



# Continuum™

## b3800 Series Local Controllers

The Andover Continuum™ b3800 series controllers are native BACnet controllers that communicate on an RS-485 field bus as Master devices using the MS/TP BACnet protocol. The b3800 series are designed for control of small Air Handling Units, Unit/Roof Top, and other mechanical plant equipment. Choose the b3800 series controller with the configuration that matches your application:

- Native BACnet MS/TP Communications for Interoperability to Third-Party Systems
- Supports 18 BACnet Object Types including Trends, Schedules, Calendars, and Loops
- Powerful, Flexible System Controller for the Most Demanding Applications
- Non-Volatile Flash Memory Provides Utmost Reliability — Stores Both Application Program and Operating System
- Universal Inputs can be Configured as a Supervised Input for Monitoring Open Wires or Short Circuits
- Local, Extended Storage of Log Data
- View and Modify Information with Optional Smart Sensor Display
- BTL Listed B-AAC Controller with Local Trends



- The b3800, designed for stand-alone equipment control of Roof Top or Air Handling Units, features eight Universal Inputs, one Smart Sensor/Room Sensor input, plus eight program-controlled Digital Outputs.
- The b3804, designed for stand-alone equipment control of Roof Top or Air Handling Units, features eight Universal Inputs, one Smart Sensor/Room Sensor input, plus four program-controlled Digital Outputs and four Analog Outputs for direct control of devices requiring 0-10 volt control signals.

Both models feature an additional room sensor input, which supports Andover Continuum Smart Sensor, or any standard room temperature sensor.

The b3800 series also features Flash memory, increased user memory, and a fast (32-bit) processor for faster scan times, with plenty of memory available for data logging of your critical data.

As a native BACnet controller, the b3800 series can communicate with other BACnet devices on the MS/TP network, 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). By connecting to an Andover Continuum b4920 device or bCX1 Network Controller, the b3800 series and other MS/TP devices can share data from the wider Ethernet/IP network of controllers.

### INCREASED RELIABILITY WITH FLASH MEMORY

The b3800'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 b3800 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.

# b3800 Series Local Controllers

## INPUTS

The input configuration on the b3800 series consists of eight full range, 10-bit Universal inputs that accept voltage (0-5VDC), digital (on/off), counter signals (up to 4Hz), temperature signals, or supervised alarm circuits for security applications or broken wire detection. The b3800 series offers an additional input to support the Andover Continuum Smart Sensor, or any standard room temperature sensor.

## OUTPUTS

The b3800 contains eight Form C relay outputs, each rated for 24 VAC/VDC, 3 amp, while the b3804 contains four Form C relay outputs and four analog outputs (0-10V).

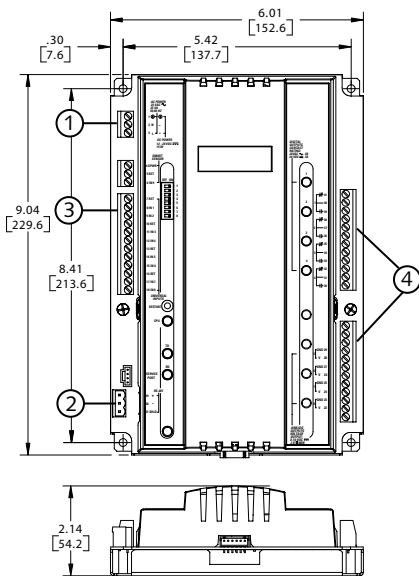
## SOFTWARE CAPABILITIES

The dynamic memory of the b3800 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 b3800 using the Andover Continuum CyberStation™. Programs are then stored and executed by the b3800 controllers.

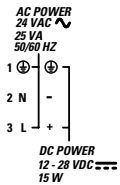
Programming multiple b3800 series controllers is inherently easy with Plain English. A complete copy of one b3800's programs can be loaded directly into other b3800s without changing any point names or programs.

## SMART SENSOR INTERFACE

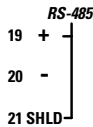
The b3800 provides a built-in connection for the Andover Continuum Smart Sensor. The Smart Sensor provides a 2-character LED display and a 6-button programmable keypad that enables operators and occupants to change setpoints, balance VAV boxes, monitor occupancy status, and turn equipment on and off. 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.



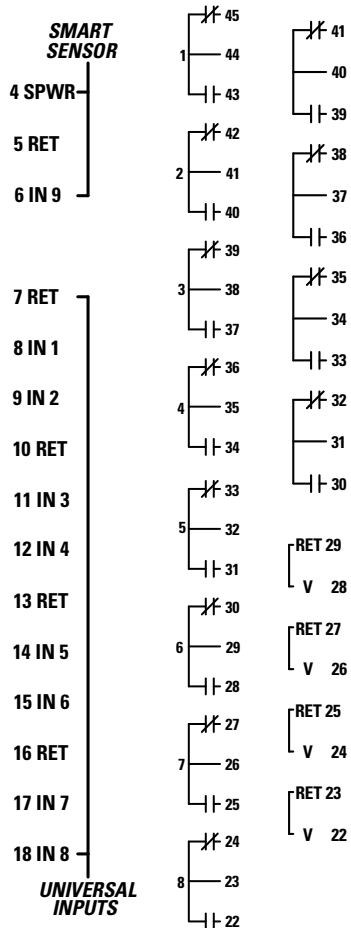
Dimensional Drawing



① Power Drawing



② Communications Drawing



③ Smart Sensor Input Drawing

④ b3800 b3804

# SPECIFICATIONS

## b3800 Series Local Controllers

### ELECTRICAL

#### Power

24VAC, 12-24VDC - auto sensing,  
+10% -15%, 50/60 Hz

#### Power Consumption

25 VA

#### Overload Protection

Fused with 3 amp fuse. MOV protected

#### Software Real-Time Clock

Synchronized through MS/TP via  
BACnet

### MECHANICAL

#### Operating Environment

-10°-140°F (-23-60°C), 10-95% RH  
(non-condensing)

#### Size

9.03"H x 6.01"W x 2.14"D  
(229 H x 153 W x 54 D) mm

#### Weight

1.34 lbs. (0.61 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 accu-  
mulated power failure backup of RAM  
memory

### 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

### BTL Listed

B-AAC with Local Trends



### INPUTS/OUTPUTS

#### INPUTS

8 Universal inputs: Voltage (0-5.115  
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). Cur-  
rent input (0 - 20 mA) using external  
250 ohm resistor.

1 Smart Sensor Temperature Input  
(32°F to 105°F) (0°C to 41°C)

#### Input Voltage Range

0-5.115 volts DC

#### Input Impedance

10K ohm to 5.120V or 5M ohm with  
pull-up resistor disabled

#### Input Resolution

5.0 mV

#### Input Accuracy

±15mV (±0.56°C from -23°C  
to +66°C or ±1°F from -10°F to  
+150°F)

#### DIGITAL OUTPUTS

8 single pole single throw (SPST) Form  
C relays (4 Form C on b3804)  
(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

4 analog outputs (b3804 only)

#### Output Rating

For 0-10V: 5mA maximum, 2K  
ohm minimum impedance, ±1000V  
transients (Tested according to  
EN61000-4-4)

#### Output Resolution

0.1V for 0-10V

### CONNECTIONS

#### Power

3-position fixed screw terminal  
connector

#### Inputs

12-position fixed screw terminal  
connector

#### Outputs

b3800: 2- 12-position fixed screw  
terminal connector b3804: 1-12-posi-  
tion fixed screw terminal connector  
and 1- 8-position fixed screw terminal  
connector

#### Smart Sensor

3-position fixed screw terminal  
connector

#### Communications

3-position removable screw terminal  
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) (Digital only)

#### Switches

RESET  
Input Pull-up Resistor Switch (per input)

### GENERAL

#### Power

Memory: 128K SRAM, 1MB FLASH  
Processor: Motorola 32-bit Coldfire

### AGENCY LISTINGS

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

### OPTIONS

UL864, Smoke Control System  
Equipment, UUKL (b3800-S, b3804-S)

---

Copyright © 2005-2009, 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-B3800  
January 2009



[www.tac.com](http://www.tac.com)

**t.a.c.** ®  
by Schneider Electric