

Controller Start-up for Custom Solutions
Applications 2419 and 2428

Fan Coil Applications with 4-20mA Temperature Input

TEC 0905-3.11

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Verifying Power

Verify that the controller is powered up. Check that the BST LED on the controller is flashing (Figure 1). If the BST LED does not flash ON/OFF once per second, refer to the *APOGEE Automation Service Procedures* (125-3013) on InfoLink for troubleshooting information.

NOTES: The Controller Interface Software (CIS) must be Rev. 2.0 or greater.

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.

Verifying Slave Mode

1. Verify that APPLICATION (Point 2) is set to 2483 (slave mode).
2. Display the STARTUP report.

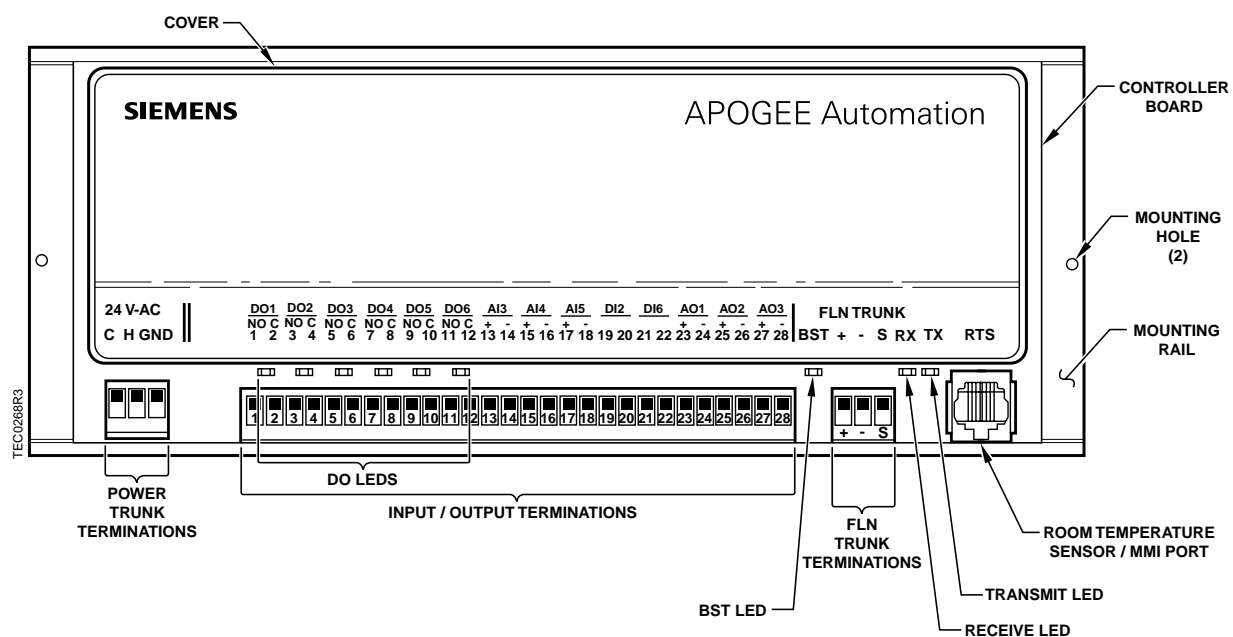


Figure 1. Fan Coil Controller with 4-20mA Temperature Input.

Enabling the Actuators

Standard Configuration

1. Find the application you are setting up in Table 1.
2. Set MTR SETUP (Point 58) to the value given for that application.

Table 1. Common Configurations and MTR SETUP (Point 58) Value.

Application	Motor 1	Motor 2	Value for MTR SETUP
2419	heating/cooling valve 1 (normally open)	heating valve 2 (normally open) (optional)	for one valve: 3 for two valves: 15
2428	N/A	N/A	0

Non-Standard Configuration – If your application will not use the configuration in Table 1, refer to Table 2 to set MTR SETUP as follows:

1. Choose the column in Table 2 that corresponds to how Motor 1 will be used in your application.
2. Choose the row in Table 2 that corresponds to how Motor 2 will be used in your application.
3. Set MTR SETUP to the value in the row and column you have chosen.

Table 2. Motor Enable/Reverse Values for MTR SETUP (Point 58).

	Motor 1 Not Used	Motor 1 Enabled	Motor 1 Enabled and Reversed
Motor 2 Not Used	0	1	3
Motor 2 Enabled	4	5	7
Motor 2 Enabled and Reversed	12	13	15

Setting Motor Timing

Application 2419: Set the run time for the valve actuator(s). Refer to Table 3.

1. Set MTR 1 TIMING (Point 51) to the correct value.
2. If applicable, set MTR 2 TIMING (Point 55) to the correct value.

Table 3. 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

Verifying Actuator Setup

Application 2419: Verify that all actuators close and remain closed when commanded closed as follows:

- If Motor 1 is enabled and the actuator on Motor 1 does not close, reverse the action of that actuator by adding the value 2 to MTR SETUP (Point 58).
- If Motor 1 is enabled and reversed and the actuator on Motor 1 does not close, reverse the action of that actuator by subtracting the value 2 from the MTR SETUP.
- If Motor 2 is enabled and the actuator on Motor 2 does not close, reverse the action of that actuator by adding the value 8 to the MTR SETUP.
- If Motor 2 is enabled and reversed and the actuator on Motor 2 does not close, reverse the action of that actuator by subtracting the value 8 from the MTR SETUP.

If any of the actuators still do not close completely, then they have been installed or set up incorrectly. Refer to the actuator installation instructions, set up information, Table 2, or the *APOGEE Automation Service Procedures* (125-3013) 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, and controller address 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 the appropriate Fan Coil application number. Refer to Table 4.

Table 4. Fan Coil Applications with 4-20mA Temperature Inputs.

Application Description	Application Number
Two-Pipe Fan Coil Unit Cooling or Heating with 4-20mA Temperature Input	2419
Fan Coil Unit Cooling and Electric Heat with Expanded Range 4-20mA Temperature Input	2428

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

Application 2419: Set CAL TIMER (Point 96) to the time interval that will trigger calibration of the valve(s). 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 HTG STPT (Point 7) and DAY CLG STPT (Point 6) will not be used. The value of RM STPT DIAL will be used instead.

3. If there is no set point dial on the room temperature sensor, verify that STPT DIAL is set to NO.

4. Set the following points to the appropriate values:
 - DAY CLG STPT (Point 6)
 - DAY HTG STPT (Point 7)
 - NGT CLG STPT (Point 8)
 - NGT HTG STPT (Point 9)
5. If the room temperature sensor has a set point dial and the set point dial is to be used, then set RM STPT MIN (Point 11) and RM STPT MAX (Point 12) for the minimum and the 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, 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 Stages of Electric Heat

Application 2428: Check the hardware to verify the number of stages (1 to 3) of electric heat used. Set HTG STG CNT (Point 88) to this value.

Setting Stages of Cooling

Application 2428: Check the hardware to verify the number of stages (1 or 2) of cooling used. Set CLG STG CNT (Point 75) to this value.

Setting Number of Valves

Application 2419: Set VALVE CNT (Point 88) to the number of valves used (enabled).

Enabling Wall Switch

If a wall switch is used for day/night control, enable it by setting WALL SWITCH (Point 18) to YES.

Setting Controller Address

Set the controller address by setting CTLR ADDRESS (Point 01) to the appropriate number. Each controller must have a unique address. Normal values are **00** to **31**, but the controller will accept values as high as 98.

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

The Custom Solution Fan Coil start-up is complete.