DUAL-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-DD and VAV-DDC3 models.

APPLICATIONS

Recommended for pressure-independent control of any dual-duct variable air volume (VAV) box.

The Alerton® VisualLogic® VAV-DD-E is a versatile, BACnet-compliant field controller that provides pressure-independent control of any dual-duct variable air volume (VAV) box. As a native BACnet controller, the VAV-DD-E integrates seamlessly with your BACnet system, communicating at up to 115.2 Kbps on a BACnet MS/TP LAN.

The VAV-DD-E-F includes two filters to reduce dust contamination. The VAV-DD-E eliminates the need for expensive products and external pressure sensors to control dual-duct VAV boxes.

The VAV-DD-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-DD-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-DD-E contains two integral airflow sensors to provide pressure independent operation of a dual-duct 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 four universal inputs, four binary outputs, two air-flow sensors and two filters. 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-DD-E-F

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

TECHNICAL DATA

POWER – 24 VAC @ 50-60 Hz. 4 VA minimum (maximum 52 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.

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 SENSORS – 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.

FILTERS – In-line filters for pressure sensor available 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-DD-E	ALERTON VAV DUAL-DUCT BACNET CONTROLLER
VAV-DD-E-F	ALERTON VAV DUAL-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.

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