

Continuum[®] BA Cnet Family[™]



- **Native BACnet MS/TP Communications for Interoperability to Third-Party Systems**
- **Powerful, Flexible System Controller for the Most Demanding Applications**
- **Expandable I/O Meets Additional Point Count Needs**
- **Non-Volatile Flash Memory Provides Utmost Reliability — Stores Both Application Program and Operating System**
- **Optional Local Display/Keypad Provides Easy Operator Interface**
- **Local, Extended Storage of Log Data**
- **View and Modify Information with Optional *Smart Sensor* Display**

b3920 System Controllers

The *Continuum* b3920 series controllers are native BACnet Advanced Application Controllers (B-AAC) that communicate on an RS-485 field bus as Master devices using the MS/TP BACnet protocol.

The b3920, which is designed for control of large Air Handling Units, chillers, boilers, and other mechanical plant equipment, features plenty of dynamic memory for application programs as well as for expanded local data logging of critical data. The b3920 also features a fast 32-bit processor, universal inputs, override switches on all outputs, two-piece removeable connectors, and an optional 4-line display with keypad. The b3920, similar to other *Continuum* BACnet controllers, has an additional room sensor input, which supports Andover's *Smart Sensor*, or any standard room temperature sensor.

As a native BACnet controller, the b3920 series can communicate with other BACnet devices on the MS/TP network, in strict accordance with **ANSI/ASHRAE standard 135-2001**. By connecting to Andover's *Continuum* b4920 device, the b3920 and other MS/TP devices can share data from the wider Ethernet/IP network of controllers.

INCREASED RELIABILITY WITH FLASH MEMORY

The b3920's non-volatile Flash memory stores your operating system *and* application programs, so that in the event of a power loss, your application will be restored when power is returned. In addition, the Flash memory allows for easy upgrades of your operating system via software downloads, eliminating the need to swap out proms. The b3920 controllers include an on-board battery to safeguard your runtime data — protecting all point data and log data from being lost if power is removed.

INPUTS

The input configuration on the b3920 series consists of sixteen full range, 12-bit Universal inputs that accept voltage (0-10VDC), digital (on/off), counter signals (up to 4Hz), temperature signals, or supervised alarm circuits for security applications. The b3920 offers an additional input to support the Andover *Smart Sensor*, or any standard room temperature sensor.

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OUTPUTS

The b3920 contains 16 outputs - eight Form C relay outputs, each rated for 24 VAC/VDC, 3 amp, and eight analog outputs (0-10V, 4-20mA). Both the relay and analog outputs have manual override switches, with software feedback of the switch position.

I/O EXPANSION

The b3920 contains an I/O expansion port for the addition of up to two Andover xP expansion modules directly on the bottom of the controller. The xP family of modules includes the DI-8, DO-2, DO-4, AO-2, and AO-4. In addition, the I/O bus supports the xP Local Display Module, which allows the user to view and change point values. The Local Display Module is also available factory-mounted directly onto the b3920.

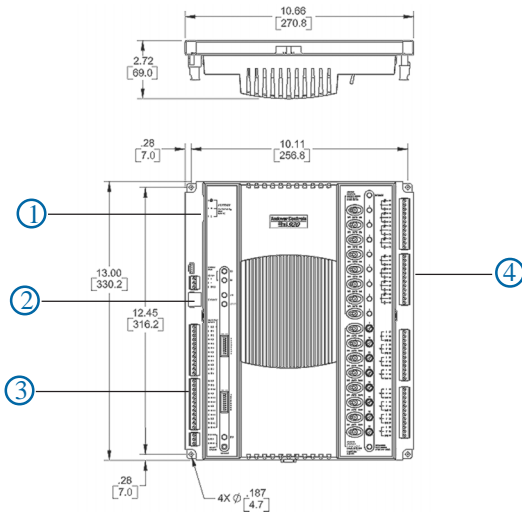
SOFTWARE CAPABILITIES

The dynamic memory of the b3920 can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover Controls *Plain English*[®] programming language. Our object-oriented *Plain English* language with intuitive keywords provides an easy method to tailor the controller to meet your exact requirements. Programs are entered into the b3920 using the *Continuum CyberStation*[®]. Programs are then stored and executed by the b3920 controllers.

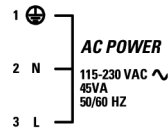
Programming multiple b3920 controllers is inherently easy with *Plain English*. A complete copy of one b3920's programs can be loaded directly into other b3920s without changing any point names or programs.

SMART SENSOR INTERFACE

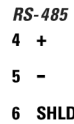
The b3920 provides a built-in connection for Andover's *Smart Sensor*. The *Smart Sensor* provides a 2-character LED display and a 6-button programmable keypad that enables operators and occupants to change setpoints, balance VAV boxes, monitor occupancy status, and turn equipment on and off. An enhanced version of the *Smart Sensor* is also available with a 4-digit custom LCD that provides the following icons: PM, %, °, Setpoint, Cool, Heat, CFM, Fan, OA, and SP.



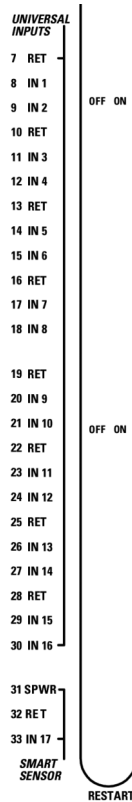
Dimensional Drawing



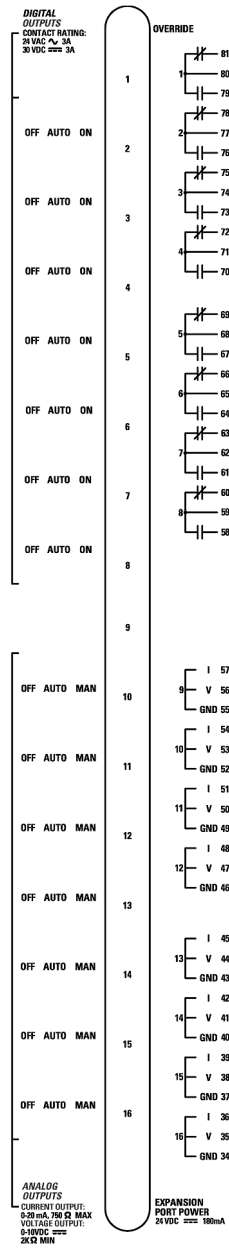
① Power Drawing



② Communications Drawing



③ Inputs/Smart Sensor Drawing



④ Outputs Drawing

SPECIFICATIONS

b3920 System Controller

ELECTRICAL

Power:	115/230 VAC, +10% -15%, 50/60 Hz
Power Consumption:	45 VA
Overload Protection:	Fused with 3 amp fuse. MOV protected.
Real-Time Clock:	Battery-backed real-time clock

MECHANICAL

Operating Environment:	32°–120°F (0–49°C), 10–95% RH (non-condensing)
Size:	13.00"H x 10.66"W x 2.72"D (330.2H x 270.8 W x 69.0 D) mm
Weight:	3.5 lbs. (1.58 kg)
Enclosure Type:	UL Open class, IP 10. Flammability rating of UL94-5V
Mounting:	Panel mount

BATTERY

Battery Backup:	Replaceable, non-rechargeable, lithium battery. Provides 5 years typical accumulated power failure backup of RAM memory
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COMMUNICATIONS

Communications Interface:	RS-485 BACnet, MS/TP 127 devices maximum
Communications Speed:	9600, 19.2K, 38.4K, 76.8K baud*
BACnet Device Profile:	B-AAC, BACnet Advanced Application Controller
Bus Length:	4,000 ft. (1,220m) standard; BACnet repeater allows extension to longer distances.
Bus Media:	Twisted, shielded pair, low capacitance cable

Note: Baud rates REQUIRE Continuum V1.62 version (or later) of software

INPUTS/OUTPUTS

Inputs:	16 Universal inputs: Voltage (0-10 VDC); Temperature -30°F to 230°F (-34°C to 110°C), Digital (on/off), Counter (up to 4Hz at 50% duty cycle, 125 ms min. pulse width). Supervised Alarm (single or double resistor). Current input (0 - 20 mA) using external 500 ohm resistor 1 <i>Smart Sensor</i> Temperature Input (32°F to 105°F) (0°C to 41°C)
Input Voltage Range:	0-10 volts DC
Input Impedance:	30.1K ohm to 10V or 5M ohm with pull-up resistor disabled
Input Protection:	24 VAC or 24 VDC temporarily on any single channel, ±1000V transients (Tested according to EN61000-4-4)
Input Resolution:	2.5 mV

INPUTS/OUTPUTS (CONTINUED)

Input Accuracy:	±7.5mV (±0.25°C from -23°C to +54°C) or (±0.46°F from -10°F to +130°F)
Digital Outputs:	8 single pole single throw (SPST) Form C relays (Any two consecutive Form C outputs can be configured as one Form K Tri-state)
Output Rating:	Maximum 3A, 24VAC/VDC, ±1500V transients (Tested according to EN61000-4-4)
Output Accuracy:	0.1 sec. for pulse width modulation
Analog Outputs:	8 analog outputs
Output Rating:	0-10 VDC, or 4-20mA per channel
Output Resolution:	0.1V for 0-10V; 0.1mA for 4-20mA
Output Overrides:	Each output is equipped with a manual override switch. Software feedback of the switch position is provided, for display and alarming
Expansion Bus:	Interfaces to optional xP I/O Expansion Modules

CONNECTIONS

Power:	3-position fixed screw terminal connector
Inputs:	Removable two-piece terminal strip
Outputs:	Removable two-piece terminal strip
Smart Sensor:	Removable two-piece terminal strip
Communications:	Removable two-piece terminal strip
Expansion Port:	6-position shrouded connector
Service Port:	4-position shrouded connector

USER LEDS/SWITCHES

Status Indicator LEDS:	
CPU	CPU Active
TD	Transmit Data
RD	Receive Data
Output	Output Status (per output)
EXPANSION PORT PWR	Power Status
OVERRIDE	Override Status

Switches:	
RESET	
Input Pull-up Resistor Switch (per input)	
Individual Output Override Switches	

GENERAL

Memory:	1MB SRAM, 2MB FLASH
Processor:	Motorola 32-bit Coldfire

Note: b3920 Series REQUIRES Continuum V1.6 version (or later) of software

AGENCY LISTINGS

UL/CUL 916, FCC CFR 47 Part 15, ICES-003, EN55022, AS/NZS 3548, Class A, CE



OPTIONS

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