



Date: 10/01/02

Subject: Technical Bulletin for Honeywell thermostat overshoot

Thermostats affected:

ATA21H01

The ATA21H01 thermostat from ClimateMaster offers programming capabilities which you may or may not be aware of. This thermostat has an "Installer Setup Mode" which allows this thermostat to be customized for specific applications. You can find detailed instructions for the Installer Setup mode in the Installation Instructions which come with every thermostat.

One specific item within the Installer Setup mode is the "Heating Cycle Rate" which is labeled as Installer Setup Numbers 5 and 7 (#6 is not used). Heating Cycle Rate is a Cycles per Hour (cph) setting.

- Installer Setup #5 = Heating Cycle Rate Setting for W2 output terminal. (factory default=6cph)
- Installer Setup #7 = Heating Cycle Rate Setting for E output terminal. (factory default=9cph)

As you will note on the Installation Instructions, the W2 output terminal is used for Auxiliary Heating purposes. And the E output terminal is used for Emergency Heating purposes.

The Heating Cycle Rate setting for these two outputs will effect the manner in which they turn On and turn Off depending upon heating load and rate of recovery of the thermostat.

For Example:

- a) If the Installer Setup setting for W2 is set to 3cph, then this would result in a scenario where the W2 output will act more aggressively and hence the W2 output will remain On longer and potentially remain On when the room temperature equals the heating setpoint.
- b) If the Installer Setup setting for W2 is set to 6cph, then this would result in a scenario where the W2 output will act less aggressively and hence the W2 output will turn Off more quickly when the room temperature is approaching the heating setpoint.
- c) If the Installer Setup setting for W2 is set to 9cph, then this would result in a scenario where the W2 output will act least aggressively and hence the W2 output will turn Off quickly when the room temperature is approaching the heating setpoint.

The same scenarios above, hold true for the E output operation as well.

The current heating load of the structure also plays a major part in the calculations as to when the W2 and E outputs turn On and Off. In "light load" conditions (spring and autumn), the user should notice that the W2 and E outputs stay On slightly longer than during "heavy load" conditions (winter). This is due to the recovery calculations of the thermostat and due to the fact that the heat pump can more quickly bring the room temperature back to the heating setpoint in light load conditions.

NOTE: Keep in mind that all of the above discussion is based upon a continuous 50% duty cycle. If the user is continuously adjusting the setpoint, then the thermostat calculations are no longer based upon a 50% duty cycle, and all of the above information becomes useless. For example, if the user quickly raises the setpoint by a few degrees, then the thermostat goes into a recovery mode and tries to get back on setpoint as quickly as possible...which means that on the first few cycles, the W2 output may be On while the room temperature is equal to the heating setpoint.