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NX™

NITROUS EXPRESS

NEXT GENERATION NITROUS SYSTEMS

Installation Instructions

888-GOFAST-1

Nitrous Express 5411 Seymour Hwy Wichita Falls TX 76310

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1. Overview

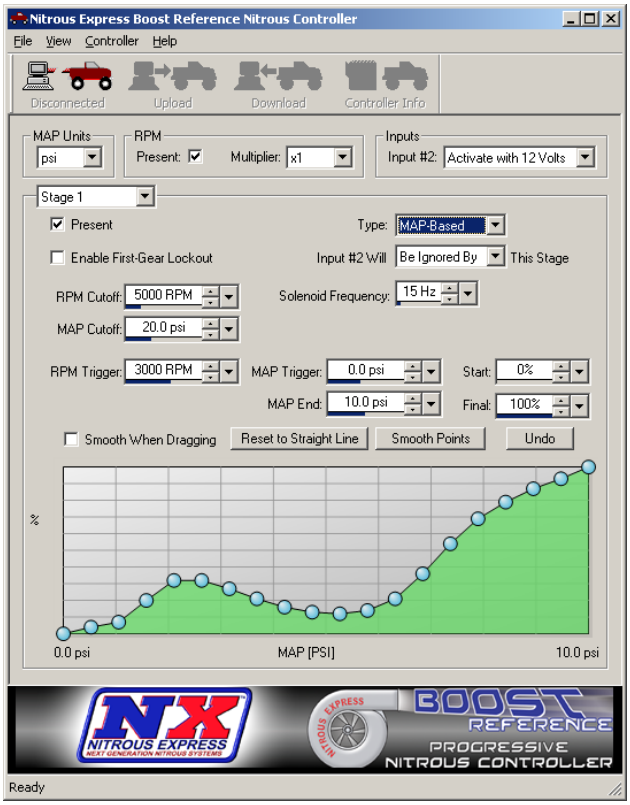
The BOOST REFERENCE PROGRESSIVE NITROUS CONTROLLER combines the functions of a throttle position switch, two RPM window switches, a MAP sensor and a 2 stage progressive driver all into a very compact module. It can progressively drive two channels, each with a 40 amp load capacity (continuous duty). The device also supports low-voltage OEM, V10 or 3 cylinder TACH signals without the need for additional adapters. It works with most OEM throttle position sensors including most drive-by-wire vehicles. This device also includes *NX's "real curve" ramp*, which allows you to create a progressive curve instead of just a ramp. The ramp can be either time based or Boost based. All this and it's only the size of a spark plug box.

2. Software Installation

If you have the autorun feature enabled on your cdrom drive, wait for the navigation screen and follow the instructions to install the software. If the application does not auto-start, go to the cdrom directory and run "startpgm.exe"

3. Software

The following settings do not require that the controller be connected to the PC until you are ready to UPLOAD. All changes made to the set-up require that you UPLOAD to the. (See Upload/Download section).



3.1 Entering User Data

Drag & Slide – data fields that have this feature have a down arrow button to the right. Clicking and holding the button causes a slider bar to appear. Moving the mouse left or right while the slider is displayed will decrease or increase the value.

Increment/Decrement buttons - data fields that have this feature have up/down arrow buttons to the right. Click on either of these to increase or decrease the value accordingly.

Menu pull-down – data fields that have this feature have a down arrow button to the right. Clicking on the button will cause a pull-down menu to appear. To select, click on one of the displayed options.

Typing – clicking on the data field will highlight the value. You can then use the keyboard to enter the value.

DO NOT connect the controller to your PC until you have installed the software.

3.2 Input #2

Input #2 tells the controller if this input is seen as active when it is connected to 12 volts or ground.

3.3 RPM

RPM Multiplier selects the correct pulse count for the RPM counter. Use the following as a guide to determine the correct setting:

a) Using a TACH signal - TACH signals will typically have 1 pulse per cylinder during 2 revolutions of the crankshaft (1 full cycle) and therefore the correct setting would be
÷(½ the number of cylinders)

Example: When using a TACH signal
- *4 cylinder setting would be ÷2*
- *6 cylinder setting would be ÷3*
- *8 cylinder setting would be ÷4*

Note: for LS1 tach signals set the multiplier to ÷2

b) Using a trigger signal from a coil - first determine how often it fires per revolution of the crankshaft. The correct setting would be:
- ***x1*** for a waste-spark since it fires each revolution of the crankshaft
- ***x2*** for a full-sequential since it fires every other revolution.

This setting must be verified prior to operation. Verifying this setting will require the unit to be installed on the vehicle – see installation instructions later in the manual.

3.4 Stage Set-up

The following applies to both Stage 1 and Stage 2, however each stage can be individually configured.

NX's **"Real Curve" technology** allows you to drag and drop any dot on the ramp between 0-100%. The controller will extrapolate between the dots thus creating a nitrous curve instead of the traditional ramp. We have provided some additional tools to help smooth the overall curve, which we discuss in the following sections.

Reset to Straight Line allows you to set the curve to a straight line between the Start and Final targets. (to simulate a simple ramp)

Smooth When Dragging when checked will drag multiple dots along with the selected one. It will attempt to soften rapid transitions from one step to the next in an effort to create a curve

Smooth Points will apply a smoothing algorithm to your curve. This button can be pressed multiple times until the desired curve is achieved

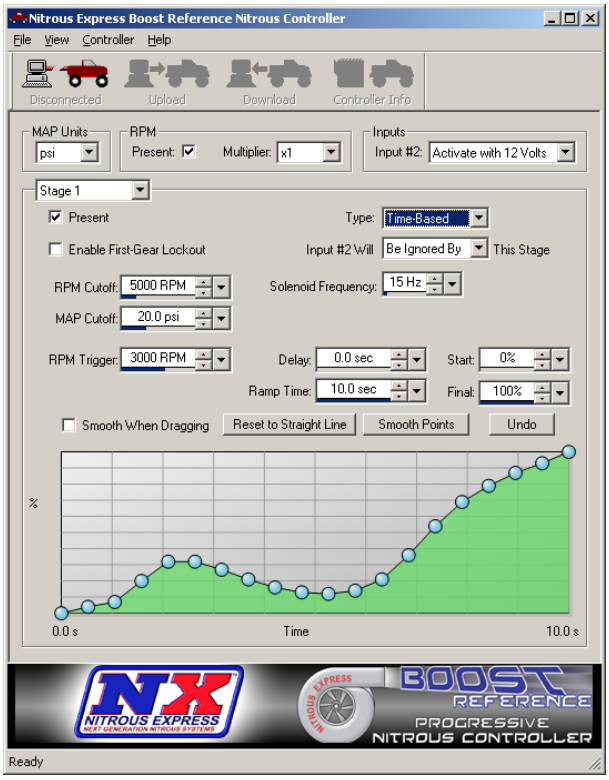
Undo is an undo button. If you applied the smooth points feature or dragged a dot, this feature will undo the change. It has multiple levels so you can undo several changes

Solenoid Frequency is the rate at which the controller cycles the solenoids. This number is determined by the solenoid manufacturer. [14 will work with all solenoids but may not be the optimum frequency]

3.4.1 Time-Based Curve

Present allows you to permanently turn off a stage. A check mark tells the controller to activate the stage as per the configuration. No check mark means this stage is always OFF.

Enable First-Gear Lockout disables the stage until the RPM has exceeded the RPM Cutoff at least once since it was armed.



Input #2 will determines what effect this input will have on the applicable stage. *Enable* allows the stage to function normally while *Disable* turns the stage off. If you are not using this input set it to *be ignored by*.

RPM Cutoff allows you to set the upper RPM threshold above which the nitrous will be turned off.

MAP Cutoff allows you to set the upper boost threshold above which the nitrous will be turned off.

RPM Trigger allows you to set the minimum RPM required before the Nitrous can be triggered.

Delay sets the time that the controller will delay starting the ramp once a stage has been activated

RAMP TIME sets the build time for the ramp

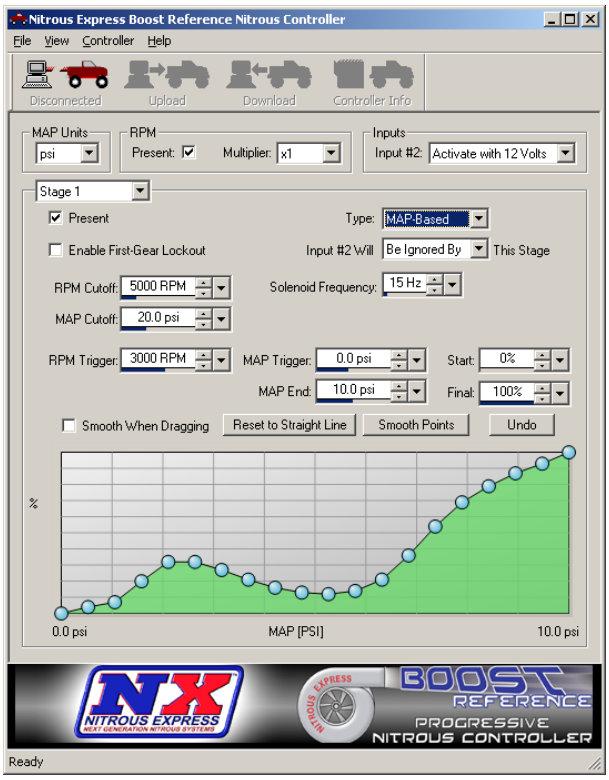
Start sets the start percentage of the stage.

Final sets the final percentage of the stage. The ramp will maintain this level until the RPM cut-off is reached or the stage is deactivated by the TPS or RPM window.

3.4.2 Boost-Based Curve

Present allows you to permanently turn off a stage. A check mark tells the controller to activate the stage as per the configuration. No check mark means this stage is always OFF.

Enable First-Gear Lockout disables the stage until the RPM has exceeded the RPM Cutoff at least once since it was armed.



Input #2 will determines what effect this input will have on the applicable stage. *Enable* allows the stage to function normally while *Disable* turns the stage off. If you are not using this input set it to *be ignored by*.

RPM Cutoff allows you to set the upper RPM threshold above which the nitrous will be turned off.

MAP Cutoff allows you to set the upper boost threshold above which the nitrous will be turned off.

RPM Trigger allows you to set the minimum RPM required before the Nitrous can be triggered.

MAP Trigger sets the boost pressure threshold that the controller must see before starting the ramp. It also defines the starting point of the ramp.

MAP End sets the build range for the ramp. Between *MAP End* and *MAP Cutoff*, the nitrous % remains at the *Final* setting.

Start sets the start percentage of the stage.

Final sets the final percentage of the stage. The ramp will maintain this level until the RPM cut-off is reached or the stage is deactivated by the TPS or RPM window.

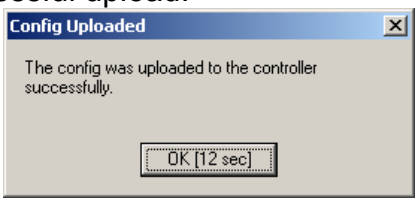
3.5 Upload / Download Configuration

DO NOT connect the controller to your PC until you have installed the software.

To connect the controller to your PC, use the USB cable supplied with the kit. Plug the USB cable into an available port on your PC.

Note: The controller must be connected to a 12-volt power source to be programmed.

Clicking on the UPLOAD button will store your settings in the controller. The “Config Uploaded” window will appear following a successful upload.



You are now ready to install your controller on the vehicle.

4. Installation

The Progressive Nitrous Mini-Controller is designed to be installed almost anywhere on the vehicle. Select a location that is away from heat sources that can damage the wires. Before permanently installing the device, we recommend that you complete the installation procedure below, as you will need access the push button and have a clear view of the LEDs for the final steps. Using the wiring diagram applicable to your application, connect the harness as illustrated.

Power Input should be connected to the arming switch and fused for 5 amps

Controller Ground should be connected to chassis ground as close as possible to the battery.

TACH input is designed to work with most Tachometer signals (down to 3 Volts), without the need for a separate adapter. It can be connected to a tach signal, coil trigger signal, or fuel injector. DO NOT connect it to a high voltage wire.

Input #1 is designed to work with most *throttle-position-sensors* (TPS) and *wide-open-throttle* (WOT) switches. Connect it directly to the signal wire from your TPS.

Note: For drive-by-wire it is recommended that you use the falling TPS signal

Input #2 can be used with either a 12-volt or ground signal to activate it. (see Input #2 in the software section) Example: use this input as a secondary arm switch for applications that use a trans-brake.

MAP Sensor Tube should be connected to your intake manifold.

4.1 Wide-Open-Throttle Setup

The mini-controller will not turn on until the following steps are completed successfully:

1) Disconnect the solenoids from the relays to prevent them from firing.
2) Arm the Progressive Nitrous Mini-Controller.
3) With the throttle in the idle position, press and hold the TPS learn button until the RED, YELLOW and GREEN LEDs begin to flash. DO NOT change the throttle position until the GREEN LED stops flashing and goes out. If the GREEN LED begins to flash quickly, you have a bad TPS signal.

NOTE: The green LED on a new controller will flash when powered up. This indicates that the TPS is not programmed.

4) Once the GREEN LED is out, open the throttle all the way by pressing the gas pedal to the floor and then release it. Repeat this step twice.
5) Now verify that the GREEN LED goes off at IDLE and on at WOT.

4.1.1 Wide-Open-Throttle Setup (Drive-by-wire)

Note: It is recommended that you perform this on a test track or dynometer

1) Disconnect the solenoids from the relays to prevent them from firing.
2) Start the car and arm the Progressive Nitrous Mini-Controller.
3) With the engine idling, press and hold the TPS learn button until the RED, YELLOW and GREEN LEDs begin to flash. DO NOT change the throttle position until the GREEN LED stops flashing and goes out. If the GREEN LED begins to flash quickly, you have a bad TPS signal.

Note: For drive-by-wire it is recommended that you use the falling TPS signal

4) Once the GREEN LED is out, open the throttle all the way while driving the car and then release it. Repeat this step twice. If the GREEN LED is flashing quickly after this procedure the controller did not learn the TPS correctly. Power off the controller and start again.
5) If step 4 completed successfully, verify that the GREEN LED goes off at IDLE and on at WOT.

4.2 RPM Setup Verification

1) Disconnect the solenoids from the relays to prevent them from firing.
2) Turn on the ignition power and start the engine.
3) Arm the Progressive Nitrous Mini-Controller.
4) Verify that the RED / YELLOW / GREEN LEDs are off with the throttle in the idle position.
5) Slowly increase the throttle until you reach the Turn On At RPM setting that you downloaded for stage 1.
6) Watch the YELLOW LED. If you set the correct RPM multiplier it will come on just as you reach the target RPM.
7) Now repeat steps 5 and 6 and watch the RED LED and use the Turn On At RPM setting that you downloaded for stage 2.
8) If the LEDs come on at the right RPM, then you selected the correct multiplier.
9) If the LEDs come on too late then the RPM multiplier is ***too high*** and you need to set the multiplier to ½ the previous setting and repeat the RPM set-up verification.
10) If the LEDs come on too soon then the RPM multiplier is **too low** and you need to set the multiplier to **2x** the previous setting and repeat the RPM set-up verification.

Note: DO NOT use the half-step multipliers unless this is a 3 or 10 cylinder application.

The installation is complete!

5. Software and Firmware Updates

Free updates are available for the Progressive Nitrous Mini-Controller and related software at www.nitrousexpress.com

6. Disclaimer

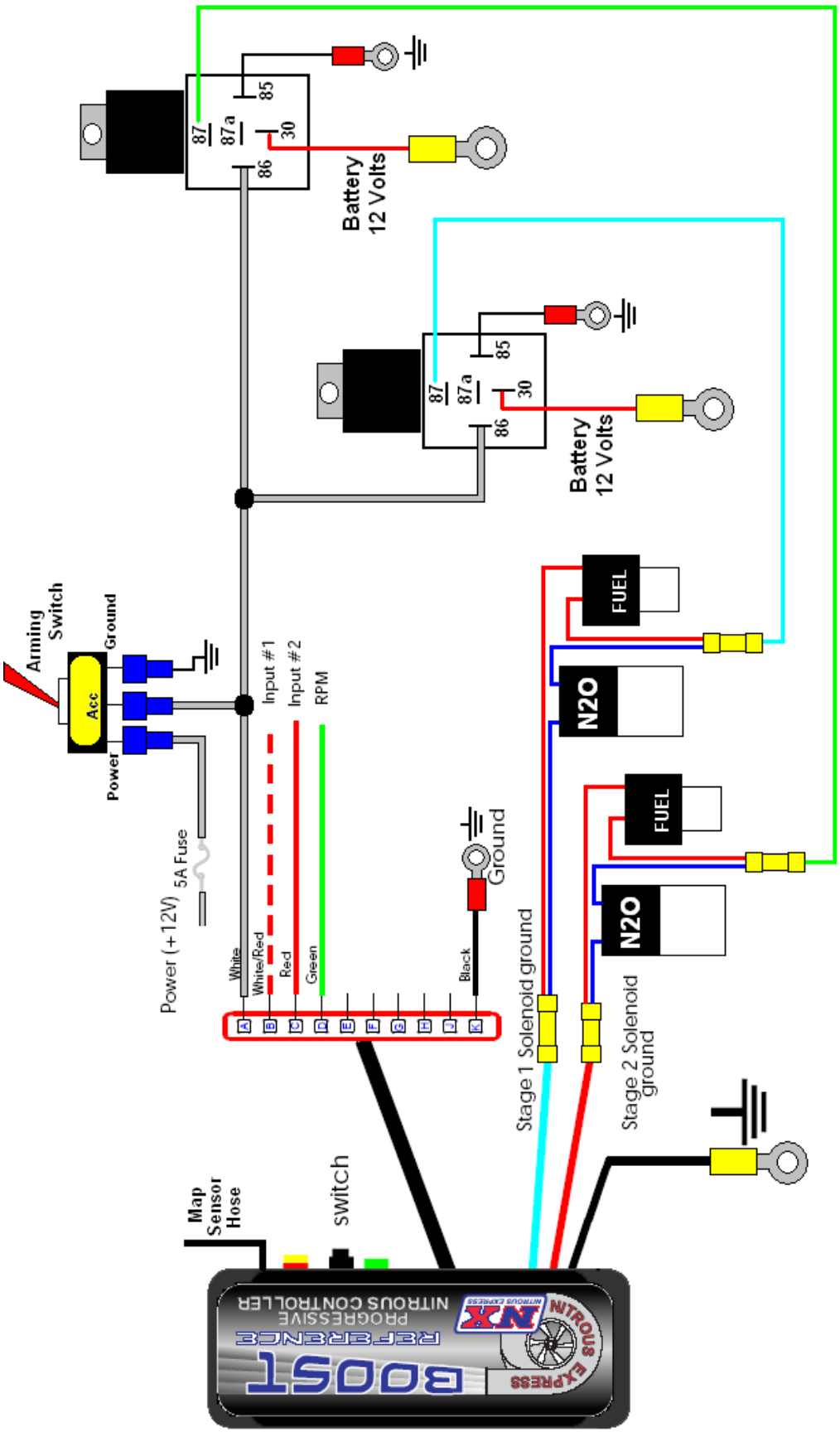
Nitrous Express, Inc shall not be held responsible for any damages, howsoever caused, to any persons or equipment during the installation or operation of its products. Nitrous Express products are meant for off-road use only, and make no claims as to the unit's ability to meet local safety or emissions laws.

7. Warranty

Nitrous Express, Inc warrants the material and workmanship of the equipment, components and parts manufactured by Nitrous Express against defects under normal use and service. This warranty shall extend for 180 days from the date of manufacture provided that the customer first returns the defective part or component through an authorized distributor, shipping costs prepaid. Prior to returning a product for warranty inspection, the customer must contact Nitrous Express service department with the product serial number to receive a RGA number. Units returned without this number will be refused.

Nitrous Express may at its option, repair or replace without cost for parts and labour, the defective product. This warranty does not cover finishes, normal wear and tear, nor does it cover damage resulting from accident, misuse, dirt, tampering, unreasonable use, service attempted or performed by unauthorized service agencies, failure to provide reasonable maintenance, or Nitrous Express products that have been modified or used for commercial reasons.

Nitrous Express specifically does not warrant equipment, parts or components purchased by Nitrous Express or the customer from any third party manufacturers or suppliers. Rather, for any defect in respect of equipment, parts and components purchased from third party manufacturers and suppliers, the customer shall have recourse only to the terms of the warranty of that particular manufacturer or supplier. Any recommendations made by the third party manufacturer or suppliers concerning the use or application of their products are those of the manufacturer or supplier, and Nitrous Express extends no warranty with respect to the results obtained for their use. Nitrous Express does not warranty those products in any way beyond the term of the warranty extended by the manufacturer or supplier.

The warranty provided above, Nitrous Express's obligations and liabilities hereafter, and the rights and remedies of the customer are exclusive and in substitution for, and the customer waives all other warranties, guarantees, obligations, liabilities, rights and remedies, expressed or implied, arising by law or otherwise, including (without limitation) the implied warranties of merchantability or fitness of purpose, and any obligations or liability of Nitrous Express arising from tort, or loss of use, revenue or profit, or for incidental or consequential damage.

8. Wiring Diagram: Boost Reference Progressive Nitrous Controller