Performance Vehicle Telemetry Displays

www.btigauges.com

TFT CAN Bus Gauge for AEM Infinity
Plug and Play Installation Manual
Doc version 1.5

Notice: This product is intended for Off-Road use only.
Never take your eyes off of the road while using this device.
If you are uncomfortable with wire termination, please have this device installed by a competent shop.

**** Notice! This device should be configured by competent personnel. Raising the BOOST too much or reducing the Traction Control too much can have severe consequences. You could blow your engine and or lose control of your vehicle****

Plug and Play harness installation:

Plug and play wiring harness for Infinity ECUs with the AEM wiring harness:

Locate the 4 pin AEM NET wiring connector on the Infinity harness. Connect the Plug and play harness into the Infinity harness and run the cable to the desired gauge installation location. Note that the gauge gets power and the CAN signal from this cable and no other wiring is necessary.
** Notice** It has come to our attention that some of the first AEM Infinity factory harnesses had the CAN high and CAN low wires reversed **(Most Infinity 8 Supra harnesses)**. Pin 1 should be White (CAN high) and Pin 2 should be Green (CAN low).

Plug and pin harness installation:

Plug and pin wiring harness for Infinity ECUs:

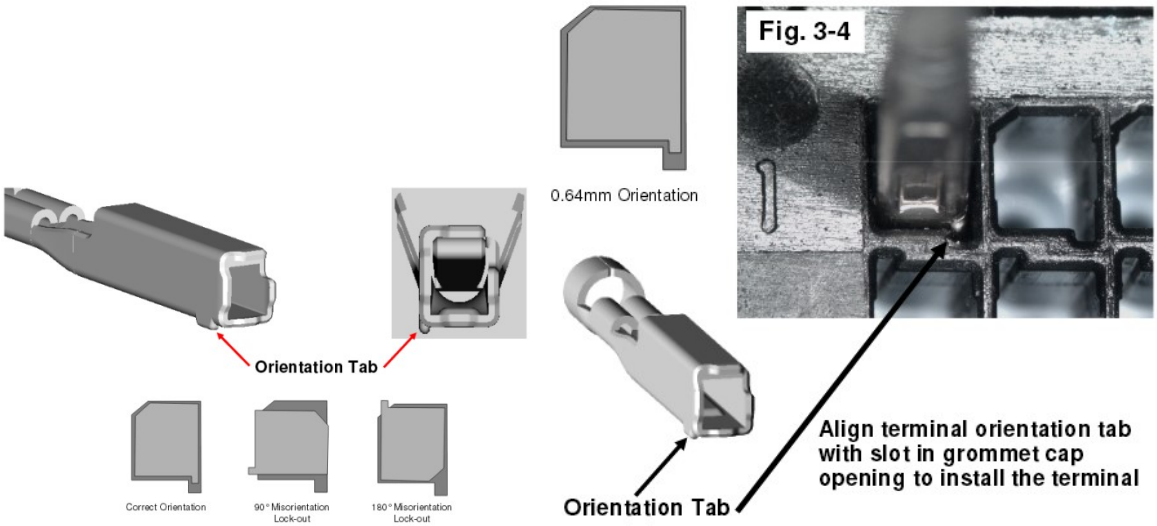
The termination to the Infinity ECU is relatively simple as it only consists of two wires: CAN A High and CAN A Low. Included on the plug and pin harness are two pins that will simply plug into the Infinity (Molex MX 123) connectors.

Notice: It is imperative that the pins are properly inserted into the correct positions on the connector! Removal and repining of these connectors is very difficult and requires special tools. Improper connection to the wrong pins could result to damage to the gauge or the ECU.

Double check your work here!

If you have questions regarding the Molex MX 123 connector, refer to this document for assistance:
http://www.molex.com/mx_upload/family//MX123UserManual.pdf

Note that the pins have an orientation tab that only allows the pin to be inserted in one orientation. See the figure below to see the orientation and how the pin will be locked out if the orientation is not correct.

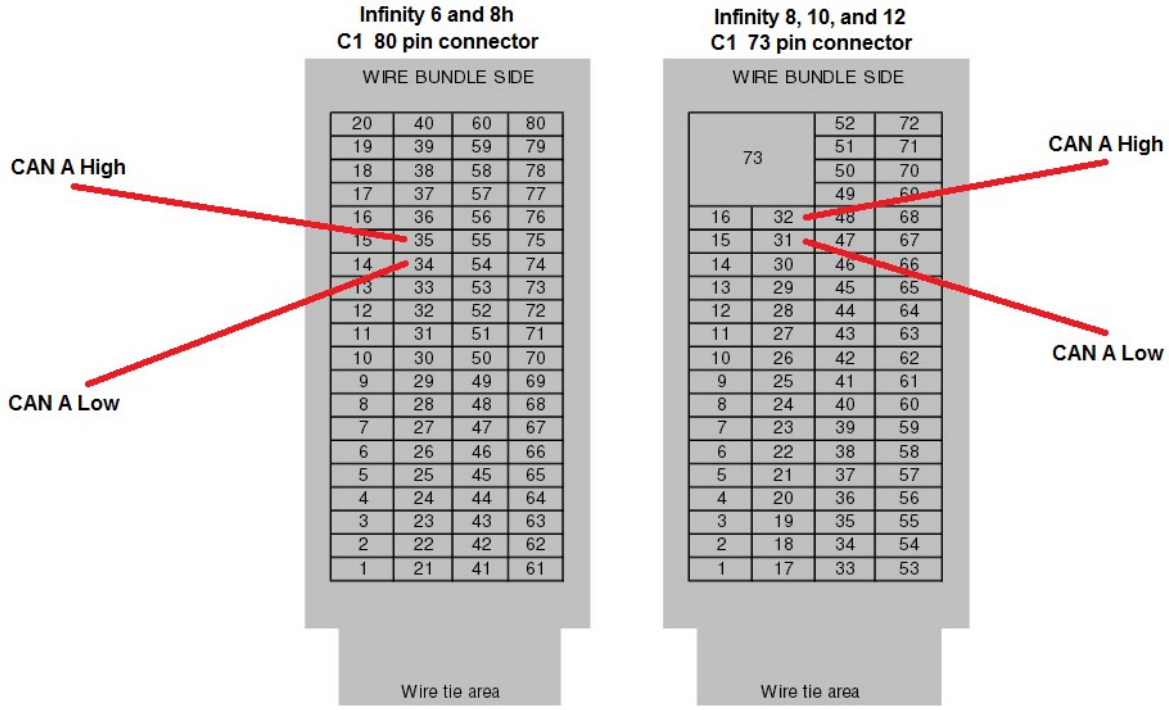


As per the AEM Infinity 8, 10, and 12 documentation:

C1-31	CANL_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	CANH_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.

As per the AEM Infinity 6 and 8h documentation:

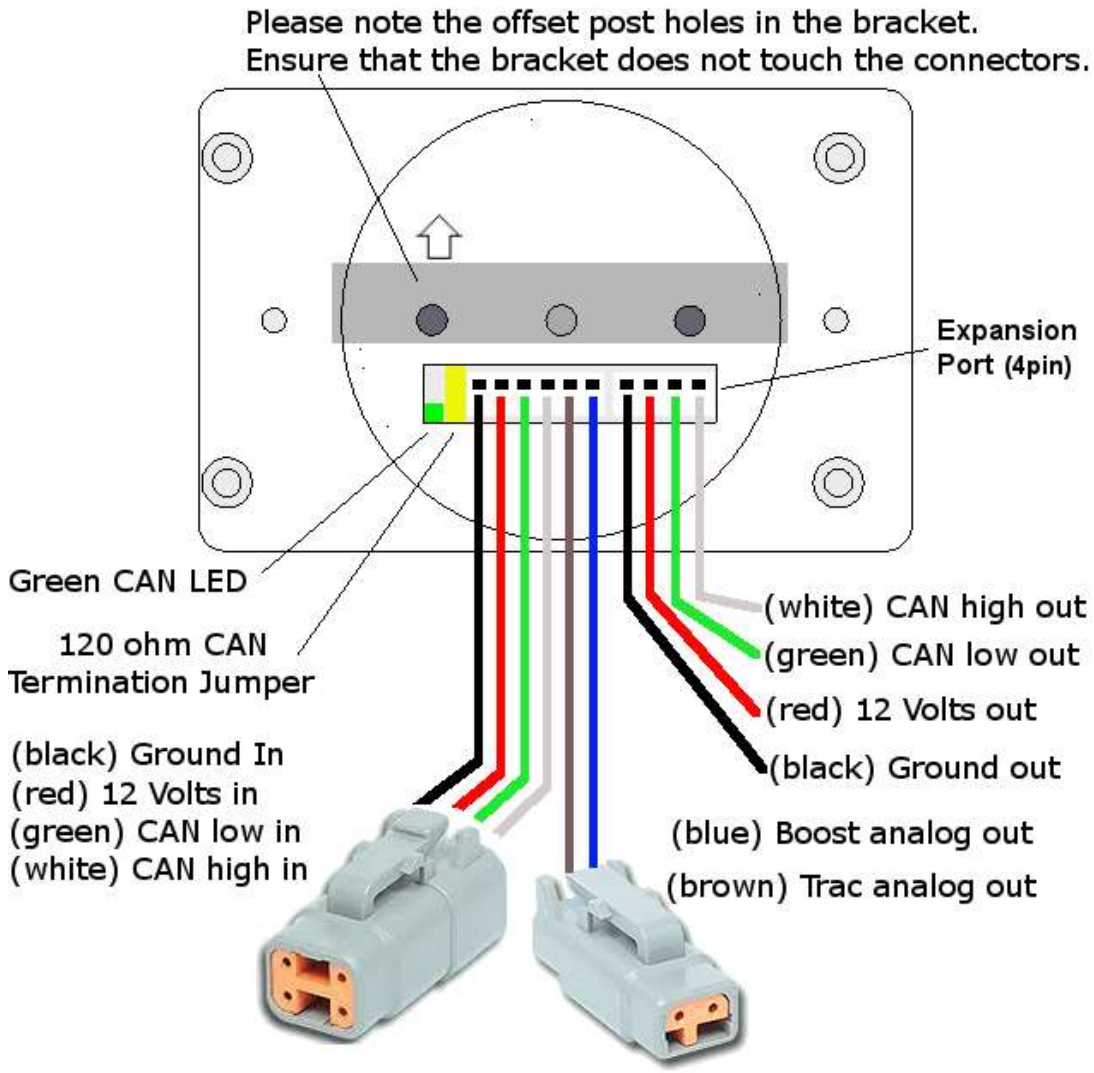
C1-34	CANL_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-35	CANH_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.



The plug and pin harness has two signal wires (Green and White). Pin the White wire to CAN A High and the Green wire to CAN A Low on the corresponding connector. Connect the Red wire to a switched on / ignition power source and connect the Black wire to ground.

2 Pin Analog Out Connector (Brown and Blue Wires)

The termination of these two wires is dependent on the inputs that are assigned in the Infinity Tuner software. These inputs are assigned in the software under **Wizards > Advanced Setup > "ModeSwitch Input Setup" or "Traction Control Slip Target Trim Input Setup".** The Input used will be defined here. Connect the blue and brown wires to the corresponding inputs that are selected for your application. There are more details regarding this under "BOOST and PWM STEPS" below.



Notice: The gender of the 2 pin plug may be reversed on newer models in order to prevent the improper connection to the "Flash Enable" connector.

Data LED: This indicator will flash when ever the gauge is energized and CAN communications are present. Use this to confirm communications.

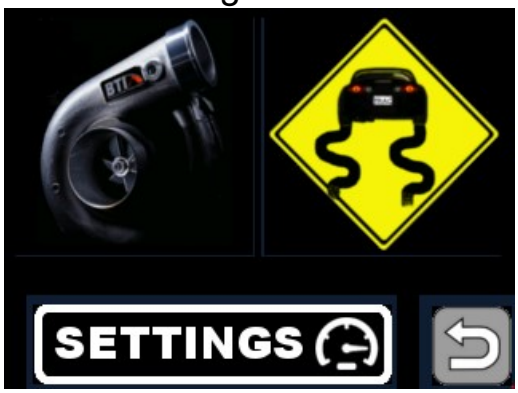
CAN Bus Termination Jumper: Remove this jumper if the gauge is not the last device on the CAN Bus. If there are multiple gauges, the last gauge should be the only gauge with the jumper installed.
Leave the jumper installed if the gauge is a stand alone installation and there is nothing else on the CAN Bus.

Operation:

Upon powering up a properly terminated gauge, the Gauge will display the interface and version number,

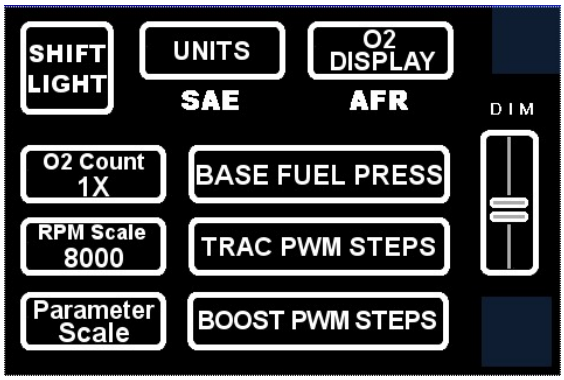
Gauge Setup Options:

Touch the cog wheel on the touch screen in order to configure the gauge.



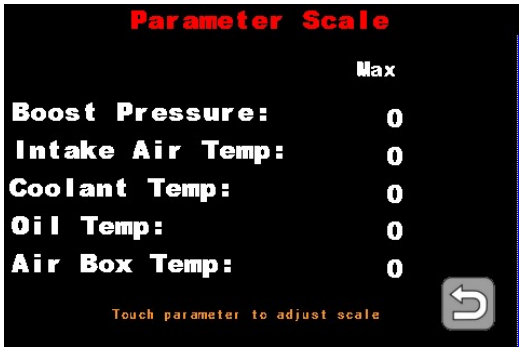
This will bring you into a screen where the Boost Control, Traction Control, and Settings can be accessed.

Press the **SETTINGS** button will allow you to make the following changes:



UNITS button will allow the user to toggle between SAE and SI units. This applies to temperature, pressure, speed, and distance.

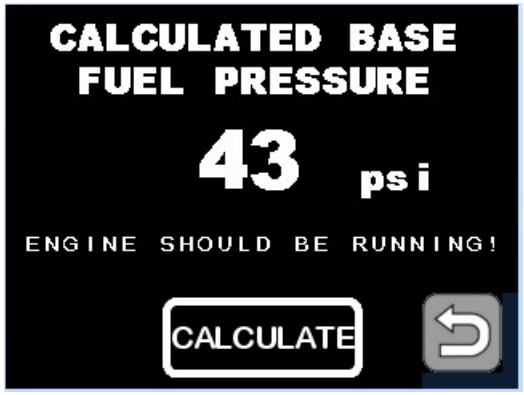
O2 DISPLAY button will change how the Oxygen sensor data is displayed. The options are AFR and Lambda.
O2 Count: Select “1X” if you are running 1 wideband O2 Sensor, select “2X” if you will be running 2 wideband sensors.
RPM Scale: Select “8000 RPM” if your redline is below 8000 RPM or select “10000 RPM” if redline is higher.



Parameter scale: Use this screen to set the maximum range for boost pressure and various temperature slide bars and graphs.
Example: You will be running a 30 psi boost target. The max boost pressure could be 35 psi to give the slide bars and graphs the best resolution. The same goes for temperatures. These values should be entered with respect to which units are selected: SI or SAE. If SI units are selected, Boost Pressure should be entered in kPa and temps should be entered in Celsius. If SAE units are selected, Boost Pressure should be entered in psi and temps in Fahrenheit.

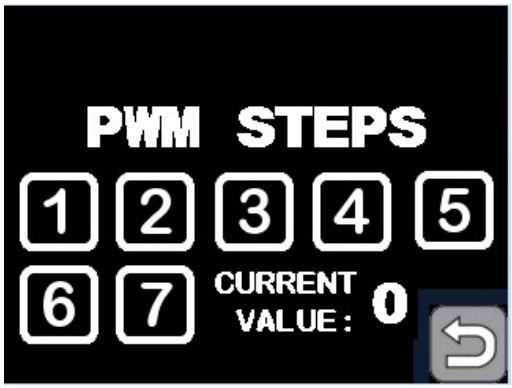
Shift Light Configuration:
Touch the gear that you wish to change the shift light

RPM on. That gear number will appear above the up and down arrows for verification. Use the up and down arrows to adjust the shift light RPM set-point of said gear. Press the back arrow button at the bottom right hand corner to save the settings. The shift light should flash once the settings are saved.



Base Fuel Pressure configuration:

In order to calculate the base fuel pressure, the engine should be idling. Press the CALCULATE button and the base pressure will be calculated and displayed. This is used on the fuel screen in order to graph the fuel pressure vs. boost pressure for simple regulator function verification.



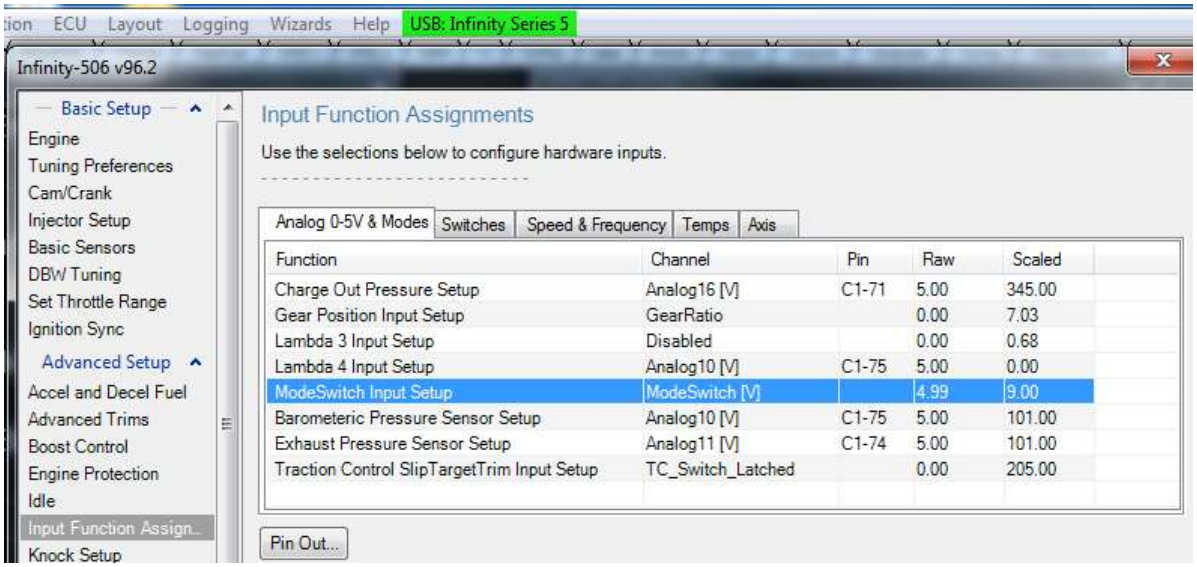
TRAC and BOOST PWM Steps:
Use these two buttons to configure how many steps are to be programmed in the Infinity Tuner software for Boost and Slip. Typically the scale is from 0-5 volts and the max amount of steps allowed is 7 which give you 8 settings (0-7). Example: a value of 7 here would make each step would have a value of .71 volts. A value of 1 here would give the step a value of 5 volts. It is **imperative** to view each step in the infinity tuner software when configuring this as there could be a potential difference with regard to ground.

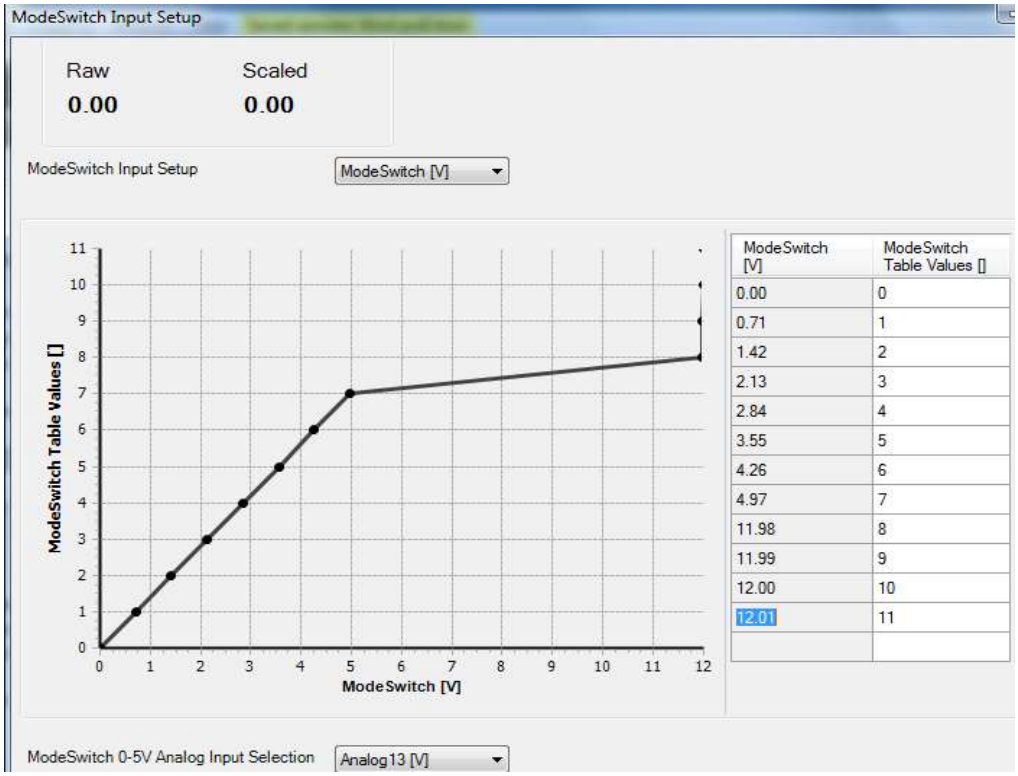
**** Note that these two settings should be configured by competent personnel. Raising the BOOST too much or reducing the SLIP too much can have severe consequences. ****

Both the Boost and Traction Control settings must be configured in the AEM Infinity Tuner software under: **Wizards** > **Advanced Setup** > **"ModeSwitch Input Setup" or "Traction Control Slip Target Trim Input Setup".**

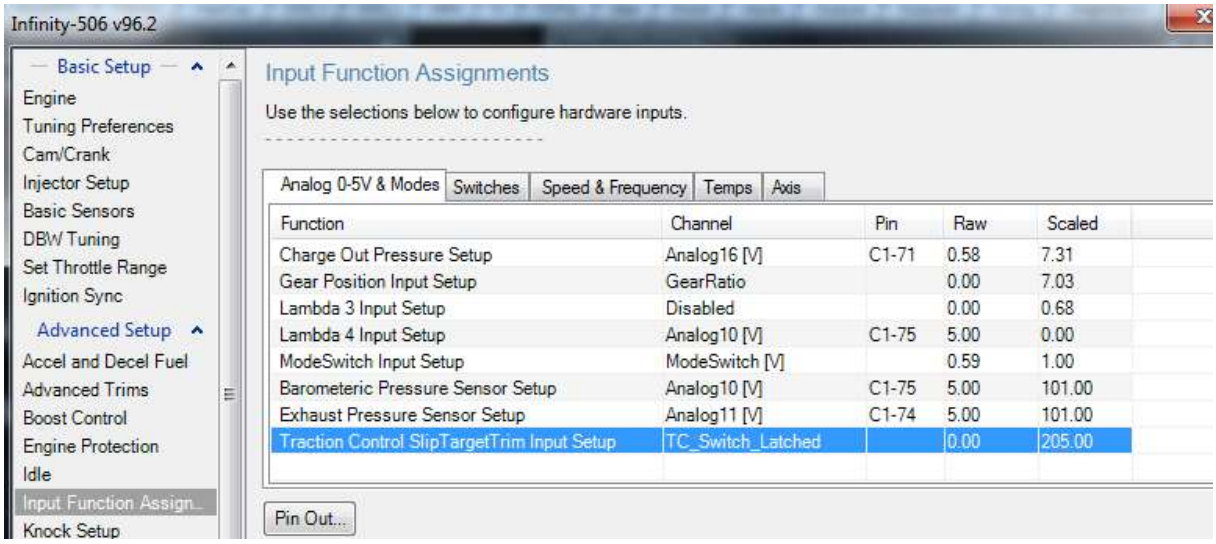
It is imperative to configure these inputs correctly. This is what that setup looks like in the Infinity Tuner software: (if you are uncomfortable here, please take your vehicle to a competent shop)

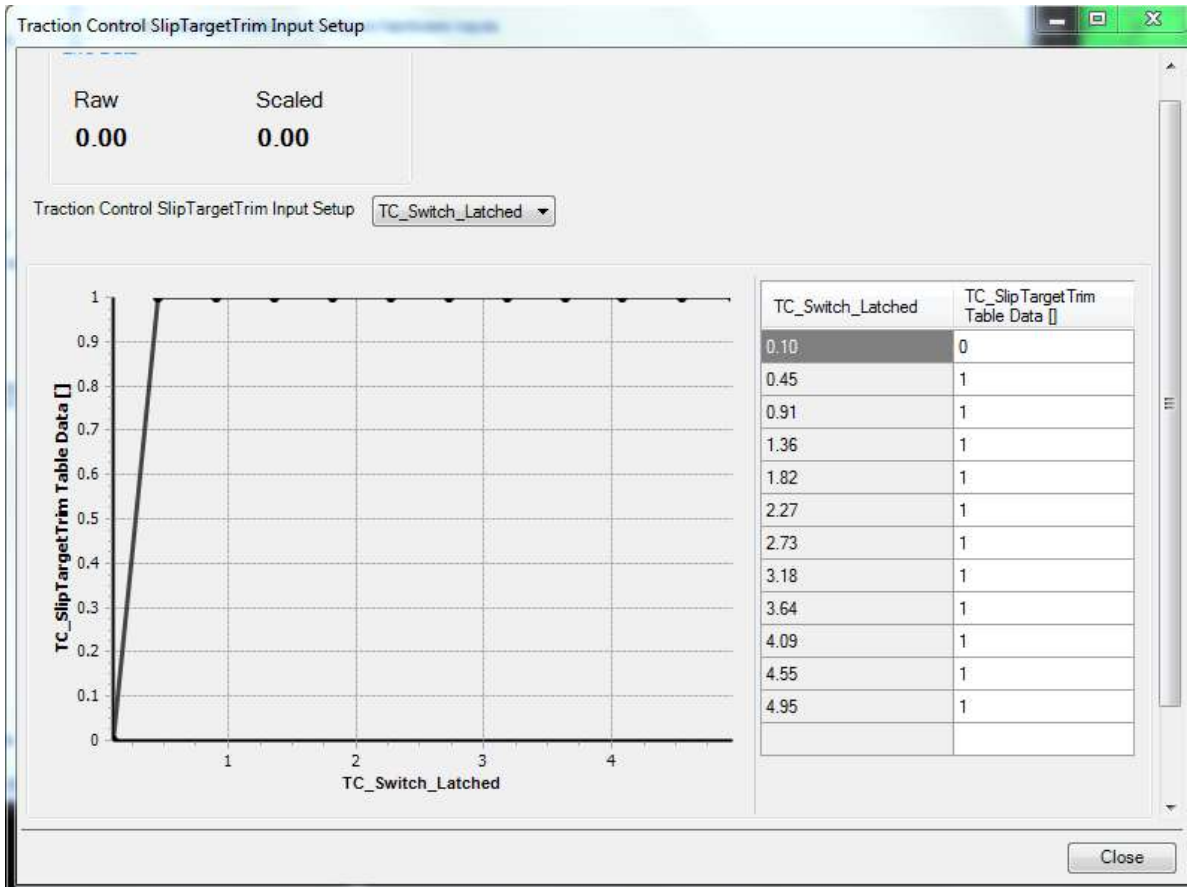
Example Boost Setup:





Example Trac Setup:





** Note that all GPS, G-force and Yaw readings are derived from the AEM Vehicle Dynamics Module (PN 30-2203). The absence of this module will result in a "0" value on corresponding readings.

Warranty:

All BTI Gauges carry a 1 year warranty effective at the time of purchase.

- This warranty extends only to products distributed and/or sold by BTI Gauges. It is effective only if the products are purchased and operated in the USA. (Within the USA including US 48 States, Alaska and Hawaii.)
- This warranty covers only normal use of the computer. BTI Gauges shall not be liable under this warranty if any damage or defect results from (i) misuse, abuse, neglect, improper shipping or installation; (ii) disasters such as fire, flood, lightning or improper electric current; or (iii) service or alteration by anyone other than an authorized BTI Gauge representative.
- You must retain your bill of sale or other proof of purchase to receive warranty service.
- No warranty extension will be granted for any replacement part(s) furnished to the purchaser in fulfillment of this warranty.
- Warranty claims must be sent to sales@btigauges.com.