



- Native BACnet MS/TP Communications for Interoperability to Third-Party Systems
- Supports 18 BACnet Object Types including Trends, Schedules, Calendars, and Loops
- 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
- BTL Listed B-AAC Controller with Local Trends



Continuum™

b3810 Series Local Controllers

The Andover Continuum™ 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 removable 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 native BACnet controllers, the b3810 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 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 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.

b3810 Series Local Controllers

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 Continuum 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.

The b3810 contains an I/O expansion port for the addition of up to two Andover Continuum xP expansion modules directly on the bottom of the controller. The xP family of modules includes the DI-8, UI4, 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 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 Andover Continuum CyberStation™. Programs are then stored and executed by the b3810 controllers.

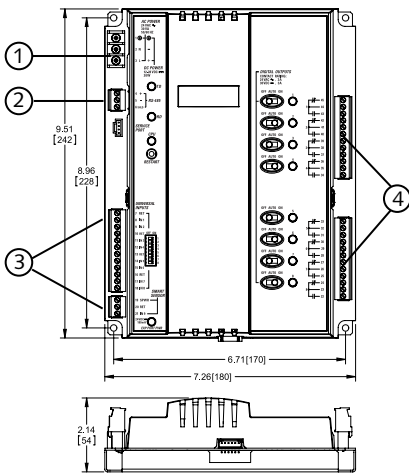
Programming multiple b3810 series controllers is inherently easy with Plain English. A complete copy of one b3810's programs can be loaded directly into other b3810s without changing any point names or programs.

SMART SENSOR INTERFACE

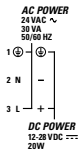
The b3810 provides a built-in connection for Andover's Smart Sensor. The Smart Sensor provides a 2-character LED display and a 6-button programmable keypad that enables operators and occupants to change setpoints, balance VAV boxes, monitor occupancy status, and turn equipment on and off. An enhanced 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

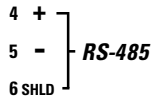
The local display with keypad (xP Display) allows for the addition of a fully programmable local display module that can be mounted within 10 feet (3 meters) of the controller. Connected via a ribbon cable, the xP-Display easily allows the Operator Interface to be mounted on the door of an enclosure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



Dimensional Drawing

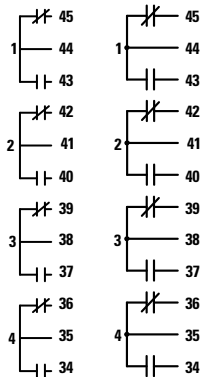
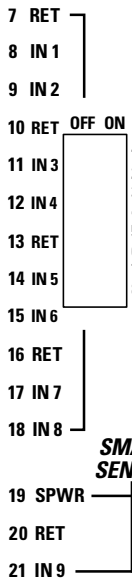


① Power Drawing

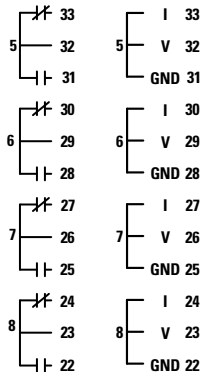
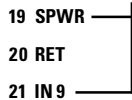


② Communications Drawing

UNIVERSAL INPUTS



SMART SENSOR



③ Smart Sensor and Inputs Drawing

④ b3810 b3814 Outputs Drawing

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

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

Size

9.51"H x 7.26"W x 2.14"D
(241H x 184W x 54D) 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

COMMUNICATIONS

Communications Interface

RS-485 BACnet, MS/TP
127 devices maximum

Communications Speed

9600, 19.2K, 38.4K, 76.8K baud

Bus Length

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

Bus Media

Twisted, shielded pair, low
capacitance cable

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 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 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 (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

For 0-10V: 5mA maximum, 2K
ohm minimum impedance, ±1000V
transients (Tested according to
EN61000-4-4). Fuse-protected
only on the b3814

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 3-position terminal
connector

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) (Digital only)

EXPANSION

PORT PWR	Power Status
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Switches

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

GENERAL

Memory

256K SRAM, 1MB FLASH

Processor

Motorola 32-bit Coldfire

AGENCY LISTINGS

UL/CUL 916, FCC CFR 47 Part 15,
ICES-003, EN55022, ASIN2S 3548,
Class A, CE

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