data SHEET

AI-SRVR Series — ARCNET Server to Ethernet Client

The AI-SRVR passes data between an ARCNET network and an Ethernet network — giving a client on the Ethernet side access to nodes on the ARCNET side. The unit's role as an ARCNET server is to execute communication requests from an Ethernet client. Any number of Ethernet TCP/IP clients can initiate requests to any node on an ARCNET network.

This device will receive ARCNET packets and send the data to Ethernet clients or reverse the process for packets received from Ethernet.

A special option called the AI-PROXY mode allows two ARCNET networks to communicate over great distances through an Ethernet network.

Compatible with the baseband 2.5 Mbps ARCNET® network

- Provides connectivity between ARCNET baseband networks and Ethernet
- Supports coaxial and twisted-pair ARCNET networks including AC- and DC-coupled EIA-485
- 256 separate ARCNET receive buffer mailboxes
- Allows monitoring of all ARCNET traffic — including broadcasts
- A DLL for Windows® clients is provided to facilitate communication
- Resident web server provides status information
- Configurable through an EIA-232 console port
- Low-voltage AC- or DC-powered
- Panel-mount or DIN-rail mount
- CE Mark
- RoHS compliant

ARCNET®

The AI-SRVR Mode

ARCNET and Ethernet have varied medium access methods, frame sizes and link layer protocols. The most popular Ethernet transport layer protocol is TCP/IP, but ARCNET is usually found in embedded applications that do not use TCP/IP. ARCNET does not use a universal application layer — so ARCNET works best when passing raw packets. The Ethernet client must interpret the meaning of the raw packets.

This approach allows any ARCNET network to be queried by any Ethernet client regardless of the application layer protocol being used with ARCNET.

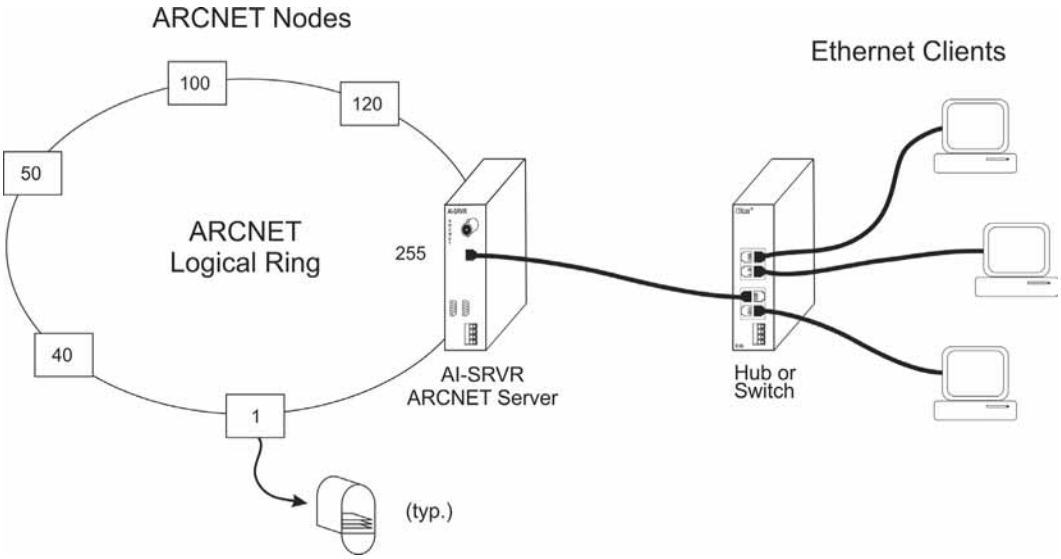
You configure the Ethernet IP address and ARCNET node address using an EIA-232 serial port — then a resident web server provides device status.

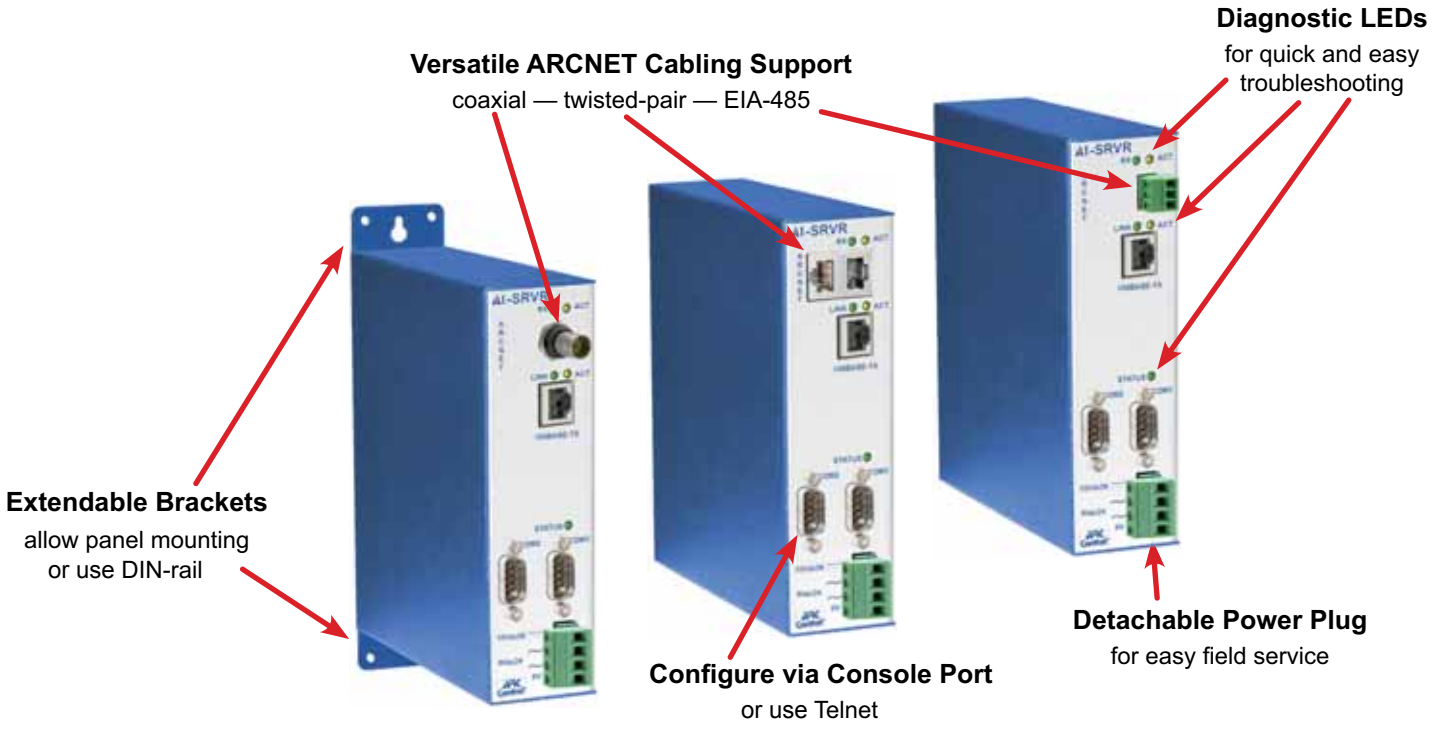
The AI-SRVR will consume one of the 255 nodes (address “0” is reserved for broadcasts) and will participate in the token passing. It can also run in promiscuous mode to monitor all ARCNET traffic.

Each of 256 mailboxes has memory of adjustable depth to capture data.

Each mailbox corresponds to a source node and uses either of two methods of receiving. Using ***polling mode***, the Ethernet client continually checks for data. In ***automatic forwarding mode***, packets are forwarded to the requesting Ethernet clients.

Ethernet clients write data to the ARCNET network by specifying the ARCNET destination address and appending the data to be sent.





The AI-Proxy Mode

The AI-SRVR can also function in the ***AI-PROXY*** mode which allows ARCNET devices on separate networks to exchange data over an Ethernet backbone. One AI-SRVR ***node*** is needed for ***each*** ARCNET device because each AI-SRVR node can function as a ***proxy*** for only one ARCNET device. The proxy receives packets in a local ARCNET network and sends them over the Ethernet cabling to a remote AI-SRVR for re-transmission on the remote network.

In the simplest scenario (Figure 1), each AI-SRVR-1 represents one ARCNET node. If several nodes in one network must communicate with several nodes in another network as in Figure 2, you can use a pair of AI-SRVR-8 units to represent up to eight ARCNET nodes in each network. If more than eight nodes must be represented, ***multiple*** AI-SRVR-8 units may be used. If needed, you can mix the AI-SRVR-1 and the AI-SRVR-8 as in Figure 3.

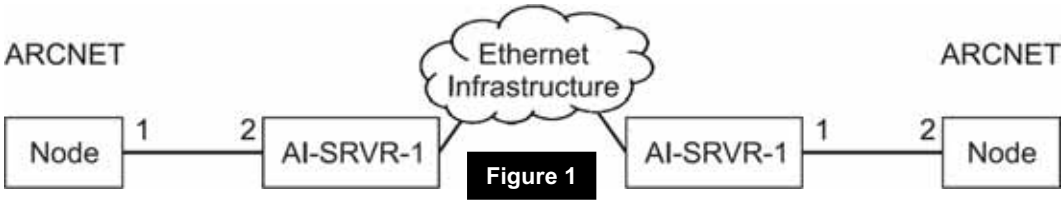


Figure 1

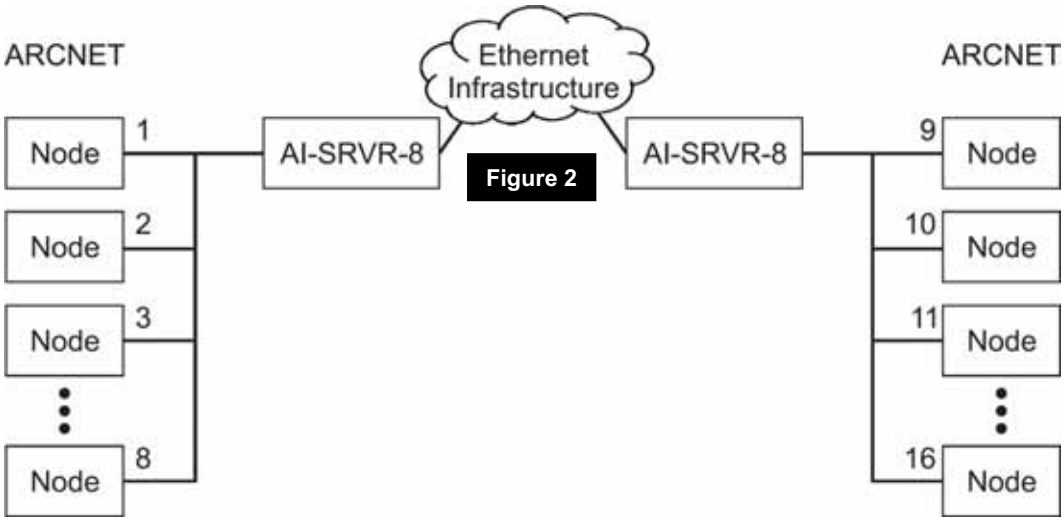


Figure 2

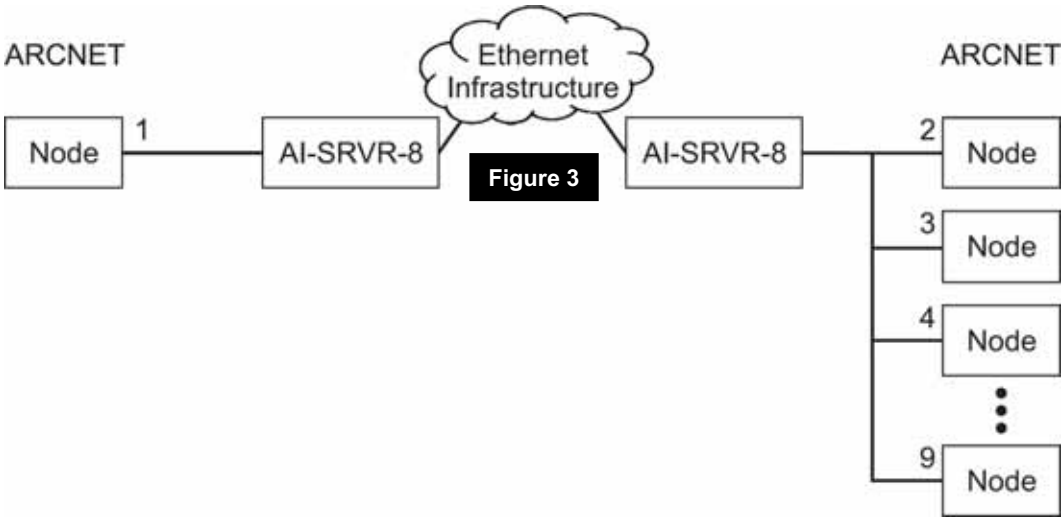
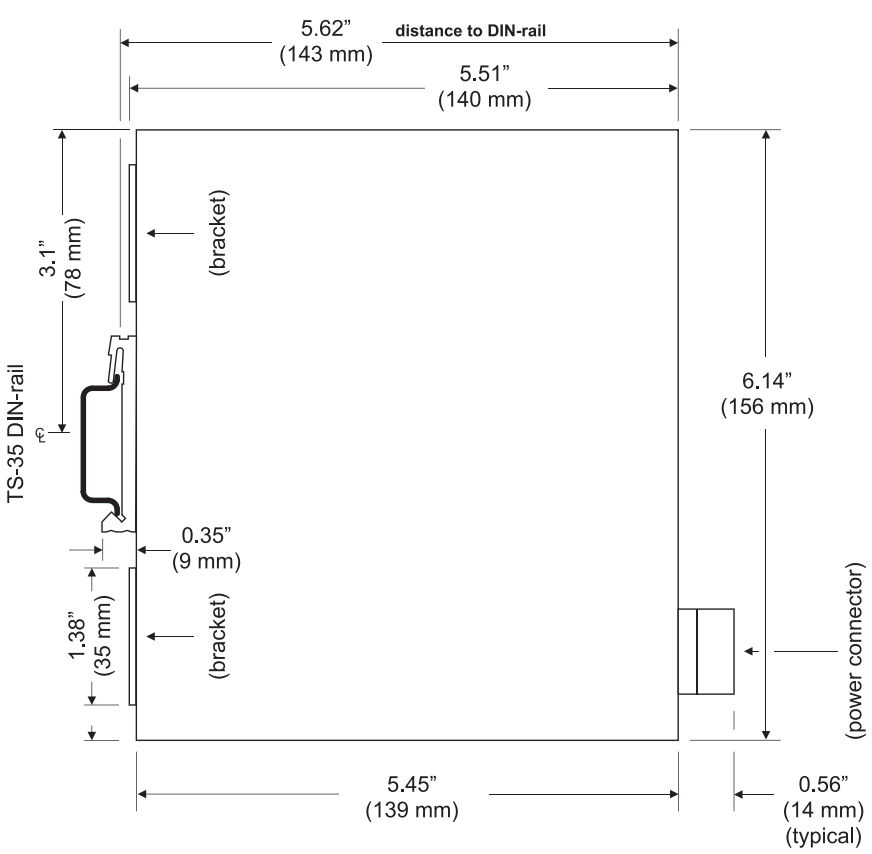
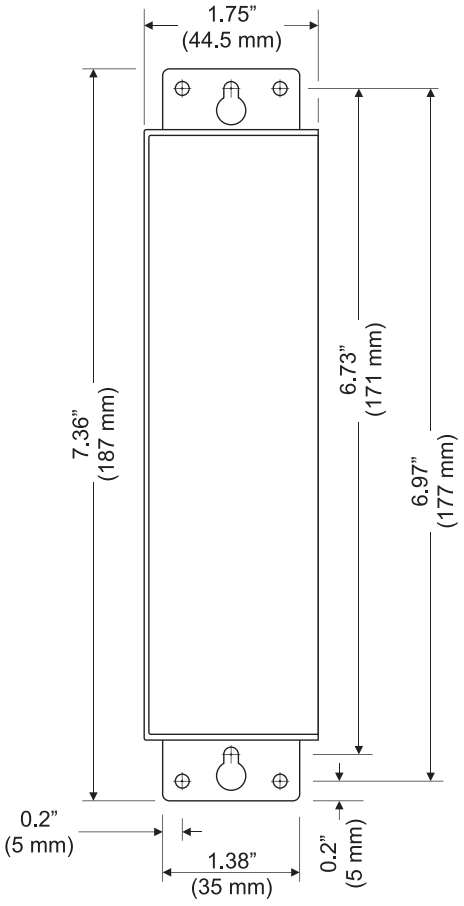


Figure 3

Mechanical Diagram



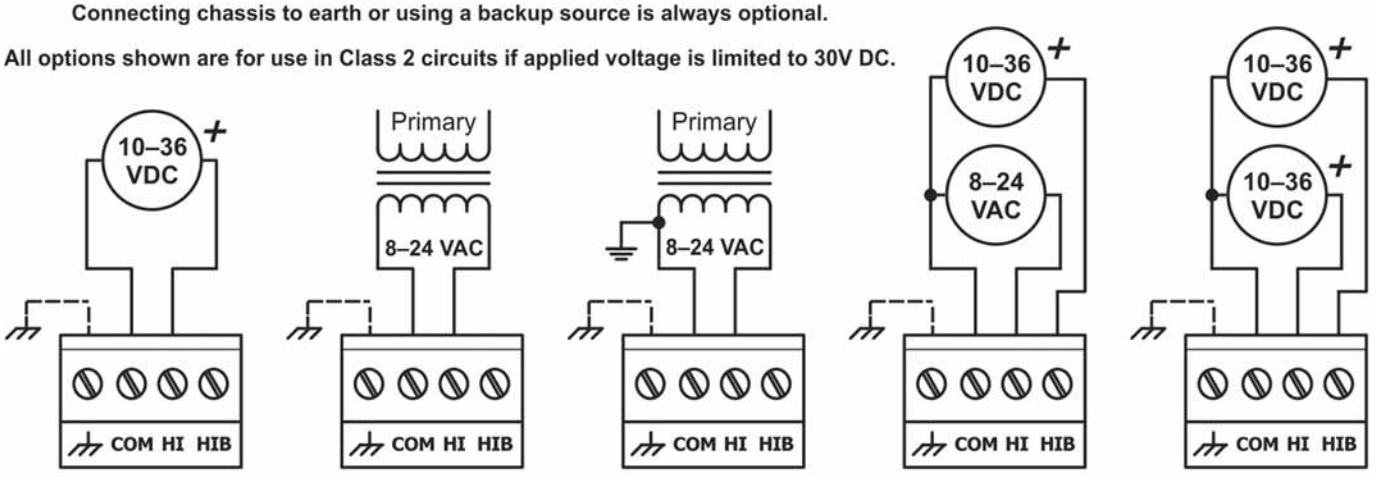
Side View showing DIN-rail Clip (Mounting Brackets Retracted)



Front View with Mounting Brackets Extended

Power Diagrams

Input power: 10–36 VDC or 8–24 VAC, 47–60 Hz.
Connecting chassis to earth or using a backup source is always optional.
All options shown are for use in Class 2 circuits if applied voltage is limited to 30V DC.



DC Powered | **AC Powered** | **AC Powered with Grounded Secondary** | **AC Powered with DC Backup** | **Redundant DC Powered**

Specifications

Electrical Input

	DC	AC
Voltage	10–36 VDC	8–24 VAC
Power	8 W	8 VA
Frequency	N/A	47–63 Hz

Environmental/Mechanical

Operating temperature	0°C to 60°C
Storage temperature	–40°C to +85°C
Relative humidity	10–95%, non-condensing
Protection	IP30

Functionality

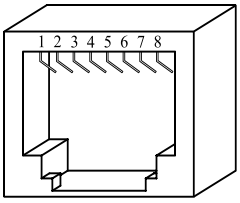
Data rates	*Transceiver*	*Data Rates*
	485	156 kbps to 10 Mbps
	485X	1.25 Mbps to 5 Mbps
	CXB and TB5	2.5 Mbps
Extended timeouts	Supports all three extended ARCNET timeouts	
Compliance	ATA 878.1-1999 ANSI/IEEE 802.3	

Regulatory Compliance

CE Mark
RoHS
CFR 47, Part 15 Class A

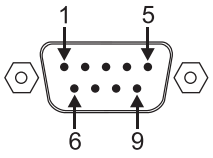
RJ-45 Connector Pin Assignments

Pin	Function
1	TD+
2	TD–
3	RD+
4	N/C
5	N/C
6	RD–
7	N/C
8	N/C



Console Port Pin Assignments (EIA-232C)

Pin	Function
1	N/C
2	RX
3	TX
4	N/C
5	Earth
6	N/C
7	N/C
8	N/C
9	N/C



Electromagnetic Compatibility

Standard	*Test Method*	*Description*	*Test Levels*
EN 55024	EN 61000-4-2	Electrostatic Discharge	4 kV contact, 6 kV air
EN 55024	EN 61000-4-3	Radiated Immunity	10 V/m, 80 MHz to 1 GHz
EN 55024	EN 61000-4-4	Fast Transient Burst	1 kV clamp, 2 kV direct
EN 55024	EN 61000-4-5	Voltage Surge	1 kV L-L, 2 kV L-Earth
EN 55024	EN 61000-4-6	Conducted Immunity	10 Volts (rms)
EN 55024	EN 61000-4-11	Voltage Dips & Interruptions	1 Line Cycle, 1 to 5 s @ 100% dip
EN 55022	CISPR 22	Radiated Emissions	Class A
EN 55022	CISPR 22	Conducted Emissions	Class A
CFR 47, Part 15	ANSI C63-4	Radiated Emissions	Class A

Ordering Information

Model	*Description*
AI-SRVR-1/485	Single-node ARCNET server for DC-coupled EIA-485
AI-SRVR-1/485X	Single-node ARCNET server for AC-coupled EIA-485
AI-SRVR-1/CXB	Single-node ARCNET server for coaxial bus
AI-SRVR-1/TB5	Single-node ARCNET server for twisted-pair bus
AI-SRVR-8/485	Eight-node ARCNET server for DC-coupled EIA-485
AI-SRVR-8/485X	Eight-node ARCNET server for AC-coupled EIA-485
AI-SRVR-8/CXB	Eight-node ARCNET server for coaxial bus
AI-SRVR-8/TB5	Eight-node ARCNET server for twisted-pair bus

Accessories

Model	*Description*
AI-XFMR	Wall-mount plug-in transformer, 120 VAC input/24 VAC output (nominal values)
AI-XFMR-E	Wall-mount plug-in transformer, 230 VAC input/24 VAC output (nominal values)
BNC-T	BNC “T” connector
BNC-TER	93-ohm BNC terminator
TB5-TER	100-ohm RJ-45 terminator

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