

ACH550 PID Setup Cheat Sheet

This cheat sheet will provide instructions for how to get the PID loop in the ACH550 drive functioning. Tuning we leave up to you. This document is meant to be secondary to the "ABB Cheat Sheet for the Base Drive- No Bypass."

These instructions assume that you have an external analog control sensor wired to the drive that will act as PID feedback, and that PID setpoint will be fixed and set inside the VFD. Additionally, this document expects that any digital start/stop, and /or digital safety interlocks were set up previously in the "ABB Cheat Sheet for the Base Drive- No Bypass." Lastly it assumes that you will be using the "HVAC Default Macro" which is the default factory programming when you first powered up the VFD.

Step 1 – Landing your PID Feedback Wiring & Setting Jumpers

1. Set your J1 (Resistor) jumper located above the control wiring. This jumper allows you to select volts dc or milliamps for your analog input. You will see (2) switches – the top switch is for AI1 and the bottom switch is for AI2. You will be using AI2 for your PID feedback, so set the AI2 jumper as follows.

The switch is in the off (left) position for a VDC signal

The switch is in the on (Right) position for a Milliamp signal

2. Land your PID feedback sensor wire to the control board on terminals 5 and 6 of the control board. (Terminal 5 is positive)
 - a. Note if you need the VFD to provide power to your sensor, see Figure 1 below for proper wiring
3. Write down the Sensor's Operation signal and ranges in Table 1 below:
 - a. Signal is typically 4-20mA or 0-10V;
 - b. Range examples are 0-250 Deg F, 0-10 inH2O, 0-100PSI

Table 1

Sensor min Signal _____ <small>see below 13.04</small>	Sensor max Signal _____ <small>see below 13.05</small>	<i>Circle one</i> mA /Voltage
Sensor min Range _____ <small>Parameter 40.08</small>	Sensor max Range _____ <small>Parameter 40.09</small>	units _____ <small>Parameter 40.06</small>

Step 2 – Setting your parameters

1. 1102 - Change the drive to think in PID mode. Change 1102 = EXT2
2. 1304- This matches to your Sensor min signal above.
 - a. For a 4mA or a 2V min signal set 13.01 = 20%
 - b. For a 0mA or a 0V signal set 13.01 = 0%
3. 13.05- This matches your Sensor max Signal above.
 - a. For a 20mA or a 10V max signal set 13.02 = 100%
 - b. For a 5V max signal set 13.02 = 50%
4. 4005 - Inverted or normal PID operation. Cooling towers are inverted set 4005=yes. Air handlers and pumps are not inverted set 4005=no.
5. 4006 – Set the drive to think in your sensor units. Scroll until you find your unit. (examples Deg F, PSI, inH2O etc...)
6. 4008 – Sensor min Range as entered above in Table 1.
7. 4009 – Sensor max Range as entered above in Table 1.
8. 4010 – Tell the drive the PID setpoint will come from the VFD. Set 4010=INTERNAL
9. 4011 – Enter the setpoint that you want the VFD to maintain for you. (examples 1.5 inH2O or 55PSI)
10. 3401 – Change the display top line to show the PID sensor value. Set 3401=PID 1 FBK
11. 3408 – Change the display middle line to show the PID setpoint. Set 3408= PID 1 SETPNT
12. 34.15 – Chang the display bottom line to read motor amps. Set 34.15 = CURRENT
13. 2007 – This is your minimum frequency setting. Set this to your required minimum speed (usually 15hz or so for an Air handling Unit)

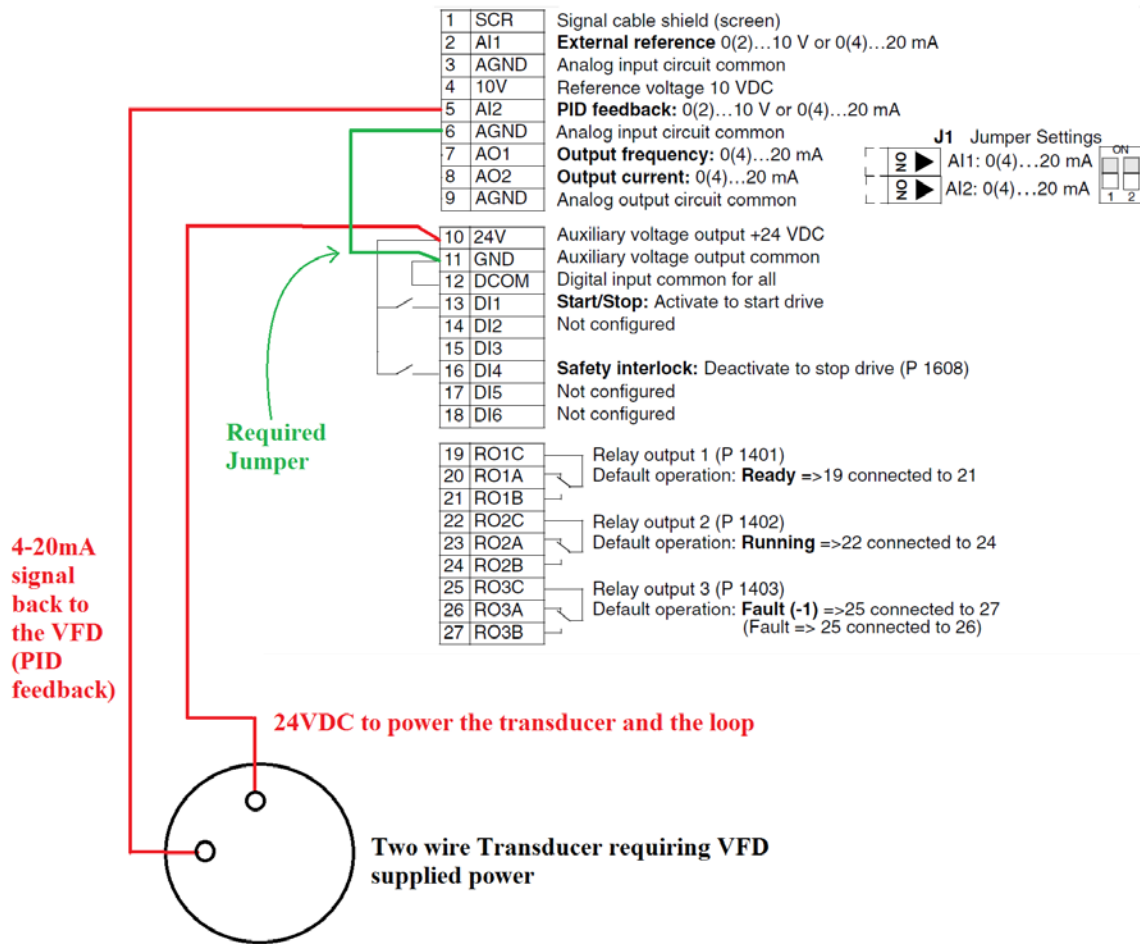
Step 3 – Backing up parameters to the Keypad

Hit the off Button.

Go to the main menu and select "PAR BACKUP" and follow the prompts to "Upload to Panel"

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Figure 1 – Analog sensor powered from the VFD onboard 24VDC



Congratulations you have set up your PID loop in the ACH550!

Don't forget to check rotation