

Title:

i-Controller 2.0 Air Balancing Mode

Overview

After a FLō unit is installed on a customer’s site, the outdoor air damper and supply fan must be configured to ensure the unit’s airflow and make-up air requirements are achieved. The FLō i-Controller 2.0 is equipped with an Air Balancing Mode that automatically places the dampers in the positions required to complete a simple balancing process.

This document describes the two i-Controller 2.0 Air Balancing Mode procedures and controller navigation.

Navigating To The Air Balancing Test Mode

1. An introduction screens is displayed during controller startup (see figure 1). Press any button to enter the Overview Screen (see figure 2).



Figure 1. i-Controller 2.0 Introduction Splash Screen/Standby Screen

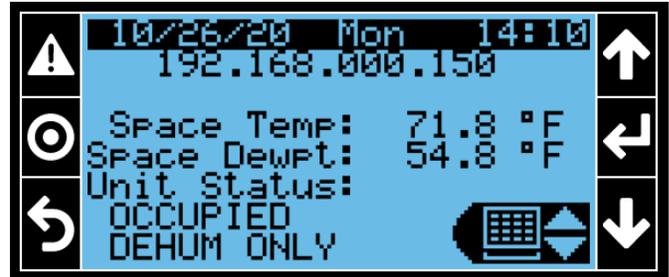


Figure 1. Overview screen

2. From the Overview Screen you must navigate to the Field Tech Menu by pressing the program button, , twice (see figure 3).

NOTE: Pressing the program button, , will step you through the following menu options: *Status Menu*, *Field Tech Menu*, *Settings Menu*. Pressing the ‘Escape’ button, , will return you to the previous screen and then to the Overview screen.



Figure 3. Field Tech Menu Landing Screen

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- From the Field Tech Menu, press the up and down arrows, $\uparrow\downarrow$, until you navigate to Test Modes, then press the enter button, \leftarrow , to enter the Test Modes function (see figure 4).

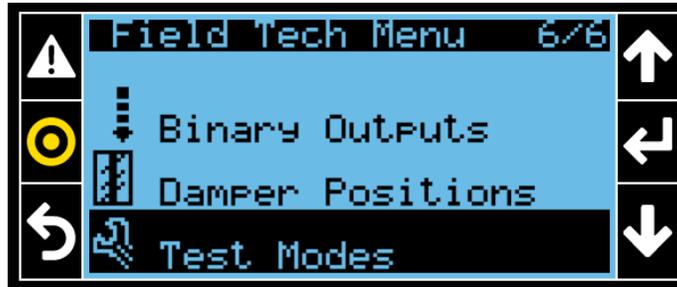


Figure 4. Field Tech Menu, Test Modes Selection

- Once you are in the Test Modes Menu, press the up and down arrows, $\uparrow\downarrow$, until you navigate to Air Balancing Test, then press the enter button, \leftarrow , to enter the Air Balancing Test function (see figure 5).

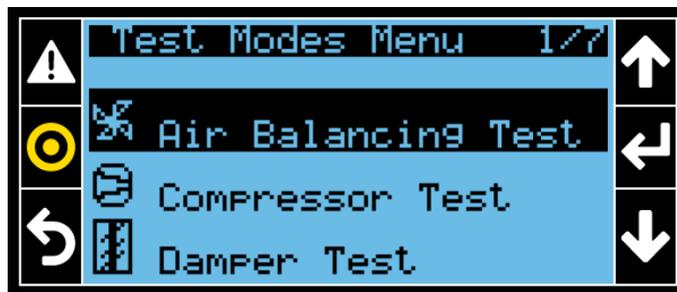


Figure 5. Test Modes Menu, Air Balancing Test Selection

NOTE: Air Balancing Test has two modes, Supply Fan Balance Mode and OAD Balance Mode. Once activated, the Air Balance Mode will time out after 2 hours.

Supply Fan Balance Mode

When turned to “ON”, the Outdoor Air Damper will completely close, the Return Air Damper will be set to 100%, and the Bypass Damper will be set to 30%. This allows for the total airflow requirements to be set with the VFD. The Outdoor, Return, and Bypass are adjustable via the “Override Val” if necessary. Toggle Supply Fan Balance Completed to ‘YES’ when completed.

1. Enable Supply Fan Balance Mode by using the down arrow button, ↓, to highlight the OFF value beside *SF Bal Mode*, then press the enter button, ↵, (the value will begin to flash). Press the up arrow button, ↑, to turn the mode ON.

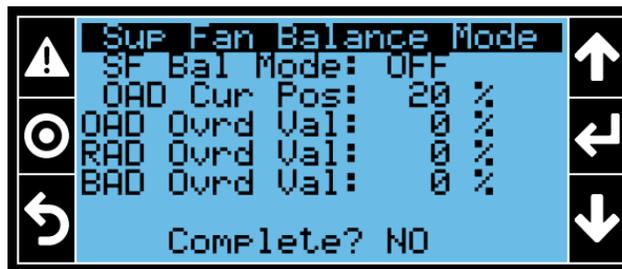


Figure 6. Supply Fan Balance Mode

2. Using the up and down arrows, ↑↓, the enter button, ↵, adjust the OAD, RAD, and BAD Override Values as necessary.
3. Measure the current supply CFM. If the current CFM is good, go to step 4. If you need to adjust CFM continue with steps a-f below.

- a. Pull SF-R1 (Supply fan Relay).
- b. Wait until the fan ramps down.
- c. Using the VFD keypad, use the DOWN ARROW key to navigate to drive parameters. The drive will show either PAR (J1000 or V1000) or Programming (A1000 or Z1000). Press the ENTER key once. The first parameter shown is A1-01, and the “A” will be flashing. Use the UP-ARROW key to change the “A” to “H.” Press the RIGHT ARROW/RESET key to select the number next to “H.” Change the now flashing “1” to “3.” Press the RIGHT ARROW/RESET key once again, and the “0” will be flashing. Leave the “0” as is. Press the RIGHT ARROW/RESET key for the final time, and the “1” will be flashing. Using the UP ARROW key, change the “1” to “3”. H3-03 should be displayed on the screen. Press the ENTER key.
- d. H3-03 Upper Limit Frequency (100%=60Hz See chart in Figure 7 for Reference)

YASKAWA VFD UPPER LIMIT FREQUENCY REFERENCE					
Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %
60	100.0	46	76.7	32	53.3
59	98.3	45	75.0	31	51.7
58	96.7	44	73.3	30	50.0
57	95.0	43	71.7	29	48.3
56	93.3	42	70.0	28	46.7
55	91.7	41	68.3	27	45.0
54	90.0	40	66.7	26	43.3
53	88.3	39	65.0	25	41.7
52	86.7	38	63.3	24	40.0
51	85.0	37	61.7	23	38.3
50	83.3	36	60.0	22	36.7
49	81.7	35	58.3	21	35.0
48	80.0	34	56.7	20	33.3
47	78.3	33	55.0		

Figure 7. VFD Upper Limit Frequency Reference

- e. Press ENTER key to save the changes. Use the ESC key to return to the display that shows the operating drive frequency
- f. Reinstall SF-R1. If the CFM is correct now go to step h. If speed still not right do step a-f again.

4. Once the desired CFM is achieved, scroll to the Supply Fan Balancing Mode “Complete?” question and change the value to YES. The Supply Fan Balance Mode will be turned OFF, and the OAD Balance Mode will turn ON.

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Outdoor Air Damper (OAD) Balance Mode

When turned “ON”, the Outdoor Air Damper will open to its default operating position, the Return Air Damper will be set to 65%, and the Bypass Damper will be set to 30%. This allows the total outdoor airflow requirements to be set with the Outdoor Air Damper position. The OAD Max Pos value can be changed to achieve the desired outdoor air flow.

1. Turn OAD Balance Mode ON (*if not already activated*).
2. Using the up and down arrows, **↑↓**, the enter button, **↵**, adjust the OAD Max Pos until the desired outdoor air flow is achieved. **NOTE:** OAD Cur Pos displays the current OAD position.
3. Once the OAD position is set, scroll to the “Complete?” question and change the value to YES. The OAD Max Pos will be saved as the maximum operating OAD position, and the unit will revert to normal operation.



Figure 8. OAD Damper Balance Mode

IMPORTANT NOTE: If equipped with CO2 sensor is below the Min CO2 level (Default 800ppm) the Incremental CO2 OAD Position% (Default 20%) will be subtracted from the OAD Max Pos. If CO2 is above the Max CO2 level (Default 1000ppm) the OAD will be at the OAD Max Pos that was set. The Incremental CO2 OAD Position% will be added incrementally to the current OAD position on a linear scale as the CO2 level increases from Min CO2 Level (Default 800ppm) to Max CO2 Level (Default 1000ppm).