

Relative Humidity Controller – Electronic Output

Verify power to controller

This document presents start-up procedures for Relative Humidity Controller – Electronic Output. Refer to Figure 1.

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 tuning, etc.).

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, then refer to the *APOGEE Automation Service Procedures* on InfoLink for troubleshooting information.

NOTE: The Controller Interface Software (CIS) used with the Relative Humidity Controller – Electronic Output firmware revision HS10 or higher must be Rev. 2.0 or greater.

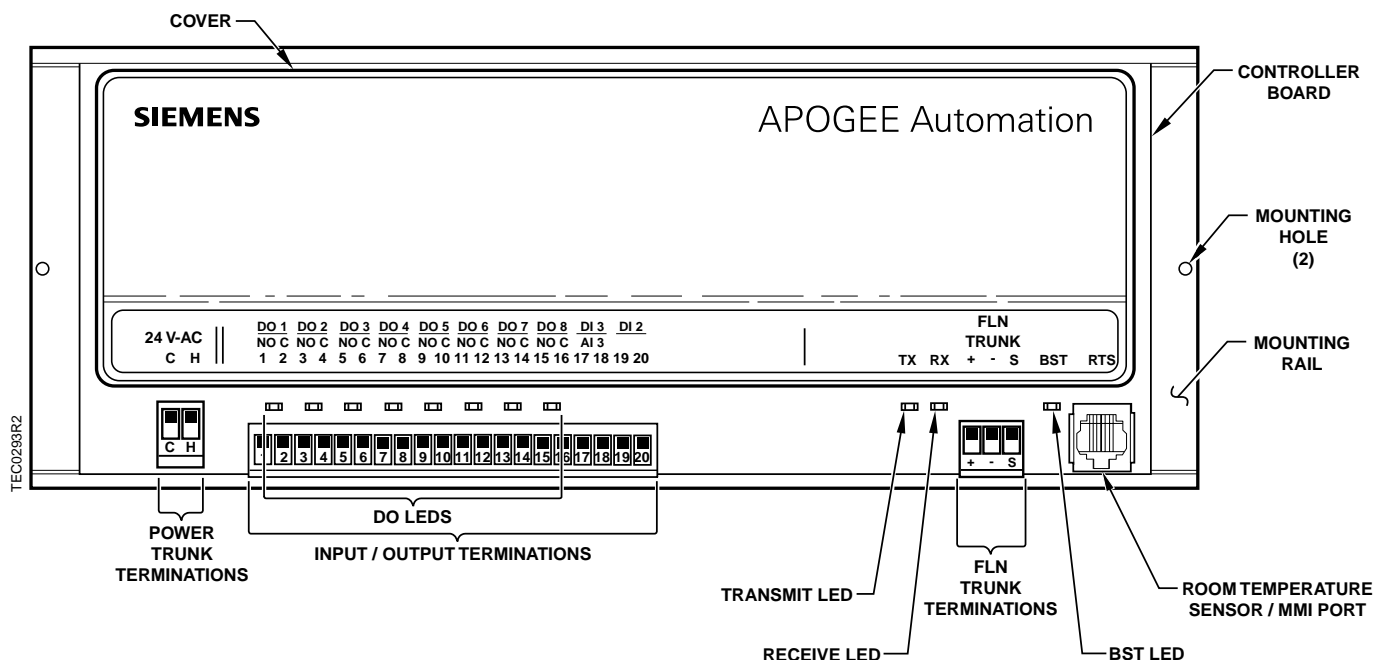


Figure 1. Relative Humidity Controller – Electronic Output.

Verify slave mode application number

1. Verify that APPLICATION (Point 2) is set to 2390 for Rev. HS10 or higher (slave mode).
2. Display the STARTUP report.

*Set motor timing
and damper actuator
rotation angle*

The run time of each actuator is indicated by MTR1 TIMING (Point 51), MTR2 TIMING (Point 55), and MTR3 TIMING (Point 39).

Follow these steps to set the point(s) for motor timing:

1. If Motor 1 is to be used as a spare motor, use Table 1 or Table 2 to set MTR1 TIMING.
2. If the Motor 1 actuator rotation angle is a value other than 90°, then set DPR1 ROT ANG (Point 56) to the appropriate value.
3. If Motor 2 is to be used as a spare motor, then use Table 2 or Table 2 to set MTR2 TIMING.
4. If Motor 3 is a humidity valve actuator, then use Table 2 to set MTR3 TIMING. If Motor 3 is an ACT device, set MTR3 to the stroke rate of the ACT device.

Table 1. 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.).

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

Enable actuators

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

Standard Configuration – Table 3 contains values for the most common configurations based on each application.

1. Find the hardware configuration you are using in Table 3.
2. Set MTR SETUP to the value given for that application.

Non-Standard Configuration – If your application uses actuators that have different normal positions than that listed in Table 3, or if you want to enable the motors differently, then refer to Table 4 to set MTR SETUP as follows:

1. Table 4 is divided into 3 main sections based on how Motor 1 is to be used. Choose the section that corresponds to how Motor 1 will be used in your application.
2. The section you have chosen is divided into 3 columns based on how Motor 2 is to be used. Choose the column that corresponds to how Motor 2 will be used in your application.
3. The column you have chosen is further divided into 3 rows based on how Motor 3 is to be used. Choose the row that corresponds to how Motor 3 will be used in your application.
4. Set MTR SETUP to the value of the number in the row and column you have chosen.

Table 3. MTR SETUP (Point 58) Value for Most Common Configurations.

Application Number	Configurations			Value for MTR SETUP
	Motor 1	Motor 2	Motor 3	
2302 & 2303	spare (normally closed)	spare (normally open)	humidity valve (normally closed)	29
2302 & 2303	spare (normally closed)	spare (normally closed)	humidity valve (normally closed)	21
2302 & 2303	Not used	Note used	humidity valve (normally closed)	16

**Table 4. Motor Enable/Reverse
Values for MTR SETUP (Point 58).**

	Motor 1 Enabled			Motor 1 Enabled and Reversed			Motor 1 Not Used		
	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed
Motor 3 Not Used	1	5	13	3	7	15	0	4	12
Motor 3 Enabled	17	21	29	19	23	31	16	20	28
Motor 3 Enabled and Reversed	49	53	61	51	55	63	48	52	60

**Enable Autozero
Module**

CAL MODULE (Point 87) is present in this application only for future enhancements. It should be left at the factory default of NO.

**Select automatic
calibration option**

In order to choose the most efficient method of triggering the calibration routine, follow this procedure to set CAL SETUP (Point 95):

1. Select the automatic calibration option desired from Table 5 that best meets your job requirements.
2. Set CAL SETUP to the value chosen.

Table 5. CAL SETUP Options.

CAL SETUP Options	Description
0	Calibration occurs ONLY when CAL AIR (Point 94) is set to YES.
1	Does not apply in this controller
2	Calibration occurs immediately after the override switch is depressed.
4 (factory default value)	Calibration occurs on the time interval set in CAL TIMER (Point 96). For example, if CAL TIMER = 12, then the calibration period is 12 hours. Actual calibration is subject to a time delay based on the value of CTRL ADDRESS. Refer to the example in Option 1.

NOTE: Options can be combined by summing their numbers. For example, to calibrate as in Options 2 and 4, set CAL SETUP to **6**.

*Set controller
address*

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

Set the controller address by setting CTRL ADDRESS (Point 1) to the appropriate number.

Set application

Set APPLICATION (Point 2) to the appropriate Relative Humidity Controller application. Refer to Table 6 for application names and numbers.

Table 6. Relative Humidity Controller – Electronic Output Applications.

Application	Revision HC10 or higher
Relative Humidity Control using Specific Humidity	2302
Relative Humidity Control not using Specific Humidity	2303
Slave Mode	2390

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, the OVERVIEW report appears and the calibration cycle begins.

The actuator calibration cycle begins within three minutes of an application start-up or initialization, depending on the address. After this delay, the calibration cycle takes from 2 to 5 minutes to complete.

At the start of the calibration cycle, the controller automatically sets CAL AIR (Point 94) to YES. When the cycle is complete, it sets CAL AIR to NO.

It is not necessary to wait until the calibration cycle is complete (CAL AIR is set to NO) before continuing with this start-up procedure.

Set duct area

DUCT AREA (Point 97) is present in this application only for future enhancements. It should be left at the factory default of 1.0.

Set Humidity Sensor Type

The humidity sensor may be of current (4-20mA) or voltage (0-10V) type. Set the value of AI3 VOLT.CUR (Point 54) to the appropriate value.

Set Relative Humidity Setpoint

Set the Relative Humidity setpoint by changing the value of ROOM RH STPT (Point 16) to the appropriate value.

Set flow coefficient

FLOW COEFF (Point 36) is present in this application only for future enhancements. It should be left at the factory default of 1.0.

Start-up is complete.