

Start-up Documentation for Fan Coil Cooling and Heating Controller with Condensate Alarm

TEC-0349.11

Table of Contents

Verifying Power 2

Configuring the Controller 2

 Enabling the Actuators 3

 Setting MTR SETUP 3

 Setting Motor Timing..... 3

 Verifying Actuator Setup 4

 Setting AO DIR.REV 5

 Setting Application..... 5

 Setting CAL TIMER..... 5

 Setting the Room Temperature Set Points 5

 Setting Override Time 6

 Setting the Condensate Alarm Points 6

 Setting the Discharge Temperature Alarm Points..... 6

 Setting the Proof Time 7

 Setting Controller Address 7

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* on InfoLink for troubleshooting information.

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.

The Controller Interface Software (CIS) used with the Fan Coil Cooling and Heating Controller with Condensate Alarm (Firmware Revision FI10) must be Rev. 2.0 or greater.

Configuring the Controller

1. Verify that APPLICATION (Point 2) is set to **2492** (slave mode) for Rev. FI10 or higher.
2. Display the STARTUP report.

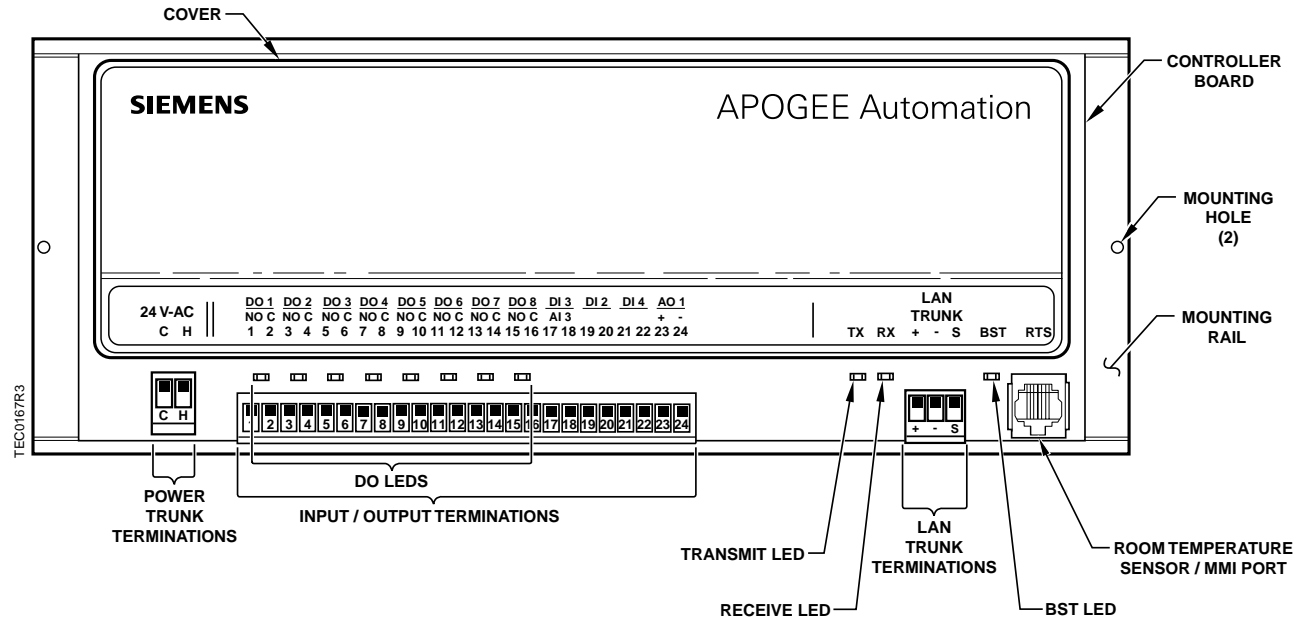


Figure 1. Fan Coil Heating and Cooling Controller with Condensate Alarm – Electronic Output.

Enabling the Actuators

Enable the actuators by setting the points for motor setup, motor timing, and actuator setup verification as follows:

Setting MTR SETUP

MTR SETUP (Point 58) determines which actuators will be controlled by the application and whether they are direct or reverse acting.

Standard Configuration – Hot water valve(s) normally open; chilled water valve(s) normally closed: Set MTR SETUP to **13**.

Non-Standard Configuration – If one of your actuators has a different normal position, or if you want to use a spare motor, then refer to *Table 1* as follows:

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

Table 1. 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

MTR1 TIMING (Point 51) and MTR2 TIMING (Point 55) indicate the actuator run times. Follow these steps to set the point(s) for motor timing:

1. If Motor 1 is a valve actuator, then use *Table 2* to set MTR1 TIMING. If it is a damper actuator, use *Table 3*.

NOTE: If Motor 1 is a damper actuator and the damper rotation angle is other than 90°, then set MTR1 ROT ANG (Point 56) to the appropriate value.

2. If Motor 2 is a valve actuator, then use *Table 2* to set MTR2 TIMING.

Table 2. 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 3. 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.

Note: See the Manufacturer Installed Controls (MIC) web page on Landscape (<http://landscape.us.abatos.com/mic/>) for specific manufacturers' damper opening details (90°/60°/etc.).

Verifying Actuator Setup

Verify that all actuators close and remain closed when commanded:

1. If Motor 1 is enabled but the actuator does not close, then reverse its action by adding **2** to the value of MTR SETUP (Point 58).

If Motor 1 is enabled and reversed but the actuator does not close, then reverse its action by subtracting **2** from the value of MTR SETUP.

2. If Motor 2 is enabled but the actuator does not close, then reverse its action by adding **8** to the value of MTR SETUP.

If Motor 2 is enabled and reversed but the actuator does not close, then reverse its action by subtracting 8 from the value of MTR SETUP.

If any of the actuators still do not close completely, then the actuators have been installed or set up incorrectly. Refer to the actuator installation instructions, set up information, Table 2, or the *APOGEE Automation Service Procedures* on InfoLink for more information.

Setting AO DIR.REV

Application 2409 does not use AOV 1 (Point 72). However, AOV 1 is available for use as a spare motor. (If used, AOV 1 will have to be controlled using PPCL.) If the spare motor is to *open* as the voltage increases (normally closed), then leave AO DIR.REV (Point 54) at its default value of **0**. If the spare motor is to *close* as the voltage increases (normally open), then set AO DIR.REV to **1**.

Setting Application

NOTE: If you are going to enter an LCTLR point at the field panel, then 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 **2409**.

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 OVERVIEW report appears, continue with the following procedures.

Setting CAL TIMER

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

Setting the Room Temperature Set Points

Follow these steps to set the 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**. If there is no set point dial, or if there is one but it is not to be used by the controller, then set STPT DIAL to **NO**.

NOTE: If STPT DIAL is set to YES, then DAY HTG STPT (Point 7) and DAY CLG STPT (Point 6) are not used. The value of RM STPT DIAL is used instead.

3. 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)
4. 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

Follow these steps to set the 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), then night override is disabled.

Setting the Condensate Alarm Points

The condensate alarm is a binary contact that is connected to COND DI 2 (Point 24). If COND DI 2 is not in alarm condition when COND DI 2 is OPENED, then set DI 2 CONTACT (Point 10) to **NOOPEN**. If COND DI 2 is not in alarm condition when COND DI 2 is CLOSED, then set DI 2 CONTACT to **NCLOSE**.

COND DI 2 must remain in an alarm condition for a certain amount of time before Application 2409 considers a condensate alarm to have occurred. This time is stored in COND TIME (Point 35). Set COND TIME to an appropriate value.

Setting the Discharge Temperature Alarm Points

A high discharge temperature alarm will not occur unless DIS TMP AI3 (Point 15) is above HI TEMP (Point 27). Likewise, a low discharge temperature alarm will not occur unless DIS TMP AI3 is below LO TEMP (Point 28). Set HI TEMP and LO TEMP to the appropriate values.

A high or low discharge temperature alarm condition must last for a certain amount of time before Application 2409 considers this alarm to have occurred. This time is store in TEMP ALM DEL (Point 34). Set TMP ALM DEL to an appropriate value.

Setting the Proof Time

If FAN (Point 50) and FAN DI 4 (Point 26) do not agree with each other within the time stored in PROOF TIME (Point 36), application 2409 will indicate that a proof alarm has occurred by setting FAN STATUS (Point 31) to ALARM. Set PROOF TIME to the appropriate value.

Setting Controller Address

Set 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 have completed the controller start-up procedures and made all other changes to the controller's point database, including balancing, tuning, etc.

The start-up is complete.