VAV1717 and VAV1732 VAV Controllers Catalog Page

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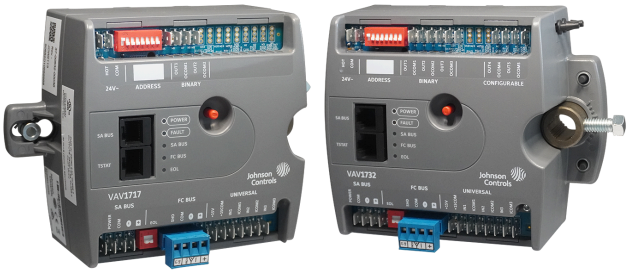

Introduction

The VAV1717 and VAV1732 controllers are designed for Variable Air Volume (VAV) applications. These controllers operate on an RS-485 BACnet® MS/TP bus as BACnet Application Specific Controllers (B-ASCs).

These controllers feature 10 preloaded standard applications that operate standard VAV box equipment with a proven energy-efficient sequence of operation, without the need for programming. However, the controllers are also fully programmable using the Controller Configuration Tool (CCT), which provides the flexibility to create custom control sequences.

These controllers feature a combination of an integral digital differential pressure transducer (DPT), a damper actuator, and a 32-bit microprocessor. The small package size of the controllers facilitates quick field installation and efficient use of space without compromising high-tech control performance. The controllers connect 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 CO_2level.

The VAV1717 and VAV1732 controllers can communicate using BACnet MS/TP, N2, or wireless Zigbee®. The default communications protocol for all new controllers is BACnet MS/TP.

You can use the VAV1717 and VAV1732 controllers as functional replacements for the following controllers:

- VMA1617 and VMA1632
- PCV1617 and PCV1632
- Legacy N2 controllers

These N2-capable MS/TP equipment controller models provide a cost-effective upgrade and modernization path for customers with existing N2 controllers.

Features and benefits

The following features and benefits apply to the VAV1717 and VAV1732 controllers:

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, 16 MB flash storage, 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 with the 4-N•m actuator that drives the damper from full open to full closed (90°) in 60 seconds.

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Modular SA bus port and TSTAT port

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

Monitor and adjust the controller points conveniently through the MAP Gateway user interface.

Configurable and programmable

Features 10 configurable applications loaded at the factory for different reheat and fan options. You can also use the CCT to program the controllers.

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.

BACnet automatic discovery

Integrate the controllers easily into a BAS.

Support for up to 100 devices

Connects to a maximum of 100 devices on the FC bus.

BACnet Testing Laboratories (BTL) listed and certified

Ensures interoperability with other BTL-listed devices.

Compliance

UL, CE, and RCM compliant.

End-of-Line (EOL) switch

Controllers can act as terminating devices on the communications bus.

Preloaded applications

The controllers feature 10 preloaded standard applications, see Table 1. You can use the MAP Gateway to select any of these applications. For the application details, such as the sequence of operation and the list of points, refer to the *VAV1717 and VAV1732 Application Note (LIT-12013794)*.

The preloaded applications provide the following benefits:

- Points to display airflow in different units, including SI units: CFM, L/s, or CMH.
- Automatic detection of NS7000, NS8000, NSA, and TE730 sensors.
    - Support for absolute setpoint type sensors, no support for warmer/cooler type sensors.
    - Support for temporary occupancy requests from a network sensor or a TE730 sensor.
    - Writable points for zone temperature offset of network sensors and TE730 sensors.
    - Points for zone CO_2 and humidity, if a connected sensor provides that information.
- Support to configure the zone temperature setpoint as local or remote. The local setpoint comes from a sensor, and the remote setpoint comes from the BAS.
- Warm-up and cooldown mode supports the central system warm-up or cooldown. Warm-up mode starts if the supply air temperature input is unreliable. You can specify the minimum flow setpoint independently for warm-up and cooldown.
- You can use several read-only and adjustable points to monitor sensor information and to configure the application.

Table 1: Preloaded applications

VAV1717			VAV1732		
No.	**Application name**	**Description**	**No.**	**Application name**	**Description**
1	Cooling only	Single duct, cooling only	1	Elec Reheat 1-3 Stg On/Off Parallel Fan	Electrical heater with one, two, or three stages and single-speed parallel fan
2	Elec Reheat 1-2 Stg	Electrical heater with one or two stages	2	Incr HW Reheat On/Off Parallel Fan	Incremental heating water valve and single-speed parallel fan
3	On/Off HW Reheat	On/off heating water valve	3	Elec Reheat 1-3 Stg On/Off Series Fan	Electrical heater with one, two, or three stages and single-speed series fan
4	Incr HW Reheat	Incremental heating water valve	4	Incr HW Reheat On/Off Series Fan	Incremental heating water valve and single-speed series fan
5	On/Off Parallel Fan	Single-speed parallel fan	5	Var Speed Series Fan	Variable-speed series fan
6	On/Off HW Reheat On/Off Parallel Fan	On/off heating water valve and single-speed parallel fan	6	Elec Reheat 1-3 Stg Var Speed Series Fan	Electrical heater with one, two, or three stages and variable-speed series fan
7	Elec Reheat 1 Stg On/Off Parallel Fan	Electrical heater with one stage and single-speed parallel fan	7	On/Off HW Reheat Var Speed Series Fan	On/off heating water valve and variable-speed series fan
8	On/Off Series Fan	Single-speed series fan	8	Incr HW Reheat Var Speed Series Fan	Incremental heating water valve and variable-speed series fan
9	On/Off HW Reheat On/Off Series Fan	On/off heating water valve and single-speed series fan	9	Elec Reheat 1-3 Stg	Electrical heater with one, two, or three stages
10	Elec Reheat 1 Stg On/Off Series Fan	Electrical heater with one stage and single-speed series fan	10	Proportional HW Reheat	Proportional heating water valve

Ordering information

Table 2: Controller ordering information

Product code number	Description
JC-VAV1717-0	32-bit, integrated VAV controller, actuator, and pressure sensor (DPT), 3 UI, 2 BO
JC-VAV1732-0	32-bit, integrated VAV controller, actuator, and pressure sensor (DPT), 3 UI, 3 BO, 2 CO

Table 3: Controller accessories (order separately)

Product code number	Description
XPM Series Expansion Modules	Refer to the *F4-XPM Expansion Modules Catalog Page (LIT-1901150)* for a complete list of available XPM Series Expansion Modules.
TL-CCT-0	License enabling Controller Configuration Tool (CCT) software for one user
MS-FCP-0	License enabling Metasys Equipment Controller Firmware Package Files required for CCT
FX-FCP-0	License enabling Facility Explorer Equipment Controller Firmware Package Files required for CCT
CH-FCP-0	License enabling BCPro Controller Firmware Package Files required for CCT
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

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Table 3: Controller accessories (order separately)

Product code number	Description
TL-MAP1810-0PS	Portable MAP Gateway - Saudi Arabia
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 controller spade lugs
AP-TBK1003-0	3-position screw terminal that plugs onto the controller spade lugs
AP-TBK4FC-0	Replacement MS/TP FC bus terminal, 4-position connector, blue, bulk pack of 10
AS-CBLTSTAT-0	Cable adapter for connection to 8-pin TE-6700 Series sensors
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 4: Sensors supported by the preloaded applications

Sensor product family	Description	Connection to the controller	Supported type
TE730	Analog sensors with occupancy option. For more information, refer to *TE730 Series Temperature Sensors Catalog Page (LIT-1900828)*.	TSTAT port	Absolute setpoint type
NSA7000	Network sensors with occupancy option and RH% display option. For more information, refer to *Flush-Mounted NSA7000 Series Network Sensor Product Bulletin (PB_NSA-7000_17 04 2018).*	SA bus port or SA bus spade lugs	
NS7000 NS8000	Network sensors with occupancy option, CO_2 display option, and RH% display option. For more information, refer to the following documents: • NS7000 series: *NS Series Network Sensors Product Bulletin (LIT-12011574)* • NS8000 series: *NS8000 Series Network Sensors Catalog Page (LIT-1901099)*		

Repair information

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

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Technical specifications

Table 5: VAV1717 and VAV1732 controller

Specification	Description
Product code number	JC-VAV1717-0: 32-bit, integrated VAV controller, actuator, and pressure sensor (DPT), 3 UI, 2 BO JC-VAV1732-0: 32-bit, integrated VAV controller, actuator, and pressure sensor (DPT), 3 UI, 3 BO, 2 CO
Communications protocol	BACnet MS/TP, N2
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	Inputs, outputs, 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.)
Controller Addressing for N2	DIP switch set; valid field controller device addresses 1 to 254
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 *MS/TP Communications Bus Technical Bulletin (LIT-12011034)*.
Processor	RX651 32-bit Renesas® microcontroller
Memory	16 MB flash memory and 8 MB SDRAM
Input and Output Capabilities	**Universal Input (UI):** user-configurable, three available modes: • Voltage input: 0 VDC to 10 VDC • Resistive (0k ohm to 600k ohm), qualified sensors: 0-2k ohm potentiometer, RTD (1k Ni, 1k Pt, A99B Si), NTC (10k Type L, 2.252k Type 2) • Dry-contact maintained binary **Binary Output (BO):** 24 VAC Triac, internal power. Shared common terminal between all BO Triacs. **Configurable Output (CO):** available on JC-VAV1732-0, user-configurable, two available modes: • Voltage output: 0 VDC to 10 VDC, 10 mA; Same circuit as modules logic circuitry (0 V to 10 V or 4 mA to 20 mA); SELV, Limited Power (<15 Watts), Class 2 • Triac output: 24 VAC, 500 mA (externally sourced); Isolated circuits; SELV, 24 VAC, 0.5 A resistive; Not-limited power (>15 Watts) Class 2
Universal input resolution	UI analog input: 15-bit resolution
Configurable Output Mode Accuracy	0 to 10 VDC ± 200 mV
Air pressure differential sensor	Range: -500 Pa to 500 Pa (-2.0 in. H2O to 2.0 in. H2O) 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

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Table 5: VAV1717 and VAV1732 controller

Specification	Description
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)
Compliance	United States: UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment. FCC Compliant to CFR47, Part 15, Subpart B, Class A.
	Canada: UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment. Industry Canada Compliant, ICES-003
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.

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