

**TAS Distributing Company, Inc.**

**1601 West Luthy Drive, Suite A**

**Peoria, IL 61615**

**Ph. 309/691-0919 Fax 309/691-1458**

**24/7 Tech Support 309/472-0676**

**TEMP-A-START THERMOSTAT**

**ANALOG VERSION 1.4**

**SPECIFICATIONS**

**REVISION C**

**APRIL 2014**

**CONFIDENTIAL**

***DEFINITIONS***

The following terms are used throughout this document:

**P1 or Fleet Specified Program:** First of two possible modes of thermostat operation

**P2 or Owner/Operator Program**: Second of two possible modes of thermostat operation

**Dead Band**: Outside Temperature range used by P1 that prevents the outputs from being turned on.

**Set Point:** User controlled temperature setting; heat and cool each have their own set point.

**Temperature Range:** User controlled plus/minus hysteresis setting for each set point to control when the outputs are turned on and off; heat and cool each have their own temperature range.

**Override Temperature Limit:**  High and low temperature override for 1 hour timer.

***DISPLAY SELECTION AND BASIC OPERATION***

When the unit is configured for P1 (Fleet Specified Program) and the outside temperature is within the dead band the outside temperature is displayed and the outside temperature LED is lit. If the outside temperature is not within the dead band the default is the inside temperature is displayed and the inside temperature LED is lit.

When the unit is configured for P2 (Owner/Operator Program) by default the inside temperature is displayed and the inside temperature LED is lit.

At any time if a key closure is not detected within six seconds the display will revert to the default display for the program selected.

To change the display from the inside temperature reading to outside temperature (and light the outside temperature LED), the on/mode key is pressed once.

To display the temperature set point (and light the set point LED), the on/mode key is pressed again within 6 seconds. Heat or cool may be pressed to change which of the two is being viewed and the up/down keys used to change it. Any changes are immediately displayed and saved.

To display the temperature range (and light the temperature range LED), the on/mode key is pressed again within 6 seconds. Heat or cool may be pressed to change which of the two is being viewed and the up/down keys used to change it. Any changes are immediately displayed and saved.

If the MODE key is pressed again within 6 seconds, the display will roll over to inside temperature.

The SIGOUT LED will be on any time either output is on. The HEAT and COOL LEDs indicate which set point and range is currently being used to control the output(s).

***HEAT AND COOL SIGNALS AND LED’s***

The temperature set point and range to be used (HEAT or COOL) is determined by the setup configuration and outside temperature. The unit can be configured for one of two program modes: P1 (Fleet Specified) or P2 (Owner/Operator).

The P1 (Fleet Specified) program mode utilizes protected upper and lower dead-band settings. The P2 (Owner/Operator) program mode does not use the dead-band settings.

If the unit is configured as P1 (Fleet Specified), the HEAT temperature and range are used if the outside temperature is below the lower dead-band setting. The COOL temperature and range are used if the outside temperature is above the upper dead-band setting. If the outside temperature is equal to or within the dead-band settings, both HEAT and COOL LEDs will be off, the output(s) will be off, and the outside temperature will be displayed when Stat is activated.

If configured as P2 (Owner/Operator), the HEAT settings will be used if the outside temperature is below 50 and the COOL settings will be used if the outside temperature is above 70. Between 50 and 70 the user selects which settings to use by pressing either the HEAT or COOL key.

The unit has two outputs: SIGOUT and HTROUT. The output configuration will be programmable to operate as follows:

* Single output mode: SIGOUT operates the same as original unit (turns on for heat or cooling); the second output is always off.
* Dual output mode: SIGOUT for cooling; will start & stop engine as needed for driver comfort.
* Dual output mode: SIGOUT for heating will start & stop the fuel aux. heater only. In this mode the aux. heater is turned on to max BTU output until set temp is reached. The TAS climate control unit then powers down the heater for cool down & then to full off until the next cycle. This reduces current draw, during off cycles. The TAS main control center is in full engine mode protecting the engine from cold starts & low batteries, only running the aux. heater as needed.

***ERROR CONDITIONS AND ONE HOUR OVERRIDE LIMITS***

If the inside temperature sensor is faulty, “err1” is displayed and the inside temperature LED is lit. The “err1” will alternate with whatever display function is subsequently selected. The output will cycle between 25 minutes on and 15 minutes off. If the unit is configured for P1 (Fleet Specified) operation, the output will continue to be governed by the dead-band settings.

If the outside temperature sensor is faulty, “err2” is displayed and the outside temperature LED is lit. The “err2” will alternate with whatever display function is subsequently selected. Outside temperature qualifiers will be ignored and the thermostat will run based only on the inside temperature. Since there is no outside temperature reading to determine whether heat or cool should be used, the HEAT and COOL LEDs will start flashing and the output(s) turned off until the user selects which of the two to use.

If both the inside and outside sensors are faulty, the inside and outside temperature LEDs will be turned on, the outputs will be turned off, and the display will alternate between “err1” and “err2” and default to 15 minutes off and 15 minutes on cycle.

If the inside temperature stays within the upper and lower override temperature limits and runs continuously without reaching the set point for one hour, the output will turn off and start cycling 15 minutes off, 15 minutes on until either the set point is reached or power to the unit is cycled . The display will alternate between “err3” and the selected display. The user will not be able to change any parameters until either the power has been recycled or the set point is reached.

For example, the user has set the thermostat for 75°, range at 3 degrees and the upper override limit is set for 100°. The inside temperature remains between 75° and 100° for one hour, so the output never turns off. This condition causes an “err3” to be displayed and the output to start cycling.15 on 15 off. Any time the outside temperature exceeds 100° the 1 hour timer is reset and the output remains on.

If the outside temperature exceeds the upper or lower override temperature limit, the output will turn on and run continuously unless shutdown temp is reached. If the outside temperature falls back within the override limits, the 1 hour timer will be restarted and the unit will resume normal operation. The display will alternate between “err3” and the selected display any time the outside temperature exceeds either of the override limits. The user will not be able to change any parameters until either the power has been recycled or the set point is reached.

For example, the thermostat is set for 75° and the upper override limit is set for 100°. As long as the outside temperature exceeds 100° the output will remain on and the 1 hour timer will be reset. If the temperature drops below 100° the timer will be started. The output will be turned off after one hour if the inside temperature never reaches the set point.

***DRIVER SETTABLE PARAMETERS***

All settings will be saved in non-volatile memory. The temperature set points and ranges for heating and cooling are as follows:

**Heating temperature:** 45°-78° (Default = 65°)

(Press mode to set point, heat, up/down to change)

**Heating range:** 3-6 (Default = 3)

(Press mode to range, heat, and up/down to change)

**Cooling temperature**: 68°-90° (Default = 75°)

(Press mode to set point, cool, up/down to change)

**Cooling range:** 2-5 (Default = 3)

(Press mode to range, cool, up/down to change)

**Lower AC limit:** Output is turned off if inside temperature is 68° or below

(If cooling temperature entered by the user was 68°, the unit will turn back on at 72°, regardless of the range setting.)

NOTE: This feature is to prevent driver from trying to get system to run continually by setting the Stat as low as possible.

***PROTECTED SETTINGS***

All settings will be saved in non-volatile memory. For continuity, the key sequence used to set the heating and cooling override limits and default settings will remain the same.

**1 hour cooling override limit:** 75° to 140° (Factory default = 100°)

**1 hour heating override limit:** -25° to 25° (Factory default = 0°)

The last temperature displayed is automatically saved. If the ON key is pressed or if no key closures are detected for six seconds, the unit will automatically resume normal operation.

***The New Programmable Parameters are Pre-Set at Factory to Customer Specs:***

**Output configuration:** Single or Dual (Default = Single)

**Program:** P1 - Fleet Specified

Or

P2 - Owner/Operator (Default)

**Upper dead-band setting:** 60°-75° (Default = 70°)

Lower dead band setting: 60°-75° (Default = 67°)