



INTELLIGENT COMFORT CONTROL

Rickard electronic VAV Diffuser with Multi Loop Modular Controls Specification

SPECIFICATION:

Each Variable Geometry VAV Diffuser shall be electronically controlled through a 12V DC actuator capable of varying the supply of cold and warm air into the space by means of regulating a variable aperture damper, known as a control disc, vertically in the diffuser. Supply air from the variable geometry diffuser shall discharge horizontally in a 360° pattern and shall maintain air movement in the space throughout the range of volume variation from 100% down to 25%.

VAV DIFFUSER:

Each diffuser, at the time of installation, shall be deemed a slaved diffuser. The diffuser shall include and conform to the following specification:

- 12 V DC actuator driver to move the control disc
- Compact plastic enclosure mounted to the rear of the diffuser tile for cable connection:
 - o With a female RJ12 socket for connection to a Wall Thermostat/Controller.
 - o With two female Microfit sockets for slaved diffuser connection.
 - o With socket for Change Over Sensor. The tip of the Change Over Sensor must be fitted into the flexible ducting about 300 mm from the diffuser.
- Interface board mounted on the rear of the diffuser trim plate under the control disc:
 - o With unique address allocation.
 - o With female socket for motor.
 - o With button for identification and slaving purposes.
 - o With RJ12 female socket for USB programing.
 - o With socket for optional Onboard Controller. (only required where diffuser mounted sensing is specified in preference to Wall Thermostat temperature sensing).

CONTROL OPTION 1: WALL THERMOSTAT/CONTROLLER:

Where specified, Wall Mounted Thermostats each comprising a master controller, sensor, adjuster, and display shall be positioned as indicted on the drawing. Each diffuser with a Wall Thermostat shall be deemed a master and shall include and conform to the following specification:

- Integral master temperature controller and temperature sensor.
- Compact 80mm x 82mm plastic enclosure.
- Integral 28mm by 38mm LCD display screen.
- Provide for Room temperature set point adjustment.
- Room temperature display.
- Air conditioning cooling/heating mode display.
- Control disc poison indicator.
- Ventilated sensor positioned for accurate room temperature sensing.

CONTROL OPTION 2: ONBOARD MOUNTED CONTROLLER/SENSOR:

Where specified, Onboard Controller Sensors comprising of a master controller shall be positioned on the rear of the diffuser trim plate as indicated on the drawing where diffuser mounted temperature sensing is required. Each diffuser with an Onboard Controller shall be deemed a master conforming to the following specification:

- Integral master temperature controller that attaches to the diffuser interface board.
- Activates temperature sensor fitted within a diffuser face plate mounted room air induction cap for effective induced room temperature sensing.
- Room Temperature adjustment and display shall be by means of a Rickard Master Communication Unit (MCU) network and computer or USB module and laptop computer on smaller setups.

POWER SUPPLY

- Power supply modules are capable of providing power to 15 diffusers. Any number of these diffuser can be a master diffuser by plugging in a Wall Thermostat or Onboard Controller.
- Power supply may be fitted within the roof space or central circuit board enclosures on each floor / zone for easy access.

CABLING:

- Power (12V DC) and control signal shall be by interconnecting slave cable to each diffuser.
- Interconnecting 6m 4-core slave cable with Microfit connector plugs at each end shall be supplied with diffusers. Two female Microfit connectors shall be provided on each power supply and each diffuser connector box for diffuser interconnection. No more than 15 diffusers shall derive control power from a single power supply module.

MASTER COMMUNICATION UNIT (MCU):

Product description

The Master Communications Unit is a central data collection and distribution point for up to 60 VAV diffusers. The device features four diffuser channel inputs which can accommodate up to 15 diffusers each. Communication on these channels is by means of a Lin bus interface to the Power Supply units connected by dedicated communication cables.

This centralized data is monitored on a PC running the MLM software Application via an Ethernet TCP/IP interface. The MLM software Application is designed as a commissioning tool as well as for data monitoring, logging and fault finding.

In addition to the collection and distribution between field diffusers and the MLM Application, the unit also features an on-board web server. This web server can be accessed by a standard browser tool and is used to setup IP addresses, Device identification data as well as communications parameters. In general the web server is used on initial installation to bind to the IP network and to uniquely identify the product, normally by physical location.

A serial USB port provides limited diagnostic capability. In general it is used in production to set MAC, IP and port addresses. It can be used to verify and set port and IP addresses.

Models Available

- Standard Rickard Master Communication module
- Lonworks gateway Master Communications module
- BACnet gateway Master Communications module (IP or MS/TP)

COMMISSIONING

Large setups are commission using a computer with a TCP/IP network connection to a Master Communication Unit when specified and fitted. Up to 60 diffusers can be commissioned at a time using this method. Small setups of 15 diffusers or less, powered by a single power supply, are commissioned by a USB module and laptop which is connected to the Power Supply.

- Every batch of 15 diffusers shall be commissioned using a computer loaded with Rickard MLM software.
 - o Each diffuser in a group of no more than 15, connected to either an Wall Thermostat or Onboard Controller, will be displayed on the computer screen as master diffuser.
 - o All remaining diffusers will be displayed as slaved units, but will not yet have been selected to derive control from any of the master diffusers in the control loop of 15 diffusers.
 - o In order to link specific slaved diffusers to their relevant master controlled diffusers, the “Drag-and-Drop” functionality of the Rickard MLM software shall be utilized.
- Commissioning the master diffusers using a computer with MLM software:
 - o Temperature set-point shall be adjusted for each master.
 - o Night set-back temperature set-point and time shall be adjusted.
 - o Minimum and maximum control disc positions shall be adjusted.
- Commissioning the slave using a computer with MLM software:
 - o Minimum and maximum control disc positions shall be adjusted.

