



APPLICATIONS AND MODELS

APPLICATIONS	MODELS*	APPLICATIONS	MODELS*
AHU (Air Handler Unit)	BAC-5901 and BAC-93x1	Lighting	STE-92x1/95x1 and BAC-5901
Boiler	BAC-5901	Occupancy control	STE-92x1/95x1 and any controller
CAV (Constant Air Volume)	BAC-90x1 , BAC-9311 , and STE-9xx1	Other HVAC	BAC-5901
Chiller	BAC-5901	Pump	
Chilled beam	BAC-5901 , BAC-9301 , and STE-9x21	RTU (Roof Top Unit)	BAC-5901 , BAC-9301 , and STE-9xx1
Cooling tower	BAC-5901	Static pressure monitoring/control (RTU/HPU)	BAC-9311
DCV (Demand-Control Ventilation)	STE-93x1/95x1 and any controller	Supply/exhaust tracking	BAC-9001 , TSP-8003 , and STE-9xx1
FCU (Fan Coil Unit)	BAC-9301 and STE-9xx1	Unit ventilator	BAC-5901 , BAC-9301 , and STE-9xx1
HPU (Heat Pump Unit)	BAC-9301 , BAC-5901 , and STE-9xx1	VAV (Variable Air Volume)	BAC-90x1 , BAC-9311 , TSP-8003 , and STE-9xx1
Humidity control	STE-9x21 , BAC-5901 , and BAC-9301	Ventilation control	STE-93x1/95x1 and any controller

*The most typical models are shown for an application. The controllers are fully programmable, and any controller with sufficient I/O can be adapted to the application. Programming and custom graphics requires KMC Connect™, TotalControl, and/or the KMC Converge™ app for Niagara^{AX} Workbench, but basic configuration for standard applications can be done using just an STE-9000 series NetSensor® or the KMC Connect Lite™ app or software. See [Setup Tools \(Configuring, Programming, and Designing\)](#) on page 7. See also [Accessories](#) on page 6.

BAC-5900 SERIES GENERAL PURPOSE CONTROLLERS (B-AAC)

APPLICATIONS	INPUTS*	OUTPUTS*	FEATURES			MODEL
			Real Time Clock (RTC)	Ethernet Port	MS/TP Port	
AHU, chillers, boilers, cooling towers, pumps, lighting, FCU, HPU, RTU, unit ventilators, other HVAC	10 total: <ul style="list-style-type: none"> • 2 analog (temperature sensor port) • 8 universal inputs (software configurable as analog, binary, or accumulator on terminals) 	8 universal: <ul style="list-style-type: none"> • Software configurable as analog or binary • Override boards give additional options** 	✓		✓	BAC-5901C
				✓		BAC-5901CE

*Up to four (8 x 8) CAN-5901 I/O expansion modules can be used with BAC-5900 series controllers to provide up to (internal and external) 42 inputs and 40 outputs.

**HPO-6700 series output override board series provide (triac, NC/NO relays, 4–20 mA, adjustable 0–10 VDC) options for devices that cannot be powered from a standard universal output. The boards can also be used with the CAN-5901.

These controllers can be used with the following types of equipment:

- Air handling units
- Boilers
- Chilled beams
- Chillers
- Cooling towers
- Fan coil units
- Heat pump units
- Pumps
- Roof top units
- Unit ventilators
- Other HVAC and building automation system equipment

Requires custom programming in the controller. For more information, see the [BAC-5900 Series](#) product page.

See also [Accessories on page 6](#).



CAN-5900 SERIES I/O EXPANSION MODULES

APPLICATIONS	INPUTS	OUTPUTS*	MODEL
I/O Expansion	8 universal (software configurable as analog, binary, or accumulator)	8 universal <ul style="list-style-type: none"> • Software configurable as analog or binary • Override boards give additional options** 	CAN-5901

*Up to four (8 x 8) CAN-5901 I/O expansion modules can be used with BAC-5900 series controllers to provide up to (internal and external) 42 inputs and 40 outputs.

**HPO-6700 series output override board series provide (triac, NC/NO relays, 4–20 mA, adjustable 0–10 VDC) options for devices that cannot be powered from a standard universal output. The boards can also be used with the CAN-5901.

These input/output expansion modules are designed for use with BAC-5900 series controllers. Multiple CAN-5901s can be connected to a controller via a CAN bus. For applications, see the BAC-5900 series section above. See also the [CAN-5900 Series I/O Expansion Modules](#) product page.



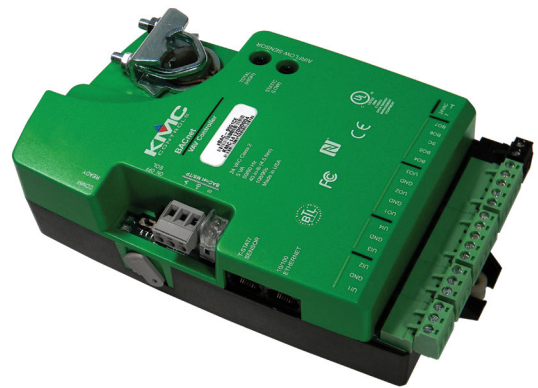
BAC-9000 SERIES VAV CONTROLLER-ACTUATORS (B-AAC)

APPLICATIONS	INPUTS	OUTPUTS	FEATURES				MODEL
			Air Pressure Sensor	Real Time Clock	MS/TP	Ethernet	
Pressure- independent VAV, cooling/heating with fan and reheat; CAV	8 total: <ul style="list-style-type: none"> • 1 internal actuator position feedback • 1 integrated air pressure sensor (except BAC-9021) • 2 analog (temperature sensor port) • 4 software-configurable universal inputs (terminals) 	9 total: <ul style="list-style-type: none"> • 2 internal triacs (actuator motor control) • 4 external triacs (terminals) • 3 universal outputs (0–12 VDC on terminals) 	✓		✓		BAC-9001
				✓		✓	BAC-9001CE
Pressure- dependent VAV							✓

VAV application options for these controllers include:

- Pressure independent or dependent VAV
- Cooling only and with changeover
- Staged, modulated, floating, or time-proportional reheat
- Series or parallel fan control
- Dual duct (with TSP-8003 actuators, see below)
- Supply/exhaust tracking (with TSP-8003 actuators)
- CAV (Constant Air Volume)

For installations with a BACnet building automation system, these easily integrated controllers signal demands for higher static duct pressure, cooler or warmer supply air, and other diagnostics for AHU optimization. For more information, see the [BAC-9000 Series](#) product page. See also [Accessories on page 6](#).



TSP-8003 (DUAL DUCT) TRI-STATE ACTUATOR WITH PRESSURE SENSOR

The TSP-8003 is a 40 in.-lb. tri-state actuator with a differential air pressure sensor, typically used in Conquest VAV dual-duct applications as a secondary actuator. The TSP-8003 connects directly to a BAC-9001 VAV controller-actuator for easy installation. Application options include:

- Dual duct VAV or CAV
- Bypass damper*
- Economizer damper*
- Building pressure control damper*
- Supply/exhaust tracking*

***NOTE:** Requires custom programming in the controller.

For more information, see the [TSP-8003](#) product page.



BAC-9300 SERIES UNITARY CONTROLLERS (B-AAC)

APPLICATIONS	INPUTS	OUTPUTS	FEATURES				MODEL
			Air Pressure Sensor (Input)	Real Time Clock (RTC)	Ethernet Port	MS/TP Port	
RTU, HPU, FCU, AHU, and unit ventilator	1 opt. air pressure sensor and 8 (total) standard: <ul style="list-style-type: none"> • 2 analog (temp. sensor port) • 6 universal inputs (software configurable as analog, binary, or accumulator on terminals) 	10 total: <ul style="list-style-type: none"> • 6 triacs (binary) • 4 universal (software configurable as analog or binary) 				✓	BAC-9301
				✓		✓	BAC-9301C
				✓	✓		BAC-9301CE
✓					✓	BAC-9311	
✓			✓		✓	BAC-9311C	
✓			✓	✓		BAC-9311CE	

These controllers can be used with the following equipment:

- Air handling units
- CAV or VAV with external actuator
- Chilled beams*
- Fan coil units
- Heat pump units
- Roof top units
- Unit ventilators

For more information, see the [BAC-9300 Series](#) product page. See also [Accessories on page 6](#).

***NOTE:** Requires custom programming in the controller.



STE-9000 SERIES NETSENSORS (DIGITAL ROOM SENSORS)

APPLICATIONS: TEMPERATURE CONTROL PLUS...	INTEGRATED SENSORS*				MODEL**
	Temp.	Humidity	Motion	CO ₂	
(Temperature control only)	✓				STE-9001W
Humidity control for dehumidification/humidification		✓			STE-9021W
Enhanced occupancy-based control (lighting/setback/self-learning)				✓	STE-9201W
Humidity and occupancy control		✓	✓		STE-9221W
DCV (Demand-Control Ventilation)				✓	STE-9301W
Humidity and ventilation control		✓		✓	STE-9321W
Occupancy and ventilation control			✓	✓	STE-9501W
Humidity, occupancy, and ventilation control		✓	✓	✓	STE-9521W
*All units have a temperature sensor (standard). See above for additional sensor options.					
**A W at the end of the model number indicates a white case. To order the sensor with light almond color instead of white, drop the W on the end of the model number (e.g., STE-9001W is white and STE-9001 is light almond).					

Conquest STE-9000 series NetSensors are wall-mounted digital space temperature sensors designed for use with KMC BAC-5900/9000/9300 series controllers. Key features include the following:

- Up to four sensors in a single package minimizes labor, wiring, and wall space, while optional humidity, motion, and CO₂ sensors allow expanded energy-efficient control of humidity, temperature setback, lighting, and ventilation
- A user-friendly three-button integrated operator interface provides occupant viewing and adjusting of setpoints
- It installs permanently as a room sensor or temporarily as a service tool; as a service tool, it commissions controllers without software, configures communication and application settings, and balances VAV air flow
- An HPO-9001 NetSensor distribution module allows up to eight STE-9000 series NetSensors to be linked to one controller or allows one **STE-6010/6014/6017** analog temperature sensor to be connected with up to seven NetSensors

For more information, see the **STE-9000 Series** product page.

NOTE: STE-6010/6014/6017 analog temperature sensors can be connected to a controller in the place of an STE-9001W after the connected controller is configured. See **Accessories on page 6**.



STE-9221W
Temperature/Humidity/Motion Sensing
with Full Control/Configuration



STE-6017W10
Temperature Sensing (Only)
with Setpoint Dial and Override Button

ACCESSORIES

NOTE: For accessory details, see the respective product data sheets and installation guides.

Actuators

NOTE: See also the selection chart in the Connecting a Remote Actuator to a BAC-9311 section of the **KMC Conquest Controller Application Guide**.

MEP-4xxx Actuators, 25 to 90 in-lb., fail-safe and non-fail-safe

MEP-7xxx Actuators, 180 and 320 in-lb., fail-safe and non-fail-safe

TSP-8003 Dual duct actuator (for BAC-9001)—see **TSP-8003 (Dual Duct) Tri-State Actuator with Pressure Sensor on page 3**



Expansion Module

CAN-5901 I/O expansion module (for BAC-5900 series)—see **CAN-5900 Series I/O Expansion Modules on page 2**

Misc. Hardware

HCO-1103 Steel control enclosure with integrated DIN rail, 10-1/8 x 2-5/8 x 7-19/32 inches (257 x 67 x 193 mm)



HPO-0055 Replacement network bulb assembly (pack of 5)



HPO-0063 Replacement output jumper, 2-pin (pack of 5)



HPO-9901 Controller replacement parts kit with terminal blocks (1 gray, 1 black, 2 green 3-terminal, 4 green 4-terminal, 2 green 5-terminal, 2 green 6-terminal) and DIN clips (2 small for router and 1 large for controllers)



SP-001 Screwdriver (KMC branded) with a hex end (for STE-9000 series cover screws) and a flat blade (for controller terminal screws)



Network Communications

BAC-5051E BACnet IP, Ethernet, and (single port) MS/TP router



HPO-5551 Router technician cable kit



HPO-9003 NFC Bluetooth/USB module (fob)



HSO-9001 Ethernet cable, 50 feet

HSO-9011 Ethernet cable, 50 feet, plenum rated

HSO-9012 Ethernet cable, 75 feet, plenum rated



KMD-5567 Network surge suppressor



Output Override Boards (for BAC/CAN-5901)

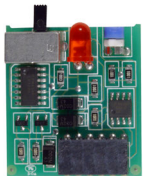
HPO-6701 Triac output w/ zero-cross switching (AC only)

HPO-6702 0–10 VDC analog with adjustable override potentiometer

HPO-6703 Relay, NO contacts (AC/DC)

HPO-6704 4–20 mA DC current loop with adjustable override potentiometer

HPO-6705 Relay, NC contacts (AC/DC)



Sensors, Analog Room

STE-6010W10 Temperature sensor, white

STE-6014W10 Sensor with rotary setpoint dial, white

STE-6017W10 Sensor with rotary setpoint dial and override button, white




NOTE: Other STE-6000 series sensors are not fully compatible with the dedicated sensor port. However, various other models can be used with the screw terminals. See the STE-6000 series data sheet for more information. For digital sensor information, see the STE-9000 series data sheet.


NOTE: To order the STE-601x sensor with **light almond color** instead of white, **replace the W on the end of the model number with a hyphen** (e.g., STE-6010W10 is white and STE-6010-10 is light almond).

NOTE: See also **STE-9000 Series NetSensors (Digital Room Sensors) on page 5**.


Sensors, Differential Air Pressure

- SSS-1012** Sensor, 3-5/32 inches (80 mm) length 
- SSS-1013** Sensor, 5-13/32 in. (137 mm) length
- SSS-1014** Sensor, 7-21/32 in. (194 mm) length
- SSS-1015** Sensor, 9-29/32 in. (252 mm) length

Sensors, Miscellaneous Temperature

- STE-1405** DAT sensor with plenum-cable 
- STE-1451** OAT sensor

Transformers, 120 to 24 VAC

- XEE-6111-050** 50 VA, single-hub 
- XEE-6112-050** 50 VA, dual-hub

Sensors, Digital (LCD Display) Room

- HMO-10000W** White (or order HMO-10000 for light almond) mounting plate, allows mounting to horizontal 2 x 4 or 4 x 4 inch electrical boxes 
- HPO-0044** Replacement cover hex screw 
- HPO-9002** Foam insulating gasket (mounts between the black backplate and the electrical box) 
- HPO-9001** NetSensor distribution module (future release) 
- STE-9000 Series** NetSensor digital room temperature sensors for viewing and configuration and optional humidity, occupancy, and CO₂ sensing—see [STE-9000 Series NetSensors \(Digital Room Sensors\)](#) on page 5 

SUPPORT

For more information, see the data sheets and other support documents on the respective product series pages on the KMC Controls web site (www.kmccontrols.com).



SETUP TOOLS (CONFIGURING, PROGRAMMING, AND DESIGNING)

SETUP PROCESS			KMC CONTROLS TOOL
Configuration	Programming (Control Basic)	Web Page Graphics*	
✓			Conquest NetSensor
✓			Internal configuration web pages in Ethernet "E" models**
✓			KMC Connect Lite™ (NFC) app***
✓	✓		KMC Connect™ software
✓****	✓****	✓	TotalControl™ software
✓	✓		KMC Converge™ module for Niagara WorkBench
		✓	KMC Converge GFX module for Niagara WorkBench

*Custom graphical user-interface web pages can be hosted on a remote web server, but not in the controller.

**Conquest Ethernet-enabled "E" models with the latest firmware can be configured with an HTML5-compatible web browser from pages served from within the controller. See the [Conquest Ethernet Controller Configuration Web Pages Application Guide](#) for more information.

***Near Field Communication via enabled smart phone or tablet running the KMC Connect Lite app.

****Full configuration and programming of KMC Conquest controllers is supported starting with TotalControl ver. 4.0.