SINGLE-DUCT VARIABLE AIR VOLUME FIELD CONTROLLER

The Alerton® VisualLogic® VAV-SD2A-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 VAV series fan boxes equipped with a variable speed fan. As a native BACnet controller, the VAV-SD2A-E integrates seamlessly with your BACnet system, communicating at up to 115.2 Kbps on a BACnet MS/TP LAN.

The VAV-SD2A-E-F includes a filter to reduce dust contamination. The VAV-SD2A-E eliminates the need for expensive products and external pressure sensors to control VAV boxes equipped with variable speed fans or analog valves. It features two analog outputs, auto-selectable as either 0–10V or 0–20mA, to control either a variable speed fan, an analog heating valve, or another analog device.

The VAV-SD2A-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-SD2A -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-SD2A-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.

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-SD2A model.

APPLICATIONS

Recommended for pressure-independent control of any single-duct variable air volume (VAV) box and fan boxes equipped with a variable speed fan.

VAV-SD2A-E-F						
UI UNIVERSAL INPUTS	**HBO** HOT SWITCHED TRIAC BINARY OUTPUTS	**GBO** GROUND SWITCHED BINARY OUTPUTS	**RO** RELAY OUTPUT	**AO** ANALOG OUTPUTS	**AF** AIR-FLOW SENSOR	**F** FILTER
4	5	0	0	2	1	1

TECHNICAL DATA

POWER REQUIREMENTS – 24 VAC @ 50-60 Hz. 12 VA minimum (maximum 72 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, 0-5V, 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.

ANALOG OUTPUTS – 16-bit universal analog outputs support Voltage Mode: 0-10 VDC @ 10 mA maximum (1k ohm minimum); Current Mode: 4-20 mA @ 550 ohms Maximum.

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 – 4.9" (125mm) H x 5" (127mm) W x 1.4" (36mm) 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-SD2A-E	ALERTON VAV SINGLE-DUCT BACNET CONTROLLER
VAV-SD2A-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.

CE MARK – EMC Directive 2014/30/EU.

RoHS – RoHS Directive 2011/65/EU.

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.

ALERTON