707 Dayton Road PO Box 1040 Ottawa, IL 61350 USA 815-433-5100 Fax 433-5104
European Office: Westlink Commercial Park Oranmore Co. Galway Ireland +353 91 792444 Fax +353 91 792445

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.

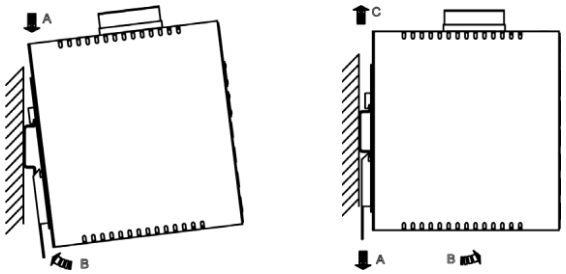
Link Fault of the FX Port						
		TX Port			FX Port	
LEDs	PWR	100	LNK/ACT	FDX/COL	LNK/ACT	FDX/COL
Media Converter A	ON	OFF	OFF	OFF	OFF	OFF
Media Converter B	ON	OFF	OFF	OFF	OFF	OFF
Link Fault of the TX port of the Media Converter A						
		TX Port			FX Port	
LEDs	PWR	100	LNK/ACT	FDX/COL	LNK/ACT	FDX/COL
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℃, 12-24 AWG torque value 7 lb-in.
- -40℃ to 75℃ (-40℉ to 167℉) operating temperature range. Tested for functional operation @ -40℃ to 85℃ (-40℉ to 185℉). UL1604 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 74℃ (165℉).
- 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	10/20Mbps for half/full-duplex
100BaseTX/FX	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 2-pair UTP/STP Cat. 5 up to 100m MMF (50 or 62.5µm), SMF (9 or 10µm)
LED Indicators	Per Unit - PWR1, PWR2, FAULT, LFP
	Per Port - TX: LNK/ACT, FDX/COL, 100 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 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

www.bb-elec.com orders@bb-elec.com support@bb-elec.com
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