



BACnet

b4920 System Controllers

The Continuum™ b4920 is a unique, powerful system controller that also functions as a native BACnet router for an RS-485 sub-network of up to 127 BACnet MS/TP devices, such as the Continuum b3850 VAV controller, or third-party MS/TP devices. The b4920 is a native BACnet controller that communicates directly on an Ethernet IP network as a BACnet Master device.

- Powerful, Flexible System Controller for the Most Demanding Applications
- Supports 18 BACnet Object Types including Trends, Schedules, Calendars, and Loops
- Native BACnet/IP Communications for Interoperability to Third-Party Systems
- 10/100 Ethernet Port
- Expandable I/O Meets Additional Point Count Needs
- Non-Volatile Flash Memory Provides Utmost Reliability — Stores Both Application Program and Operating System
- Flash Memory Allows Easy On-Line Software Updates
- Optional Local Display/Keypad Provides Easy Operator Interface
- Local, Extended Storage of Log Data
- View and Modify Information with Optional Smart Sensor Display
- BTL Listed B-AAC Controller with Local Trends

Designed for control of larger Air Handling Units, chillers, boilers, and other mechanical plant equipment, the b4920 features plenty of dynamic memory for application programs as well as for expanded local data logging of critical data. The b4920 also features a fast 32-bit processor, universal inputs, override switches on all outputs, two-piece connectors, and an optional 4-line display with keypad. The b4920 also has an additional room sensor input, which supports Andover's Smart Sensor, or any standard room temperature sensor.

As native BACnet controllers, the b4920 series can communicate with all other BACnet devices on the Ethernet network, and attached MS/TP sub-networks, in strict accordance with ANSI/ASHRAE standard 135-2004, and are listed with the BACnet Testing Labs (BTL) as BACnet Advanced Application Controllers (B-AAC). The b4920 can share and gather data from the wider Ethernet/IP network of controllers. Among those Ethernet controllers can be Continuum controllers (BACnet or Infinet) or third-party BACnet/IP devices. All Andover Continuum devices, both BACnet and Infinet, are fully compatible with the Continuum CyberStation front-end software, a fully native BACnet workstation application.

INCREASED RELIABILITY WITH FLASH MEMORY

The b4920'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 b4920 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 b4920 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 b4920 offers an additional input to support the Andover Smart Sensor, or any standard room temperature sensor.



b4920 System Controllers

OUTPUTS

The b4920 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 b4920 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 b4920.

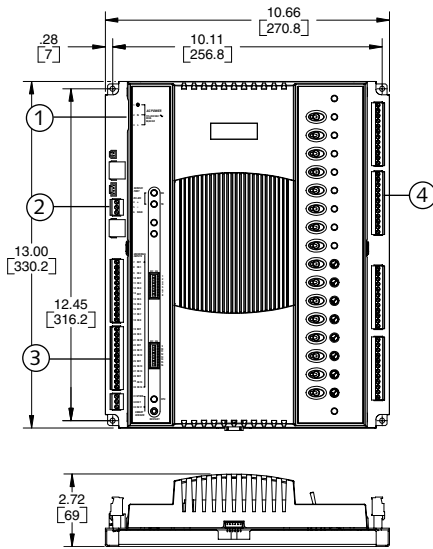
SOFTWARE CAPABILITIES

The dynamic memory of the b4920 can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover 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 b4920 using the Continuum CyberStation™. Programs are then stored and executed by the b4920 controllers.

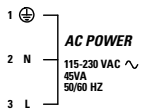
Programming multiple b4920 controllers is inherently easy with Plain English. A complete copy of one b4920's programs can be loaded directly into other b4920s without changing any point names or programs.

SMART SENSOR INTERFACE

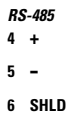
The b4920 provides a built-in connection for Andover's Smart Sensor. The Smart Sensor provides a 2-character LED display and a 6-button programmable keypad that enables operators and occupants to change setpoints, balance VAV boxes, monitor occupancy status, and turn equipment on and off. An enhanced 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.



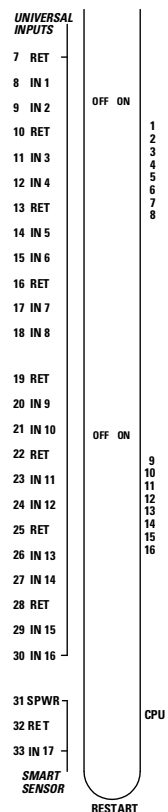
Dimensional Drawing



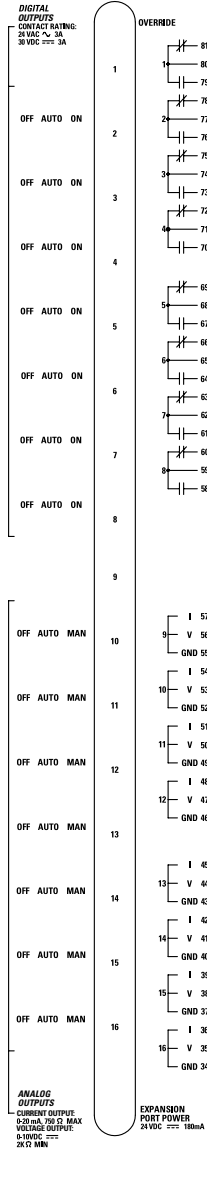
① Power Drawing



② Communications Drawing



③ Inputs/Smart Sensor Drawing



④ Outputs Drawing

SPECIFICATIONS

b4920 System Controllers

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) mm

Weight

3.5 lbs. (1.58 kg)

Enclosure Type

UL Open class, IP 10. Flammability rating of UL94-5V

Mounting

Panel mount

BATTERY BACKUP

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

COMMUNICATIONS

Communications Interface, BACnet/IP

10/100 twisted pair

Communications Speed, BACnet/IP

10/100Mb

Communications Interface, BACnet MS/TP:

RS-485, 127 devices max.

Communications Speed, BACnet MS/TP

9600, 19.2K, 38.4K, 76.8K baud

RS-485 Bus Length

4,000 ft. (1,220m) standard; BACnet repeater allows extension to longer distances

RS-485 Bus Media

Twisted, shielded pair, low capacitance cable

BACnet Device Profile

B-AAC, BACnet Advanced Application Controller

BTL Listed

B-AAC with Local Trends



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 Smart Sensor 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

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

0-10V (5mA maximum, 2K ohm minimum impedance), or 4-20mA per channel. Fuse-protected. ±1000V transients (Tested according to EN61000-4-4)

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

SPECIFICATIONS

(Continued)

USER LEDS/SWITCHES

Status Indicator LEDS

CPU	CPU Active
TD	Transmit Data - RS-485
RD	Receive Data - RS-485
Output	Output Status (per output)

EXPANSION

PORT PWR	Power Status
OVERRIDE	Override Status
LINK & ACTIVITY	Ethernet

Switches

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

GENERAL

Memory

1MB SRAM, 2MB FLASH

Processor

Motorola 32-bit Coldfire

Network Setup

Via embedded web interface

AGENCY LISTINGS

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

OPTIONS

UL864, Smoke Control System Equip-
ment, UUKL (b4920-S)

Copyright © 2006, TAC
All brand names, trademarks and registered trademarks are
the property of their respective owners. Information contained
within this document is subject to change without notice.
All rights reserved.

SDS-B4920-A4
August 2007



www.tac.com

