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TMS-Drag-Pro-2

Electronic
TRACTION CONTROL

US PATENT 6,577,944
Other Patents Pending

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TRADEMARKS

03/13

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Introduction

We would first like to thank you for your purchase of our system. We believe it is the best system available to you on the market today. This system balances effectiveness with ease of installation, broad field of uses, and cost.

As with all technical devices such as engines, shocks, carburetors, clutches etc., the product's performance is based largely on your ability to use it properly. Testing in controlled circumstances will help you determine the proper settings for your application and your situation. Testing is very important since it will help you utilize this product to its full potential.

Please read all of the instructions and information thoroughly before attempting to install or use this product.

How Does It Work?

The *Non Self-Learning* systems, like our Sportsman series, periodically compares the rate of acceleration of the driveshaft to an Adjustable Fixed Rate (AFR), known as Threshold. If the DS RPM rate of change is in excess of that Threshold, then a correction is made. The comparison is made every 1/8 of a turn of the driveshaft.

Basically, this Patented system looks for spikes in DS RPM that are caused by wheel slip. If these spikes are large enough, then a correction is made, reducing the slip.

By adjusting the Threshold, the user can tune the system to correct larger slips, while not reacting to smaller, harmless, slips. This means the user does not have to figure out the desired DS/Engine RPM and build a preset "Dot Plot" (anybody got a crystal ball?).

A typical 1/8th mile car turns the drive shaft about 300 times in a 660 ft. run. At 8 triggers per rev, that would be like building a "Dot Plot" w/ 2400 dots, and ¼ mile cars turn the drive shaft about 550-600 times in 1320 ft. run. At 8 triggers per rev, that would be 4400-4800 dots.

***Self-Learning* systems, such as our Lite and Pro units, compare the rate of acceleration of the drive shaft to a calculated threshold value that is constantly updated based on the average of the previous measurements. This update occurs on every drive shaft revolution. So, if the last 1/8 of a**

turn of the drive shaft is faster than the average of the last full revolution, then a slip is detected. Through this very advanced Patented process, the system constantly accounts for track conditions, tire condition, etc. to constantly update the internal settings. These settings are updated as many as 800 times a second to keep the unit calibrated to exactly the right settings regardless of changing conditions.

Basically, the system learns the average rate of acceleration of the drive shaft, and if there is a sudden spike in RPM above that learned rate, then a correction is made. With the Self-Learning feature, the user doesn't have to try to figure out the DS RPM rate of change and set a "Threshold", the system does it for you, every drive shaft revolution!

The user does have an adjustment referred to as "Mode" that sets the overall sensitivity of the system to make a correction based the extent of the tire slip. By adjusting the Mode, the user can tune the system to correct larger slips, while not reacting to smaller, harmless, slips.

This system is not simply a few lines of code added to an existing fuel injection or ignition system, and called traction control. This system utilizes a patented method and multiple high speed processors to very accurately and effectively monitor rates of acceleration to determine wheel speed, and tire slip. In fact, Davis Technologies' systems are at least 20 times faster than other systems which are integrated into the fuel injection or ignition system.

Our systems only job is Traction Control!

Installation

Installation of the system is very simple. It is very important to make all connections correctly. Improper installation could result in poor system performance or damage to the system.

Keep all wires away from any spark plug wires and coils or other sources of electrical noise and heat.

The unit should be mounted away from any sources of electrical noise or high heat.

Make the connections as follows:

2 Pin Connector (Power In)

1. Connect pin "A" (RED wire) to 12v Positive.

2. Connect pin "B" (BLACK wire) to 12v Ground.

3 Pin Connector (Sensor)

1. Connect the pin marked "A" (RED wire) to the red wire on the sensor (12v positive)

2. Connect the pin marked "B" (BLACK wire) to the black wire on the sensor (ground).

3. Connect the pin marked "C" (WHITE wire) to the white wire on the sensor. This wiring is for sensors supplied by Davis Technologies.

If another type of sensor is used, check with the manufacturer to determine connections. (IMPORTANT--The sensor must be capable of 15Khz resolution!!)

2 Pin Connector (Output)

1. Connect Pin "A" (Pink wire) to the first retard stage of ignition system.

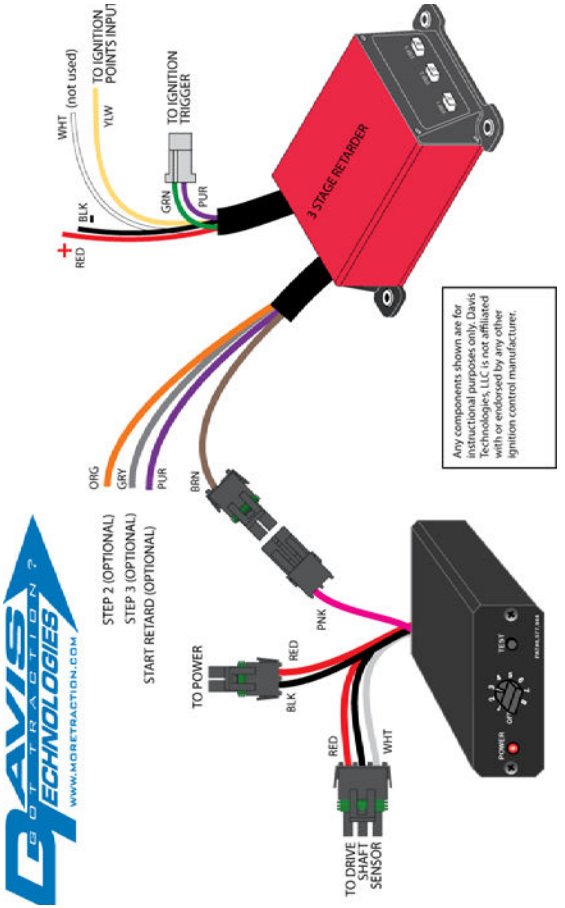
2. Connect Pin "B" (Tan wire) to the second retard stage of the ignition system.

These leads will output 12 volt+ (Battery Voltage) when unit is making corrections. They are cumulative, meaning that a small correction will turn on the Pink wire and a large correction will turn on the Pink and Tan wires.

It is also very helpful to tie these connections into a data channel if available. That way the user can see what the Traction Control system did during a pass. This info is very useful for adjusting the setup. Consult with your data acquisition supplier. I

MPORTANT-- IF THE TRACTION CONTROL IS CONNECTED TO A RETARD STAGE THAT IS ALSO CONNECTED TO A NITROUS SOLENOID, A DIODE MAY BE REQUIRED TO PREVENT THE TRACTION CONTROL FROM INADVERTENTLY ACTIVATING THE SOLENOID.

System Overview



IMPORTANT- **MSD® 8975 Digital Multi Retard (uses dials to set retard) is *NOT* compatible with Davis Technologies Traction Control Systems.**

MSD® 8973 3 Step Retarder (uses chips to set retard) may be used.

Traction Control Adjustments

Different tracks, cars, conditions, etc. may require different settings for the system to function effectively. The dials on the unit are used for these settings. The values are referred to as Threshold, and Mode.

The TMS-Drag-Pro-2 incorporates two different methods to control wheel spin.

Davis Technologies' patented Self Learning systems have the ability to learn the rate of acceleration that the vehicle is achieving on average, in real time, and activate the outputs if this *learned average* is exceeded.

The "Self Learning" method preferred by most users.

The second patented method is a less advanced system, where the users sets a maximum rate of acceleration that if exceeded will cause the outputs to be triggered.

Setting The Dials:

The *Self Learning* system is activated when the Mode dial is set to anything from "1 - 8". The higher the number the more sensitive the system is. A good starting point is Mode 3. If you feel that your system is making too many corrections while set to Mode 3, then try Mode 2. Valid settings for Mode are 1-8.

The second- *Non-Self Learning* system is activated when the "Threshold" is set to a value of 1-8. This method simply sets the maximum rate of acceleration allowed. If this rate is exceeded then a correction is made. The higher the number the more aggressive the system is. A good starting point is Threshold 3. If you feel that your system is making too many corrections while set to Threshold 3, then try Threshold 2. Valid settings for Threshold are 1-8. The Non-Self Learning Method is only accessible using the "Traction Control Panel Software".

(When using this method the Mode setting has no effect on the system, with the exception of Mode OFF, or Mode AUX).

(OFF turns unit off, except for sensor test / AUX activates window RPM test).

Retard Setup

The TMS-Drag-Pro-2 connects to the step retard inputs of the ignition controller, sending it a 12 volt signal to cause it to retard ignition timing when wheel slip is detected. You must configure your controller to retard timing when the inputs are triggered. A timing retard of 3-5 Degrees is a good starting point.

Some digital ignition controllers are configurable to allow the timing to be ramped in and out. You never want to ramp the timing out, you must allow the TC to retard the timing as fast as possible when slip is detected.

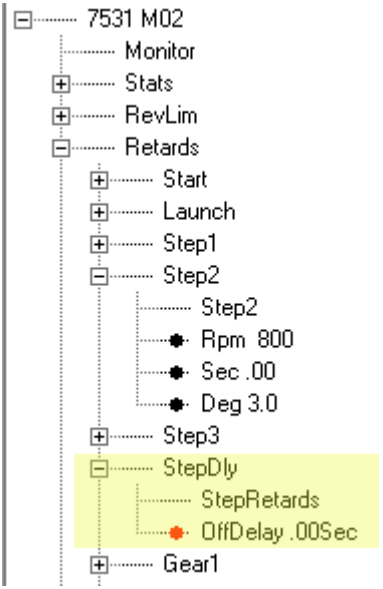
Ramping the Retard On

No Ramping

Ramping the Retard Off

Ramp Off is used to control how quickly the timing is ramped back in after the slip condition is corrected. A Ramp Off setting of about 1/10th of a second is a good starting point; with a longer ramp in if more retard is used. If the amount of power reduced during a slip condition is too great, then a smaller retard may be required. If the tires recover from a slip condition and immediately slip again, then a longer RAMP Off may be desired.

***IMPORTANT*- Most MSD® programmable controllers have a setting called Step Delay that holds the retard for an amount of time after the 12 volt trigger from the TC has been removed. This setting is usually defaulted to .5 – 2.0 sec. This *MUST* be set to 0.0 sec, or the system will not work correctly, and the car will slow down!**



(The image above is from MSD® GraphView Software)

Traction Control Setup

Trigger Count:

The unit must be configured for the number of counts it will receive per revolution of the driveline.

Starting RPM: is a user adjustable setting that allows the racer to set the point at which the unit begins making corrections. If the Starting RPM is set to 1800 RPM, then the unit is active and monitoring the driveline, but not making any corrections until the Starting RPM is reached. This may be useful to prevent the Traction Control from interfering with an already established launch setup.

Ending RPM: is a user adjustable setting that allows the racer to set the point at which the unit Stops making corrections. If the Ending RPM is set to 5800 RPM, then the unit is active and monitoring the driveline, but not making any corrections after the Ending RPM is reached. This may be useful to prevent the Traction Control from making corrections *Down Track* if desired. (This may be useful on tracks w/ bumps or conditions that may cause tire slip, but a loss of HP may be undesirable)

Null Zone: is a feature that allows the user to modify how the Traction Control reacts at certain RPM's. The user can set an RPM zone in which the Traction Control will make no corrections, or level 1 (small) corrections only. There are three components to this feature. The Null Mode sets the unit to either react as normal or to limit the type of correction made.

***Null Mode 0*- Traction Control makes corrections in the normal manor.**

***Null Mode 1*- Traction Control only makes Step 1 (small) corrections within the set RPM range.**

***Null Mode 2*- Traction Control will not make any corrections within the set RPM range.**

The following parameters are adjustable; however they are factory set to the most common settings, and should not need to be adjusted by most users.

BUFFER: is another setting that can be used to fine tune the system. The buffer sets the number of consecutive errors required to cause a correction. Buffer 0 will react to each error in acceleration. Buffer 1 will require at least 2 consecutive slip conditions to cause a correction. This is useful to filter out small tire slips that may occur quickly, but have no ill effect on the car. (Buffer 1 is the default for most applications, but some experimenting with this setting may be useful to see what works best for you).

SAMPLE RATE: of the unit can also be changed by the user, however this should only be done after consulting w/ tech support. The lower the number the faster the Sample Rate, which makes the unit less sensitive, but faster to react. The higher the number the slower the Sample Rate, which makes the unit more sensitive, but slower to react. Valid settings are 1-5. (Default=3)

CONFIGURING

TRIGGER COUNT: (DEFAULT= 8)

The unit must be configured for the number of counts it will receive per revolution of the driveline. Once set the value will remain until changed by the user. To change the value, follow these steps.

1. Set the "Mode" dial to "4"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the "Mode" dial to the desired number of triggers divided by two. (example- 8 triggers/2=4)

5. Release the "Test" button.

The LED will flash to show the number of triggers the unit is now set to. (The Trigger Count must be set correctly for the accurate RPM calculations)

Starting RPM: (default (15) 1500 Rpm)

The driveline RPM at which the unit *Starts* to make corrections can be set by the user. Once set the value will remain until changed by the user. The RPM is set in 100 rpm increments, (example 1500 rpm, divided by 100 = 15). To change the Starting RPM value, follow these steps.

1. Set the "Mode" dial to "3"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the "Mode" dial to the first digit of the desired Starting RPM.

(example- 1500rpm - first digit=1 / 3000rpm - first digit =3)

5. Release the "Test" button,

The led will flash to show the value has been accepted.

6. Now move the "Mode" dial to the second digit of the desired Starting RPM, then press and release the "Test" button. (example- 1500rpm - sec. digit=5 / 3000rpm - sec. digit =0)

The led will flash to show the value has been accepted.

After about 1 second the LED will Blink to show the value that the Starting RPM is set to. The first digit is output followed by a short pause, then the second digit is output. (1500 RPM = 1,5 Blinks) (zeros are indicated by shorter blinks)

Ending RPM: (default (99) 9900 Rpm)

The driveline RPM at which the unit *Stops* to make corrections can be set by the user. Some users may want the unit to stop at a certain RPM while others may want the unit to be able to make corrections for the entire run. Once set the value will remain until changed by the user. The RPM is set in 100 rpm increments, (example 9900 rpm, divided by 100= 99). To change the Ending RPM value, follow these steps.

1. **Set the "Mode" dial to "9"**
2. **Hold down the "Test" button**
3. **Turn the power On**
4. **While holding the "Test" button down, move the "Mode" dial to the first digit of the desired Ending RPM.**

   (example- 9900rpm - first digit=9 / 8500rpm - first digit =8)
5. **Release the "Test" button,**

   The led will flash to show the value has been accepted.

6. **Now move the "Mode" dial to the second digit of the desired Ending RPM, then press and release the "Test" button. (example- 9900rpm - sec. digit=9 / 8500rpm - sec. digit =5)**

The led will flash to show the value has been accepted.

After about 1 second the LED will Blink to show the value that the Ending RPM is set to. The first digit is output followed by a short pause, then the second digit is output. (9900 RPM = 9,9 Blinks) (zeros are indicated by shorter blinks)

Null Mode: (default= 0)

The Null Mode sets how the Traction Control will make corrections in the Null Zone. To set the Null Mode, follow these steps.

1. Set the "Mode" dial to "6"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the "Mode" dial to the desired Null Mode value.

5. Release the "Test" button,

The led will flash to show the value that the Null Mode is now set to. Valid settings are 0-2.

***(Null Mode 0*- Traction Control makes corrections in the normal manor.**

***Null Mode 1*- Traction Control only makes Step 1(small) corrections.**

***Null Mode 2*- T/C will not make any corrections within the set range.)**

Null Low RPM: (default (40) 4000 Rpm)

The low RPM of the zone at which the unit *Begins* to make corrections. Once set the value will remain until changed by the user. The RPM is set in 100 rpm increments, (example 4000 rpm, divided by 100= 40). To change the Null Low RPM value, follow these steps.

1. Set the "Mode" dial to "7"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the "Mode" dial to the first digit of the desired Null Low RPM.

(example- 4000rpm - first digit=4 / 3500rpm - first digit =3)

5. Release the "Test" button,

The led will flash to show the value has been accepted.

6. Now move the "Mode" dial to the second digit of the desired Null Low RPM, then press and release the "Test" button. (example- 4000rpm - sec. digit=0 / 3500rpm - sec. digit =5)

The led will flash to show the value has been accepted.

After about 1 second the LED will Blink to show the value that the Null Low RPM is set to. The first digit is output followed by a short pause, then the second digit is output. (4000 RPM = 4,0 Blinks) (zeros are indicated by shorter blinks)

Null High RPM: *(default (60) 6000 Rpm)*

The high RPM of the zone at which the unit *Stops making* corrections. Once set the value will remain until changed by the user. The RPM is set in 100 rpm increments, (example 6000 rpm, divided by 100= 60). To change the Null High RPM value, follow these steps.

1. Set the "Mode" dial to "8"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the "Mode" dial to the first digit of the desired Null High RPM.

(example- 6000rpm - first digit=6 / 7200rpm - first digit =7)

5. Release the "Test" button,

The led will flash to show the value has been accepted.

6. Now move the "Mode" dial to the second digit of the desired Null High RPM, then press and release the "Test" button. (example- 6000rpm - sec. digit=0 / 7200rpm - sec. digit =2)

The led will flash to show the value has been accepted.

After about 1 second the LED will Blink to show the value that the Null High RPM is set to. The first digit is output followed by a short pause, then the second digit is output. (6000 RPM = 6,0 Blinks) (zeros are indicated by shorter blinks).

Buffer: (default= 1)

A buffer can be set to lower the sensitivity of the unit if desired. To change the value, follow these steps.

1. **Set the "Mode" dial to "1"**
2. **Hold down the "Test" button**
3. **Turn the power On**
4. **While holding the "Test" button down, move the dial to the desired buffer value.**
5. **Release the "Test" button,**

The led will flash to show the value that the buffer is now set to. Valid settings are 0-3. (Buffer 2= 2 blinks) (zeros are indicated by shorter blinks)

Sample Rate: (default= 3)

The Sample Rate can be set to change the sensitivity of the unit. This should only be changed under the advice of tech support. Valid settings are 1-5. To change the value, follow these steps.

1. **Set the "Mode" dial to "2"**
2. **Hold down the "Test" button**
3. **Turn the power On**
4. **While holding the "Test" button down, move the dial to the desired Sample Rate value.**
5. **Release the "Test" button,**

The LED will flash to show the value that the Sample Rate is now set to. Valid settings are 1-5.(Most users never need to adjust the Sample Rate)

Testing

After installation it is recommended that you test the system. To do so please follow these instructions step by step. (Temporarily set the "% Cut" dial to 100 and "Ramp In" dial to 9 for testing)

Sensor test:

This test is useful for setting up the trigger ring and sensor if used.

1. **Set the "Mode" dial to "OFF"**

2. **Rotate the RPM trigger-**

The LED will flash each time a trigger is sensed. The unit is not active in any other way and no corrections will be made. The LED will appear to glow if triggered quickly. (The data output will also trigger)

RPM Window Test:

This mode is useful to check that the system is reading the RPM signal correctly.

1. **Set the "Mode" dial to "AUX"**

2. **Start the engine and accelerate the driveline.**

3. **When the driveline RPM is within the window of 1000 to 3000 rpm the LED will glow solid and the unit will make a large correction.**

Forced Activation Test:

This test is useful to check both stages of cut. The ignition system must be configured prior to executing this test.

This is also useful to test the connections to a data system if used.

1. **Set the dial to any setting between 1 to 7.**
2. **Connect a timing light to the engine**
3. **Turn "on" the power to the unit, the LED should begin to flash.**
4. **Start the engine.**
5. **With the engine idled up to about 3500 rpm; press the Test button on the unit until the LED glows solid. The first correction level will activate for 4 seconds, then the second stage for the next 4 seconds.**

(The engine only needs to be running to check ignition timing, outputs will trigger with engine off.)

Note: After the test is complete, the LED will blink to show the firmware version.

If unit does not pass all tests, recheck all setup parameters and connections and retest.

Checking Settings:

The current setting for the different adjustments can be verified at any time using the Test button and the LED. This process is divided into 3 sections. *Standard*, *Advanced* and *Null Zone*. The different sections are chosen by the position by the dial when the verification is started.

Standard values can be verified at any time by following these steps.

1. **Turn the power "On"**
2. **Set "Mode" dial any position from 1-7.**
3. **Press the "Test" button and HOLD DOWN.**
4. **The LED will glow solid for 8 seconds (as in the Forced Activation Test), then blink to show the firmware version.**
5. **Next the LED will flash the value for the *Buffer*. (A setting of zero is indicated by a short blip of the LED).**
6. **After a short pause, the Led will flash for the value of *Sample Rate*, followed by a pause.**
8. **Lastly, the LED will Flash the current *Self Learning* status value. (for tech support purposes only).**

ADVANCED values can be verified at any time by following these steps.

1. Turn the power "On"

2. Set "Mode" dial to "OFF".

3. Press the "Test" button and HOLD DOWN.

4. First, the value of the ***Starting RPM*** is shown. The LED will blink for the first digit followed by a short pause, then the LED will blink for the second digit.(1500 RPM = 1,5 Blinks) (zeros are indicated by shorter blinks).

5. After a pause, The value for the ***Ending RPM*** is shown. The LED will blink for the first digit followed by a short pause, then the LED will blink for the second digit.(8500 RPM = 8,5 Blinks) (zeros are indicated by shorter blinks).

6. After a short pause, the LED will flash for the value of ***Trigger Count***. (8 Triggers=8 Blinks).

NULL ZONE values can be verified at any time by following these steps.

1. **Turn the power "On"**

2. **Set "Mode" dial to "9".**

3. **Press the "Test" button and HOLD DOWN.**

4. **The LED will Flash the current *Null Mode* setting, followed by a pause.**

***(Null Mode 0*- Traction Control makes corrections in the normal manor.**

***Null Mode 1*- Traction Control only makes Step 1(small) corrections.**

***Null Mode 2*- T/C will not make any corrections within the set range).**

4. **Next, the value for the *Null Low RPM* is shown. The LED will blink for the first digit followed by a short pause, then the LED will blink for the second digit.(2500 RPM = 2,5 Blinks)(zeros are indicated by shorter blinks).**

5. **After a pause, the value for the *Null High RPM* is shown. The LED will blink for the first digit followed by a short pause, then the LED will blink for the second digit. (4500 RPM= 4,5 Blinks) (zeros are indicated by shorter blinks).**

Factory Reset

All TC settings can be restored to *Factory Defaults* at any time by following these steps.

1. Set the dial to "5"

2. Hold down the "Test" button

3. Turn the power On

4. While holding the "Test" button down, move the dial to the "Off" position.

5. Release the "Test" button,

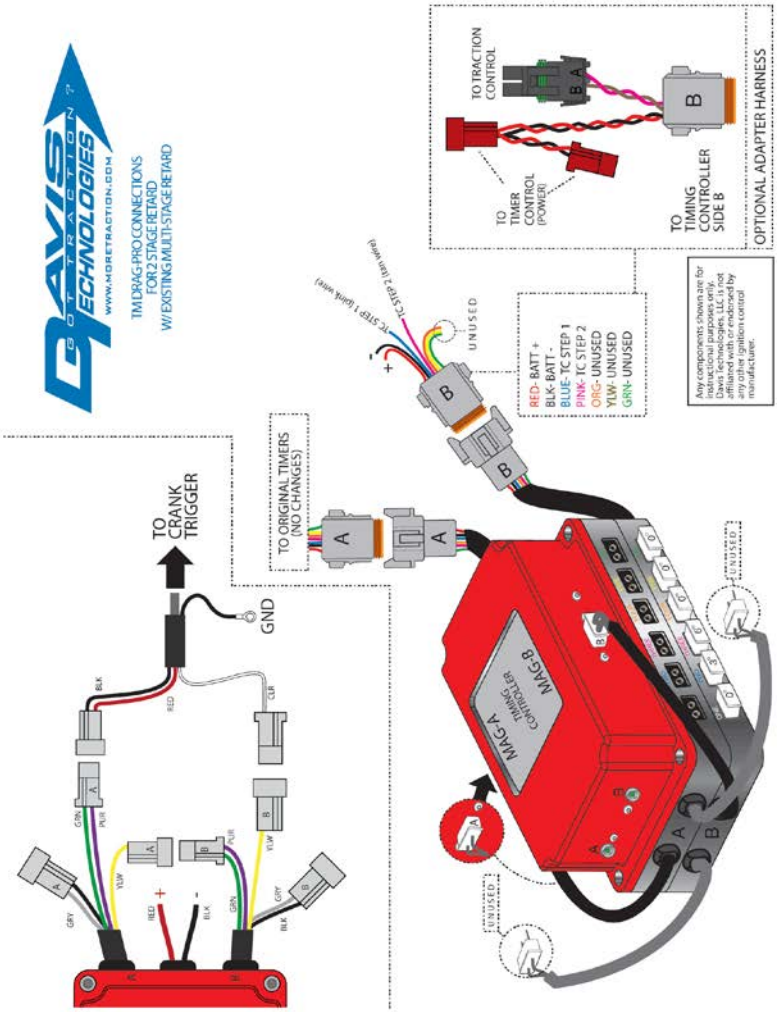
The LED will flash rapidly to indicate the Factory Settings have been restored.

Firmware Updating

Davis Technologies, LLC may release firmware updates or upgrades periodically to ensure the best possible functionality of the Traction Control System. The traction control unit will need to be returned to Davis Technologies to have the updates installed and configured.

Users should log onto www.moretraction.com, or call Davis Technologies, LLC tech department occasionally to check for updates.

Appendix A


DAVIS TECHNOLOGIES
TRACTION
WWW.MORETRACTION.COM
TMS DRAG PRO CONNECTIONS
FOR 2 STAGE RETARD
W/ EXISTING MULTI-STAGE RETARD
TO TRACTION CONTROL
TO TIMER CONTROL (POWER)
TO TIMING CONTROLLER SIDE B
OPTIONAL ADAPTER HARNESS
Any components shown are for illustrational purposes only. Davis Technologies is not affiliated with or endorsed by any other ignition control manufacturer.
RED- BATT +
BLK- BATT -
BLUE- TC STEP 1
PINK- TC STEP 2
ORG- UNUSED
YLW- UNUSED
GRN- UNUSED
TC STEP 2 (pink wire)
TC STEP 1 (blue wire)
UNUSED
TO ORIGINAL TIMERS (NO CHANGES)
TO CRANK TRIGGER
GND
MAG-A
TIMING CONTROLLER
MAG-B
UNUSED
UNUSED

Appendix B

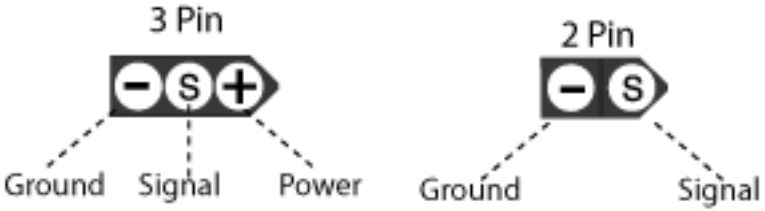
The biggest difference in our systems is the Speed and the Self-Learning capabilities. Other systems "brag" that their TC works 10 times a second—our older systems worked 20 times a second, and while it would help "save a run", it just was not fast enough to help you go faster.

The new systems (since Jan 2009) work every 1/8th of a turn of the driveshaft. At 3000 RPM DS speed, a very critical area for tire slip, it measures the DS RPM 400 times a second, at 6000 DS RPM it measures 800 times a second! The system then processes those measurements 50 times a second (typically), and as fast as 100 times a second, to calculate acceleration change (DS RPM Delta). (We can actually use up to 30 triggers, which would be 1500 times a second at 3000 DS RPM, and 3000 times a second at 6000 DS RPM !!)

Our units utilize 2 high speed processors to measure and calculate drive shaft data, and nothing else. Our patented systems are not simply a few lines of code thrown into an existing engine management system and called traction control. This is all we do, and all we have done for the past 14 years! Traction Control Is What We Do!

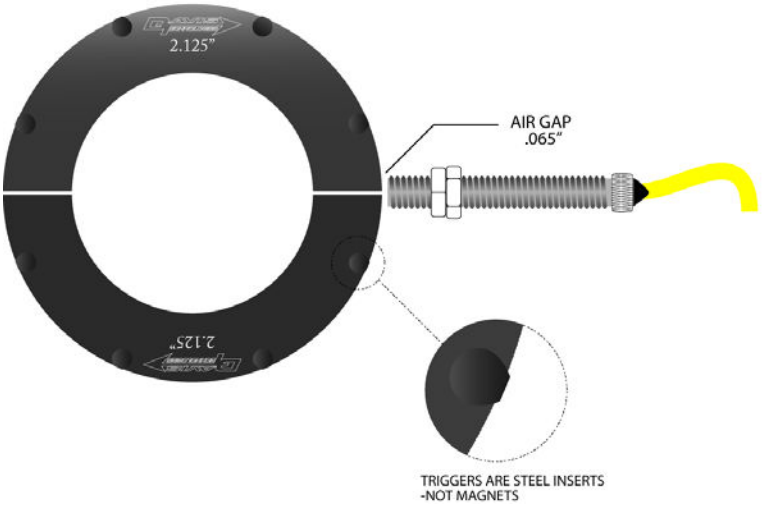
Appendix C

RacePak® Sensor Pin Out



Ring & Sensor

IF USING THE DAVIS TECHNOLOGIES RING AND SENSOR, USE THE FOLLOWING GUIDELINES



Traction Control Panel Software:

(Drag Pro Systems Only)

The Traction Control Panel (TCP) software interface is used to adjust advanced tuning features of the traction control system.

These tuning features can be used to fine tune the system to exactly what the user desires.

On drag racing systems, this includes being able to tune the drive shaft RPM at which the system becomes active, as well as the RPM at which the system can be deactivated.

The user can also tune the length of corrections, and the amount of power that is cut on different parts of the race track.

The software based interface is easily downloaded from the web site and installed on your computer. The Traction Control is connected to the computer via a serial cable or through a secure wireless Bluetooth connection. Tuning is achieved through a few simple mouse clicks.

Main Tab Settings:

The Self Learning units incorporate two different methods to control wheel spin.

The second patented method is a less advanced process where the users sets a threshold of acceleration that if exceeded will cause the timing to retard.

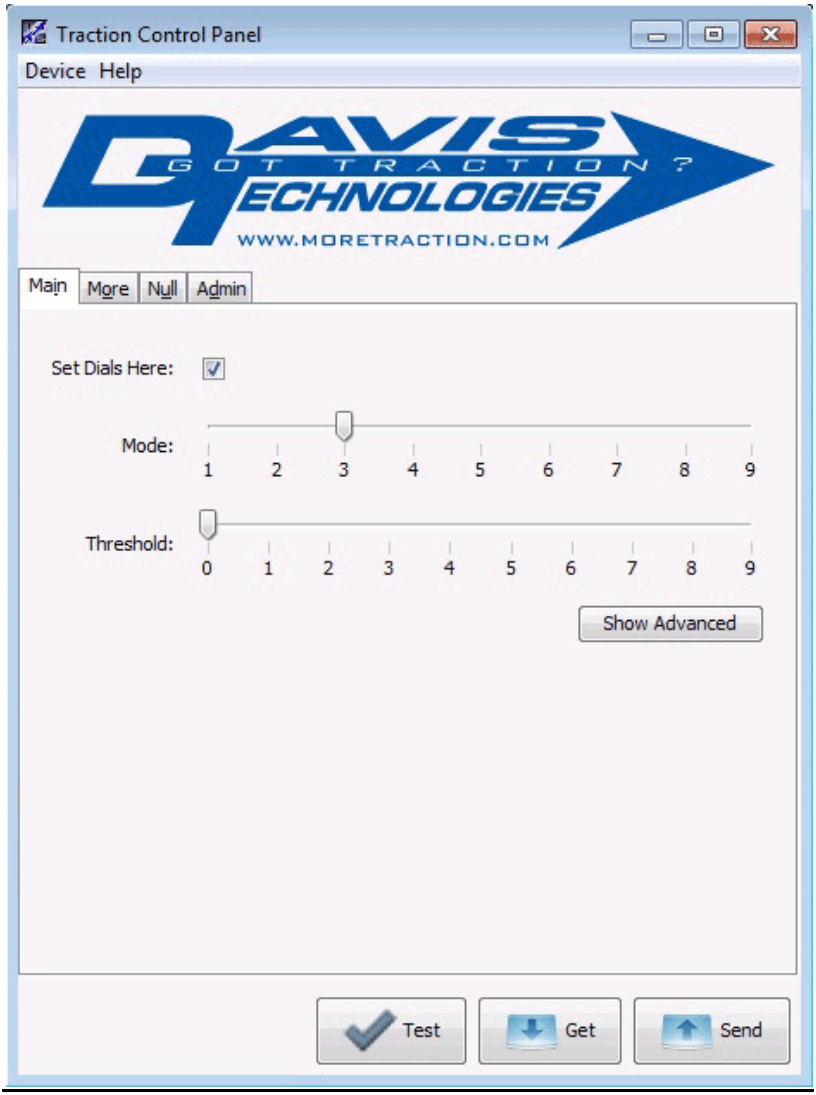
The second- *Non-Self Learning* system is activated when the "Threshold" setting is set to anything other than zero. The Non-Self Learning Method is only accessible using the "Traction Control Panel Software".

Threshold is used to set this value. The higher the number the more sensitive the system is. A good starting point is 4. Valid settings for threshold are 1-9.

Mode is used to adjust the Mode of the unit using the software instead of the button on the unit as described earlier in this manual.

Note: To use the Mode and Threshold sliders in the software, you must check the "Set Dials Here" box. When checked, the TC unit only uses the TCP settings, and the setting cannot be changed using the button on the unit. To use the button method, YOU MUST UN-CHECK THIS BOX!

Main Tab- Basic Screen



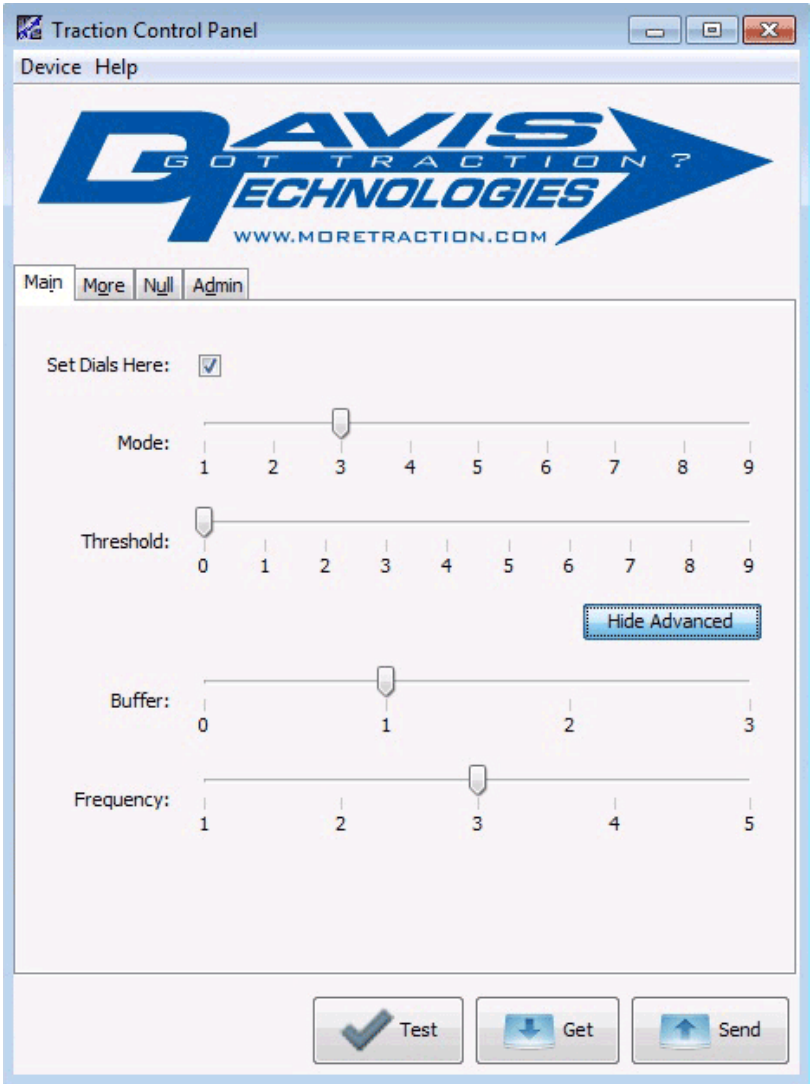
Advanced Main Tab Settings:

These settings should only be adjusted if advised to do so by Davis Technologies!

The *Buffer* setting is another feature that can be used to fine tune the system. The buffer sets the number of consecutive slip conditions required to cause a correction. Buffer 0 will react to each slip condition. Buffer 1 will require at least 2 consecutive slip conditions to cause a correction. This is useful to filter out small tire slips that may occur quickly, but have no ill effect on the car. (Buffer 1 is the default for most applications, but some experimenting with this setting may be useful to see what works best for you).

The *Frequency* of the unit can also be changed by the user, however this should only be done after consulting w/ tech support. The lower the number the faster the Sample Rate, which makes the unit less sensitive, but faster to react. The higher the number the slower the Sample Rate, which makes the unit more sensitive, but slower to react. Valid settings are 1-5. (Default=3 Dirt / 4 Asphalt)

Main Tab- Advanced Screen



More Tab Settings:

The More Tab allows the user to set the Starting RPM, Triggers, as well as some Advanced RPM controls.

Starting RPM is a user adjustable setting that allows the racer to set the point at which the unit begins making corrections. If the Starting RPM is set to 1500 RPM, then the unit is active and monitoring the driveshaft speed, but not making any corrections until the Starting RPM is reached. Once the Starting RPM is reached, the unit will make corrections as needed, until the End RPM is reached.

End RPM is a user adjustable setting that allows the racer to set the point at which the unit stops making corrections. Once the End RPM is reached, the unit will stop making corrections.

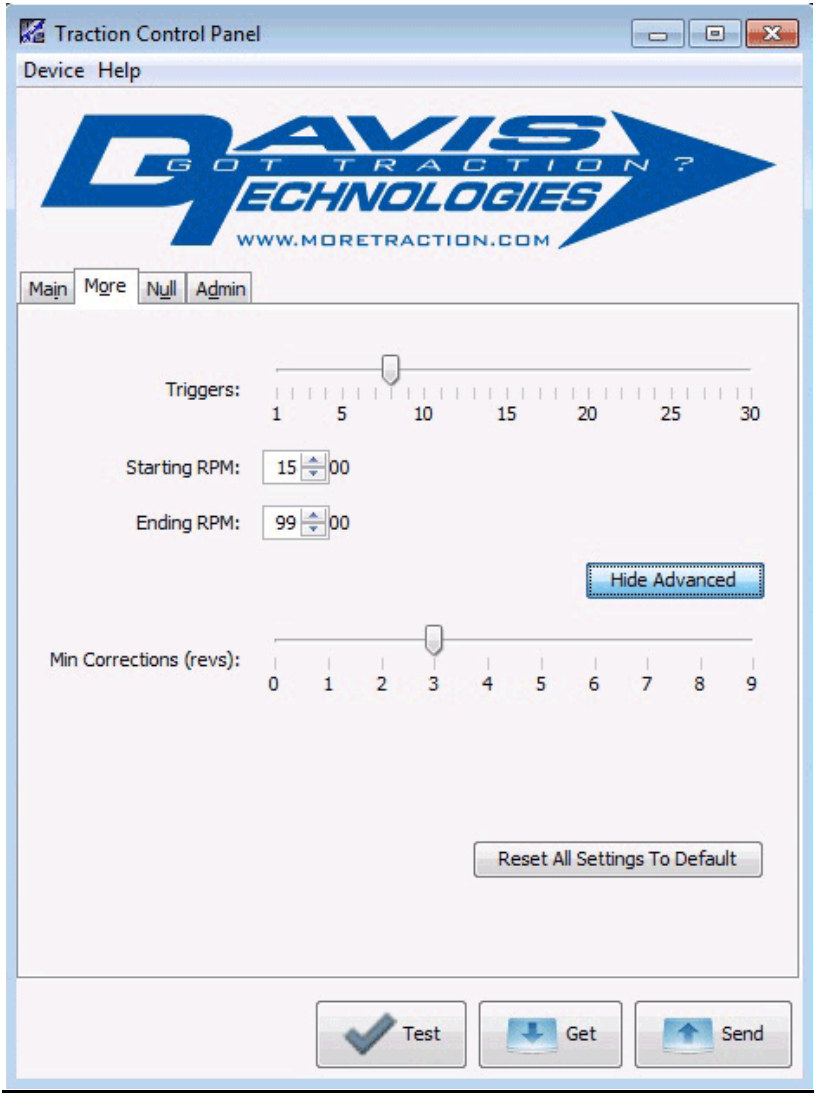
Triggers is a user adjustable setting that allows the racer to set the number of triggers the TC is picking up for each revolution of the measured shaft. In most cases, this is the number of triggers on the driveshaft collar.

More Tab- Basic Screen

More Tab Advanced Settings:

The Advanced Screen of the More tab allows the user to tune the minimum number of driveshaft rotations that the timing will be retarded during a correction. This is useful to force the timing to stay retarded long enough to stop a high momentum spin, even though the RPM spike was very brief.

More Tab- Advanced Screen



Null Tab Settings:

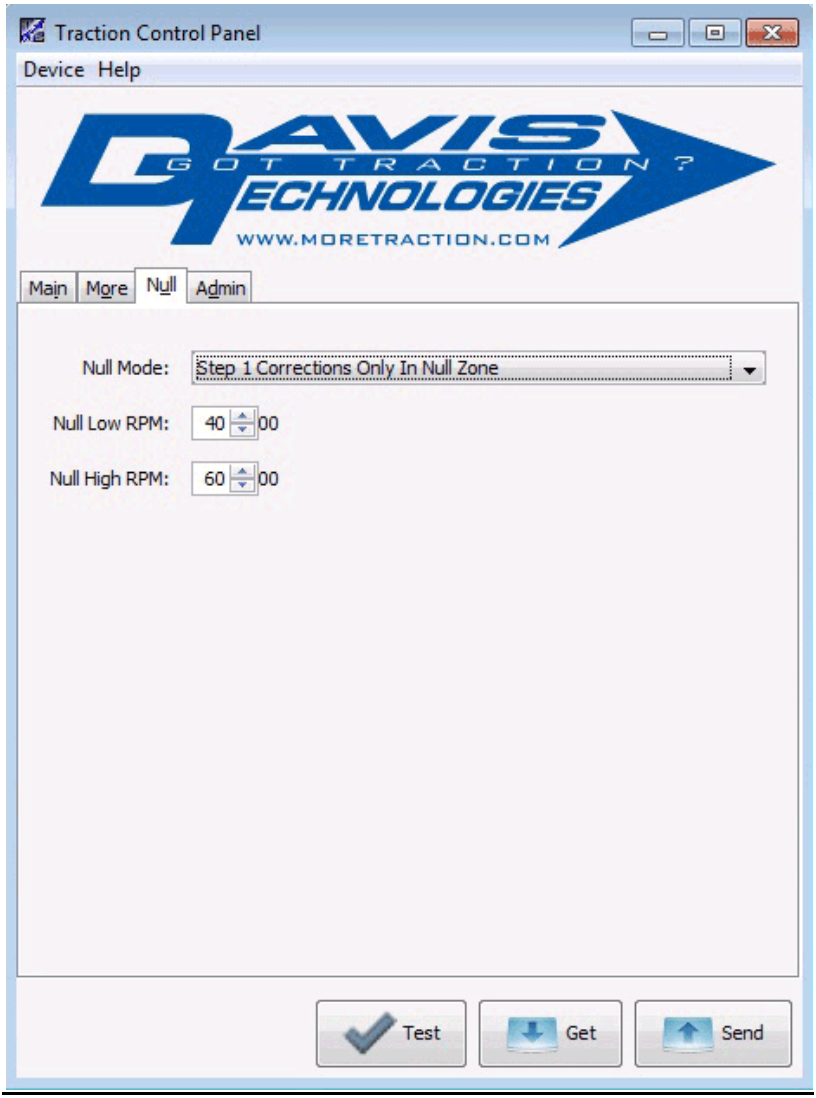
The Null zone is used to adjust how much timing, if any, is retarded on different parts of the track. These ranges are based shaft RPM.

Step 1 & Step 2 Corrections (Null Mode 0): is used to allow the unit to make either correction in the RPM window set by the Null Low RPM and Null High RPM values. This is the same behavior as outside the RPN window, and is used to essentially deactivate the null zone without having to reset the RPM values. (This is useful when setting up the Null Zone with the knobs on the unit if the software is not available. See "Traction Control Setup" above)

Step 1 Corrections Only (Null Mode 1): is used to force the unit to only make small timing correction in the RPM window set by the Null Low RPM and Null High RPM values.

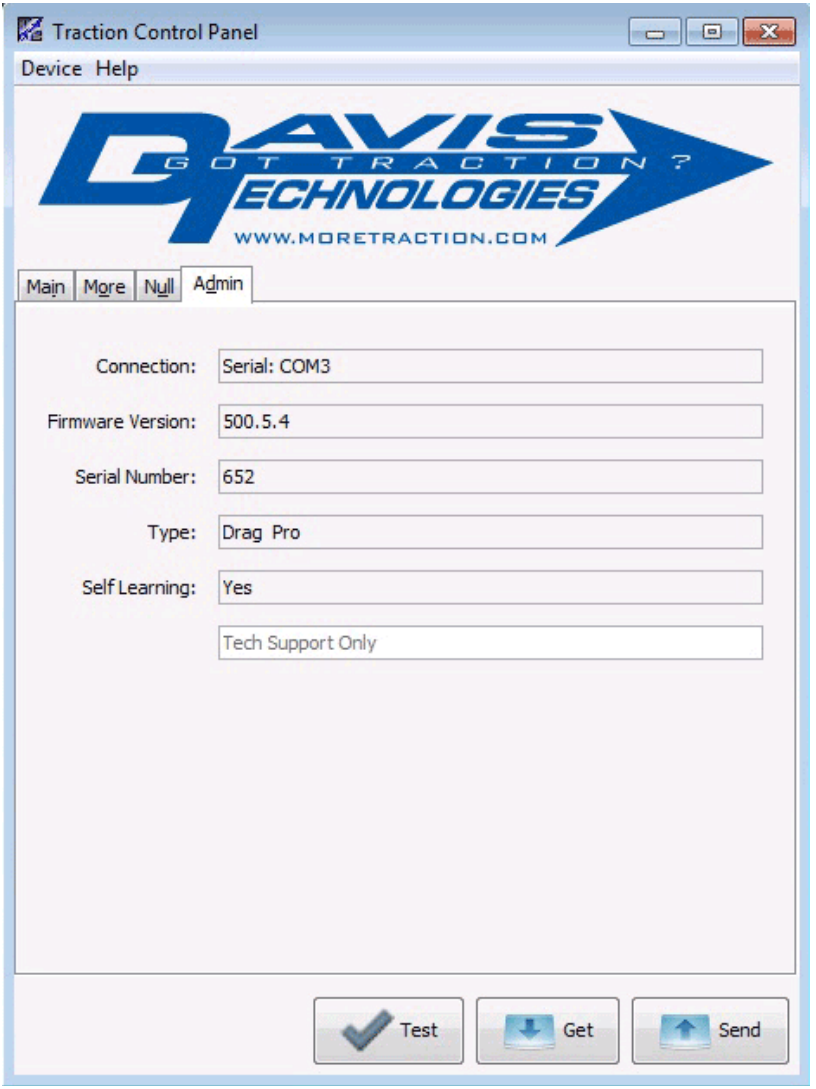
No Corrections (Null Mode 2): is used to force the unit to make no timing correction in the RPM window set by the Null Low RPM and Null High RPM values.

Null Tab Screen



Admin Tab:

The Admin screen is used to provide information about the unit for tech support by Davis Technologies.



USB to Serial Adapter:

Newer laptop computer may not have an actual RS232 DB9 connector installed. In this case a USB to Serial adapter will be required. Not all adapters are created equally, and some brands may not work properly with the Traction Control Panel software. Most brands work without any problems, but occasionally we find some that do not. Davis Technologies offers a model that has been tested on may brands of computers as well as across many operating systems. These are available for $29.95 from Davis Technologies directly.

Handheld Programmer

The handheld programmer can be used to adjust all of the parameters that the TCP software does, but is a simple, self contained system that does not require a computer. Most users prefer the handheld. The handheld programmer is available as a hard wired unit, or a wireless Bluetooth connected unit.

Disclaimer

Motor sports products and parts are sold "as is" without any warranty whatsoever. Implied warranties, including warranties of merchantability or fitness for a particular purpose, are excluded. The entire risk of quality and performance of such parts is with the buyer. Should such parts prove defective following their purchase, the buyer and not the manufacturers, distributors, or retailers, assumes the entire cost of all necessary services or repair.

The Davis Technologies, LLC's products and parts warranties are voided if the vehicle or part is used for competition or if they fail as a result of modification.

It is the purchaser/competitor's responsibility to inspect and verify the dimensions, specifications, and performance of all parts as being appropriate for the use to which the purchaser/competitor will put them prior to any actual installation and use of said products and/or parts.

The purchaser/competitor is on notice that motor sport competition (commonly known as "racing") is an inherently dangerous activity which can result in serious personal injury and even death to participants and even to spectators. If these parts and/or products are used in motor sport competition, any and all risk of and liability for any resulting damage, injury or death is with the purchaser/competitor. In no event shall Davis Technologies LLC be held liable for special or consequential damages.

Notes

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