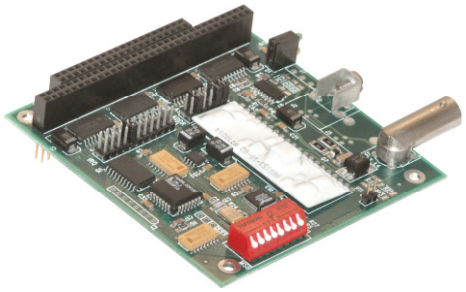
ARCNET® Interface Modules for the PC/104™



Benefits

- COM20022 controller
- Interfaces ARCNET with PC/104 bus computers
- I/O-only mapping reduces bus contention problems
- No requirements for wait-state arbitration
- Deterministic high-speed ARCNET token-passing local area network (LAN)
- Enhanced software capabilities over earlier generation ARCNET controllers
- Node address switch selects one of 255 possible station addresses
- Variable data rates up to 10 Mbps
- Supports coaxial and twisted-pair cabling, including EIA-485
- Compatible with Contemporary Controls' MOD HUB and AI Series of active hubs
- CMOS design for low power consumption
- +5 Volt only operation

Applications

- Data acquisition
- SCADA
- Machine control
- Operator interface
- Process control
- Communication gateway

The PC10422 Series of ARCNET Network Interface Modules (NIMs) links PC/104 compatible computers with the ARCNET local area network.

ARCNET is classified as a token-bus LAN operating at 2.5 Mbps while supporting 255 nodes. Interfacing ARCNET to a host computer typically requires a NIM which plugs into the host computer bus.

The PC10422 is designed with the COM20022 ARCNET controller chip with enhanced features over earlier generation ARCNET chips. New features include command chaining, sequential access to internal RAM, duplicate node ID detection and variable data rates up to 10 Mbps. Bus contention problems are reduced because the module only requires an I/O address, and there is no requirement for wait-state arbitration. In addition, the +5 V only operation reduces system cost by eliminating multiple voltage power sources.

Each PC10422 module has two LEDs on the board for monitoring network operation and bus access to the module. It is equipped with an 8-position, general purpose DIP switch typically used to reassign the ARCNET node address without removing the module. Ultimately, the node address is configured via software so the DIP switch can also indicate user defined functions such as data rate, cable interface, or master/slave status of the PC/104 system.

There are several models of the PC10422 that allow for flexible cabling options. The PC10422-CXS supports coaxial star configurations requiring external active or passive hubs. The PC10422-CXB supports a coaxial bus configuration, usually requiring no hubs and allowing multiple modules to communicate over a single coaxial cable. Similarly, the PC10422-TPB supports twisted-pair bus cabling using either RJ-11 or screw terminal connectors.

The PC10422 Series also supports three separate EIA-485 physical layer implementations. The PC10422-485D supports the EIA-485 DC-coupled cabling standard while the PC10422-485X provides transformer-coupled EIA-485 operation. Certain applications require that the COM20022 be operated in backplane mode. The PC10422-4000 is intended for these applications and supports the transformer-coupled EIA-485 physical layer interface. All EIA-485 models are fitted with dual RJ-11 receptacles and a 3-position screw terminal connector to ease field wiring.

Contemporary Control Systems, Inc. • 2431 Curtiss Street • Downers Grove, Illinois 60515 • USA
Telephone 1-630-963-7070 Fax 1-630-963-0109 E-mail info@ccontrols.com Web www.ccontrols.com, www.CTRLink.com

Contemporary Controls Ltd • Sovereign Court Two • University of Warwick Science Park • Sir William Lyons Road • Coventry CV4 7EZ UK
Telephone +44 (0)24 7641 3786 Fax +44 (0)24 7641 3923 E-mail info@ccontrols.co.uk Web www.ccontrols.co.uk

Specifications

Temperature Range	
Operating temperature	0°C to +60°C
Storage temperature	–40°C to +85°C
Data Rates	
PC10422-CXB, -CXS, -TPB	2.5 Mbps
PC10422-485D	10 Mbps, 5 Mbps, 2.5 Mbps, 1.25 Mbps, 625 kbps, 312.5 kbps, 156.25 kbps
PC10422-485X	10 Mbps, 5 Mbps, 2.5 Mbps, 1.25 Mbps
PC10422-4000	10 Mbps, 5 Mbps, 2.5 Mbps, 1.25 Mbps
Dimensions	3.550" x 3.775" (90 mm x 95 mm)
Shipping Weight	1 lb. (.45 kg)
I/O Mapping	Supports I/O mapping on any 16-byte boundary
Interrupt Lines	Supports strapping of IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 14 or 15
Compatibility	PC10422 Series NIMs are compliant with ANSI/ATA 878.1-1999 and PC/104 Specification 2.3 dated June 1996. Interrupt sharing option is not implemented.

Transceiver Specifications (2.5 Mbps)

Transceiver	Description	Cable	Connectors	Cable Length		Max Nodes/ Bus Segments
				Min	Max	
-4000	AC-coupled EIA-485	IBM type 3	RJ-11	1.65ft/0.5m[1]	262ft/80m	8
-485D	DC-coupled EIA-485	IBM type 3	RJ-11	0	900ft/274m	17
-485X	AC-coupled EIA-485	IBM type 3	RJ-11	0	700ft/213m	13
-CXB	coaxial bus	RG-62/u	BNC	6ft/2m[1]	1000ft/305m	8
-CXS	coaxial star	RG-62/u	BNC	0	2000ft/610m	N/A
-TPB	twisted-pair bus	IBM type 3	RJ-11	6ft/2m[1]	400ft/122m	8

[1]This represents the minimum distance between any two nodes or between a node and a hub.

Power Requirements

Model	+5 V
PC10422-4000	200 mA
PC10422-485D	200 mA
PC10422-485X	200 mA
PC10422-CXB	200 mA
PC10422-CXS	200 mA
PC10422-TPB	200 mA

Ordering Information

Model	Description
PC10422-4000	20022 PC/104 AC-coupled EIA-485 NIM (backplane)
PC10422-485D	20022 PC/104 DC-coupled EIA-485 NIM
PC10422-485X	20022 PC/104 AC-coupled EIA-485 NIM
PC10422-CXB	20022 PC/104 coaxial bus NIM
PC10422-CXS	20022 PC/104 coaxial star NIM
PC10422-TPB	20022 PC/104 twisted-pair bus NIM