ED3141 Hardened 10/100BASE-TX Ethernet Extender

Ethernet beyond 100 metres over a copper pair

Overview

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 over 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 at about 300meters (984ft.), Down to 1Mbps at 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 aluminium case
- Supports DIN-Rail Panel Rack 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:
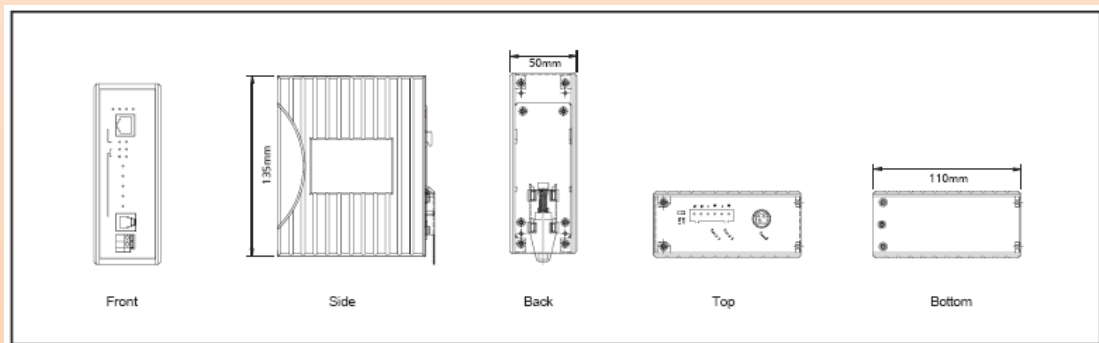DR-30-24, DR-60-24, DR-75-24, DR-120-24 or 41-136046-X X=1, 2,3,4,5

**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, part number: KP-AA96-480

Diagrams

| Front | Side | Back | Top | Bottom |

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

Overload Current Protection:
- Present

Reverse Polarity Protection:
- Present

Mechanical

Casing:
- Aluminium 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:
- 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	10 Mbps	1,400m(4,593 ft.)
3	Green	15 Mbps	1,200m(3,936 ft.)
	Amber	20 Mbps	1,000m(3,280 ft.)
4	Green	25 Mbps	800m (2,624 ft.)
	Amber	30 Mbps	700m (2,296 ft.)
5	Green	40 Mbps	600m (1,968 ft.)
	Amber	50 Mbps	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

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 @ 10~150 KHz, 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.)