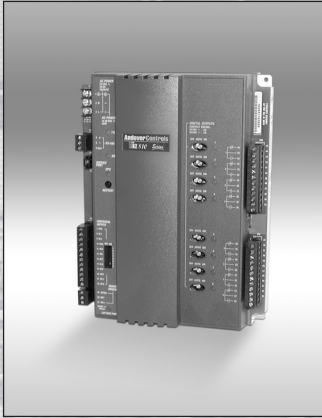


Continuum BA Cnet Family™



b3810 Series Local Controllers

The b3810 series controllers are designed for control of Air Handling Units, Roof Top Units, and other mechanical plant equipment. Choose the b3810 model with the configuration that matches your application:

- The **b3810**, designed for stand-alone equipment control of Roof Top Units, Air Handling Units, or other packaged mechanical equipment, features eight Universal Inputs, one Smart Sensor/ Room Sensor input, plus eight program-controlled Digital Outputs.
- The **b3814**, designed for stand-alone equipment control of Roof Top Units, Air Handling Units, or other packaged mechanical equipment, 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's *Smart Sensor*, or any standard room temperature sensor. The b3810 series also features universal inputs, a real-time clock, override switches on all outputs, two-piece removeable connectors, and the ability to expand the I/O for additional points.

The b3810 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 b3810 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 b3810 series and other MS/TP devices can share data from the wider Ethernet/IP network of controllers.

INCREASED RELIABILITY WITH FLASH MEMORY

The b3810'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 b3810

- **Native BACnet MS/TP Communications for Interoperability to Third-Party Systems**

- **Powerful, Flexible Local 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 Display/Keypad Provides Easy Operator Interface (Mounted Separately)**

- **Local, Extended Storage of Log Data**

- **View and Modify Information with Optional *Smart Sensor* Display**

- **Local, On-Board Service Port**

Andover Controls
WE'RE BUILDING SMART



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 b3810 series consists of eight full range, 10-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 or broken wire detection. The b3810 series offers an additional input to support the Andover *Smart Sensor*, or any standard room temperature sensor.

OUTPUTS

The b3810 contains eight Form C relay outputs, each rated for 24 VAC/30VDC, 3 amp, while the b3814 contains four Form C relay outputs and four analog outputs (0-10V). Both the relay and analog outputs have manual override switches, with software feedback of the switch position.

I/O EXPANSION

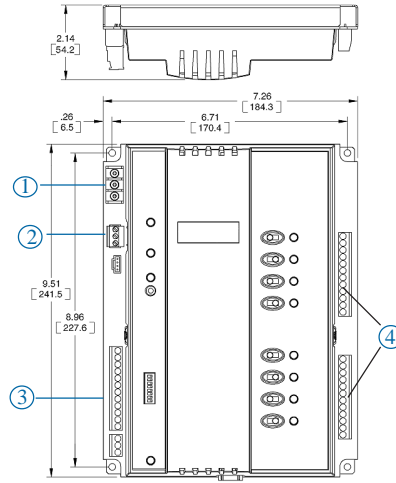
The b3810 contains an I/O expansion port for the addition of up to two Andover xP expansion modules directly on the bottom of the controller. The xP family of modules includes the DI-8, D0-2, D0-4, AO-2, and AO-4. In addition to two input/output modules, the I/O bus supports the xP Local Display Module, which allows the user to view and change point values.

SOFTWARE CAPABILITIES

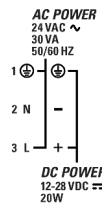
The dynamic memory of the b3810 can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover Controls *Plain English*® programming language. Our object-oriented *Plain English* language with intuitive keywords provides an easy method to tailor the controller to meet your exact requirements. Programs are entered into the b3810 using the *Continuum CyberStation*®. Programs are then stored and executed by the b3810 controllers.

Programming multiple b3810 series controllers is inherently easy with *Plain English*. A complete copy of one b3810's programs can be loaded directly into other b3810s without changing any point names or programs.

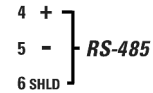
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Dimensional Drawing

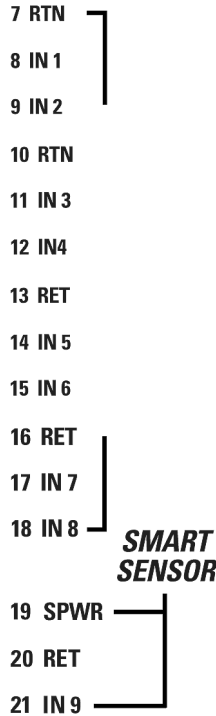


① Power Drawing

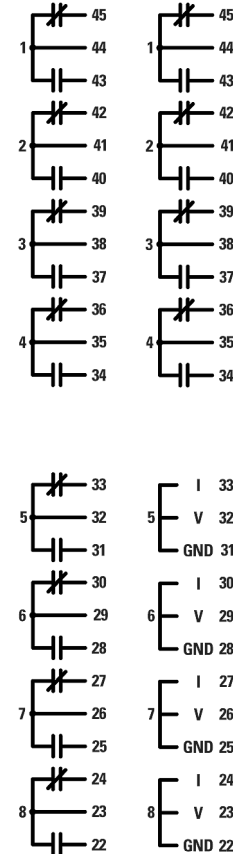


② Communications Drawing

UNIVERSAL INPUTS



③ Inputs/Smart Sensor Drawing



b3810

b3814

④ Outputs Drawings

SPECIFICATIONS

b3810 Series Local Controllers

ELECTRICAL

Power:	24VAC, 12-24VDC - auto sensing, +10% -15%, 50/60 Hz
Power Consumption:	30 VA
Overload Protection:	Fused with 3 amp fuse. MOV protected.
Real-Time Clock:	Battery-backed real-time clock

MECHANICAL

Operating Environment:	-10°–140°F (-23–60°C), 10–95% RH (non-condensing)
Size:	9.51"H x 7.26"W x 2.14"D (241H x 184 W x 54 D) mm
Weight:	1.65 lbs. (0.75 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:	8 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 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)

INPUTS/OUTPUTS (CONTINUED)

Digital Outputs:	8 single pole single throw (SPST) Form C relays (4 Form C on b3814) (Any two consecutive Form C outputs can be configured as one Form K Tri-state)
Output Rating:	Maximum 3A, 24VAC/30VDC, ±1500V transients (Tested according to EN61000-4-4)
Output Accuracy:	0.1 sec. for pulse width modulation
Analog Outputs:	4 analog outputs (b3814 only)
Output Rating:	0-10 VDC
Output Resolution:	0.1V for 0-10V
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) (Digitals only)
EXPANSION PORT PWR	Power Status
Switches:	
RESET	
Input Pull-up Resistor Switch (per input)	
Individual Output Override Switches	

GENERAL

Memory:	256K SRAM, 1MB FLASH
Processor:	Motorola 32-bit Coldfire

Note: The b3810 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



SMART SENSOR INTERFACE

The b3810 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.

LOCAL DISPLAY

The local display with keypad (xP Display) allows for the addition of a fully programmable local display module that can be mounted within 10 feet (3 meters) of the controller. Connected via a ribbon cable, the xP-Display easily allows the Operator Interface to be mounted on the door of an enclosure or on a wall below or next to the controller.

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