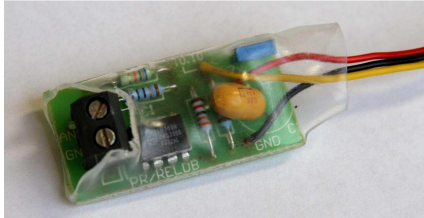# Joule Temp 0 – 10V Analog Board Option
- For Heating, Cooling and Humidity Control

There is an exciting new add on board and updated Joule Temp software for Joule Temp that connects the Joule Temp to electrically controlled mechanical devices. The analog board adds linear control to the region between the maximum and minimum to stabilize room temperature/ humidity and is perfect for sensitive stock. The Joule Temp has the resources to run up to three add-on boards at the one time.

From 1-3 analog boards can be fitted and concurrently operated and modes of operation are Cooling, Heating and Humidity The Humidity board acts as either humidify or dehumidify, depending on programming. Software versions 94 and higher support the analog board. Check the software version on the maintenances page. Each individual mode has to be programmed differently so please read the instructions carefully.

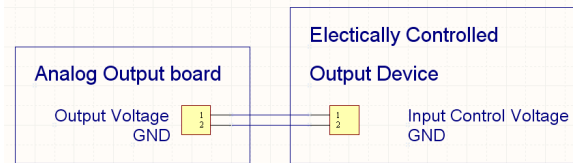Note: the analog board(s) option can only be factory supplied and fitted.

Status of Analog outputs: available on the Joule Temp Maintenance page
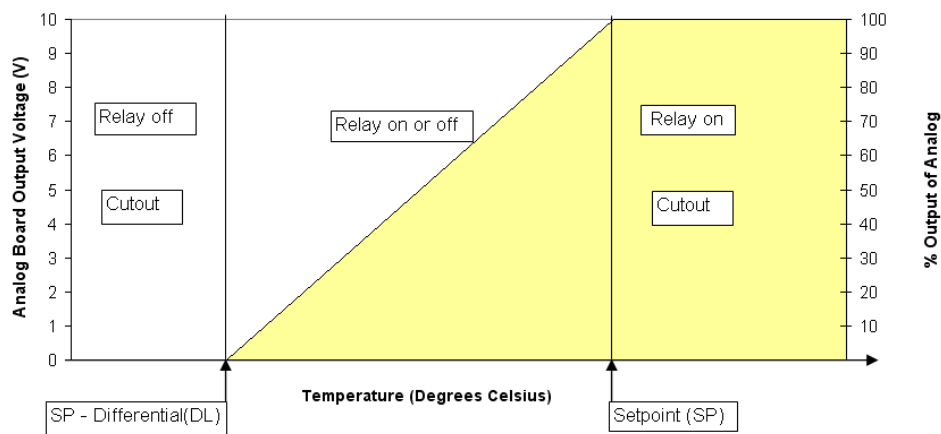

The easiest way to check Analog Board is operational is to select the maintenance page of the JouleTemp that page will show all analog outputs as 0 – 100% which translates directly to 0 – 10V output from the board. Compare the displayed % to the voltage to check for correct operation. If the output is to low disconnect the load. If the voltage is then correct the load may be short circuit.

Electical wiring diagram

Analog Output board

Electically Controlled
Output Device

Output Voltage
GND

Input Control Voltage
GND

Mode of operation: Cooling Control – setup

Cooling Control

Relay off

Relay on or off

Relay on

Cutout

Cutout

Analog Board Output Voltage (V)

% Output of Analog

Temperature (Degrees Celsius)

SP - Differential(DL)

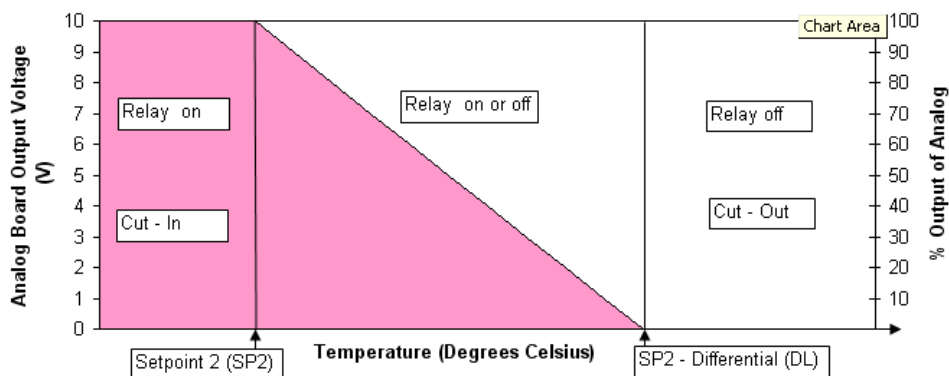Setpoint (SP)

1. The output will be 10V at Setpoint (SP) or higher [cutin]
2. The output will be 0V at Setpoint less differential (SP-dl) [cutout]
3. The output will vary linearly between 0 and 10V between cutout and cutin.
4. Example shown: Sp=5, dl=5, cutin=5 (An=10V) , cutout=0, (An=0V)

Mode of operation: Heating Control – setup

Heating Control

Chart Area

Relay on

Relay on or off

Relay off

Cut - In

Cut - Out

Analog Board Output Voltage (V)

% Output of Analog

Temperature (Degrees Celsius)

Setpoint 2 (SP2)

SP2 - Differential (DL)

1. The output will be 10V at Setpoint (SP2) or higher [cutin]
2. The output will be 0V at Setpoint plus differential (SP+ dl) [cutout]
3. The output will vary linearly between 0 and 10V between cutout and cutin.
4. Example shown: Sp=5, dl=5, cutin=5 (An=10V) , cutout=0, (An=0V)
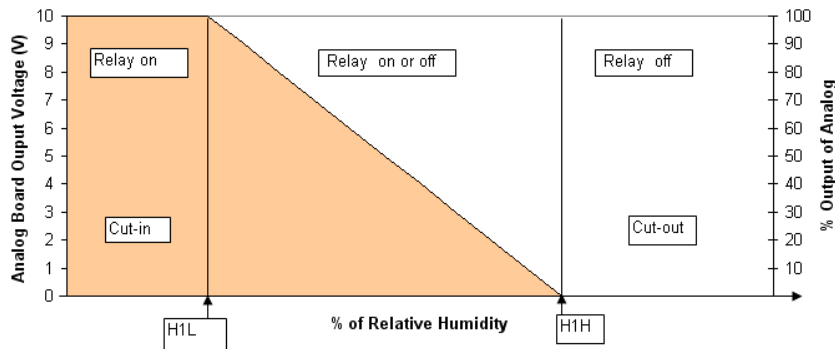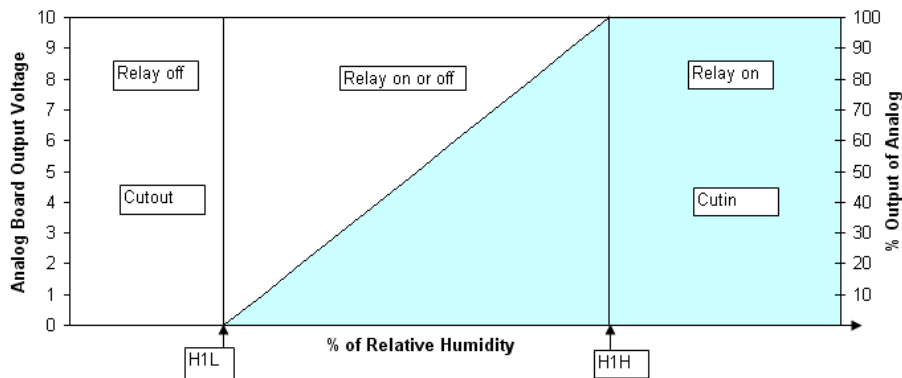
Mode of operation: Humidify Control – setup

Humidify Control

1. Set the mode of operation to Humidify in Humidity Operating Mode (HOP)
2. output will be 10V at Humidity Control Limit Low (H1L) (cut-in)
3. The output will be 0V Humidity Control Limit High (H1H) (cut-out)
4. The output will vary linearly between 0 and 10V between cutout and cutin.
5. Example shown: H1H = 100%, H1L = 0 %, Cut-In =100 %RH (ABO = 10V), Cut-Out = 0%RH (ABO = 0 V)

Mode of operation: Dehumidify Control – setup

Dehumidify Control

1. the mode of operation to Dehumidify in Humidity Operating Mode (HOP)
2. output will be 10V at Humidity Control Limit High (H1H) (cut-in)
3. output will be 0V Humidity Control Limit Low (H1L) (cut-out)
4. The output will vary linearly between 0 and 10V between cut-out and cut-in.
5. Example shown: H1H = 100%, H1L = 0 %, Cut-In =100 %RH (ABO = 10V), Cut-Out = 0%RH (ABO = 0 V)