

Controller Start-up for Custom Solutions Application 2435

Fan Coil Unit Cooling and Electric Heat with Pulse Counter

TEC 0352.11

Table of Contents

Verifying Power to Controller	2
Enabling the Actuator.....	2
Verifying Actuator Setup	3
Setting Application	3
Setting CAL TIMER.....	4
Setting Room Temperature Set Points	4
Setting Override Time	4
Setting Electric Heat Stages	4
Enabling the Wall Switch	5
Configuring Pulse Counting	5
Setting Controller Address.....	5

Verifying Power to Controller

NOTES: 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 balancing, tuning, etc.

Controller Interface Software (CIS), if used, must be Rev. 2.0 or greater.

Verify that the controller is powered up. Check that the BST LED 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.

Enabling the Actuator

1. Verify that APPLICATION (Point 2) is set to 2487 (slave mode) for Rev. FO10 or higher.
2. Display the STARTUP report.
3. Set MTR SETUP (Point 58) to 1 (For reverse action, set MTR SETUP to 3).

NOTE: The assumption is that valves and dampers are normally closed.

4. Set MTR1 TIMING (Point 51). Refer to Table 1 or Table 2 depending the type of actuator
 - If you are setting up a damper and its rotation angle is other than 90°, set MTR1 ROT ANG (Point 56) to the appropriate value.
 - If using Application 2435 for pressure dependent VAV with electric heat, MTR1 ROT ANG is calculated as follows:

$$\text{actual motor run time} \times \text{actual damper rotation angle} \div 90^\circ$$

Table 1. Valve Actuator Run Time.

Valve Actuator	Setting (seconds)	
	50 Hz	60 Hz
SSB81U (Powermite – MZ Series)	180	150
SQS 82	155	130
SQS 65U (analog output 0 to 10V)	35	30
SQS 65.5U (analog output 0 to 10V)	35	30
SSB 61U (analog output 0 to 10V)	N/A	150

Table 2. Damper Actuator Run Time.

Damper Actuator	Setting (seconds)	
	50 Hz	60 Hz
349-0101	106	88
GDE 131.1U	108	90
GDE 131.1P	108	90
GLB 131.1P	150	125
¹ GBB 171.1U	150	150
² GDE 161.1P	108	90
² GLB 161.1P	150	125

¹ GBB 171.1U run time is independent of Hz.

² Analog output 0-10V.

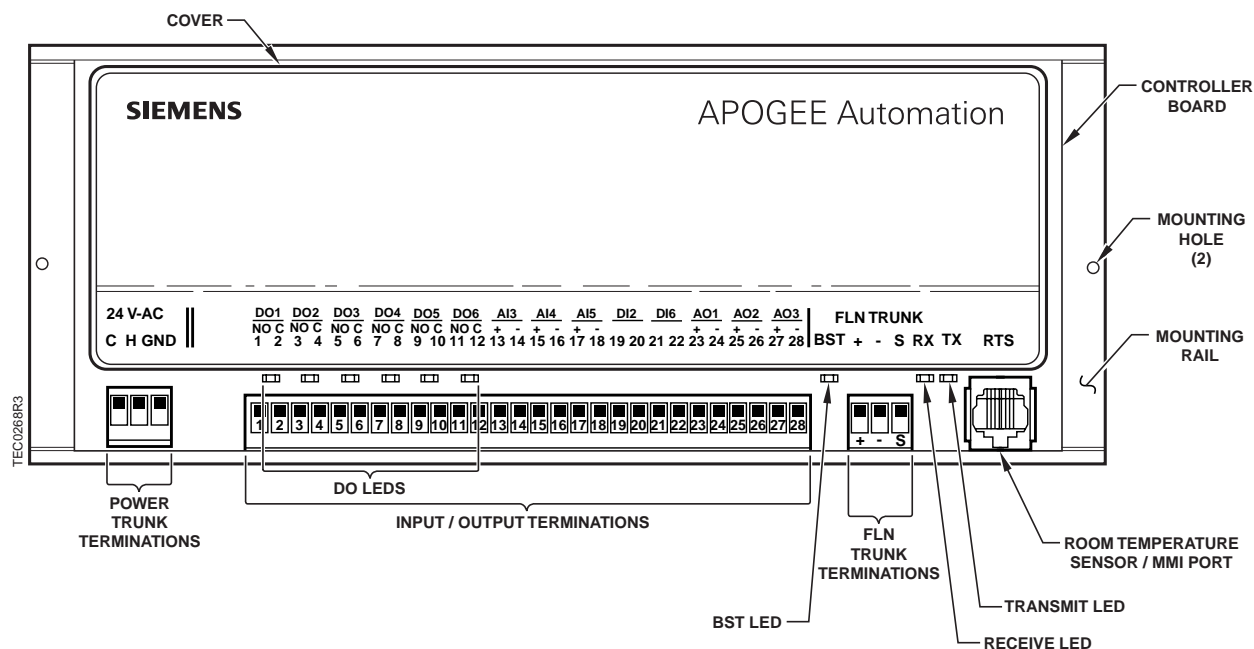


Figure 1. Fan Coil Controller with Cooling, Electric Heat, and Pulse Counter.

Verifying Actuator Setup

Verify that the actuator closes and remain closed when commanded to do so. If the damper or valve does not close completely, then try reversing the action by adding or subtracting the value of 2 from MTR SETUP (Point 58). If MTR SETUP was originally set to 1, then add 2; if it was originally set to 3, then subtract 2. If the actuator still does not close completely, then it has been installed or set up incorrectly. Refer to the actuator installation instructions, set up information, or the *APOGEE Automation Service Procedures* on InfoLink for more information.

Setting Application

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

Set APPLICATION (Point 2) to 2435.

After you set the application, the controller will go through a shut-down/load sequence as it switches from slave mode to the application selected. After the application loads and the OVERVIEW report appears, continue with the following procedures.

Setting CAL TIMER

Set CAL TIMER (Point 96) to the time interval that will trigger calibration of the valve or damper. The default value for CAL TIMER is 12 hours.

Setting Room Temperature Set Points

1. Display the SETPOINTS report.
2. If the room temperature sensor has a set point 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.

NOTE: If STPT DIAL is set to YES, DAY CLG STPT (Point 6) and DAY HTG STPT (Point 7) will not be used. Instead, the value of RM STPT DIAL will be used.

3. If there is no set point dial on the room temperature sensor, verify that STPT DIAL = NO and set the following points to the appropriate values:
 - DAY CLG STPT (Point 6)
 - DAY HTG STPT (Point 7)
 - NIGHT CLG STPT (Point 8)
 - NIGHT HTG STPT (Point 9)
4. If the room temperature sensor has a set point dial that will be used, set RM STPT MIN (Point 11) and RM STPT MAX (Point 12) for the minimum and maximum allowable room temperature set point values, respectively. 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.

Setting Override Time

1. Display the STARTUP report.
2. If using night override, then set OVRD TIME (Point 20) to the number of whole hours that an override should last. If set at zero (the default), night override is disabled.

Setting Electric Heat Stages

Check the hardware to verify the number of electric heat stages used (1 to 3). Set STAGE COUNT (Point 88) to this value.

Enabling the Wall Switch

If a wall switch will be used for day/night control, set WALL SWITCH (Point 18) to YES.

Configuring Pulse Counting

The controller can count and totalize DI 6 (Point 28) pulses, if desired. Pulse counting is done as follows:

- If PULSE EDGE (Point 30) equals 1.0, then the number of **rising** DI 6 pulses is totalized and stored in PULSE COUNT (Point 31).
- If PULSE EDGE equals 2.0, then the number of **falling** DI 6 pulses is totalized and stored in PULSE COUNT.
- If PULSE EDGE equals 3.0, then the number of **rising and falling** DI 6 pulses is totalized and stored in PULSE COUNT.
- If PULSE EDGE does not equal 1.0, 2.0, or 3.0, then DI 6 pulses are not totalized and PULSE COUNT is frozen at its current value.

Set PULSE EDGE to the desired value.

Setting Controller Address

Set CTLR ADDRESS (Point 1) to the appropriate number. Each controller requires a unique address. Normal values are 00 to 31, but the controller will accept values as high as 98.

The Start-up is complete.

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 balancing, tuning, etc.