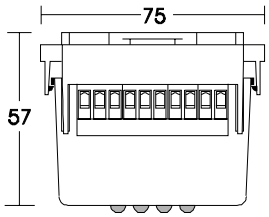
INNOTECH®
Innovative technology

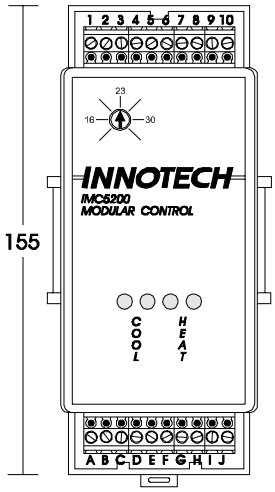
DS 2.65
JULY 2007

MODELS:
IMC5200: COOL and HEAT Valve Output.
IMC5212: 1 Stage HEAT and 2 stage COOL with HEAT Valve Output.

TYPE: IMC52XX

MODULAR CONTROLLERS WITH HEAT VALVE OUTPUT AND EXTERNAL SET POINT





SPECIFICATION:

POWER SUPPLY:
Voltage: 24V AC ±10% 50/60Hz
Power Consumption: 6VA max.

Note: Requires factory modification for DC voltage power supply.

INPUT:
Two wire current loop temperature detector.

OUTPUTS:
Temperature Out 0.1V DC per °C.
Set Point Out 0.1V DC per °C.
0 to 10V DC heating control output.
0 to 10V DC cooling control output.
One SPDT voltage free contact per stage (3 amp max).
Heat valve output to drive solid state relays.

TERMINAL IDENTIFICATION:
1&2 = Detector connection.
3 = Temperature Out.
4 = Heat valve / solid state relay output.
5 = Limited adjustment Set Point connection.
6 = Set Point Out.
7 = 0-10V DC cool output.
8 = 0-10V DC heat output.
9 = Common/0V supply MUST BE EARTHED.
10 = 24V AC or +24V DC supply.

TEMPERATURE RATINGS:
Storage 0 to 50°C non condensing.
Operating 0 to 40°C non condensing.

ENCLOSURE:
The IMC52XX product is housed in a rectangular case suitable for DIN rail mounting.
The housing is moulded from flame retardant plastics recognised by UL as UL 94-V0.

Colour: Grey.
Dimensions: 155mm X 75mm X 57mm

INSTALLATION:

1 Mount controller in a dry and reasonably clean location free of excessive vibration.

2 Fit to DIN rail.

3 Wire in accordance with INNOTECH connection diagrams and local bylaws or refer to your local distributor.

WIRING:

1 Earth one side of the 24V AC at the transformer.

2 Connect the EARTHED side of 24V AC to terminal 9.

3 DO NOT connect 24V AC to terminals 1 through 8.

APPLICATION:

The INNOTECH IMC52xx range of modular controls are designed to regulate heating and cooling of air conditioning systems. They are suitable for use in single and multi zone temperature applications.

The controller's output can be used as stand alone devices or coupled to auxiliary units, such as, chilled water valves, damper motors, staging relays and signal selectors for use in multi-zone applications.

The INNOTECH ITD, ITI and ITW series of two wire current loop temperature detectors are designed to operate with the IMC modular controller.

FEATURES:

Interface to Building Automation Systems.

Time integrated proportional control action for optimum system performance.

Separate 0-10V DC outputs for heating and cooling.

Separate proportional band adjustment for heating and cooling.

Two detector averaging.

Detector temperature easily read at controller.

Set Point temperature easily read at controller.

Stepless and noiseless control of heaters provided by heat valve output driving solid state contactors.

LED indication of relay status.

LED indication of control signal value for heat valve output.

Factory set for most applications resulting in reduced commissioning time.

The INNOTECH enclosure saves space and reduces installation time.

Wide range of applications.

APPROVALS:
The IMC52xx conforms to the Australian/New Zealand requirements for standard AS/NZS1044:1995 including Amendment 1:1997 for C-Tick

SET POINT:
The Set Point is adjustable via the Set Point pot over the range of 14°C to 32°C.

The IMC can be factory modified to allow limited external Set Point adjustment range of approximately 5°C.

PROPORTIONAL BAND:
The Heating and Cooling Proportional Bands are separately adjustable over a range of 1 to 10°C via their PB pots.

RAMP:
Both the Heat and Cool outputs are time integrated. The ramping rate is not adjustable and varies with the difference between the Set Point and the measured temperature.

DEAD ZONE:
The Dead Zone is variable from 0 to 2°C by adjusting the Dead Zone pot. The Dead Zone is centered on the Set Point. A setting of 2°C gives a Dead Zone of 1°C either side of the Set Point.

DETECTOR AVERAGING:
The IMC controllers are factory supplied set up for one detector. They can be modified to average the input from 2 detectors connected in parallel. The output at terminal 3 is the average of the two temperatures sensed.

OUTPUT CLAMP:
The 0-10V DC Cool and Heat outputs are clamped to 0V until the other output is at 0V.

OUTPUT VOLTAGE RANGE:
The controlled range is from 0 to 10V DC.

RELAY OUTPUTS:
Both the N/O and N/C contacts of all relays are available at the lower terminals. The common terminal of the cool relays is connected to terminal “C”. The common terminal of the heat relays is connected to terminal “H”.

RELAY SPAN:
The relay on and off voltages are spread evenly across the 0 to 10V DC Heat and Cool outputs. For example, for two stages, relay 1 turns on at 5V DC and off at 0V and relay 2 turns on at 10V DC and off at 5V DC.

The status of each relay is indicated by a red LED. The relay is energised when the LED is lit.

HEAT VALVE/SOLID STATE RELAY OUTPUT
The output on terminal 4 switches between 0 volts and 11V DC and can be used to drive up to three solid state contactors with a 3 to 30V DC input. The inputs to the solid state relays MUST be connected in SERIES.

DIN RAIL MOUNTED ENCLOSURE:
The INNOTECH enclosure was designed to provide tight positive locking to varying thicknesses of DIN rail.

Lugs on each side of the base ensure that correct spacing is maintained between units on the same DIN rail.

TIME INTEGRATED PROPORTIONAL CONTROL:
The IMC controllers are proportional controllers with their 0-10V DC Heat and Cool outputs time integrated. The time integration is fixed and cannot be changed.

The steady state value of the 0-10V DC Heat and Cool outputs is proportional to the difference between the measured temperature and the Set Point temperature. When a disturbance occurs in the system, time integration causes the 0-10V DC Heat or Cool output to change at a rate proportional to the difference between the measured temperature and the Set Point temperature.

A large disturbance will cause the output voltage to change at a faster rate than a small disturbance. The rate of change of the output voltage is derived from the difference between the measured and Set Point temperatures. As the system recovers from a disturbance, the difference between the measured and Set Point temperatures will decrease and thus reduce the rate of change of the output voltage.

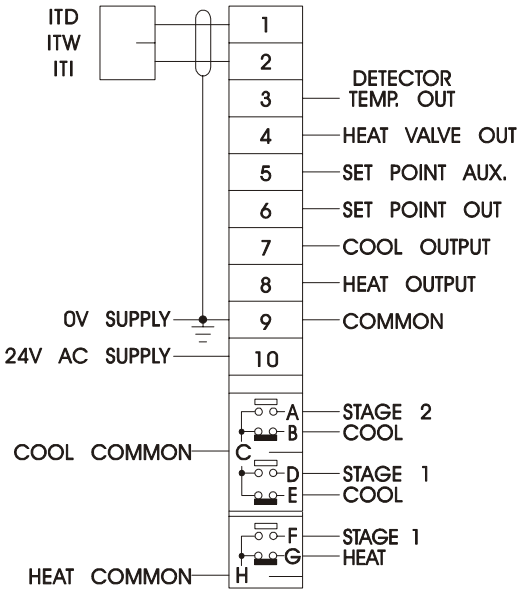
The reducing “rate of approach” of the output voltage as the operating temperature approaches the Set Point, reduces any tendency to overshoot and thus adds to the overall stability of the system.

RELAY TERMINAL CONNECTIONS

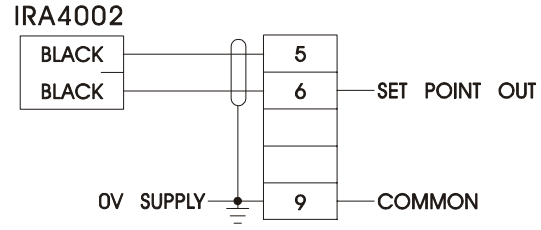
Model	TERMINAL IDENTIFICATION					
	COOL 2		COOL 1		HEAT 1	
	N/O	N/C	N/O	N/C	N/O	N/C
5200						
5212	C-A	C-B	C-D	C-E	H-F	H-G

Type: IMC52xx
Modular Controller with Heat Valve Output and External Setpoint.
July 2007

STANDARD CONNECTION IMC52xx

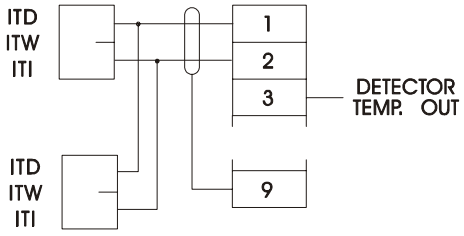


* LIMITED SET POINT ADJUSTMENT 5°C



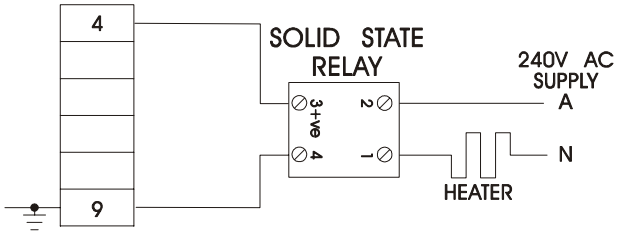
Screened Cable should be used to reduce EMI.

* DETECTOR AVERAGING

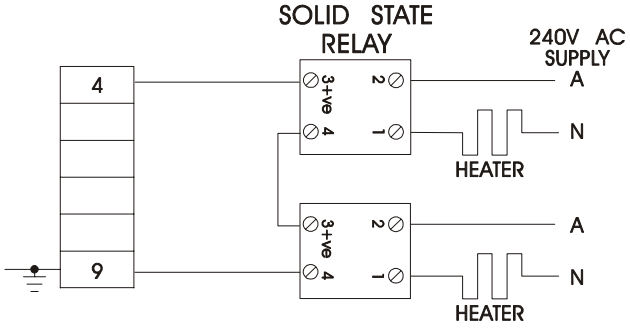


UP TO A MAXIMUM OF 2 DETECTORS

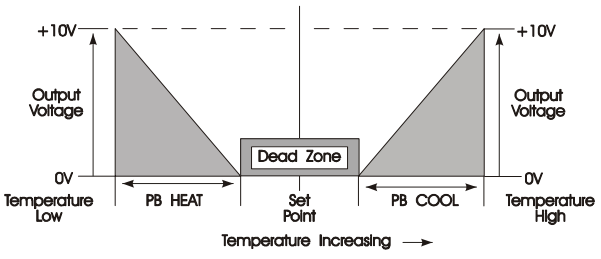
CONNECTION TO DRIVE A SINGLE SOLID STATE RELAY



CONNECTION TO DRIVE MULTIPLE SOLID STATE RELAYS



A MAXIMUM OF THREE (3) SOLID STATE RELAYS CAN BE CONNECTED IN SERIES



Operation & Control Function

* Requires link changes before this option is used

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