

data SHEET



USB22 Series — Network Interface Modules for USB Computers

To overcome the inherent non-real-time response of Windows®, Contemporary Controls released the USB22 Series of USB 2.0 to ARCNET adapters. ARCNET's determinism has been compromised by a PCMCIA adapter because typical operating systems cannot service the devices in a timely fashion, causing lost or missed messages. The USB22 deep memory buffer holds messages until the OS can service the device — so missed messages are rare — even if operating at 10 Mbps (four times the standard ARCNET data rate of 2.5 Mbps).

The Universal Serial Bus (USB) has become a well-known method for connecting either desktop or laptop computers to peripherals because it provides a very high-speed interface (up to 480 Mbps).

Using the COM20022 controller, the USB22 represents the latest ARCNET technology — supporting data rates as high as 10 Mbps. Models exist for most recognized

ARCNET physical layers. A high-performance microcontroller handles the transfer of data between ARCNET and USB. The NIM is powered from the USB port on the computer.

This product is compatible with the USB 2.0 standard, for extremely fast and convenient access to an ARCNET network without the need to install a NIM into a computer. Since most modern computers are sold equipped with a USB port, it is only necessary to directly connect between the computer and the USB22. The USB22 also operates with the earlier lower-speed USB 1.1 standard.

The USB22 receives its power from the USB port on the USB computer. It is available in several models that will support DC- or AC-coupled EIA-485, coaxial bus or twisted-pair networks. It is shipped with a CD containing a Windows 2K/XP/Vista/7 compatible DLL and driver, along with a USB cable.

Features

- Send/receive ARCNET packets from USB-connected computer
- Supports coaxial and twisted-pair LANs, including AC- and DC-coupled EIA-485
- Embedded microcontroller provides 128 Kbytes of receiver buffering
- Compatible with the baseband ARCNET network
- Operates with either the USB 1.1 or 2.0 standard
- Incorporates a COM20022 ARCNET controller
- LEDs indicate USB status and port activity
- Powered from a computer USB port
- CE Mark and RoHS compliant



USB Cable Included



Transceiver Options

Dipulse (Analogue) Signals

Coaxial Bus Topology (USB22-CXB)

Cards with **-CXB** transceivers accept RG-62/u cable via BNC Tee connectors. Each node presents a high-impedance in both the powered and unpowered states. Apply BNC-style 93Ω terminators to both ends of a bus — which can be up to 305 m long and accommodate up to 8 devices.

Twisted-Pair Bus Topology (USB22-TB5)

Using dual RJ-45 jacks, a **-TB5** dipulse transceiver supports up to 8 devices and 122 m of shielded or unshielded twisted-pair cable. Each node presents a high-impedance in both the powered and unpowered states. Apply RJ-45 style 93Ω terminators at each end of the bus.

EIA-485 (Digital) Signals

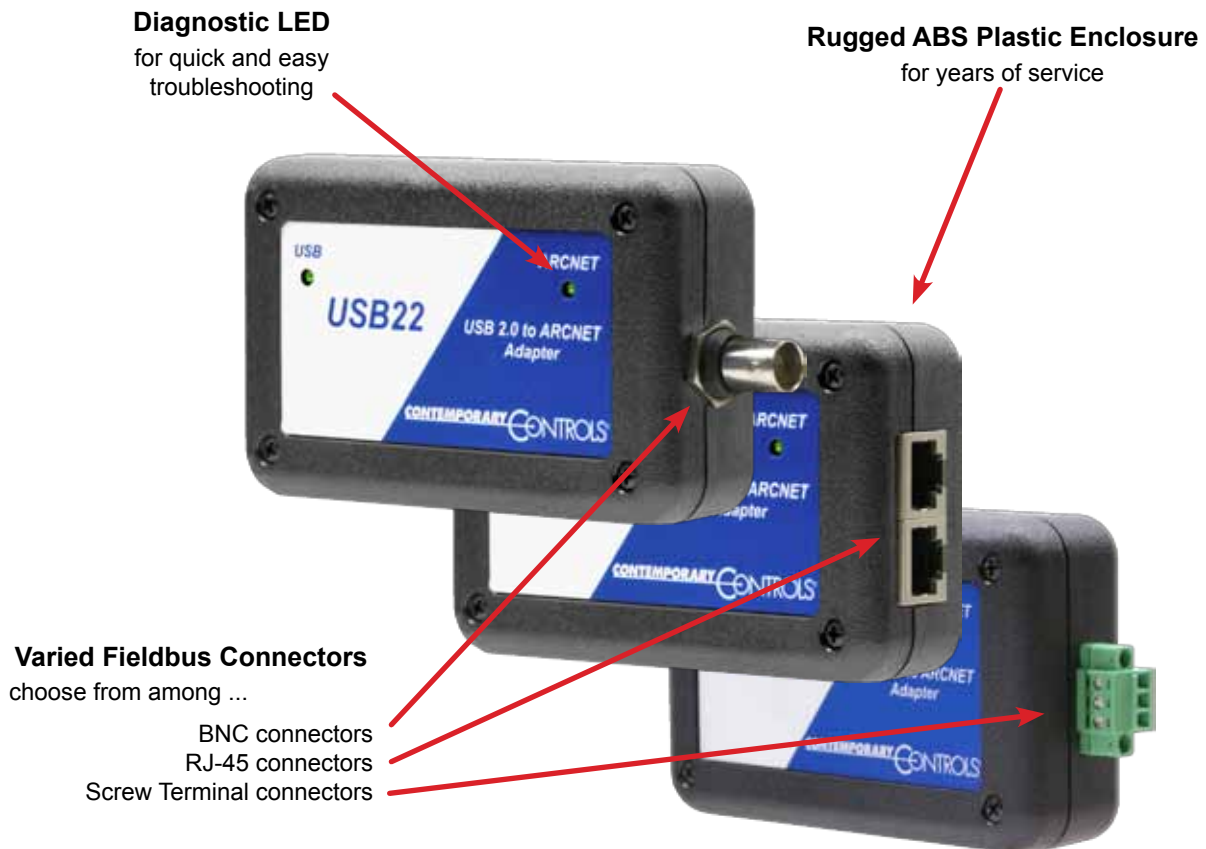
DC-coupled EIA-485 (USB22-485)

The **-485** card enables backplane mode via your software; the **-485D** uses the card's own hardware. Both support up to 17 nodes and 274 m of cabling via a 3-terminal screw connector*. Apply 120Ω of termination and proper bias at each end of the bus.

AC-coupled EIA-485 (USB22-4000)

The **-4000** card invokes backplane mode via your software for up to 8 nodes and 80 m of cabling using dual RJ-45 jacks. The **-485X** enables backplane via its hardware for up to 13 devices and a 213 m segment via a 3-terminal screw connector*. Apply 120Ω termination at each end of the bus.

* Dual RJ-45 sockets replace the 3-pin connector if the **/J** model is specified (see Ordering Information).



Specifications

Current Demand 400 mA (max)

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 rate
 USB22-CXB, -TB5 2.5 Mbps
 USB22-485, -485/S3 10 Mbps, 5 Mbps, 2.5 Mbps, 1.25 Mbps, 625 kbps, 312.5 kbps, 156.25 kbps
 USB22-4000, -4000/S3 10 Mbps, 5 Mbps, 2.5 Mbps, 1.25 Mbps
 Compliance ATA 878.1-1999
 USB 1.1 and USB 2.0

LED indicators
 ARCNET: Green — flashes in response to any ARCNET activity
 USB: Green — if a valid USB connection exists with its host computer

Dimensions 108 mm x 67 mm x 32 mm (4.25" x 2.63" x 1.26")

Shipping Weight 0.45 kg (1 lb.)

Regulatory Compliance

CE Mark
 RoHS
 CFR 47, Part 15 Class A



Important Note: You must *modify* your application software to communicate properly with our driver. Our online Software Developer Kit has helpful information and sample applications.

Power Requirements

Model	+5 V
USB22-CXB	400 mA
USB22-TB5	400 mA
USB22-485	350 mA
USB22-485/S3	350 mA
USB22-4000	350 mA
USB22-4000/S3	350 mA

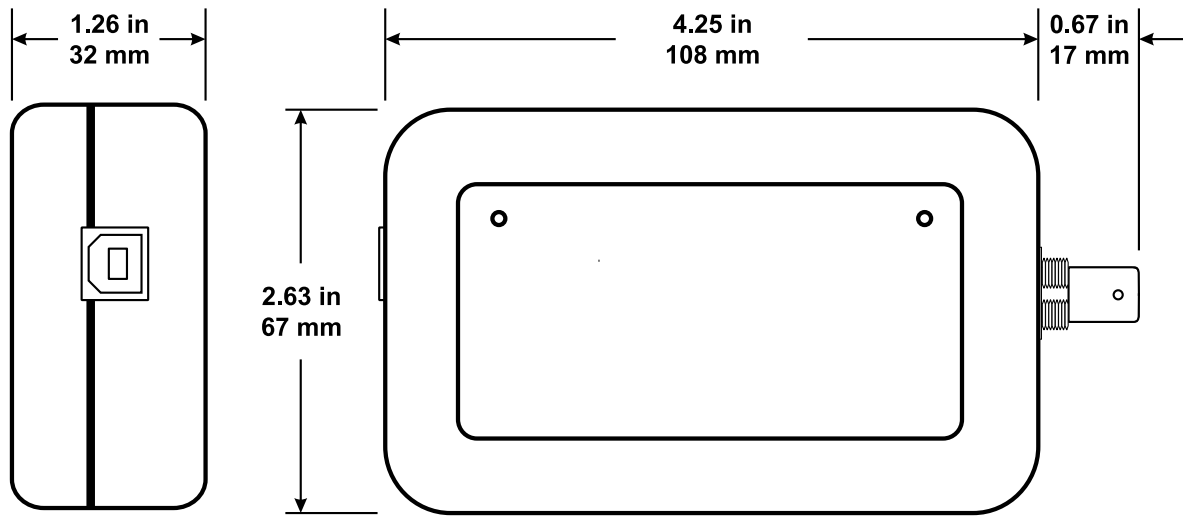
Fieldbus Connectors and Cabling

Connector	Cable	Segment Length		Max Nodes per Segment
		Min ¹	Max	
BNC	RG-62/u	2m (6ft)	305m (1000ft)	8
Dual RJ-45	T-P ²	2m (6ft)	122m (400ft)	8
Dual RJ-45	T-P ²	0	274m (900ft)	17
3-pin	T-P ²	0	274m (900ft)	17
Dual RJ-45	T-P ²	0.5m (1.6ft)	80m (262ft)	8
3-pin	T-P ²	0.5m (1.6ft)	80m (262ft)	8

¹ Minimum distance between any two network devices.

² T-P = Twisted-pair, IBM Type 3

Mechanical Drawing



Ordering Information

Model	Description	Fieldbus Connector
USB22-CXB	USB2.0 TO ARCNET Coaxial NIM ¹	BNC
USB22-TB5	USB2.0 TO ARCNET Twisted-Pair NIM ¹	Dual RJ-45
USB22-485	USB2.0 TO ARCNET DC-Coupled EIA-485 (Backplane ²) NIM ¹	Dual RJ-45
USB22-485/S3	USB2.0 TO ARCNET DC-Coupled EIA-485 (Backplane ²) NIM ¹	3-pin screw terminal
USB22-4000	USB2.0 TO ARCNET AC-Coupled EIA-485 (Backplane ²) NIM ¹	Dual RJ-45
USB22-4000/S3	USB2.0 TO ARCNET AC-Coupled EIA-485 (Backplane ²) NIM ¹	3-pin screw terminal

¹ NIM is an abbreviation for *network interface module*.

² Backplane mode is controlled by software.

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