EL100 / EL110 Series
10/100BASE-TX to 100BASE-FX Media Converter

EtherWAN

UL 60950

Overview

The EL100 / EL110 Series provide media conversion between 10/100BASE-T(X) and 100BASE-FX Fiber. Easy plug-and-play design facilitates network infrastructure construction. Through DIP switch selection, Link-Fault-Pass-Through (LFPT) function can be active or disabled. The EL100 / EL110 series is designed for SC or ST fiber connection applications. The commercial grade media converter supports EtherWAN EMC1600 chassis system for easy group installation. The EL100 / EL110 is the ideal media converter for enterprise environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **SC and ST Media Converter**
  ◦ Supports multi-mode and single mode fiber line with SC and ST fiber port

- **DIP Switch Configurable**
  ◦ Link-fault-pass-through enable or disable
  ◦ Full-duplex or half-duplex of Ethernet port enable or disable
  ◦ Full-duplex or half-duplex of fiber port enable or disable

- **Link-Fault-Pass-Through (LFPT)**
  ◦ LFPT function let network operators be aware of network connection status
  ◦ When fiber link is down, LFPT function will turn down Ethernet port to inform connected device that the link is down and vice

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x full duplex and flow control

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

Power

Input Voltage
- Input: 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
- Per port 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
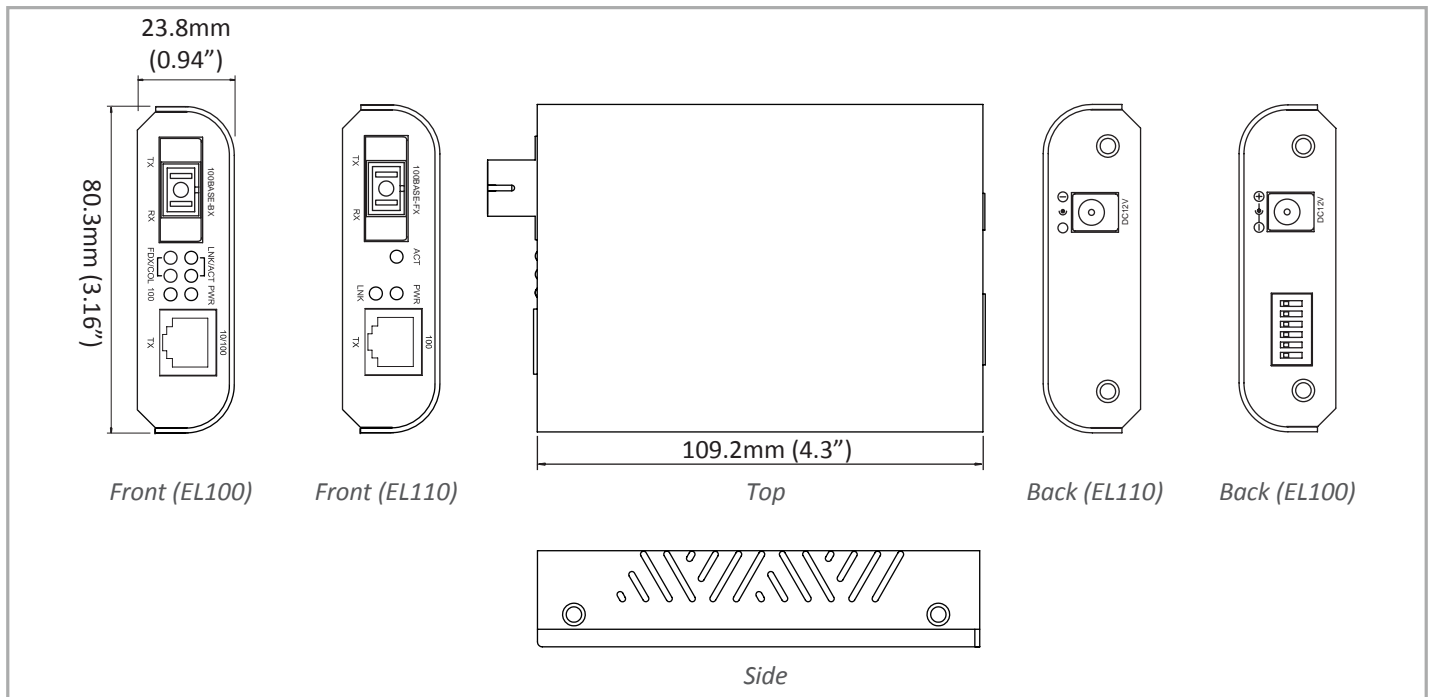- Manufactured in an ISO9001 facility
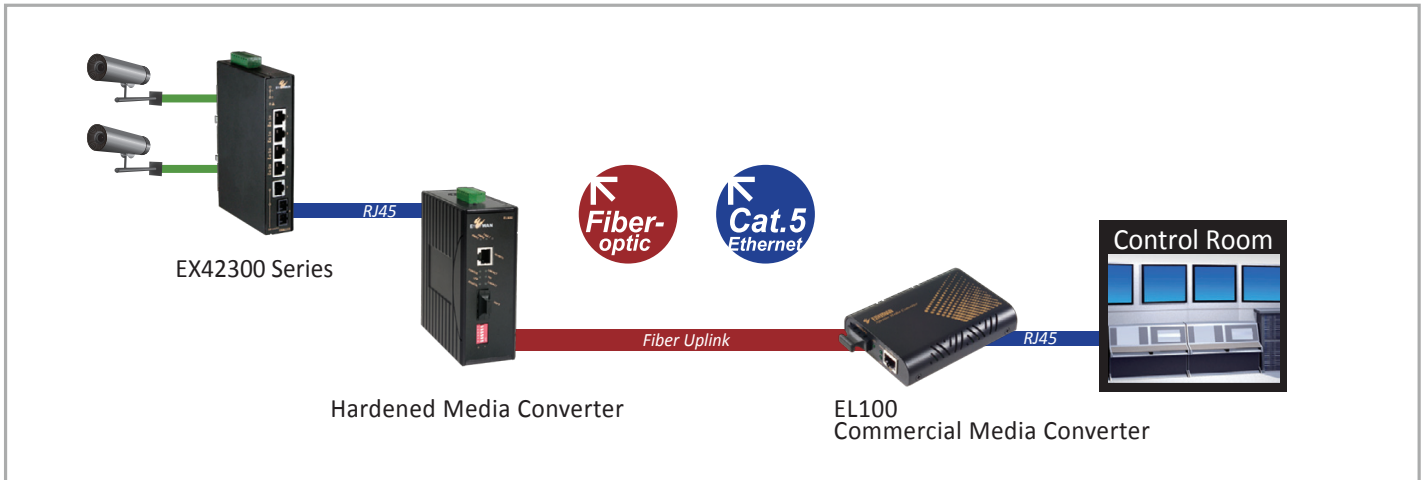
Safety

UL60950-1

Emission Compliance

CE Mark Class A

FCC Part 15B Class A

VCCI Class A

Dimensions

Front (EL100)　　Front (EL110)　　　　　Top　　　　　Back (EL110)　　Back (EL100)

Side

Application Diagram

EX42300 Series

Hardened Media Converter

Fiber-optic

Cat.5 Ethernet

RJ45

Fiber Uplink

RJ45

Control Room

EL100
Commercial Media Converter

Ordering Information

EL100 Series

EL100C	10/100BASE-TX to 100BASE-FX Multi Mode (SC) 2Km Media Converter (1310nm)
EL100T	10/100BASE-TX to 100BASE-FX Multi Mode (ST) 2Km Media Converter (1310nm)
EL100C-20	10/100BASE-TX to 100BASE-FX Single Mode (SC) -20Km Media Converter (1310nm)
EL100T-20	10/100BASE-TX to 100BASE-FX Single Mode (ST) -20Km Media Converter (1310nm)
EL100L-20	10/100BASE-TX to 100BASE-FX Single Mode (SFF Dual LC) -20Km Media Converter (1310nm)
EL100C-40	10/100BASE-TX to 100BASE-FX Single Mode (SC) -40Km Media Converter (1310nm)

EL110 Series

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 (1310nm)
EL110T-20	100BASE-TX to 100BASE-FX Single Mode (ST) -20Km Media Converter (1310nm)
EL110C-40	100BASE-TX to 100BASE-FX Single Mode (SC) -40Km Media Converter (1310nm)

NOTES :

*EMC1600, proprietary 19" chassis system, can house up to 16 x EL100/EL110 Series Converters
*EMC1600 Chassis System is available separately
*More 100FX fiber options are also available upon request

EL200 / EL210 Series

10/100BASE-TX to 100BASE-BX WDM Media Converter

Overview

The EL200 / EL210 Series provide media conversion between 10/100BASE-T(X) and 100BASE-FX Fiber. Easy plug-and-play design facilitates network infrastructure construction. Through DIP switch selection, Link-Fault-Pass-Through (LFPT) function can be active or disabled.

The EL200 / EL210 series is designed for WDM fiber connection applications. This commercial grade media converter supports EtherWAN EMC1600 chassis system for easy group installation. The EL200 / EL210 are the ideal media converter for enterprise environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **WDM Media Converter**
  - Supports multi-mode and single mode fiber line with WDM fiber port

- **DIP Switch Configurable**
  - Link-fault-pass-through enable or disable
  - Full-duplex or half-duplex of Ethernet port enable or disable
  - Full-duplex or half-duplex of fiber port enable or disable

- **Link-Fault-Pass-Through (LFPT)**
  - LFPT function let network operators be aware of network connection status
  - When fiber link is down, LFPT function will turn down Ethernet port to inform connected device that the link is down and vice versa

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x Full duplex and flow control

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

Power

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
- Per port 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
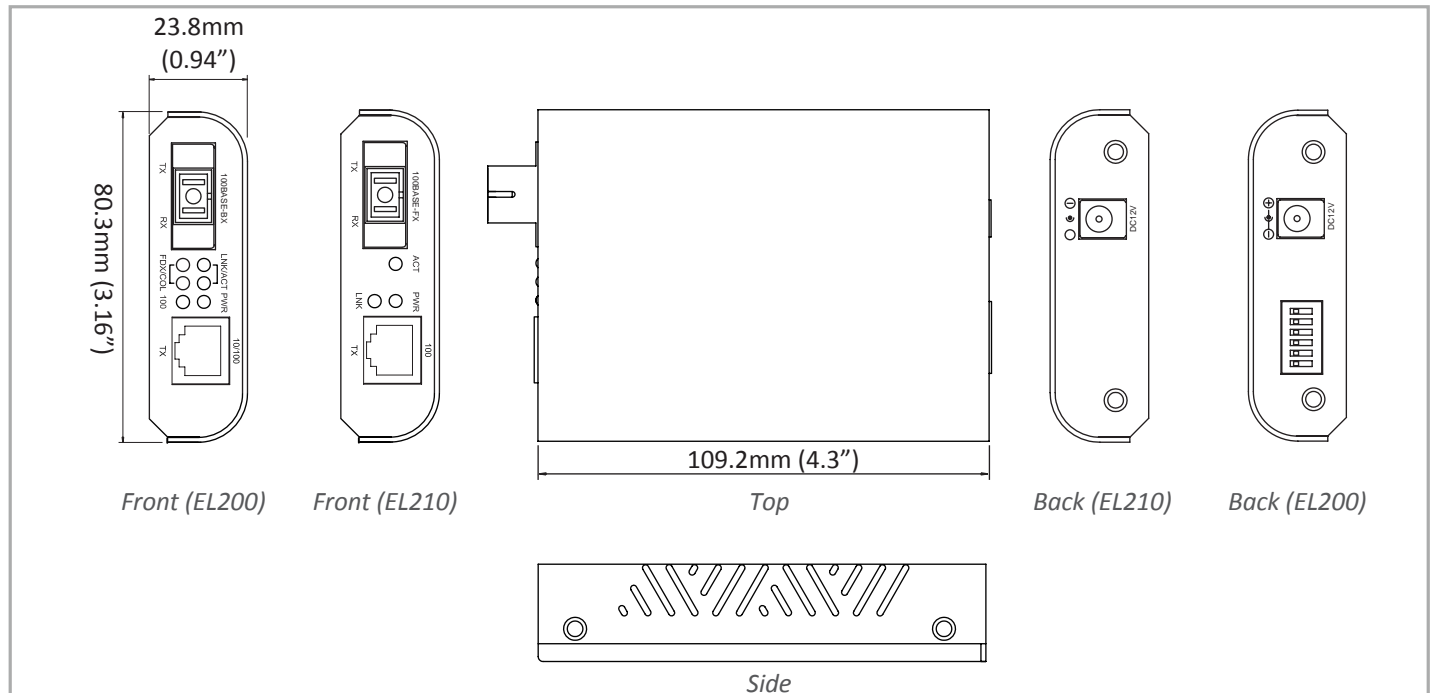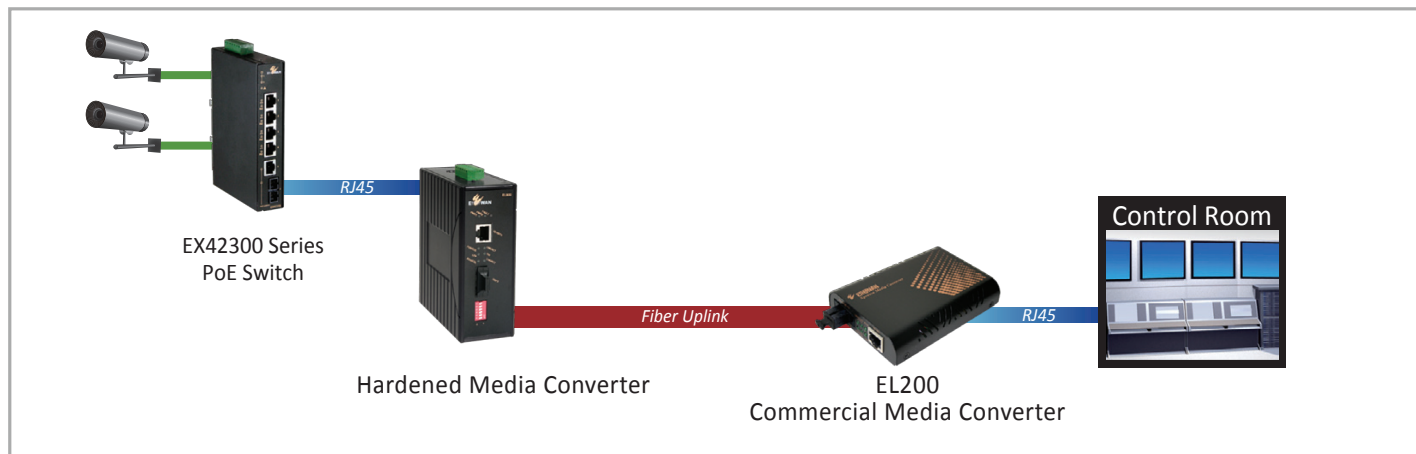
Emission Compliances
CE Mark Class A

FCC Part 15 Class A

VCCI Class A

Dimensions

Front (EL200)   Front (EL210)   Top   Back (EL210)   Back (EL200)

Side

23.8mm (0.94")

80.3mm (3.16")

109.2mm (4.3")

Application Diagram

EX42300 Series
PoE Switch

RJ45

Hardened Media Converter

Fiber Uplink

RJ45

EL200
Commercial Media Converter

Control Room

Ordering Information

EL200 Model

EL200CA-2	10/100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1310nm/RX:1550nm -2Km Media Converter
EL200CB-2	10/100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1550nm/RX:1310nm -2Km Media Converter
EL200CA-5	10/100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1310nm/RX:1550nm -5Km Media Converter
EL200CB-5	10/100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1550nm/RX:1310nm -5Km Media Converter
EL200CA-20	10/100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EL200CB-20	10/100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EL200CA-40	10/100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EL200CB-40	10/100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter

EL210 Model

EL210CA-2	100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1310nm/RX:1550nm -2Km Media Converter
EL210CB-2	100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1550nm/RX:1310nm -2Km Media Converter
EL210CA-5	100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1310nm/RX:1550nm -5Km Media Converter
EL210CB-5	100BASE-TX to 100BASE-BX Multi Mode (SC) WDM -TX:1550nm/RX:1310nm -5Km Media Converter
EL210CA-20	100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -20Km Media Converter
EL210CB-20	100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -20Km Media Converter
EL210CA-40	100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1310nm/RX:1550nm -40Km Media Converter
EL210CB-40	100BASE-TX to 100BASE-BX Single Mode (SC) WDM -TX:1550nm/RX:1310nm -40Km Media Converter

NOTES :

*EMC1600, proprietary 19" chassis system, can house up to 16 x EL200/EL210 Series Converters
*EMC1600 Chassis System is available separately
*More 100FX fiber options are also available upon request

EL900 Series

Hardened 10/100BASE-TX to 100BASE-FX Media Converter

Overview

The EL900 Series provides media conversion between 10/100BASE-T and 100BASE-SX-LX Fiber. Built specifically for mission-critical applications in harsh environments, the EL900's hardened design features high shock & vibration resistance, electrical noise immunity, wide operating temperature range from -40°C to 75°C, and ruggedized aluminum housing. With triple power inputs, link down alarming, Link-Fault-Pass-Through and a wide range of fiber connectivity options, the EL900 is the ideal media converter for harsh environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **ISA12.12.01 Certification**
  - Highly qualified for explosive environmental applications and certified by UL with ISA12.12.01 Class I, Division 2 classified for use in hazardous locations

- **Wide Operating Temperature**
  - -40°C to 75°C wide operating temperature range design is suitable for installation in outdoor cabinet

- **Link-Fault-Pass-Through (LFPT)**
  - LFPT function let network operators be aware of network connection status
  - When fiber link is down, LFPT function will turn down Ethernet port to inform connected device that the link is down and vise versa

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX and 100BASE-FX
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory
- 128K bits

Processing Type
- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Power

Input Voltage
- 10 to 48VDC (DC Terminal Block)
- 12VDC (DC Jack) or 24VAC, 0.185A (AC Terminal Block)

Power Consumption
- 4.32W MAX. 0.36A @ 12VDC, 0.09A @ 48VDC

Protection
- Overload current protection
- Reverse polarity protection

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, or Rack mounting

Interface

Ethernet Port
- 10/100BASE-TX: 1 port
- 100BASE-FX: 1 port

LED Indicators
- Per Unit: Power, LFPT
- Per 10/100TX Port: Link/Activity, Full-duplex/Collision, Speed
- Per 100FX port: Link/Activity, Full-duplex/Collision

Relay Contact
- Relay contact rating with current 1A @ 30VDC, 0.5A @ 120VAC

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

ISA12.12.01
- Class 1, Division 2 group A, B, C &D for hazardous locations

UL60950-1

EN60950-1

IEC60950-1

EMI

FCC Part 15B, Class A

EN61000-6-3

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method 5007.1 (Free fall w/ package)

NEMA TS1/2
- Environmental requirements for traffic control equipment

Application Diagram

EX42200 Series

RJ45

EL900
Hardened Media Converter

Fiber Uplink

Fiber-optic

Cat.5 Ethernet

Commercial Media Converter

RJ45

Control Room

Dimensions

Top (AC TERMINAL BLOCK)

Top (DC TERMINAL BLOCK)

Top (DC JACK)

50mm (1.97")

135mm (5.31")

Front

Side

Back

110mm (4.33")

Bottom
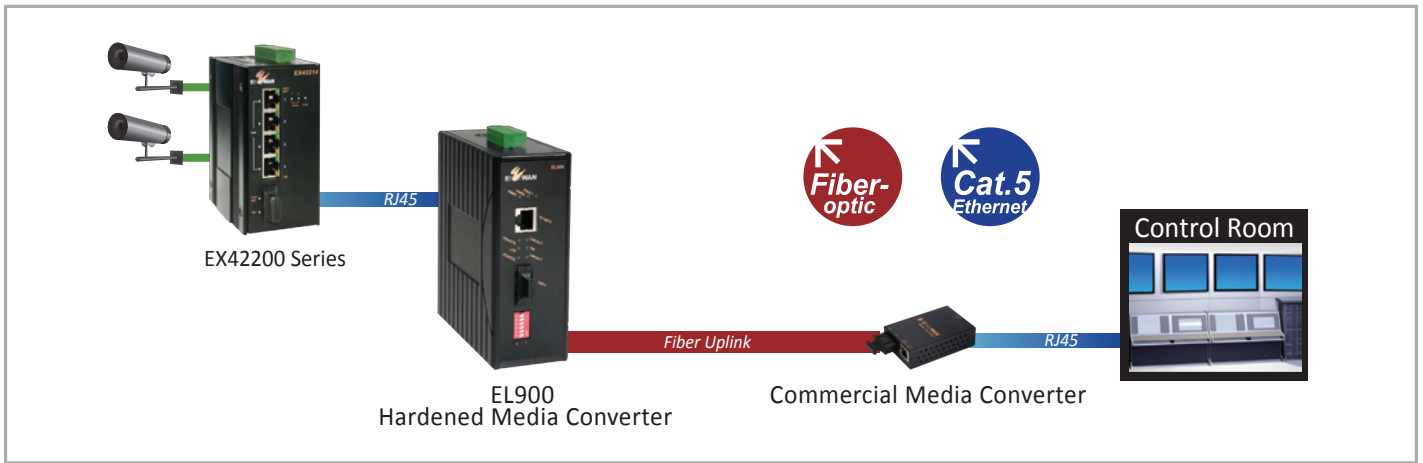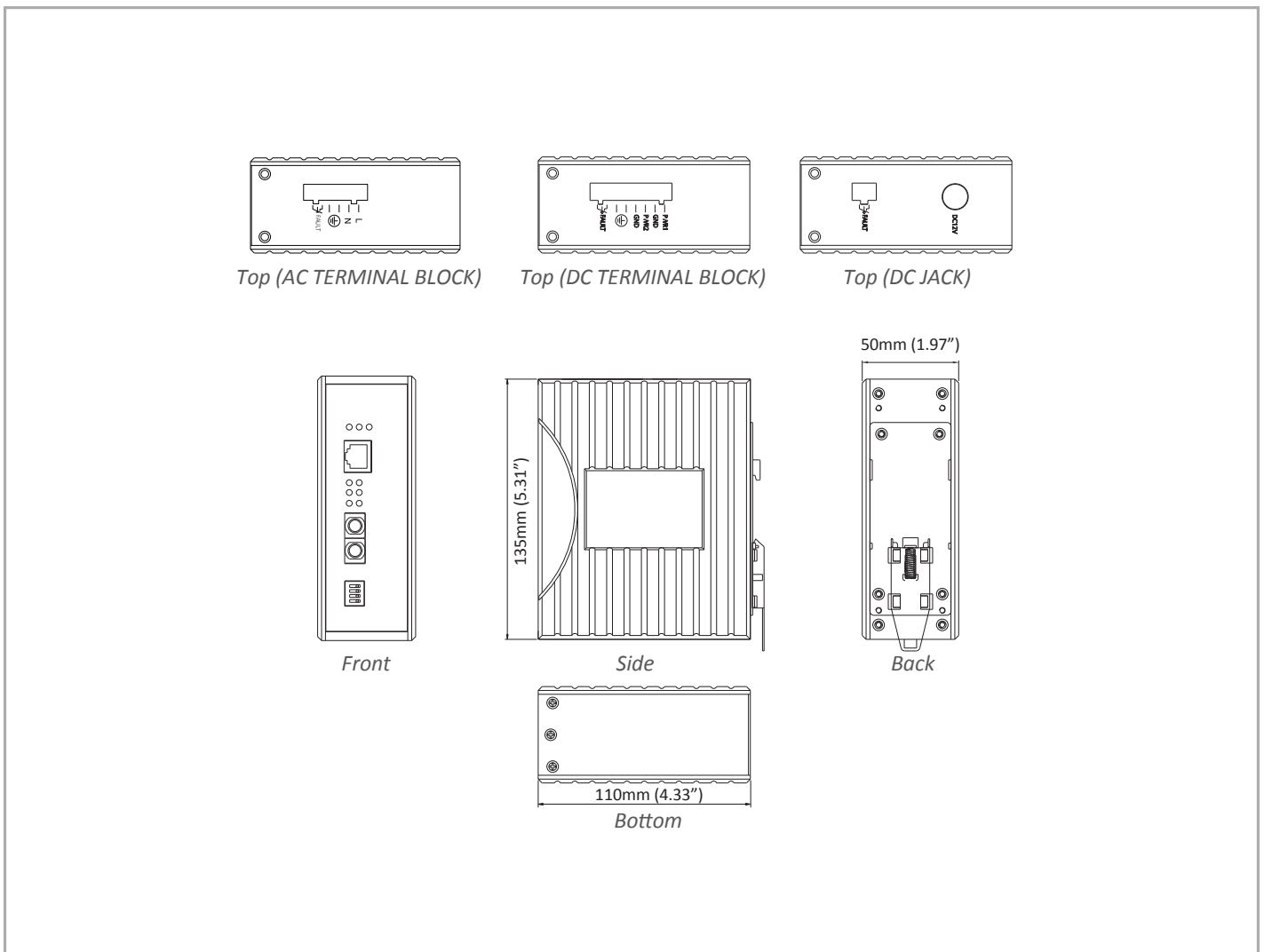
Ordering Information

Model

EL900-A-Y-1-P	Hardened 10/100BASE-TX to 100BASE-FX Media Converter

* DIN-Rail mounting kit included

100FX Fiber Options (Y)

B	Multi Mode (SC) - 2Km (1310nm)
C	Multi Mode (ST) - 2Km (1310nm)
D	Multi Mode (SC) WDM -TX:1310nm/RX:1550nm - 2Km
E	Multi Mode (SC) WDM -TX:1550nm/RX:1310nm - 2Km
F	Multi Mode (SC) WDM-TX:1310nm/RX:1550nm - 5Km
G	Multi Mode (SC) WDM-TX:1550nm/RX:1310nm - 5Km
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
M	Single Mode (ST) - 20Km (1310nm)
N	Single Mode (SC) - 20Km (1310nm)
O	Single Mode (SC) - 40Km (1310nm)

Power Connector Options (P)

A	DC Terminal Block
B	DC Jack
C	24VAC Terminal Block

Optional Accessories

KP-AA96-480	Panel mounting Kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (Optional, For Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (Optional, For Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (Optional, For Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (Optional, For Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (Optional, For Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC jack in aluminum housing (Optional, For DC Jack); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EL1032T Series

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

Overview

The EL1032T Series provides media conversion between 10/100BASE-T(X) and 100BASE-FX Fiber. Through DIP switch selection, Link-Fault-Pass-Through (LFPT) function can be active or disabled. EL1032T supports IEEE802.3at PoE/PSE standard and can transmit power and data over one RJ45 cable. The EL1032T's industrial design features high shock/vibration resistance, electrical noise immunity and a wide operating temperature range from -10°C to 60°C. EL1032T is the ideal media converter for industrial environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **Power over Ethernet**
  ◦ Supports IEEE802.3at PoE/PSE standard and IEEE802.3af PoE/PSE compatible

- **Dual Power Interfaces**
  ◦ Supports both terminal block and DC jack for power input selections

- **Industrial operating temperature range**
  ◦ From -10°C to 60°C, wide operating temperature is suitable for outdoor cabinet installation

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/FX
- IEEE802.3af/at PoE/PSE

Forward and Filtering Rate
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory
- 228Kb

Processing Type
- Store-and-Forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Power

Input Voltage
- 48 to 57VDC

Power Consumption
- Device: Max. 3.6W (without PoE)
- PoE power budget: 30W Max. (depends on power input)

PoE Power Output
- IEEE802.3at: up to 30W/port, 50-57VDC, 500mA Max.

Protection
- Overload current protection
- Reverse polarity protection

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 (top hat type 35mm), Panel, or Wall mounting

Interface

Ethernet Port
- 10/100BASE-TX: 1 port
- 100BASE-FX: 1 port

LED Indicators
- Per Unit: Power
- Per 10/100TX Port : Link/ACT, full-duplex/collision
- Per 100FX Port : Link/ACT
- PoE: PD connect/PD disconnect

Environment

Operating Temperature
- -10°C to 60°C (14°F to 140°F)
  Tested @ -20°C to 70°C (-4°F to 158°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

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
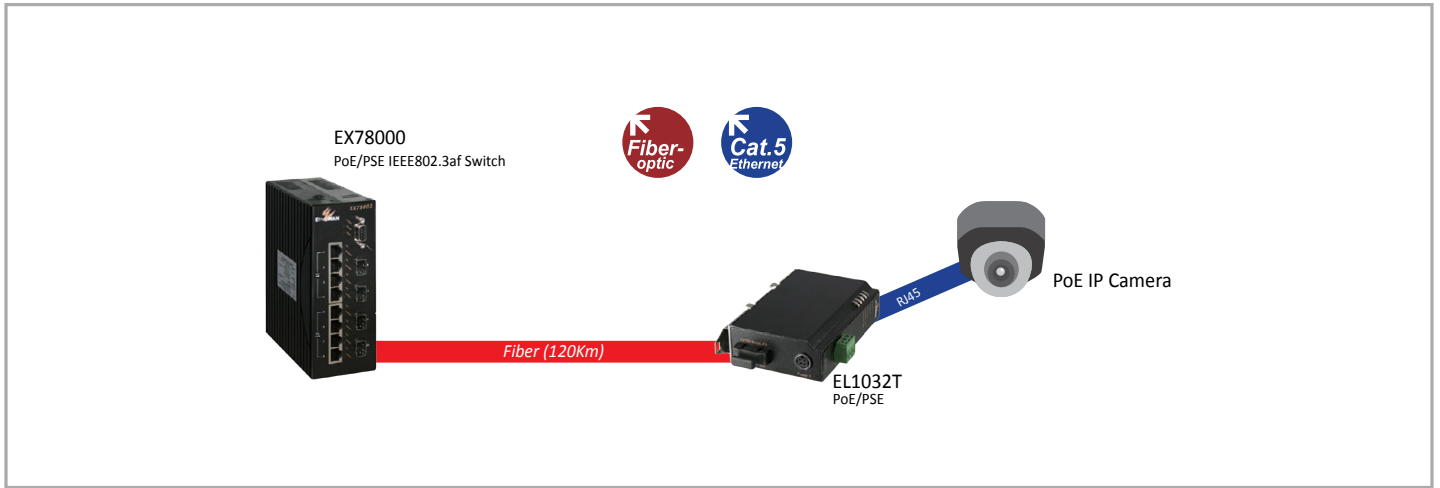- EN61000-4-8 (Magnetic Field Standards)

Envronmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method5007.1 (Free fall w/ package)

Application Diagram

EX78000
PoE/PSE IEEE802.3af Switch

Fiber-optic

Cat.5 Ethernet

PoE IP Camera

RJ45

Fiber (120Km)

EL1032T
PoE/PSE

Dimensions

30mm (1.18")

Front

70mm (2.76")

Left Side

110mm (4.33")

Top

Right Side

Bottom
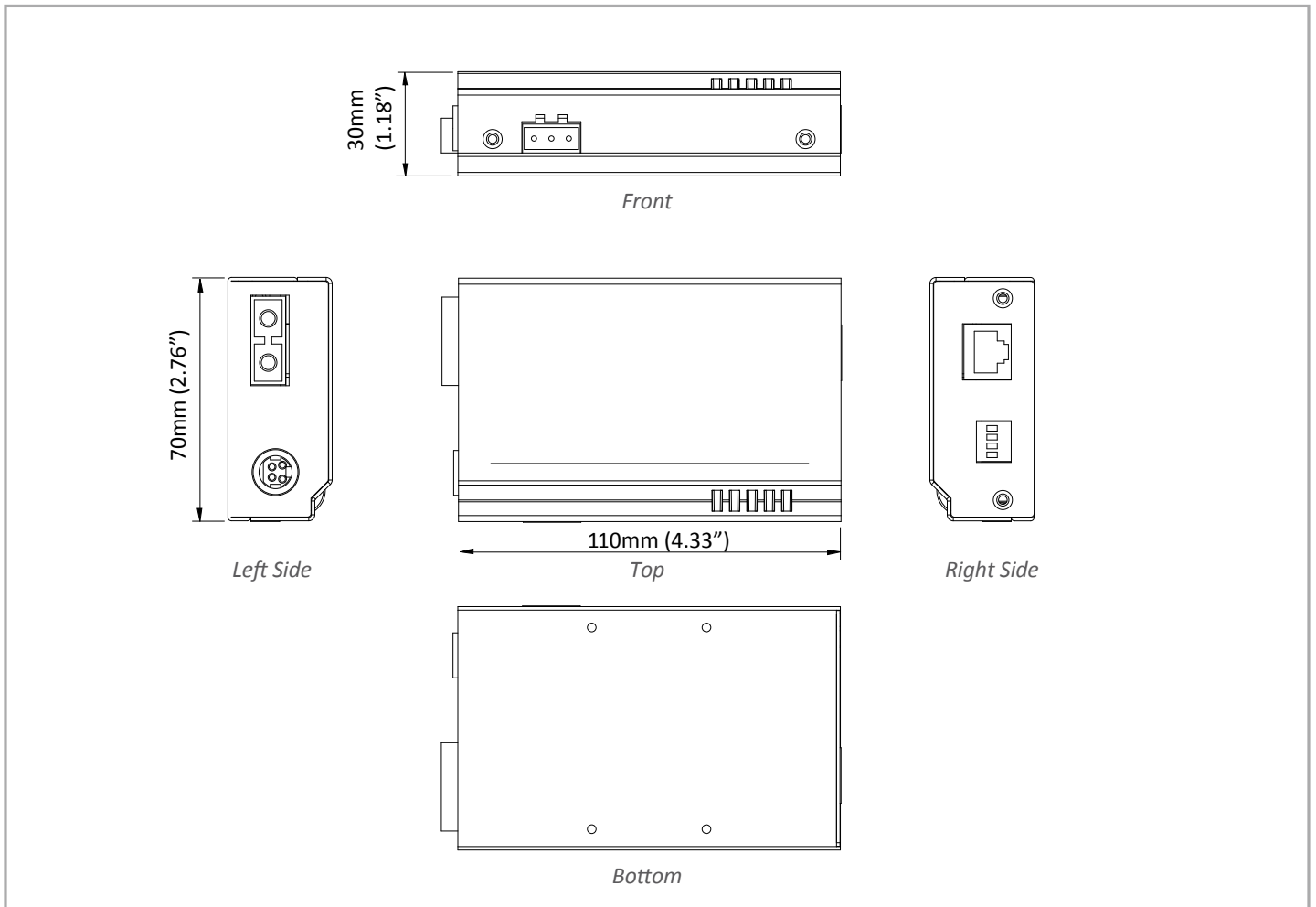
Ordering Information

Model

EL1032T-X0B	Industrial 10/100BASE-TX to 100BASE-FX media converter with IEEE802.3af 15.4W and IEEE802.3at 30W PoE/PSE

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC)
2	Multi Mode (ST)
A	Single Mode (SC) - 20Km (1310nm)
B	Single Mode (SC) - 40Km (1310nm)
H	Single Mode (ST) - 20Km (1310nm)
6	Multi Mode (SC) WDM -TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM -TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM -TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM -TX:1550nm/RX:1310nm - 5Km
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

Optional Accessories

DR-75-48	75W/1.6A DIN-Rail 48VDC Industrial Power Supply (for terminal block)
MDR-40-48	40W/0.83A 48VDC Industrial Power Supply (for terminal block)
DD-85-48	85W/1.78A 48VDC industrial Power Supply (for terminal block)
DD-85-55	85W/1.78A 55VDC Industrial Power Supply (for terminal block)
GS120A-48	120W/2.5A 48VDC Power Adapter with latched DC jack in plastic housing (for DC jack)

EL1032T

EL1141 Series

IEC61850/IEEE1613 Hardened 10/100BASE-TX to 100BASE-FX Media Converter

Overview

The EL1141 Series provides media conversion between 10/100BASE-T and 100BASE-SX-LX Fiber. Built specifically for mission-critical applications in harsh environments, the EL1141's hardened design features high shock & vibration resistance, electrical noise immunity, wide operating temperature range from -40°C to 75°C, and ruggedized aluminum housing. The EL1141 passes IEC61850-3/IEEE1613 certifications and is suitable for power substation applications. With triple power inputs, link down alarming, Link-Fault-Pass-Through and a wide range of fiber connectivity options the EL1141 is the ideal media converter for harsh environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **IEC61850-3/IEEE1613 Certification**
  - Specific design for power automation applications

- **EN50121-4 Certification**
  - Specific design for railway environment application

- **Wide Operating Temperature**
  - -40°C to 75°C wide operating temperature range design is suitable for installation in outdoor cabinets

- **Link-Fault-Pass-Through (LFPT)**
  - LFPT function let network operators be aware of network connection status
  - When fiber link is sown, LFPT function will turn down Ethernet port to inform connected device that the link is down and vise versa

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/FX
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps

Packet Buffer Memory
- 128K bits

Processing Type
- Store-and-forward
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Power

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

Power Consumption
- 2.4W MAX. 0.2A @ 12VDC, 0.05A @ 48VDC

Protection
- Overload current protection
- Reverse polarity protection

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, or Rack mounting

Interface

Ethernet Port
- 10/100BASE-TX: 1 port
- 100BASE-FX: 1 port

LED Indicators
- Per Unit: Power 1, Power 2, Fault, Link-Fault-Pass-Through
- Per port 10/100TX: Link/Activity, Full-duplex/Collision, Speed
- Per port 100FX: Link/Activity, Full-duplex/Collision

Relay Contact
- Relay contact rating with current 1A @ 30VDC, 0.5A @ 120VAC

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

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)
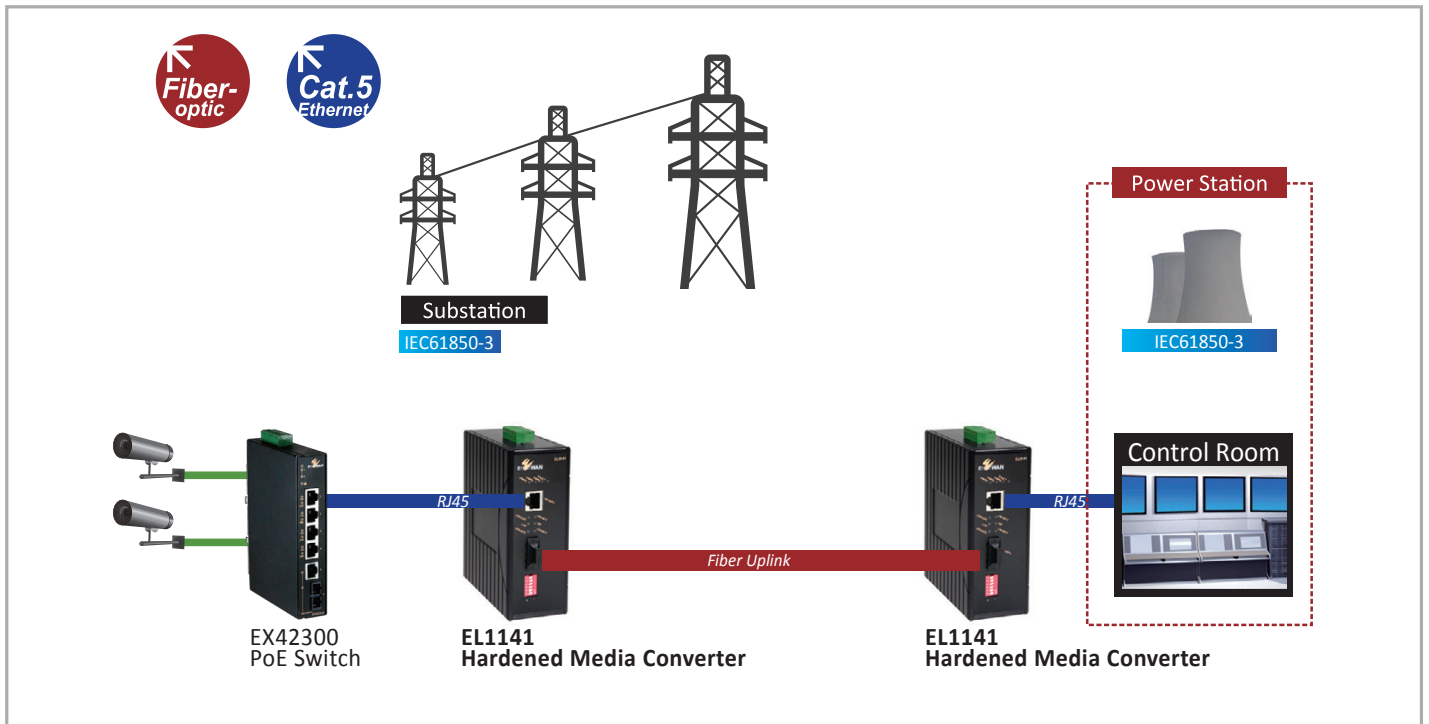
FED STD 101C Method 5007.1 (Free fall w/ package)
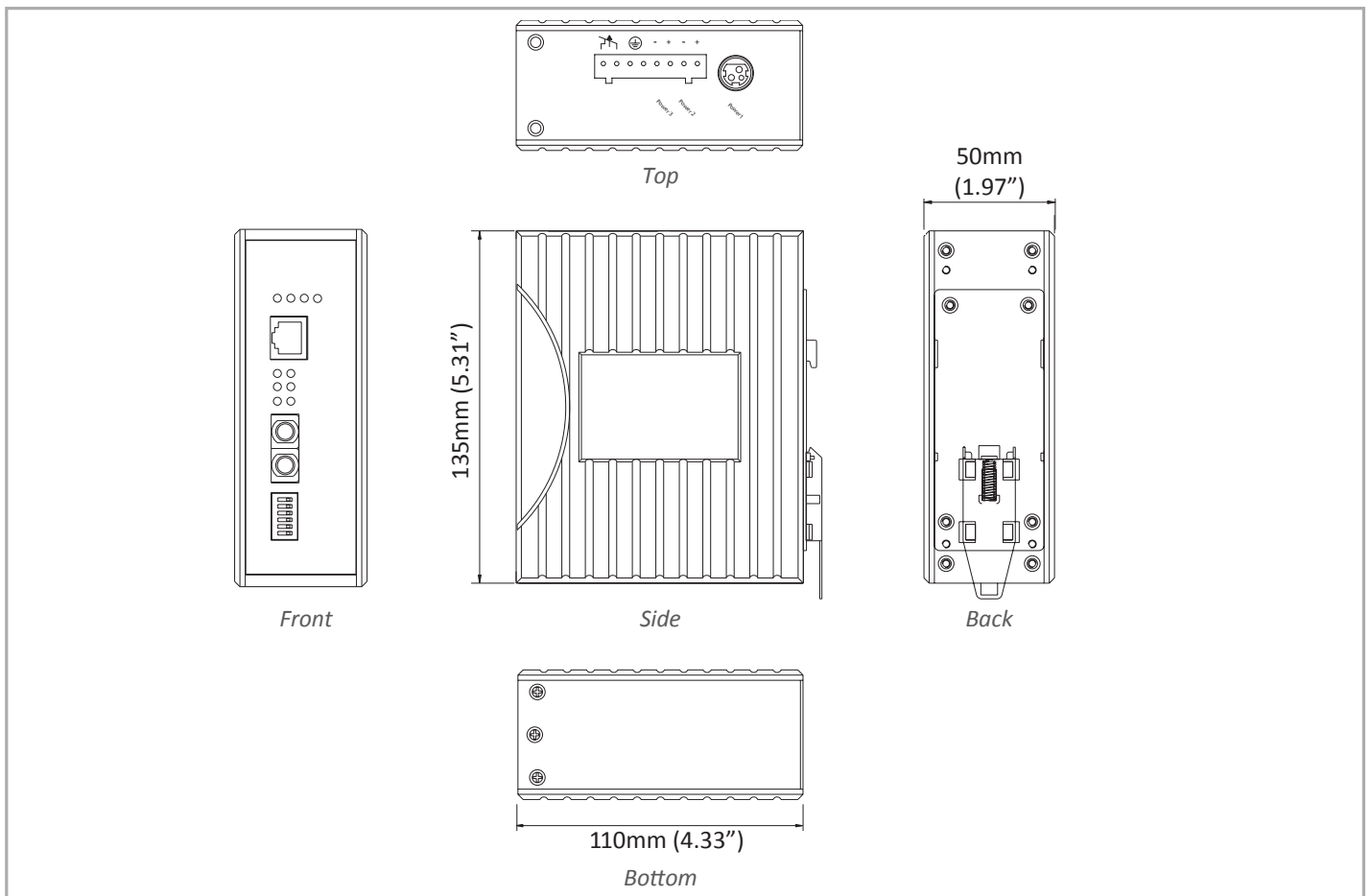
EMS

IEC61850-3 / IEEE1613

EN50121-4

NEMA TS2

Application Diagram

Fiber-optic

Cat.5 Ethernet

Substation
IEC61850-3

Power Station

IEC61850-3

Control Room

EX42300
PoE Switch

RJ45

EL1141
Hardened Media Converter

Fiber Uplink

EL1141
Hardened Media Converter

RJ45

Dimensions

Top

Front

135mm (5.31")

Side

50mm
(1.97")

Back

110mm (4.33")

Bottom

Ordering Information

Model

EL1141-X0B	10/100BASE-TX to 100BASE-FX Hardened Media Converter

* DIN-Rail mounting kit included

100FX Fiber Options (X)

1	Multi Mode (SC) - 2Km (1310nm
2	Multi Mode (ST) - 2Km (1310nm)
A	Single Mode (SC) - 20Km (1310nm)
B	Single Mode (SC) - 40Km (1310nm)
H	Single Mode (ST) - 20Km (1310nm)
6	Multi Mode (SC) WDM -TX:1310nm/RX:1550nm - 2Km
7	Multi Mode (SC) WDM -TX:1550nm/RX:1310nm - 2Km
8	Multi Mode (SC) WDM -TX:1310nm/RX:1550nm - 5Km
9	Multi Mode (SC) WDM -TX:1550nm/RX:1310nm - 5Km
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

Optional Accessories

KP-AA96-480	Panel mounting kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (For Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EL2242

Hardened PoE 10/100/1000BASE-T to 100/1000BASE Dual Rate Media Converter

Overview

The EL2242 provides media conversion between 10/100/1000BASE-T(X) and 100/1000 BASE SFP fiber. Through DIP switch selection, Link-Fault-Pass-Through (LFPT) function can be enabled or disabled. EL2242 supports IEEE802.3at PoE/PSE standard and can transmit power and data over one STP cable. The EL2242's hardened design features high shock and vibration, electrical noise immunity and a wide operating temperature range from -40°C to 75°C. EL2242 is the ideal media converter for harsh environments.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **Power over Ethernet**
  - Supports IEEE802.3at PoE/PSE standard

- **Hardened operating temperature range**
  - From -40°C to 75°C, wide operating temperature is suitable for outdoor cabinet installation

- **Dual Rate Optic Port**
  - SFP fiber optic port supports 100/1000BASE-X

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/FX
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3ab 1000BASE-T
- IEEE802.3at PoE/PSE

Forward and Filtering Rate
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Processing Type
- Cut-through mode
- Auto Negotiation
- Half-duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto MDI/MDIX

Power

Input Voltage
- 48 to 57VDC

Power Consumption
- Device: Max. 3.5W without PoE
- PoE power budget: 30W Max. (depends on power input)

PoE Power Output
- IEEE802.3at: up to 30W/port, 50-57VDC, 500mA Max.

Protection
- Overload current protection
- Reverse polarity protection

Mechanical

Casing
- Aluminum Case

Dimensions
- 42mm (W) x 90mm (D) x 100mm (H)
  (1.65" (W) x 3.54" (D) x 3.94" (H))

Weight
- 380g (0.83 lbs)

Installation
- DIN-Rail (top hat type 35mm)

Interface

Ethernet Port
- 10/100/1000BASE-TX: 1 port
- 100/1000BASE-SFP: 1 port

LED Indicators
- Per Unit: Power1, Power2 , Power Alarm
- Per 10/100/1000BASE-TX Port: 1000, 10/100, Link/Act
- Per 100/1000BASE-FX Port: 1000, 100, Link/Act
- PoE: On/Off
- LFPT: On/Off

Environment

Operating Temperature
- -40°C to 75°C (-40°F to 167°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

UL60950-1, IEC60950-1, EN60950-1

EMI

FCC Part 15B, Class A

VCCI, Class A

EN61000-6-4

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
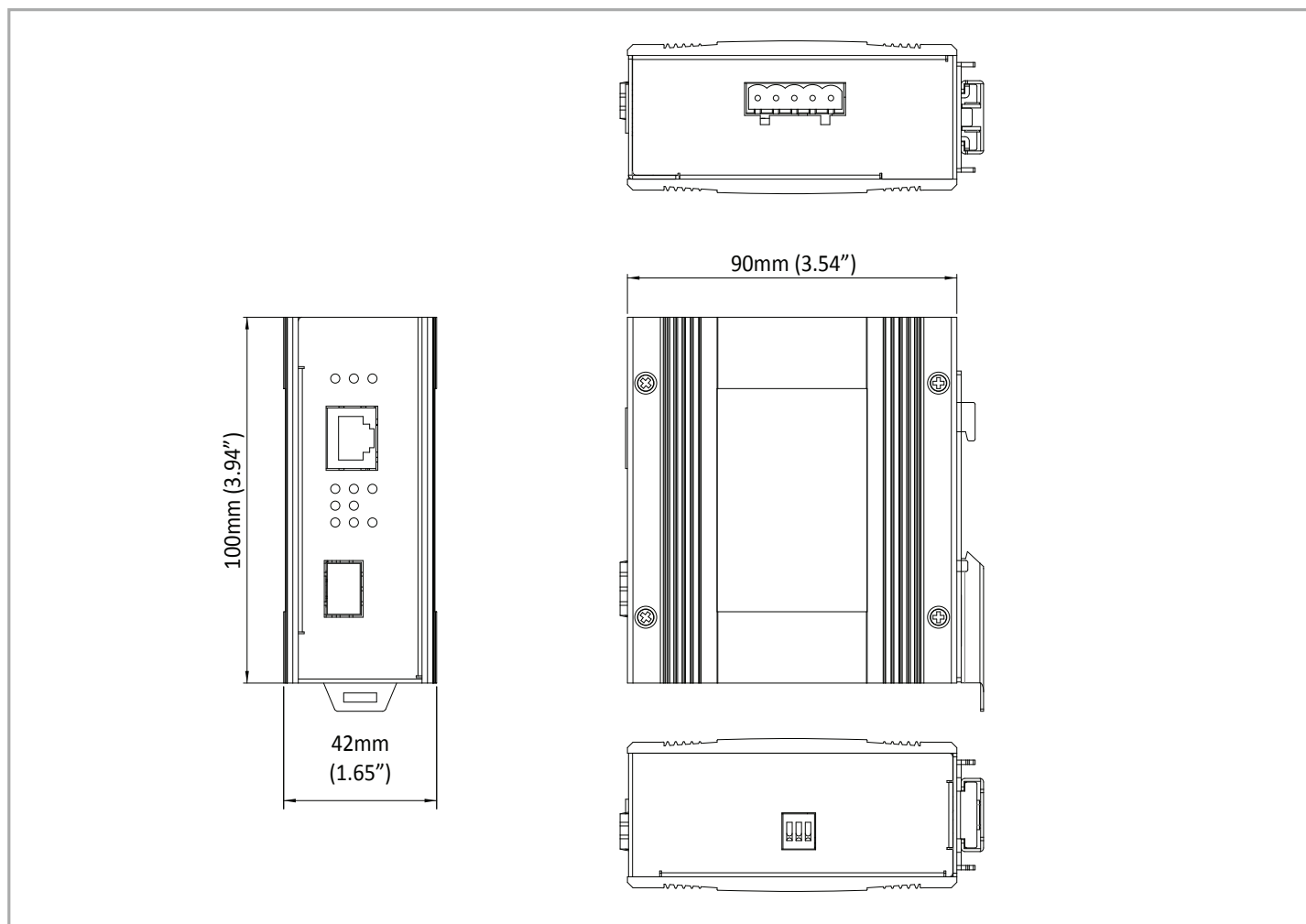- EN61000-4-8 (Magnetic Field Standards)

Envronmental Test Compliance

IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

FED STD 101C Method5007.1 (Free fall w/ package)

Dimensions

90mm (3.54")

100mm (3.94")

42mm (1.65")

Ordering Information

Model

EL2242-V1B	Hardened PoE 10/100/1000BASE-T to 100/1000BASE Dual Rate Media Converter

* DIN-Rail mounting kit included

1000BASE-X Fiber Options (X)

V	100/1000BASE-X SFP

Optional Accessories

DR-75-48	75W/1.6A DIN-Rail 48VDC Industrial Power Supply (for terminal block)
MDR-40-48	40W/0.83A 48VDC Industrial Power Supply (for terminal block)
DD-85-48	85W/1.78A 48VDC industrial Power Supply (for terminal block)
DD-85-55	85W/1.78A 55VDC Industrial Power Supply (for terminal block)

EL2321 Series

Managed 10/100/1000BASE-TX to 100BASE/1000BASE-X Dual Rate Media Converter

Overview

The EL2321 Series provides media conversion between "10/100/1000BASE-TX" and "100BASE/1000BASE-SX-LX Fiber or 100/1000BASE-SFP Fiber." The EL2321's fiber design is compatible to 100BASE fiber or 1000BASE fiber transceiver.

The EL2321 managed media converter supports Telnet, SNMP v1/v2, and web browser management enabling value-added connectivity and bandwidth control. Key features include; 802.3ah OAM compliance, VLAN tagging, broadcast storm protection, Far-End-Fault, and Link-Fault-Pass-Through resulting in reliable communications between networks. With link down alarming and a wide range of fiber connectivity options the EL2321 is the ideal media converter for environments where connectivity is variable.

Spotlight

- **Gigabit Connectivity**
  - Auto 10/100/1000BASE-TX and 1000BASE-SX/LX/BX Ethernet transmission conversion
  - 1000Mbps Full duplex, 10/100MBps Full/Half duplex
  - Fiber interface supports dual rate 100BASE-FX and 1000BASE-SX/LX fiber transmission

- **Managed Functions**
  - Supports IEEE802.3ah OAM standards
  - Supports SNMPv1, SNMPv2
  - Supports bandwidth control and VLAN base priority tag

- **Supports Dying Gasp**
  - Sends SNMP trap for device failure report

Software Features

Management

- Interface
  - Web Browser
  - SNMP v1/v2c
- Firmware and configuration upgrade and backup via TFTP
- Supports DHCP Server/Client

Security

- MAC Address by port security
- Enable/disable port
- Storm control (broadcast and multicast types)
- IEEE802.1x LAN access control
- SSL for web security

Quality of Service (QoS)

- Priority Queues: 4 queues per port
- Traffic classification based on IEEE802.1p CoS, DSCP, WRR (Weighted round robin)
- Rate Limiting (Ingress/Egress)

Layer 2 Features

- Auto-negotiation for port speed and duplex mode
- Flow Control
  - IEEE802.3x full duplex mode
  - Back-Pressure half duplex mode
- VLANs
  - Port-based VLANs
  - IEEE802.1Q Tag VLANs (4096 VID)
  - GVRP (GARP VLAN Registration Protocol)
  - GMRP (GARP Multicast Registration Protocol)
- IGMP Snooping
  - IGMP snooping v1/v2/v3

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX/100BASE-FX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate
- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps

Processing Type
- Store-and-Forward
- Auto Negotiation
- Half duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto-MDI/MDIX

Power Input
- Input Voltage: 12VDC

Power Consumption
- 3W Max. 0.23A @ 12VDC

Mechanical

Casing
- Metal Case
- IP30

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 (0.336lbs.)

Installation
- Wall mounting

Interface

Ethernet Port
- 10/100/1000BASE-TX: 1 port
- 100BASE/1000BASE-SX-LX or 100/1000BASE SFP slot: 1 port

LED Indicators
- Per Unit: Power Status, OAM loop
- Per Port: TX Speed, Link/Activity, Full-duplex

Environment

Operating Temperature
- 0°C to 50°C (32°F to 121°F)

Storage Temperature
- -20°C to 70°C (-4°F to 158°F)

Ambient Relative Humidity
- 5% to 95% (non-condensing)

Regulatory Approvals
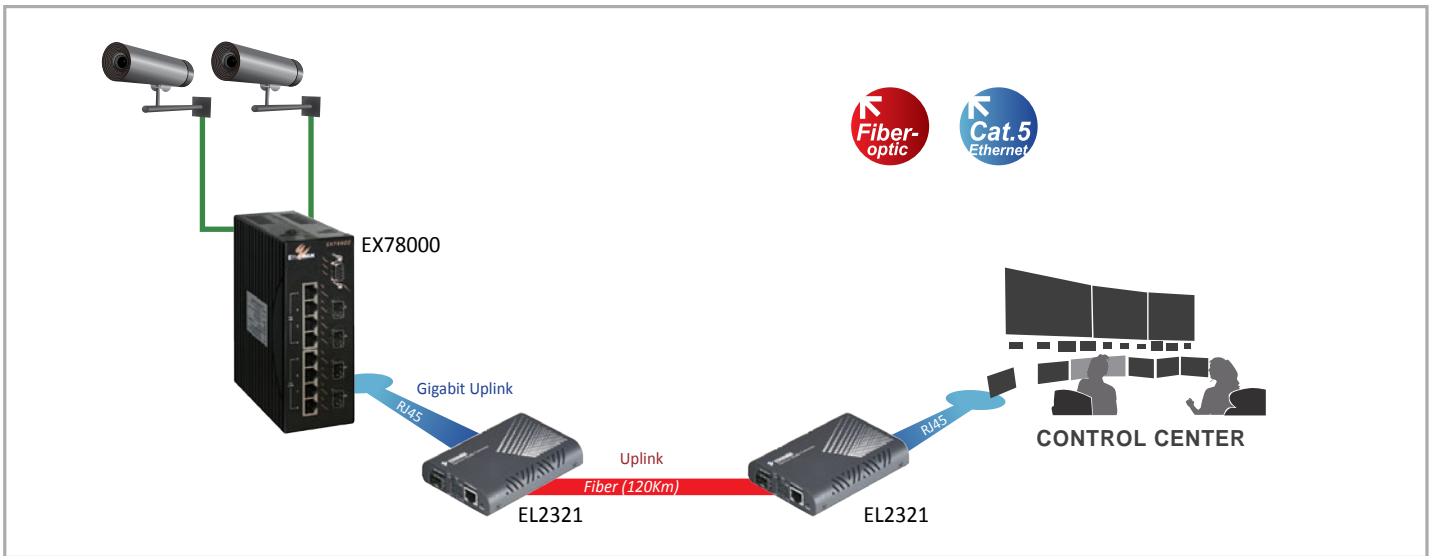
ISO
- Manufactured in an ISO9001 facility
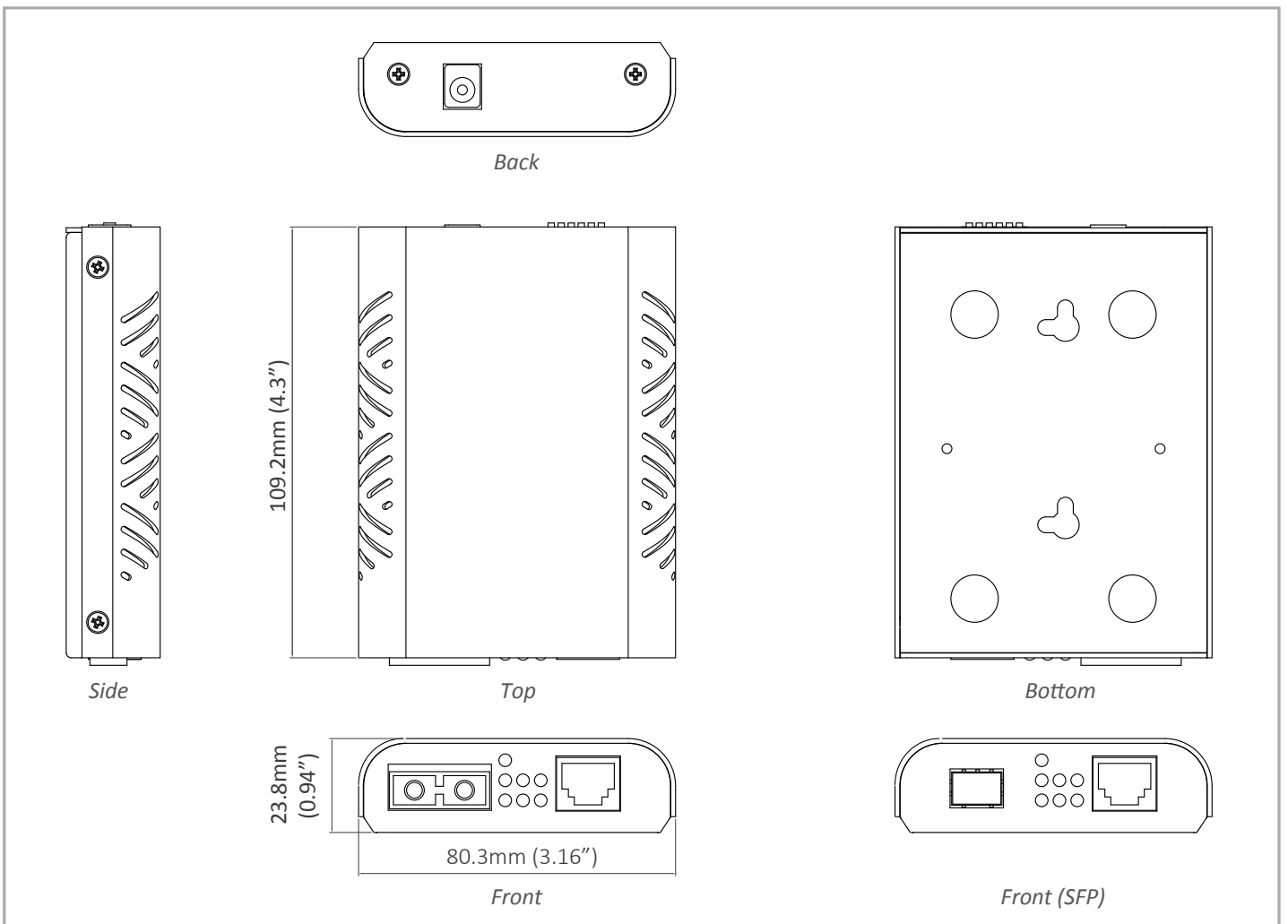
Emission Compliances

CE Mark Class A

FCC Part 15B Class A

VCCI Class A

Application Diagram

EX78000

Gigabit Uplink

RJ45

Fiber-optic

Cat.5 Ethernet

Uplink

Fiber (120Km)

EL2321

EL2321

RJ45

CONTROL CENTER

Dimensions

Back

109.2mm (4.3")

Side

Top

Bottom

23.8mm (0.94")

80.3mm (3.16")

Front

Front (SFP)

Ordering Information

Model

EL2321-X1Z	Managed 10/100/1000BASE-TX to 100BASE/1000BASE-X Dual Rate Media Converter

Gigabit Port Options (X)

3	1000BASE-SX (SC) - 550m (850nm)
4	1000BASE-SX (SC) - 2Km (1310nm)
5	1000BASE-SX (ST) - 550Km (850nm)
A	1000BASE-LX (SC) - 10Km (1310nm)
B	1000BASE-LX (SC) - 20Km (1310nm)
E	1000BASE-LX (SC) - 40Km (1310nm)
R	1000BASE-BX (SC) WDM –TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM –TX:1550nm/RX:1310nm - 20Km
V	100/1000BASE SFP

Power Adapter Options (Z)

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
3C	with external power adapter for China

EL9020 Series

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

EtherWAN

UL508 NEMA TS2 SFP Option Wide Temp

Overview

The EL9020 Series provides media conversion between 10/100/1000BASE-TX and 1000BASE SFP Fiber. Built specifically for mission-critical applications in harsh environments, the EL9020's hardened design features high shock & vibration resistance, electrical noise immunity, wide operating temperature range from -40°C to 75°C, and ruggedized aluminum housing. With triple power inputs, link down alarming, Link-Fault-Pass-Through and a wide range of fiber connectivity options the EL9020 is the ideal media converter for environments where connectivity is crucial.

Spotlight

- **Gigabit Connectivity**
  - ◦ Auto 10/100/1000BASE-TX and 1000BASE-SX/LX/BX Ethernet transmission conversion
  - ◦ 1000Mbps Full duplex, 10/100MBps Full/Half duplex
  - ◦ SFP socket flexible for Gigabit fiber optic expansion

- **UL508 Certification**
  - ◦ Specific design for industrial communication applications with UL508 safety certification

- **Wide Operating Temperature**
  - ◦ -40°C to 75°C wide operating temperature range design is suitable for installation in outdoor cabinet

Hardware Specifications

Technology

Standards
- IEEE802.3, 10BASE-T
- IEEE802.3u 100BASE-TX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x Full duplex and flow control

Forward and Filtering Rate
- 1,488,100pps for 1000Mbps

Processing Type
- Auto Negotiation
- Half duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto-MDI/MDIX

Power

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

Power Consumption
- 7.68W Max, 0.16A @ 48VDC

Protection
- Overload current protection
- Reverse polarity protection

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, or Rack mounting

Interface

Ethernet Port
- 10/100/1000BASE-TX: 1 port
- Gigabit SFP: 1 port

LED Indicators
- Per Unit: Power1
            Power2
            Power3
            Fault
            LFPT
- Per 10/100/1000TX Port : Link/Act
                           100M
                           1000M
                           Full-duplex/Collision
- Per Gigabit SFP Port : Link/Act

DIP Switch
- No.1: LFPT on/off
- No.2: Alarm for copper port on/off
- No.3: Alarm for fiber port on/off
- No.4: Auto-negotiation for fiber port on/off

Alarm Contact
- Relay contact rating with current 1A @ 30VDC,0.5A @ 120VAC

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

EMI

FCC Part 15B, Class A

EN61000-6-3

EN55022

EN61000-3-2

EN61000-3-3

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance
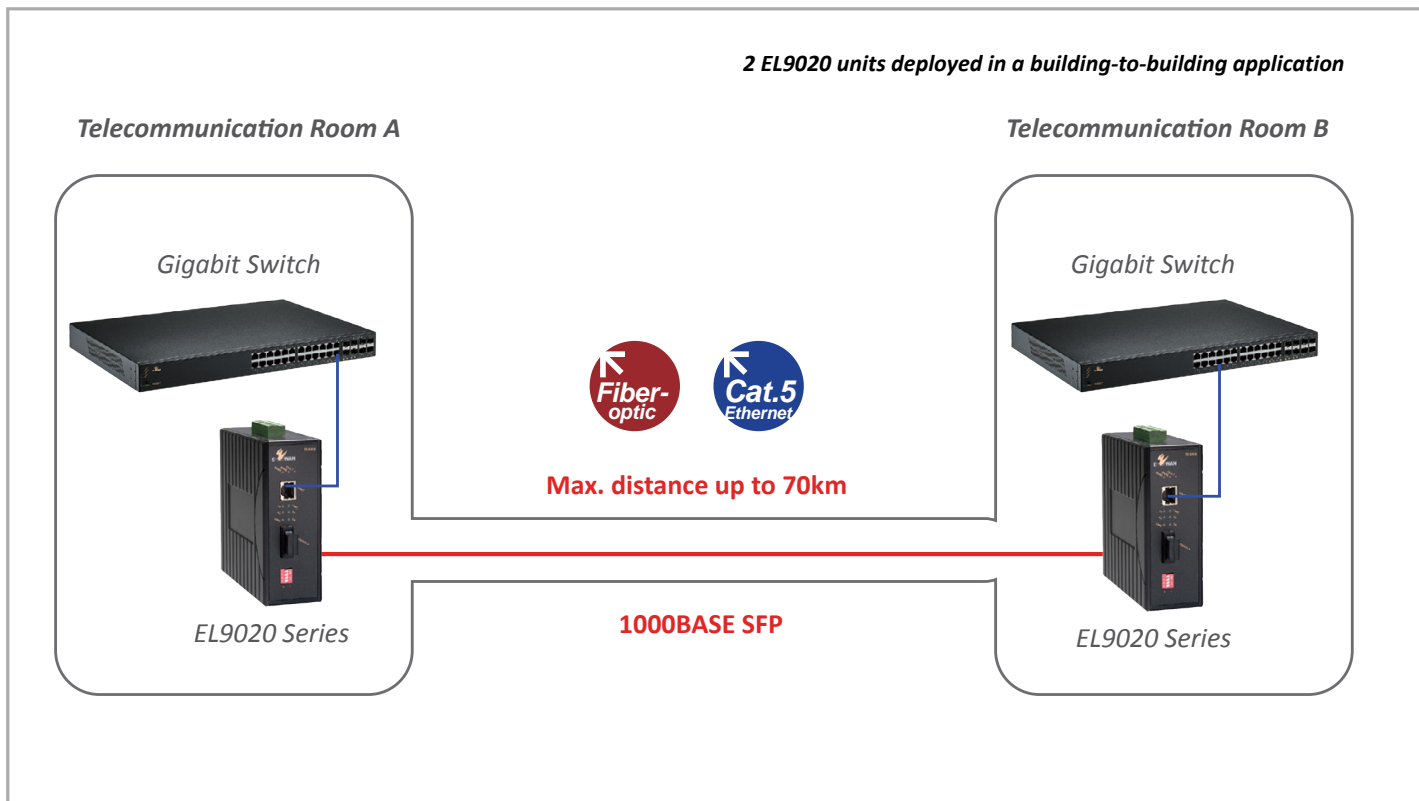
IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

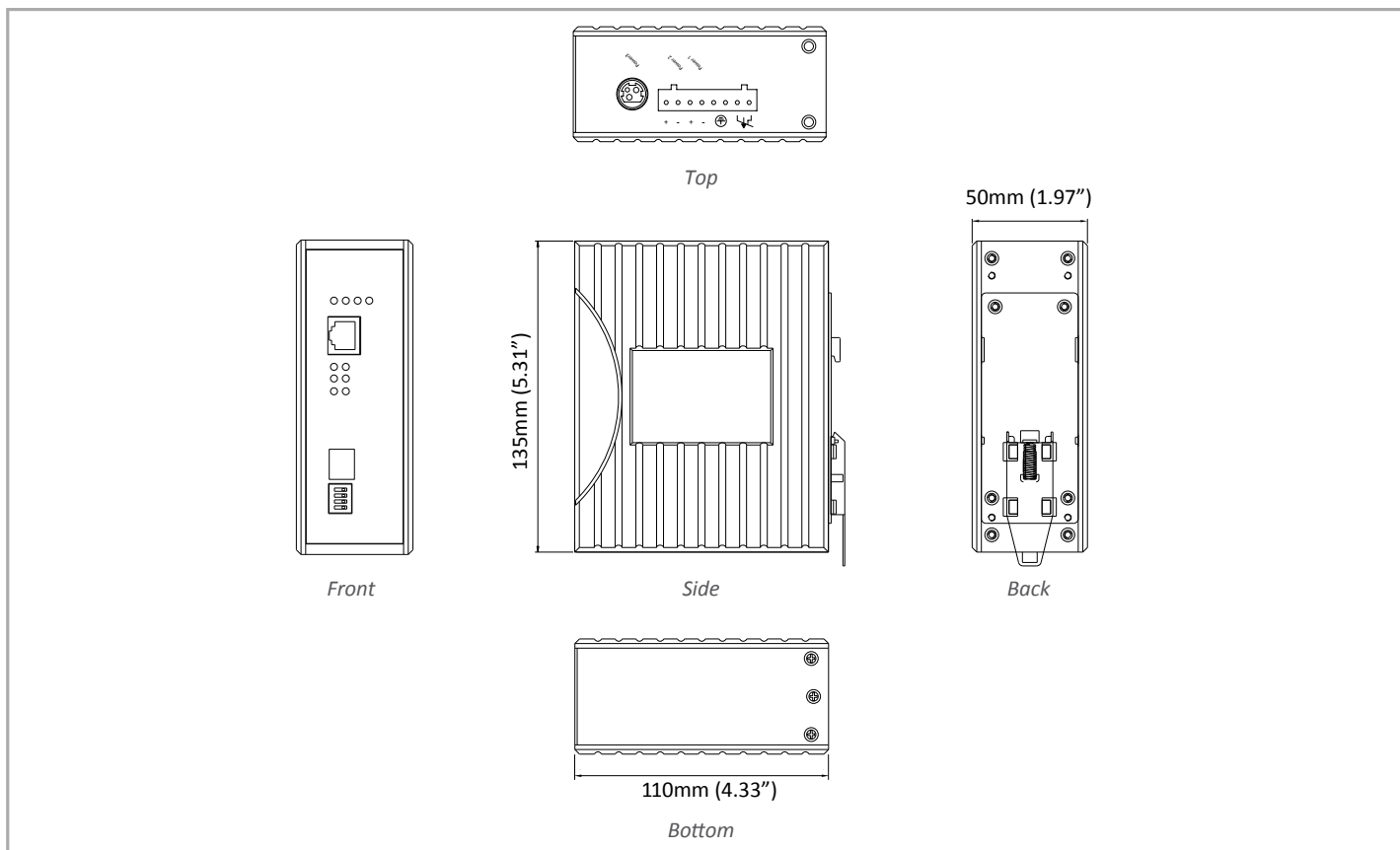**FED STD 101C Method 5007.1 (Free fall w/ package)**

Industrial Compliance

NEMA TS2

Application Diagram

2 EL9020 units deployed in a building-to-building application

Telecommunication Room A

Telecommunication Room B

Gigabit Switch

Gigabit Switch

Fiber-optic

Cat.5 Ethernet

Max. distance up to 70km

EL9020 Series

1000BASE SFP

EL9020 Series

Dimensions

Top

Front

135mm (5.31")

Side

50mm (1.97")

Back

110mm (4.33")

Bottom

Ordering Information

Model

EL9020-00B	10/100/1000BASE-TX to Gigabit SFP Hardened Media Converter

* DIN-Rail mounting kit included

Optional Accessories

KP-AA96-480	Panel mounting kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-60--24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (For Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC jack in aluminum housing (For DC Jack); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

Hardened SFP Gigabit Fiber Tranceivers

Part Number	Typical Distance	Wavelength (nm)	Cable Type	Conwnector
EX-1250NSP-SB1L-A	275M/550M	850	MM	Duplex LC
EX-1250TSP-MB4L-A	10KM	1310	SM	Duplex LC
EX-1250TSP-NB6L-A	40KM	1310	SM	Duplex LC
EX-1250TSP-KB8L-A	70KM	1550	SM	Duplex LC
EX-1250TBP-MB1L-A	550M	TX:1310 / RX:1550	MM WDM-A	LC
EX-1250TBP-LB1L-A	550M	TX:1550 / RX:1310	MM WDM-B	LC
EX-1250TBP-MB4L-A	10KM	TX:1310 / RX:1550	SM WDM-A	LC
EX-1250TBP-KB4L-A	10KM	TX:1550 / RX:1310	SM WDM-B	LC
EX-1250TBP-MB5L-A	20KM	TX:1310 / RX:1550	SM WDM-A	LC
EX-1250TBP-KB5L-A	20KM	TX:1550 / RX:1310	SM WDM-B	LC

*More SFP options also available upon request.

EL9100 Series

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

Overview

The EL9100 Series provides media conversion between 10/100/1000BASE-T(X) and 1000BASE-SX-LX Fiber. Built specifically for mission-critical applications in harsh environments, the EL9100's hardened design features high shock & vibration resistance, electrical noise immunity, wide operating temperature range from -40°C to 75°C, and ruggedized aluminum housing. With triple power inputs, link down alarming, Link-Fault-Pass-Through and a wide range of fiber connectivity options, the EL9100 is the ideal media converter for environments where connectivity is crucial.

Spotlight

- **Gigabit Connectivity**
  - Auto 10/100/1000BASE-TX and 1000BASE-SX/LX/BX Ethernet transmission conversion
  - 1000Mbps Full duplex, 10/100MBps Full/Half duplex
  - Full wire-speed forwarding rate

- **UL508 Certification**
  - Specific design for industrial communication applications with UL508 safety certification

- **Wide Operating Temperature**
  - -40°C to 75°C wide operating temperature range design is suitable for installation in outdoor cabinet

Hardware Specifications

Technology

Standards
- IEEE802.3 10BASE-T
- IEEE802.3u 100BASE-TX
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x full duplex and flow control

Forward and Filtering Rate
- 1,488,100pps for 1000Mbps

Processing Type
- Auto Negotiation
- Half duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto-MDI/MDIX

Power

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

Power Consumption
- 7.68W Max, 0.16A @ 48VDC

Protection
- Overload current protection
- Reverse polarity protection

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, or Rack mounting

Interface

Ethernet Port
- 10/100/1000BASE-TX: 1 port
- 1000BASE-SX/LX/BX: 1 port

LED Indicators
- Per Unit: Power1
  - Power2
  - Power3
  - Fault
  - LFPT
- Per 10/100/1000BASE-TX Port: Link/ACT
  - 100M
  - 1000M
  - Full-duplex/Collision
- Per 1000SX/LX/BX Port: Link/Act

DIP Switch
- No.1: LFPT on/off
- No.2: Alarm for copper port on/off
- No.3: Alarm for fiber port on/off
- No.4: Auto-negotiation for fiber port on/off

Alarm Contact
- Relay contact rating with current
  1A @ 30VDC, 0.5A @ 120VAC

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

EMI

FCC Part 15B, Class A

EN61000-6-4

EN55022

EN61000-3-2

EN61000-3-3

Safety

UL508

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance
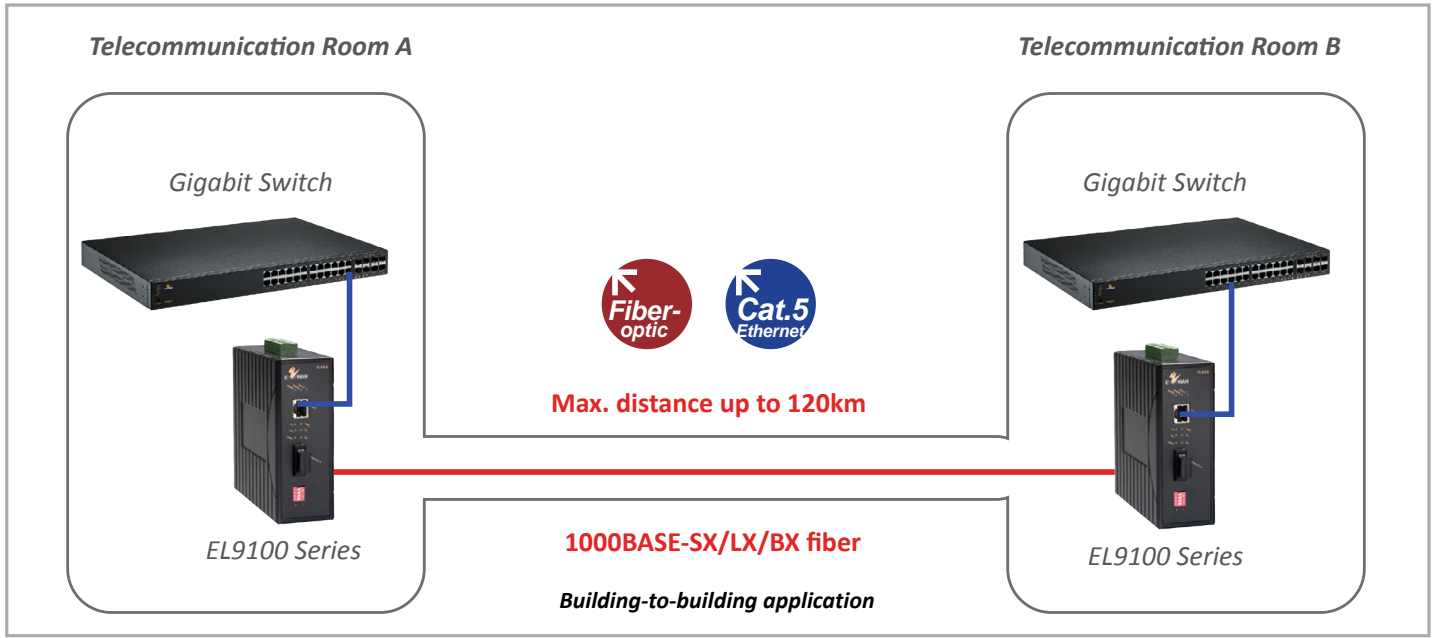
IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

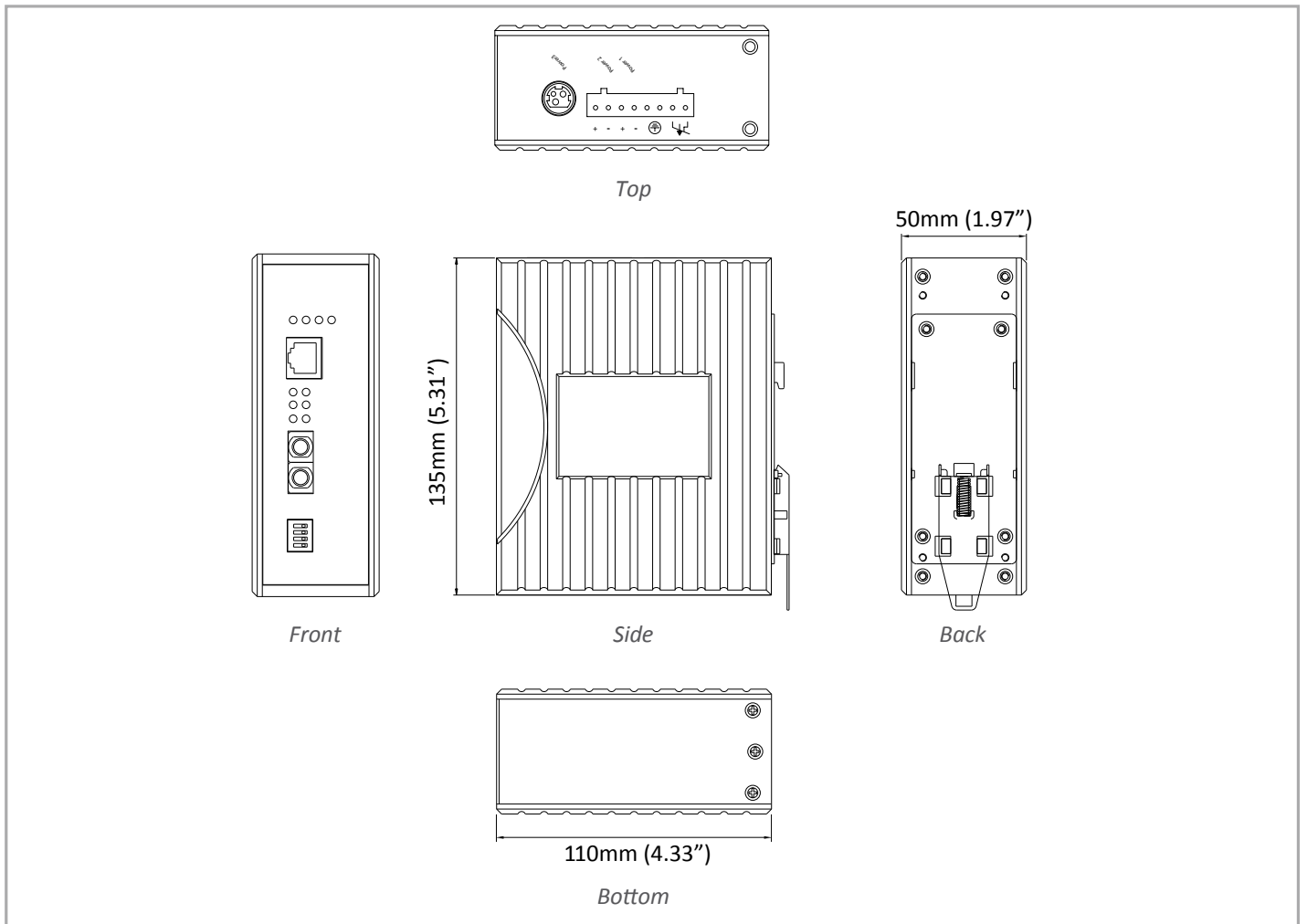**FED STD 101C Method 5007.1 (Free fall w/ package)**

Industrial Compliance

NEMA TS1 & TS2

Application Diagram

Telecommunication Room A

Telecommunication Room B

Gigabit Switch

Gigabit Switch

Fiber-optic

Cat.5 Ethernet

Max. distance up to 120km

EL9100 Series

1000BASE-SX/LX/BX fiber

Building-to-building application

EL9100 Series

Dimensions

Top

50mm (1.97")

135mm (5.31")

Front

Side

Back

110mm (4.33")

Bottom

Ordering Information

Model

EL9100-X1B	10/100/1000BASE-TX to 1000BASE-SX/LX/BX Hardened Media Converter

Gigabit Port 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
E	1000BASE-LX (SC) - 40Km (1310nm)
H	1000BASE-LX (ST) - 10Km (1310nm)
I	1000BASE-LX (ST) - 20Km (1310nm)
R	1000BASE-BX (SC) WDM-TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM-TX:1550nm/RX: 1310nm - 20Km

* DIN-Rail mounting kit included

Optional Accessories

DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (For Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC jack in aluminum housing (For DC Jack); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EL9000 Series

Hardened 1000BASE-T to 1000BASE-SX/LX/BX Media Converter

Overview

The EL9000 Series provides media conversion between 1000BASE-T(X) and 1000BASE-SX-LX Fiber. Built specifically for mission-critical applications in harsh environments, the EL9000's hardened design features high shock & vibration resistance, electrical noise immunity, wide operating temperature range from -40°C to 75°C, and ruggedized aluminum housing. With triple power inputs, link down alarming, Link-Fault-Pass-Through and a wide range of fiber connectivity options, the EL9000 is the ideal media converter for environments where connectivity is crucial.

Spotlight

- **Gigabit Connectivity**
  ◦ 1000BASE-TX and 1000BASE-SX/LX/BX Ethernet transmission conversion
  ◦ 1000Mbps Full duplex and full wire-speed forwarding rate

- **ISA12.12.01 Certification**
  ◦ Highly qualified for explosive environmental applications and certified by UL with ISA12.12.01 Class I, Division 2 classified for use in hazardous locations

- **Wide Operating Temperature**
  ◦ -40°C to 75°C wide operating temperature range design is suitable for installation in outdoor cabinet

Hardware Specifications

Technology

Standards
- IEEE802.3ab 1000BASE-T
- IEEE802.3z 1000BASE-SX/1000BASE-LX
- IEEE802.3x full duplex and flow control

Forward and Filtering Rate
- 1,488,100pps for 1000Mbps

Processing Type
- Auto Negotiation
- Half duplex back-pressure and IEEE802.3x full-duplex flow control
- Auto-MDI/MDIX

Power

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

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

Protection
- Overload current protection
- Reverse polarity protection

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, or Rack mounting

Interface

Ethernet Port
- 1000BASE-T: 1 port
- 1000BASE-SX/LX: 1 port

LED Indicators
- Per Unit: Power, Power2, Fault
- Per Port: LNK, TX, RX

DIP Switch
- No.1: LFPT on/off
- No.2: Alarm for copper port on/off
- No.3: Alarm for fiber port on/off
- No.4: Auto-negotiation for fiber port on/off

Alarm Contact
- Relay contact rating with current 1A @ 30VDC, 0.5A @ 120VAC

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

EMI

FCC Part 15B, Class A

EN61000-6-3

EN55022

EN61000-3-2

EN61000-3-3

Safety

ISA 12.12.01 (UL1604) for Hazardous Locations
- Class 1, Division 2 group A,B,C&D

UL60950-1

EMS

EN61000-6-2
- EN61000-4-2 (ESD Standards)
- EN61000-4-3 (Radiated RFI Standards)
- EN61000-4-4 (Burst Standards)
- EN61000-4-5 (Surge Standards)
- EN61000-4-6 (Induced RFI Standards)
- EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance
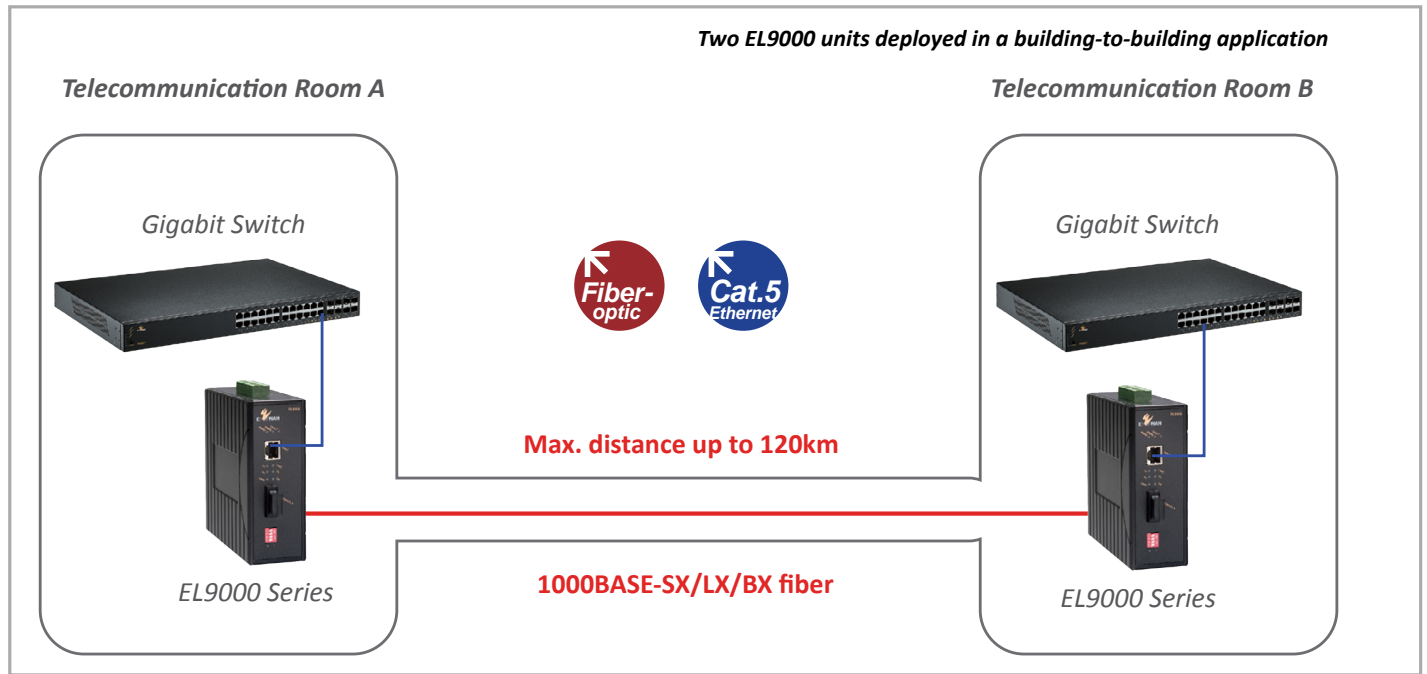
IEC60068-2-6 Fc (Vibration Resistance)

IEC60068-2-27 Ea (Shock)

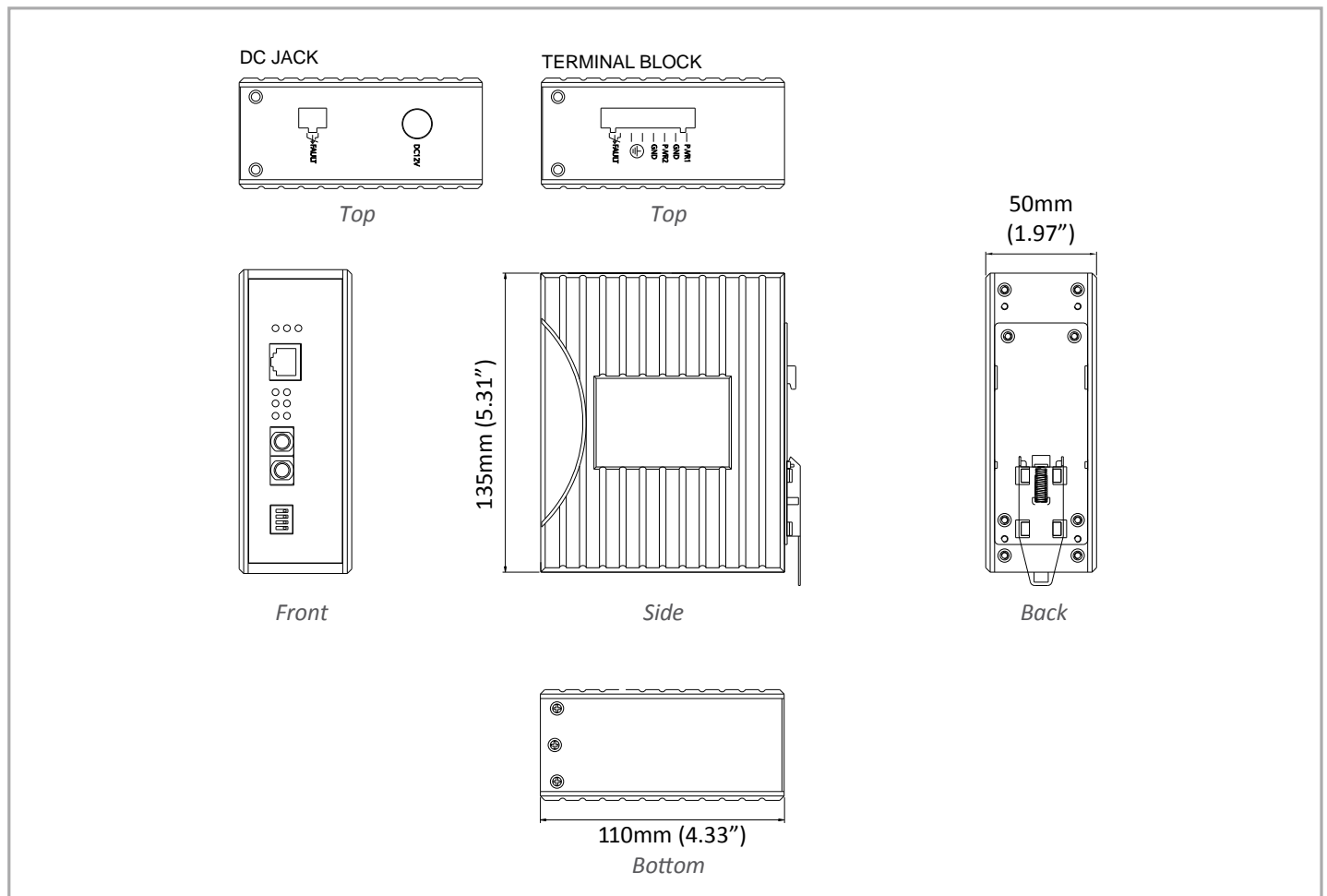**FED STD 101C Method 5007.1 (Free fall w/ package)**

Industrial Compliance

NEMA TS2

Application Diagram

Two EL9000 units deployed in a building-to-building application

Telecommunication Room A

Telecommunication Room B

Gigabit Switch

Gigabit Switch

Fiber-optic

Cat.5 Ethernet

Max. distance up to 120km

EL9000 Series

1000BASE-SX/LX/BX fiber

EL9000 Series

Dimensions

DC JACK

FAULT
DC12V

Top

TERMINAL BLOCK

FAULT
GND
P/N2
GND
P/N1

Top

50mm
(1.97")

Back

135mm (5.31")

Front

Side

110mm (4.33")

Bottom

Ordering Information

Model

EL9000-A-Y-1-P	1000BASE-T to 1000BASE-SX/LX Hardened Media Converter

Gigabit Fiber Options (Y)

B	1000BASE-SX (SC) - 550m (850nm)
C	1000BASE-SX (SC) - 2Km (1310nm)
N	1000BASE-LX (SC) - 10Km (1310nm)
O	1000BASE-LX (SC) - 20Km (1310nm)
R	1000BASE-BX (SC) WDM -TX:1310nm/RX:1550nm - 20Km
S	1000BASE-BX (SC) WDM -TX:1550nm/RX:1310nm - 20Km

* More Gigabit options are also available upon request

Power Connector Options (P)

A	Terminal Block
B	DC Jack

Optional Accessories

KP-AA96-480	Panel mount kit
DR-30-24	30W/1.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-60-24	60W/2.5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-75-24	75W/3.2A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
DR-120-24	120W/5A DIN-Rail 24VDC Industrial Power Supply (For Terminal Block)
41-136046-X	36W/3A 12VDC hardened power adapter with open wire in aluminum housing (For Terminal Block); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA
41-136044-X	36W/3A 12VDC hardened power adapter with latched DC jack in aluminum housing (For DC Jack); (X) = 1: US, 2: EU, 3: UK, 4: AU, 5: JP, 6: SA

EMC400

4-Bay Commercial Media Converter Chassis

Overview

The EMC400, 4-slot Din-Rail mount chassis brings Flexibility, Reliability and Redundancy to mission critical network infrastructures. Its flexible design allows for a variety of EtherWAN Media Converters and Ethernet Extenders to be combined into one chassis giving users a solution that fits the needs of each individual network installation. Designed with dual power inputs, the EMC400 allows for two separate power sources to increase reliability and dependability eliminating the single point of failure of a single power source. With its hot swappable design, the EMC400 allows existing communications to remain uninterrupted during the simple installation of EtherWAN Media Converters and Ethernet Extenders. In addition, the EMC400 incorporates Electrical Isolation with fused overcurrent protection between devices within its chassis. With its solid metal enclosure, DIN-Rail mount design, and hot swappable technology, the EMC400 is the ideal solution for reliably interconnecting separated network media and pushing Ethernet beyond its boundaries.

EtherWAN – "When Connectivity is Crucial."

Spotlight

- **Hot-Swap Installation**
  - Hot-swappable installation of Media Converters and Ethernet Extenders.

- **4-Slot DIN-Rail Chassis**
  - Supports redundant terminal block power inputs.

- **Supports EtherWAN's Ethernet Extenders and Media Converters**
  - Supported models include EL2321, EL2211, EL2315, EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM1020, EM120, EL100/EL200, EL110/EL210, ED3331 and ED3501 series.

Hardware Specifications

Power

Input
- Power supply input: 90 - 264VAC
- EMC400 chassis input: 12VDC

Wiring
- Minimum cable AWG: 16 AWG

Power Consumption
- Max. 19W@ Full installation, depending on installed devices

Protection
- Over current protection

Mechanical

Casing
- Steel Electrogalvanized ColdRolled Coil (SECC)

Dimensions
- 130mm(W) x 164mm(D) x 92.1mm(H)
  (5.12"(W) x 6.46"(D) x 3.63"(H))

Weight
- 1.37kg (3.02lb)

Installation
- DIN-Rail

Interface

LED Indicators
- ⏻ 1: On, power input 1 is connected
     Off, power input 1 is disconnected

- ⏻ 2: On, power input 2 is connected
     Off, power input 2 is disconnected

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

EMI

FCC Part 15B, Class A

EN61000-6-4
- EN55022

EMS

EN61000-6-2

EN61000-4-2 (ESD Standards)

EN61000-4-3 (Radiated RFI Standards)

EN61000-4-4 (Burst Standards)

EN61000-4-5 (Surge Standards)

EN61000-4-6 (Induced RFI Standards)
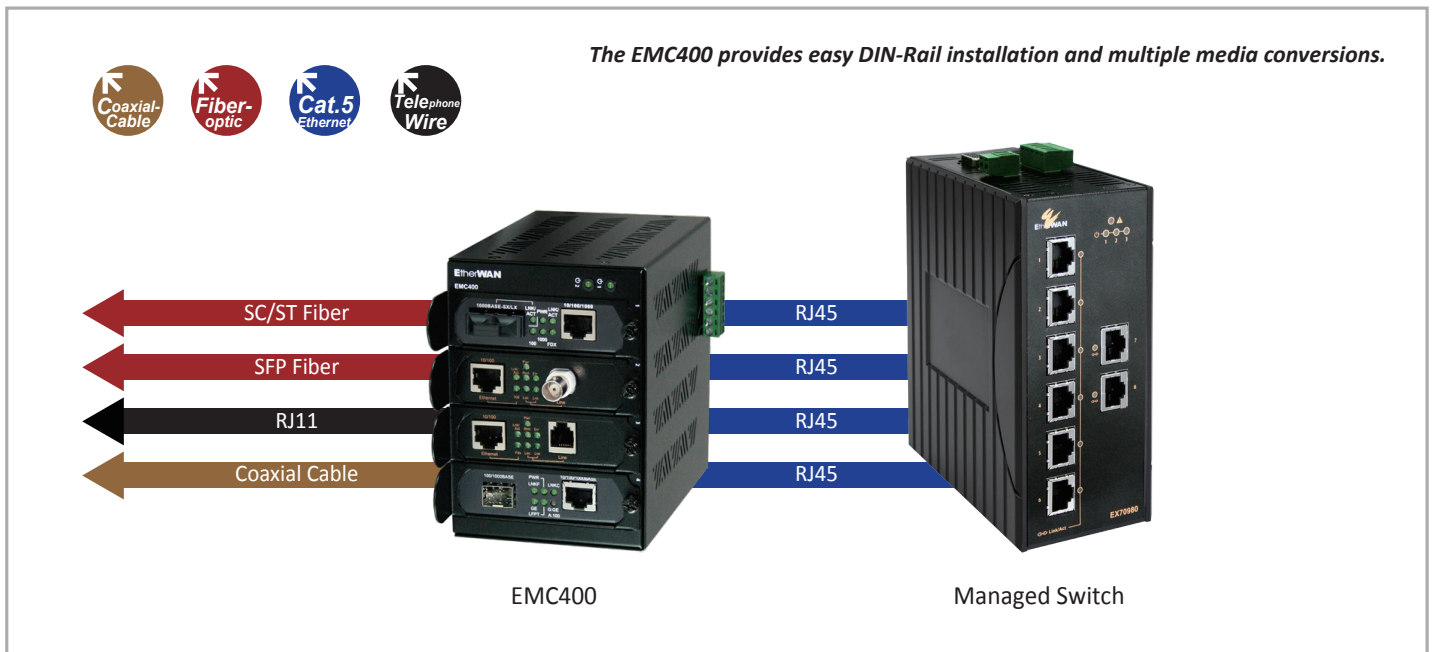
EN61000-4-8 (Magnetic Field Standards)

Environmental Test Compliance

IEC60068-2-6 Fc (Vibration)

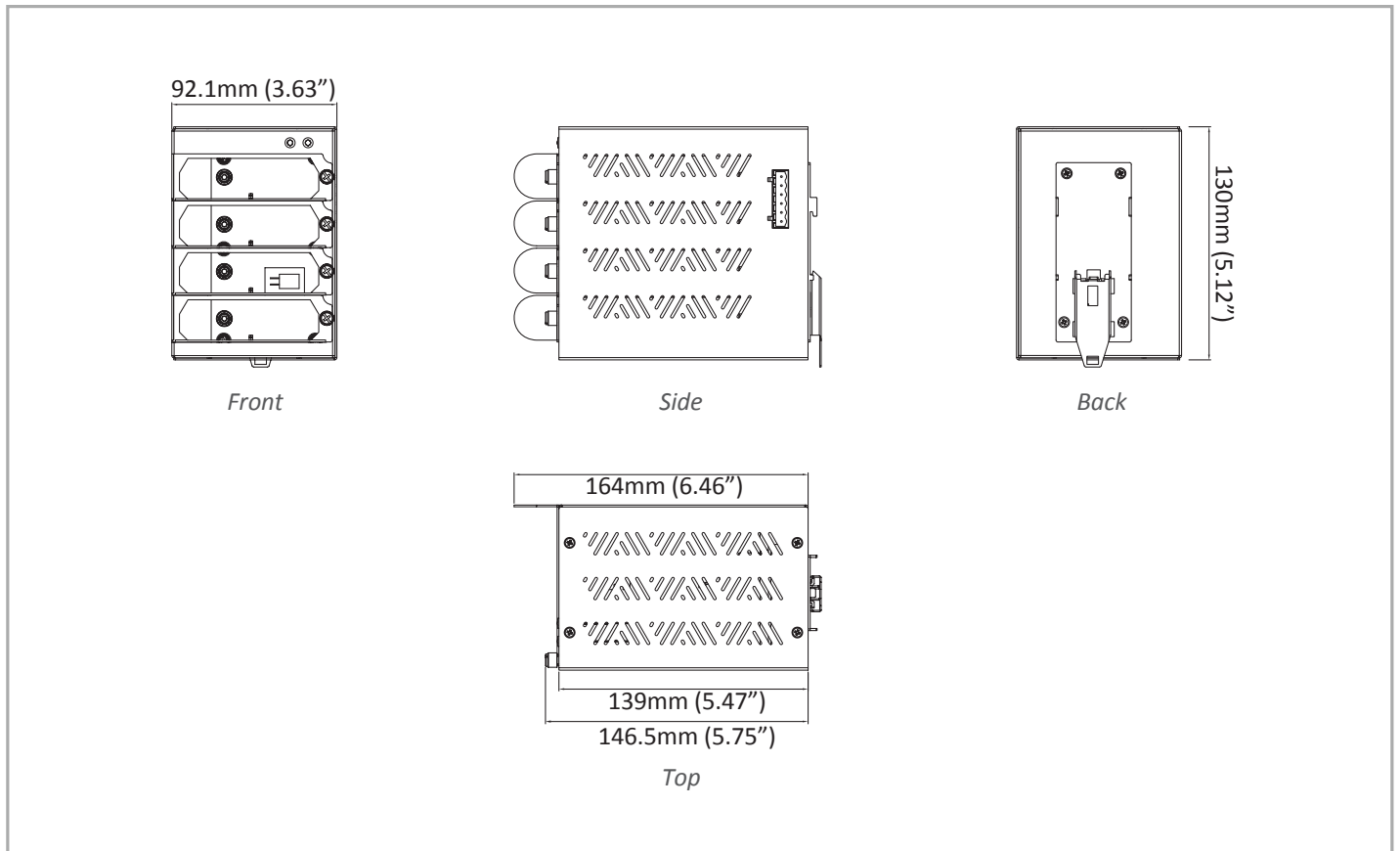**IEC60068-2-27 Ea (Shock)**

IEC60068-2-32 Ed (Free fall)

Application Diagram

The EMC400 provides easy DIN-Rail installation and multiple media conversions.

EMC400

Managed Switch

Dimensions

92.1mm (3.63")

Front

Side

130mm (5.12")

Back

164mm (6.46")

139mm (5.47")

146.5mm (5.75")

Top

Ordering Information

Model

EMC400-EPWS	4-Slot DIN-Rail Media Converter Chassis with two DR-30-12 Power Supplies in the Package
EMC400	4-Slot DIN-Rail Media Converter Chassis

* DIN-Rail mounting kit is included

EMC1200R Series

12-Bay Media Converter System

Overview

The EMC1200R is a 12-Bay chassis system specifically designed to house and power selected EtherWAN Media Converters and Ethernet Extenders in a 19" rack enclosure.

The dynamic selections of EtherWAN's media converter and Ethernet extender family provide flexible system combinations. Each bay is electrically isolated from each other with fused over-current protection resulting is unprecedented reliability. The redundant internal power supplies provide both power redundancy and load sharing. Support for both AC & DC power input options allows the EMC1200R to be used worldwide. With its solid metal enclosure, standard 19" rack-mount and one-unit height design, the EMC1200R is ideal for interconnecting disparate network media and extending Ethernet beyond its boundaries.

EtherWAN – "When Connectivity is Crucial".

Spotlight

- **12-Bay Rackmount Chassis**
  - ◦ Powers up 12 media converters with redundant terminal block power inputs

- **Supports EtherWAN's Ethernet extenders and media converters**
  - ◦ Supported media converter Model include, EL2321, EL2211, EL2315, EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM1020, EM120, EL100/EL200, and EL110/EL210 Series

Hardware Specifications

Power

Input
• 100 - 240VAC, 50 - 60Hz Internal Universal PSU

Power Consumption
• 9.4Watts, system w/o media converters, but with redundant PSUs.
• For total EMC1200R power consumption, please calculate with the selected media converters' datasheets.

Mechanical

Casing
• Metal case

Dimensions
• 440mm (W) x 243mm (D) x 45mm (H)
  (17.32" (W) x 9.57" (D) x 1.77" (H))

Weight
• 3.1Kg (6.82lbs.)

Installation
• Rack mounting

Environment

Operating Temperature
• 0°C to 45°C (32°F to 113°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

Emission Compliance

FCC Part 15B, Class A

CE Mark Class A

Application Diagram

The EMC1200R provides rack mount installation for medium network system

12 x RJ45

12 x Fiber

Dimensions

Back

Top

45mm
(1.77")

Side

440mm (17.32")

Front
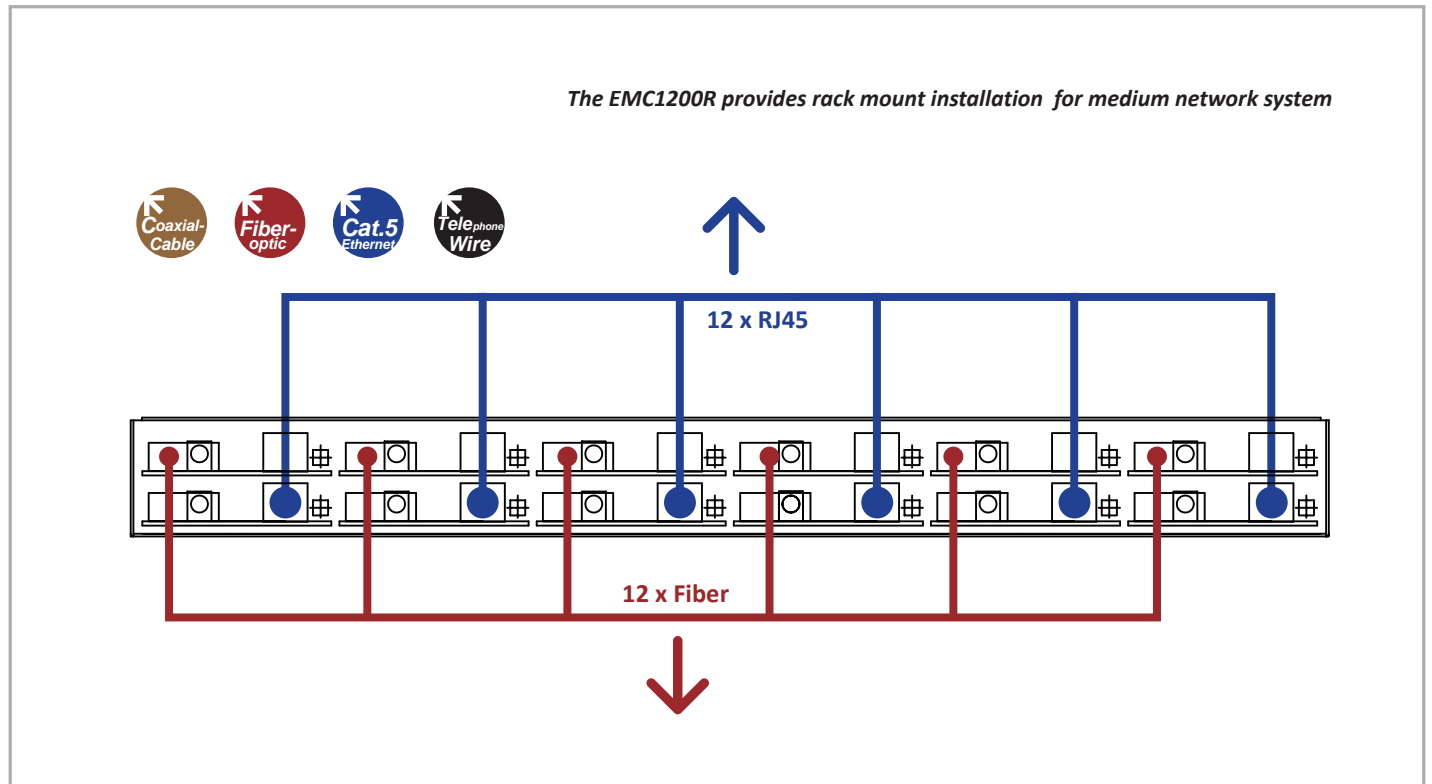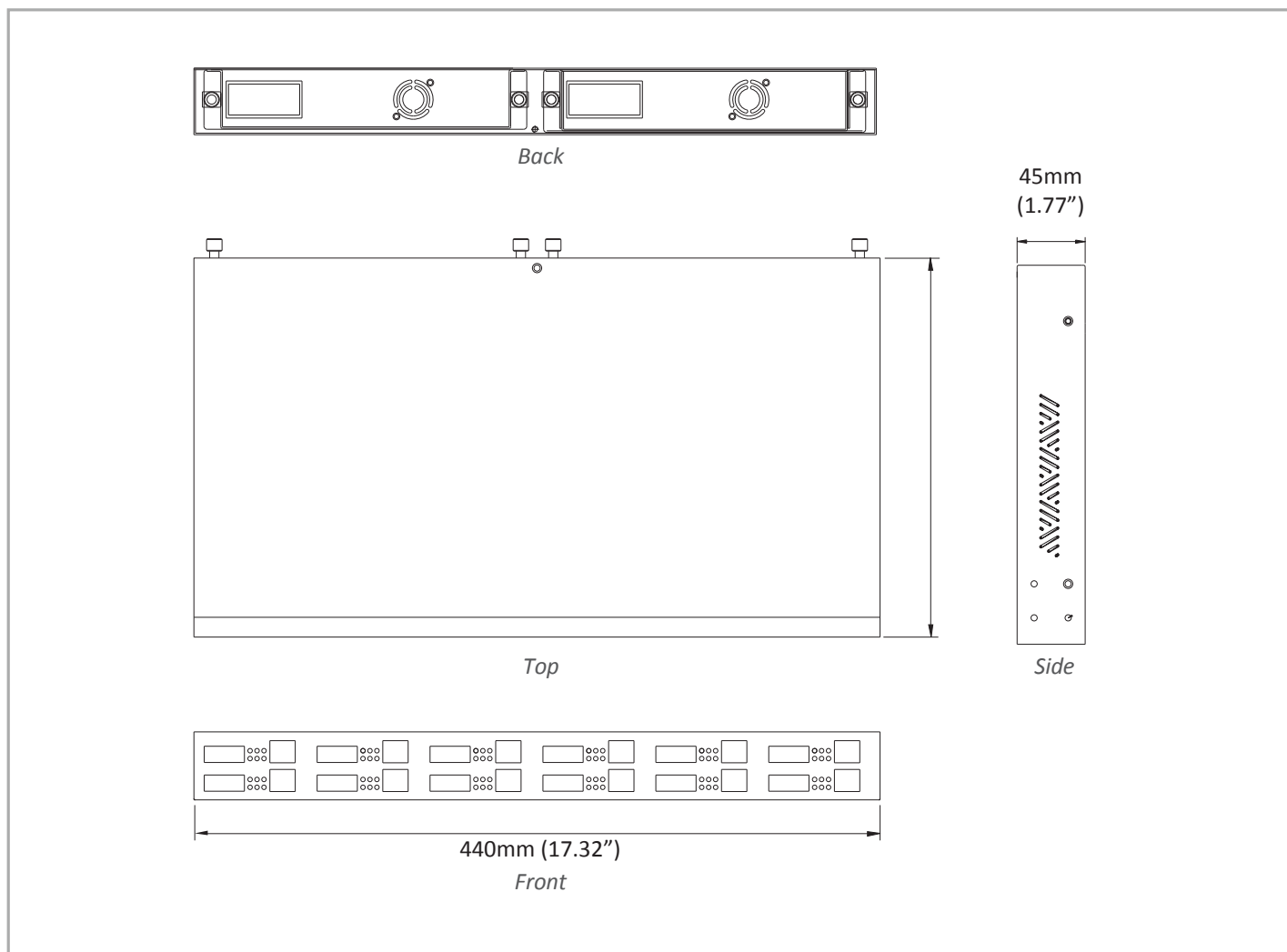
Ordering Information

Model

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, 20/40/60/100/120Km
* SC fiber also available in WDM Type A and Type B, Single Mode 20/40Km, and Multi Mode 2/5Km
* More SFP options are available upon request. Please visit Etherwan.com for the latest SFP module datasheet.

Ordering Information - continued

Model

EMC1200RGS	12-Bay Gigabit SFP Media Converter System
EMC1230RTSC	12-Bay EL2211-31 Media Converter System
EMC1230RTLC-10	12-Bay EL2211-A1 Media Converter System
EMC1230RTLC-20	12-Bay EL2211-B1 Media Converter System
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
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
EMC1200RSLC-10	12-Bay EM1000SLC-10 Media Converter System
EMC1200RSLC-20	12-Bay EM1000SLC-20 Media Converter System
EMC1200RLLC-10	12-Bay EM1000LLC-10 Media Converter System
EMC1200RLLC-20	12-Bay EM1000LLC-20 Media Converter System

Note:
* SC fiber also available in WDM Type A and Type B, Single Mode 10/20Km, and Multi Mode 2/5Km
* More SFP options are available upon request. Please visit Etherwan.com for the lastest SFP modules datasheet.

EMC1600 Series

16-Bay Media Converter and Ethernet Extender Chassis

Overview

The EMC1600 is a 16-Bay chassis specifically designed to house and power selected EtherWAN Media Converters and Ethernet Extenders in a 19" rack enclosure.

The hot swappable design enables easy installation, product additions, and deletions of EtherWAN Media Converters and Ethernet Extenders without interrupting existing communications within the chassis. Each bay is electrically isolated from each other with fused over-current protection resulting is unprecedented reliability. The redundant internal power supplies provide both power redundancy and load sharing. Support for both AC & DC power input options allows the EMC1600 to be used worldwide. With its solid metal enclosure, standard 19" rack-mount and two-unit height design, the EMC1600 is ideal for interconnecting disparate network media and extending Ethernet beyond its boundaries.

EtherWAN — "When Connectivity is Crucial."

Spotlight

- **Hot-Swappable**
  - The chassis system is capable of hot-swap installations of selected EtherWAN's media converter and Ethernet extender Model

- **16-Bay Rackmount Chassis**
  - Powers up 16 media converters with redundant power supply modules

- **Supports EtherWAN's Ethernet Extenders and Media Converters**
  - Supported media converter models include EL2321, EL2211, EL2315, EM1100/EM2100, EM1000/EM2000, EM1000S/EM2000S, EM1020, EM120, EL100/EL200 and EL110/EL210 series
  - Supported Ethernet extender models include ED3101 and ED3331 Series, but the operating temperature is limited from 0°C to 45°C

Hardware Specifications

Power

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

Power Consumption
- System: 5.4W Max

Protection
- Over current protection

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 95% (non-condensing)

Regulatory Approvals

ISO
- Manufactured in an ISO9001 facility

Safety

UL60950-1

Emission Compliances

CE Mark Class A

FCC Part 15B Class A

Application Diagram

The EMC1600 provides rack mount installation for large network systems

Dimensions

Back

Top

Side

276mm (10.87")

Front

90mm (3.54")

440mm (17.32")
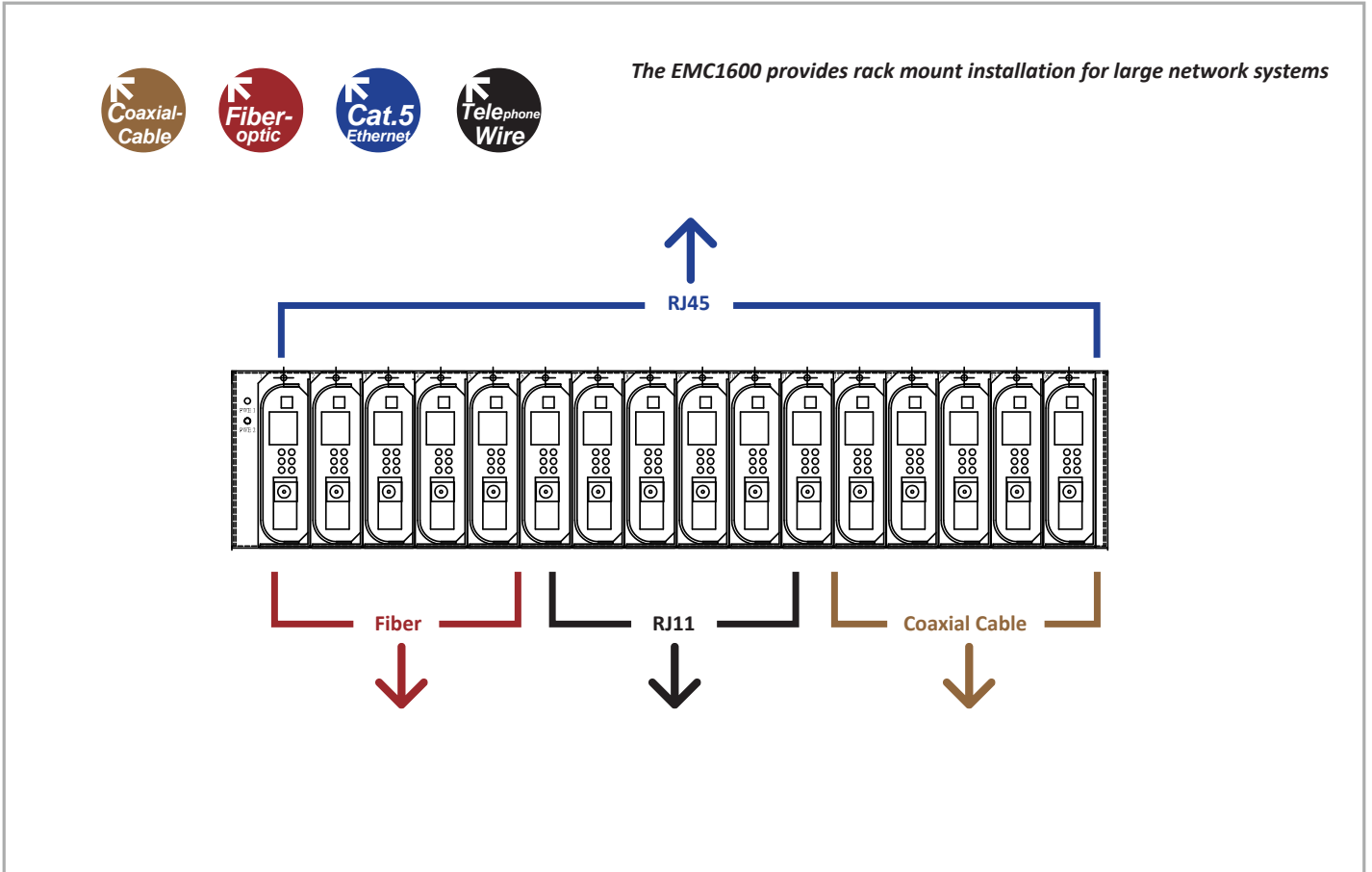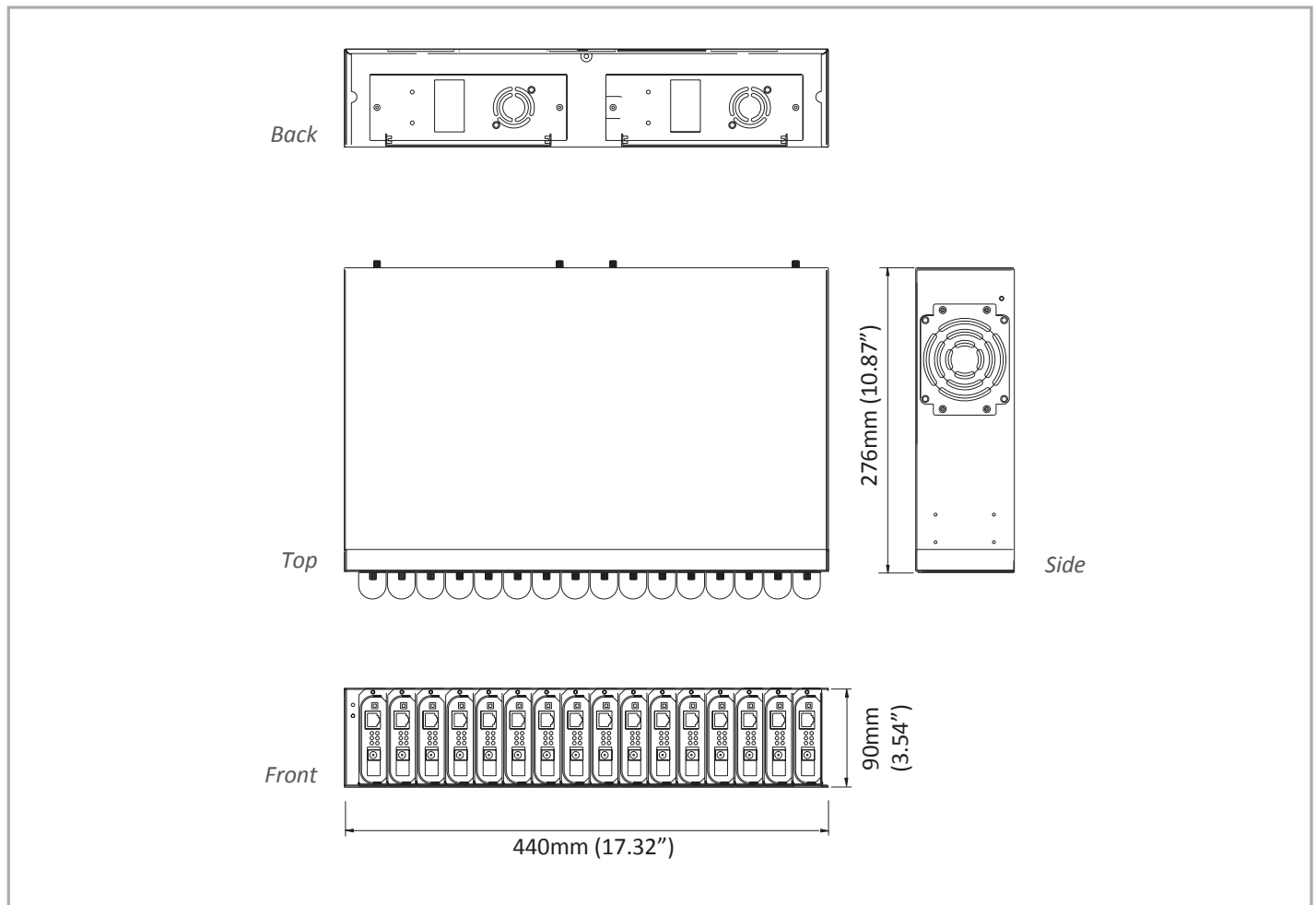
Ordering Information

Model

EMC1600	16-Bay Media Converter and Ethernet Extender Chassis, including 2 AC Power Supplies (EMC1600-RPSA)
EMC1600-RPSA	Redundant AC Power Supply (84W) for EMC1600
EMC1600-RPSA2	Redundant AC Power Supply (108W) for EMC1600
EMC1600-RPSD	Redundant DC 48V Power Supply (65W) for EMC1600