

# EL9000 Series

## 1000Base-T to 1000Base-SX/LX Hardened Media Converter



### Overview

The EL9000 series, Gigabit Ethernet media converters are designed to operate in harsh environments. The EL9000 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EL9000 will provide flawless communications when you need it most. EL9000 series supports multi-mode/single-mode/WDM single-mode fiber optics. The RJ-45 port on this unit provides Auto-MDIX and auto-negotiation. The link-fault-pass-through feature allows the network management agent on adjacent equipment to react to a broken link. Flexibility is the main feature of the EL9000, it may be DIN rail or panel mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Gigabit Ethernet media converter.

### Features

- ▶ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ UL 1604 Class 1, Division 2 Classified for use in hazardous locations (applicable to versions with terminal block power option)
- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode, link down alarm
- ▶ 1000Mbps-Auto/Full-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ Alarms for power and port link failure by relay output
- ▶ Redundant power inputs with Terminal Block or DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail, Panel or Rack Mounting installation

### Ordering Information

EL9000-X-Y-I-P 1000Base-T to 1000Base-SX/LX Hardened Media Converter

#### Gigabit Options :

- (X) = A : 1000Base-T (for Port 1 only)
- (Y) = B : 1000Base-SX (SC)
  - N : 1000Base-LX (SC) -10Km
  - O : 1000Base-LX (SC) -20Km
  - P : 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -10Km
  - Q : 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -10Km
  - R : 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km
  - S : 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km

\*More Gigabit options also available upon request.

#### Installation Type :

- (I) = 1 : DIN Rail (mounting kit is included)  
Optional Panel mount kit, ordered separately,  
part number: [KP-AA96-480](#)



#### Power Connector Options :

- (P) = A : Terminal Block\* / B : DC Jack\*\*
  - \*Options A -The Terminal Block type external power supply are not included. Please order the following part numbers, as required: [DR-30-24](#), [DR-60-24](#), [DR-75-24](#), [DR-120-24](#) or [41-136046-X X=1,2,3,4,5](#)
  - \*\*Options B -The external power adapter and power cord are not included. Please order the following part numbers, as required: [41-136044-X X=1,2,3,4,5](#)

\*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

## Specifications

### Technology

#### Standards:

- IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

#### Forward and Filtering Rate:

- 1,488,100pps for 1000Mbps

### Power

#### Input:

- Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)

#### Power Consumption:

- 9.12W, 0.76A @ 12VDC, 0.38A @ 24VDC, 0.19A @ 48VDC

#### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

#### Overload Current Protection:

- Present

#### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Aluminum case
- IP20

#### Dimensions:

- 50mm (W) x 110mm (D) x 135mm (H)  
(1.97" (W) x 4.33" (D) x 5.31" (H))

#### Weight:

- 0.8Kg (1.76lbs.)

#### Installation:

- DIN-Rail, Panel, Rack Mounting

### Interface

#### Ethernet Port:

- 1000Base-T: 1 port
- 1000Base-SX/LX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power1, Power2, Fault)
- Per Port: 1000T, 1000SX/LX: LNK, TX, RX

#### Alarm Contact:

- One relay output with current 1A @ 24VDC

### Environment

#### Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)  
Tested @ -40°C to 85°C (-40°F to 185°F)

#### Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals:

#### ISO:

- Manufactured in an ISO9001 facility

#### Safety:

- Hazardous locations: Class 1, Division 2 group A,B,C&D
- UL60950-1, EN60950-1, IEC60950-1

#### EMI:

- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

#### EMS:

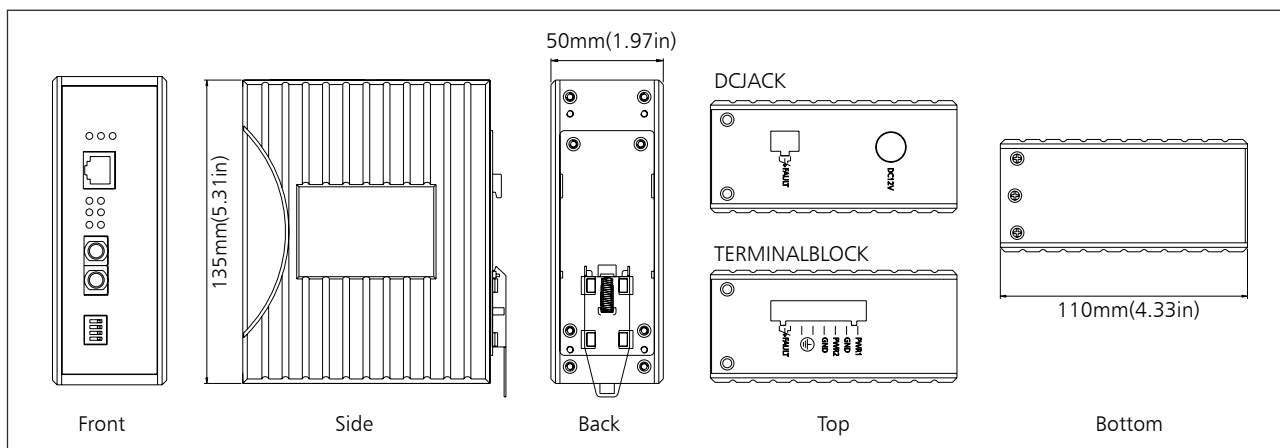
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

#### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

#### NEMA TS1/2 Environmental requirements for Traffic control equipment

## Diagrams



# EL9020 Series

## 10/100/1000Base-TX to Gigabit SFP Hardened Media Converter

coming soon



### Overview

The EL9020 series, Gigabit Ethernet media converters are designed to operate in harsh environments. The EL9020 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). Whether on the factory floor or the street corner, the EL9020 will provide flawless communications when you need it most. EL9020 series offers 1000Base SFP socket to support multi-mode/single-mode/WDM single-mode fiber optics. The RJ-45 port on this unit provides Auto-MDIX and auto-negotiation. The link-fault-pass-through feature allows the network management agent on adjacent equipment to react to a broken link. Flexibility is the main feature of the EL9020, it may be DIN rail or panel mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Gigabit Ethernet media converter.

### Features

- ▶ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ UL 1604 Class 1, Division 2 Classified for use in hazardous locations (applicable to versions with terminal block power option)
- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode, link down alarm
- ▶ 1000Mbps-Auto/Full-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ SFP socket for Gigabit fiber optic expansion
- ▶ Full wire-speed forwarding rate
- ▶ Alarms for power and port link failure by relay output
- ▶ Redundant power inputs with Terminal Block and DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail, Panel or Rack Mounting installation

### Ordering Information

EL9020-00Z 1000Base-T to Gigabit SFP Hardened Media Converter

#### Power Input Interface:

(Z) = B : Terminal Block & DC Jack

#### SFP Hardened Type Gigabit Fiber Transceiver: (Optional)

Part Number	Typical Distance	Nominal Wavelength	Cable Type	Connector
EX-1250NSP-SB1L-A	500m	850 nm /VCSEL	MM	Duplex LC
EX-1250TSP-MB4L-A	10Km	1310 nm	SM	Duplex LC
EX-1250TSP-NB6L-A	40Km	1310 nm /DFB	SM	Duplex LC
EX-1250TSP-KB8L-A	70Km	1550 nm /DFB	SM	Duplex LC

\*More Gigabit SFP options also available upon request.

#### Power Supply: (Optional)

- \*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5
- \*\*Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5
- \*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

#### Installation Type: DIN Rail (mounting kit is included)

Optional Panel mount kit, ordered separately, part number: KP-AA96-480



## Specifications

### Technology

#### Standards:

- IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

#### Forward and Filtering Rate:

- 1,488,100pps for 1000Mbps

### Power

#### Input:

- Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)

#### Power Consumption:

- 9.12W, 0.76A @ 12VDC, 0.38A @ 24VDC, 0.19A @ 48VDC

#### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

#### Overload Current Protection:

- Present

#### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Aluminum case
- IP20

#### Dimensions:

- 50mm (W) x 110mm (D) x 135mm (H)  
(1.97" (W) x 4.33" (D) x 5.31" (H))

#### Weight:

- 0.8Kg (1.76lbs.)

#### Installation:

- DIN-Rail, Panel, Rack Mounting

### Interface

#### Ethernet Port:

- 10/100/1000Base-TX: 1 port
- Gigabit SFP: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power1, Power2, Power3, Fault), LFPT
- Per Port: 10/100/1000TX: Link/Activity, Speed, Full-duplex/Collision  
Gigabit SFP: Link/Activity

#### Alarm Contact:

- One relay output with current 1A @ 24VDC

### Environment

#### Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)  
Tested @ -40°C to 85°C (-40°F to 185°F)

#### Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals:

#### ISO:

- Manufactured in an ISO9001 facility

#### Safety:

- UL508, EN60950-1, IEC60950-1

#### EMI:

- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

#### EMS:

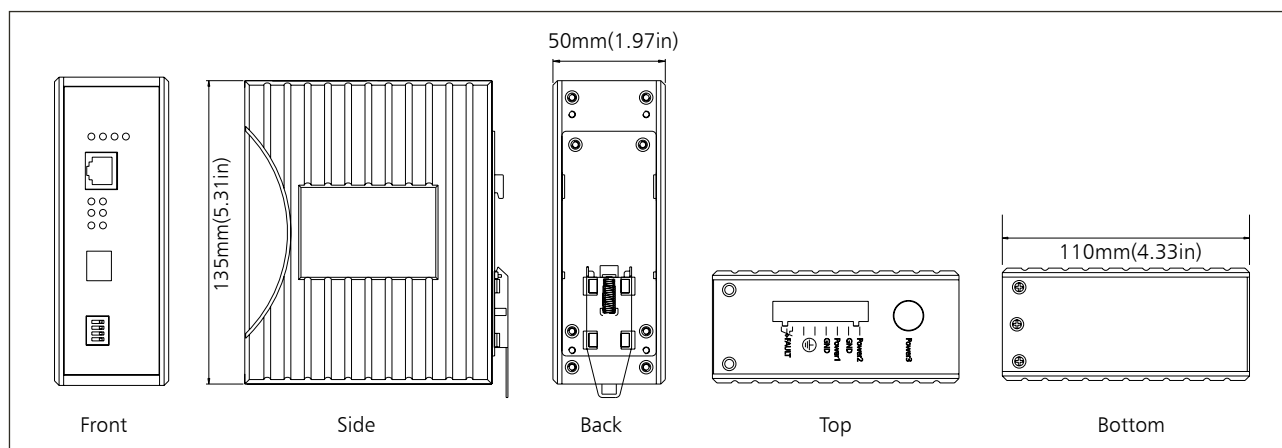
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

#### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

#### NEMA TS1/2 Environmental requirements for Traffic control equipment

## Diagrams



# EL900 Series

## 10/100Base-TX to 100Base-FX Hardened Media Converter



### Overview

The EL900 series, Fast Ethernet media converters are designed to operate in harsh environments. The EL900 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F), Whether on the factory floor or the street corner, the EL900 will provide flawless communications when you most need it most. EL900 series are available in all types of fiber cabling and connector types. The RJ-45 port on this unit provides Auto-MDIX and auto-negotiation. The link-fault-pass-through feature allows the network management agent on adjacent equipment to react to a broken link. Flexibility is the main feature of the EL900, it may be DIN rail or panel mounted, and comes with power options to match the applications that require a tough, environmentally hardened, Fast Ethernet media converter.

### Features

- ▶ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ UL 1604 Class 1, Division 2 Classified for use in hazardous locations (Applicable to versions with Terminal Block power option)
- ▶ DIP switch configuration for "Link-Fault-Pass-Through", link down alarm, speed, duplex mode
- ▶ 2048 MAC addresses
- ▶ 768K bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ Alarms for power and port link failure by relay output
- ▶ Redundant power inputs with Terminal Block or DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail, Panel or Rack Mounting installation

### Ordering Information

EL900-X-Y-I-P 10/100Base-TX to 100Base-FX Hardened Media Converter

#### 10/100TX Options :

(X) = A : 10/100Base-TX (for Port 1 only)

#### 100FX Fiber Options :

(Y) = B : Multi Mode (SC)

C : Multi Mode (ST)

M : Single Mode (ST) -20Km

N : Single Mode (SC) -20Km

O : Single Mode (SC) -40Km

Q : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km

R : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km

S : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km

T : Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

\*More 100FX Fiber options with bonus Copper support.

#### Installation Type :

(I) = 1 : DIN Rail (mounting kit is included)

Optional Panel mount kit, ordered separately,  
part number: [KP-AA96-480](#)



#### Power Connector Options :

(P) = A : Terminal Block\* / B : DC Jack\*\*

\*Options A -The Terminal Block type external power supply are not included. Please order the following part numbers, as required: [DR-30-24](#), [DR-60-24](#), [DR-75-24](#), [DR-120-24](#) or [41-136046-X X=1,2,3,4,5](#)

\*\*Options B -The external power adapter and power cord are not included. Please order the following part numbers, as required: [41-136044-X X=1,2,3,4,5](#)

\*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)



## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 768K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Latency:

- Less than 128.9 $\mu$ s

### Power

#### Input:

- Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)

#### Power Consumption:

- 9.12W MAX. 0.76A @ 12VDC, 0.38A @ 24VDC, 0.19A @ 48VDC

#### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

#### Overload Current Protection:

- Present

#### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Aluminum case
- IP20

#### Dimensions:

- 50mm (W) x 110mm (D) x 135mm (H)  
(1.97" (W) x 4.33" (D) x 5.31" (H))

#### Weight:

- 0.8Kg (1.76lbs.)

#### Installation:

- DIN-Rail, Panel, Rack Mounting

### Interface

#### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power 1, Power 2, Fault), Link-Fault-Pass-Through
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision, Speed  
100FX: Link/Activity, Full-duplex/Collision

#### Alarm Contact:

- One relay output with current 1A @ 24VDC

### Environment

#### Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)  
Tested @ -40°C to 85°C (-40°F to 185°F)

#### Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility

##### Safety:

- Hazardous locations: Class 1, Division 2 group A,B,C&D
- UL60950-1, EN60950-1, IEC60950-1

##### EMI:

- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

##### EMS:

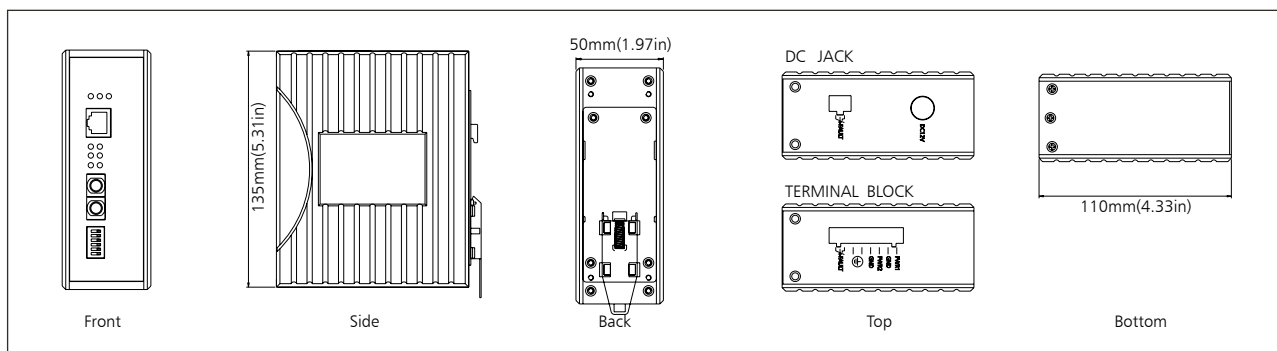
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

##### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

**NEMA TS1/2 Environmental requirements for Traffic control equipment**

## Diagrams



# EX42011

## 10/100Base-TX to 100Base-FX Industrial Media Converter



### Overview

EX42011 is positioned as a Fast Ethernet Media Converter series to meet fiber networking application. As an extension from EX42000 Fast Ethernet Switch series, the EX42011 is a compact sized Fast Ethernet Media Converter series equipped with 1-port 10/100Base-TX and 1-port 100Base-FX. By using standard auto-negotiation and the inclusion of Auto-MDIX, EtherWAN provides a cost-effective way of integrating legacy 10Mbps networks with 100Mbps Fast Ethernet networks. The TX port auto-negotiate for 10/100Mbps speed and auto-detect full or half-duplex mode. The fiber port on EX42011 is available with SC or ST with a fiber connection between two nodes that can reach up to 120Km (74.4miles). EX42011 series can be DIN-Rail mounted and is equipped with Terminal Block power input to match the industrial applications that require a Media Converter.

### Features

- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ 2048 MAC addresses
- ▶ 384K bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 12 to 48VDC Power inputs
- ▶ -10°C to 60°C (-14°F to 140°F) operating temperature range
- ▶ Hardened plastic case
- ▶ Supports DIN-Rail Mounting installation

### Ordering Information

EX42011-XY-I-P 10/100Base-TX to 100Base-FX Industrial Media Converter

#### 100FX Fiber Options:

- (XY) = 1A : Multi mode (SC)  
1B : Multi mode (ST)  
2A : Single mode (SC) -20Km  
2B : Single mode (SC) -40Km  
2D : Single mode (ST) -20Km  
2E : Single mode (SC) WDM -TX:1310nm/RX:1550nm -20Km  
2F : Single mode (SC) WDM -TX:1310nm/RX:1550nm -40Km  
2G : Single mode (SC) WDM -TX:1550nm/RX:1310nm -20Km  
2H : Single mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

\*More 100FX Fiber options also available upon request.

#### Installation Type:

- (I) = 1 : DIN Rail (mounting kit is included)

#### Power Connector Options :

- (P) = A : Terminal Block\*

\*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

\*See page 4-5 to 4-9 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 384K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Latency:

- Less than 5.0 $\mu$ s

### Power

#### Input:

- Input Voltage: 12 to 48VDC (Terminal Block)

#### Power Consumption:

- 2.4W Max. 0.2A@12VDC, 0.1A@24VDC, 0.05A@48VDC

#### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A

#### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Plastic case
- IP30

#### Dimensions:

- 26mm (W) x 70mm (D) x 110mm (H)
- (1.02" (W) x 2.76" (D) x 4.33" (H))

#### Weight:

- 0.2Kg (0.44lb.)

#### Installation:

- DIN-Rail Mounting

### Interface

#### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power1, Power2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

### Environment

#### Operating Temperature:

- -10°C to 60°C (14°F to 140°F)

#### Storage Temperature:

- -25°C to 85°C (-13°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

#### ISO:

- Manufactured in an ISO9001 facility

#### Safety:

- UL60950-1, EN60950-1, IEC60950-1

#### EMI:

- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

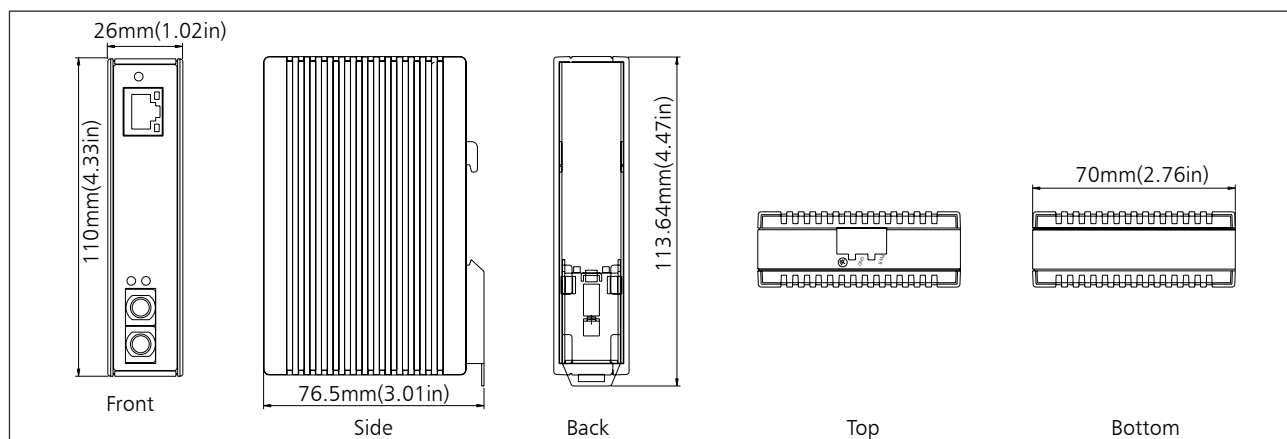
#### EMS:

- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

#### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

## Diagrams





# EM1100 EM2100 Series

10/100/1000Base-TX to 1000Base-SX/LX Media Converter



## Overview

EtherWAN offers the market a complete selection of Gigabit media converters. From 10/100/1000Base-TX to fiber Gigabit in multi-mode or single-mode, fiber optic interfaces. Flexible and easy to use, EM1100 Series is one of the most versatile media converters in the world. It has a stand-alone kit ideal for desktop use, and is also wall mountable. EM1100 is available in a 19" rack mountable chassis that may hold up to 16 units of any of EtherWAN's media converters for central control purposes.

EM1100 Series features easy to understand diagnostic LEDs. These LEDs show details for Link/Activity, 100, 1000, Full/Half duplex, and power status.

## Features

- ▶ 4096 MAC addresses
- ▶ 2M bits buffer memory
- ▶ 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0.6A 12VDC external PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or use with EMC1600 media converter chassis system

## Ordering Information

EM1100TSC	10/100/1000Base-TX to 1000Base-SX (SC) -550m Media Converter
EM1100TLC-10	10/100/1000Base-TX to 1000Base-LX (SC) -10Km Media Converter
EM1100TLC-20	10/100/1000Base-TX to 1000Base-LX (SC) -20Km Media Converter
EM1100TLC-50	10/100/1000Base-TX to 1000Base-LX (SC) -50Km Media Converter
EM2100TLCA-10	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -10Km Media Converter
EM2100TLCB-10	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -10Km Media Converter
EM2100TLCA-20	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EM2100TLCB-20	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EM2100TLCA-50	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -50Km Media Converter
EM2100TLCB-50	10/100/1000Base-TX to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -50Km Media Converter

\*Proprietary 19" system chassis can house up to 16 EM1100/EM2100 Series Converters.

\*EMC1600 Chassis System available separately.

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

#### Packet Buffer Memory:

- 2M bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 4096 MAC addresses

#### Latency:

- Less than 286.1 $\mu$ s

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 4.25W Max. 0.35A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.3" (D) x 0.94" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Wall Mounting or use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 10/100/1000Base-T: 1 port
- 1000Base-SX/LX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100/1000TX: Link/Activity, Speed, Full-duplex/Collision  
1000SX/LX: Link/Activity

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

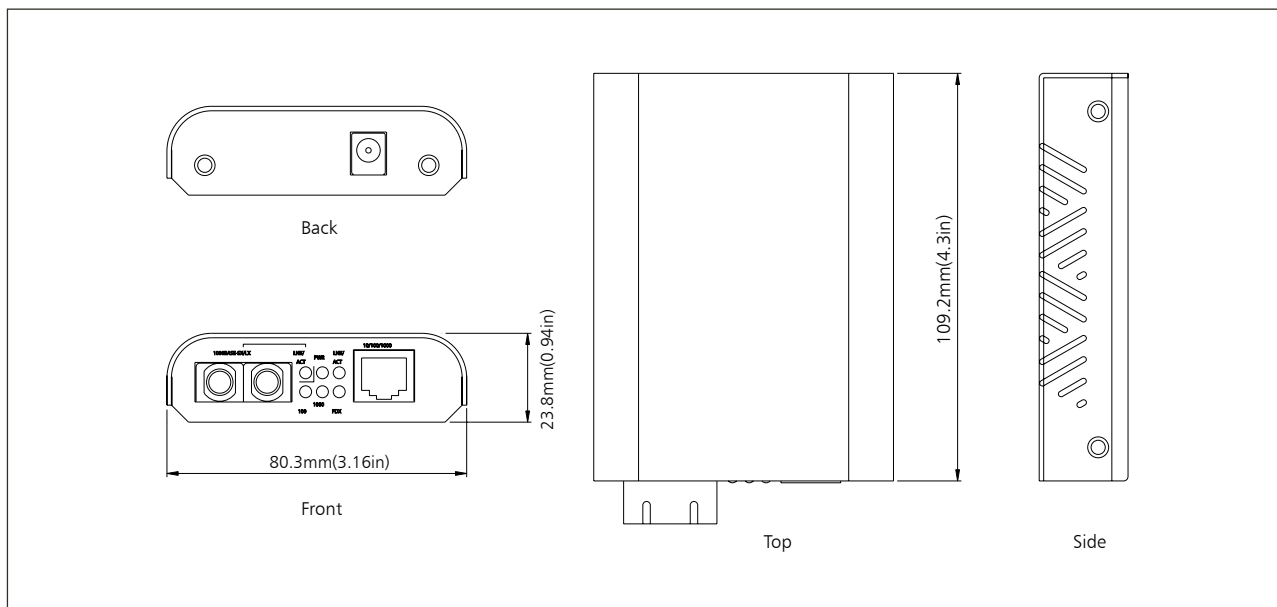
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EM1000S EM2000S Series

## 1000Base-SX/LX to 1000Base-LX Media Converter



### Overview

EtherWAN's EM1000S/EM2000S series offers several different selections from multi-mode/single-mode to single-mode, fiber to fiber, Gigabit media converter. There are also several different single-mode options available for 10, 20, and 50Km (6.2, 12.4, and 31miles) distance. The flexible and easy to use, EM1000S/EM2000S series is one of the most versatile media converters in the world. It has a stand-alone kit ideal for desktop use, and is also wall mountable. It's available in a 19" rack mountable chassis that holds up to 16 units of any of EtherWAN's media converters for central control purposes.

EM1000S/EM2000S Series features easy to understand diagnostic LEDs. These LEDs show details for Link, and power status.

### Features

- ▶ 1000Mbps-Full-duplex, Auto-Negotiation
- ▶ Full wire-speed forwarding rate
- ▶ 0.8A 12VDC external universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or use with EMC1600 media converter chassis system

### Ordering Information

EM1000SLC-10	1000Base-SX (SC) -550m to 1000Base-LX (SC) -10Km Media Converter
EM1000SLC-20	1000Base-SX (SC) -550m to 1000Base-LX (SC) -20Km Media Converter
EM1000SLC-50	1000Base-SX (SC) -550m to 1000Base-LX (SC) -50Km Media Converter
EM2000SLCA-10	1000Base-SX (SC) -550m to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -10Km Media Converter
EM2000SLCA-20	1000Base-SX (SC) -550m to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EM2000SLCB-20	1000Base-SX (SC) -550m to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EM2000SLCA-50	1000Base-SX (SC) -550m to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -50Km Media Converter
EM2000SLCB-50	1000Base-SX (SC) -550m to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -50Km Media Converter

#### NOTES:

- \* 1000Base-LX to 1000Base-LX converters are also available.
- \* Proprietary 19" system chassis can house up to 16 EM1000S/EM2000S Series Converters.
- \* EMC1600 Chassis System available seperately.

## Specifications

### Technology

#### Standards:

- IEEE802.3z 1000Base-SX/1000Base-LX

#### Forward and Filtering Rate:

- 1,488,100pps for 1000Mbps

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 2.4W Max. 0.2A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.3" (D) x 0.94" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Wall Mounting or use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 1000Base-SX/LX: 2 ports

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 1000SX/LX: Link

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

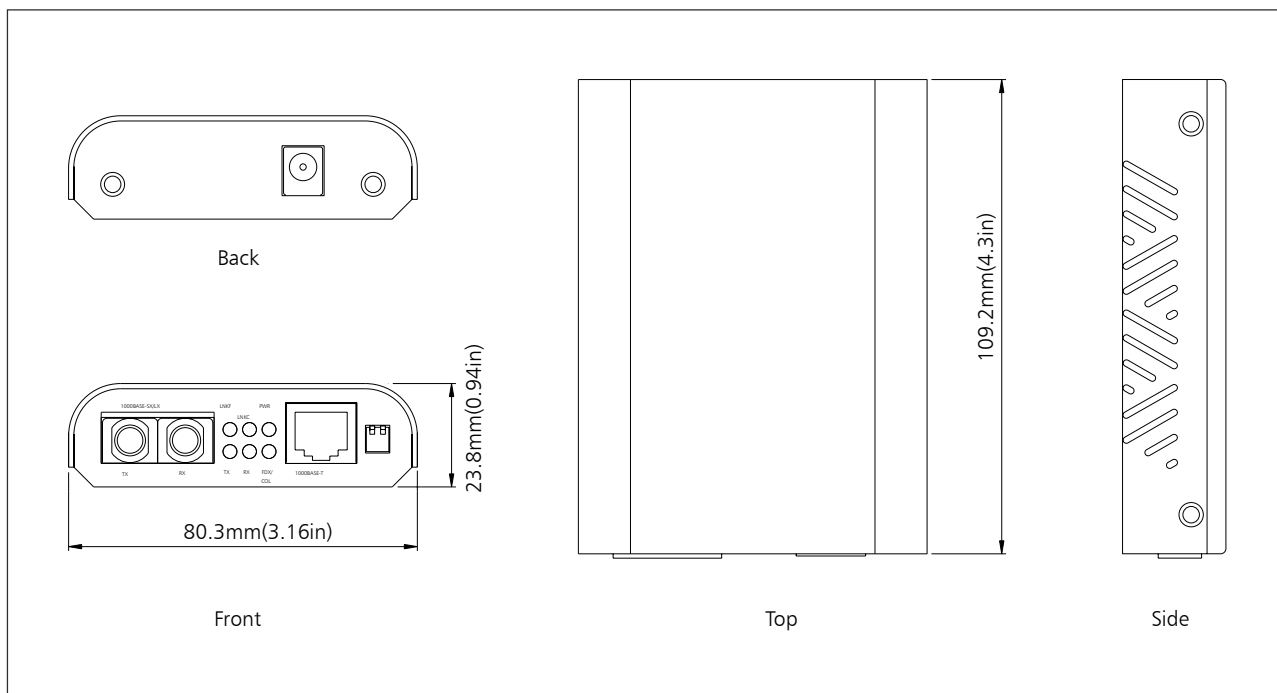
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EM1000 EM2000 Series

1000Base-T to 1000Base-SX/LX Media Converter



## Overview

EtherWAN's EM1000/EM2000 series offers several different selections from 1000Base-T to fiber optic Gigabit in multi-mode or single-mode 1000Base-SX/LX; There are several different single-mode options available for 10, 20, and 50Km (6.2, 12.4, and 31miles) distance. The flexible and easy to use, EM1000/EM2000 series is one of the most versatile media converters in the world. It has a stand-alone kit ideal for desktop use, and is also wall mountable. It's available in a 19" rack mountable chassis that holds up to 16 units of any of EtherWAN's Ethernet and Gigabit Ethernet media converters for central control purposes. The EM1000/EM2000 Series features easy to understand diagnostic LEDs. These LEDs show details for Link, Transmit/Receive, Full/Half duplex, and power status.

## Features

- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode
- ▶ 1000Mbps-Auto/Full-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0.8A 12VDC external universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or use with EMC1600 media converter chassis system

## Ordering Information

EM1000TSC	1000Base-T to 1000Base-SX (SC) -550m Media Converter
EM1000TLC-10	1000Base-T to 1000Base-LX (SC) -10Km Media Converter
EM1000TLC-20	1000Base-T to 1000Base-LX (SC) -20Km Media Converter
EM1000TLC-50	1000Base-T to 1000Base-LX (SC) -50Km Media Converter
EM2000TLCA-10	1000Base-T to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -10Km Media Converter
EM2000TLCA-20	1000Base-T to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EM2000TLCA-50	1000Base-T to 1000Base-LX (SC) WDM -TX:1310nm/RX:1550nm -50Km Media Converter
EM2000TLCB-10	1000Base-T to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -10Km Media Converter
EM2000TLCB-20	1000Base-T to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EM2000TLCB-50	1000Base-T to 1000Base-LX (SC) WDM -TX:1550nm/RX:1310nm -50Km Media Converter

\* Proprietary 19" system chassis can house up to 16 EM1000/EM2000 Series Converters.

\* EMC1600 Chassis System available separately.



## Specifications

### Technology

#### Standards:

- IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

#### Forward and Filtering Rate:

- 1,488,100pps for 1000Mbps

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 2.4W Max. 0.2A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.3" (D) x 0.94" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Wall Mounting or use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 1000BaseT: 1 port
- 1000Base-SX/LX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 1000T, 1000SX/LX: Link, Full-duplex/Collision  
1000SX/LX: Link, Transmit, Receive

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

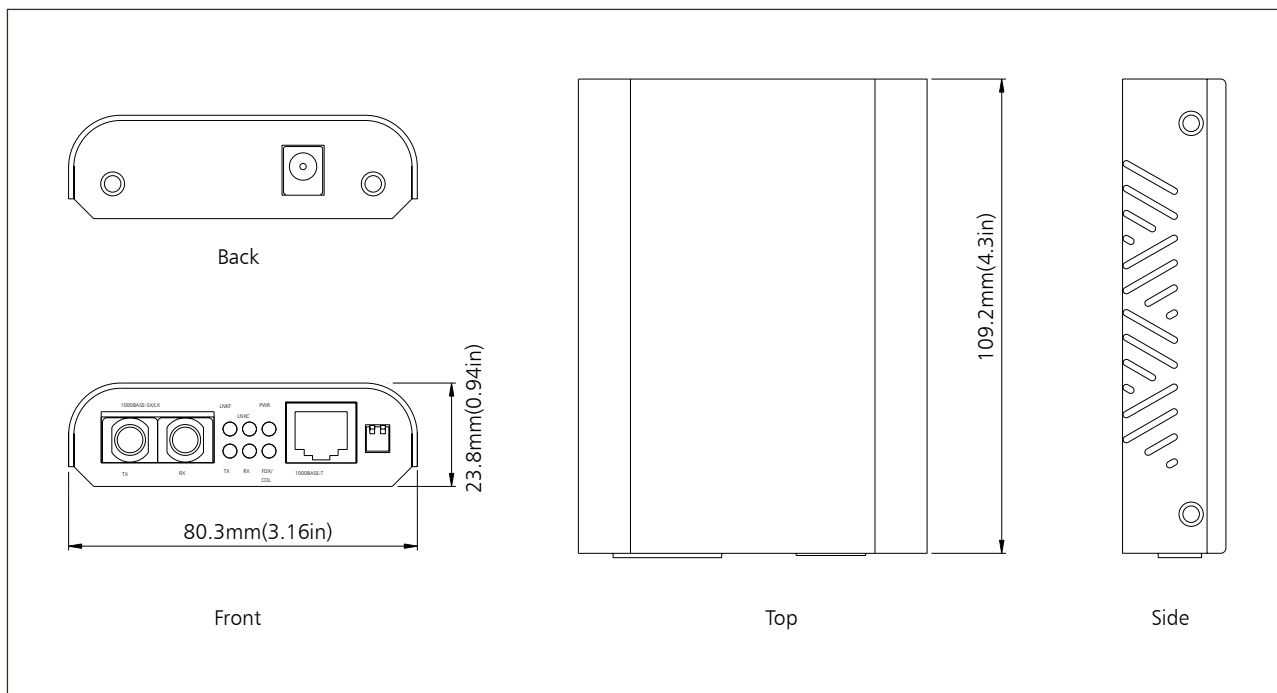
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EM1020 Series

## 1000Base-T to Gigabit SFP Media Converter



### Overview

EtherWAN's EM1020 series offers 1000Base-T to 1000Base SFP socket for Gigabit fiber optic expansion in multi-mode, single mode, or WDM single mode. The flexible and easy to use, EM1020 series is one of the most versatile media converters in the world. It has a stand-alone kit ideal for desktop use, and is also wall mountable. It's available in a 19" rack mountable chassis that holds up to 16 units of any of EtherWAN's Ethernet and Gigabit Ethernet media converters for central control purposes. The EM1020 Series features easy to understand diagnostic LEDs. These LEDs show details for Link, Transmit/Receive, Full/Half duplex, and power status.

### Features

- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode
- ▶ 1000Mbps-Auto/Full-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ SFP socket for Gigabit fiber optic expansion
- ▶ Full wire-speed forwarding rate
- ▶ 0.8A 12VDC external universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or use with EMC1600 media converter chassis system

### Ordering Information

EM1020 1000Base-T to Gigabit SFP Media Converter.

#### SFP Non-Hardened Type Gigabit Fiber Transceiver: (Optional)

Part Number	Typical Distance	Nominal Wavelength	Cable Type	Connector
EX-1250NSP-SB1L	500m	850 nm /VCSEL	MM	Duplex LC
EX-1250TSP-MB4L	10Km	1310 nm	SM	Duplex LC
EX-1250TSP-NB6L	40Km	1310 nm /DFB	SM	Duplex LC
EX-1250TSP-KB8L	70Km	1550 nm /DFB	SM	Duplex LC
EX-1250TSP-CB8L	70Km	1430 nm~1610 nm	CWDM	Duplex LC

\*More Gigabit SFP options also available upon request.

\* Proprietary 19" system chassis can house up to 16 EM1020 Series Converters.

\* EMC1600 Chassis System available seperately.

## Specifications

### Technology

#### Standards:

- IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x

#### Forward and Filtering Rate:

- 1,488,100pps for 1000Mbps

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 2.4W Max. 0.2A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.3" (D) x 0.94" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Wall Mounting or use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 1000BaseT: 1 port
- Gigabit SFP: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 1000T: Link, Full-duplex/Collision  
Gigabit SFP : Link, Transmit, Receive

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

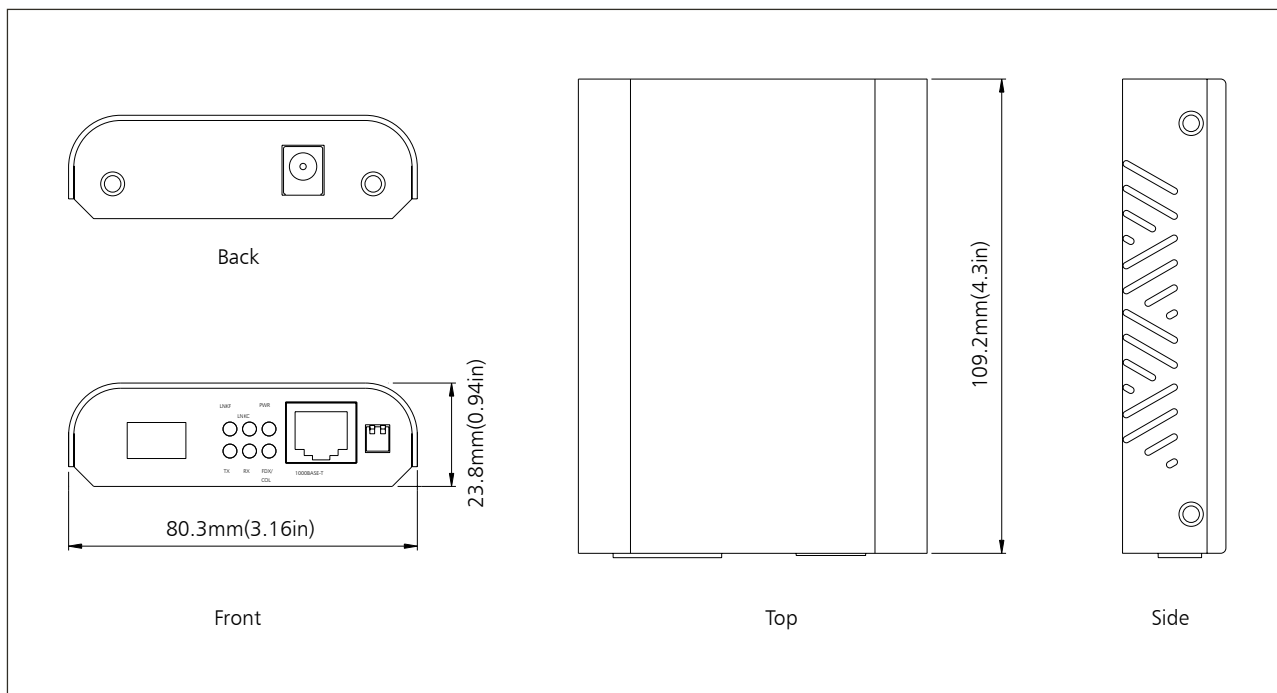
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EL150 Series

## Managed 10/100Base-TX to 100Base-FX Media Converter



### Overview

In response to the increase of fiber optics cabling deployment, EtherWAN offers a Media Converter Series as an affordable solution to migration from copper to fiber optics cabling. EtherWAN's EL150 Series is one of the most complete solutions in media conversion. EL150 Series are available in all types of fiber connectors, and EL150 supports several easy to read LEDs that detect Power, Link, Activity, Duplex mode, and Collision status. The RJ-45 port on this unit auto negotiates 10/100Mbps and Half/Full Duplex and auto-MDIX. Better than a regular converter, EL150 has switch capabilities, it is able to filter broadcast storm and MAC addresses. In addition, this unit can be managed via SNMP, Web-based, and Telnet. By sending mail-trap or SNMP-trap, the network administrator can be informed any alarm generating event.

### Features

- Provides MAC address filtering
- Alarm by Mail-Trap and SNMP-Trap
- Telnet, SNMP V1 & V2 and Web Browser Management
- Enterprise MIB
- One push button to reset the Managed Media Converter to default IP address
- 1024 MAC addresses
- 256K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 12VDC external universal PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Aluminum case
- Supports Desktop installation

### Ordering Information

EL150C	Managed 10/100Base-TX to 100Base-FX Multi Mode (SC) Media Converter
EL150T	Managed 10/100Base-TX to 100Base-FX Multi Mode (ST) Media Converter
EL150C-20	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) -20Km Media Converter
EL150T-20	Managed 10/100Base-TX to 100Base-FX Single Mode (ST) -20Km Media Converter
EL150C-40	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) -40Km Media Converter
EL150CA-20	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EL150CB-20	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EL150CA-40	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EL150CB-40	Managed 10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Protocols:

- SNMP V1/V2, TFTP RFC 783, IP RFC 791, ICMP RFC 792, TCP RFC 793,
- SMTP RFC 821, Telnet RFC 854, HTTP RFC 2068

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 256K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 1024 MAC addresses

#### Latency:

- Less than 141 $\mu$ s

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 3.24W Max. 0.27A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80mm (W) x 145mm (D) x 20mm (H)
- (3.15" (W) x 5.71" (D) x 0.79" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Desktop

### Interface

#### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power, Failure Alarm)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision
- 100FX: Link/Activity

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

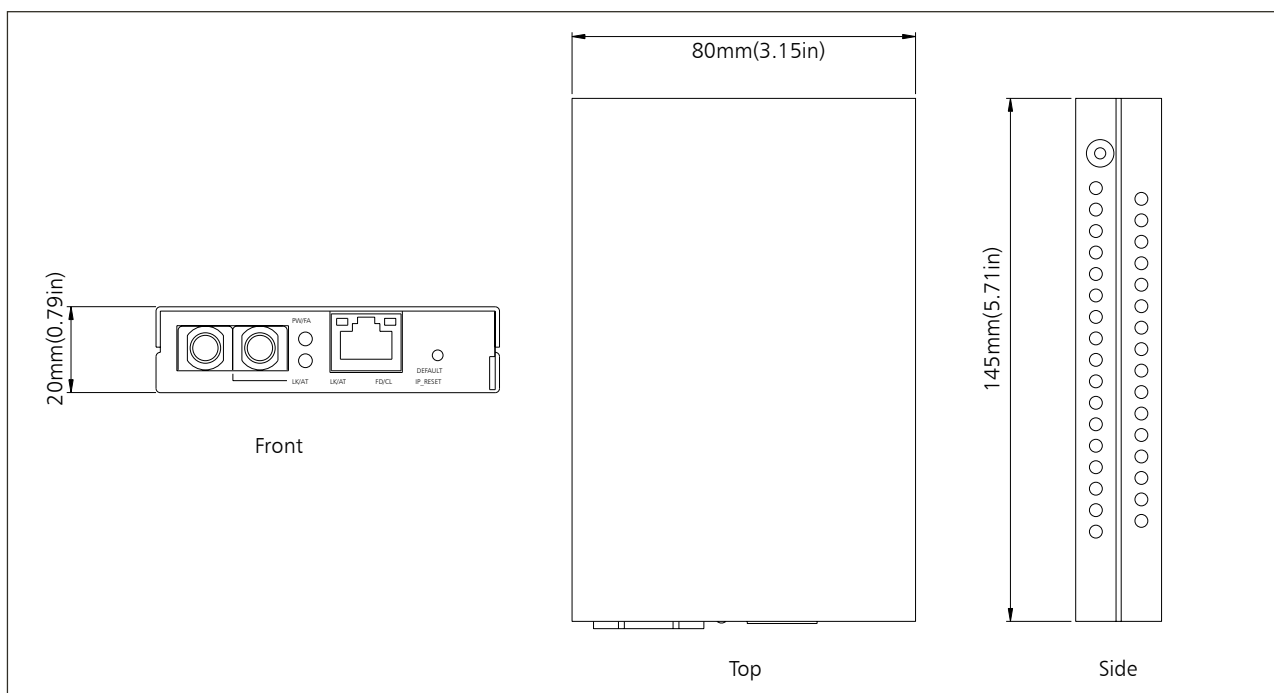
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams





# EM120 Series

## 100Base-FX Multi-Mode/Single-Mode to 100Base-FX Single-Mode Media Converter



### Overview

EtherWAN offers its Media Converter Series as a reliable and affordable answer in response to an increase in fiber optics cabling deployment. EtherWAN's EM120 Series offers conversion between fiber optic cable types or to extend distance over fiber optic cable. EM120 Series are available in all varieties of fiber connectors and EM120, fiber multi-mode/single-mode to single-mode fast Ethernet media converter, comes in a wide range of selections. There are options for SC, ST, VF-45, MT-RJ, and LC multi-mode to SC and ST single-mode. We also provide EM120 in single-mode to single-mode converter/bridge.

\*EM120 series has desktop kits which are wall mountable and mountable in EMC1600 chassis.

### Features

- ▶ Full wire-speed forwarding rate
- ▶ 0.8A 12VDC external universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or expansion use with EMC1600 media converter chassis system

### Ordering Information

EM120MCC-15	100Base-FX Multi Mode (SC) to 100Base-FX Single Mode (SC) -15Km Media Converter
EM120MTC-15	100Base-FX Multi Mode (ST) to 100Base-FX Single Mode (SC) -15Km Media Converter
EM120MCC-40	100Base-FX Multi Mode (SC) to 100Base-FX Single Mode (SC) -40Km Media Converter
EM120MTC-40	100Base-FX Multi Mode (ST) to 100Base-FX Single Mode (SC) -40Km Media Converter
EM120MCT-20	100Base-FX Multi Mode (SC) to 100Base-FX Single Mode (ST) -20Km Media Converter
EM120MTT-20	100Base-FX Multi Mode (ST) to 100Base-FX Single Mode (ST) -20Km Media Converter
EM120MCCA-20	100Base-FX Multi Mode (SC) to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EM120MCCB-20	100Base-FX Multi Mode (SC) to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EM120MTCA-20	100Base-FX Multi Mode (ST) to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EM120MTCB-20	100Base-FX Multi Mode (ST) to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter

\*Single Mode to Single Mode version converters are also available.

\*Single Mode (SC) WDM fiber version converters are also available in 40Km.

\*EMC1600 Chassis System available separately

## Specifications

### Technology

#### Standards:

- IEEE802.3u 100Base-FX

#### Forward and Filtering Rate:

- 148,810pps for 100Mbps

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 2.76W Max. 0.23A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.30" (D) x 0.94" (H))

#### Weight:

- 150g (0.33lb.)

#### Installation:

- Wall Mounting or expansion use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 100Base-FX: 2 ports

#### LED Indicators:

- Per Unit: Power Status (Power), Link

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

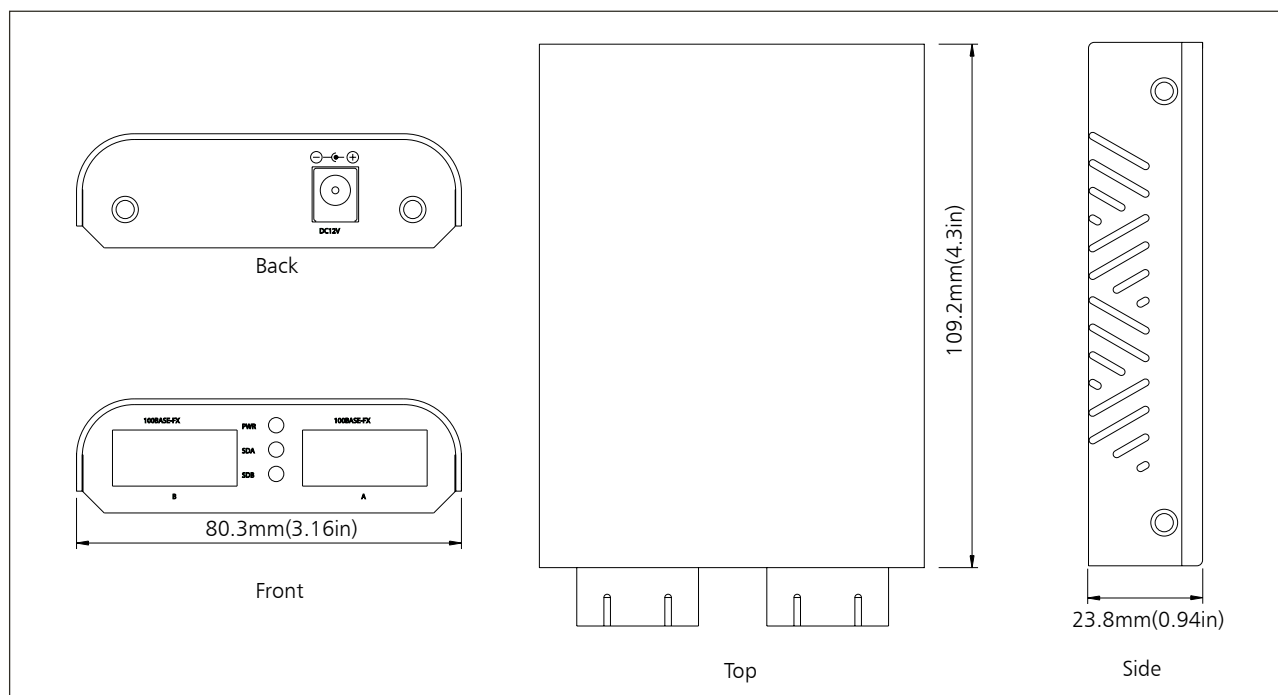
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EL100 Series

## 10/100Base-TX to 100Base-FX Media Converter



### Overview

EtherWAN offers its Media Converter Series as a high quality, affordable answer in response to an increase in fiber optics cabling deployment. EtherWAN's EL100 Series is one of the most complete solutions in media conversion. The EL100 Series are available in all varieties of fiber connectors and modes. EL100 is the most functional media converter on the market. The RJ-45 port on this unit is dual speed 10/100Mbps with half/full duplex auto sensing. Better than a regular converter, EL100 has switching capabilities that are able to filter traffic and record MAC addresses.

The whole series comes in desktop kits, which are wall mountable, and also mountable in EMC1600 chassis.

### Features

- ▶ DIP switch configuration for "Link-Fault-Pass-Through"
- ▶ 2048 MAC addresses
- ▶ 768K bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation,
- ▶ Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 12VDC external universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports Wall Mounting installation or expansion use with EMC1600 media converter chassis system

### Ordering Information

EL100C	10/100Base-TX to 100Base-FX Multi Mode (SC) Media Converter
EL100T	10/100Base-TX to 100Base-FX Multi Mode (ST) Media Converter
EL100C-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km Media Converter
EL100T-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km Media Converter
EL100C-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km Media Converter

EL110C	100Base-TX to 100Base-FX Multi Mode (SC) Media Converter
EL110T	100Base-TX to 100Base-FX Multi Mode (ST) Media Converter
EL110C-20	100Base-TX to 100Base-FX Single Mode (SC) -20Km Media Converter
EL110T-20	100Base-TX to 100Base-FX Single Mode (ST) -20Km Media Converter
EL110C-40	100Base-TX to 100Base-FX Single Mode (SC) -40Km Media Converter

#### NOTES:

- \* EL200/EL210 WDM version converters series are also available.
- \* The EMC1600 Chassis is available separately.

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 768K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Latency:

- Less than 128.9 $\mu$ s

#### Power

##### Input:

- Input Voltage: 12VDC

##### Power Consumption:

- 1.92W Max. 0.16A@12VDC

#### Mechanical

##### Casing:

- Aluminum case

##### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.30" (D) x 0.94" (H))

##### Weight:

- 150g (0.33lb.)

##### Installation:

- Wall Mounting or use with EMC1600 media converter chassis system

### Interface

#### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision, Speed  
100FX: Link/Activity, Full-duplex/Collision

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

#### ISO:

- Manufactured in an ISO9001 facility.

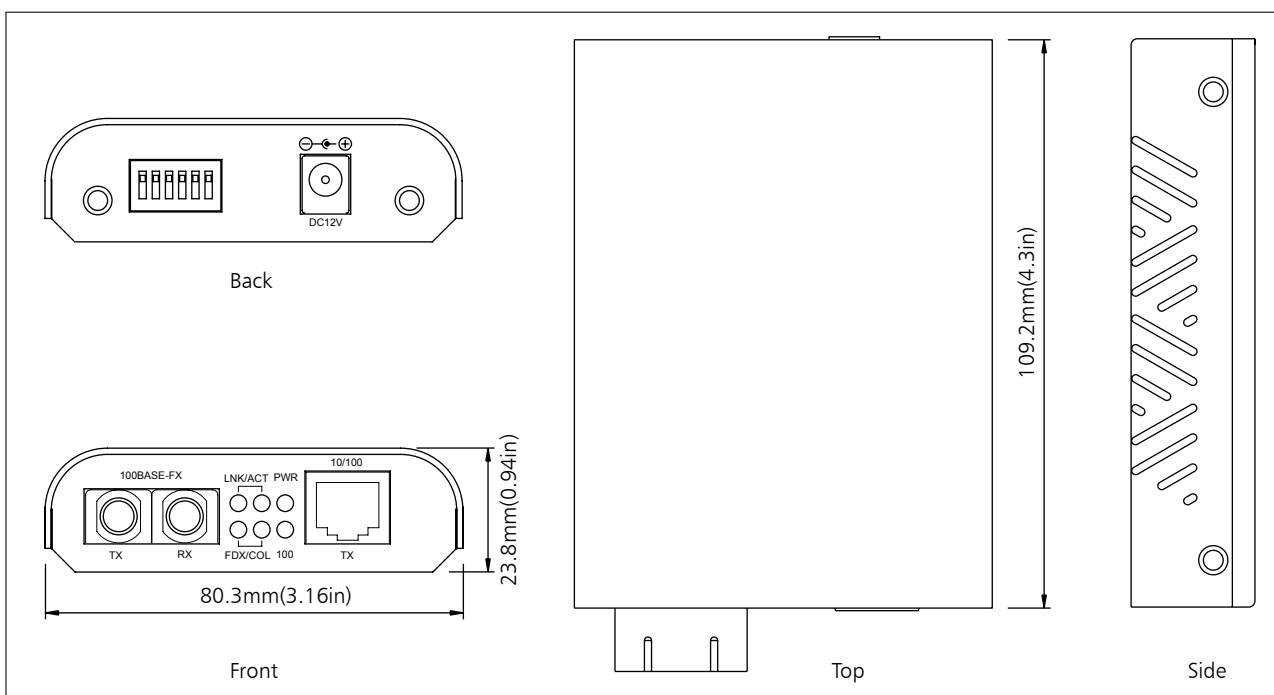
#### Safety:

- UL60950-1

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EL50 Series

## Mini-Sized 10/100Base-TX to 100Base-FX Media Converter



### Overview

EtherWAN offers its Media Converter Series as a concrete and affordable answer in response to an increase in fiber optics cabling deployment. EtherWAN's EL50 Series is one of the most complete solutions in media conversion. EL50 Series is available in all varieties of fiber connectors and modes: The EL50 is a reasonably priced and user friendly media converter that supports easy to read LEDs which indicate Link and Activity status. In addition, the EL50 is the most functional media converter on the market. The RJ-45 port on this unit can Auto negotiate 10/100Mbps/duplex mode and Auto-MDIX. Better than a regular converter, the EL50 has switching capability that is able to filter traffic and record MAC addresses.

### Features

- Supports Link-Fault-Pass-Through
- 2048 MAC addresses
- 768K bits buffer memory
- 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- 0.6A 12VDC external PSU
- 0°C to 45°C (32°F to 113°F) operating temperature range
- Metal case
- Supports Desktop installation

### Ordering Information

EL50T	10/100Base-TX to 100Base-FX Multi Mode (ST) Media Converter
EL50C	10/100Base-TX to 100Base-FX Multi Mode (SC) Media Converter
EL50T-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km Media Converter
EL50C-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km Media Converter
EL50C-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km Media Converter
EL50CA-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EL50CB-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EL50CA-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EL50CB-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter



## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 768K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Latency:

- Less than 128.9 $\mu$ s

### Power

#### Input:

- Input Voltage: 12VDC

#### Power Consumption:

- 1.92W Max. 0.16A@12VDC

### Mechanical

#### Casing:

- Metal case

#### Dimensions:

- 54.2mm (W) x 80.3mm (D) x 21.9mm (H)  
(2.13" (W) x 3.16" (D) x 0.86" (H))

#### Weight:

- 140g (0.31lb.)

#### Installation:

- Desktop

### Interface

#### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

#### LED Indicators:

- Per Port: 10/100TX: Link/Activity  
100FX: Link/Activity

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals

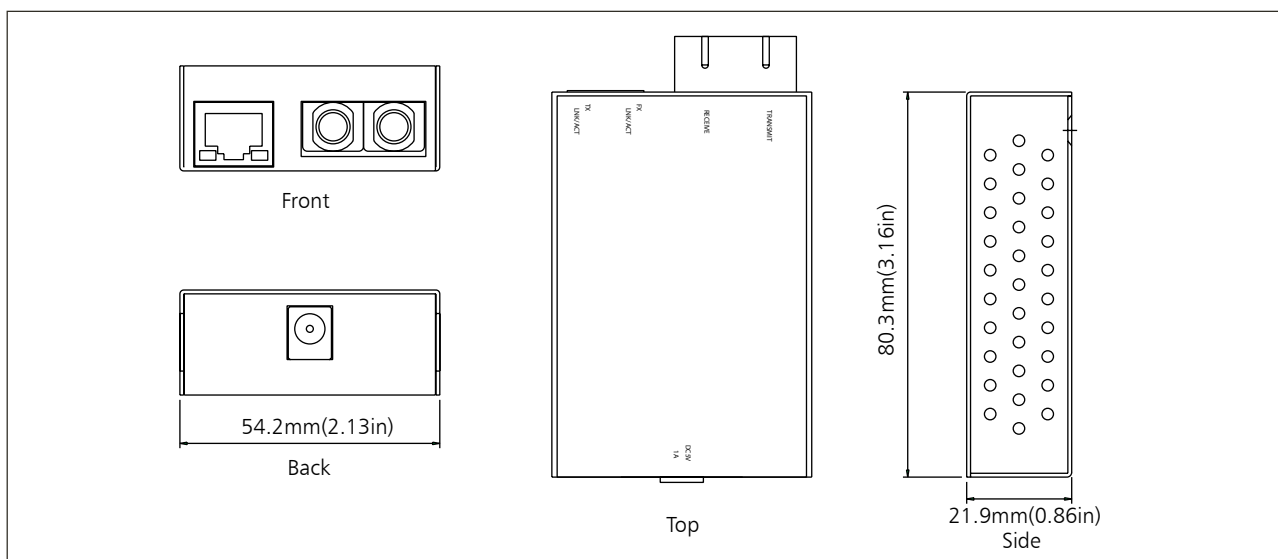
#### ISO:

- Manufactured in an ISO9001 facility.

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EL1032 Series

## 10/100Base-TX to 100Base-FX Industrial Media Converter with PoE/PSE



### Overview

Etherwan EL1032 is positioned as a Fast Ethernet Media Converter to meet the requirements of fiber networking applications. The EL1032 Series is one of the most complete solutions in media conversion and are available in all types of fiber connectors. The RJ-45 port on this unit is dual speed 10/100Mbps with half/full duplex auto sensing. Better than a regular converter, EL1032 has switching capabilities that are able to filter traffic and record MAC addresses. Moreover, it offers a PoE technology to transmit electrical power, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. It can be used in some applications where it would be inconvenient or infeasible to supply power separately.

### Features

- ▶ Offer 802.3af PoE/PSE technology
- ▶ DIP switch configuration for "Link-Fault-Pass Through" speed, duplex mode
- ▶ 10/100Mbps-Full/Half-duplex, Auto-negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 1024 MAC address
- ▶ 2.25M bits buffer memory
- ▶ -10°C to 60°C (14°F to 140°F) operating temperature
- ▶ Aluminum case
- ▶ Supports DIN-Rail, Panel or Wall Mounting installation

### Ordering Information

EL1032-X0Z 10/100Base-TX to 100Base-FX Industrial Media converter with PoE/PSE

#### 100FX Fiber Options:

- (X) = 1: Multi Mode (SC)
- 2: Multi Mode (ST)
- A: Single Mode (SC) -20Km
- B: Single Mode (SC) -40Km
- H: Single Mode (ST) -20Km

- P : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
- Q: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
- R: Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
- S: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

\*More 100FX Fiber Options also available upon request.

#### Power Input Interface:

- (Z) = B : Terminal Block & DC Jack

#### Power Supply: (Optional)

\*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: [DR-75-48](#)

\*\*Option B - The external power adapter and power cord are not included. Please order the following part numbers, recommend for indoor use, as required: [AS-120P-48](#)

**Technology****Standards:**

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/FX, IEEE802.3af PoE

**Forward and Filtering Rate:**

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

**Packet Buffer Memory:**

- 2.25M bits

**Processing Type:**

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

**Address Table Size:**

- 1024 MAC addresses

**Latency:**

- Less than 128.9μs

**Power****Input:**

- Input Voltage: 48VDC

**Power Consumption:**

- 3.6W Max. 0.075A@48VDC

**Overload Current Protection:**

- Present

**Reverse Polarity Protection:**

- Present

**Mechanical****Casing:**

- Aluminum case

**Dimensions:**

- 70mm (W) x 110mm (D) x 30mm (H)  
(2.76" (W) x 4.33" (D) x 1.18" (H))

**Weight:**

- 0.25Kg (0.55lb.)

**Installation:**

- DIN-Rail, Panel, Wall Mounting

**Interface****Ethernet Port:**

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

**LED Indicators:**

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision, Speed  
100FX: Link/Activity
- PoE: PD connect/PD disconnect

**Environment****Operating Temperature:**

- -10°C to 60°C (14°F to 140°F)

**Storage Temperature:**

- -40°C to 85°C (-40°F to 185°F)

**Ambient Relative Humidity:**

- 5% to 95% (non-condensing)

**Regulatory Approvals:****ISO:**

- Manufactured in an ISO9001 facility

**Safety:**

- UL508, EN60950-1, IEC60950-1

**EMI:**

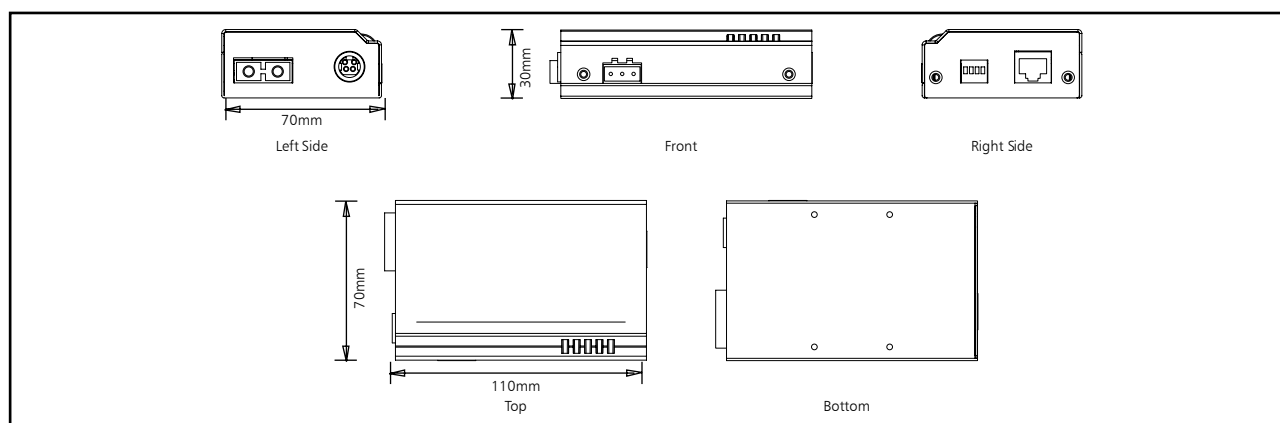
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

**EMS:**

- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

**Environmental Test Compliance:**

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

**Diagrams**

# EL1033 Series

10/100Base-TX to 100Base-FX Industrial Media Converter with PoE/PD

coming soon



## Overview

Etherwan EL1033 is positioned as a Fast Ethernet Media Converter to meet the requirements of fiber networking applications. The EL1033 Series is one of the most complete solutions in media conversion and are available in all types of fiber connectors. The RJ-45 port on this unit is dual speed 10/100Mbps with half/full duplex auto sensing. Better than a regular converter, EL1033 has switching capabilities that are able to filter traffic and record MAC addresses. Moreover, it offers a PoE technology to receive electrical power, along with data, from PoE PSE device over standard twisted-pair cable in an Ethernet network. It can be used in some applications where it would be inconvenient or infeasible to supply power separately.

## Features

- ▶ Offer 802.3af PoE/PD technology
- ▶ DIP switch configuration for "Link-Fault-Pass Through" speed, duplex mode
- ▶ 10/100Mbps-Full/Half-duplex, Auto-negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 1024 MAC address
- ▶ 2.25M bits buffer memory
- ▶ -10°C to 60°C (14°F to 140°F) operating temperature
- ▶ Aluminum case
- ▶ Supports DIN-Rail, Panel or Wall Mounting installation

## Ordering Information

EL1033-X0Z 10/100Base-TX to 100Base-FX Industrial Media converter with PoE/PD

### 100FX Fiber Options:

(X) = 1: Multi Mode (SC)

2: Multi Mode (ST)

A: Single Mode (SC) -20Km

B: Single Mode (SC) -40Km

H: Single Mode (ST) -20Km

\*More 100FX Fiber Options also available upon request.

P : Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km

Q: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km

R: Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km

S: Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

### Power Input Interface:

(Z) = B : Terminal Block & DC Jack

### Power Supply: (Optional)

\*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: [DR-75-48](#)

\*\*Option B - The external power adapter and power cord are not included. Please order the following part numbers, recommend for indoor use, as required: [AS-120P-48](#)

**Technology****Standards:**

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/FX, IEEE802.3af PoE

**Forward and Filtering Rate:**

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

**Packet Buffer Memory:**

- 2.25M bits

**Processing Type:**

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

**Address Table Size:**

- 1024 MAC addresses

**Latency:**

- Less than 128.9μs

**Power****Input:**

- Input Voltage: 48VDC

**Power Consumption:**

- 3.6W Max. 0.075A@48VDC

**Overload Current Protection:**

- Present

**Reverse Polarity Protection:**

- Present

**Mechanical****Casing:**

- Aluminum case

**Dimensions:**

- 70mm (W) x 110mm (D) x 30mm (H)  
(2.76" (W) x 4.33" (D) x 1.18" (H))

**Weight:**

- 0.25Kg (0.55lb.)

**Installation:**

- DIN-Rail, Panel, Wall Mounting

**Interface****Ethernet Port:**

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

**LED Indicators:**

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision, Speed  
100FX: Link/Activity
- PoE: PSE connect/PSE disconnect

**Environment****Operating Temperature:**

- -10°C to 60°C (14°F to 140°F)

**Storage Temperature:**

- -40°C to 85°C (-40°F to 185°F)

**Ambient Relative Humidity:**

- 5% to 95% (non-condensing)

**Regulatory Approvals:****ISO:**

- Manufactured in an ISO9001 facility

**Safety:**

- UL508, EN60950-1, IEC60950-1

**EMI:**

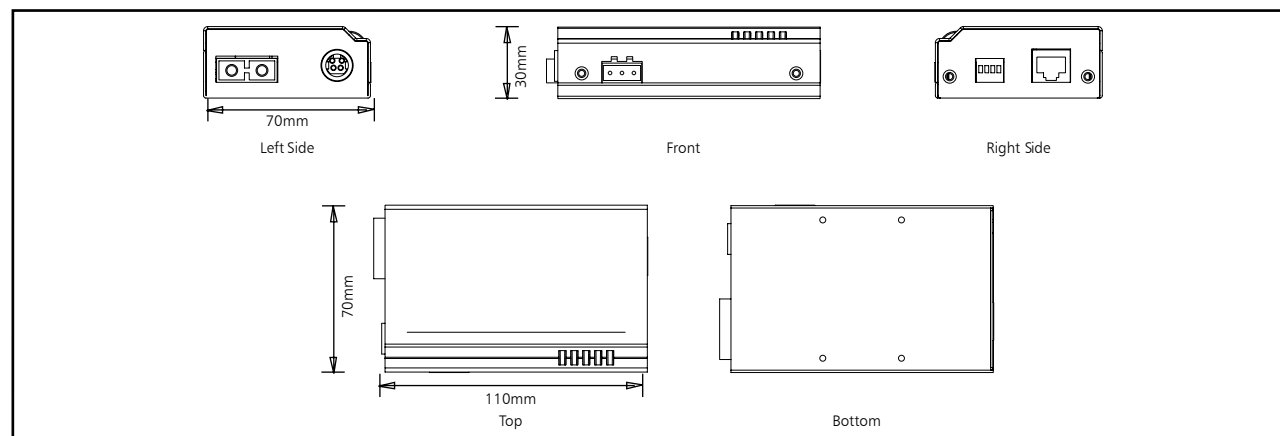
- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

**EMS:**

- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

**Environmental Test Compliance:**

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

**Diagrams**



# EN303 Series

## 32bit PCI-Bus 10/100Base-TX to 100Base-FX Media Converter



### Overview

In response to an increase in fiber optics cabling deployment, EtherWAN offers its PCI-based Media Converter Series as a concrete and affordable option. EtherWAN's EN303 Series is one of the most complete solutions in media conversion. The EN303 Series are available in all types of fiber connectors and modes: Multi-mode SC, ST, VF-45, MT-RJ, and LC; Single-mode SC and ST; WDM Single-mode SC.

The PCI-based Media Converter Series can be easily mounted to the PCI slot of a PC, workstation, or server without drivers installation and configuration. No additional power is needed for this PCI-based Media Converter Series as the power is supplied via the PCI slot.

The PCI-based Media Converter Series expands the distance from a PC workstation or server to the fiber optical backbone. The series provides excellent solutions that optimize flexible and reliable performance.

### Features

- ▶ Two queues per port for QoS purpose
- ▶ Supports packet length up to 1536 Bytes
- ▶ PCI 2.1 Specification compliant
- ▶ 2048 MAC Unicast-addresses with 4-layer hashing Table
- ▶ Built-in data buffer 49K Bytes
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate

### Ordering Information

32bit PCI-Bus 10/100Base-TX to 100Base-FX Media Converter

EN303C	10/100Base-TX to 100Base-FX Multi Mode (SC) Media Converter
EN303T	10/100Base-TX to 100Base-FX Multi Mode (ST) Media Converter
EN303C-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km Media Converter
EN303T-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km Media Converter
EN303C-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km Media Converter
EN303CA-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EN303CB-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EN303CA-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EN303CB-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 49K Bytes

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Power

##### Power Consumption:

- 1W Max.

#### Mechanical

##### Dimensions:

- 120mm (L) x 56mm (W)  
(4.72" (L) x 2.2" (W))

##### Weight:

- 90g (0.2lb.)

### Interface

#### LED Indicators:

- Per Unit:Link/Activity, Speed

#### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals

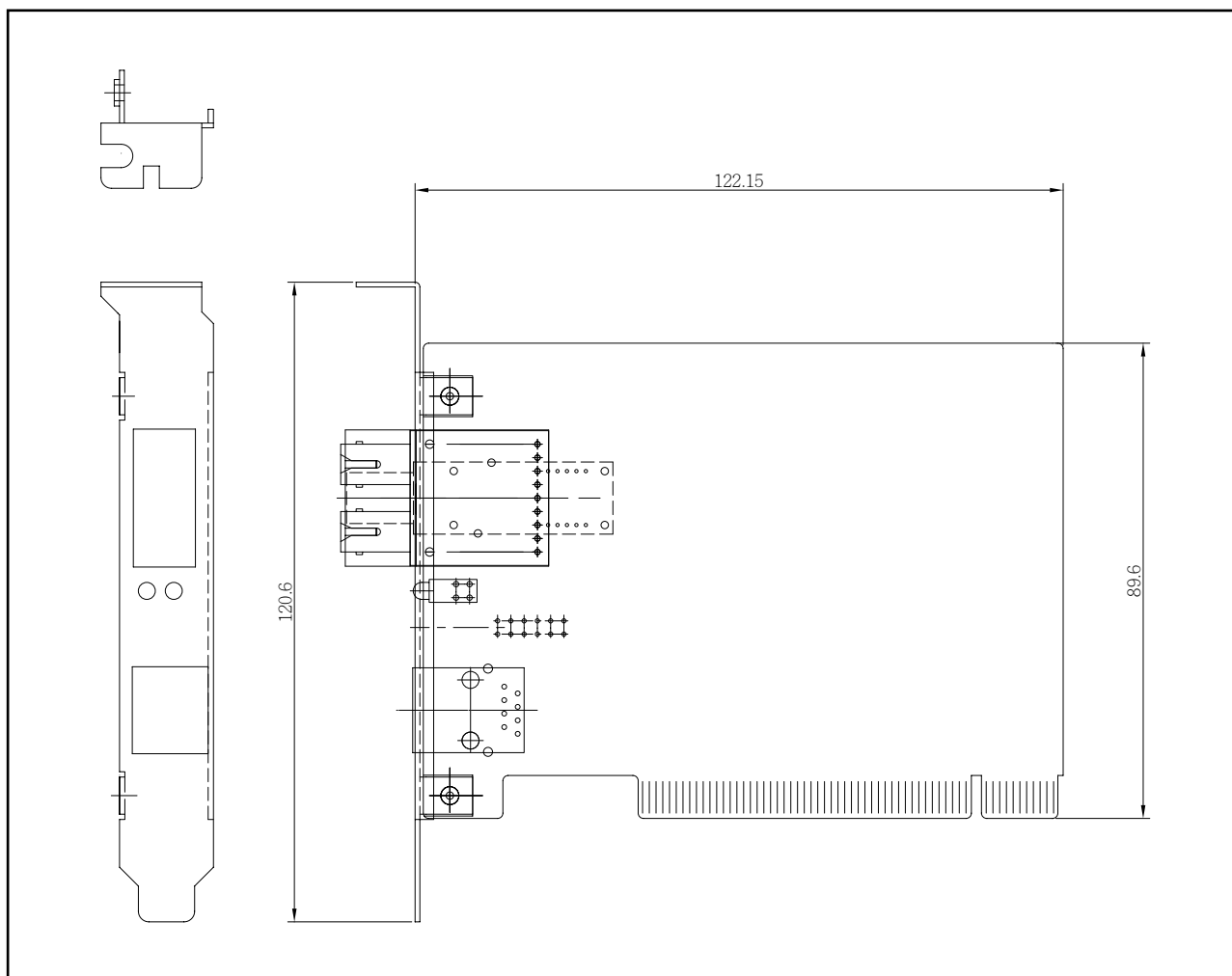
##### ISO:

- Manufactured in an ISO9001 facility

##### Emission Compliance:

- CE Mark Class B, FCC Part 15 Class B

## Diagrams



# EMC1600 Series

## 16-Bay Media Converter Chassis



### Overview

EMC1600 is a metal-cased chassis system, it can house up to sixteen stand-alone media converters.

#### Ideal Central Point

Includes two standard redundant power supplies and four cooling fans, the EMC1600 offers a more secure and higher capacity housing for your network central point to contain and power up to 16 media converters.

#### Plug-and-Play

This chassis system is capable of hot-swap installation of the media converters and redundant power supply.

#### Functionality

There is one cooling fan inside each redundant power supply. Two additional fans are fitted on the inside wall of the chassis to ensure good ventilation.

### Features

- ▶ House up to sixteen Media Converters (EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM120, EL100/EL200, and EL110/EL210 series)
- ▶ Non-stop operation and minimal downtime
- ▶ Hot-swappable: Media Converters and redundant power supply modules
- ▶ Redundant 100 ~ 240VAC 50 ~ 60Hz Internal Universal PSU or -48VDC Power inputs
- ▶ Power redundancy: The other redundant power supply module is capable of taking over immediately if one of the power supply modules fails
- ▶ Load sharing: Two internal power supply modules provided for load sharing purposes
- ▶ Power isolation: Media Converter bay power isolation ensures each bay is electrically isolated from each other
- ▶ Over current protection: Fuse on PCBA for each Media Converter bay and power supply module
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Metal case, standard 19" rack-mount size, two-unit-height
- ▶ Supports Rack Mounting installation

### Ordering Information

EMC1600	16-Bay Media Converter Chassis, includes 2 AC Power Supplies
EMC1600-RPSA	Redundant AC Power Supply (84W) for EMC1600
EMC1600-RPSD	Redundant DC -48V Power Supply for EMC1600

\* The optional media converter series for EMC1600 are to be separately ordered by customers' choice.

The following is the list of the media converter series:

EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM120, EL100/EL200 and EL110/EL210 series.

## Specifications

### Power

#### Input:

- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU
- -48VDC

#### Power Consumption:

- 73.2W Max.

### Mechanical

#### Casing:

- Metal case

#### Dimensions:

- 440mm (W) x 276mm (D) x 90mm (H)  
(17.32" (W) x 10.87" (D) x 3.54" (H))
- Standard 19" rack-mount size, two-unit-height

#### Weight:

- 6.8Kg (14.96lbs.)

#### Installation:

- Rack Mounting

### Interface

#### LED Indicators:

- Per Unit: Power Status (Power)

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 90% (non-condensing)

### Regulatory Approvals

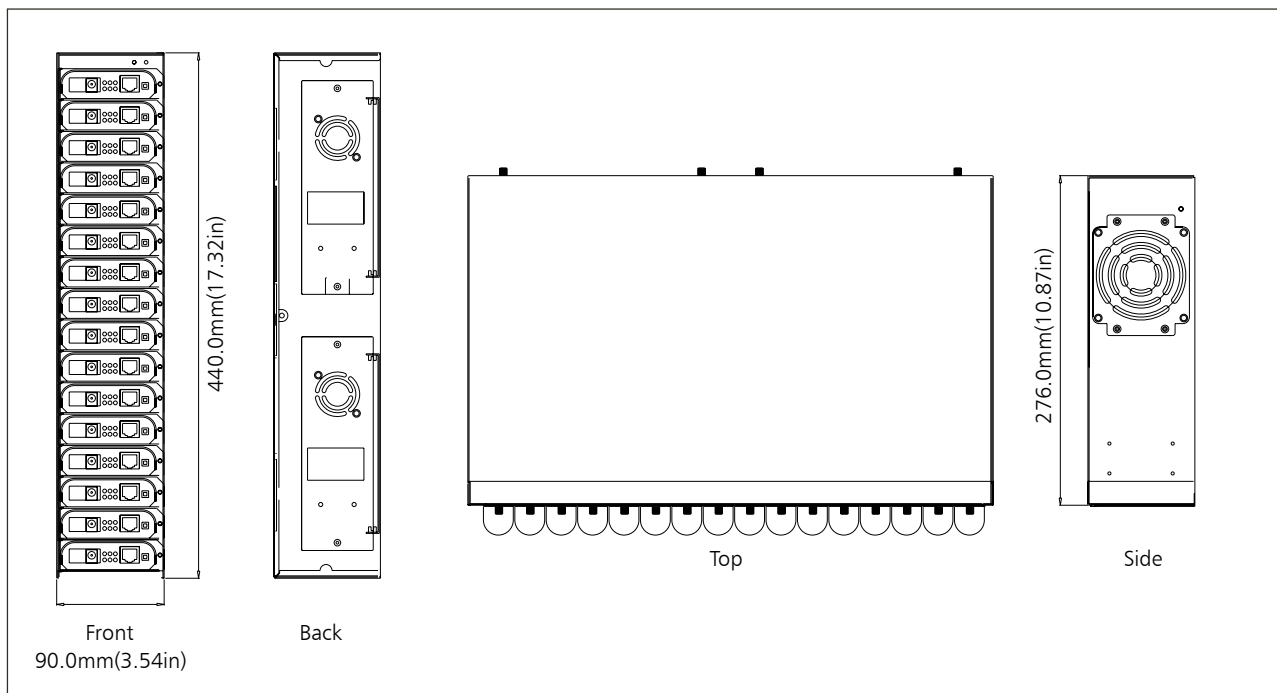
#### ISO:

- Manufactured in an ISO9001 facility

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EMC1200R Series

## 12-Bay Media Converter System



### Overview

EMC1200R Series, yet another high quality product designed and manufactured by EtherWAN. We have successfully produced a highly versatile and compact unit to meet modern complicated networking needs. With a simple exterior that looks just like another switch, EMC1200R Series allows for a mixture of different types of switching or straight converters. Twelve channels of media converters in a 1U size chassis. With the capability of handling 12 bays of media conversion for requirements such as copper to Multi-Mode or Single-Mode fiber; Multi-Mode fiber to Multi-Mode or Single-Mode fiber, in any possible combination to suit your needs.

The EMC1200R Series is just one of the many total solutions offered by EtherWAN as EtherWAN's development team continues to provide total Ethernet solutions based on the latest technologies.

### Features

- ▶ House up to twelve Media Converters (EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM120, EL100/EL200, and EL110/EL210 series)
- ▶ Non-stop operation and minimal downtime
- ▶ Hot-swappable: redundant power supply modules
- ▶ Redundant 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU, with load sharing redundancy so there are no power outages if one power supply fails.
- ▶ Power isolation: Media Converter bay power isolation ensures each bay is electrically isolated from each other
- ▶ Over current protection: Fuse on PCBA for each Media Converter bay and power supply module
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Metal case, standard 19" rack-mount size, one-unit-height
- ▶ Supports Rack Mounting installation

### Ordering Information

#### 100Base Fiber

EMC1200RC	12-Bay EL100C Media Converter System
EMC1200RT	12-Bay EL100T Media Converter System
EMC1200RL	12-Bay EL100L Media Converter System
EMC1210RC	12-Bay EL110C Media Converter System
EMC1210RT	12-Bay EL110T Media Converter System
EMC1210RL	12-Bay EL110L Media Converter System
EMC1220RCC-15	12-Bay EM120MCC-15 Media Converter System
EMC1220RTC-15	12-Bay EM120MTC-15 Media Converter System
EMC1220RLC-15	12-Bay EM120MLC-15 Media Converter System

#### NOTES:

ST fiber also available in Single Mode, 20Km.

SC fiber also available in Single Mode, 20/40/75/100/120Km.

SC fiber also available in Single Mode WDM Type A and Type B, 20/40Km.

#### 1000Base Fiber

EMC1200RTSC	12-Bay EM1000TSC Media Converter System
EMC1200RTLC-10	12-Bay EM1000TLC-10 Media Converter System
EMC1200RTLC-20	12-Bay EM1000TLC-20 Media Converter System
EMC1200RTLC-50	12-Bay EM1000TLC-50 Media Converter System
EMC1210RTSC	12-Bay EM1100TSC Media Converter System
EMC1210RTLC-10	12-Bay EM1100TLC-10 Media Converter System
EMC1210RTLC-20	12-Bay EM1100TLC-20 Media Converter System
EMC1210RTLC-50	12-Bay EM1100TLC-50 Media Converter System
EMC1200RSLC-10	12-Bay EM1000SLC-10 Media Converter System
EMC1200RSLC-20	12-Bay EM1000SLC-20 Media Converter System
EMC1200RSLC-50	12-Bay EM1000SLC-50 Media Converter System
EMC1200RLLC-10	12-Bay EM1000LLC-10 Media Converter System
EMC1200RLLC-20	12-Bay EM1000LLC-20 Media Converter System
EMC1200RLLC-50	12-Bay EM1000LLC-50 Media Converter System

#### NOTES:

SC fiber also available in Single Mode WDM Type A and Type B, 10/20Km.

## Specifications

### Technology

#### Standards:

- EM1100, EM2100: IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x
- EM1000, EM2000: IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-SX/1000Base-LX, IEEE802.3x
- EM1000S, EM2000S: IEEE802.3z 1000Base-SX/1000Base-LX
- EM120: IEEE802.3u 100Base-FX
- EL100, EL200: IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x
- EL110, EL210: IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- EM1100, EM2100: 14,880pps for 10Mbps, 148,810pps for 100Mbps, 1,488,100pps for 1000Mbps
- EM1000, EM2000: 1,488,100pps for 1000Mbps
- EM1000S, EM2000S: 1,488,100pps for 1000Mbps
- EL100, EL200: 14,880pps for 10Mbps, 148,810pps for 100Mbps
- EL110, EL210: 148,810pps for 100Mbps
- EM120: 148,810pps for 100Mbps

#### Packet Buffer Memory:

- EM1100, EM2100: 2M bits
- EL100, EL200: 768K bits
- EL110, EL210: 768K bits

#### Processing Type:

- EM1100, EM2100: Store-and-Forward, Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- EL100, EL200: Store-and-Forward, Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- EL110, EL210: Store-and-Forward, Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- EM1100, EM2100: 4096 MAC addresses
- EL100, EL200: 2048 MAC addresses
- EL110, EL210: 2048 MAC addresses

#### Latency:

- EM1100, EM2100: Less than 286.1 $\mu$ s
- EL100, EL200: Less than 128.9 $\mu$ s
- EL110, EL210: Less than 128.9 $\mu$ s

#### Power

##### Input:

- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

##### Power Consumption:

- 55.2W Max.

### Mechanical

#### Casing:

- Metal case

#### Dimensions:

- 440mm (W) x 243mm (D) x 45mm (H)  
(17.32" (W) x 9.57" (D) x 1.77" (H))
- Standard 19" rack-mount size, one-unit-height

#### Weight:

- 3.1Kg (6.82lbs.)

#### Installation:

- Rack Mounting

#### Interface

##### LED Indicators:

- EM1100, EM2100:  
Per Unit: Power Status (Power)  
Per Port: 10/100/1000TX: Link/Activity, Speed, Full-duplex/Collision  
1000SX/LX: Link/Activity
- EM1000, EM2000:  
Per Unit: Power Status (Power), Full-duplex/Collision, Transmit, Receive  
Per Port: 10/100/1000TX, 1000SX/LX: Link
- EM1000S, EM2000S:  
Per Unit: Power Status (Power)  
Per Port: 1000SX/LX: Link
- EL100, EL200:  
Per Unit: Power Status (Power)  
Per Port: 10/100TX: Link/Activity, Full-duplex/Collision, Speed  
100FX: Link/Activity, Full-duplex/Collision
- EL110, EL210:  
Per Unit: Power Status (Power), Link, Activity
- EM120:  
Per Unit: Power Status (Power), Link

#### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 90% (non-condensing)

#### Regulatory Approvals:

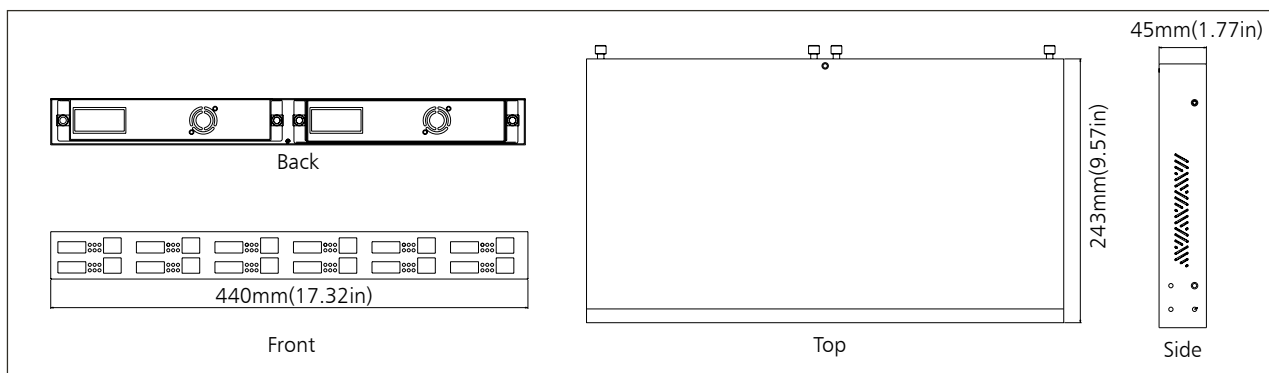
##### ISO:

- Manufactured in an ISO9001 facility.

##### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# EMMC800M Series

## 8-Bay Managed Media Converter Chassis System



### Overview

The managed Media Converter System can be monitored and configured through out-of-band management via a Web Browser. Each EMMC800M Managed Converter Chassis has eight slots to contain EMM100CO media converters. Up to four EMMC800M Chassis may be stacked as one Managed Converter Chassis System using stacking ports on the Chassis. One EMM100W Managed Media Converter module is required in one Chassis for management. One EMM100W Media Converter Module will manage a four stack Chassis and up to 64 Managed Media Converters, 32 Local and 32 Remote.

## EMMC800M 8-Bay Managed Media Converter Chassis

### Features

- ▶ Each EMMC800M Managed Converter Chassis provides eight media converter slots
- ▶ Up to four EMMC800M chassis may be stacked
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Metal case, standard 19" rack-mount, one-unit-height
- ▶ Hot-swappable in any slot when used with EMM100W Media Converter Chassis Manager or EMM100CO Media Converter (CO)
- ▶ EMM100CP Media Converter (CPE) connects to the EMM100CO and EMM100W

### Specifications

#### Power

##### Input:

- 100 ~ 240VAC, 50 ~ 60Hz Internal Universal PSU

##### Power Consumption:

- 32W Max. (with 1 EMM100W + 7 EMM100CO)

#### Mechanical

##### Casing:

- Metal case

##### Dimensions:

- 440mm (W) x 235mm (D) x 44mm (H)  
(17.32" (W) x 9.25" (D) x 1.73" (H))
- Standard 19" rack-mount size, one-unit-height

##### Weight:

- 3Kg (6.6lbs.)

##### Installation:

- Rack Mounting

#### Interface

##### LED Indicators:

- Per Unit: Power Status (Power), Fan Status, Stack Port Status

##### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

##### Regulatory Approvals:

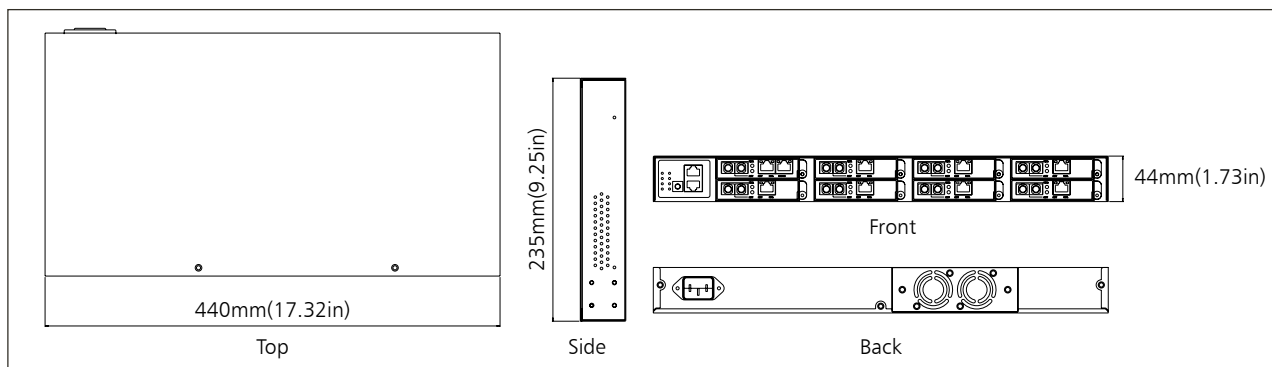
##### ISO:

- Manufactured in an ISO9001 facility.

##### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

### Diagrams





## EMM100W 10/100Base-TX to 100Base-FX Media Converter and Chassis Manager

### Features

- ▶ System Change - Device Name, New Password, Old Password, Version, MAC address
- ▶ IP Configuration - DHCP, IP address, Netmask, Default Gateway
- ▶ Chassis Hardware Monitor - Temperature, Supply Voltage Value, Fan Status, Active MC, Uptime
- ▶ CO MC Status - Operation Status, Link Status, Receive Count, Drop Count, Collision Count
- ▶ CO MC Control - Forwarding Mode, Remote Control, Link Fault Pass Through, Port Mode, Flow Control, MDIX, Output Rate, Input Rate, Informing Way for Receiving Off
- ▶ CPE MC Auto Report
- ▶ CPE MC Status - Status of power, Status of receiving optical power, Terminal link status, MC status, Informing way for Receiving off, Status of loopback test, Notification of link status for the terminal, Terminal link speed, Duplex for the terminal, Capability of auto-negotiation for the terminal, Number of interface in Terminal
- ▶ CPE MC Control - Forwarding Mode, Remote Control, Link Fault Pass Through, Port Mode, Flow Control, MDIX, Output Rate, Input Rate, Informing Way for Receiving Off
- ▶ Loopback Test
- ▶ MC Hardware Monitor - Temperature, Supply Voltage
- ▶ SNMP Configuration - System Contact, System Location, Get Community, Set Community
- ▶ Alarm - Alarm Configuration, Hardware Alarm Configuration, Alarm Mail-Trap, Alarm SNMP-Trap
- ▶ TFTP Client for Software Upgrade
- ▶ Telnet, SNMP V1 & V2, Web Browser, and TFTP Management
- ▶ Enterprise MIB
- ▶ 128K bits buffer memory
- ▶ Built-in CPU with 2M Bytes Flash & 8M Bytes SDRAM
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0°C to 45°C(32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports expansion when used with EMMC800M Managed Media Converter Chassis
- ▶ Hot-swappable in any slot when used with EMMC800M Managed Media Converter Chassis



### Specifications

#### Technology

##### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

##### Protocols:

- SNMP V1/V2, TFTP RFC 783, IP RFC 791, ICMP RFC 792, TCP RFC 793, SMTP RFC 821, Telnet RFC 854, HTTP RFC 2068

##### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

##### Packet Buffer Memory:

- 128K bits
- Built-in CPU with 2M Bytes Flash & 8M Bytes SDRAM

##### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

##### Latency:

- Less than 141μs

##### Power

###### Input:

- Input Voltage: 12VDC

###### Power Consumption:

- 4.2W Max. 0.35A@12VDC

##### Mechanical

###### Casing:

- Aluminum case

###### Dimensions:

- 80mm (W) x 124mm (D) x 20mm (H)  
(3.15" (W) x 4.88" (D) x 0.79" (H))

###### Weight:

- 160g (0.35lb.)

###### Installation:

- Expansion use with EMMC800M Managed Media Converter Chassis

#### Interface

##### Ethernet Port:

- 10/100Base-TX: 1 port
- 100Base-FX: 1 port

##### Console Port:

- Port: One RJ45 Ethernet port

##### LED Indicators:

- Per Unit: Power Status (Power, Failure Alarm)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision  
100FX: Link/Activity  
Console: Activity, Full-duplex/Collision

#### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility.

##### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## EMM100CO 10/100Base-TX to 100Base-FX Media Converter (CO)

### Features

- ▶ 128K bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0°C to 45°C(32°F to 113°F ) operating temperature range
- ▶ Aluminum case
- ▶ Supports expansion when used with EMMC800M Managed Media Converter Chassis
- ▶ Hot-swappable in any slot when used with EMMC800M Managed Media Converter Chassis



### Specifications

#### Technology

##### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

##### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

##### Packet Buffer Memory:

- 128K bits

##### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

##### Latency:

- Less than 128.4μs

#### Power

##### Input:

- Input Voltage: 12VDC

##### Power Consumption:

- 3W Max. 0.25A@12VDC

#### Mechanical

##### Casing:

- Aluminum case

##### Dimensions:

- 80mm (W) x 124mm (D) x 20mm (H)  
(3.15" (W) x 4.88" (D) x 0.79" (H))

##### Weight:

- 160g (0.35lb.)

##### Installation:

- Installed in the EMMC800M Managed Media Converter Chassis

#### Interface

##### LED Indicators:

- Per Unit: Power Status (Power, Failure Alarm)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision  
100FX: Link/Activity

#### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility.

##### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## EMM100CP 10/100Base-TX to 100Base-FX Media Converter (CPE)

### Features

- ▶ 128K bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0°C to 45°C(32°F to 113°F) operating temperature range
- ▶ Aluminum case
- ▶ Supports desktop installation



## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 128K bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Latency:

- Less than 128.4μs

#### Power

##### Input:

- Input Voltage: 12VDC

##### Power Consumption:

- 3W Max. 0.25A@12VDC

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 80mm (W) x 124mm (D) x 20mm (H)  
(3.15" (W) x 4.88" (D) x 0.79" (H))

#### Weight:

- 160g (0.35lb.)

#### Installation:

- Desktop

#### Interface

##### LED Indicators:

- Per Unit: Power Status (Power, Failure Alarm)
- Per Port: 10/100TX: Link/Activity, Full-duplex/Collision  
100FX: Link/Activity

#### Environment

##### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

##### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

##### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility.

##### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Ordering Information

### 8-Bay Managed Media Converter Chassis

EMMC800M	8-Bay Managed Media Converter Chassis
----------	---------------------------------------

### EMM100W Media Converter Chassis Manager

EMM100WC	10/100Base-TX to 100Base-FX Multi Mode (SC)
EMM100WT	10/100Base-TX to 100Base-FX Multi Mode (ST)
EMM100WC-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km
EMM100WC-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km
EMM100WC-75	10/100Base-TX to 100Base-FX Single Mode (SC) -75Km
EMM100WT-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km
EMM100WCA-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
EMM100WCB-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
EMM100WCA-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
EMM100WCB-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

### EMM100CO Media Converter (CO)

EMM100COC	10/100Base-TX to 100Base-FX Multi Mode (SC)
EMM100COT	10/100Base-TX to 100Base-FX Multi Mode (ST)
EMM100COC-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km
EMM100COC-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km
EMM100COC-75	10/100Base-TX to 100Base-FX Single Mode (SC) -75Km
EMM100COT-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km
EMM100COCA-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
EMM100COCB-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
EMM100COCA-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
EMM100COCB-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

### EMM100CP Media Converter (CPE)

EMM100CPC	10/100Base-TX to 100Base-FX Multi Mode (SC)
EMM100CPC	10/100Base-TX to 100Base-FX Multi Mode (ST)
EMM100CPC-20	10/100Base-TX to 100Base-FX Single Mode (SC) -20Km
EMM100CPC-40	10/100Base-TX to 100Base-FX Single Mode (SC) -40Km
EMM100CPC-75	10/100Base-TX to 100Base-FX Single Mode (SC) -75Km
EMM100CPT-20	10/100Base-TX to 100Base-FX Single Mode (ST) -20Km
EMM100CPCA-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km
EMM100CPCB-20	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km
EMM100CPCA-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km
EMM100CPCB-40	10/100Base-TX to 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km

# EX1605PBF1

## 5-port 10/100Base Fast Ethernet Media Converter



### Overview

EX1605PBF1 is positioned as a multi-port Fast Ethernet Media Converter to meet fiber networking applications. As a derivative of the EX1605PB Fast Ethernet Switch series, EX1605PBF1 is a pocket sized Fast Ethernet Media Converter equipped with 4-port 10/100Base-TX and 1-port 100Base-FX. Its pocket size is ideal for users who prefer wall mounted or desktop Media Converters. By using standard auto-negotiation and the inclusion of Auto-MDIX, EtherWAN provides a cost-effective way of integrating legacy 10Mbps networks with 100Mbps Fast Ethernet networks. The TX ports auto-negotiate for 10/100Mbps speed and auto detect full or half duplex mode. The fiber ports on EX1605PBF1 accommodate SC, ST, MT-RJ, VF-45, or LC; with a fiber connection between two nodes that can reach up to 120Km (74.4miles). The bridging function of the Media Converter provides a solution for extending the distance between two 100Mbps network segments. The non-blocking switching architecture satisfies the bandwidth demand by multimedia and imaging applications. A combination of FX and TX ports by a pocket sized box makes EX1605PBF1 a simple solution for complicated networking needs.

### Features

- ▶ 2048 MAC addresses
- ▶ 1M bits buffer memory
- ▶ 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Full wire-speed forwarding rate
- ▶ 0.6A 12VDC External Universal PSU
- ▶ 0°C to 45°C (32°F to 113°F) operating temperature range
- ▶ Metal case
- ▶ Supports Wall or Shelf installation

### Ordering Information

EX1605PBFT	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (ST) -2Km Media Converter
EX1605PBFC	4-port 10/100Base-TX + 1-port 100Base-FX Multi Mode (SC) -2Km Media Converter
EX1605PBFT-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (ST) -20Km Media Converter
EX1605PBFC-15	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -15Km Media Converter
EX1605PBFC-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) -40Km Media Converter
EX1605PBFC-A-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EX1605PBFC-B-20	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EX1605PBFC-A-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EX1605PBFC-B-40	4-port 10/100Base-TX + 1-port 100Base-FX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter

## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX/100Base-FX, IEEE802.3x

#### Forward and Filtering Rate:

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

#### Packet Buffer Memory:

- 1M bits

#### Processing Type:

- Store-and-Forward
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control

#### Address Table Size:

- 2048 MAC addresses

#### Latency:

- Less than 5 $\mu$ s

### Power

#### Input:

- Input Voltage:12VDC

#### Power Consumption:

- 3.24W Max. 0.27A@12VDC

### Mechanical

#### Casing:

- Metal case

#### Dimensions:

- 160mm (W) x 80.5mm (D) x 28mm (H)  
(6.3" (W) x 3.17" (D) x 1.1" (H))

#### Weight:

- 0.42Kg (0.92lbs.)

#### Installation:

- Wall, Shelf Mounting

### Interface

#### Ethernet Port:

- 10/100Base-TX: 4 ports
- 100Base-FX: 1 port

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100TX, 100FX: Link/Activity

### Environment

#### Operating Temperature:

- 0°C to 45°C (32°F to 113°F)

#### Storage Temperature:

- -10°C to 70°C (14°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

### Regulatory Approvals:

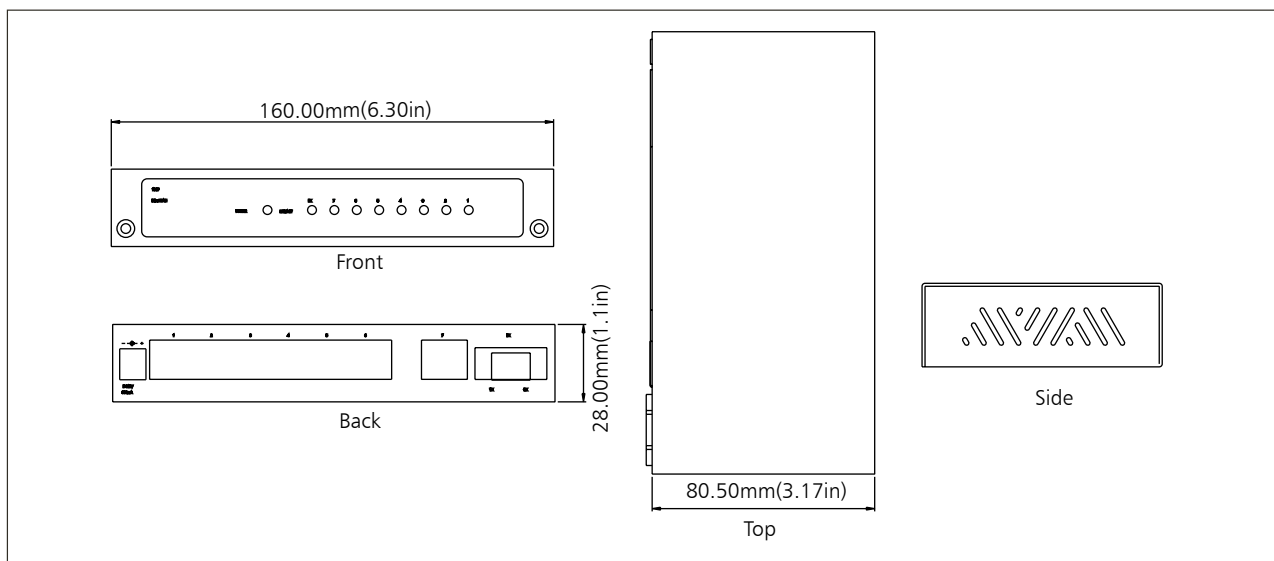
#### ISO:

- Manufactured in an ISO9001 facility

#### Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

## Diagrams



# ED3101 Series

## 10/100Base-TX Industrial Ethernet Extender



### Overview

The ED3101 is a point-to-point Ethernet Extender that efficiently extends 10/100 Ethernet circuits to over 300meters (984feet) at 50Mbps using existing straight pair copper wire. The ED3101 will allow Ethernet connectivity in existing facilities without pulling extra cable. This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking. Installation is easy with a single switch setting, one end is set for local and the other remote. The ED3101 is used in pairs to extend Ethernet connectivity over existing voice grade copper wire.

### Features

- ▶ Operates transparent to higher layer protocols such as TCP/IP
- ▶ Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Ethernet Extender(RJ-11) Port: Symmetrical on the VDSL, High-speed Full-duplex 50Mbps communications link over existing copper Telephone line
- ▶ Support DIP switch to select Local or Remote side
- ▶ Ten speeds with speed indicator LEDs on top of unit, Up to 50Mbps @ about 300meters (984ft.), Down to 1Mbps @ about 1,900meters (6,232ft.)
- ▶ -20°C to 60°C (-4°F to 140°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail, Wall Mounting installation

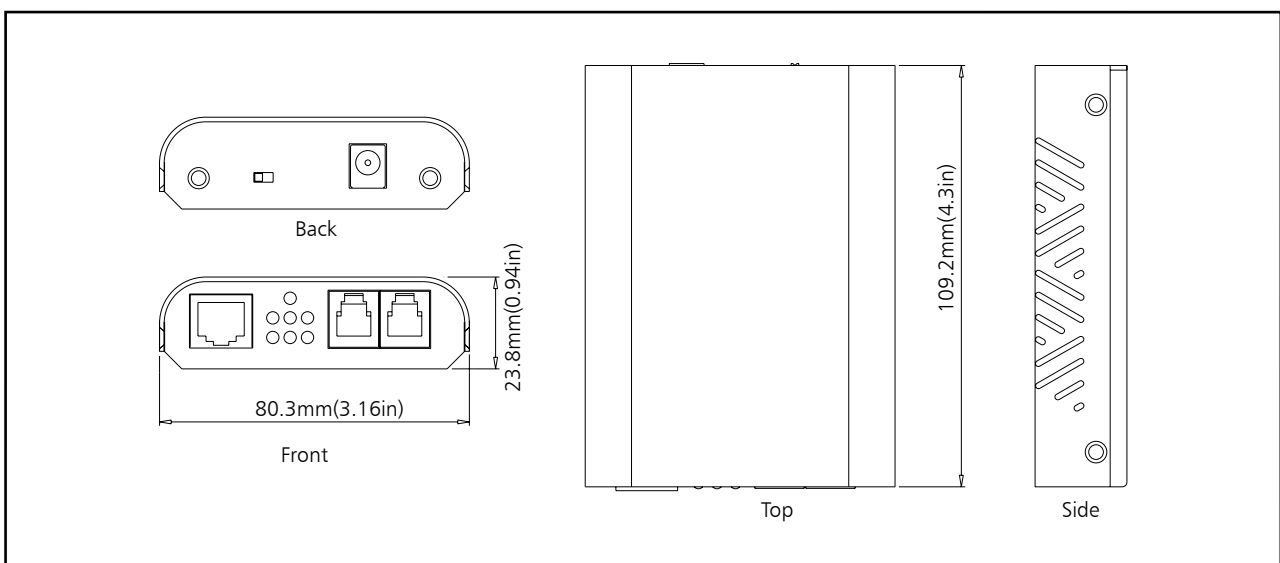
### Ordering Information

ED3101-X	10/100Base-TX Industrial Ethernet Extender
ED3101-D-X	10/100Base-TX Industrial Ethernet Extender with DIN Rail mounting kits

#### External Power Adapter Options:

- (X) = A : With external power adapter for AU
- E : With external power adapter for EU
- J : With external power adapter for JP
- K : With external power adapter for UK
- U : With external power adapter for USA

### Diagrams





## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x, Ethernet over VDSL

#### Protocols:

- Transparent to higher layer protocols

#### Processing Type:

- Half-duplex back-pressure and IEEE802.3x Full-duplex flow control

#### Power

##### Input:

- Input Voltage: 12VDC

##### Power Consumption:

- 2.4W Max. 0.2A@12VDC

#### Mechanical

##### Casing:

- Aluminum case

##### Dimensions:

- 80.3mm (W) x 109.2mm (D) x 23.8mm (H)  
(3.16" (W) x 4.30" (D) x 0.94" (H))

##### Weight:

- 150g (0.33lb.)

##### Installation:

- DIN-Rail, Wall Mounting

#### Interface

##### Ethernet Port:

- Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex Auto-Negotiation, Auto-MDI/MDIX
- Speed: 10/100Mbps
- Distance: 100meters (328ft.)
- Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire)  
100Base-TX: UTP CAT. 5 (2-pair wire)

##### Ethernet Extender Port :

- Port: One RJ-11 Port
- Speed: 1/3/5/10/15/20/25/30/40/50mbps
- Distance: 1900meters (6,232ft.)
- Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger

##### DIP switch:

- One DIP switch: Local (CO) or Remote (CPE)

##### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex  
Line: Error, Link, Local, Remote

LED	Speed	Distance
1	Green	1 Mbps 1,900m(6,232 ft.)
	Amber	3 Mbps 1,800m(5,904 ft.)
2	Green	5 Mbps 1,600m(5,249 ft.)
	Amber	10Mbps 1,400m(4,593 ft.)
3	Green	15Mbps 1,200m(3,936 ft.)
	Amber	20Mbps 1,000m(3,280 ft.)
4	Green	25Mbps 800m(2,624 ft.)
	Amber	30Mbps 700m(2,296 ft.)
4&2	Amber	40Mbps 600m(1,968 ft.)
4&3	Amber	50Mbps 300m (984 ft.)

#### NOTE:

All speed selections are Symmetrical on the DSL and Full-duplex on the Ethernet.

### Environment

#### Operating Temperature:

- -20°C to 60°C (-4°F to 140°F)

#### Storage Temperature:

- -20°C to 70°C (-4°F to 158°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals

##### ISO:

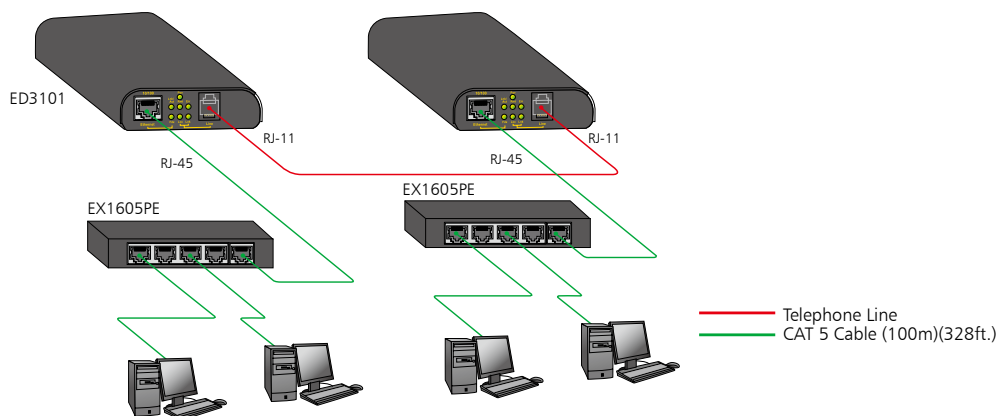
- Manufactured in an ISO9001 facility

##### Safety:

- UL60950-1

##### Emission Compliance:

- FCC Part 15 CE Mark Class A





# ED3141 Series

## 10/100Base-TX Hardened Ethernet Extender



### Overview

The ED3141 is a point-to-point Ethernet Extender designed to operate in harsh environments that efficiently extends 10/100 Ethernet circuits to over 300meters (984feet) at 50Mbps using existing cross-over pair copper wire. The ED3141 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). The ED3141 will allow Ethernet connectivity in existing facilities without pulling extra cable. This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking. Installation is easy with a single switch setting, one end is set for local and the other remote. The ED3141 is used in pairs to extend Ethernet connectivity over existing voice grade copper wire.

### Features

- ▶ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ Operates transparent to higher layer protocols such as TCP/IP
- ▶ Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Ethernet Extender(RJ-11 and Terminal Block) Port: Symmetrical on the VDSL, High-speed Full-duplex 50Mbps communications link over existing copper Telephone line
- ▶ Support DIP switch to select Local or Remote side
- ▶ Ten speeds with speed indicator LEDs on front panel of unit, Up to 50Mbps @ about 300meters (984ft.), Down to 1Mbps @ about 1,900meters (6,232ft.)
- ▶ Redundant power inputs with Terminal Block and DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail or Panel Mounting installation

### Ordering Information

ED3141-00Z 10/100Base-TX Hardened Ethernet Extender

#### Power Input Interface:

(Z) = B : Terminal Block & DC Jack

#### Power Supply: (Optional)

\*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

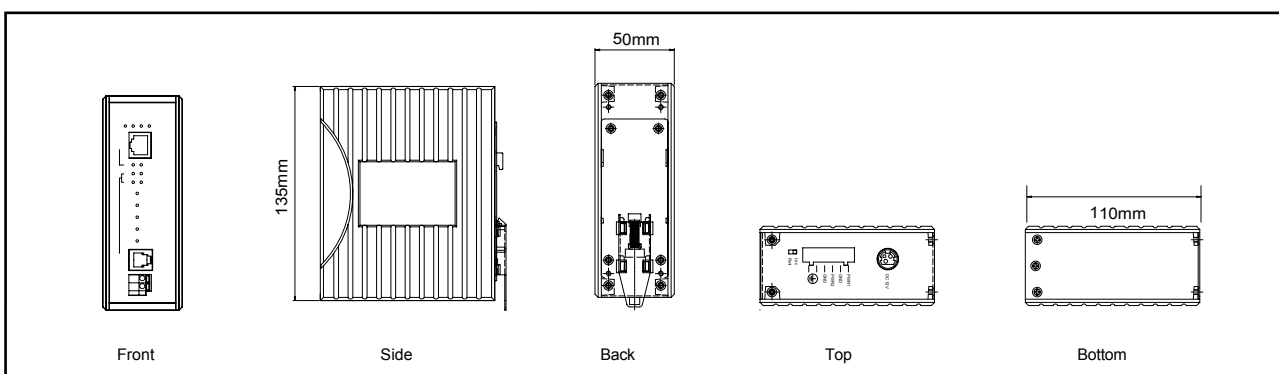
\*\*Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

#### Installation Type :

Optional Panel mount kit, ordered separately, part number: KP-AA96-480



### Diagrams



## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x, Ethernet over VDSL

#### Protocols:

- Transparent to higher layer protocols

#### Processing Type:

- Half-duplex back-pressure and IEEE802.3x Full-duplex flow control

#### Power

##### Input:

- Input Voltage: 12 to 30VDC (Terminal Block); 12VDC (DC Jack)

##### Power Consumption:

- 4.2W Max. 0.35A@12VDC, 0.175A@24VDC

##### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

##### Overload Current Protection:

- Present

##### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 50mm (W) x 110mm (D) x 135mm (H)  
(1.97" (W) x 4.33" (D) x 5.31" (H))

#### Weight:

- 0.8Kg (1.76lbs.)

#### Installation:

- DIN-Rail, Panel Mounting

### Interface

#### Ethernet Port:

- Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex  
Auto-Negotiation, Auto-MDI/MDIX
- Speed: 10/100Mbps
- Distance: 100meters (328ft.)
- Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire)  
100Base-TX: UTP CAT. 5 (2-pair wire)

#### Ethernet Extender Port:

- Port: One RJ-11 and Terminal Block port
- Speed: 1/3/5/10/15/20/25/30/40/50Mbps
- Distance: 1900meters (6,232ft.)
- Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger

#### DIP switch:

- One DIP switch: Local (CO) or Remote (CPE)

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex  
Line: Error, Link, Local, Remote

	LED	Speed	Distance
1	Green	1 Mbps	1,900m(6,232 ft.)
	Amber	3 Mbps	1,800m(5,904 ft.)
2	Green	5 Mbps	1,600m(5,249 ft.)
	Amber	10Mbps	1,400m(4,593 ft.)
3	Green	15Mbps	1,200m(3,936 ft.)
	Amber	20Mbps	1,000m(3,280 ft.)
4	Green	25Mbps	800m(2,624 ft.)
	Amber	30Mbps	700m(2,296 ft.)
5	Green	40Mbps	600m(1,968 ft.)
	Amber	50Mbps	300m(984 ft.)

#### NOTE:

All speed selections are Symmetrical on the DSL and Full-duplex on the Ethernet.

### Environment

#### Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)  
Tested @ -40°C to 85°C (-40°F to 185°F)

#### Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility

##### Safety:

- UL508, EN60950-1, IEC60950-1

##### EMI:

- FCC Part 15, Class A
- EN61000-6-3
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

##### EMS:

- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 4KV; Criteria B  
Air: + / - 8KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
10V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria B  
D.C. Power Ports: + / - 4KV; Criteria B  
A.C. Power Ports: + / - 4KV; Criteria B
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 1KV; Line-to-Line; Criteria B  
D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B  
A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
30A/m @ 50, 60Hz; Criteria A
  - EN61000-4-11 (Voltage Dip Standards)  
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

#### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

**NEMA TS1/2 Environmental requirements for Traffic control equipment**

# ED3171 Series

## 10/100Base-TX Hardened Managed Ethernet Extender

coming soon



### Overview

The ED3171 is a point-to-point Managed Ethernet Extender designed to operate in harsh environments that efficiently extends 10/100 Ethernet circuits to over 300meters (984feet) at 50Mbps using existing cross-over pair copper wire. The ED3171 functions at temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). The ED3171 will allow Ethernet connectivity in existing facilities without pulling extra cable. This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking. Installation is easy with a single switch setting, one end is set for local and the other remote. The ED3171 is used in pairs to extend Ethernet connectivity over existing voice grade copper wire.

The ED3171 provides Power status, VDSL speed, and Alarm condition of relay through the Web-based browser. ED3171 also provides several advanced functions such as System, SNMP, F/W upgrade, and Load Default setting through the Web-based browser to enhance total networking performance.

### Features

- ▶ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- ▶ Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- ▶ Operates transparent to higher layer protocols such as TCP/IP
- ▶ Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- ▶ Ethernet Extender(RJ-11 and Terminal Block) Port: Symmetrical on the VDSL, High-speed Full-duplex 50Mbps communications link over existing copper Telephone line
- ▶ Support DIP switch to select Local or Remote side
- ▶ Ten speeds with speed indicator LEDs on front panel of unit, Up to 50Mbps @ about 300meters (984ft.), Down to 1Mbps @ about 1,900meters (6,232ft.)
- ▶ Alarms for power failure by relay output
- ▶ Support external Hardware Watch Dog
- ▶ Support Web, CLI, SNMP management Interface
- ▶ Link Status (for VDSL, Ethernet), Get/Set IP, Get Rate, Set Rate (for CO site), Get Counter, Get SNR (Local, Remote), SNMP setting (Community), System setting, Reset to Default, F/W upgrade through the management Interface
- ▶ Redundant power inputs with Terminal Block and DC Jack
- ▶ -40°C to 75°C (-40°F to 167°F) operating temperature range
- ▶ Hardened aluminum case
- ▶ Supports DIN-Rail or Panel Mounting installation

### Ordering Information

ED3171-00Z 10/100Base-TX Hardened Managed Ethernet Extender

#### Power Input Interface:

(Z) = B : Terminal Block & DC Jack

#### Power Supply: (Optional)

\*Option A - The Terminal Block type external power supply are not included. Please order the following part numbers, as required: DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1,2,3,4,5

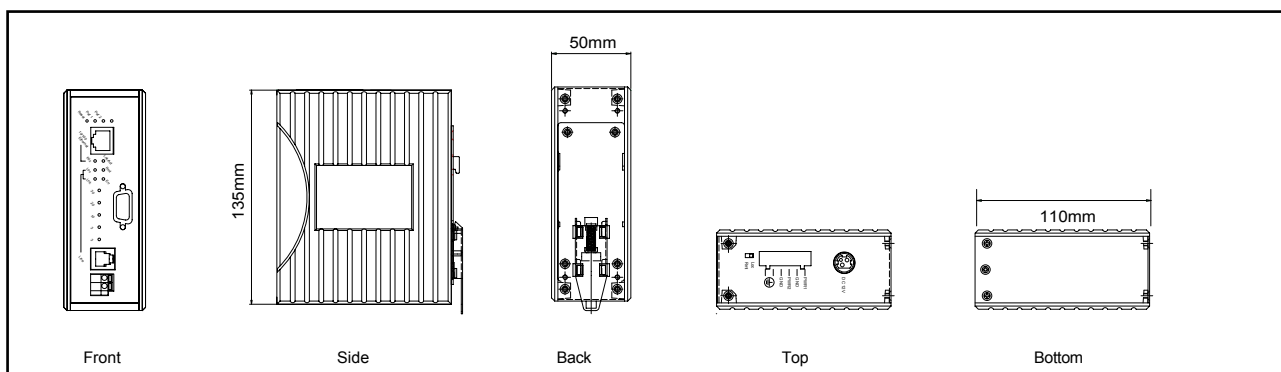
\*\*Option B - The external power adapter and power cord are not included. Please order the following part numbers, as required: 41-136044-X X=1,2,3,4,5

#### Installation Type :

Optional Panel mount kit, ordered separately, part number: KP-AA96-480



### Diagrams



## Specifications

### Technology

#### Standards:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x, Ethernet over VDSL

#### Protocols:

- Transparent to higher layer protocols

#### Processing Type:

- Half-duplex back-pressure and IEEE802.3x Full-duplex flow control

#### Power

##### Input:

- Input Voltage: 12 to 30VDC (Terminal Block); 12VDC (DC Jack)

##### Power Consumption:

- 4.2W Max. 0.35A@12VDC, 0.175A@24VDC

##### Power Supply References:

- Terminal Block: 12 to 24VDC, 1.5A
- DC Jack: 12VDC, 3A

##### Overload Current Protection:

- Present

##### Reverse Polarity Protection:

- Present

### Mechanical

#### Casing:

- Aluminum case

#### Dimensions:

- 50mm (W) x 110mm (D) x 135mm (H)  
(1.97" (W) x 4.33" (D) x 5.31" (H))

#### Weight:

- 0.8Kg (1.76lbs.)

#### Installation:

- DIN-Rail, Panel Mounting

### Interface

#### Ethernet Port:

- Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex  
Auto-Negotiation, Auto-MDI/MDIX
- Speed: 10/100Mbps
- Distance: 100meters (328ft.)
- Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire)  
100Base-TX: UTP CAT. 5 (2-pair wire)

#### Ethernet Extender Port:

- Port: One RJ-11 and Terminal Block port
- Speed: 1/3/5/10/15/20/25/30/40/50Mbps
- Distance: 1900meters (6,232ft.)
- Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger

#### Console Port:

- Port: One DB9 RS-232 port

#### DIP switch:

- One DIP switch: Local (CO) or Remote (CPE)

#### LED Indicators:

- Per Unit: Power Status (Power)
- Per Port: 10/100TX: Link/Activity, Full-duplex  
Line: Error, Link, Local, Remote

LED	Speed	Distance
1	Green 1 Mbps	1,900m(6,232 ft.)
	Amber 3 Mbps	1,800m(5,904 ft.)
2	Green 5 Mbps	1,600m(5,249 ft.)
	Amber 10Mbps	1,400m(4,593 ft.)
3	Green 15Mbps	1,200m(3,936 ft.)
	Amber 20Mbps	1,000m(3,280 ft.)
4	Green 25Mbps	800m(2,624 ft.)
	Amber 30Mbps	700m(2,296 ft.)
5	Green 40Mbps	600m(1,968 ft.)
	Amber 50Mbps	300m(984 ft.)

#### NOTE:

All speed selections are Symmetrical on the DSL and Full-duplex on the Ethernet.

### Environment

#### Operating Temperature:

- -40°C to 75°C (-40°F to 167°F)  
Tested @ -40°C to 85°C (-40°F to 185°F)

#### Storage Temperature:

- -40°C to 85°C (-40°F to 185°F)

#### Ambient Relative Humidity:

- 5% to 95% (non-condensing)

#### Regulatory Approvals:

##### ISO:

- Manufactured in an ISO9001 facility

##### Safety:

- UL508, EN60950-1, IEC60950-1

##### EMI:

- FCC Part 15, Class A

- EN61000-6-3

- EN55022

- EN61000-3-2

- EN61000-3-3

##### EMS:

- EN61000-6-2

- EN61000-4-2 (ESD Standards)

Contact: + / - 4KV; Criteria B

Air: + / - 8KV; Criteria B

- EN61000-4-3 (Radiated RFI Standards)

10V/m, 80 to 1000MHz; 80% AM Criteria A

- EN61000-4-4 (Burst Standards)

Signal Ports: + / - 4KV; Criteria B

D.C. Power Ports: + / - 4KV; Criteria B

A.C. Power Ports: + / - 4KV; Criteria B

- EN61000-4-5 (Surge Standards)

Signal Ports: + / - 1KV; Line-to-Line; Criteria B

D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B

A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B

- EN61000-4-6 (Induced RFI Standards)

Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A

D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A

A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A

- EN61000-4-8 (Magnetic Field Standards)

30A/m @ 50, 60Hz; Criteria A

- EN61000-4-11 (Voltage Dip Standards)

A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B

#### Environmental Test Compliance:

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

**NEMA TS1/2 Environmental requirements for Traffic control equipment**