

Mechanical Installation Guide Electrical Installation Guide

Smart TRIAC w/ Temperature Control
(TRIAC-SMART-7.5, TRIAC-SMART-7.5-AUTO)

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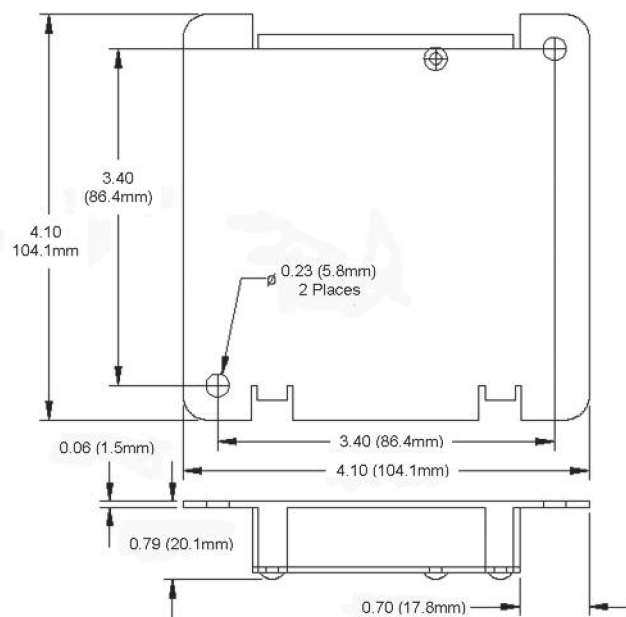
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What's in the box?

TRIAC-SMART-7.5:

1x Smart TRIAC

TRIAC-SMART-7.5-AUTO:

1x Smart TRIAC

2x 50ft spools of wire

2x Air temperature sensors (optional)

What tools do you need?

Mounting hardware (i.e. screws)

Appropriate tools for your mounting hardware (i.e. screwdriver)

Shown left, electrical job box mount style

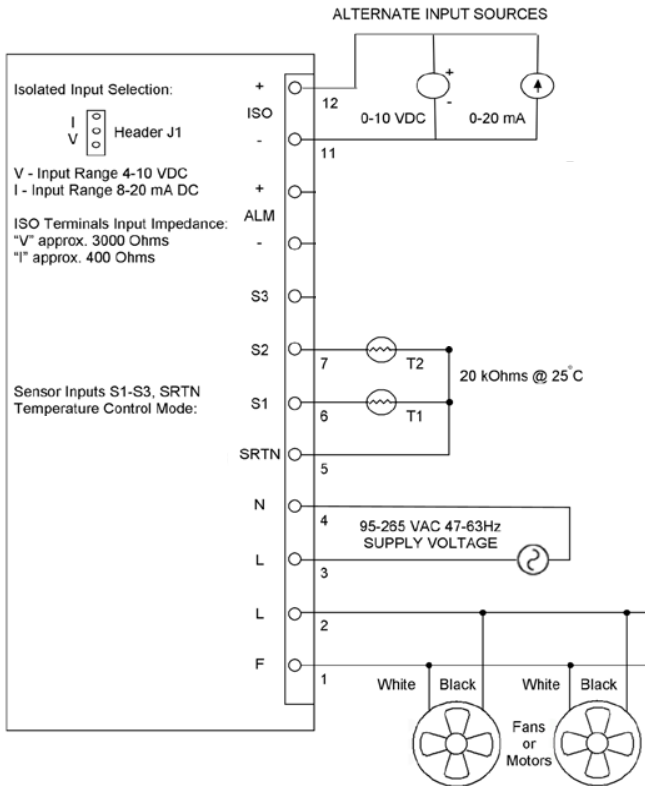
The smart TRIAC is supplied in circuit board form with a cover, ready to mount in a standard 4x4x1.5 electrical job box. Connections are made through 4.0" (10cm), 18AWG wires. Wires should be terminated using wire nuts (not included) according to local electrical codes. Unused wires may be cut off at the circuit board. **Caution: bundling unused wires together may cause a short and damage the unit.**

WARNING: Dangerous voltages are present on the circuit board when connected to the power line. Power must be removed before making any connections or adjustments to avoid electrical shock or damage to the unit.

Power Connections: It is recommended that an adequately sized circuit breaker be connected between the power service and the control to permit fail-safe removal of power before making adjustments or connections. Connect line power (white) to location N. Connect line power (black) to location L. When using an electrical “job box” mount version secure any ground (green) wire to a steel electrical box or consult local electrical codes. There needs to be a designated neutral wire to the fan from the controller for proper operation.

Fan Connections: Connect fan or fans to positions marked F (red) and L (black) Any number of fans may be controlled in parallel from one unit as long as the total current does not exceed the current rating.

Temperature Sensor Connections: Sensors share a common return marked SRTN. This is a non-isolated input; use a sensor with jacketed cable if installing sensors in a dwelling. Connect the ceiling sensor to S1, and the floor sensor to S2.



Shown: DIP Switch 1: Idle On/Off in Temperature or Voltage control modes.

Board Reference	Description
F: TB1 (pin 1)	Fan
L: TB1	Fan
L: TB1	Line Power
N: TB1	Line Power
SRTN: TB2(pin 1)	Sensor (return)
S1: TB2	Ceiling Sensor
S2: TB2	Floor Sensor
- ISO: TB3	- Control Signal
ISO +: TB3	+ Control Signal
Pin-Outs	

Control Modes, Pins Used:

Temperature: F, L, L, N, S1, S2, SRTN
Voltage/mA: F, L, L, N, - ISO, ISO +
Fixed Speed: F, L, L, N

Temperature Control Mode



Shown: Temperature (delta-T) control mode



Shown: 50% Minimum Speed



Shown: 100% Maximum Speed



Shown: TURBO Mode

CONTROL MODE

7 8

Temperature	OFF	OFF
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MINIMUM SPEED

2 3

30% Minimum Speed	ON	OFF
40% Minimum Speed	OFF	ON
50% Minimum Speed	OFF	OFF
60% Minimum Speed	ON	ON

* Fans will not fall below this percentage of voltage

MAXIMUM SPEED

4 5

50% Maximum Speed	ON	OFF
65% Maximum Speed	OFF	ON
80% Maximum Speed	OFF	OFF
100% Maximum Speed	ON	ON

* Fans will not exceed this percentage of voltage

TURBO MODE

6

Default Ramp to Max Speed	OFF
Turbo Ramp to Max Speed	ON

* With Turbo Mode enabled, fans will reach their specified maximum speed at lower Delta-T

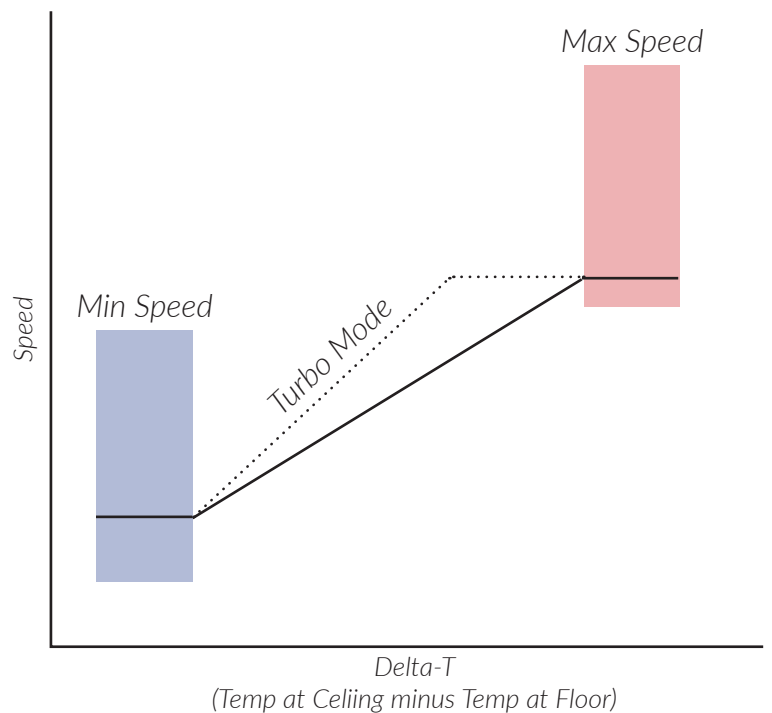
Where should you mount the sensors?

The ceiling sensor (S1) should be mounted at the same elevation as the fans. The floor sensor (S2) should be mounted 48" above the finished floor.

Mounting the sensors near sources of heat (machines, skylights, A/C supply) or in direct sunlight will give an incorrect reading.

Why are my fans stalling?

Fans may stall if the voltage being delivered is too low. Increase your minimum settings. If this does not correct it, your sensors may be mounted upside-down (with the floor sensor at the ceiling). Make sure DIP switch 1 is in the off position.





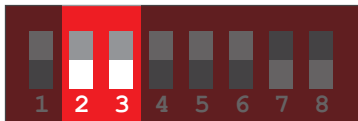
Shown: Current/Voltage control mode

CONTROL MODE

7

8

Current or Voltage	ON	OFF
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Shown: 50% Minimum Speed

MINIMUM SPEED

2

3

30% Minimum Speed	ON	OFF
40% Minimum Speed	OFF	ON
50% Minimum Speed	OFF	OFF
60% Minimum Speed	ON	ON

* Fans will idle at this percent of supply voltage



Shown: Operate at maximum w/o signal

CONTROL SIGNAL LOSS

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Operate at idle without signal	OFF
Operate at maximum w/o signal	ON

* Control signal is considered lost at <4mA or 2VDC

How to use the 0-10VDC control mode?

Run a wire from your BAS or other 0-10V source into the Smart TRIAC. Pin 11 is GND, Pin 12 is VIN. Set DIP switches 7 and 8 to Current or Voltage mode.

Why are my fans stalling?

Fans may stall if the voltage being delivered is too low. Increase your minimum settings. Make sure DIP switch 1 is in the off position.



Shown: Fixed Speed control mode

CONTROL MODE

7

8

Fixed Speed	ON	ON
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% voltage	DIP switch settings					
	1	2	3	4	5	6
27%	OFF	OFF	OFF	OFF	OFF	OFF
28%	ON	OFF	OFF	OFF	OFF	OFF
30%	OFF	ON	OFF	OFF	OFF	OFF
32%	ON	ON	OFF	OFF	OFF	OFF
33%	OFF	OFF	ON	OFF	OFF	OFF
35%	ON	OFF	ON	OFF	OFF	OFF
36%	OFF	ON	ON	OFF	OFF	OFF
37%	ON	ON	ON	OFF	OFF	OFF
39%	OFF	OFF	OFF	ON	OFF	OFF
40%	ON	OFF	OFF	ON	OFF	OFF
41%	OFF	ON	OFF	ON	OFF	OFF
42%	ON	ON	OFF	ON	OFF	OFF
43%	OFF	OFF	ON	ON	OFF	OFF
44%	ON	OFF	ON	ON	OFF	OFF
45%	OFF	ON	ON	ON	OFF	OFF
47%	ON	ON	ON	ON	OFF	OFF
48%	OFF	OFF	OFF	OFF	ON	OFF
49%	ON	OFF	OFF	OFF	ON	OFF
50%	OFF	ON	OFF	OFF	ON	OFF
51%	ON	ON	OFF	OFF	ON	OFF
53%	OFF	OFF	ON	OFF	ON	OFF
54%	ON	OFF	ON	OFF	ON	OFF
55%	OFF	ON	ON	OFF	ON	OFF
56%	ON	ON	ON	OFF	ON	OFF
57%	OFF	OFF	OFF	ON	ON	OFF
58%	ON	OFF	OFF	ON	ON	OFF
60%	OFF	ON	OFF	ON	ON	OFF
61%	ON	ON	OFF	ON	ON	OFF
62%	OFF	OFF	ON	ON	ON	OFF
63%	ON	OFF	ON	ON	ON	OFF
64%	OFF	ON	ON	ON	ON	OFF
65%	ON	ON	ON	ON	ON	OFF
67%	OFF	OFF	OFF	OFF	OFF	ON
68%	ON	OFF	OFF	OFF	OFF	ON
69%	OFF	ON	OFF	OFF	OFF	ON
70%	ON	ON	OFF	OFF	OFF	ON
71%	OFF	OFF	ON	OFF	OFF	ON
72%	ON	OFF	ON	OFF	OFF	ON
74%	OFF	ON	ON	OFF	OFF	ON
75%	ON	ON	ON	OFF	OFF	ON
76%	OFF	OFF	OFF	ON	OFF	ON
77%	ON	OFF	OFF	ON	OFF	ON
78%	OFF	ON	OFF	ON	OFF	ON
79%	ON	ON	OFF	ON	OFF	ON
80%	OFF	OFF	ON	ON	OFF	ON
81%	ON	OFF	ON	ON	OFF	ON
82%	OFF	ON	ON	ON	OFF	ON
83%	ON	ON	ON	ON	OFF	ON
84%	OFF	OFF	OFF	OFF	ON	ON
85%	ON	OFF	OFF	OFF	ON	ON

voltage	DIP switch settings					
	1	2	3	4	5	6
86%	OFF	ON	OFF	OFF	ON	ON
87%	ON	ON	OFF	OFF	ON	ON
88%	OFF	OFF	ON	OFF	ON	ON
89%	ON	OFF	ON	OFF	ON	ON
90%	OFF	ON	ON	OFF	ON	ON
91%	ON	ON	ON	OFF	ON	ON
92%	OFF	OFF	OFF	ON	ON	ON
93%	ON	OFF	OFF	ON	ON	ON
94%	OFF	ON	OFF	ON	ON	ON
95%	ON	ON	OFF	ON	ON	ON
96%	OFF	OFF	ON	ON	ON	ON
97%	ON	OFF	ON	ON	ON	ON
98%	OFF	ON	ON	ON	ON	ON
99%	ON	ON	ON	ON	ON	ON

Why are my fans stalling?

Fans may stall if the voltage being delivered is too low. Increase your speed setting.