SKIA

SK8Vx BACnet VAV Controller

Models:

SK8VM	1 x DI, 3 x UI, 2 x DO, 2 x UO – BACnet MS/TP
SK8VE	1 x DI, 3 x UI, 2 x DO, 2 x UO – BACnet IP
SK8VD	1 x DI, 3 x UI, 2 x DO, 2 x UO – BACnet MS/TP & BACnet IP

DS 41.01
February 2024

Overview

The Innotech SKIA VAV is a digital, programmable controller, with native BACnet connectivity, that can control a variety of residential, industrial and commercial systems and is ideally suited to Variable Air Volume (VAV) applications.

With an integrated actuator and featuring a mix of digital and universal inputs and outputs the SK8Vx provides a highly flexible solution for common small point count, and distributed point applications.

SKIA controllers are fully programmable via Innotech Focus graphical programming interface software.

Features

- 8 Point Controller with the following I/O types:
  - 1 x Digital Input (DI)
  - 3 x Universal Input (UI)
  - 2 x Digital Output (DO)
  - 2 x Universal Output (UO)
- Integrated 5 N m damper actuator
- Integrated differential pressure sensor with barb attachments
- 1 x RS-485 terminal *(SK8VM & SK8VD Only)*
- 2 x RJ45 Ethernet – In Switch Mode *(SK8VE & SK8VD Only)*
- Dedicated Innotech Smart Sensor (ISS) communications port
- Colour coded pluggable terminals for easy identification
- Communication LEDs for all interfaces
- Status LED
- Easily programmed with Innotech Focus software

Applications

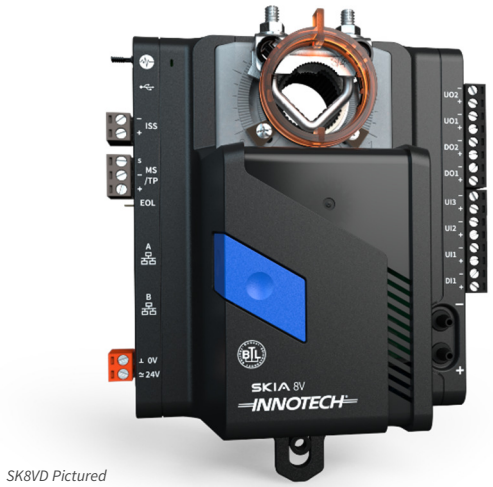
The SKIA VAV controller is a small point count device ideally suited to localised VAV control applications within an HVAC, Building and Energy Management, automation, or process control system.

The SKIA VAV provides a high point count density in a compact form factor making it suitable to a wide range of VAV terminal unit sizes. It is designed for mounting on the shaft and side panelling of a VAV Terminal Unit.

The creation of control logic strategies is achieved with Innotech Focus engineering software. Focus' user friendly graphical programming interface provides power tools for the user to create a project-wide control strategy.

Typical applications include:

- Localised room or zone control
- Air distribution and monitoring as part of a larger HVAC or BMS system
- Other VAV terminal box control applications



SK8VD Pictured

Installation

The controller should be installed in an environment that does not exceed the maximum operating parameters of the device. It should be mounted in a properly ventilated, dry environment free of strong vibrations.

The controller can be mounted horizontally or vertically on the side of a VAV terminal unit. The SKIA VAV's actuator clamp attaches to the VAV terminal unit damper shaft, and the unit is secured to the side of the terminal unit with the provided self-drilling sheet metal screw through the anti-rotation sleeve.

Wiring should be implemented in accordance with Innotech connection diagrams and installation instructions, as well as local bylaws. Refer to your local distributor for more information.

Connection from the pressure sensor to a pitot tube sensor can be made using standard pneumatic control tubing.

Connect the 24VAC or 24VDC supply to the correct terminals on the controller. Maximum terminal cable entry is 1.5mm^2.

Model Specifications

Controller Name	SK8VM	SK8VE	SK8VD
Digital Inputs	1	1	1
Universal Inputs	3	3	3
Digital Outputs	2	2	2
Universal Outputs	2	2	2
Differential Pressure Sensor	1	1	1
Block Cycle Time	500ms	500ms	500ms
RS-485 Ports	1	-	1
Ethernet Ports	-	2	2
USB-Mini B (PC Link)	Yes	Yes	Yes
Innotech Smart Sensor Support	1	1	1
Max. Power per Output	0.8W	0.8W	0.8W
Max. IO System Power	3.6W	3.6W	3.6W

General Specifications

PROCESSOR	
CPU	ARM Cortex M7
Processor Speed	550MHz

POWER SUPPLY REQUIREMENTS	
Power Input	24VAC or 24VDC ±10%
Recommended Transformer Ratings	20VA min. (plus I/O load)
Power Consumption	6.5W (plus I/O load)

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a class 2 safety transformer in compliance with EN60742 and be designed for 100% duty. It must also be sized and fused in compliance with local safety regulations.

ENVIRONMENTAL	
Operating Temperature	-20° to 50°C non-condensing -4° to 122°F non-condensing
Storage Temperature	-40° to 80°C non-condensing -40° to 176°F non-condensing

INSTALLATION ORIENTATION

Horizontally or vertically mounted on the side to a VAV terminal unit damper shaft and secured in position with supplied self-drilling sheet metal screw through the anti-rotation sleeve.

ENCLOSURE

Housed in a rectangular case suitable for DIN rail mounting. Housing moulded from flame retardant plastics recognised by UL as UL94-V0.

Colour	Dark Grey

DIMENSIONS AND WEIGHT

W 142.3mm x H 170mm x D 73.7mm (5.60” x 6.69” x 2.90”)
*Excluding Damper Shaft Clamp

SK8VD weight with all terminals fitted approx. 665g (1.47lbs)

CLOCK	
Internal Real Time Clock	Not Battery Backed
BACnet Time Sync	Receive Only
ISS Time Sync	For Stand-alone Applications

APPROVALS AND LISTINGS

EN 61326:2021 (IEC 61326:2020) Class B for CE & RCM Labelling

Title 47 CFR, Part 15, Subpart B, Class B for FCC Marking

UL Listed to UL916, File Numbers PAZX.E242628, PAZX7.E242628

RoHS2

Listed by BTL (B-ASC profile)

Ingress Protection Rating – IP2X

COMMUNICATIONS	
Ethernet	100 Base-T Dual Ports - Switch Mode Only
RS-485 Comms	Up to 115kbps (with EOL)
ISS Comms	Innotech Smart Sensor Comms

PROTOCOLS		
Ethernet	BACnet IP	Default IP - 192.168.2.100
RS-485	BACnet MS/TP	

DEFAULT ADDRESS	
BACnet	2200

CONFIGURING / MONITORING / COMMUNICATIONS	
USB Device (Mini-B Type)	Innotech Net Comms Fixed #1 Address
Data Logging	Not Supported

LED INDICATION		
Comms LEDs for RS-485		Red – TX, Green - RX
Heartbeat LED	Status OK Fault Request Power Fail	Green Flash Red Flash Orange Flash Slow Orange Flash

Request LED shown when upgrading, config transfer, initialising etc.

INTEGRATED DAMPER ACTUATOR	
Torque	5 N m (45 in-lb)
Motor	Belimo Brushless D.C.
Included Shaft Clamp Diameter Range	6mm to 19mm (¼” to ¾”)
Maximum Shaft Clamp Diameter Range (Using Belimo accessory part)	6mm to 20mm (¼” to 0.78”)
Spanner/Socket Size for Shaft Clamp Nut	8mm
Maximum Degrees of Rotation (Throw)	95° - Adjustable with end stops
Actuator Speed	1°/second
Acoustic Noise Level	35 db (A)
Position Indicator	Mechanically Pluggable and Set

INCLUDED MOUNTING HARDWARE & ACCESSORIES	
Self-Drilling Sheet Metal Screw	#8 x 20mm, Wafer Head, Phillips #2 Drive
Belimo Position Indicator	Clip on the Actuator Clamp

Inputs & Outputs

DIGITAL INPUT	
Max Pulse Count Frequency	1kHz
Max Digital Input Response Rate	½ block cycle rate
Max Digital Input Voltage	24V AC or DC
Digital Switching	On > 5.5VDC Off < 2VDC
Digital Mode	Contact or Voltage

UNIVERSAL INPUTS	
Digital Input Configuration	
Max Digital Input Response Rate	½ block cycle rate
Max Digital Input Voltage	24V AC or DC
Digital Switching	On > 4VDC Off < 2VDC
Digital Mode	Contact or Voltage
Sensor Input Configuration	
Supports	Thermistor High, Thermistor Low
Range	0 to 5VDC
Resolution	16bit @ 65536 steps
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C
Voltage Input Configuration	
Range	0 to 10VDC
Resolution	16bit @ 65536 steps
Max Input Voltage	24V AC or DC
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C

DIFFERENTIAL PRESSURE SENSOR INPUT	
Range	-500 Pa to 500 Pa (-2” to 2” WC)
Zero Point Accuracy	0.1 Pa (0.0004” WC)
Resolution	0.017 Pa (0.00007” WC)
Span Accuracy	3% of Reading
Barbed Fitting Diameter	5.2mm O.D.
Allowable Overpressure	1 bar

Warning: (Refer to Section 15.21 of 47 CFR)
In addition, the user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment (see example below).

Warning: Any changes or modifications not expressively approved by Innotech could void the user's authority to operate this equipment.

DIGITAL OUTPUT		
Switch Mode	High Side Switching	On = 12VDC Off = Open
Inrush and short circuit protection		Self-Resetting Thermal Fuse
Switch Current		140mA
Maximum Available Power		70mA

UNIVERSAL OUTPUTS	
Voltage Output Configuration	
Range	0VDC to 10VDC
Resolution	12bit @ 4096 steps
Impedance	~100Ω
Maximum Current	20mA
Accuracy	±1.5% of reading @ 20°C (68°F) & R_{load} >10kΩ
Drift	±150ppm/°C
Pulse Width Modulation (PWM) Output Configuration	
Frequency Range	12.5Hz
High Side Switching	On = 12VDC Off = Open
Duty Cycle Resolution	0.05%
Duty Cycle Range	0 to 100%
Digital Output Configuration	
High Side Switching	On = 12VDC Off = Open
Inrush and short circuit protection	Self-Resetting Thermal Fuse
Switch Current	140mA
Maximum Available Power	70mA

⚠ *Pressure sensors for VAVs are very sensitive electromechanical devices. The pressure sensor is factory calibrated for best performance. Excessive stress will cause irreparable damage to the pressure sensor.*

Please observe the following when handling the SK8Vx:
- *Do NOT apply pressure from sources other than a pitot tube*
- *Do NOT apply excessive static or differential pressure when connecting or disconnecting air supply*
- *Do NOT drop the device*

FCC CLASS B NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

Note – *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential or commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

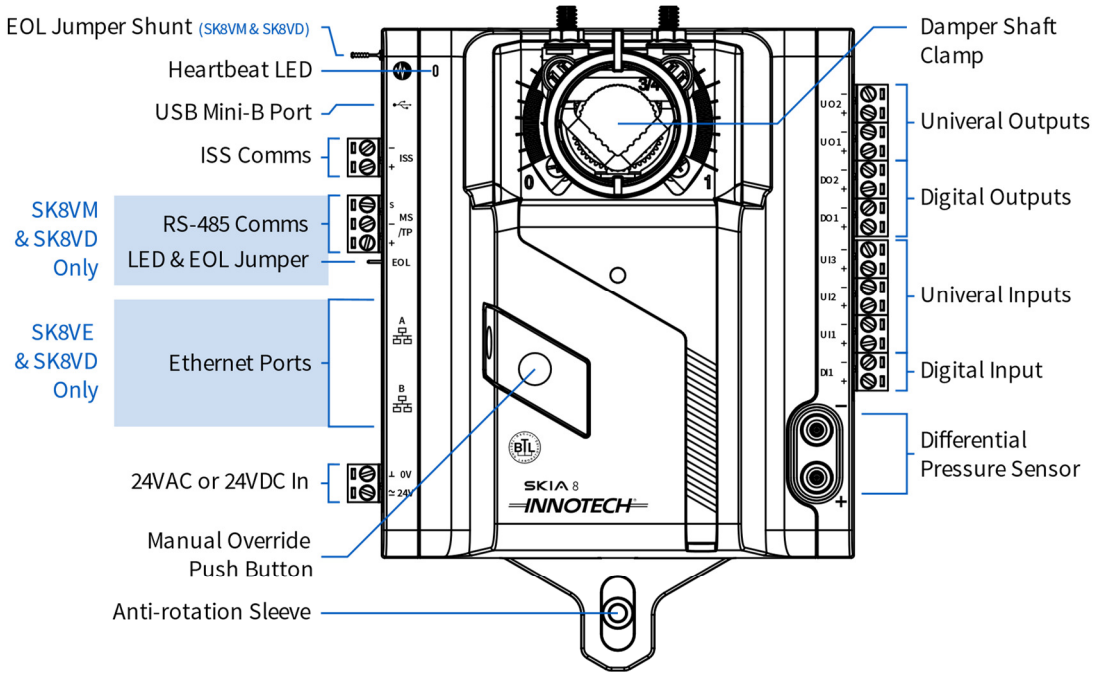
- Reorient or relocate the receiving antenna.

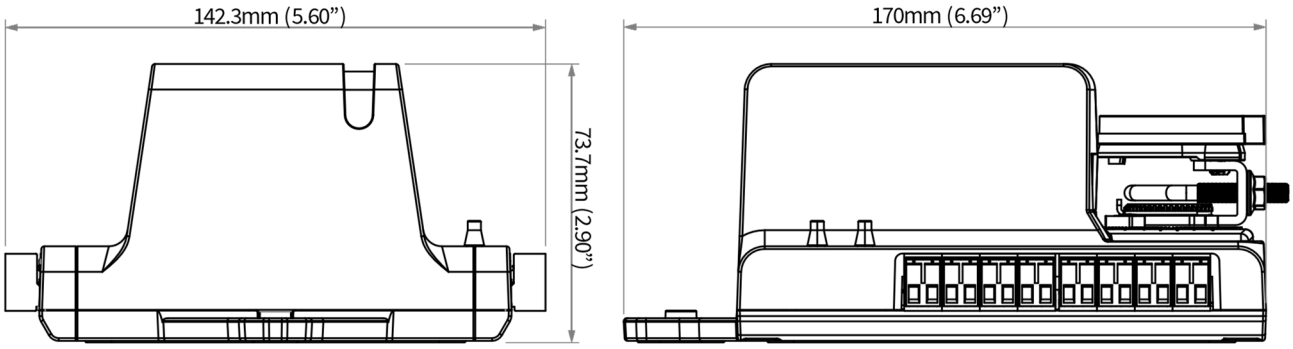
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

SKIA SK8Vx Controller Dimensions & Parts Identification





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