



### FEATURE SUMMARY

- **LonTalk Protocol**
- **Free Topology Communication (FTT-10)**
- **Dedicated On-Board Airflow Sensor**
- **5 Universal Inputs with 0-5V, 0-10V, 0-20mA, Thermistor or Dry Contact, Jumper Configurable**
- **Dedicated Damper Control, Floating Point Output**
- **4 universal outputs with Triac or 0-10V, Jumper Configurable**
- **Field Proven, Rugged, Honeywell™ Actuator**
- **Modular Design, Lowest Life Cycle Cost**
- **Fully Programmable**
- **2 Year Limited Warranty**

The Smart I/O™ ECVAV programmable variable air volume (VAV) controller is a state-of-the-art LonWorks™ controller with a factory integrated Direct-Coupled Actuator. On-board Airflow Sensor and motor control are complemented with an additional 9 channels of analog and digital I/O. The I/O is monitored and controlled by a Neuron 3150 chip with Free Topology communication over a LonWorks® network. The ECVAV can be utilized in many fixed and custom pressure-independent and pressure-dependent damper control applications.

The ECVAV sets a new standard in modular design to allow simple and easy replacement of the airflow pressure sensor, control circuit board and actuator assembly. The unprecedented, modular design provides for the lowest life cycle cost VAV controller in the industry. The ECVAV's removable terminal blocks further enhance its functional "real world" design.

The five universal inputs (UI) can be configured in a variety of ways. The controller can interface with resistive type sensors for temperature measurements. The UI's can measure voltage from humidity, CO<sub>2</sub> or other transducers. The UI's can input current for pressure measurements. The UI's can also be used to read digital inputs and dry contacts. With 12 bits of resolution, the universal inputs are field adaptable and accurate for many types of measurements.

An on-board regulated 20 VDC Power Terminal is available to operate current transducers for simplified interfacing and lower installed cost. The 20 VDC source is protected by an internal auto-reset fuse.

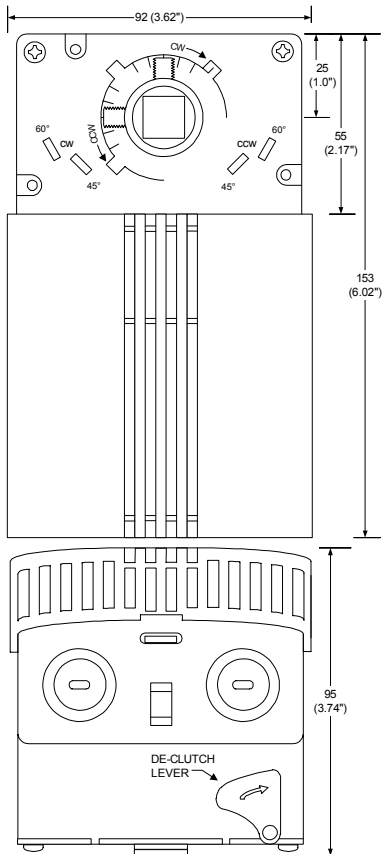
The four universal outputs (UO) can be configured as 24 VAC voltage sourcing Triac or 0-10 VDC outputs. The controller can use Triac outputs to provide on/off or pulsed control of valves, actuators, alarms, lights or other loads where the current does not exceed 1A at 24 VAC. The 0-10 VDC output has 10 bits of resolution for precision control of valves, actuators, and other external devices.

The ECVAV controller is protected from reverse power supply input wiring, over-voltages, transients, and other common events that can damage unprotected inputs and outputs.

The versatile and flexible I/O allows numerous VAV applications to be developed and implemented with the ECVAV.

User defined algorithms and functions can be programmed using VisualControl™, NodeBuilder, LonBuilder or other third party LONWORKS programming tools. The application program can be downloaded over the free topology network and is stored in non-volatile memory so it is retained even after loss of power.

The ECVAV assembly is field mounted to the VAV box damper shaft similar to the mounting of a standard actuator. Field wiring 18 to 22 AWG (2.0 to 0.34 mm<sup>2</sup>) passes through the conduit opening, connecting to the removable terminal blocks located under the snap-cover.



## Applications

Pressure Independent  
 Pressure Dependent  
 Dual Duct  
 Floating Control  
 Up to 4-stages of Heat  
 Modulating  
 Room Pressure Control  
 Energy Management  
 Custom Applications

**Pending  
 Agency Approvals**



Manufacturing location  
 certified to ISO 9002

## *Specifications:*

### General

**Communication:** LONTALK™ Protocol  
**Transceiver:** FTT-10, Free Topology  
**Processor:** Neuron 3150 @ 20 MHz  
**Memory:** 64K bytes FLASH  
 2K bytes SRAM (Neuron)  
 0.5K bytes EEPROM (Neuron)

### Power

**Nominal Input Voltage:** 24 VAC/DC  
**Input Voltage Range:** 21-28 VAC or 21-39 VDC  
**Typical Consumption:** 4 VA  
**Maximum Consumption:** 8 VA  
**Output Power Protection:** +20V Output auto-reset fuse

### Environmental

**Operating Temperature:** 0 °C to +65.5 °C, 32 °F to 150 °F  
**Storage Temperature:** -40 °C to +65.5 °C, -40 °F to 150 °F  
**Relative Humidity:** 5% to 95% (non-condensing)

### Differential Pressure Sensor

**Range:** 0-500 kPa (0-2"H<sub>2</sub>O)  
**Accuracy:** ±1% FS (25°C, 77°F)

### Actuator

**Motor:** Honeywell ML6161 Direct-Coupled  
**Torque/Timing:** 4 Nm (35 In. lb.)/90 sec.  
**Angle of Rotation:** 90 degree stroke  
**Shaft Diameter Range:** 10-13 mm (3/8-1/2")

### Inputs

**Number:** 5 Univ. plus dedicated airflow input  
**Voltage:** 0-5 Volts  
 0-10 Volts  
**Current:** 0-20 mA  
**Thermistor:** Type 2, 3: 10Kohms (25°C, 77°F)  
**Digital:** Dry Contact  
**Resolution:** 12 bits  
**Accuracy:** ±1% FS (25°C, 77°F)  
**Protection Circuitry:** Transient Over voltage, ESD

### Outputs

**Number:** 4 Univ. plus dedicated actuator outputs  
**Digital:** Triac 1.0 A @ 24 VAC Internal Source  
**Voltage:** 0-10 Volts  
**Analog Output Resolution:** 10 bit  
**Accuracy:** ±1% FS (25°C, 77°F)  
**Protection Circuitry:** ESD

### Mechanical

**Dimensions:** L 153 x W 92 x H 95 mm  
 (6.02" x 3.62" x 3.74")  
**UL94-5V:** Meets Plenum Requirements

### Warranty

**Period:** 2 Years (Limited)

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