



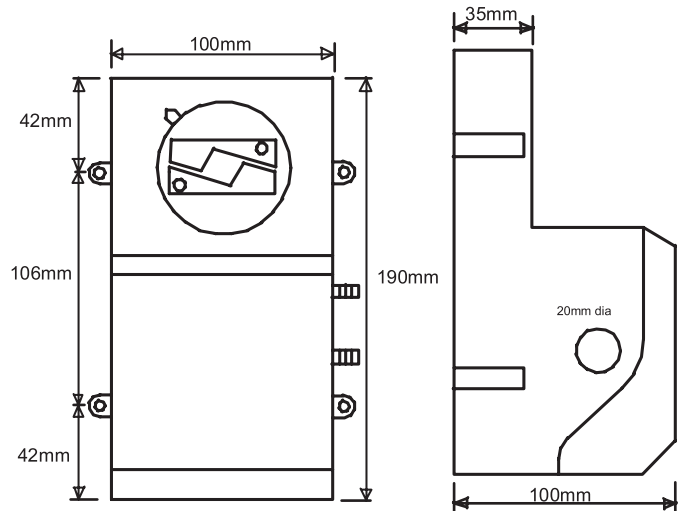
Regulator Systems

MANUFACTURER OF AIR CONDITIONING CONTROLS AND INSTRUMENTATION

VM2912 BACNET VAV CONTROLLER / ACTUATOR



DIMENSIONS



TECHNICAL DATA

Supply Voltage	190 – 265VAC
Frequency	50 / 60 Hz
Power Consumption	2.7w
Ambient Temp Operation	-10 to 50°C
Ambient Humidity	Max 90%rh
Dimensions	L190 x H100 x D100mm
Weight	0.75kg
Temperature Sensor Thermistor	10K @ 25°C
Temp Setpoint Range	18 – 28°C
Velocity Setpoint Range	0 – 15 m/s
BACnet Comms BAUD Rate	9600 19200 38400 76800

FEATURES

- Completely self contained
- Operates > 1m/s
- Adjustable travel
- Adjustable velocity
- Non-volatile memory

DESCRIPTION

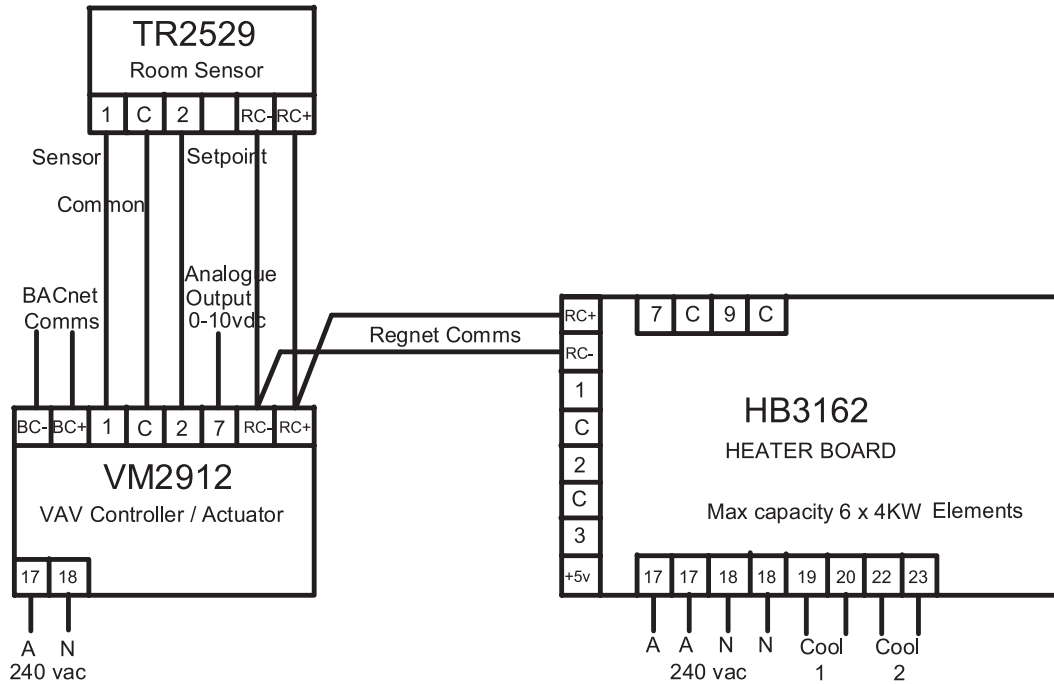
The VM2912 is a completely self contained VAV Controller / Actuator. The Velocity Sensor is mounted inside the controller, with the barbed fittings protruding through the side. These are connected to the Averaging Velocity Probe with 6.35mm I.D. plastic tubing. Maximum and Minimum Velocity adjustment potentiometers are on-board. The velocity range is from 0 – 15 m/s and the Minimum adjustment range is from 20 – 100% of the Maximum setting. The Velocity Sensor will operate down to 1 m/s. Velocity settings may also be done over BACnet or Regnet. These settings are stored in non-volatile memory. Adjustment for actuator travel is also included on the controller. The clockwise direction of the actuator can be adjusted from 30 - 90° via the motor travel potentiometer. The actuator direction can also be reversed via Dip Switch 1. The TR2529W Sensor / Setpoint has a concealed setpoint with range of 18 – 28°C. It also has an RJ11 communications jack for the Regnet comms. This enables a laptop computer to communicate directly with the VM2912 VAV Controller for commissioning or service. However the VM2912 is also a completely stand-alone controller. The VM2912 does not have to be programmed with a computer. It can be fully commissioned via its

temperature and velocity setting potentiometers. A duct probe can also be fitted to monitor the supply air temperature so as to reverse the operation of VM2912 whenever hot or cold air is supplied. There are two communication systems. The first is BACnet which is the ASHRAE Standard 135-2001 / ISO 16484-5. This operates over an MS/TP LAN. Up to 128 controllers may be connected to one network. The second communications network is Regnet. This is a local network for communicating directly with the VM2912 and for controlling auxiliary devices such as Heater Board Modules. There are three Heater Board Modules. The HB3112 has one Power Relay for switching one electric heater element directly. The HB3132 which has three Power Relays for switching up to three electric heater elements directly. And the HB3162 which has six Power Relays for switching up to six electric heater elements directly. Each Heater Board has two auxiliary relays for control of two steps of cooling or can be programmed for any other purpose. It also has two heater high limit thermostat connections. These are inserted within their own well into the heater element bank. The first Hi-Limit is set at 70°C and is autoreset. The second Hi-Limit is set at 90°C and is manual reset.



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CONNECTION DIAGRAM



ADJUSTMENT SETTINGS

Velocity Settings

There are two Velocity adjustments. The first is Maximum, which has a range of 0–15 m/s. Typical settings are around 5 – 8 m/s. The second is Minimum, which is set as a percentage of Max. Typical settings are 50 – 60%.

Motor Travel

The motor travel can be adjusted in the clockwise direction over the range of 30 – 90 degrees.

Dip Switch Settings

There are two Dip Switches. The first is for Motor direction, either CW or CCW. The second is for Motor direction on power fail, provided a Power Fail Module is fitted.

Terminal Connections

BACnet - }	MS/TP LAN	9,600 19,200 38,400 76,800 BAUD
BACnet + }		1/4 Power, max 128 units per MS/TP line
Term 1	Sensor	
Term C	Common	
Term 2	Setpoint	
Term 7	Analogue Output	0 – 10vdc Directing Acting P-Band 2°C (Not available on MK1 model)
REGnet - }	Local Network	
REGnet + }	2 wire RS485	

BACnet Comms Termination

A terminating resistor of 120 ohms should be installed at the end of the RS485 transmission line. With the VM2912, this resistor is on-board and it is only necessary to install a shorting plug on the BACnet comms terminating link.

Duct Sensor

For applications where hot or cold air is supplied to the VAV, then the VAV Controller must be able change its control function from direct acting to reverse acting. This can be detected by a Duct Probe mounted upstream of the VAV. This Probe is plugged into a two-pin header, located on the left-hand side of the terminal strip.