

# Water Brake Dyno Controller Setup Screen

Set default settings, then click on the Tune button to send to controller (send settings via USB to controller).

Click here to load typical default values after choosing Water Brake for either Position or RPM feedback

Click here to find which com ports your controller could be connected to.

**Controller Settings**

Tune Test Ramp

**Controller Settings**

Controller On Yes Defaults

Com Port 4 Find

Type Water Brake position Feedback

Higher Number Increases Load Yes

Ramp Rate 5

Proportional Setting 500

Integral Setting 10

Derivative Setting 1000

PID Control Loop, mSec 3

Display On (No) No

Pulses Per Rev for RPM 1

Max RPM To Control 6000

**Notes:**  
Click the 'Defaults' button to load typical default values. Use 'Tune' button to check 'Higher Number Increases Load' and to see how fast the 'Ramp, count/mSec' setting moves the valve (the HIGHER the 'Ramp, count/mSec', the SLOWER the movement).

Keep Settings Help Cancel Print

Choose Water Brake... here first to set up other settings correctly on this screen.

If you want to just open and close the valve via the controller and knob, choose Position Feedback (recommended).

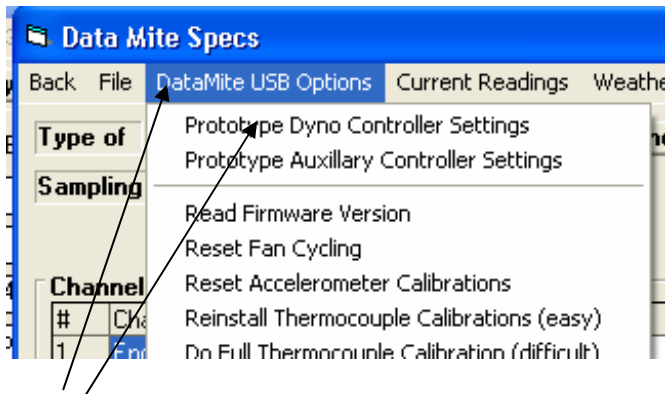
If you want the controller to hold RPM constant or ramp it at a certain rate, choose RPM Feedback (not recommended).

Enter a number to change the rate at which RPM is changed when you start recording data for a test.  
NOTE: A higher number means a slower ramp rate.

Setting Yes lets you view the control calculations on the LCD screen of the controller. However this takes time so the PID Control Loop, mSec must be set high, typically 200 to 500 mSec to slow down the control loop.

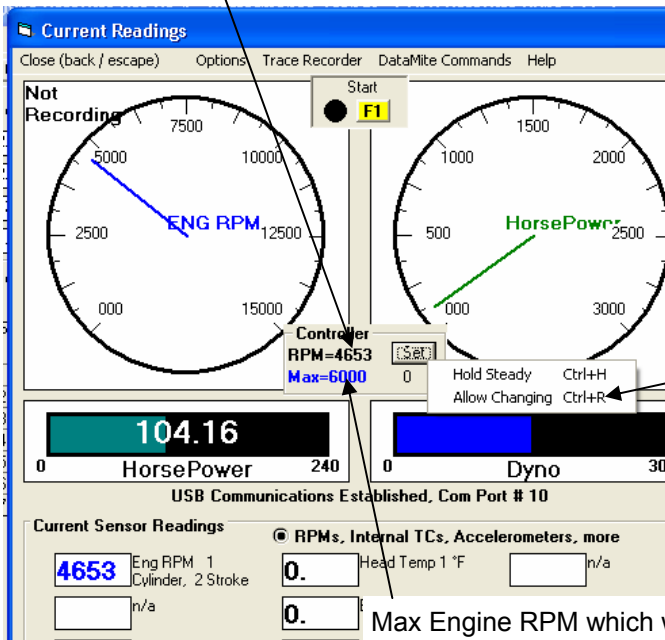
If you choose "Water Brake RPM Feedback" for the "Type", these options become enabled. Currently, RPM Feedback is too unstable and we do not recommend using it.

## Water Brake Controller Screens for Accel Test



Choose Dyno Controller Settings to bring up settings as described on separate sheet.

Current Engine RPM as seen by controller.



Max Engine RPM which will adjust water valve, to end the test. This is set in Test Conds. Screen, shown to left.

Basic Test Procedure for Accel test:

- Warm up engine and hold RPM low with manual knob.
- Slowly go full throttle and manually adjust load with knob to hold RPM relatively low.
- Press large red button on hand held controller (or F1 on keyboard) to start test and recording will start and controller should allow engine or vehicle to accelerate at a steady rate.
- When RPM gets to the “Max” shown on screen as shown in lower left (Max RPM set in Test Conditions as shown in lower right), recording will stop and controller will ramp the engine down to the approximate starting RPM. You can also stop recording by pressing and releasing the large red button on the hand held controller (or pressing F2 on keyboard).
- Control should then be returned to the manual control knob.

IMPORTANT NOTES:

- You need some alternative method to shut off the engine should something fail and the engine over-revs with this prototype controller.
- If you move the manual control knob when computer has control, the control reverts back to the knob. This lets you manually override the computer control should something go wrong.
- You should practice at lower RPM at lower power outputs (like 3/4 throttle) on a “workhorse” engine to become familiar with the procedure and equipment.

