



NetController

CPU Module

The Andover Continuum™ NetController is the high-powered Central Processing Unit (CPU) module and network manager for the Andover Continuum intelligent building system. With its 8 MB DRAM, 4 MB flash, math co-processor, and four programmable communications ports, including an interface to Infinity's Inifinet distributed controllers, the Andover Continuum NetController provides a total solution for facility-wide network communications and information management. A lower-cost version of the NetController is also available with 4 MB DRAM, 2 MB flash, and no math co-processor.

HIGH-SPEED COMMUNICATIONS

The NetController acts as the system coordinator, providing integrated global control and monitoring, history logging, and local and remote alarming for both the Andover Continuum I/O modules and the RS-485 Inifinet controllers that control your individual building services—heating, ventilating, air conditioning, lighting, access control, smoke control, and more. The NetController communicates with up to 32 Andover Continuum I/O modules via Andover LON communications over a choice of RS-485 or free topology bus media. The NetController supports expansion of up to two Inifinet networks. Each Inifinet network can contain 127 Inifinet controllers and up to 31 ACX series access controllers or DCX 250 display controllers.

An optional Ethernet port also allows the NetController to communicate with other NetControllers and Andover Continuum Workstations over a high-speed 10 MB/s Ethernet Local Area Network (LAN) using TCP/IP protocol. Andover Continuum workstations are capable of communicating with up to 4 millions nodes on Ethernet. Two different network interfaces are available—you can choose either Ethernet 10BASE-T (twisted pair) cable media or Ethernet 10BASE-FL (fiber optic cable). A Token Ring LAN interface option is also available. See factory for details.

NetController's flash allows you to download software revisions over Ethernet using an Andover Continuum workstation. The flash memory feature eliminates the need to perform EPROM change-outs in the field.

SERIAL COMMUNICATIONS

NetController's four programmable communications ports can be configured as a combination of RS-232 or RS-485 interfaces to modems, printers, third-party devices, and up to two Infinity Inifinet field controller networks. TAC has developed an extensive library of third-party software interfaces, including controls for chiller panels, fire alarm systems, emergency generator systems, bar code readers, elevator controls, videomatrix switchers, and more.

- Native Ethernet TCP/IP Network Controller
- Powerful, Modular CPU Board for Monitoring and Control of Both Andover Continuum I/O Modules and Infinity Inifinet Distributed Controllers
- High-Speed Networking—4 Million Nodes on Ethernet
- Four Programmable Comm. Ports for Flexible Interconnect and Third-Party Communications
- Programmable Battery Backup Provides Choice of Shutdown Options
- Flash for Easy On-Line Software Updates
- Andover Plain English Language Simplifies Programming
- DIN Rail Mounting and Slide-Together Connectors for Easy Installation
- Backward Compatible with Andover Infinity Hardware

ANDOVER PLAIN ENGLISH™ PROGRAMMING

The Andover Continuum NetController can be configured to meet the exact requirements of your application using the powerful Andover Plain English programming language. Programs are entered into the NetController using the Andover Continuum Workstation. The program is then stored in, and executed by, the NetController. Just as with Infinity, one single language is used system-wide.

SOFTWARE CAPABILITIES

The dynamic memory of the Andover Continuum NetController can be allocated for any combination of programs, scheduling, alarming, reporting and data logging. Our object-oriented Andover Plain English language with intuitive keywords provides easy operation and programming. In addition, Andover Plain English 's pre-defined and customized functions and powerful math capabilities reduce programming time.

OPTIONAL AUTO-BAUD MODEM

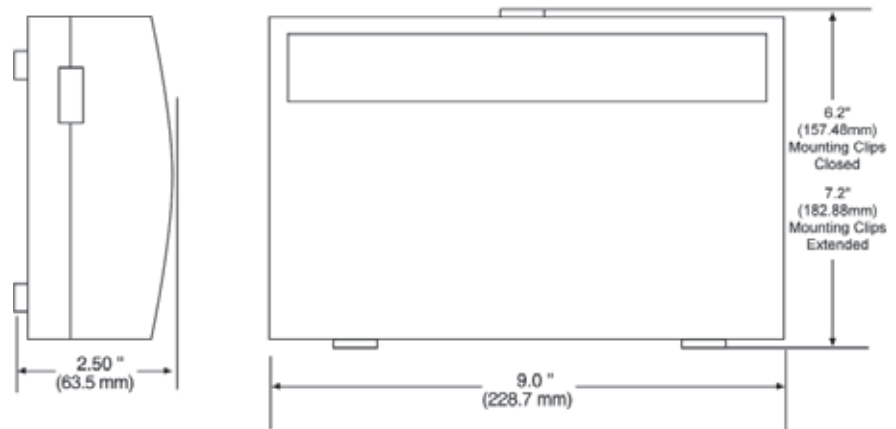
The optional Andover Continuum modem allows NetController to communicate and exchange data over standard voice grade telephone lines with speeds up to 14,4K baud. The modem has built-in data compression and error-correction protocols, auto-dial/auto-answer capabilities, and is UPS-supported.

UPS OPERATION

The Andover Continuum NetController incorporates software programmable battery backup that reduces or eliminates the impact of power failure. In powerfail mode, the NetController CPU can turn off I/O power to extend battery life and support modem and network operation for up to four hours. In addition, the NetController can go into a low-power mode in which only the DRAM and real-time clock are powered for up to 72 hours.

MODULAR DESIGN FOR SLIDE-TOGETHER CONNECTION

The NetController features a sleek, lightweight casing designed for natural convection cooling. Built-in connectors on either side of the NetController module allow power transmission from the power supply module and communication signals to the Andover Continuum I/O modules to feed through easy slide-together connections. Built-in quick-release fasteners at the back of the module are provided for DIN rail mounting—no tools required. These fasteners also snap into a locked position for panel mounting. The NetController module is designed for mounting in an optional NEMA 1-style Andover Continuum enclosure. (See the Andover Continuum Enclosure and Display Module System data sheet.)



SPECIFICATIONS

NetController CPU Module

ELECTRICAL

Power Consumption:

10 watts at 24VDC max.; provided by Continuum power supply module.

Overload Protection:

3A resettable fuse with transient voltage suppressor (TVS) and reverse polarity protection.

Real Time Clock:

Battery-backed by UPS

MECHANICAL

Operating Environment:

32 to 120°F, (0 to 49°C), 10 to 95%RH (non-condensing)

Size:

9.0"W (228.7mm)
7.2"H (182.88mm)
(with mounting clips extended)
6.2"H (157.48mm)
(with mounting clips closed)
2.5"D (96.5 x 170.2 x 63.5mm)

Weight:

1.6 lbs (0.73kg)

Enclosure Type:

UL open class, flammability rating of UL94-5V, IP 10

Mounting:

Mount on DIN rail or wall-mount using attached fasteners. Continuum NEMA 1-style enclosure available.

BATTERY

Battery Backup:

Two 12V 7.0AHr sealed rechargeable batteries on the Continuum power supply provides 60 minutes @ 35 watts power consumption full UPS (CPU plus I/O power); 4 hours CPU module only (including modem and network interface) with no I/O; or 72 hours DRAM and real-time clock. Expandable by use of greater amp-hour batteries.

COMMUNICATIONS

Comm. Error Checking:

International Standard CRC 16

Ethernet LAN Interface:

10BASE-T: 327 ft (100m) standard between 2 nodes using 10BASE-T unshielded twisted pair cable. Standard Ethernet repeaters allow for longer distances.
10BASE-FL: 6562 ft (2000m) standard for 2 nodes using 10BASE-FL fiber optic cable. Standard Ethernet repeaters allow for longer distances.

Serial Comm. Interface:

Four programmable RS-232/485 ports, software configurable as printer, modem, third-party system, or TankNet. Infinet can be configured on Ports 1 and 2.
Port 1: RS-485/232
Port 2: RS-485
Port 3: RS-232/Modem
Port 4: RS-485

Serial Comm. Speed:

300 to 19.2K baud selectable for Infinet and 14.4K baud for modem

Infinet Bus Length:

4,000 ft. (1,220m) standard for Infinet using approved shielded, twisted pair, low capacitance cable. InfiLink module allows extension to longer distances.

I/O Bus:

ACC-LON communications. Choice of bus media, RS-485 or FTT-10A

RS-485:

Communications
Speed: 39k baud
Bus Length: 2,000 ft. (610m).
Bus Media: Shielded, twisted pair cable. 120 Ω termination required at both ends of the ACC-LON network (when modules are mounted remotely).

FTT-10A:

Communications
Speed: 78k baud
Bus Length: Up to 8858 ft. (2700m) – bus topology
Up to 1640 ft (500m) – free topology
Repeater required for longer distances.

Bus Media:

Refer to Echelon Ftt-10A free topology documentation

CONNECTIONS

Power:

5-position plug-in connector on left side of module for direct connection to Continuum power supply module.

Ethernet:

RJ-45 connector for Ethernet 10BASE-T or ST-style connector for 10BASE-FL.

Infinet, TankNet:

Removable terminal block (Requires external +26 volts for TankNet.)

Printer:

RJ-45

Modem:

RJ-11 connector

I/O Bus:

5-position plug-in connector on right side of module for direct connection of up to 32 I/O modules.

SPECIFICATIONS (continued)

NetController CPU Module

USER LEDS/SWITCHES

Status Indicator LEDS:

POWER	NetController Power is ON
CPU	NetController Active
SCAN	NetController Scanner ON
ERROR	NetController Error
COMM1 TD	Comm. Port 1 Transmit On-Line
COMM1 RD	Comm. Port 1 Receive Data
COMM2 TD	Comm. Port 2 Transmit On-Line
COMM2 RD	Comm. Port 2 Receive Data
COMM3 TD	Comm. Port 3 Transmit Data
COMM3 RD	Comm. Port 3 Receive Data
COMM4 TD	Comm. Port 4 Transmit On-Line
COMM4 RD	Comm. Port 4 Receive Data

MODEM DCD Data Carrier Detect

MODEM DTR Data Terminal Ready

MODEM Selected Indicates the MODEM is selected (Comm Port 3 is shared—RS-232 and MODEM)

I/O Bus On-Line Indicates the LON I/O Bus is On-Line

ETHERNET TD ETHERNET Transmit Data

RD ETHERNET Receive Data

COL ETHERNET Collision

LINK ETHERNET Link

POL ETHERNET Polarity

PUSH BUTTON SWITCHES

Clear Memory:

RESET/Clear Memory

MODEM RS-232 Override:

Selects between the MODEM and RS-232C (Comm 3)

GENERAL

Microprocessor:

68ECO20 running at 24 MHz with 68882 Floating Point Math Co-Processor (8 Mb model only)

Memory:

DRAM: 8 MB or 4 MB
Flash : 4 MB or 2 MB

AGENCY LISTINGS

UL/CUL 916, UL 864, UL 294, UL 1076, FCC Class A, CE

OPTIONS

Ethernet (TCP/IP) Module, 10BASE-T (Twisted Pair)

Ethernet (TCP/IP) Module, 10BASE-FL (Fiber Optic)

Third-party Interface Support (up to 3 comports)

14.4K baud Modem (UPS Supported) (U.S. and Canada only)

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