

2178EE Series Ethernet Extender

10/100Base-TX Industrial Ethernet Extender



Overview

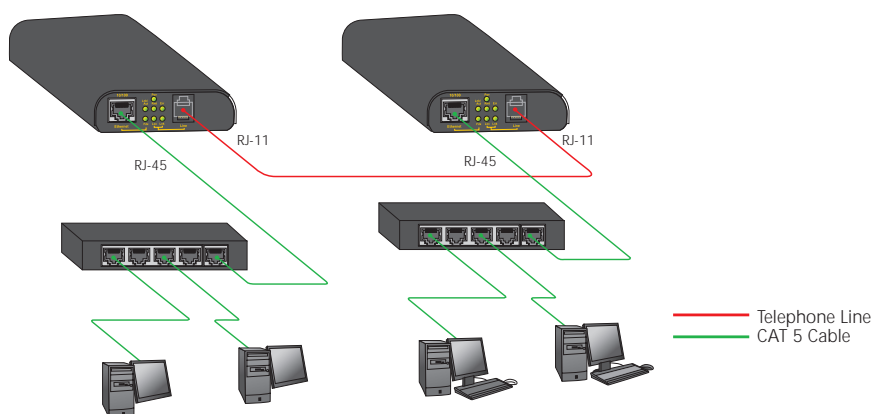
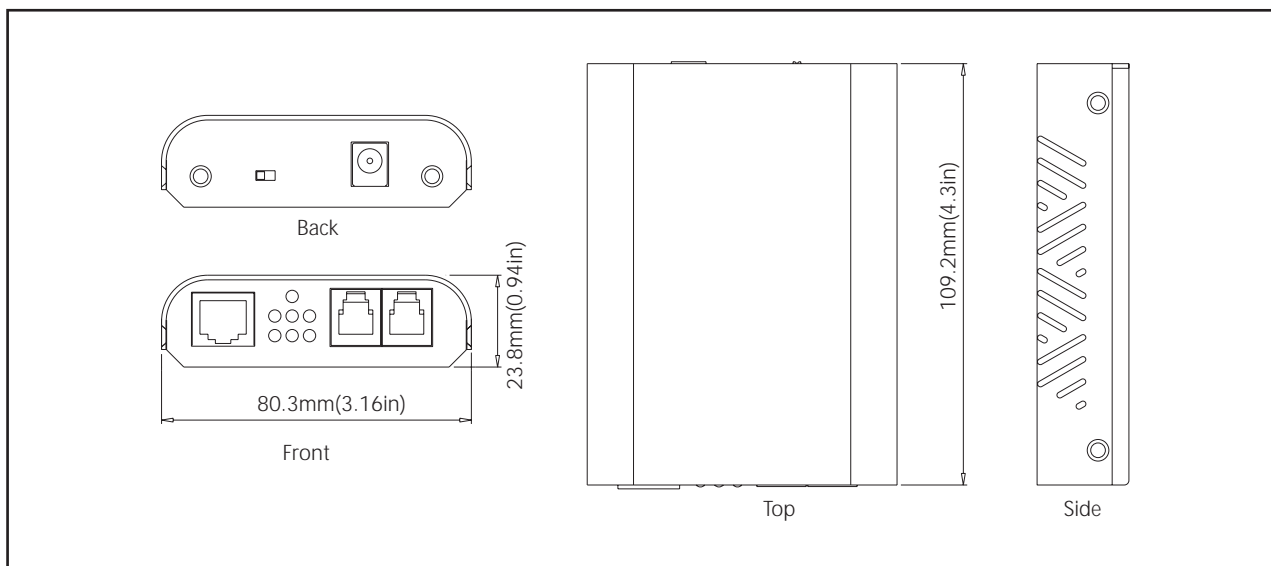
The 2178EE is a point-to-point Industrial Ethernet Extender that efficiently extends 10/100 Ethernet circuits up to 6,232 feet and supports speeds from 1Mbps to 50Mbps using existing straight pair copper wire. The 2178EE will allow Ethernet connectivity in existing facilities without pulling extra cable. This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking. Applications are endless; all that is needed is access to copper pairs. Installation is easy with a single switch setting; one end is set for local and the other remote. The 2178EE is used in pairs to extend Ethernet connectivity over existing voice grade copper wire.

Features

Operates transparent to higher layer protocols such as TCP/IP
 Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
 Ethernet Extender(RJ-11) Port: Symmetrical on the VDSL, High-speed Full-duplex 50Mbps communications link over existing copper Facilities
 Support DIP switch to select Local or Remote side

Ten speeds with speed indicator LEDs on top of unit,
 Up to 50Mbps @ about 300meters (984ft.),
 Down to 1Mbps @ about 1,900meters (6,232ft.)
 -20°C to 60°C (-4°F to 140°F) operating temperature range
 Industrial Hardened aluminum case
 Supports DIN-Rail, Wall Mounting installation or expansion use with our media converter chassis system

Diagrams



Technology

Standards:

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

Protocols:

Transparent to higher layer protocols

Processing Type:

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

Power

Input:

Input Voltage: 12VDC

Power Consumption:

2.4W Max. 0.2A@12VDC

Mechanical

Casing:

Aluminum case

Dimensions:

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

Weight:

150g (0.33lb.)

Installation:

DIN-Rail, Wall Mounting

Interface

Ethernet Port:

Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex
Auto-Negotiation, Auto-MDI/MDIX

Speed: 10/100Mbps

Distance: 100meters (328ft.)

Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire)
100Base-TX: UTP CAT. 5 (2-pair wire)

Ethernet Extender Port :

Port: One RJ-11 Port

Speed: 1/3/5/10/15/20/25/30/40/50mbps

Distance: 1900meters (6,232ft.)

Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger

DIP switch:

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

LED Indicators:

Per Unit: Power Status (Power)

Per Port: 10/100TX: Link/Activity, Full-duplex

Line: Error, Link, Local, Remote

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

NOTE:

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

Environment

Operating Temperature:

-20°C to 60°C (-4°F to 140°F)

Storage Temperature:

-20°C to 70°C (-4°F to 158°F)

Ambient Relative Humidity:

5% to 95% (non-condensing)

Regulatory Approvals

ISO:

Manufactured in an ISO9001 facility

Safety:

UL60950-1, EN60950-1, IEC60950-1

EMI:

FCC Part 15, Class A

EN61000-6-3

EN55022

EN61000-3-2

EN61000-3-3

EMS:

EN61000-6-2

EN61000-4-2 (ESD Standards)

Contact: + / - 4KV; Criteria B

Air: + / - 8KV; Criteria B

EN61000-4-3 (Radiated RFI Standards)

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

EN61000-4-4 (Burst Standards)

Signal Ports: + / - 4KV; Criteria B

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

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

EN61000-4-5 (Surge Standards)

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

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

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

EN61000-4-6 (Induced RFI Standards)

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

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

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

EN61000-4-8 (Magnetic Field Standards)

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

EN61000-4-11 (Voltage Dip Standards)

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

Environmental Test Compliance:

IEC60068-2-6 Fc (Vibration Resistance)

5g @ 10 ~ 150KHz, Amplitude 0.35mm (Operation/Storage/Transport)

IEC60068-2-27 Ea (Shock)

25g @ 11ms (Half-Sine Shock Pulse; Operation)

50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)

IEC60068-2-32 Ed (Free Fall)

1M (3.281ft.)

Ordering Information

2178EE	10/100Base-TX Industrial Ethernet Extender
2178EE-2PK	10/100Base-TX Industrial Ethernet Extender, 2 Pack
2178EE-DIN	DIN rail mount kit