

# PID Screen Settings

RPM: or ADC value: The first line is the actual reading the PID is trying to control.

Setpoint: The second line is the setting the PID is trying to control to. For example, if the RPM reading is 3000 and the Setpoint is 2500, the controller will try to reduce the actual RPM down from the actual 3000 RPM to the desired 2500 RPM.

Error: Is the difference between the Actual reading (first line) and the Setpoint (2nd line).

Kp: Is the proportional setting in the PID equation in the PID controller software. The P effect tries to control based on the current Error. To the left of Kp: is the setting you can control with the particular software you are using (Dyno DataMite, Port Flow, etc) To the right is the total effect this proportional setting has on the Error.

Ki: Is the integral setting in the PID equation in the PID controller software. The I effect tries to control based on past errors, and is typically used for trying to control to a steady Setpoint. To the left of Ki: is the setting you can control with the particular software you are using (Dyno DataMite, Port Flow, etc) To the right is the total effect this integral setting has on the Error.

Kd: Is the derivative setting in the PID equation in the PID controller software. The D effect tries to control based on predicting future errors, and is typically used for trying to control quickly changing systems, like controlling engine RPM. To the left of Kd: is the setting you can control with the particular software you are using (Dyno DataMite, Port Flow, etc) To the right is the total effect this derivative setting has on the Error.

PID output: Is the total of the Kp, Ki and Kd outputs (to the left of their labels).

DAC out: Is the conversion of the PID output to actual 12 bit counts, and in parentheses volts which you could CAREFULLY measure with a voltmeter.

## Controls:

Turn the Load Control knob to increase or decrease load on the dyno. You will see it adjusting the Setpoint value on the display. Once you start a test and the computer takes over, you should see the Setpoint changing to sweep the dyno through the designed RPM range. If you adjust this knob during the test, control comes back to the knob, which is a good safety to let you over-ride the computer control should something go wrong.

Large red "Start Test" button works just like a hand held recording switch discussed in the Dyno DataMite instructions. You must plug the 4 pin connector into the "Switch" connector on the DataMite III or 4 for this to work properly.

Press the "Back Light" button to turn LCD display backlight On/Off.

Press the "Auto/Manual" button to switch between "Auto" and "Man" mode for eddy current dyno control. The label for this mode is shown by the big white arrow on picture above. In Auto mode, the controller controls to a certain RPM. This is how most people use the controller. In Man mode, the load (current supplied to load the eddy current dyno) is directly proportional to the knob position. The controller is actually not doing any "control", just applying load based on how you turn the knob.

Press the "Abort Test" button to shut down the dyno, which typically means to apply load to bring everything to a stop.

**IMPORTANT: This only works if you have set it up in the software correctly.** Test it in a safe condition before assuming it works properly. Once you press "Abort Test" button, you need to adjust the load control knob, or hold down the "Abort Test" button for 3 seconds for control to come back.

