



## DUAL-DUCT VARIABLE AIR VOLUME UNITARY 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.
- Downloadable 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-DD7 and VAV-DD7C3 models.

### APPLICATIONS

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

The Alerton® VisualLogic® VAV-DD7-E is a versatile, BACnet-compliant field controller that provides pressure-independent control of any dual-duct variable air volume (VAV) box. It is particularly suited for controlling dual-duct fan-powered variable volume or constant volume terminal units. As a native BACnet controller, the VAV-DD7-E integrates seamlessly with your BACnet system, communicating at up to 115.2 Kbps on a BACnet MS/TP LAN.

The VAV-DD7-E includes two filters to reduce dust contamination. The VAV-DD7-E eliminates the need for expensive products and external pressure sensors to control fan-powered dual-duct VAV boxes.

The VAV-DD7-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-DD7-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-DD7-E contains two integral airflow sensors to provide pressure independent operation of a dual-duct VAV box. The airflow sensors are factory calibrated at multiple velocity points and are field-adjustable during balancing. Minimum, maximum, and reheat airflows can be entered using a Microset wall unit or compatible operator workstation software.

### VAV-DD7-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	3	4	0	0	2	2

**TECHNICAL DATA**

**POWER** – 24 VAC @ 50-60 Hz. 5 VA minimum (maximum 89 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** – 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-DD7-E	ALERTON VAV DUAL-DUCT
VAV-DD7-E-F	BACNET CONTROLLER
VAV-FILTER	ALERTON VAV DUAL-DUCT
VAV-FILTER	BACNET CONTROLLER WITH FILTER
VAV-FILTER-50	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.

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

**FCC** – FCC Part 15, Subpart J, Class A.



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