OpenBAS | BUILDING AUTOMATION SYSTEM

Description

Mircom's OpenBAS-HV-NX10 series of Building Automation Controllers are aimed to provide various HVAC, energy management, and lighting control solutions to offer building owners and managers seamless operation.

The NX10 series combines integrated control, supervision, data logging, alarming, scheduling, and network management functions. With additional modular accessories the NX10 series can be expanded to support web servers, email and SMS notifications.

The NX10 series are microprocessor-based programmable controllers specially designed to control various building automation applications such as air handling units, chillers, boilers, pumps, cooling towers, and central plant applications.

Features

- 18 hardware input/output options.
- Standard field bus protocols to integrate into any existing BAS system such as: BACnet, Modbus, Optomux, N2-Open, ECM, and ASCII. Other protocols such as Ethernet, Wi-Fi, Zigbee, EnOcean, Bluetooth, etc. can also be incorporated using external modules or network cards.
- Uniquely allows the support of up to 2 separate networks of BAS controllers simultaneously with two different communication protocols.
- Connects to the Ethernet Gateway (OpenBAS-NWK-ETH3 to provide) to provide advanced networking to integrate into IP networks while using the most advanced features and protocols such as distributed computing, USB and Cloud Storage, HTML5, Javascript, XML, Ajax, SMS, and GSM.
- Modular design and expandability for increasing capacity of inputs and outputs through expansion modules, networked controllers, and remote bus-driven controllers.
- OpenBAS covers any small, medium, or large-sized projects; either stand alone or networked applications.
- Supports the management of wireless field devices, sensors, and switches. Reduces the cost of installation for new or retrofit applications.
- Two RS-485 field bus communication ports.
- Programmable remotely with the addition of the OpenBAS-NWK-ETH3 network module or locally through the USB and field bus ports.
- 8 Universal Inputs are provided to connect any industry standard sensor. Two analog outputs for variable uses (. E.g., Base heaters).
- 8 Relay binary outputs with a current capability of up to 5 Amps at 125 VAC or 28 VDC. Avoids unnecessary costs of externally mounted relays.
- USB memory support allows for virtually unlimited amount of information storage (300 EEprom based registers) – please note this is only available on the OpenBAS-HV-NX10D model.
- Powerful Configuration Software supports ladder templates and script programs for an effortless solution. Visually assemble building blocks for custom control sequences in any HVAC / building automation application.
- Mircom's enclosures, boxes, and power supplies provide installers with a single supplier source for all building automation needs.
- Built-in high speed communication port for mounting an Ethernet Communication module allowing for web-based controllers or network coordinators. Additional functions include webserver, email server, and a GPRS texting modem.
- Highly expandable with several expansion buses that allow the addition of diverse external modules. One full speed USB 2.0 port used to configure the controller and program the application logic with the configuration tool software.
- Each controller can be configured as a master and a slave simultaneously through the available field buses.
- Master controllers have the capability to support up to 50 remote points or 460 remote points with expanded memory.
- DIN Rail mountable.
- Includes RTCC battery backup.
- Typical Applications:
  - Medium and large air handler units
  - Roof top units
  - Medium and large mechanical rooms
  - Multiple VAV boxes
  - Multiple fan & coils
  - Multiple water source heat pumps
  - Pumps
  - Chillers
  - Boilers
  - Industrial automation
  - Protocol conversion

CATALOG NUMBER 6300

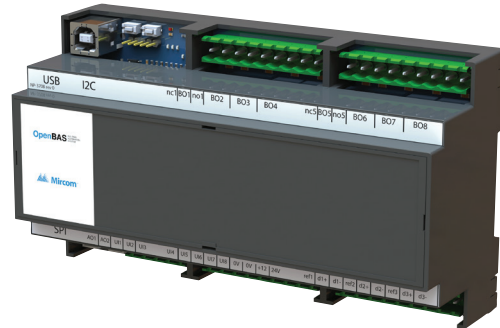**OpenBAS-HV-NX10D**

Main HVAC Controller with:

- All standard features
- Enables a third RS-485 field bus port
- Two user-programmable LEDs
- Programmable graphic LCD Display
- USB status LED
- Navigation Keys
- USB port for data logging
- 32-bit secondary processor:
  - Adds 2 additional PLCs
  - Adds 256 kB of EEPROM Memory for expanded Graphic Storage (maximum of 1000 sample points)
  - Unlimited storage of analog inputs and outputs.
  - 460 Remote points
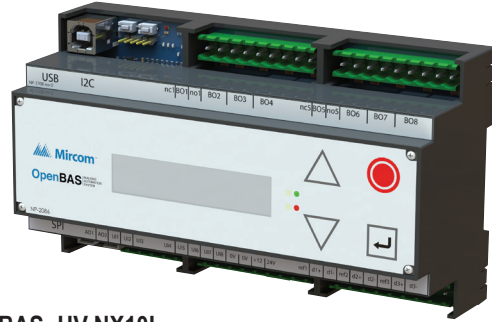
OpenBAS- HV-NX10L

Main HVAC Controller with:

- All Standard features
- Operator display of 16x2 Character functionality
- Navigation keys
- Programmable LCD Display with two colored LED backlights (red and green)
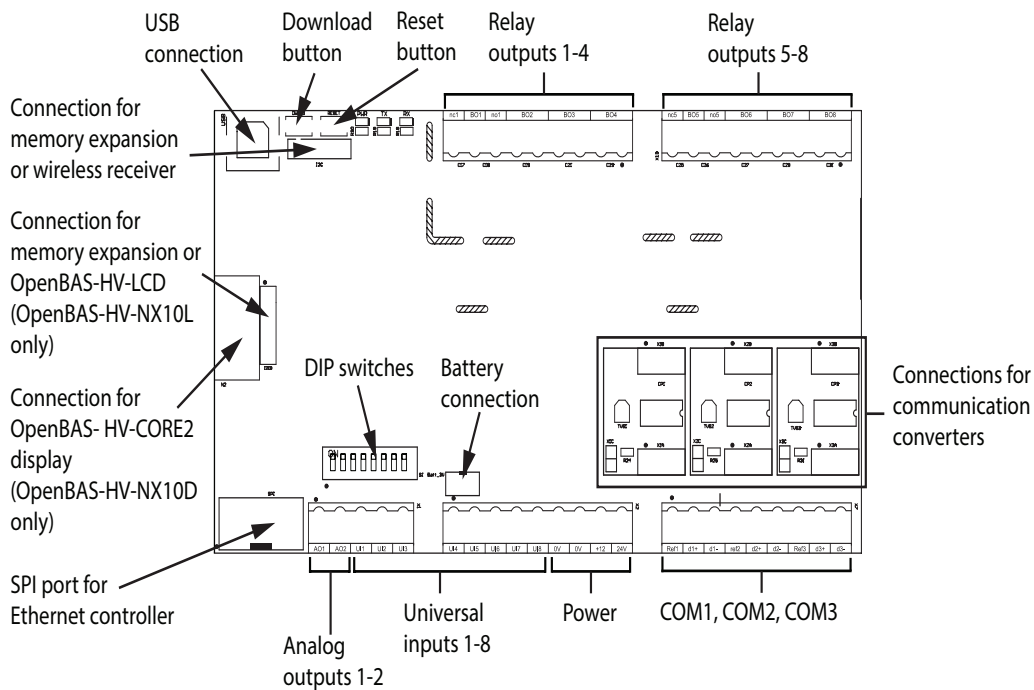

OpenBAS-HV-NX10P

Main HVAC Controller

- Standard Features

Wiring Diagram

Technical Information

Standards	UL 60730-1		
Input:	12 Vdc, 360 mA max., or 24 Vdc, 450 mA max., or 24 Vac 50/60 Hz, 500 mA max.		
Output:	12 Vdc, 250 mA max. (when 24V powered)		
Power Supply Protection:	Resettable Fuse 1.1 A		
Battery:	FDK Corporation ML2430 Type: lithium Nominal capacity: 100 mAh Nominal voltage: 3 V Mircom part number: BT-025		
Relay Outputs 1 and 5:	**Voltage, current**	**Load**	**Form**
	125 VAC, 5 A	General Use	NO/NC
	28 VDC, 5 A	Resistive	NO/NC
Relay Outputs 2, 3, 4, 6, 7, 8:	**Voltage, current**	**Load**	**Form**
	125 VAC, 5 A	Resistive	NO
	125 VAC, 3 A	General Use	NO
2 Analog Outputs:	**Analog Output Voltage:** • 0-10 VDC • 2-10 VDC • 0-5 VDC		
8 Universal Inputs:	**Analog Inputs:**		
	• 0-10 VDC • 0-5 VDC • 0.5-4.5 VDC ratiometric • 0-20 mA • 4-20 mA • 1000 Ω temperature sensor • Thermocouple input with x200 amplifiers **Digital (binary) inputs:** • For dry contacts being fed by 12 VDC **Pulse counters:** • Active PNP 12 VDC • For dry contacts being fed by 12 VDC		

Communication Ports:	2 RS-485 ports (3 RS-485 ports on OpenBAS-HV-NX10D) supporting the following protocols:
	• **COM1**
	   ○ BACnet/MSTP
	   ○ Modbus/RTU-Slave
	   ○ Modbus/RTU-Master
	   ○ N2-Open
	   ○ Optomux
	• **COM2**
	   ○ N2-Open
	   ○ Optomux
	   ○ N2/O22-master
	   ○ ASCII
	   ○ ECM
	• **COM3 (OpenBAS-HV-NX10D only)**
	   ○ Modbus/RTU-Slave
	   ○ N2-Open
	   ○ Optomux
	   ○ N2/O22-master
	   ○ ASCII
	RS-485 ports can be configured as RS-232 or optically isolated RS-485
	1 USB 2.0 port supporting the following protocols:
	• Optomux
	• ASCII
	2 I^{2}C ports for memory expansion, LCD display, and OpenBAS-HVRF433R
	1 SPI port
	1 port for OpenBAS-HV-CORE2 display

Physical Characteristics:	**Weight:** 360 g (12.8 oz) **Enclosure dimensions:** 6 9/32" x 3 35/64" x 2 17/64" (160 mm x 90 mm x 58 mm)
Ambient Conditions:	**Operating Temperature:** 0° to 40°C (32° to 104°F), 10% to 90% RH noncondensing Indoor Use Only
Purpose of Control:	Operating Control
Construction of Control:	Independently Mounted, for Surface Mounting
Action Type and additional features:	Type 1.C
Pollution Degree:	2
Software Class:	Class A
Rated Impulse Voltage:	**120V circuits:** 2500V **24V circuits:** 330V

Mircom™   NOT TO BE USED FOR INSTALLATION PURPOSES.

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Ordering Information

Model	Description
OpenBAS-HV-NX10P	Automation Controller for HVAC Applications
OpenBAS-HV-NX10L	Automation Controller for HVAC Applications w/ LCD Display
OpenBAS-HV-NX10D	Automation Controller for HVAC Applications w/ CORE 2 Display
OpenBAS-HV-LCD	2.5" Operator Display (Replacement Part)
OpenBAS-HV-CORE2	Operator Display that includes a 32 bit secondary core and USB port. (Replacement Part)
BT-025	Replacement / Optional battery for NX10, NX12R, NXHALF, NXSF