



AccuNet[®] Selection & Use



Description

AccuNet® is a high-speed serial bus that is designed to provide a room-level network for summing multiple AccuValve airflow values while providing a single analog signal representing the total sum of the AccuValve airflows.

The primary application for AccuNet is in laboratories that have multiple VAV fume hoods which require the total room exhaust airflow to be instantly tracked by the supply airflow for maintaining proper room pressurization. The AccuNet room-level network can be anywhere between 2 and 20 nodes with a total cable length not to exceed 800'.

How to Order AccuNet

The AccuNet Module can be added to the AVT6000 and AVC6000 AccuValves as an option when ordering the valve or it can be purchased separately after the valves have been shipped and installed.

Why use AccuNet?

The conventional approach to totalizing room exhaust is to hard wire analog outputs from each exhaust valve to analog inputs on the room controller. The room controller reads the analog inputs, sums them to calculate the total exhaust airflow, subtracts the offset value and uses the result as the supply airflow setpoint. This approach, shown in Figure 1, is acceptable for providing high-speed tracking control of the supply airflow control valve.

AccuNet provides the ability to totalize the exhaust airflows via the Accutrol LAN twisted pair network rather than using multiple individual analog signals. Figure 2 shows the wiring and IO required to implement the same application using AccuNet rather than the conventional approach shown in Figure 1.

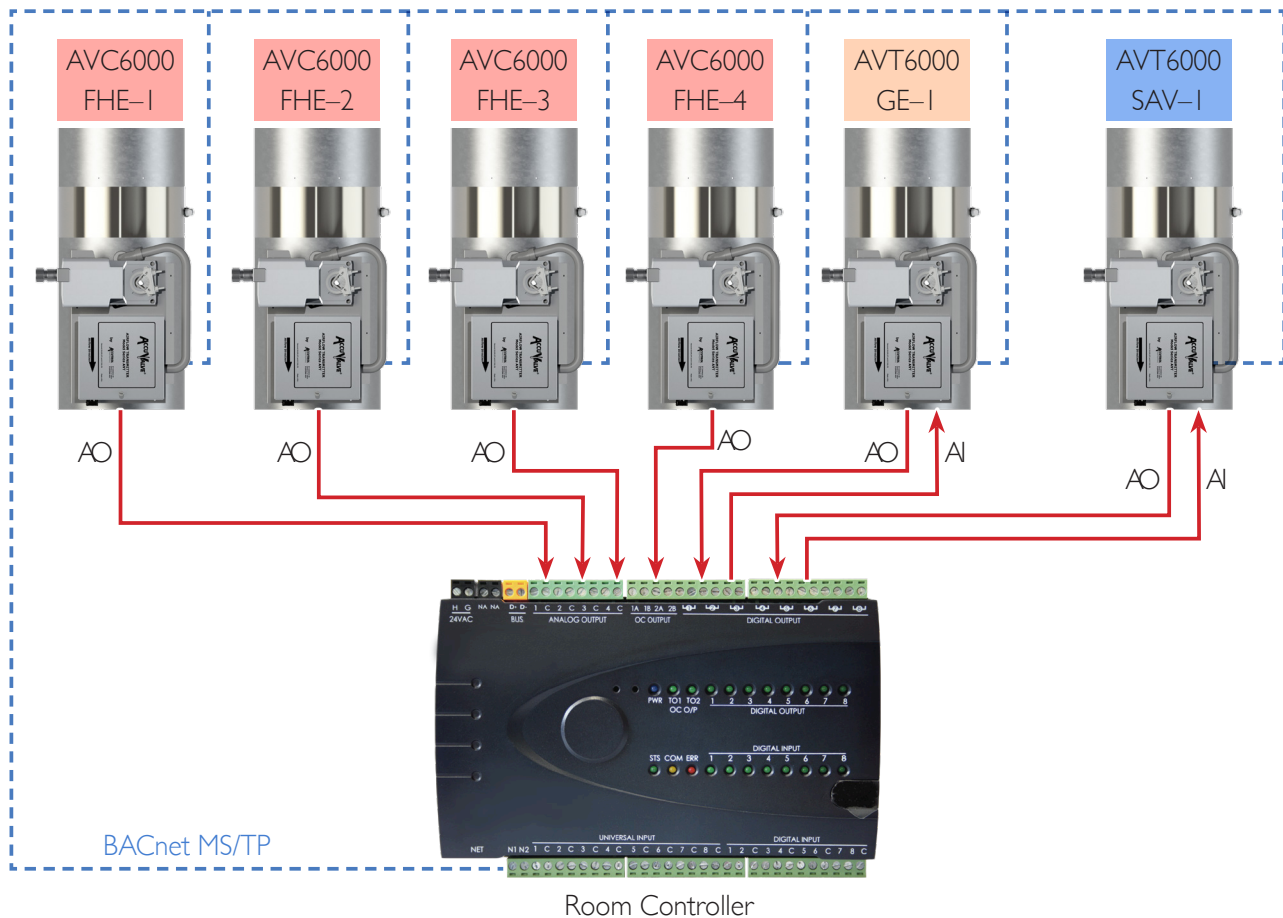


Figure 1 – Conventional Configuration

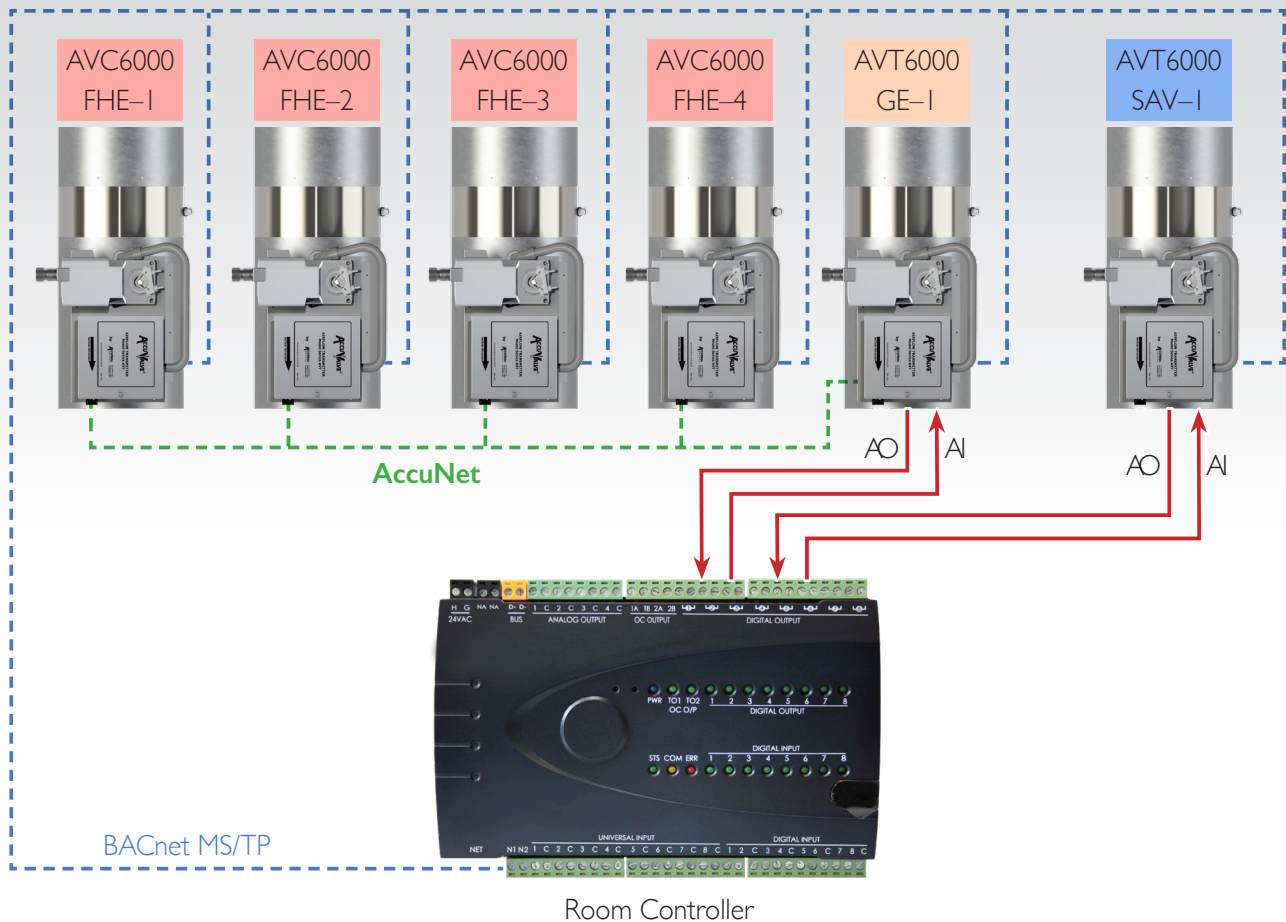


Figure 2 – AccuNet Configuration

Advantages of Using AccuNet vs Conventional Approach

- 1. Fewer I/O for Room Controller** – Utilizing the AccuNet enables the room controller to accept a single analog input representing the total exhaust airflow in the room. This reduces the I/O count which can reduce the size and quantity of the controllers required.
- 2. Simplify Wiring** – Instead of running wires from each valve to the controller a simple network is wired as a daisy chain reducing the cost of installation of the lab system.
- 3. BACnet** – Each valve also has the capability to communicate over BACnet as well as the AccuNet. The BACnet is standard on the AVC6000 series and optional on the AVT6000. If BACnet is required on the project the wiring is even easier because the installer will be running network wiring for the BACnet so it is a simple matter of running an additional 2 wire cable.
- 4. Setup** – Setting up the AccuNet is also a simple process. Accutrol incorporates the setup within the award-winning Insight user interface so while setting up each hood the AccuNet LAN can be setup at the same time.

When to Use the AccuNet

The AccuNet can be used on any room control with up to 20 valves with a combined network cable length no greater than 800'. The system designer and user need to decide from a cost standpoint which is the preferred method of totalizing airflows. For rooms with simply a tracking pair (1 supply and 1 exhaust) the designer may choose not to use the AccuNet because there is only one analog connection between the exhaust valve and room controller; therefore the cost to add the AccuNet boards would not be offset by reductions in I/O for the room controller or wiring installation.

For an application with a single supply, one fume hood exhaust and one general exhaust valve; either approach may be feasible. For the conventional approach the room controller would require two analog inputs, one used for the hood exhaust and

the other from the general exhaust. Using the AccuNet for the same application would require the controller has only one analog input which would be used for the total exhaust airflow. If BACnet is being used on the project the installed cost would be lower using AccuNet since the electrical installer can run both network cable at the same time.

For applications with more than 2 fume hoods, there would always be installation savings by using the AccuNet due to the simplified field wiring and reduction in I/O count.

The owner has the additional benefit of deciding at a later date to add AccuNet to existing AVC6000 and AVT6000 valves. It is a simple matter of plugging the AccuNet Module into the AccuValve transmitter or controller board and setting it up with the Accutrol Insight user interface.