DeviceNet™

Fieldbus Extender for DeviceNet

- **Fibre optic or coaxial cabling**
- **Star, bus or distributed-star topology**
- **Variable data rates up to 500 kbps**
- **Low-voltage AC- or DC-powered**
- **Panel-mount or DIN-rail mount**
- **CE Mark**
- **RoHS compliant**

- **Extends the length of DeviceNet networks up to 6 km**
- **Fully DeviceNet compliant**

PRODUCT OVERVIEW

The EXTEND-A-BUS Series can extend DeviceNet up to six kilometers — linking individual DeviceNet subnets together into a single larger network.

Each EXTEND-A-BUS unit creates a DeviceNet subnet and at least two units are needed to link subnets together. The data rate on each subnet can differ from those of other subnets. DeviceNet identifiers or MAC IDs cannot be duplicated on any of the subnets. Each EXTEND-A-BUS pair is best viewed as an extension cord. A unit does not consume a permanent MAC ID, therefore it is transparent to the network.

The backbone side of the EXTEND-A-BUS must adhere to standard ARCNET® cabling rules. Companion AI ARCNET active hubs are available for extending the backbone cabling. Hubs are cascaded to achieve the maximum distance: up to 6 km when using coaxial cabling and ten active hubs or up to 4.8 km when using a fibre optic backbone and two active hubs.

CONTEMPORARY CONTROLS®

DeviceNet™

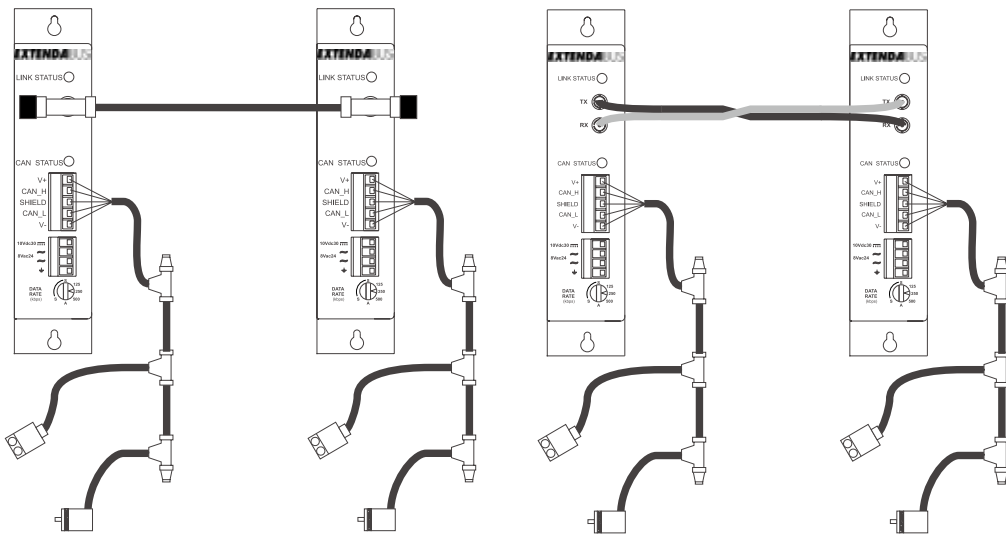## EXTEND-A-BUS Series

Network Diagrams

Figure 1.

Figure 1.

Appropriate terminators are required at the ends of both the coaxial cable backbone and CAN subnets.

Figure 2.

A 62.5/125 µm duplex fibre optic cable is used on the -FOG model up to a maximum of 1830 meters.
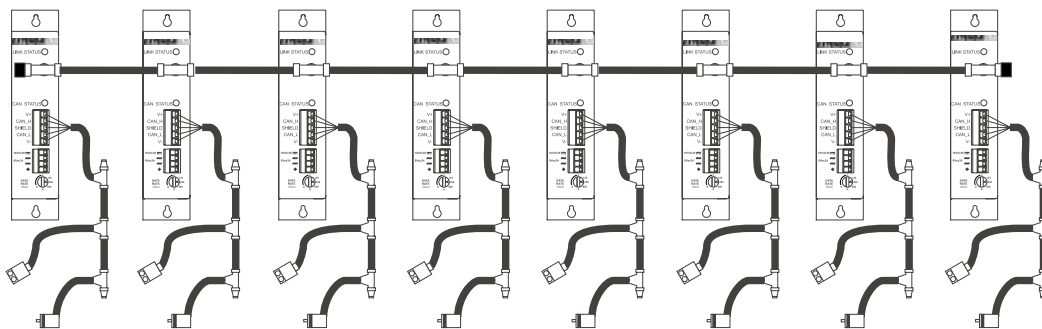
Figure 2.

Figure 3.

Figure 3.

A maximum of eight bridges can occupy one coaxial backbone segment before an active hub is required. Use BNC "Tees" and terminators when making connections. One of each is included in the -CXB model.
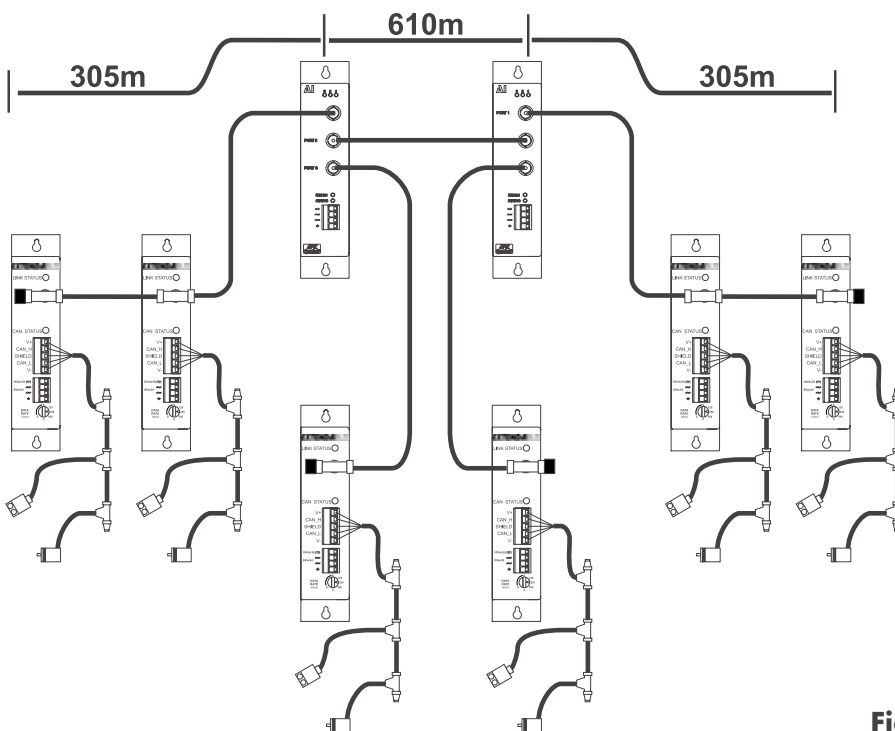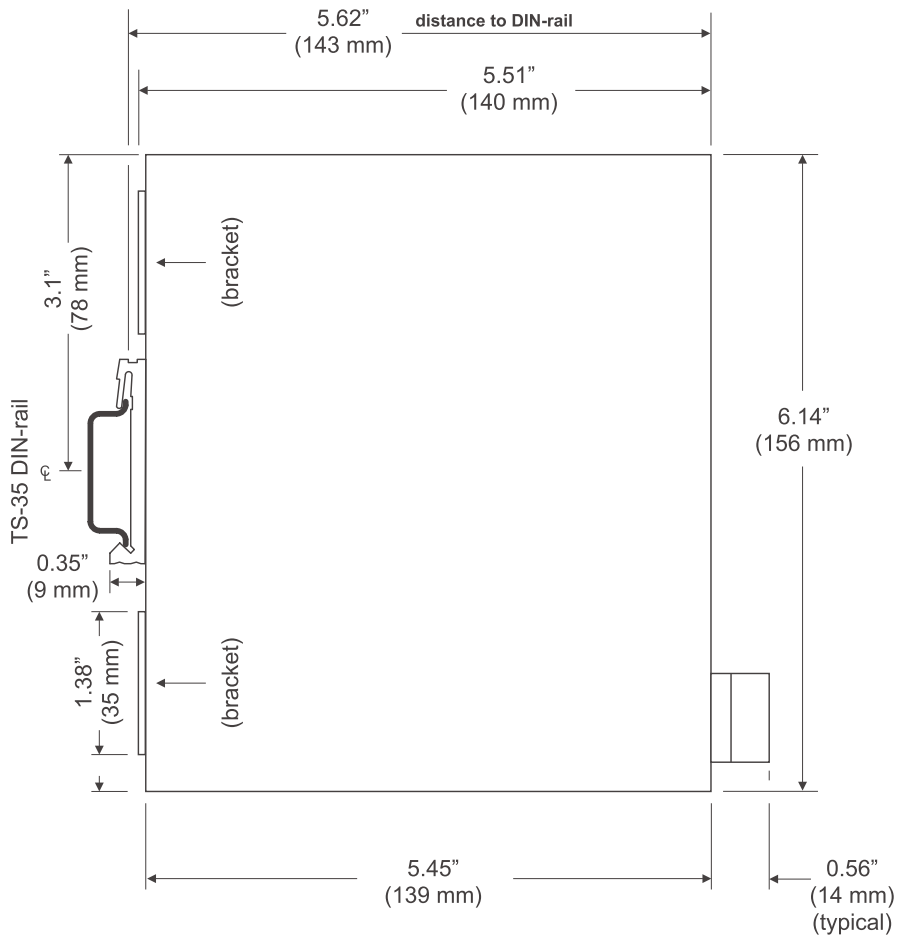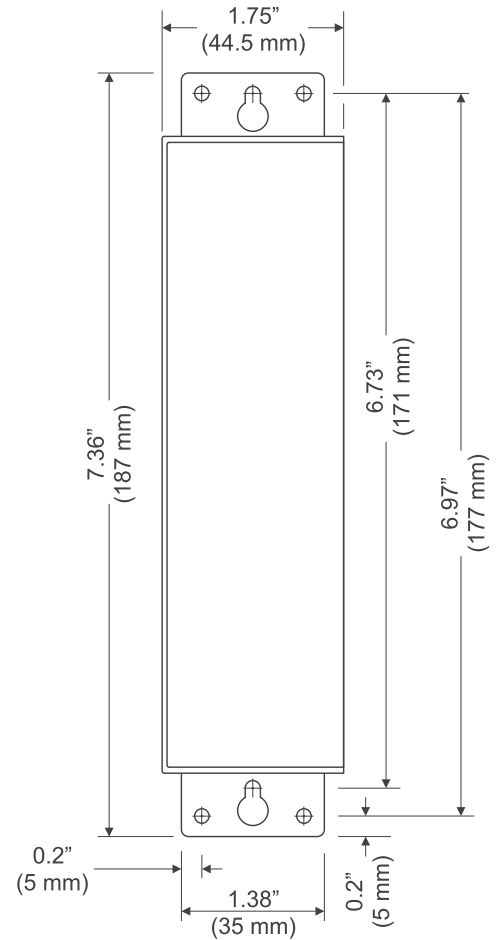

Figure 4.

Figure 3.

By using two AI3-CXS hubs, a distributed start topology is achieved. Note that the hub-to-hub distance can be a maximum of 610 m when using coaxial cable and that no terminators are used at the AI3 ports.
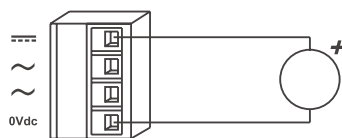
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Mechanical

5.62"
(143 mm)   distance to DIN-rail

5.51"
(140 mm)

3.1"
(78 mm)

(bracket)

TS-35 DIN-rail

6.14"
(156 mm)

0.35"
(9 mm)

1.38"
(35 mm)

(bracket)

5.45"
(139 mm)

0.56"
(14 mm)
(typical)

**Side View showing DIN-rail Clip
(Mounting Brackets Retracted)**

1.75"
(44.5 mm)

7.36"
(187 mm)

6.73"
(171 mm)

6.97"
(177 mm)

0.2"
(5 mm)

1.38"
(35 mm)

0.2"
(5 mm)

**Front View with
Mounting Brackets Extended**

Power Diagrams

~
~
0Vdc
+

DC Powered

~
~
0Vdc
+   +
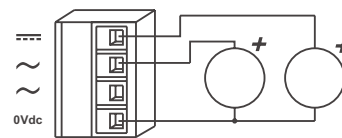
Redundant DC Powered

~
~
0Vdc

AC Powered

~
~
0Vdc
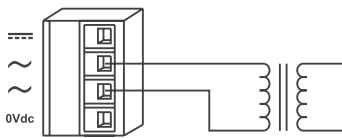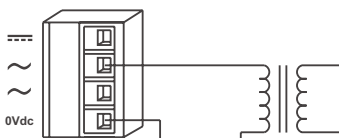
AC Powered with Grounded Secondary

~
~
0Vdc
+
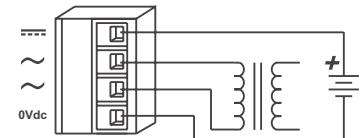
AC Powered with Battery Backup

DeviceNet™

Specifications

Electrical	DC	AC
Input voltage	10–36 Volts	8–24 Volts
Input power	4 W	4 VA
Input frequency	N/A	47–63 Hz

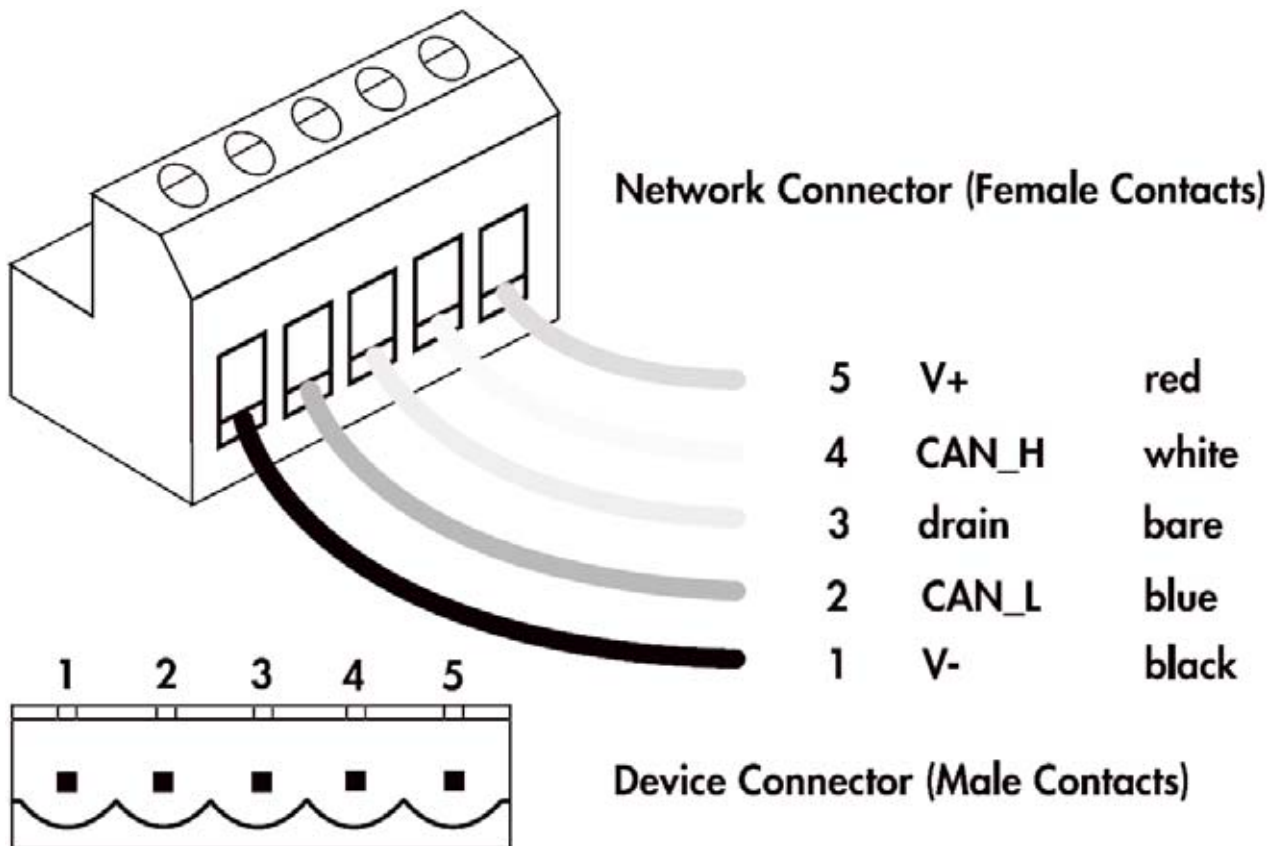| Environmental	
Operating temperature	0°C to +60°C
Storage temperature	–40°C to +85°C

Functionality	
Data latency	1 ms typical per bridge pair

Regulatory Compliance	CE Mark; CFR 47, Part 15 Class A

DeviceNet Port Connection

Network Connector (Female Contacts)

5	V+	red
4	CAN_H	white
3	drain	bare
2	CAN_L	blue
1	V-	black

Device Connector (Male Contacts)

DeviceNet™

Port Specifications

	DeviceNet Port	Backbone Port
Compliance	DeviceNet Volume 1, Release 2.0	ARCNET ANSI/ATA 878.1
Data rate	125 kbps, 250 kbps, 500 kbps selectable	2.5 Mbps
LEDs	*CAN status* Module status/network status	*Link status* Reconfiguration status/activity status
Transceivers	Optically-isolated 82C251	-CXB model: transformer-coupled -FOG model: 850 nm duplex fibre optic
Cable	DeviceNet Thick	-CXB model: RG-62/u coaxial -FOG model: 62.5/125 µm duplex fibre optic
Connectors	5 position Open-pluggable	-CXB model: BNC -FOG model: ST™
Maximum segment or subnet distance	125 kbps: 500 m (1640 ft) 250 kbps: 250 m (820 ft) 500 kbps: 100 m (328 ft)	-CXB model: 305 m (1000 ft) -FOG model: 1830 m (6000 ft) (optical power budget: 10.4 dB)
Maximum number of nodes per segment	64	-CXB model: 8 -FOG model: N/A
Terminating resistor	121 ohms	-CXB model: 93 ohms -FOG model: N/A

Ordering Information

Bus Extenders

Model	Description
EB/DNET-CXB	EXTEND-A-BUS for DeviceNet with coaxial bus backbone
EB/DNET-FOG	EXTEND-A-BUS for DeviceNet with fibre optic backbone

Accessories

Model	Description
AI-XFMR	Wall-mount plug-in transformer, 120 VAC (nom) input/24 VAC (nom) output
AI-XFMR-E	Wall-mount plug-in transformer, 230 VAC (nom) input/24 VAC (nom) output
AI-DIN	DIN-rail mounting kit
BNC-T	BNC "T" connector
BNC-TER	93 ohm BNC terminator

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