



Zonestar Installation Manual

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RC-ZS-PLUS-BLB-IC



RM-TFORM-24-5Z



RD-MD4-250-IC

The Zonestar Controller

Zonestar 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
- **LED zone status indication**
Tell at a glance if the zone is open for cooling or heating
- **Boost Override**
Opens the damper fully to allow maximum conditioning
- **InnoCAB quick connect cabling**
Plug in connections to zone motor
- **Over current indication and protection for motor output**
May indicate cable short circuit, or too many motors connected to output
- **Adjustable Minimum Ventilation setting**
Restricts the damper from fully closing to maintain a minimum airflow.

System Overview

Zonestar 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.

- Zonestar Controller (**RC-ZS-PLUS-BLB-IC**) - integrated sensor and supply air sensor
- Motorised Damper (**RD-MD4-XX0-IC**) **XX0 = the size of the damper.**
- Transformer (**RM-TFORM-24-5Z**)

Zonestar Touchpad

The Zonestar 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.

Zonestar 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.



Motorised Dampers

Motorised dampers connect to the touchpad via the zone output socket on the back. The Zonestar RC-ZS-PLUS-BLB-IC version is suitable for use with IAS type **RD-MD4-XX0-IC** 4Nm motorised dampers only. The motorised dampers may be connected in parallel with a maximum of two motors per zone output.

Cabling Requirements

All motor cables should be 6 core flat cable suitable for connection with RJ12 6P6C plugs. For cable termination instructions refer to page 8.

Component Positioning

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 through the use of 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.

The 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 IAS room sensor (CC-RS-47-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.





The Motorised Dampers may be mounted at the takeoff point of the rigid duct, or in-line in the flexible duct. Mechanical Stops **MUST NOT** be used on the Motorised Barrel Damper. (Refer to minimum ventilation - page 3 & 5)



Commissioning


Setting Minimum Ventilation - Press and hold all four buttons on the touchpad (approximately 4 seconds), when the LED below the  button is lit the and the LED(s) in the verticle temperature scale are flashing the minimum ventilation setpoint can be adjusted in 6% increments from 0% to 30% (bottom light flashing is 0%).

Follow the operating instructions to ensure the controller is functioning correctly.

Operating Instructions

Press the  button to turn the zone On and Off. If the green LED below the  button is lit, then the zone is ON. A blue LED below the  button indicates the zone is open for cooler air. A red LED below the  button indicates the zone is open for warmer air.

Adjust the temperature by pressing  for cooler and  for warmer. The setpoint range is from 20-25°C with a factory default of 22.5°C.

Press the  button to send the controller into Boost Mode. The LED below the button indicates if the controller is in Boost Mode.

Note: Boost Mode overrides normal temperature regulation and fully opens the zone damper regardless of whether the zone is ON or OFF.

RC-ZS-PLUS-BLB-IC Technical specifications:

Electrical Requirements

Power input to Controller ... 24 VAC±10%
Line frequency 50 Hz

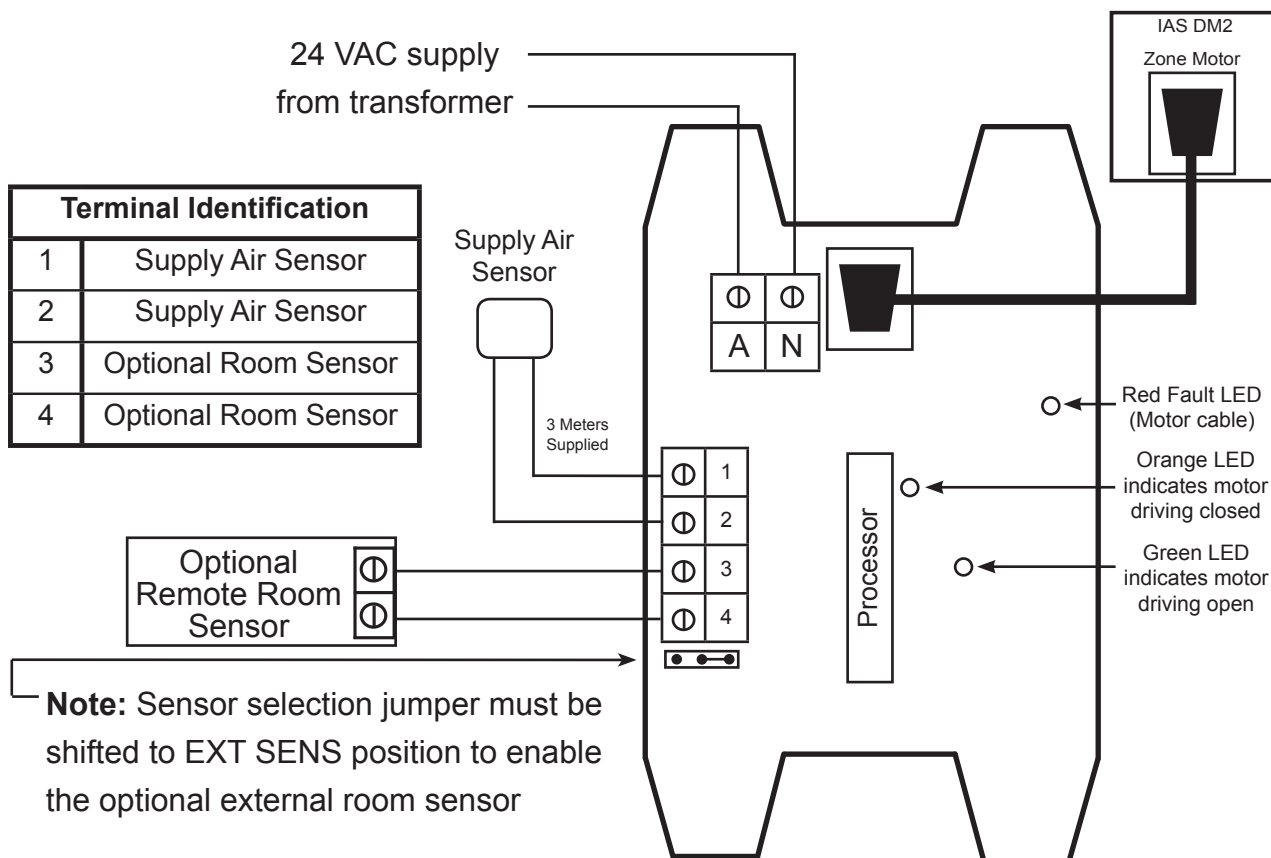
Environmental Requirements

Operating temperature 0°C to 50°C
Altitude 0 to 2000 m
Operating Relative Humidity... 10% to 80%
Avoid static electricity hazards
Avoid electromagnetic radiation sources
Avoid dust contamination
Avoid highly corrosive environments

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.

Connection Diagram



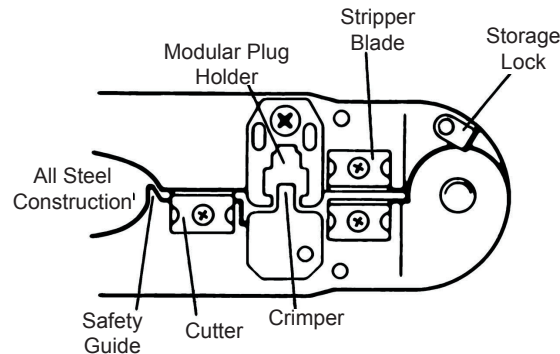
Zonestar Troubleshooting Guide

The following table lists some commonly reported fault conditions and suggested corrective action.

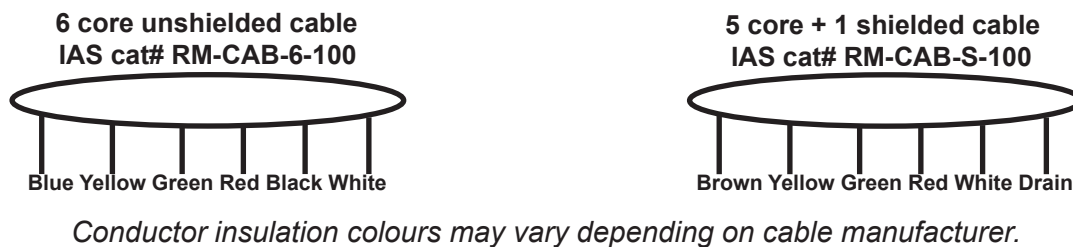
Further assistance may be obtained from IAS Service and Support on 1800 354 434 if needed.

Symptom	Suggested Remedial Action
Red Fault LED is lit on motor output	Excess current draw on output. Check cables and sockets for short circuit. Check for too many motors connected to output (refer to Technical Notes - p.6).
Motor drives the wrong way	Cable crimped incorrectly. Re-crimp one end.
Motor drives one way only	Check cable ends to ensure all pins are fully crimped. Check cable for broken wire.
Intermittent erratic controller behaviour	Ensure the touchpad is the minimum recommended distance from any EMI source. Relocate if necessary

InnoCAB Cable Crimping Instructions



The InnoCAB cabling system has been developed to dramatically reduce cabling time. The heart of the system is the InnoCAB cable. It is available with or without shielding.



IMPORTANT NOTES:

- 1: It is essential that every cable termination for each installation is performed with the coloured inner conductors in the same order and position in the plug. Any two cable ends should appear identical if held side by side (provided they are of the same cable type - i.e. shielded or unshielded).
- 2: Never insert uncrimped plugs into the sockets as this may cause damage to the socket contacts. Crimped plugs should insert easily into sockets until the locking tab clicks into place. Plugs that have been incorrectly crimped may be difficult to insert and may also cause damage to the socket contacts if forced into place.

CRIMPING PROCEDURE:

- 1: Cut the InnoCAB cable to the desired length. Take care to ensure the ends are cut square.
 - 2: Insert the cable between the stripper blades so that it touches the metal stop. Squeeze the handles and pull the tool to remove the cables outer sheath and expose the insulated inner conductors. Ensure the insulation on the inner conductors is not damaged.
 - 3: Place an InnoCAB plug in the plug holder so that the front of the plug is against the stop and the gold contacts face the crimper.
 - 4: Insert the prepared cable end into the plug with the **white conductor closer to the handle**. Take care to ensure the inner conductors are in the correct order and they finish flush with the tip of the gold contacts.
 - 5: Squeeze the handles **firmly** (see important note above) to set the contacts and secure the cable, thus completing the operation.
 - 6: Repeat the same procedure for each cable termination.
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