System Type

(Straight Cool with Gas Heat)

Other selections from set up menu;

Does the system have a two-stage compressor? NO

Does the system have a humidifier connected? YES

Does the system have a standalone De-humidifier? YES

Does the Thermostat control the indoor Fan? NO

Note.

Dehumidification with the *system* is not possible with Gas Heat.
Only the DEHUM and Fan contacts can be energized during a call for de-humidification.

There are (2) main control "Select buttons". ***FAN*** and ***SYSTEM***. Following is a breakdown of each. Additionally (2) Select buttons can be turned on for control of Humidity, ***HUMIDIFY*** and ***DE-HUMIDIFY***

Fan Modes are **AUTO** and **ON**

Auto In this position the indoor fan is energized with any call for Heat, Cool, De-Humidify, Humidify, and CO2 air change.

ON In this position the indoor fan is energized to run continuously.

System Modes are **OFF**, **COOL**, **HEAT**, **CRUISE CONTROL, DEHUMIDIFY,** and **HUMIDIFY.**

OFF This will command the whole system to shut down. (Fan can still run in the ON position) The detailed sequence will be outlined in more detail.

COOL This will energize the Cooling and Fan contacts based on the actual temp vs. the set temp. There are two stages of cooling, if that option has been selected in the installer setup menu. The detailed sequence will be outlined in more detail.

HEAT This will energize the Heating contacts. The detailed sequence will be outlined in more detail.

CRUISE CONTROL This will simply command the system to energize the associated contacts as needed for any "out of parameter" condition. This is only available if selected from the installer set up menu.

DE-HUMIDIFY This will energize the Fan and Dehum. This is only available if selected from the installer set up menu. Auxiliary contacts are used for a stand-alone dehumidifier.

HUMIDIFY This will energize the fan and auxiliary contacts. This is only available if selected from the installer set up menu. The auxiliary contacts are used for a stand-alone humidifier.

Sequence of operation (10) Main control buttons set to **Fan AUTO/ON**, **System OFF**.

If the Fan select button is OFF and the system select button is OFF, all air monitoring remains active, but no action will be initiated regardless of temperature/humidity/CO2.

If the Fan select button is in the ON position and the system select buttons are in the OFF position, all air monitoring remains active, but no action will be initiated regardless of temperature/humidity. If the CO2 rises above 600ppm the *AUX1* CO2 contacts are energized to allow for an outside air damper to open, introducing fresh air into the space. Once the CO2 reaches 500ppm the *AUX1* CO2 contacts are de-energized. The *G* fan contacts simply remain energized since the Fan control button is in the ON position.

(The COOL temp set point is referenced for de-humidify if the system is in the **OFF** position)

If "**DE-HUMIDIFY**" is turned on, only the *G* fan contacts and the *DEHUM* contacts will be energized. (Dehumidify with the *system* is not available with this system Type, it can only energize the *DEHUM* and *fan* contacts for a standalone dehumidifier). If the actual humidity rises more than 7% above the humidity set point, The the *G* fan contacts and the *DEHUM* contacts will be energized allowing a stand-alone dehumidifier to decrease space humidity. The contacts remain energized until the humidity reaches the humidity set point -3%. The *G* fan contacts will remain energized if the fan control button is in the ON position.

If "**HUMIDIFY**" is turned on, a humidifier can be turned on from this mode. If the actual humidity is 7% below the humidity set point, the *G* fan contacts, and the *Hum* contacts are energized to allow a humidifier to increase space humidity. Once Actual humidity is 3% above humidity set point, the *Hum* contacts and the *G* fan contacts are de-energized. The *G* fan contacts will remain energized if the fan control button is in the ON position.

Sequence of operation (11) Main control buttons set to **Fan AUTO/ON** and **System COOL**.

The thermostat monitors the actual temp inside the space and compares it to the set point selected by the user. Should the actual temperature rise above the set point by .5deg F, the *Y/Y2* compressor contacts and the *G* fan contacts will be energized allowing the system to cool. When the actual temp falls below the set point by .5deg F then the *Y/Y2* and *G* contacts will be de-energized, and system will go back to idle. This small temp offset from set point prevents the system from short cycling while still maintaining close control of the desired temp. Once the contacts are de-energized a short minimum off timer begins a countdown to prevent mechanical short cycling. (Timer set in user set up menu)

If "**DE-HUMIDIFY**" is turned on, only the *G* fan contacts and the *DEHUM* contacts will be energized. (Dehumidify with the *system* is not available with this system Type, it can only energize the *DEHUM* contacts for a standalone dehumidifier). If the actual humidity rises more than 7% above the humidity set point, Then the *G* fan contacts and the *DEHUM* contacts will be energized allowing a stand-alone dehumidifier to decrease space humidity. The contacts remain energized until the humidity reaches the humidity set point -3%. The *G* fan contacts will remain energized if the fan control button is in the ON position.

If "**HUMIDIFY**" is turned on, a humidifier can be turned on from this mode. If the actual humidity is 7% below the humidity set point, the *G* fan contacts, and the *Hum* contacts are energized to allow a humidifier to increase space humidity. Once Actual humidity is 3% above humidity set point, the *Hum* contacts and the *G* fan contacts are de-energized. The *G* fan contacts will remain energized if the fan control button is in the ON position.

Carbon Dioxide detection is always active and operates independently/simultaneously with the above sequence.
If the CO2 rises above 600ppm the *AUX1* CO2 contacts and the *G* fan contacts are energized to allow for an outside air damper to open, introducing fresh air into the space. Once the CO2 reaches 500ppm the *AUX1* CO2 contacts and the G fan contacts are de-energized. The *G* fan

contacts simply remain energized if the Fan control button is in the ON position.

Sequence of operation (12) Main control buttons set to **Fan AUTO/ON** and **System HEAT**.

The thermostat monitors the actual temp inside the space and compares it to the set point selected by the user. Should the actual temperature fall below the set point by .5deg F, the *W* electric heat contacts will be energized allowing the system to Heat. When the actual temp rises above the set point by .5deg F then contacts will be de-energized, and system will go back to idle. This small temp offset from set point prevents the system from short cycling while still maintaining close control of the desired temp. Once the contacts are de-energized a short minimum off timer begins a countdown to prevent mechanical short cycling. (Timer set in user set up menu).

If "**DE-HUMIDIFY**" is turned on, only the *G* fan contacts and the *DEHUM* contacts will be energized. (Dehumidify with the *system* is not available with this system Type, it can only energize the *DEHUM* contacts for a standalone dehumidifier). If the actual humidity rises more than 7% above the humidity set point, The the *G* fan contacts and the *DEHUM* contacts will be energized allowing a stand-alone dehumidifier to decrease space humidity. The contacts remain energized until the humidity reaches the humidity set point -3%. The *G* fan contacts will remain energized if the fan control button is in the ON position.

If "**HUMIDIFY**" is turned on, a humidifier can be turned on from this mode. If the actual humidity is 7% below the humidity set point, the *G* fan contacts, and the *Hum* contacts are energized to allow a humidifier to increase space humidity. Once Actual humidity is 3% above humidity set point, the *Hum* contacts and the *G* fan contacts are de-energized. The *G* fan contacts will remain energized if the fan control button is in the ON position.

Carbon Dioxide detection is always active and operates independently/simultaneously with the above sequence.
If the CO2 rises above 600ppm the *AUX1* CO2 contacts and the *G* fan contacts are energized to allow for an outside air damper to open, introducing fresh air into the space. Once the CO2 reaches 500ppm the *AUX1* CO2 contacts and the G fan contacts are de-energized. The *G* fan contacts simply remain energized if the Fan control button is in the ON position.

Sequence of operation (13) Main control buttons set to **Fan AUTO/ON** and **System CRUISE CONTROL**.

The thermostat monitors the actual temp inside the space and compares it to both the Cooling *AND* Heating set points selected by the user. Should the actual temperature rise above the cooling set point by .5deg F, the *Y/Y2* compressor contacts, and the *G* fan contacts, will be energized allowing the system to cool. When the actual temp falls below the cooling set point by .5deg F then the *Y/Y2* and *G* contacts will be de-energized, and system will go back to idle. (Assuming humidity is in range). This small temp offset from set point prevents the system from short cycling while still maintaining close control of the desired temp. Once the contacts are de-energized a short minimum off timer begins a countdown to prevent mechanical short cycling. (Timer set in user setup menu)
Additionally, if the actual temp inside the space falls below the heating set point by .5deg F, the *W* Electric heat contacts will be energized allowing the system to Heat. When the actual temp rises above the set point by .5deg F then the contacts will be de-energized, and system will go back to idle. (Assuming humidity is in range). This small temp offset from set point prevents the system from short cycling while still maintaining close control of the desired temp. Once the contacts are de-energized a short minimum off timer begins a countdown to prevent mechanical short cycling. (Timer set in user setup menu)

If "**DE-HUMIDIFY**" is turned on, only the *G* fan contacts and the *DEHUM* contacts will be energized. (Dehumidify with the *system* is not available with this system Type, it can only energize the *DEHUM* contacts for a standalone dehumidifier). If the actual humidity rises more than 7% above the humidity set point, The the *G* fan contacts and the *DEHUM* contacts will be energized allowing a stand-alone dehumidifier to decrease space humidity. The contacts remain energized until the humidity reaches the humidity set point -3%. The *G* fan contacts will remain energized if the fan control button is in the ON position.

If "**HUMIDIFY**" is turned on, a humidifier can be turned on from this mode. If the actual humidity is 7% below the humidity set point, the *G* fan contacts, and the *Hum* contacts are energized to allow a humidifier to increase space humidity. Once Actual humidity is 3% above humidity set point, the *Hum* contacts and the *G* fan contacts are de-energized. The *G* fan contacts will remain energized if the fan control button is in the ON position.

Carbon Dioxide detection is always active and operates independently/simultaneously with the above sequence.
If the CO2 rises above 600ppm the *AUX1* CO2 contacts and the *G* fan contacts are energized to allow for an outside air damper to open, introducing fresh air into the space. Once the CO2 reaches 500ppm the *AUX1* CO2 contacts and the G fan contacts are de-energized.
The *G* fan contacts simply remain energized if the Fan control button is in the ON position.