

VAV1507 VAV Controller Catalog Page

LIT-1901140

2020-11-27

VAV1507 introduction

The VAV1507 configurable digital controller is designed for Variable Air Volume (VAV) applications that communicate through the BACnet® MS/TP protocol. This VAV controller features a combination of an integral digital differential pressure transducer (DPT), a damper actuator, and a 32-bit microprocessor.

The controller's small package size facilitates quick field installation and an efficient use of space without any compromise on performance. The controller connects easily to sensors for zone air temperature sensing.

A wide variety of network sensor models are available to measure and display zone temperature, occupancy detection, zone humidity, and CO₂ level.

The controller comes with a configurable software application that supports single-duct, cooling-only control scenarios. The software application features the following items:

- The controller can automatically detect the connected sensors, including TE730 analog sensors and NSA and NS series network sensors.
 - ❗ **Note:** The VAV1507 controller supports absolute setpoint type sensors. The controller does not support warmer/cooler type sensors.
- You can configure the controller to use a local or remote zone temperature setpoint. The local setpoint comes from a sensor, and the remote setpoint comes from the BAS.
- You can view the airflow readings in cubic feet per minute (CFM), liters per second (L/s), or cubic meters per hour (CMH).



- You can configure the zone temperature offset of the connected sensors.
- Warm-up and cooldown mode supports the central system warm-up or cooldown. You can specify the minimum flow setpoint independently for warm-up and cooldown.
- You can connect up to 100 devices on the FC bus.
- Several read-only and adjustable points are available to get information from the sensors or to adjust how the software application operates.

VAV1507 features and benefits

The following features and benefits apply to the VAV1507:

Standard hardware and software platform

Uses a common hardware design with other similar Johnson Controls® products to support standardized wiring practices and installation workflows. Uses a common software design to support the use of a single tool for control applications, commissioning, and troubleshooting to minimize technical training.

32-bit microprocessor and 8 MB SDRAM

Ensures optimum performance and meets industry specifications.

Integrated DPT

Features a state-of-the-art digital DPT that uses flow-through technology to provide accurate readings in the range of -500 Pa to +500 Pa with no offset drift, also at the bottom end of the measuring range.

Integrated fast-response actuator

You can reduce commissioning time because the actuator drives the damper from full open to full closed (90°) in 60 seconds.

Modular ports

Supports quick connection to the Mobile Access Portal (MAP) Gateway, network sensors, or TE730 sensors.

Automatic detection of NS, NSA, and TE730 sensors

Expedites installation and troubleshooting.

SI units

Eases configuration tasks with points that can display airflow in different units, including SI units: CFM, L/s, or CMH.

User interface

Provides convenient monitoring and adjusting capabilities through the MAP Gateway.

Pre-loaded, configurable application

Features a single-duct, cooling-only application loaded at the factory that provides several points for configuration and data display.

Auto-tuned control loops

Reduces commissioning time, eliminates change-of-season re-commissioning, and reduces wear and tear on mechanical devices.

Patented technologies

Includes Proportional Varying Deadzone Control (PVDC) and Pattern Recognition Adaptive Control (PRAC+) to provide continuous loop tuning.

Simple installation

Minimizes installation efforts with no input and output connections, no programming needed, and a simple configuration workflow.

BACnet automatic discovery

Supports easy controller integration into a BAS.

BACnet Testing Laboratories (BTL) listed and certified

Ensures interoperability with other BTL-listed devices.

Compliance

CE and RCM compliant.

End-of-Line (EOL) switch

Enables controllers to be terminating devices on the communications bus.

VAV1507 ordering information

Table 1: VAV1507 controller ordering information

Product code number	Description
JC-VAV1507-0	32-bit, integrated VAV controller/actuator/pressure sensor – DPT for cooling application, 24 VAC, FC and SA bus, includes 8-pin TSTAT port for use with TE-7xx series non-communicating sensors

Table 2: VAV1507 controller accessories (order separately)

Product code number	Description
TL-MAP1810-0PA	Portable MAP Gateway - Australia, China, India, Japan, Malaysia, New Zealand, Singapore, South Korea, Thailand
TL-MAP1810-0PM	Portable MAP Gateway - Bahrain, Egypt, Iraq, Kuwait, Oman, Pakistan, Qatar, South Africa, UAE
TL-MAP1810-0PE	Portable MAP Gateway - Turkey
TL-MAP1810-0PS	Portable MAP Gateway - Saudi Arabia
MS-BTCVTCBL-700	Cable replacement set for the MS-BTCVT-1 or the NS-ATV7003-0; includes one 1.5 m (5 ft) retractable cable
Y64T15-0	Transformer, 120/208/240 VAC primary to 24 VAC secondary, 92 VA, foot mount, 72.2 cm (30 in.) primary leads and 76.2 cm (30 in.) secondary leads, Class 2
Y65A13-0	Transformer, 120 VAC primary to 24 VAC secondary, 40 VA, foot mount (Y65AS), 20.32 cm (8 in.) primary leads and 76.2 cm (30 in.) secondary leads, Class 2
Y65T42-0	Transformer, 120/208/240 VAC primary to 24 VAC secondary, 40 VA, hub mount (Y65SP+), 20.32 cm (8 in.) primary leads and secondary screw terminals, Class 2
Y65T31-0	Transformer, 120/208/240 VAC primary to 24 VAC secondary, 40 VA, foot mount (Y65AR+), 20.32 cm (8 in.) primary Leads and secondary screw terminals, Class 2
AP-TBK1002-0	2-position screw terminal that plugs onto the VAV1507 spade lugs
AP-TBK4FC-0	Replacement MS/TP FC bus terminal, 4-position connector, blue, bulk pack of 10
TE730-29C-0	Sensor with temperature setpoint adjustment
TE730-39C-0	Sensor with temperature setpoint adjustment and occupancy button
TL-BRTRP-0	Portable BACnet/IP to MS/TP router

Table 3: Sensors supported by the VAV1507 controller

Sensor product family	Description	Supported type	Connection to VAV1507
TE730	Analog sensors with occupancy option	Absolute setpoint type	TSTAT port
NSA7000	Network sensors with occupancy option and RH% display option		SA bus port or SA bus spade lugs
NS7000	Network sensors with occupancy option, CO ₂ display option, and RH% display option		
NS8000			

Repair information

If the controller fails to operate within its specifications, replace the unit. For a replacement unit, contact the nearest Johnson Controls representative.

Technical specifications

Table 4: VAV1507 controller

Specification	Description
Product code number	JC-VAV1507-0: 32-bit, integrated VAV controller/actuator/pressure sensor – DPT for cooling application, 24 VAC, FC and SA bus, includes 8-pin TSTAT port for use with TE-7xx series non-communicating sensors
Communications protocol	BACnet MS/TP
Supply voltage	24 VAC (nominal, 20 VAC minimum/30 VAC maximum), 50/60 Hz, Power Supply Class 2 (North America), Safety Extra-Low Voltage (SELV) (Europe)
Power consumption	14 VA maximum
Ambient conditions	Operating: 0°C to 50°C (32°F to 122°F), 10% to 90% RH noncondensing Storage: -40°C to 70°C (-40°F to 158°F), 5% to 95% RH noncondensing
Terminations	SA bus and supply power: 6.3 mm (1/4 in.) spade lugs FC bus: pluggable screw terminal block TSTAT modular port: RJ-45 8-pin modular jack SA bus modular port: RJ-12 6-pin modular jack
Controller addressing for BACnet MS/TP	DIP switch set; valid field controller device addresses 4 to 127 (Device addresses 0 to 3 and 128 to 255 are reserved and not valid field controller addresses.)
Communications bus	RS-485: FC bus: 0.6 mm (22 AWG) standard 3-wire, twisted, shielded cable recommended between the supervisory controller and the VAV controller SA bus: 0.6 mm (22 AWG) stranded, 4-wire (2-twisted pairs) shielded cable recommended from the VAV controller to network sensors and other sensor and actuator devices; includes a terminal to source 15 VDC supply power from the controller to SA bus devices TSTAT port: 8-pin RJ-45 connector, 1 SA, 2 UI SA bus port: 6-pin RJ-12 connector Note: For more information, refer to the <i>MS/TP Communications Bus Technical Bulletin (LIT-12011034)</i> .
Processor	RX651 32-bit Renesas® microcontroller
Memory	4 MB flash memory and 8 MB SDRAM
Universal input resolution	UI analog input: 15-bit resolution on UIs at TSTAT port
Air pressure differential sensor	Range: -500 Pa to 500 Pa (-2.0 in. H ₂ O to 2.0 in. H ₂ O) Performance characteristics: Zero point accuracy: 0.1 Pa Span accuracy: 3% of reading
Actuator rating	4 N·m (35 lb·in) minimum shaft length = 44 mm (1-3/4 in.)
Mounting	Mounts to damper shaft using single set screw and to duct with single mounting screw
Dimensions (height x width x depth)	165 mm x 125 mm x 73 mm (6.5 in. x 4.92 in. x 2.9 in.) Center of output hub to center of captive spacer: 135 mm (5-5/16 in.)
Weight	0.66 kg (1.46 lb)

Table 4: VAV1507 controller

Specification	Description
Compliance CE	Europe: CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant.
	BACnet International BACnet Testing Laboratories (BTL) Protocol Revision 18 Listed BACnet Application Specific Controller (B-ASC)

The performance specifications are nominal and conform to acceptable industry standard. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: <https://jciapat.com>

Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

Contact Johnson Controls: www.johnsoncontrols.com/contact-us

