MODELS:
ITC4701: for Cooling Applications

NOTE: Previously ITC4010.

ITC4701
Single Term Temperature Controller for Cooling Applications

Specifications

Power Supply
- Voltage: 24VAC ±10% @ 50/60 Hz
- Power Consumption: 2VA max

Inputs
- Two wire current loop temperature detector
- Reset or external Set Point (0-10VDC)

Outputs
- Temperature Out: 0.1VDC per °C
- Set Point Out: 0.1VDC per °C
- One 0-10VDC control output for cooling

Terminal Identification

1 & 2	Detector connection
3	Temperature Out
4	Reset or Remote Set Point
5	12VDC aux. supply
6	Set Point Out
7	0-10VDC cool output
8	No connection
9	Common and 0VAC supply
10	24VAC supply

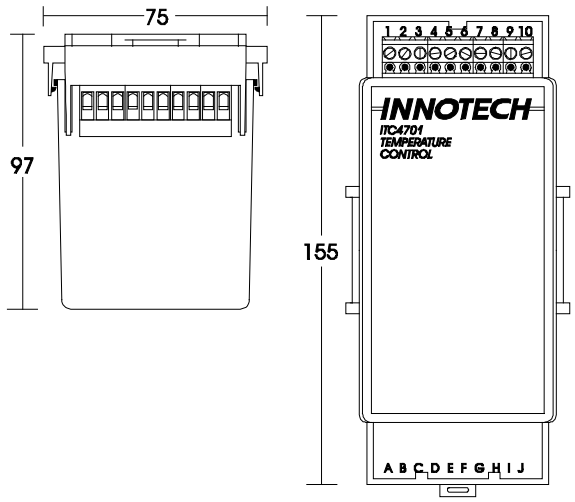
Temperature Ratings
- Storage: 0 to 50°C non condensing
- Operating: 0 to 40°C non condensing

Enclosure
The ITC4701 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 (max): 75 mm(w) x 155 mm(h) x 97 mm(d).

Installation
1. Mount controller in a reasonably clean and dry 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 24VAC at the transformer.
2. Connect the EARTHED side of 24VAC to terminal 9.
3. DO NOT connect 24VAC to terminals 1 through 8.



Applications
The Innotech ITC4701 temperature controller is designed for use with a two wire current loop temperature detector to produce a single 0-10VDC direct acting output. It has modified Dead Zone and Ramp adjustments to meet the needs of special applications.

The controller's output can be coupled to auxiliary units such as staging relays to control the loading of compressors, chilled water valves, damper motors and signal selectors.

The Innotech ITD, ITI and ITW two wire current loop temperature detectors are designed to operate with the ITC4701 temperature controller.

Features
- Interface to Building Automation Systems
- Dual Set Point range 0 - 10°C and 0 - 20°C
- 0-10V time integrated proportional control signal output
- Proportional band adjustable from 0.2 to 11°C
- Reset of Set Point by 0 to 10°C up or down
- Adjustable Dead Zone below Set Point to activate Output Kill
- Detector temperature easily read at controller
- Set Point temperature easily read at controller
- Time integrated proportional control action to ensure optimum performance
- Factory set for most applications resulting in reduced commissioning time
- The Innotech enclosure saves space and reduces installation time.
- Internal tamper proof Set Point adjustment

Approvals
The ITC4701 conforms to:
- Requirements according to standards EN55014 (CISPR14) for RCM Labelling

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Set Point
The Set Point (SP) is adjustable via the internal Set Point pot over two ranges via the "HI RANGE" link:
- 0 to 10°C - link open
- 0 to 20°C - link closed (factory setting)

Proportional Band
The Proportional Band (PB) is adjustable over two ranges selected by the PB WIDE link adjacent to the PB pot:

narrow 0.2 to 2.0°C PB WIDE Link Open.
wide 1.0 to 11°C PB WIDE Link Closed (factory setting).

Ramp Up and Ramp Down
The "UP" and "DOWN" ramping rates of the Cool output are separately adjustable. The "UP RAMP" time can be adjusted over a range of 1.5 to 12 minutes. This is the time taken for the output voltage to rise from 0 to 10VDC. The "DOWN RAMP" time can be adjusted over a range of 20 seconds to 1.5 minutes. This is the time taken for the output voltage to fall from 10 to 0VDC with the difference between the Set Point and Temperature Out no greater than the PB setting.

Reset
The Set Point can be reset UP or DOWN by a maximum of 10°C by a 10VDC external signal applied to terminal 4. The effect of the Reset input is adjustable from 0 to 10°C by varying the RESET pot.

The amount of Reset can be read as the change in Set Point temperature (terminal 6) as the RESET pot is adjusted.

Dead Zone and Output Kill
The Dead Zone pot adjusts the point where the Output Kill feature is activated. The range of adjustment is from 0 to 2.5°C below the Set Point. While the temperature measured at Temperature Out is within the Dead Zone setting below Set Point, the output at terminal 7 is allowed to ramp down at the rate set by the Down Ramp. When the temperature falls below the Set Point by the Dead Zone setting, the output is rapidly reduced to zero.

Output Voltage Range
The controlled range is from 0 to 10VDC but to ensure proper operation of units connected to the outputs, the output voltage goes 0.3VDC negative to ensure the OFF condition and 10.5VDC to ensure the ON condition.

DIN Rail Mounted Enclosure
The Innotech enclosure is designed to provide tight positive locking to varying thicknesses of DIN rail. When fitting to thick DIN rail, it may be necessary to remove the packing tabs on the back of the base.

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 ITC4701 temperature controller is a proportional controller with its Cool output "time integrated". The rate of change of the output voltage is derived from the difference between the measured and Set Point temperatures and the setting of the Ramp Up and Ramp Down pots.

The steady state magnitude of the 0-10 volt control signal output 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 0-10 volt Cool output to change at a rate proportional to the difference between the measured temperature and the Set Point temperature. Thus a large disturbance will cause the output voltage to change at a faster rate than a small disturbance.

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. This occurs when the difference between the measured and Set Point temperatures is 50% of the PB setting.

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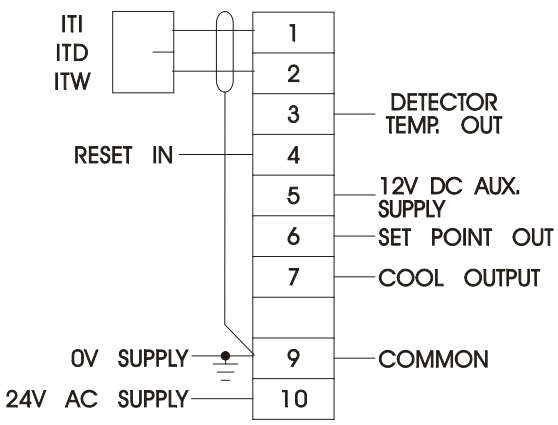
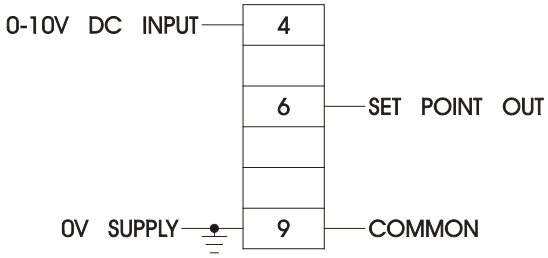
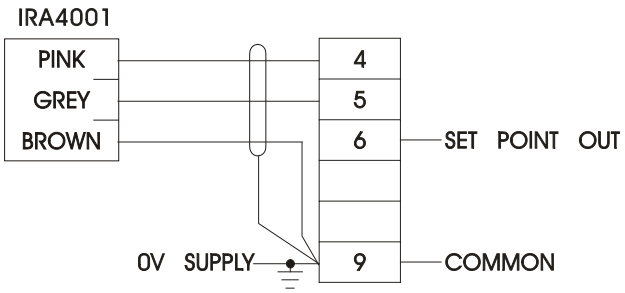
STANDARD CONNECTION



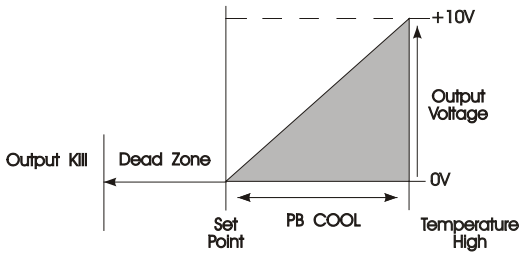
* RESET AND REMOTE SET POINT



* RESET AND SET POINT FROM INTERNAL SUPPLY



Screened Cable should be used to reduce EMI.



Operation & Control Function for the ITC4701

* Requires link changes before this option is used

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