# TORQUE RUSH PERFORMANCE

**×2**  **Throttle Controller - PC Application**

## Terms of Use and Sale

Our products are intended for off road use only.  Torque Rush Performance Inc. assumes no responsibility for vehicle damage, personal injury, breach of law or any expenses resultant from vehicle modification or use of these products.  Any modifications from the original design of a vehicle are done at the user's own risk.  Purchase or installation of any of these products constitutes acceptance of these terms by the purchaser or user.

## Controller Tuning

The use of this application is optional as the controller is pre-programmed with default values and the software is not required for the calibration procedure. The application allows fine tuning of various parameters if required for a particular installation.

* USB connection without the unit powered up will place the controller in firmware update mode.

Connection: With the unit powered up(key on/engine off) and the application running on your PC, press and hold the calibration switch while connecting the USB cable to the controller. Release the calibration switch. The status box should change to "Connected." If you do not hold the calibration switch while connecting the USB cable, the unit will enter diagnostics mode and the "Diagnostics" tab will be active rather than the "Controller Tuning" tab. The controller must not be in standby mode in order to connect to the main processor. If it is, give the pedal a tap to wake it up first.

Other than control loop frequency and current limit, all values are only relative representations of actual values to give an impression of the magnitude of the changes you are making.

Once new values have been selected, click the corresponding "Set" button to upload the new setting to the controller. PID values are uploaded as a group.

Clicking the "Default Values" button will reset all values on the form to factory settings. You must still click the appropriate "Set" buttons to upload the values to the controller.

Excessive changes can result in a fault condition being present at the next power up. In some cases this may necessitate a firmware reflash in order to restore default values.

The "Fault Report" button will retrieve any stored faults that have been detected during the last 4 power up cycles. These can be cleared by pressing the Reset switch 4 times.

The "Disable Failsafes" feature is for diagnostic purposes only, when trying to isolate an issue. Individual failsafes can be disabled on the primary processor, while the supervisory processor's failsafe functions are disabled as a group. Failsafes are automatically restored after 2 power up cycles.

## Diagnostics
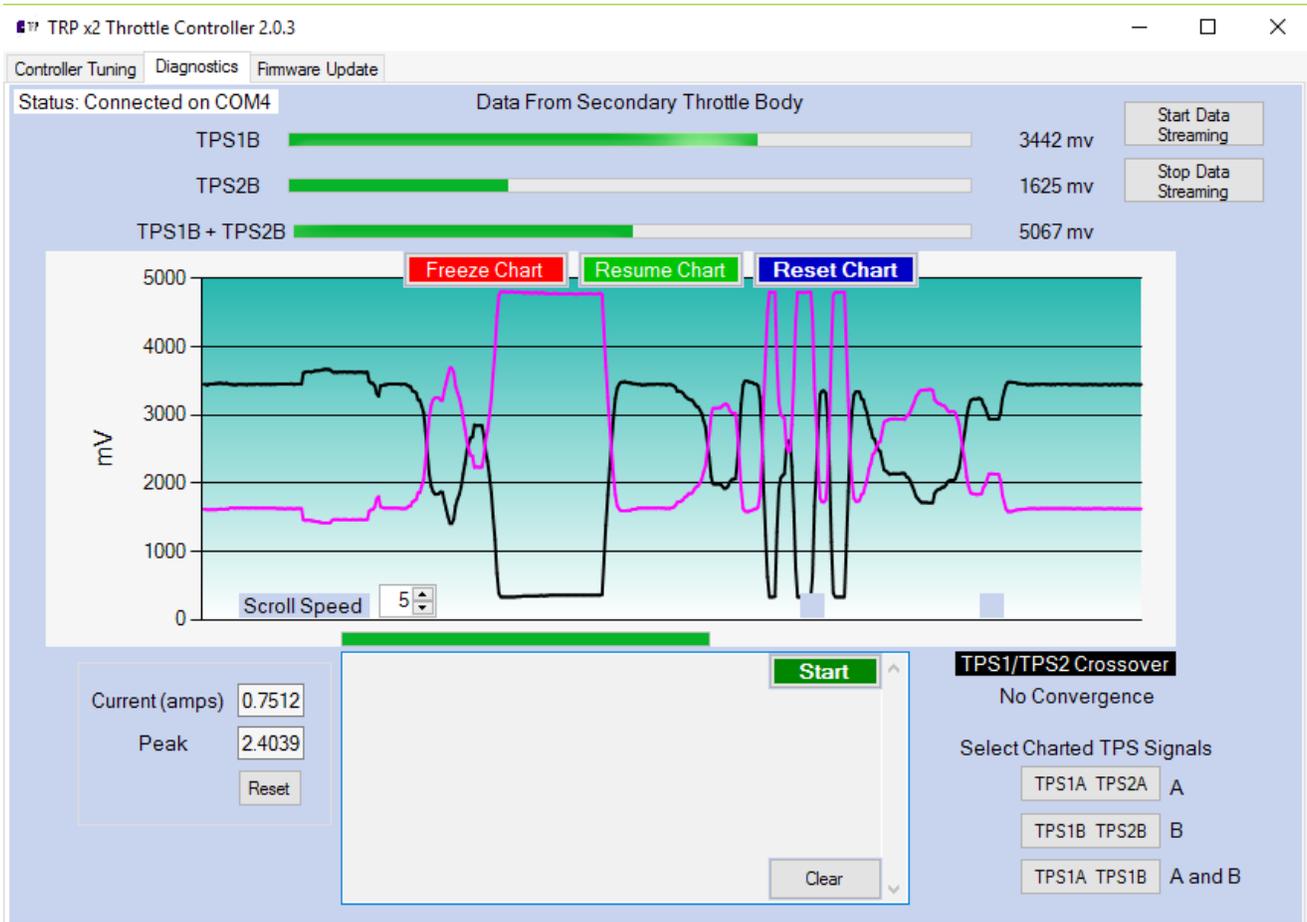


Connection: With the unit powered up(key on/engine off) and the application running on your PC, connect the USB cable to the controller. The status box should change to "Connected" and live values from the throttle position sensors should be displayed for the throttle body connected to the secondary throttle connector.

Either the primary or secondary throttle body can be selected, but current is only reported for the throttle body driven by the x2(secondary).

To observe full range outputs the throttle blades may be moved by hand. Or the throttle bodies can be operated via the pedal.

Clicking on the "Start" button will initiate TPS range testing with recording of key values. Follow the onscreen instructions. Voltage values at key throttle positions will be reported.

## Firmware Updates
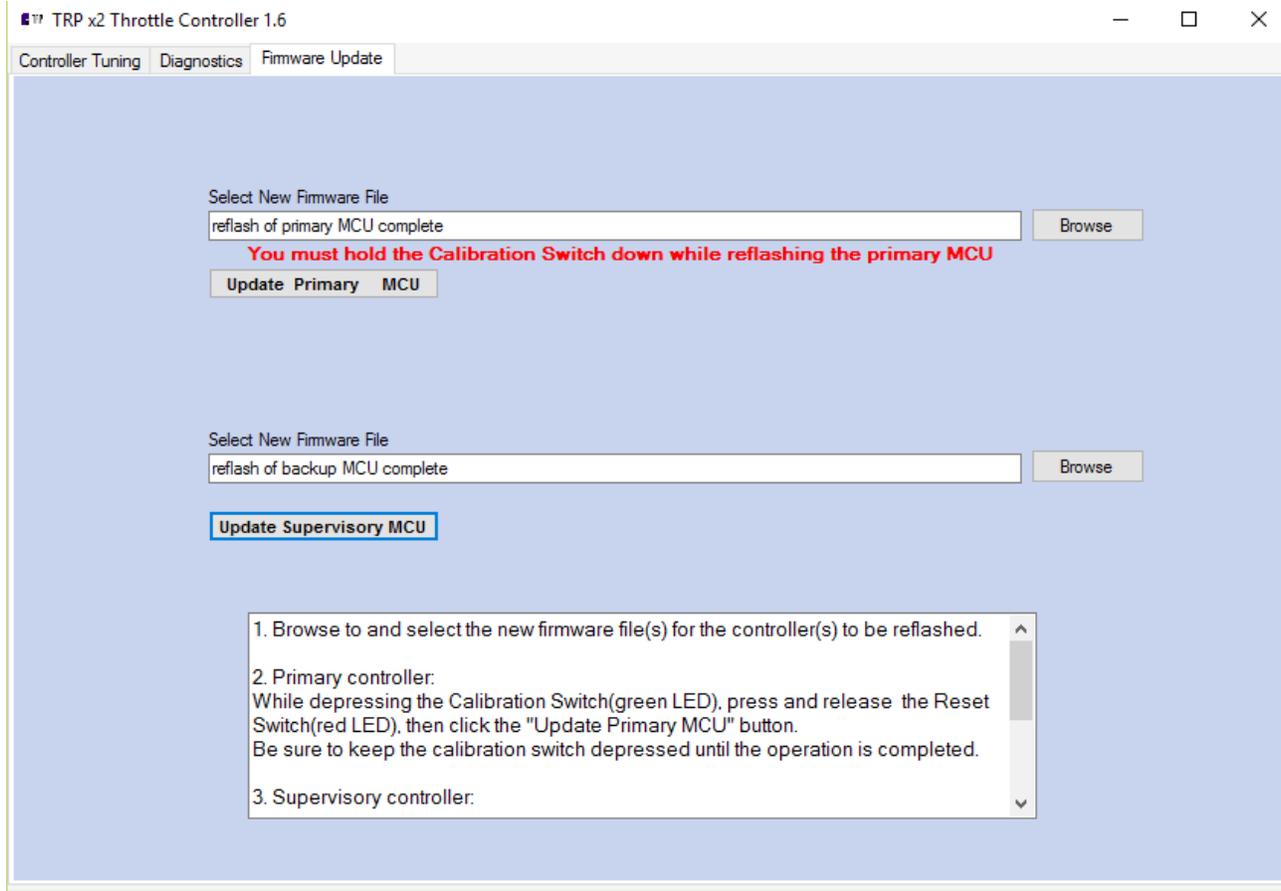


If available, firmware updates may be installed to the x2 by the following procedure.

1. Download and save the latest firmware files.

2. Open the x2 Throttle Controller PC application, click the software update tab and select the the appropriate firmware files; x2_main.trp for the main controller and x2_super.trp for the supervisory controller.

3. With the unit powered off, remove the rubber plug from the x2 enclosure and connect the x2 to your computer using an appropriate USB cable (A-B).  Follow the instructions given in the x2 application.

4. Re-Calibrate the x2.

**Note: Updating will not proceed if the position of the green LED/calibration switch does not match the selected  update file.

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