

# MicroSquirt Transmission Control Drop On Harness

## For GM 4L60E and 4L80E

Thank you for buying our drop on harness! This harness makes controlling a GM four speed automatic transmission an easy bolt on. For more details about using MicroSquirt as a transmission controller, please see the main MicroSquirt transmission control page here:

<http://www.msextra.com/product-range/expansion/microsquirt-transmission-control/>

If you have any questions about this harness, please contact us at [support@diyautotune.com](mailto:support@diyautotune.com).

The harnesses are color-coded. The 4L60E harnesses have red bands on the TCU and main transmission plugs. The 4L80E harness uses blue bands instead, so you can tell at a glance what transmission the harness fits.



## ***Parts included***

This package includes the following items:

- MicroSquirt loaded with transmission control code
- USB thumb drive with software and instructions
- Complete 4L60E or 4L80E wiring harness
- 6 pin black connector for power, ground, and CAN bus
- 8 pin gray connector for additional inputs
- 18 crimp pins for the above connector

## ***Applications***

The red stripe harness fits GM 4L60E transmissions, both with and without the LUF (lock up feel) control solenoid. It does not include the input shaft speed sensor found on later 4L65E and 4L70E variants. The blue stripe harness fits GM 4L80E transmissions, except early production units from 1991 to 1993. You can use this harness with our MS3-Pro drop on harnesses, in which case it simply plugs into an existing plug on the harness. You can also wire this to communicate with an MS2, MicroSquirt, MS3-Pro, or MS3 over the CAN bus, or use it with a non-MegaSquirt ECU or carburetor if you add a few extra wires for load and RPM input.

## ***Pre-installation considerations***

This harness is designed for installing the MicroSquirt in the passenger compartment. These parts are capable of withstanding underhood heat if they are mounted at least 12" (30 cm) from the exhaust system. For unusually high vibration installations, use rubber vibration isolators to mount the ECU. The MicroSquirt is not fully sealed; if you expect it to encounter water, you will need to seal the case with RTV silicone.

We used high temperature wire for the harness, but you will want to avoid routing it too close to the exhaust system as well. The maximum temperature of the wiring is 85 degrees Celsius (185 degrees Fahrenheit).

## ***Installing the harness***

The harness puts the MicroSquirt transmission controller, power connection, serial tuning cable, and a set of optional body connections at one end, and the transmission and vehicle speed sensor connector at the other.

For most vehicles, you will need to support the vehicle on a lift or jackstands to install this harness. These directions will use “passenger side” and “driver side” referring to US market (left hand drive) vehicles.

### **Step-by-step wiring directions**

1. Disconnect the battery.
2. You will want to start by cutting a hole in the firewall and feeding the harness through from the

inside to the engine. Minimum recommended hole diameter for the wiring harness is 1.75" (45 mm).

3. If using our MS3-Pro drop on harness, plug the six pin black connector into the transmission connector on the drop on harness. If you are not using our MS3-Pro drop on harness, you will need to wire up the 6 pin connector manually. The pins are marked in small numbers on the connector housing, and are wired up as follows:
  1. Clean power. Connect to switched 12 volt power with a 2 amp fuse. Used for powering the MicroSquirt.
  2. CAN bus high. Connect to CANH output of ECU.
  3. CAN bus low. Connect to CANL output of ECU.
  4. Not used.
  5. Ground. Connect to battery negative terminal.
  6. Solenoid power. Connect to switched 12 volt power with a 7.5 amp fuse.



4. Find a suitable mounting location for the MicroSquirt inside the vehicle and bolt the



MicroSquirt in place. Connect the 35 pin AMPSEAL connector to the MicroSquirt.

5. The large circular connector plugs into the matching plug on the passenger side of the transmission.
6. The small two pin connector plugs into the vehicle speed sensor on the transmission tailshaft housing for a 4L60E, towards the rear of the transmission ahead of the tailshaft on a 4L80E. 4L80E transmissions add a second connector marked "Input speed sensor", which plugs in on the driver's side just behind the bellhousing.
7. Connect the optional expansion connector if required. If you are not using this with a compatible ECU, you *must* connect the TPS, coolant temperature, and tach inputs; if you are using with an MS3-Pro or compatible ECU, the MicroSquirt does not need these as it will obtain this data over CAN.

This connector's pinout is as follows:

1. 5 volt reference voltage. Use for powering a throttle position or MAP sensor.
2. Throttle position sensor. Connect to the signal pin on your TPS.
3. Coolant temperature sensor. Coolant temperature sensors have two wires; one connects to this and the other to sensor ground.
4. Bootloader. Connecting this to ground before turning the MicroSquirt on will put the unit in bootloader mode for loading firmware. The MicroSquirt will not operate the transmission in bootloader mode.
5. Sensor ground. Used for any sensors wired to this connector.
6. Tach input. Accepts a 0-12 volt square wave tach signal. Do not connect this to the negative terminal of a coil or other high voltage tach source – you may damage the MicroSquirt control unit.
7. Brake switch input. This can be used to change torque converter lock-up behavior. This



switch input is activated when grounded. Optional. Note that this needs a ground signal to trigger, not 12 volts like some OEM wiring.

8. Spare analog input. This can use a 0-5 volt input for data acquisition, or for activating features on the engine control unit.

## **Software notes**

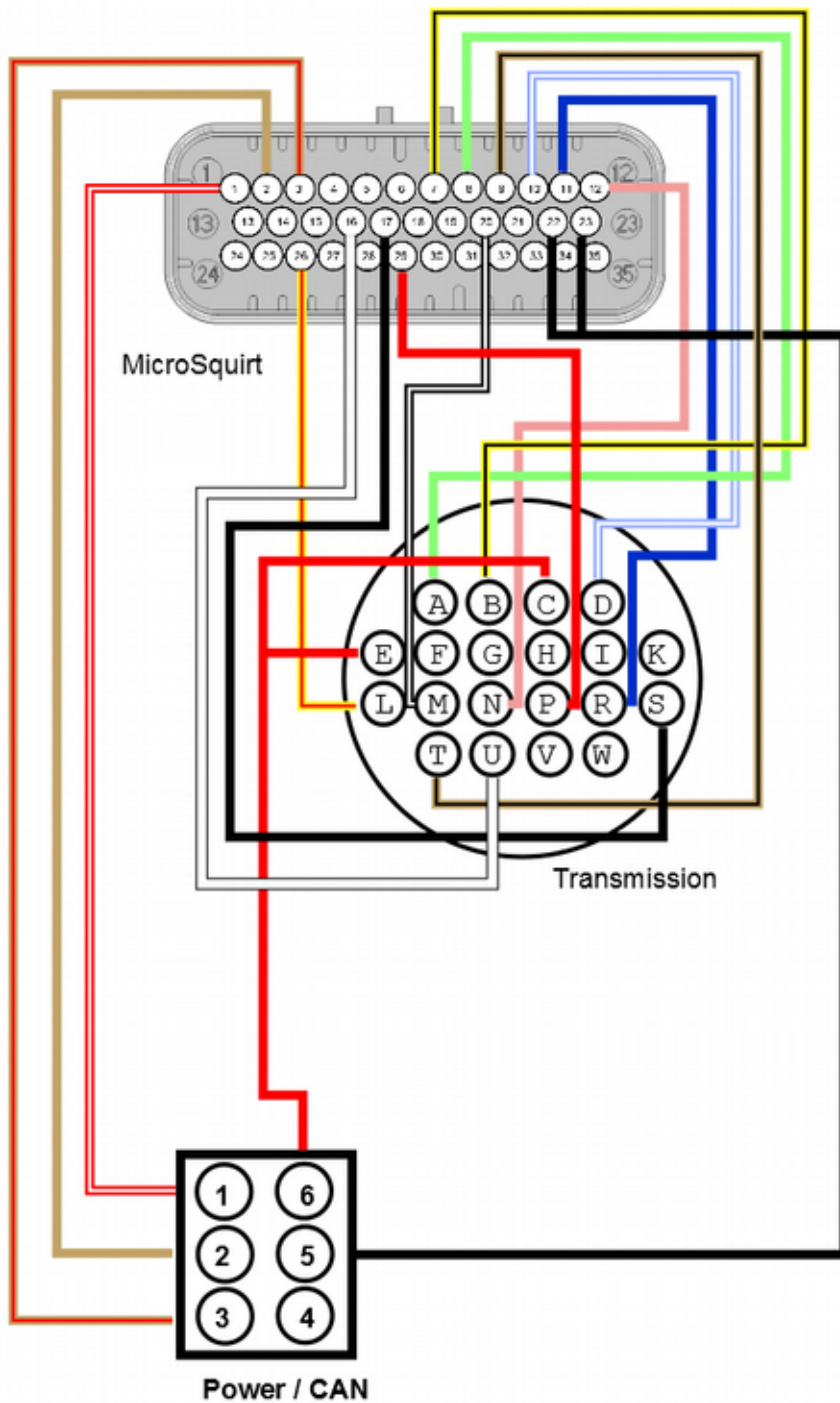
The USB stick may automatically install TunerStudio when you plug it into the computer. If it does not start installing the program automatically, select the USB stick manually and run the Setup.exe file. Software is covered in the MicroSquirt transmission control manual located at this link:

[http://www.msextra.com/doc/pdf/Trans\\_Control-1.0.pdf](http://www.msextra.com/doc/pdf/Trans_Control-1.0.pdf)

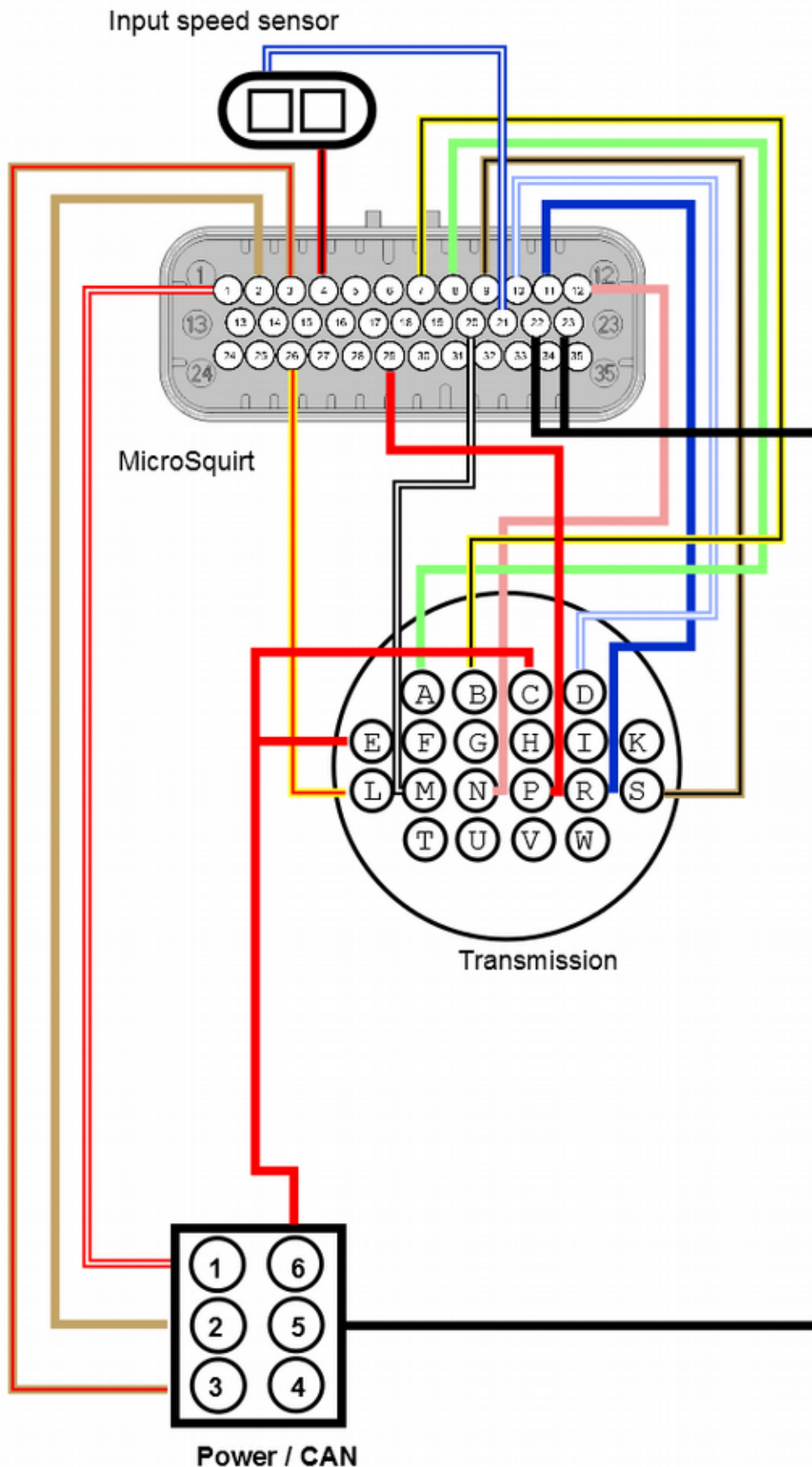
Section 6 covers software settings, while section 7 covers how to integrate the MicroSquirt transmission control with an MS3-Pro or other compatible ECU.

Note that this wiring harness is set up to use the MS3-Pro serial cable instead of the regular MicroSquirt serial cable. If you need to connect to a USB port, add our USB-2920 adapter.

## ***Wiring diagrams***

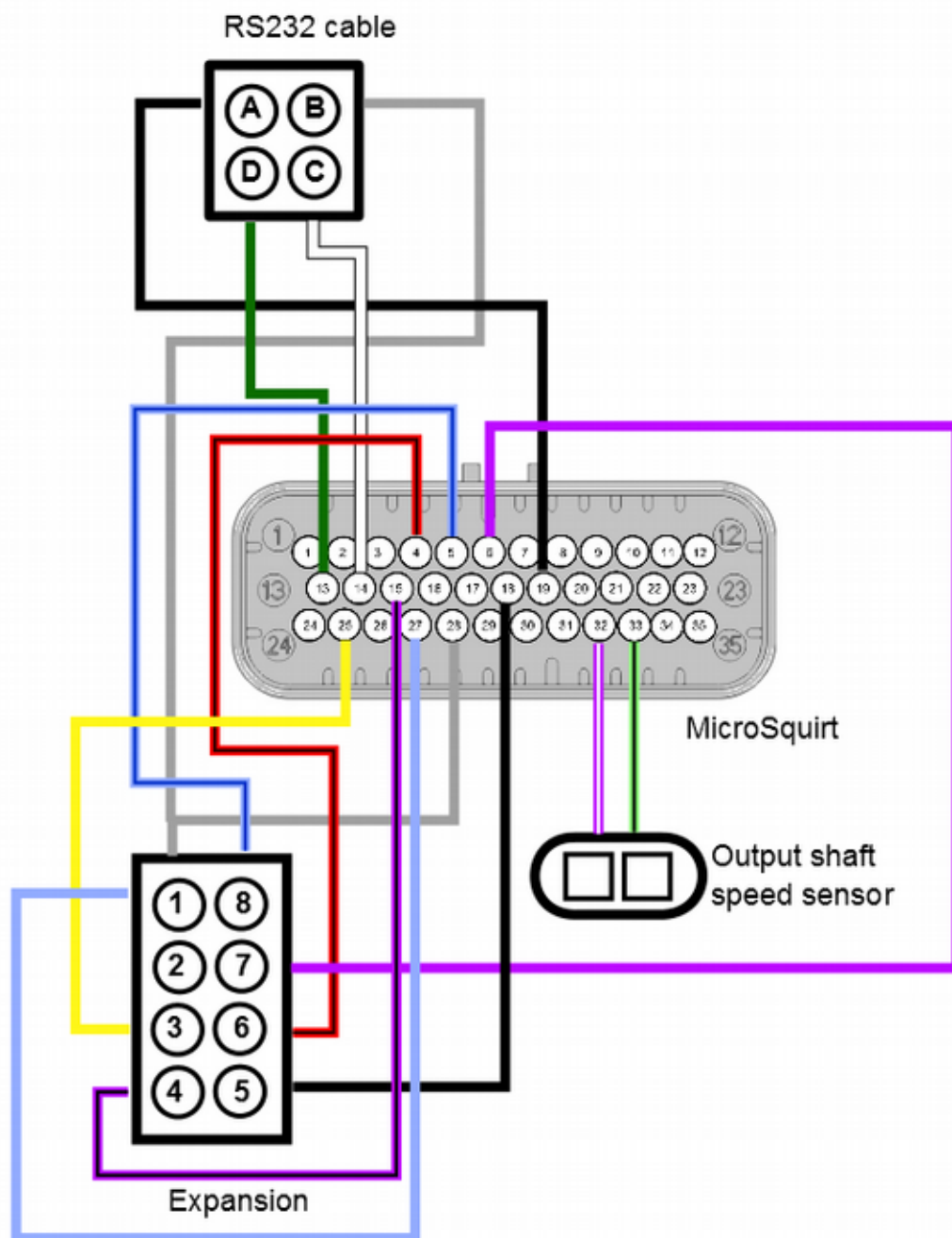


**Transmission wiring 1 (4L60E)**



**Transmission wiring 1 (4L80E)**





## Transmission wiring 2 (All versions)

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