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All-in-one wiring harness solution

Enclosed is an all in one solution for your Tremec 6-speed Magnum transmission that allows for a simple 4 to 5 wire hook up to give you control over every function included on the transmission. ***NOTE*** If you are using the All-In-One with factory GM speedometer connection or a Magnum XL conversion in a Mustang please read the last 2 pages before completing the installation.

The all in one utilizes a small, built in, epoxy sealed control box that will control each of the 3 functions with power and grounding for each function through 1 switched +12v circuit (RED) and 1 (BLACK)wire connected to the negative battery post or engine block. Control of the reverse lockout solenoid is based on a user defined speed setting that is set up through the mobile app. This eliminates the need for a separate lock out control box. The electronic speedometer output connection on the harness is equipped with 2 speed sensor outputs (PURPLE/WHITE & PURPLE/YELLOW); the speed sensor outputs generate a square wave signal that goes from about -5 to roughly +5 volts, varying in frequency as the speed changes. If your ECM needs a positive only input, the output will automatically shift and give you 0 to +10 volts. The 2 speed sensor outputs are completely independent and can be calibrated separately with any pulse count and ratio you want. These two outputs should be able to drive any common speedometer, cruise control, or ECM. If only one output is needed you can choose either wire and cap the other that will not be used. This will give you much greater flexibility in the components you are able to use and requires less time wiring everything up. The reverse lights are powered by a pair of wires (RED/BROWN) connected to a switched +12 volt source and the positive side of your reverse lights; grounding of those lights should be local to the bulb socket.

Wiring Instructions and plug connections

Red wire: Fused ignition switched +12 volt connection to provide power for reverse lockout and speed sensor functions.

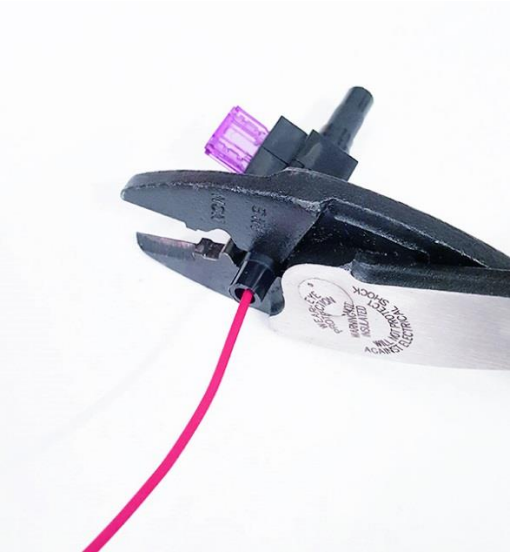
Black wire: Ground connection for reverse lockout and speed sensor functions.*NOTE: It is extremely important to connect this to the battery negative terminal or engine block ground to avoid any electronic interference which could disrupt the speed sensor signals and give false readings.

Purple/White(output 1) & Purple/Yellow(output 2): These are both speed sensor outputs, and only needed when using an electronic speedometer or other module that requires a speed signal input to operate. You can utilize just one or both depending on your needs. They both are programmable based on the needs of the equipment they are sending signal to. If only one is used, cap off the other and secure it. Output one is preset at 40 pulses per revolution and option 2 is preset at 16 pulses per revolution. Contact your gauge manufacture if you do not know what pulse input is required.

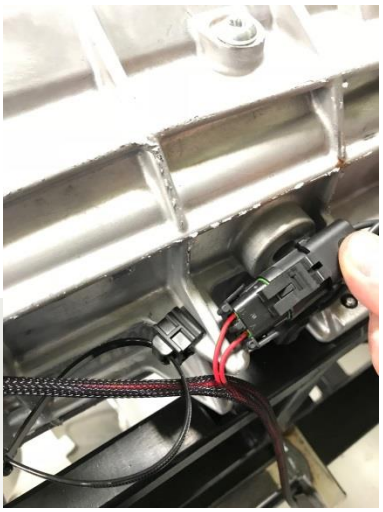
Red/Brown(2): Reverse light power input/output. If using reverse light feature, these 2 wires work in conjunction with each other. They both are tied together so there is no way to connect them wrong if you hook them up to the correct sources. One wire will need to connect to a switched +12 volt source and the other will need to be connected to the positive (+) side of your reverse light bulb socket.(Does not matter which one connects to which) Power will be sent to this connection only when transmission is in reverse gear. The grounding of your reverse lights will be done direct to the bulb socket through a chassis ground. If you are not using reverse lights you can easily remove this part from the harness altogether as it is not connected through the epoxy sealed controller.

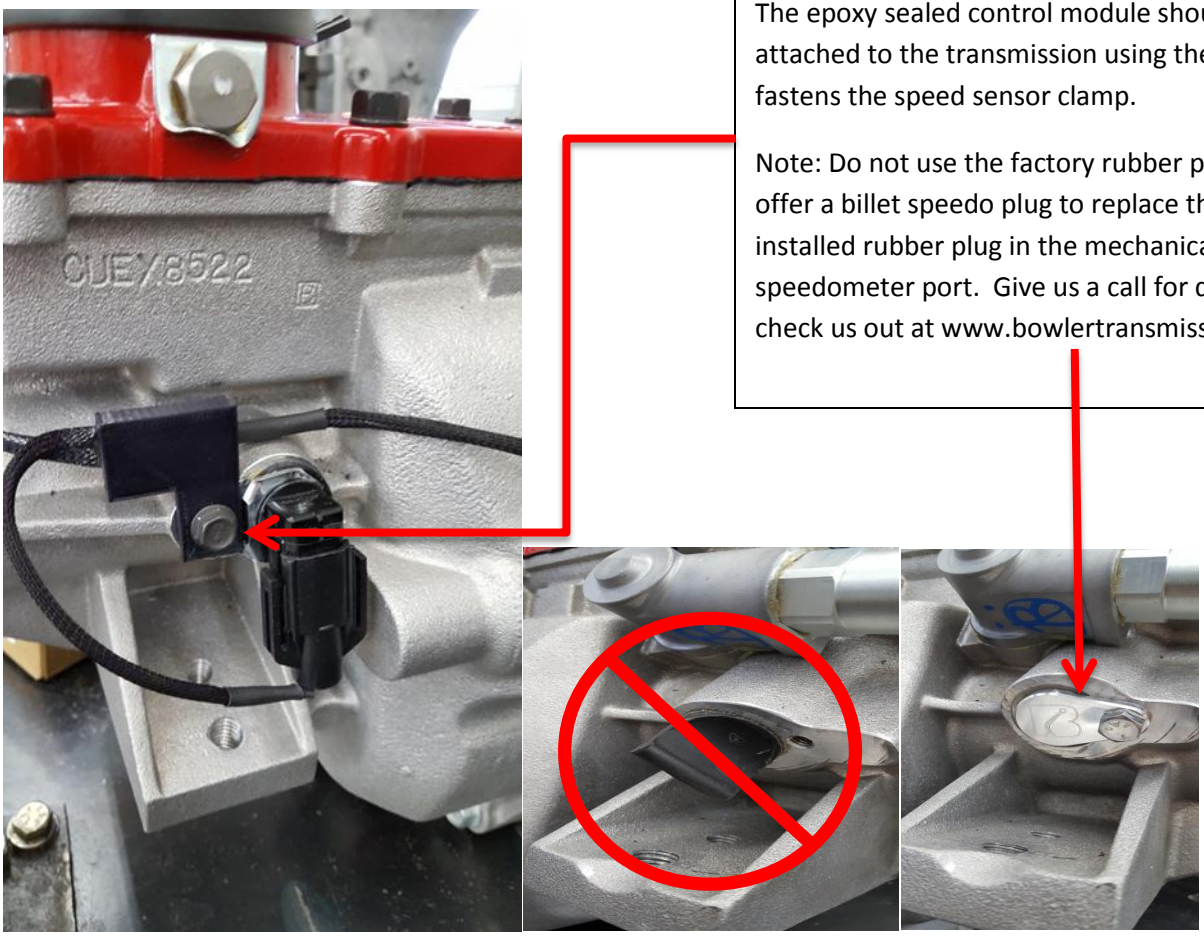
The three terminated connectors on the harness each have one specific location and cannot be interchanged. It is a good idea to plug them all in even if you are not going to use one or more of them.

The included fuse holder should be attached in line to the Red power wire and the 12V+ source. It is a crimp on style fuse holder and we recommend using heat shrink tubing to keep moisture out of the connection.



Included in the package is a zip tie with clip. This can be used to help secure the all in one harness to the case of the transmission. It is optional, but included for your convenience.

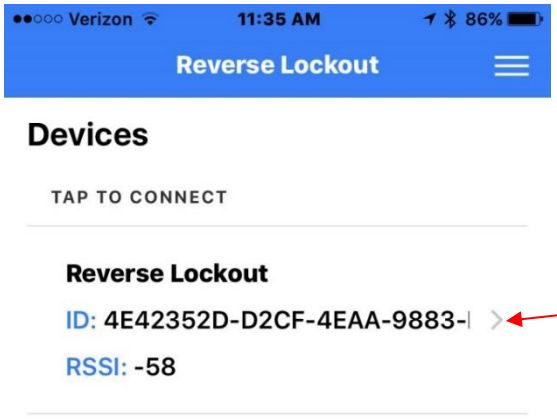




Mobile Blue Tooth App set up

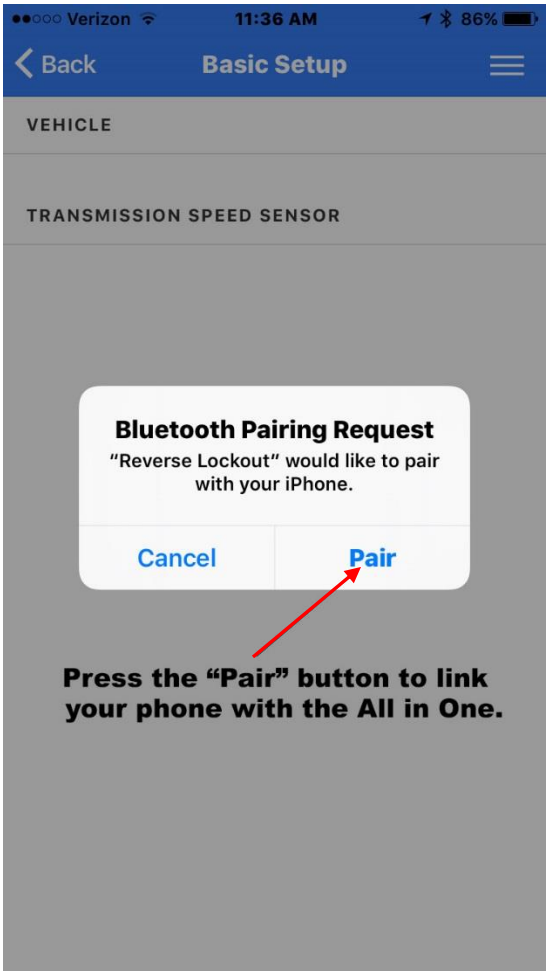
The harness is equipped with a blue tooth chip that will connect to your smart phone along with an app we have developed for Apple or Android users. Go to the Apple App Store or Google Play Store and search for Bowler Performance Transmissions. Then download the Bowler Reverse Lockout Setup. Once you have the App loaded onto your phone you can pair it to the All-In-One.

To connect your phone to the All-In-One, first be sure all of the wiring connections are made on the transmission so that it can be powered on. **Before switching the power on to connect to the App unplug the speed sensor (VSS) connection on the transmission.** Turn the vehicle on to supply power to the All-In-One. Open your Bowler App and follow the prompts listed on the next page.

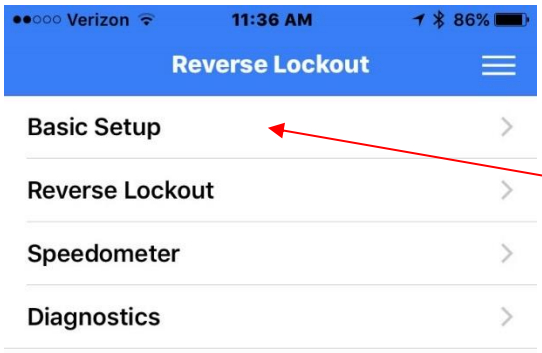


When you first open the App it will prompt you to connect your phone. Be sure your Bluetooth is enabled on your device. The first time you connect the All-In-One to your phone you need to have the VSS Sensor Unplugged. **After the phone is paired to the All-In-One you can reconnect the speed sensor.**

Once you see the ID and RSSI, touch the screen to connect.

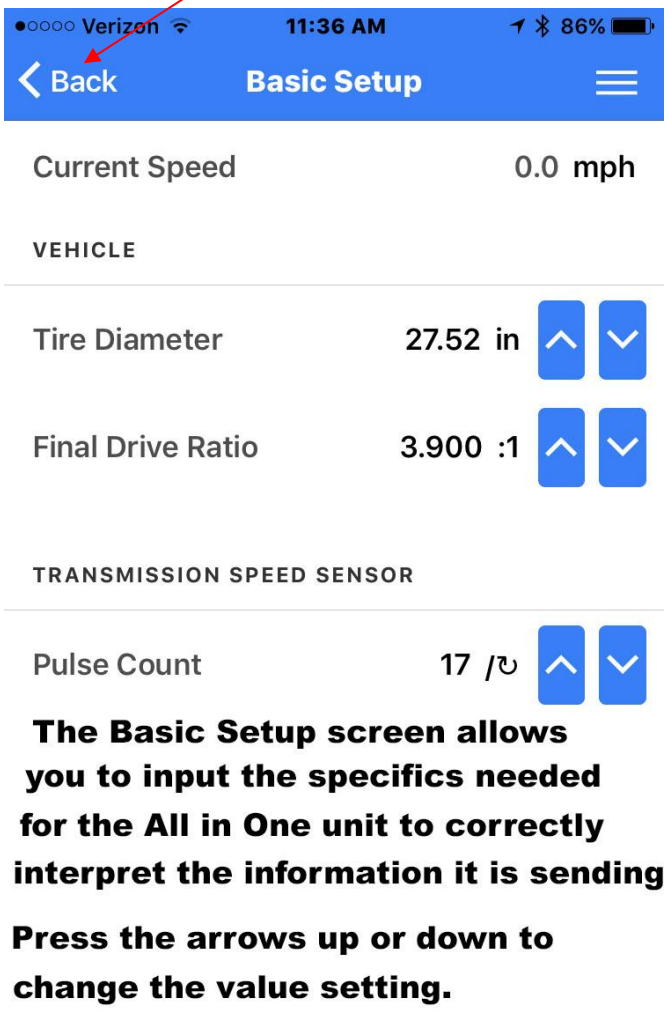


All-One-Harness



Once you have the phone connected to the All-In-One it will take you to this Main Menu screen where you can select which feature you need to adjust. Start with the Basic Setup menu first.

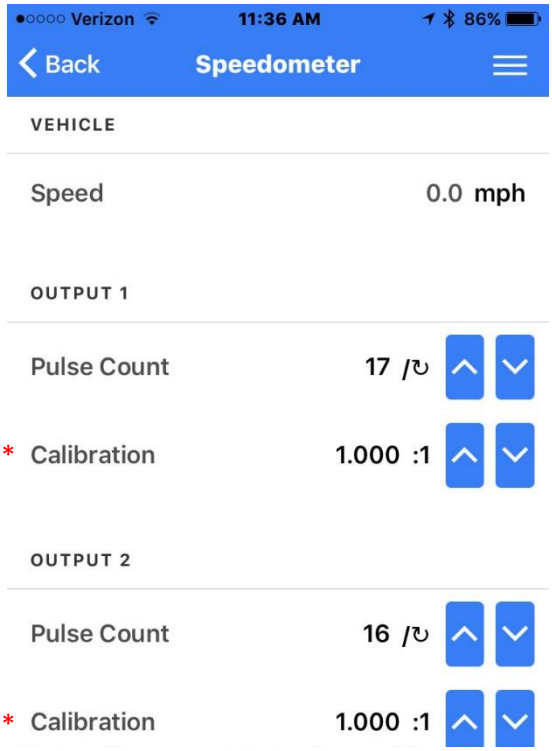
Once you are done with your basic setup, press the back tab to go back to the main menu.



The Basic Setup screen allows you to input the specifics needed for the All-In-One unit to correctly interpret the information it is sending.

Either touch the screen on the numbers to manually enter the correct information or simply press the arrows up or down to change the value setting.

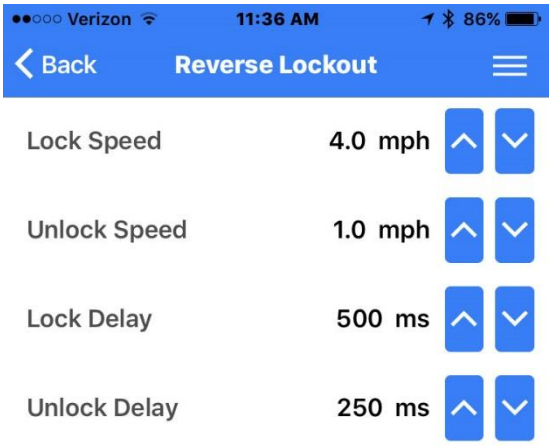
All-One-Harness



Next select the Speedometer menu. This will allow you to adjust the pulse signal output to match your specific requirements for your speedometer. * This is specified by your gauge manufacture and should confirm with them when changing this setting.

The All-In-One is shipped with the default settings for Output 1 as 40 pulses per revolution and Output 2 as 16 pulses per revolution

* The Calibration ratio is a very fine adjustment and will allow you to fine tune your speedometer as needed.



There is really no reason to change any settings on the Reverse Lockout Solenoid. The default settings are recommended, which will allow the shifter to easily go into reverse from 0 – 4 mph and will have the spring detent to make going into reverse difficult above 5 mph.

You can change the lock or unlock speed as well as the delay if desired, but not recommended.

* We do offer a positive lock Reverse system for race vehicles if interested, please call (618) 943-4856

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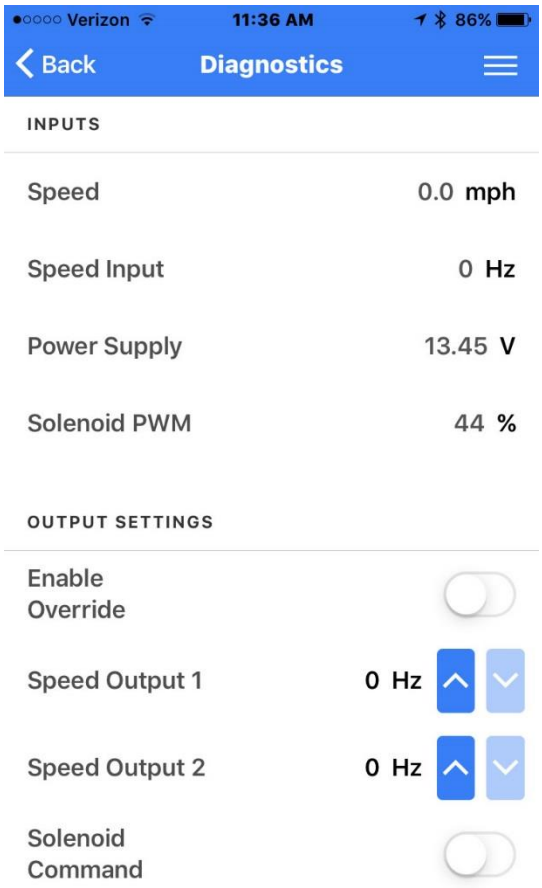
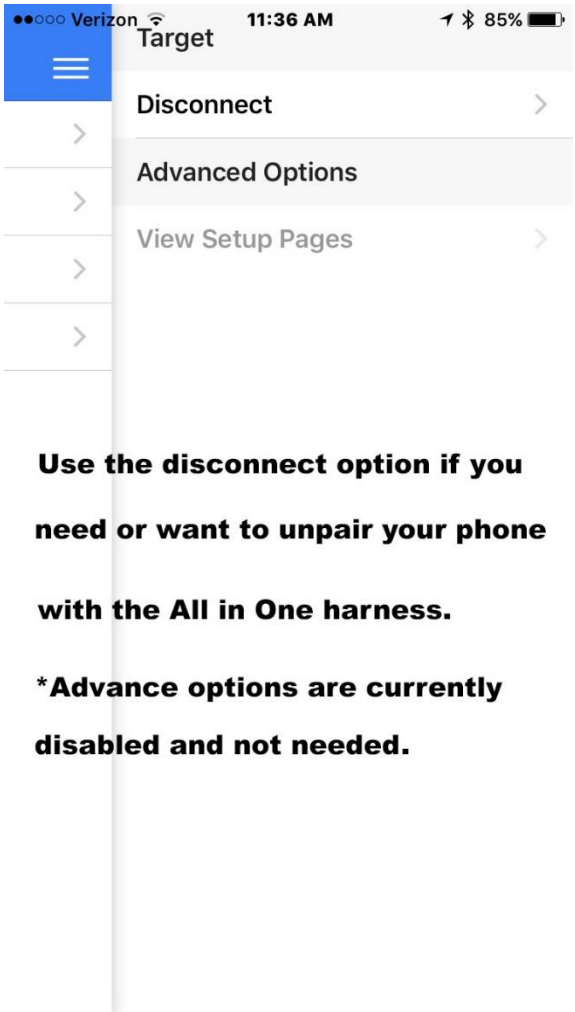
All-One-Harness



The diagnostic tab is not recommended for anything more than live data from the module for testing or diagnostic purpose.



Use the disconnect option if you need or want to unpair your phone with the All in One harness.

***Advance options are currently disabled and not needed.**

If you have any questions please contact us at 618-943-4856 or info@bowlertransmissions.com

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Magnum XL conversions in S197 & S550 Mustangs

If you are using the All-In-One harness to connect your Magnum XL to your OE Mustang speedometer please note that in order for the cruise control to work properly you must adjust your ECM/PCM settings to update the gear ratios from the MT-82 to the Magnum XL. The All-In-One will correctly calibrate the speedometer, but the cruise control is based off of engine RPM in a specific gear. The original MT-82 utilizes a different gear ratio set than the Magnum XL which the All-In-One cannot compensate for. Some have found that using the GT500 tune as a base will allow you to make the corrections needed.

The 2011-up Mustangs equipped with the Getrag MT82 manual transmissions require a digital speedometer adapter/calibrator for two reasons. The first is to convert the two wire output of the Magnum XL to the Mustang three wire harness. The second is to increase the pulse count of the Magnum XL from 12 pulses to 36 pulses to match the MT82 output. We recommend cutting the factory connector off and soldering the wires directly to the All-in-One harness wires, then shrink wrap and loom the wires for added protection. In the chart below you will see the color codes for your specific year of Mustang. The primary concern is the connection to the digital signal into the ECM. The All-in-One contains 2 output wires (purple/yellow or purple/white) either of these can be connected and then have the signal output manipulated to 36 pulses via the smartphone app so that the speedometer will read correctly. We recommend connecting only the VSS output of the All-in-One to the Digital Signal into ECM wire. Power and Ground are best connected to a clean voltage source with the included fuse link. If you choose, you can utilize the 12v ECM wire in the factory harness to provide power to the All-in-One harness by connecting to the red power wire, just be sure to place the fuse link in-line with that connection. You can also utilize the Signal Ground wire in the factory harness to connect the black ground wire in the All-in-One harness. If you choose to connect ground this way it is also recommended to run an additional wire to a clean chassis ground to avoid any signal noise interference. These connections, however, are not required and the 12v ECM and Signal Ground wires in the factory harness can be capped off and not used if you prefer to run a, separate, dedicated power and ground wire for the All-in-One harness.

	2011-14 Mustang	2015-17 Mustang
12V ECM	Purple/Green	Violet/Green
Digital signal in to ECM	Tan/Green	Brown/Green
Signal Ground	Tan/Blue	Blue/Gray

GM factory speedometer or OE style speed input system(Connect & Cruise LS Wiring)

In the factory GM installations where an electronic speed input is used in the factory harness you will typically find a two wire connector that carries a yellow and purple wire pair. Since the All-in-one harness utilizes a single wire speed signal output you will want to connect the purple/yellow wire from the all-in-one harness to the purple wire of the GM harness, then simply ground the GM yellow wire. That will give you the input you need to correctly feed the GM speedometer. From there you can adjust your app settings to ensure that the speedometer is reading correctly.

- If you are using a factory GM speedometer and have any issues such as low speed reading or no speed reading, please contact us. Some OE systems require a capacitor and diode to be wired in series with the VSS output wire. We can supply the components and a wiring diagram as needed.