

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 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 5-7 to 5-13 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 μ 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

Overload Current Protection:

- Present

Reverse Polarity Protection:

- Present

Mechanical

Casing:

- Aluminum case
- IP30

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(Top hat type 35mm), 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:

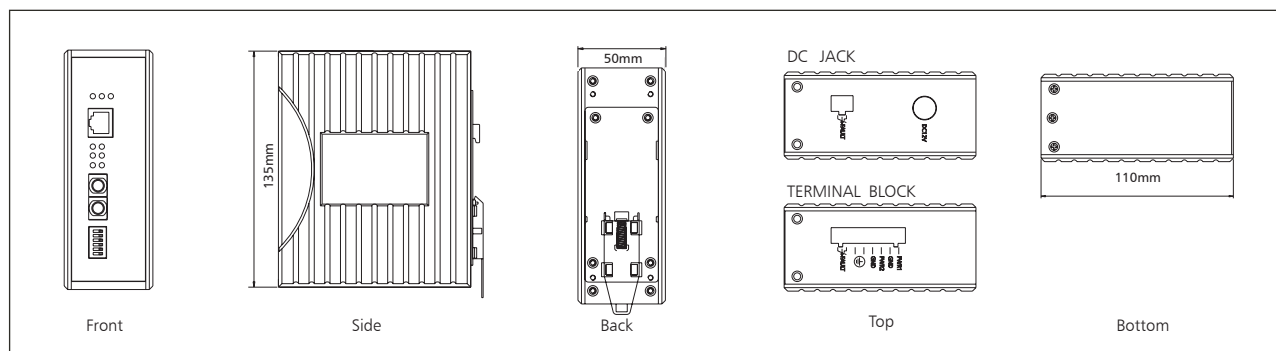
- EN61000-6-2
 - EN61000-4-2 (ESD Standards)
Contact: + / - 4KV; Criteria B
Air: + / - 8KV; Criteria B
 - EN61000-4-3 (Radiated RFI Standards)
10V/m, 80 to 1000MHz; 80% AM Criteria A
 - EN61000-4-4 (Burst Standards)
Signal Ports: + / - 4KV; Criteria B
D.C. Power Ports: + / - 4KV; Criteria B
 - EN61000-4-5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

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



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 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
- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode, link down alarm
- ▶ 1000Mbps-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 10/100/1000Base-TX 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 5-7 to 5-13 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:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, 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:

- 10.56W, 0.88A @ 12VDC, 0.44A @ 24VDC, 0.22A @ 48VDC

Overload Current Protection:

- Present

Reverse Polarity Protection:

- Present

Mechanical

Casing:

- Aluminum case
- IP30

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(Top hat type 35mm), 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 0.01A @ 12VDC

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
- VCCI, Class A
- EN61000-6-3
 - EN55022
 - EN61000-3-2
 - EN61000-3-3

EMS:

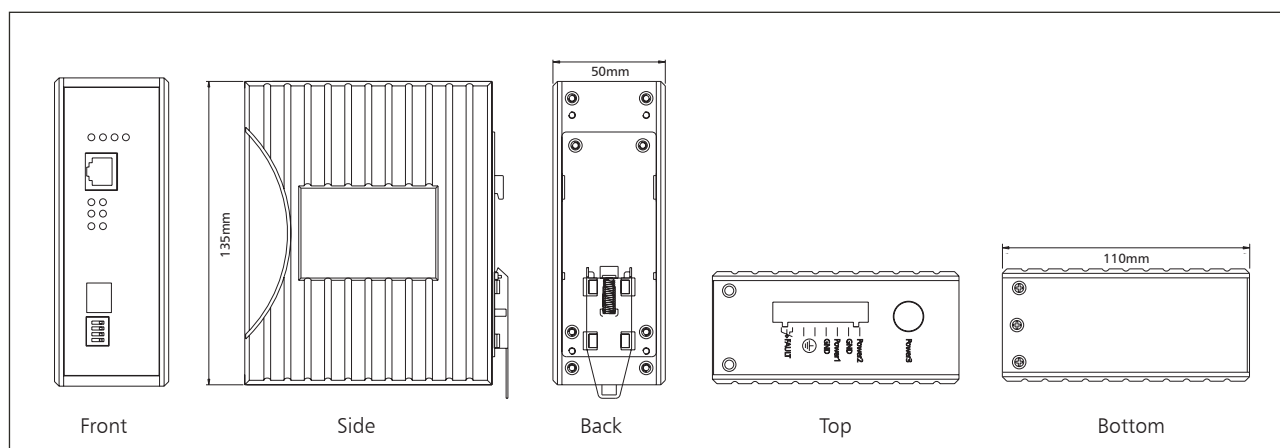
- EN61000-6-2
 - EN61000-4-2 (ESD Standards)
Contact: + / - 4KV; Criteria B
Air: + / - 8KV; Criteria B
 - EN61000-4-3 (Radiated RFI Standards)
10V/m, 80 to 1000MHz; 80% AM Criteria A
 - EN61000-4-4 (Burst Standards)
Signal Ports: + / - 4KV; Criteria B
D.C. Power Ports: + / - 4KV; Criteria B
 - EN61000-4-5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

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



EL9000 Series

1000Base-T to 1000Base-SX/LX/BX 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 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-BX (SC) WDM -TX:1310nm/RX:1550nm -10Km
 - Q : 1000Base-BX (SC) WDM -TX:1550nm/RX:1310nm -10Km
 - R : 1000Base-BX (SC) WDM -TX:1310nm/RX:1550nm -20Km
 - S : 1000Base-BX (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 5-7 to 5-13 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

Overload Current Protection:

- Present

Reverse Polarity Protection:

- Present

Mechanical

Casing:

- Aluminum case
- IP30

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(Top hat type 35mm), 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:

- UL1604, 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:

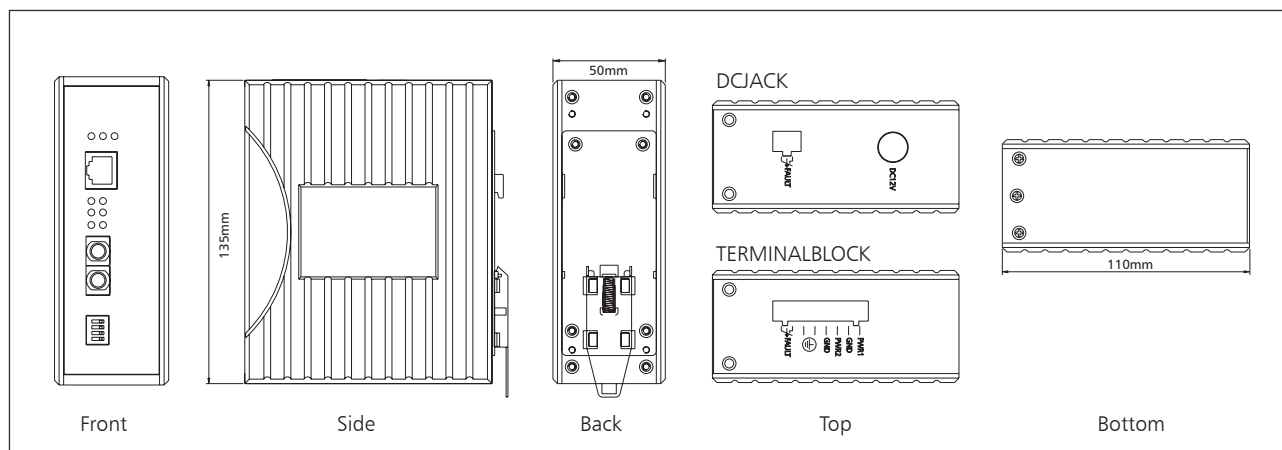
- EN61000-6-2
 - EN61000-4-2 (ESD Standards)
Contact: + / - 4KV; Criteria B
Air: + / - 8KV; Criteria B
 - EN61000-4-3 (Radiated RFI Standards)
10V/m, 80 to 1000MHz; 80% AM Criteria A
 - EN61000-4-4 (Burst Standards)
Signal Ports: + / - 4KV; Criteria B
D.C. Power Ports: + / - 4KV; Criteria B
 - EN61000-4-5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

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



EL9100 Series

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



Overview

The EL9100 series, Gigabit Ethernet media converters are designed to operate in harsh environments. The EL9100 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 EL9100 will provide flawless communications when you need it most. EL9100 series supports multi-mode/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 EL9100, 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
- ▶ DIP switch configuration for "Link-Fault-Pass-Through", fiber auto/force mode, link down alarm
- ▶ 10/100/1000Mbps-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 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

EL9100-X0Z 10/100/1000Base-TX to 1000Base-SX/LX/BX Hardened Media Converter

Gigabit Options :

- (X) = 3 1000Base-SX (SC) -550m
- 4 1000Base-SX (SC) -2Km
- 5 1000Base-SX (ST) -550m
- A 1000Base-LX (SC) -10Km
- B 1000Base-LX (SC) -20Km
- H 1000Base-LX (ST) -10Km
- I 1000Base-LX (ST) -20Km
- P 1000Base-BX (SC) WDM -TX:1310nm/RX:1550nm -10Km
- Q 1000Base-BX (SC) WDM -TX:1550nm/RX:1310nm -10Km
- R 1000Base-BX (SC) WDM -TX:1310nm/RX:1550nm -20Km
- S 1000Base-BX (SC) WDM -TX:1550nm/RX:1310nm -20Km

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

*See page 5-7 to 5-13 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:

- IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, 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:

- 10.56W, 0.88A @ 12VDC, 0.44A @ 24VDC, 0.22A @ 48VDC

Overload Current Protection:

- Present

Reverse Polarity Protection:

- Present

Mechanical

Casing:

- Aluminum case
- IP30

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 (Top hat type 35mm), Panel, Rack Mounting

Interface

Ethernet Port:

- 10/100/1000Base-TX: 1 port
- 1000Base-SX/LX/BX: 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 0.01A @ 12VDC

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
- VCCI, Class A
- EN61000-6-3
 - EN55022
 - EN61000-3-2
 - EN61000-3-3

EMS:

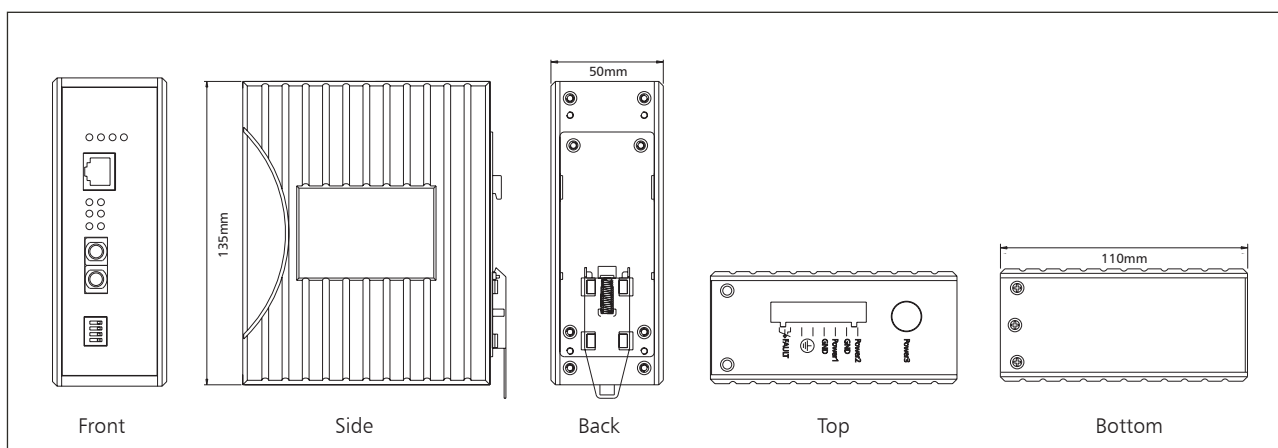
- EN61000-6-2
 - EN61000-4-2 (ESD Standards)
Contact: + / - 4KV; Criteria B
Air: + / - 8KV; Criteria B
 - EN61000-4-3 (Radiated RFI Standards)
10V/m, 80 to 1000MHz; 80% AM Criteria A
 - EN61000-4-4 (Burst Standards)
Signal Ports: + / - 4KV; Criteria B
D.C. Power Ports: + / - 4KV; Criteria B
 - EN61000-4-5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

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



Hardened SFP Fiber Transceiver



Overview

EtherWAN SFPs are the high performance and cost-effective module for serial optical data communication applications specified for multimode of 1.25 Gb/s. It operates with +3.3V power supply. The module is intended for multimode fiber, operates at a nominal wavelength of 850nm and complies with Multi-Source Agreement (MSA) Small Form Factor Pluggable (SFP). Each module consists of a transmitter optical subassembly, a receiver optical subassembly and an electrical subassembly. All of them are housed in a metal package and the combination produces a reliable component.

The module is a duplex LC connector transceiver designed for use in Gigabit Ethernet applications and to provide IEEE-802.3z compliant link for 1.25Gb/s short reach applications. The characteristics are performed in accordance with Telcordia Specification GR-468-CORE

Features

- ▶ Data Rate: 1.25Gbps, NRZ
- ▶ Single +3.3V Power Supply
- ▶ RoHS Compliant and Lead-free
- ▶ AC/AC Differential Electrical Interface
- ▶ Compliant with Multi-Source Agreement (MSA) Small Form Factor Pluggable (SFP),
- ▶ Compliance with specifications for IEEE-802.3z Gigabit Ethernet at 1.25 Gbps
- ▶ Compliance with ANSI specifications for Fiber Channel applications at 1.06 Gbps
- ▶ Eye Safety Designed to meet Laser Class 1 comply with EN60825-1

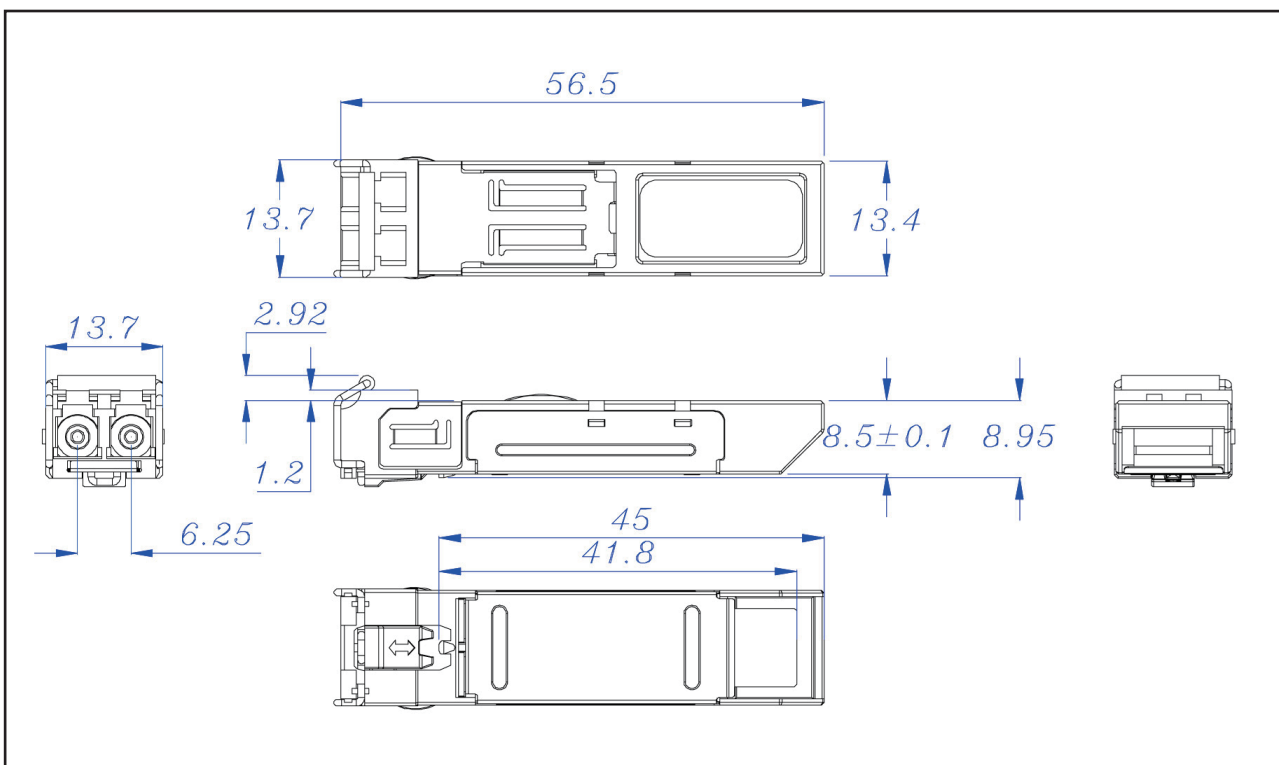
Ordering Information

Model Number	Designation	Typical Distance	Nominal Wavelength	Cable Type	Connector
EX -1250NSP-SB1L-A	1000Base-SX	2 Km / 550 M	850 nm	62.5/125 μ m, MM	Duplex LC, VCSEL
EX -1250TSP-MB4L-A	1000Base-LX	10 Km	1310 nm	9/125 μ m, SM	Duplex LC, FP LD
EX -1250TSP-NB6L-A	1000Base-LX	40 Km	1310 nm	9/125 μ m, SM	Duplex LC, DFP LD
EX -1250TSP-KB8L-A	1000Base-LX	60 Km	1310 nm	9/125 μ m, SM	Duplex LC, DFP LD

Specifications

Model Number	EX-1250NSP-SB1L-A	EX -1250TSP-MB4L-A	EX -1250TSP-NB6L-A	EX -1250TSP-KB8L-A
Product information				
Connector Type	Duplex LC, VCSEL	Duplex LC, FP LD	Duplex LC, DFP LD	Duplex LC, DFP LD
Designation	1000Base-SX	1000Base-LX	1000Base-LX	1000Base-LX
Operating Voltage & SD Output	3.3V TTL AC/AC			
Wavelength	850 nm	1310 nm FP	1310 nm DFB	1550 nm DFB
Distance	550 m(50/125 μ m) 275 m(62.5/125 μ m)	10 km (9/125 μ m)	40 km (9/125 μ m)	60 km (9/125 μ m)
Sensitivity	\leq -17 dBm	\leq -21 dBm	\leq -23 dBm	\leq -23 dBm
Optical Output Power	-9.5 ~ -4 dBm	-9.5 ~ -3 dBm	-3 ~ +2 dBm	0 ~ 5 dBm
Optical Budget	18 dB	18 dB	25 dB	28 dB
Operating Condition				
Case Operating Temp.	-40 °C ~ 80 °C (-40°F ~ 176°F)			
Supply Voltage	3.1 ~ 3.5 V			
Data Input Voltage Swing	400 ~ 1660 mV	300 ~ 1860 mV	300 ~ 1860 mV	300 ~ 1860 mV
Regulatory Approvals	FCC in the United States CENELEC EN55022 (CISPR 22) in Europe EN 60825-1			

Diagrams



*All dimensions are ± 0.2 mm unless otherwise specified

EX42011 Series

10/100Base-TX to 100Base-FX 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 accommodates SC and 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 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
- ▶ 0.1A 24VDC Power inputs
- ▶ -10°C to 60°C (14°F to 140°F) operating temperature range
- ▶ Hardened plastic case
- ▶ Supports DIN-Rail Mounting 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:

- 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 μ s

Power

Input:

- Input Voltage: 12 to 48VDC (Terminal Block)
- Input Current: 0.1A Max. (Terminal Block)

Power Consumption:

- 2.4W Max.

Mechanical

Casing:

- Plastic case

Dimensions:

- 25mm (W) x 70mm (D) x 110mm (H)
- (0.99" (W) x 2.76" (D) x 4.33" (H))

Weight:

- 0.2Kg (0.44lb.)

Installation:

- DIN-Rail Mounting

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:

- 10% to 90% (non-condensing)

Interface

LED Indicators:

- Per Unit: Power Status (Power 1, Power 2)
- Per Port: 10/100TX, 100FX: Link/Activity (Green), Speed (Yellow)

Designation	Typical Distance*	Nominal Wavelength	Cable Type	Connector	Optical Budget
100Base-FX	2 Km	1310 nm	62.5/125 MM	ST	15 dB
100Base-FX	2 Km	1310 nm	62.5/125 MM	SC	15 dB
100Base-FX	20 Km	1310 nm	10/125 SM	ST	19 dB
100Base-FX	20 Km	1310 nm	10/125 SM	SC	19 dB
100Base-FX	40 Km	1310 nm	10/125 SM	ST	30 dB
100Base-FX	40 Km	1310 nm	10/125 SM	SC	30 dB
100Base-FX	60 Km	1310 nm	10/125 SM	ST	33 dB
100Base-FX	70 Km	1310 nm	10/125 SM	SC	34 dB
100Base-FX	80 Km	1550 nm	10/125 SM	ST	29 dB
100Base-FX	90 Km	1550 nm	10/125 SM	SC	32 dB
10Base-T	100 m	N/A	N/A	RJ-45	N/A
100Base-TX	100 m	N/A	N/A	RJ-45	N/A

Regulatory Approvals:

ISO:

- Manufactured in an ISO9001 facility.

Emission Compliance:

- CE Mark Class A, FCC Part 15 Class A

Ethernet
Switches

1

Serial
Servers

2

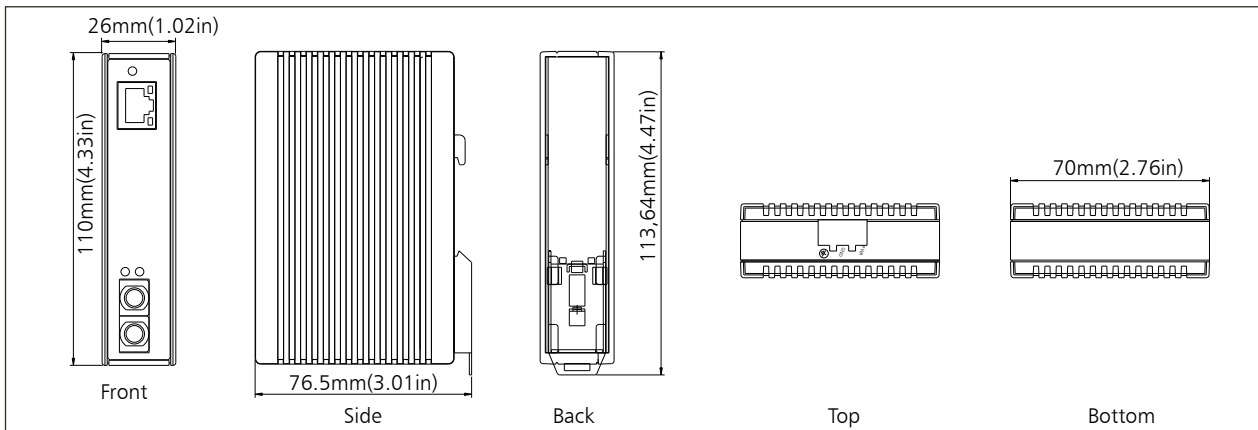
Media
Converters

3

Others

4

Diagrams



Ordering Information

EX42011-XY-I-P 10/100Base-TX to 100Base-FX 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*

*Options A -The Terminal Block option does not include an external Power supply. Please order the following part numbers, as required: **EX-DR-30-24, EX-DR-60-24, EX-DR-75-24, or EX-DR-120-24, 41-136046-1~5**

*See page 4-5 to 4-8 for more detailed information about optional accessories (Din-Rail Power supply, Power adapter)