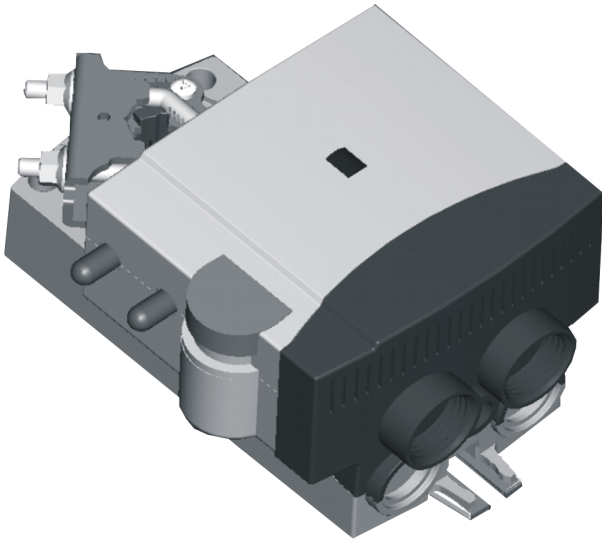


Excel 10

W7751H3007 SMART VAV ACTUATOR

HONEYWELL EXCEL 5000 OPEN SYSTEM

SPECIFICATION DATA



GENERAL

The W7751H3007 Smart VAV Actuator consists of a factory-integrated Variable Air Volume (VAV) Box Controller and a 90-second Direct-Coupled Actuator, and belongs to the Excel 10 family product line. The W7751H3007 provides pressure-independent air flow control and pressure-dependent damper control. Generally speaking, VAV systems only provide cool air to the zones. The W7751H3007 provides two additional outputs which control a fan or VAV box reheat coils. The heaters can be staged electric or modulating hot water heaters. Supply and exhaust pressurization control are provided on a zone basis.

FEATURES

- Uses Echelon® LonWorks® network protocol.
- Free Topology Transceiver (FTT) high-speed 78 kbaud communications network.
- Compliant with VAV Device Object Type number 8010 functional LonMark™ profile.
- Capable of stand-alone operation.
- Designed for pressure-independent or pressure-dependent single or dual-duct Variable Air Volume (VAV) control.
- Uses a Microbridge air flow sensor with patented dual integral restrictor design.
- Easy user access to air flow sensor inputs.
- Provides Proportional Integral Derivative (PID) temperature control.
- For use in conjunction with floating hot water, two-stage electric, or modulating hot water heaters.
- Provides patented non-linear floating algorithm for velocity control loops.
- Individual zone pressurization for supply and exhaust control.
- Factory-configured via EEPROM with critical user parameter default values.
- Supports motion sensor interface, via network, for enhanced energy savings.
- Supports Terminal Regulated Air Volume (TRAV) concept.
- Supports pressurize and depressurize, night purge, and morning warm-up sequences.
- The W7751H3007 mounts directly onto VAV box damper shaft and has up to 6 Nm torque, 95 degree stroke, and 90 sec. timing at 60 Hz / 110 sec. timing at 50 Hz.

DESCRIPTION

The W7751H3007 Smart VAV Actuator consists of a factory-integrated Variable Air Volume (VAV) Box Controller and a 90-second Direct-Coupled Actuator, and belongs to the Excel 10 family product line. The W7751H3007 provides pressure-independent air flow control and pressure-dependent damper control. Generally speaking, VAV systems only provide cool air to the zones. The W7751H3007 provides two additional outputs which control a fan or VAV box reheat coils. The heaters can be staged electric or modulating hot water heaters. Supply and exhaust pressurization control are provided on a zone basis.

Control techniques supported (heating and cooling):

- Up to two stages of electric or hot water heat.
- Floating hot water heat.
- Pulse-width modulated (PWM) heat.
- Floating damper output.

Additional control features:

- Occupied/Normal hours or if bypass invoked from a wall module during unoccupied hours.
- Unoccupied/Off hours.
- Supply and exhaust pressurization control are provided on a zone basis.
- Occupancy sensor override and window open override (only via the network).

SPECIFICATIONS

Model

The W7751H3007 Smart VAV Actuator assembly is field-mounted to the VAV box damper shaft similar to the mounting of a standard actuator. Field wiring (0.34 to 2.0 mm²) passes through the grommets and connects to screw terminals located inside the detachable wiring box.

Input/Output

The W7751H3007 is a NEC Class 2 rated device. This listing makes sure that the power consumed by the W7751H3007 or the devices it directly controls must be limited to a sum-total of 100 VA. Any hardware driven by the Triac outputs must have a minimum current draw, when energized, of 25 mA at 20 Vac and a maximum current draw of 400 mA at 30 Vac.

Inputs:

- Space temperature sensor.
- Remote wall module setpoint input or duct air temperature sensor.
- Remote wall module override.
- Air flow sensor.

Outputs:

- Internally wired VAV actuator (floating +).
- Internally wired VAV actuator (floating -).
- Floating heat (+) or stage 1 heat.
- Floating heat (-) or stage 2 heat.

Power Supply

24 Vac with a valid range of 20 to 30 Vac at 50/60 Hz.

Power Consumption

6 VA maximum at both 50 and 60 Hz.

Differential Pressure Range

0 to 0.5 kPa (max.) for the onboard flow sensor.

Maximum Duct Area

0.372 m² (4 ft²).

The maximum flow setpoint must be chosen so as to ensure that the duct velocity is not less than 1.016 m/s (200 ft/min) and not greater than 17.78 m/s (3,500 ft/min).

Noise Emissions

Max. noise emissions of 35 dB.

IP Protection Class

IP40.

Specified Sensing Temperature Range

20 kΩ NTC sensor temperature range of 7 to 37°C with an allowable control setpoint range from 10 to 32°C when initiated from the network and 13 to 29°C when configured and connected to a T7460 Wall Module, T7560 Digital Display Wall Module, or LF20 Air Temperature Sensor.

LonWorks Service LED

1. OFF = no power to the processor.
2. Continuous ON = processor is in the initialized state.
3. Slow blink = controlling, normal state.
4. Fast blink = the W7751H3007 has an alarm condition.

Communications

The W7751H3007 uses an FTT transformer-coupled communications port.

The LONWORKS network is insensitive to polarity, eliminating the possibility of installation errors due to miswiring.

Different network configurations (daisy-chain, loop, and star configurations, or any combination thereof) are possible (see also Excel 50/500 LONWORKS Mechanisms Interface Description, EN0B-0270GE51).

The maximum number of nodes per LONWORKS® network segment is 64.

Approved cable types for LONWORKS® network communications wiring is Level IV 0.34 mm² plenum or non-plenum rated unshielded, twisted pair, solid conductor wire.

Damper Shaft Mounting

The actuator on the W7751H3007 mounts directly onto the VAV box damper shaft and has up to 6 Nm of torque, 95 degree stroke, and 90 sec. timing at 60 Hz / 110 sec. timing at 50 Hz. The actuator is suitable for mounting onto a round shaft (diameter: 8...16 mm) or a square shaft (6...13 mm). The minimum VAV box damper shaft length is 40 mm.

The actuator may be mounted in any position (see Fig. 1).

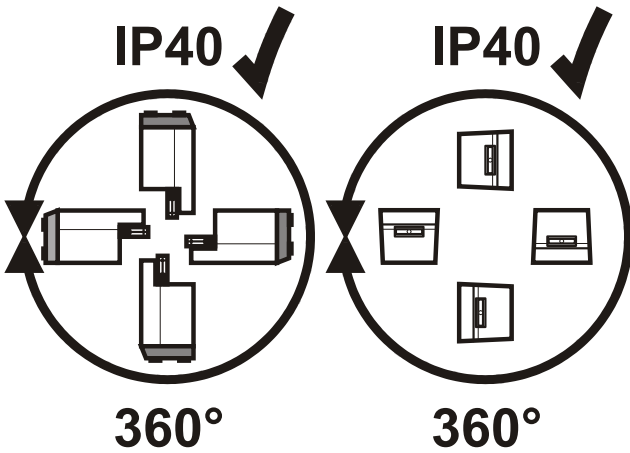


Fig. 1. Permissible orientations providing IP40

LonMark™ Functional Profile

The W7751H3007 Controller supports the LonMark™ Functional Profile number 8010 VAV Controller, version 1.0 (see Fig. 2).

Dimensions (H/W/D)

142 x 103 x 76 mm.

Environmental Ratings

Operating Temperature: 0...50°C.

Shipping Temperature: -40...65.5°C.

Relative Humidity

5% to 95% non-condensing.

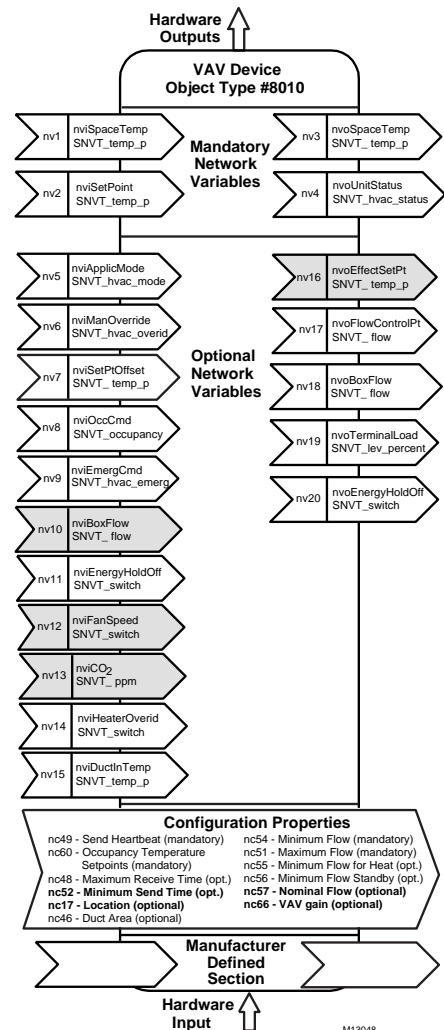


Fig. 2. Functional profile of LonMark™ VAV object details (variables not implemented in the W7751H3007 are grayed, or are in bold print in Configuration Properties).

Vibration

V2 level.

Corrosion

Office environment.

Approval Bodies

The W7751H3007 is listed under UL 916 (E87741) and is also listed under cUL (E87741). The W7751H3007 meets FCC part 15 Class B requirements. The W7751H3007 conforms to requirements per European Consortium standards EN50081-1 (CISPR 22 Class B) and EN 50082-1 (IEC 801-2, IEC 801-3 and IEC 801-4) for CE mark.

Accessories

- Excel 10 T7460, T7560 Wall Modules.
- LF20 Air Temperature Sensor.
- 209541B Excel 10 Termination Module.
- XAL-Term or 209541B Excel 10 Termination Module.

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