

Title: Generic Air Balancing Guide

Overview

This document outlines how to air balance a Flō unit that does not have the i-Controller controls platform in it.

If you have a Flō unit that contains either the i-Controller 1.0 or i-Controller 2.0 in it, both platforms have air balancing modes built in that can be utilized to air balance the unit. Go to <https://systemsflo.com/tech-support-category/controls/>, and expand the Balancing Modes tab to find the i-Controller 1.0/2.0 guides.

Supply Fan Balance

To complete the Supply Fan Balance, the dampers will need to be overridden to allow for VFD configuration of the specified total airflow.

1. Override Dampers to the following percent
 - a. OAD to – 0%
 - b. RAD to – 100%
 - c. BAD to – Min Percent (Default 30%)
 - d. Supply Fan to – 100%

2. Adjusting the Supply Fan on the VFD
 - a. Measure Current Supply CFM. If good go to step 3. If you need to adjust the CFM continue with steps b-g.
 - b. Pull SF-R1 (Supply Fan Relay).
 - c. Wait until the fan ramps down.
 - d. 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.
 - e. H3-03 Upper Limit Frequency (100%=60Hz See chart below for Reference).

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

- f. Press the ENTER key to save the changes. Use the ESC key to return to the display that shows the operating drive frequency.
- g. Press the RUN key on the VFD. If the CFM is correct now go to step 4. If the speed is still not right, do step 3 again.

3. Once the VFD has been set, remove overrides.

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Outdoor Air Damper (OAD) Balance

To complete the OAD Balance, the RAD & BAD dampers will need to be overridden. The OAD position can then be adjusted to set the specified outdoor airflow.

1. Override Dampers to the following percent
 - a. RAD to – Max Occupied Percent (Default 60%)
 - b. BAD to – Min Percent (Default 30%)

2. Adjust the OAD Input Value(s) until the desired outdoor airflow is achieved.
 - a. Input your max OAD position in the OAD Input Value.
 - b. If you have a CO2 sensor in the unit, continue with step 2.C. If you do not have a CO2 sensor, skip to step 3.
 - c. Units with a CO2 Sensor need to have the OAD input Value set to the desired outdoor airflow when CO2 levels are below the Min CO2 level (Default 800ppm). There is a second value that needs to be set which is the Incremental CO2 OAD Position% (Default 20%). This amount will be added to the OAD input value on a linear scale as the CO2 level increases to the Max CO2 level (Default 1000). With both values added together the unit should be at the desired total CFM.

3. Once the OAD position is set, remove the overrides.