



SINGLE-DUCT VARIABLE AIR VOLUME FIELD CONTROLLER

FEATURES AND HIGHLIGHTS

- Fully BACnet-compliant on MS/TP LAN at up to 115.2 Kbps.
- Programmable control logic can be field-modified.
- Download-able operating code to allow for future software improvements.
- 32-bit processor architecture with all program data backed up in nonvolatile flash memory.
- High-speed processing of DDC program, with an internal logical loop time of 100 msec.
- Backwards compatible with older VAV-SD and VAV-SDC3 models.

APPLICATIONS

Recommended for single-duct variable air volume (VAV) applications.

The Alerton® VisualLogic® VAV-SD-E is a versatile, BACnet-compliant field controller that provides pressure-independent control of any single-duct variable air volume (VAV) box. It is particularly suited for controlling cooling-only and fan-powered variable volume or constant volume terminal units. As a native BACnet controller, the VAV-SD-E integrates seamlessly with your BACnet system, communicating at up to 115.2 Kbps on a BACnet MS/TP LAN.

The VAV-SD-E-F includes a filter to reduce dust contamination.

The VAV-SD-E supports the Alerton Microtouch™, as well as the BACtalk® Microset, Microset II, and Microset 4 intelligent wall sensors, which offer convenient data display, setpoint adjustment, and technician access to equipment setup parameters.

All VAV-SD-E control logic is programmed using Alerton's easy-to-learn graphical programming language, VisualLogic®. Programming and setup data are stored in non-volatile flash memory, ensuring stable and reliable operation.

The VAV-SD-E contains an integral airflow sensor to provide pressure independent operation of the VAV box. The airflow sensor is factory calibrated at multiple velocity points and is field-adjustable during balancing. Minimum, maximum, and reheat airflows can be entered using a Microset wall unit or compatible operator workstation software.

SPECIFICATION STATEMENT

Solution shall provide a BACnet certified terminal device to control a dual-duct variable air volume box. It shall provide five universal inputs, three hot-switched binary outputs, two ground-switched binary outputs, one filter and one air flow sensor. Processor shall be 32-bit. Inputs and outputs shall be 16-bit resolution. Device shall support the Microset protocol. Solution shall monitor discharge air or other field inputs. Device must allow a technician to adjust calibration in the field during balancing to compensate for variations in box installation and type.

VAV-SD-E						
UI UNIVERSAL INPUTS	HBO HOT SWITCHED TRIAC BINARY OUTPUTS	GB0 GROUND SWITCHED BINARY OUTPUTS	RO RELAY OUTPUT	AO ANALOG OUTPUTS	AF AIR-FLOW SENSOR	F FILTER
4	3	2	0	0	1	1

TECHNICAL DATA

POWER – 24 VAC @ 50-60 Hz. 4 VA minimum (maximum 64 VA with loads). Half-wave rectified.

INPUTS – 16-bit universal inputs accept 3k (Ibex) or 10k thermistor (type II), dry contact, 0-20 mA, 0-10 V, 0-5 V, or dry-contact pulse. External 250-ohm resistor required for 0-20 mA inputs. Pulse input maximum frequency of 100 Hz. Pulse input minimum duty cycle 5mS ON / 5mS OFF (pulse input not supported on IN-0).

BINARY OUTPUTS – Triacs rated 24 VAC @ 50/60 Hz, 500 mA continuous and 800 mA (AC rms) for 60 milliseconds.

MICROSET – Supports BACtalk® Microset, Microset II, or Microset 4 on input 0 (IN-0).

INPUT/OUTPUT TERMINATIONS – Removable header-type screw terminals accept 14-24 AWG wire.

PRESSURE SENSOR – 16-bit polarity insensitive pressure sensor. 0-2 in. w.c. (500 Pa) range. 0.0004 in. w.c. (0.1 Pa) zero-point accuracy. 0.5% span repeatability. 1/8-inch x 3/8-inch long barb-fitting.

FILTER – In-line filter for pressure sensor included to enhance long-term stability.

MAX DIMENSIONS – 5.2" (132mm) H x 3.3" (84mm) W x 1.1" (28mm) D

MOUNTING – Screw mounting

ENVIRONMENTAL – 0 to 158°F (-17 to 70°C) / 5 to 95%RH, non-condensing

COMMUNICATIONS – EIA-485 (RS-485) over twisted shielded-pair (TSP); auto-baud switching (9.6kbps, 19.2kbps, 38.4kbps, 76.8kbps, or 115.2kbps); communication status LED.

PROTOCOLS – BACnet MS/TP (master)

PROGRAMMING – Supports Alerton's BD4 DDC file format using Alerton's VisualLogic® toolset.

MICROPROCESSOR – 32-bit ARM Cortex-M4F, 80 MHz

MEMORY – 512 MB non-volatile flash.

SECURITY – Integrated secure boot prevents loading of tampered firmware.

ORDERING INFORMATION

ITEM NUMBER

VAV-SD-E	ALERTON VAV SINGLE-DUCT BACNET CONTROLLER
VAV-SD-E-F	ALERTON VAV SINGLE-DUCT BACNET CONTROLLER WITH FILTER
VAV-FILTER	ALERTON VAV FILTER SINGLE
VAV-FILTER-50	ALERTON VAV FILTER BULK PACK (50)

CERTIFICATION AND CONFORMANCE

BACNET CONFORMANCE – An application specific controller (ASC) level device; tested and approved by BTL. See Protocol Implementation Conformance Statement (PICS).

UL – Listed Underwriters Laboratory for Open Energy Management Equipment (PAZX) under the UL Standard for Safety 916; listing includes both U.S. and Canadian certification. UL 2043 and CAN/ULC-S142 compliant for use in plenum applications.

EMC – EMC Directive 89/336/EEC (European CE Mark).

FCC – This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



715 Peachtree St. NE
Atlanta, GA 30308
alerton.com / sales@alerton.com