

VECTOR TRI2 TOUCHSCREEN

SINGLE ZONE VAV CONTROL



Model: V-TRI2

Installation Manual



www.insightcontrol.net.au

1300 665 831

WARNING

READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED HEREINAFTER BEFORE ATTEMPTING TO UNPACK, ASSEMBLE, INSTALL, OPERATE, OR MAINTAIN THIS EQUIPMENT.

HAZARDOUS VOLTAGES ARE PRESENT THAT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY. FOLLOW PROPER INSTALLATION, OPERATION, AND MAINTENANCE PROCEDURES TO AVOID THESE VOLTAGES.

All possible contingencies that may arise during installation, operation, or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is required by the purchaser regarding an installation, application, or maintenance activity, please contact an Insight Control representative or the installing contractor.

SAVE THIS MANUAL FOR FUTURE REFERENCE

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About

VECTOR TRI2 Controller

TRI2 operates independently of the air conditioning plant to provide temperature-based zoning control for one zone. Features include:

- Integrated sensor or optional remote room sensor (not included)
 - Select the integrated sensor or the optional remote room sensor
- 24 VAC power supply
 - Offers substantial savings in installation costs compared to 240VAC systems
- Digital Display
 - Tell at a glance if the zone is open for cooling or heating.
- Quick & Easy Wiring
- BMS Integration
- Adjustable Minimum Ventilation setting
 - Restricts the damper from fully closing to maintain a minimum airflow.

Control Usage

TRI2 is a variable air volume zone controller suitable for use with any centralised conditioning source (e.g. reverse cycle systems) Zoning kits comprise of one of each of the following components.

- TRI2 Controller (V-TRI2) - integrated sensor and supply air sensor
- Motorised Damper (MDB-XXX-IC) XXX = the size of the damper.
- Transformer (TFORM-24)

Touchscreen Touchpad

The TRI2 touchscreen controller compares the temperature of the air being supplied with the temperature of the zone and modulates the damper in a direction that will benefit the zone. Zone motors connect to and receive power from the touchpad via the Innocab cable system. Terminal connections are provided for the 24VAC power supply, the supply air sensor, and optional external room sensor. TRI2 is equipped with minimum ventilation calibration which adjusts a virtual stopper on the motor so that the motor is held open a set percentage only when the zone is ON. Turning the zone OFF will override minimum ventilation and fully close the motor.

System overview

System components



1. TFORM-24 - 24volt Transformer
2. V-TRI2 – TRI2 Controller
3. MDB-XXX-IC – Belimo 24V 0-10V Motorised Damper barrel, where XXX is the size in millimetres

Operating Instructions

Press the  button to turn the zone On and Off. Adjust the temperature by pressing  for cooler &  for warmer. The setpoint range is from 20-25°C with a factory default of 22.5°C. Leave the controller in “Auto” mode to work automatically off setpoint for heating or cooling based on return and supply air temperature.

Typical system installation

Technical notes

A maximum number of 2 motors is allowed per output. In the event of power loss and restore to the controller (i.e. blackout), the controller will drive the damper fully open before returning to the state (on or off) and position it was in prior to the loss of power.

Motorised Dampers

Belimo 24V 0-10V Motorised damper connects to the touchpad. The TRI 2 version is suitable for use with MDB-XXX-IC 4Nm motorised dampers only. The motorised dampers may be connected in parallel with a maximum of two motors per zone output.

Component Positioning

Touchpad

The Touchpad should be mounted in a central position within the air-conditioned space. Designed to be flush mounted to a cavity wall, the touchpad can be surface mounted using a 15mm mounting block if necessary. If using the integrated sensor see also - positioning the room sensor. Due to the microprocessor-based design, consideration must be given to sources of EMI (Electro Magnetic Interference) when positioning the touchpad. The minimum recommended distance from the touchpad to any 240VAC cabling is 300mm.

Room Sensor

The integrated room sensor should be mounted approximately 1.5 meters from floor level in the return air path. Most importantly, the room/return air sensor should always be protected from direct sources of heat such as direct sunlight and office equipment. The integrated room sensor may be replaced with an Insight Control room sensor (C-RS-10K-TL) if required. The supply air sensor should be mounted inside the supply air duct upstream from the damper. There should be no electric duct heaters in this supply duct branch.

Motorised Dampers

The Motorised Dampers may be mounted at the take-off point of the rigid duct, or inline in the flexible duct. Mechanical Stops MUST NOT be used on the Motorised Barrel Damper.

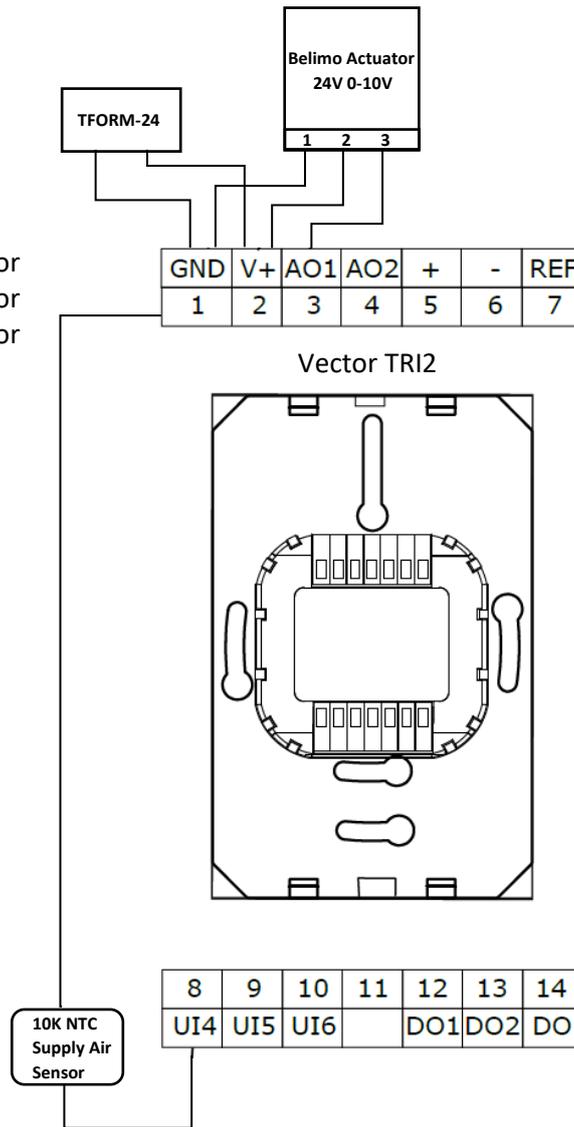
Commissioning

Check that all wiring has been terminated as per wiring instruction on the connection diagram page. Check Motor rotation set to turn clock wise on normal operation, flick switch on top of belimo as required. Setpoint should be set to optimal temperature setting for zone being controlled for correct operation of the system.

Connection Diagram

Terminals

- V+ 24 VAC Supply
- GND 24 VAC Neutral
- 1 Wire 1 from Actuator
- 2 Wire 2 from Actuator
- 3 Wire 3 from Actuator
- 8 10K Sensor Wire 1
- GND 10K Sensor Wire 2



Troubleshooting

The following table lists some commonly reported fault conditions and suggested corrective action. Further assistance may be obtained from Insight Control support on 1300 665 831 if needed.

Symptom	Suggested remedial action
Motor drives the wrong way	Check Actuator wiring.
Motor drives one way only	Check cable ends to ensure all connections are terminated properly. Check cable for broken wire.
Intermittent erratic controller behaviour	Ensure the touchpad is the minimum recommended distance from any EMI source. Relocate if necessary.

Specifications

Electrical Requirements

Power input to ZONE-IT	24 VAC \pm 10%
Line frequency	50 Hz

Environmental Requirements

Operating temperature	0°C to 50°C
Altitude	0 to 2000m
Operating relative humidity	10% to 80%

Positioning

- Avoid static electricity hazards
- Avoid electromagnetic radiation sources
- Avoid dust contamination
- Avoid highly corrosive environments



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