SIEMENS

Startup Procedures for TEC Custom Solutions Application 2460

Water to Air Heat Pump with 1-Stage Electric Heat, Multi-Speed Fan and Motion Sensor

TEC 0583.11

Table of Contents

Before You Begin

Verify that the Water to Air Heat Pump with 1-Stage Electric Heat, Multi-Speed Fan and Motion Sensor is powered up. Check to see if the BST LED (Figure 1) on the controller is flashing. If the BST LED does not flash ON/OFF once per second, refer to the *APOGEE Automation Service Procedures* on InfoLink for troubleshooting information.

NOTES:

1. Update each controller at the field panel immediately after you have completed the controller start-up procedures and made all other changes to the controller's point database, including tuning, etc.

2. If you are going to enter an LCTLR point at the field panel, keep track of the controller address, application, and override time you enter at the portable operator's terminal. You will be required to enter these values again at the field panel.

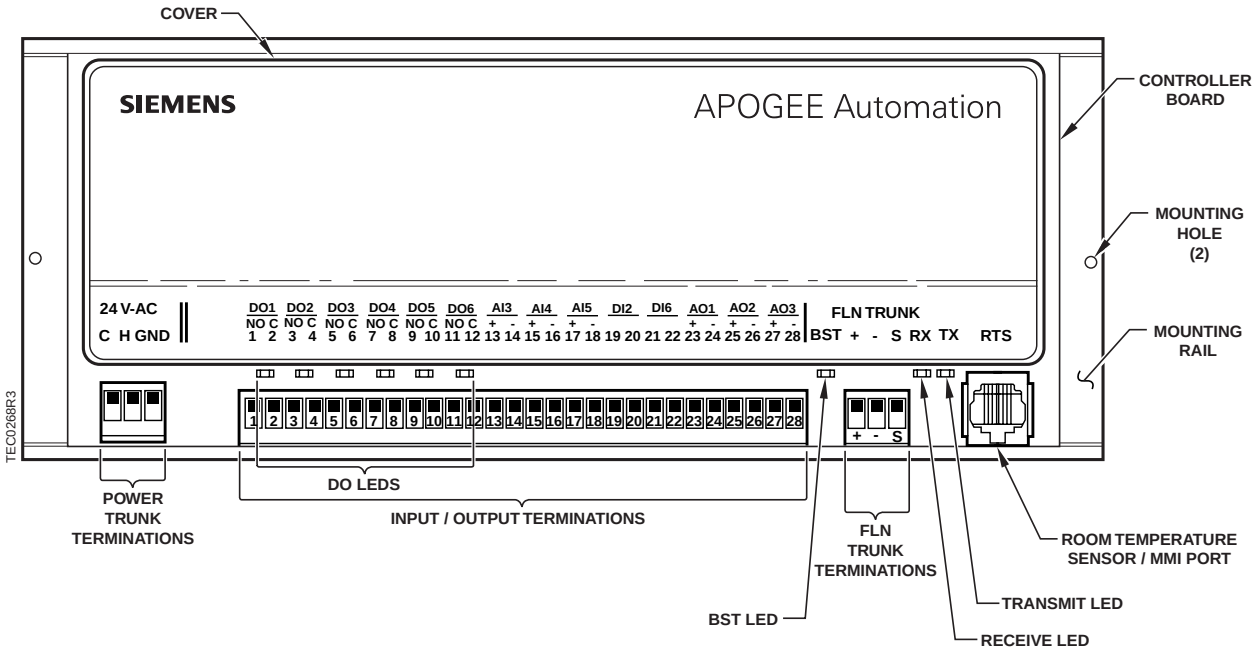

Figure 1. Heat Pump Controller – Single-Stage.

Set Controller Address and Application

NOTE: Use an appropriate communication tool such as Win CIS or Datamate to start up the controller.

1. Display the STARTUP report.
2. Set CTLR ADDRESS (Point 1) to the appropriate address number.
3. Set APPLICATION (Point 2) to 2460.

After you set the application, the controller goes through a shut-down/load sequence as it switches from slave mode to the selected application. Wait until the application loads and the OVERVIEW report appears before continuing.

Room Temperature Setpoints

1. Display the SETPOINTS report
2. If the room temperature sensor has a setpoint dial, and if RM STPT DIAL (Point 13) is to be used by the controller, then set STPT DIAL (Point 14) to YES. Otherwise, set STPT DIAL to NO.
3. If there is no setpoint dial on the room temperature sensor, then verify that STPT DIAL is set to NO.
4. Set the following points to the appropriate values:
   - OCC CLG STPT (Point 6)
   - OCC HTG STPT (Point 7)
   - UOC CLG STPT (Point 8)
   - UOC HTG STPT (Point 9)
   - VACANT C STP (Point 16)
   - VACANT H STP (Point 17)

If a vacancy mode is not used on your jobsite, set VACANT C STP equal to UOC CLG STPT and set VACANT H STP equal to UOC HTG STPT. If the room temperature sensor has a setpoint dial and the setpoint dial is to be used, set RM STPT MIN (Point 11) and RM STPT MAX (Point 12) to their desired values. Valid values range from 55° to 95°F (13° to 35°C). Common values for these points are 65°F (18°C) for RM STPT MIN and 80°F (27°C) for RM STPT MAX.

NOTE: If STPT DIAL is set to YES and OCC CLG STPT is **less than or equal to** OCC HTG STPT, then OCC HTG STPT and OCC CLG STPT will not be used. Only the value of RM STPT DIAL will be used, and CTL STPT (Point 92) will be set equal to RM STPT DIAL. Note that in this situation the application limits CTL STPT to the temperature range of RM STPT MIN to RM STPT MAX.
However, if STPT DIAL is set to YES and OCC CLG STPT is set **greater** than OCC HTG STPT, then OCC CLG STPT and OCC HTG STPT will be used to set up a

temperature deadband (or zero energy band) around RM STPT DIAL. (This deadband can help reduce energy use.) When HEAT.COOL (Point 5) equals HEAT, CTL STPT will be set equal to

RM STPT DIAL – 0.5 * (OCC CLG STPT – OCC HTG STPT)

…and when HEAT.COOL equals COOL, CTL STPT will be set equal to

RM STPT DIAL + 0.5 * (OCC CLG STPT – OCC HTG STPT).

Note that in *this* situation, the application does not limit CTL STPT to the temperature range of RM STPT MIN to RM STPT MAX. In cases where the setpoint dial is set at or near a temperature extreme (all the way warm or all the way cool), CTL STPT might end up outside the min/max temperature range. One way to minimize this possibility is to set the min and max room temp setpoints 1 or 2 degrees higher/lower than you would normally. That is, if STPT DIAL is set to YES and you are going to be running the application with OCC CLG STPT set greater than OCC HTG STPT to increase energy efficiency, and you want the room minimum to be, say, 62 degrees, then add one or two degrees and set RM STPT MIN to 63 or 64. Reduce RM STPT MAX by the same amount (if you want it to be 86 degrees, set it to 84 or 85). This is a practical way to reduce the application's ability to control past the min/max setpoints when STP DIAL = YES and OCC CLG STPT has been set greater than OCC HTG STPT.

VACANT TIME

If application 2460 is in the unoccupied mode for less than VACANT TIME (Point 32), then the application will perform unoccupied control using the setpoints UOC CLG STPT and UOC HTG STPT.

If application 2460 is in the unoccupied mode for more than VACANT TIME, then the application will perform unoccupied control using the setpoints VACANT C STP and VACANT H STP.

Switch to the main report (HPUMP RV MD) and set VACANT TIME to the desired value.

Set Number of Compressors Used

If using a compressor, set CMP TOTL (Point 75) to 1. Otherwise, set CMP TOTL to 0. (the default for CMP TOTL = 1)

Set HC.ENDIS

HC.ENDIS (Point 22) determines whether the application is heating only, cooling only, or if it uses both heating and cooling modes. The default value for HC.ENDIS is 3, both heating and cooling are enabled. 1 = heating only; 2 = cooling only.

Set HC.ENDIS to the desired value.

Stages Of Electric Heat

If using 1 stage of electric heat, leave EHTG STG CNT (Point 76) at its default value of 1. Otherwise set EHTG STG CNT to 0.

Compressor Minimum OFF and ON Times

If the default values are not appropriate, then display the main application report and set the points for the compressor minimum OFF and ON times according to the specifications for the equipment being used:

- CMP1 MIN OFF (Point 87), default = 3 min
- CMP1 MIN ON (Point 88), default = 3 min

CAUTION:

Heat pumps that use application 2460 may have internal compressor minimum on and off times. If so, make sure CMP MIN ON is set to a value that is greater than the internal minimum on time for the compressor. If this is not done, the application may try to shut the fan off before the compressor shuts off.

Suggested Point Values

See Table 1 for suggested point values for various heat pump configurations. Set these values as appropriate for your configuration.

Table 1. Suggested Point Values for Application 2460.

Point Number	Descriptor	1 Compressor 0 Electric Heat Stages	1 Compressor 1 Electric Heat Stage
75	CMP TOTL	1	1
76	EHTG STG CNT	0	1
81	EHEAT 1 ON	--	90%
82	CMP1 ON	60%	60%
83	CMP1 OFF	40%	30%
84	RVAL SWITCH	30%	30%
85	SWITCH LIMIT	5%	5%

NOTE: Update each controller at the field panel immediately after you have completed the controller start-up procedures and made all other changes to the controller's point database, including tuning, etc.

The start-up is complete.