

Wireless freedom with bluetooth connectivity to your MegaSquirt. It is great to just connect right up to your ECU without and cables, especially if you have an adapter that provides some range, you don't have to be in, or in some cases even very near the vehicle! now with Android support via [Shadow Logger](#) and Shadow Dash, some for of bluetooth support on your ECU is more important than ever. However there are some key features you will want to see in an RS232 Bluetooth adapter for easy operation and some limitations you should be aware of before throwing away the RS232 cable completely.

Power from PIN 9 - Many of the better RS232 Adapter, but not all offer the option to power off of pin 9. This lets you just plug the Adapter into your v3.0 or v3.57 MegaSquirt and the BT adapter will be powered by the MS with no extra power line. This is much more convenient and automatically powers on the Adapter when you power on the ECU. However this can be troublesome if you are trying to diagnose an issue while cranking your vehicle; each time you power cycle the Adapter, The PC or Android device will need to re-pair with the adapter and recreate the virtual com port. This will cause a delay and you will not be able to communicate with your ECU for 15-30 seconds. This is likely not a big deal for normal operation, but if you are diagnosing a cranking issue you will either want a cable or a separate power source for your BT adapter.

Data Rate / Throughput - The read rate capability is an attribute in which we have witnessed a large variance between different BT Adapters. You typically will NOT get as fast a read rate for run time data with a BT adapter. With a carefully selected Adapter you will get a very acceptable or even close to cable performance. Although the capable data rate of bluetooth is well above typical RS232, it seems there is additional ping latency between send and receive that will lower potential read rate. I don't know if there is a way to know what sort of through an Adapter is capable of without testing it. In testing we have found that the [Class 1 adapter](#) we offer can provide TWICE the data rate of a GBS 301 in many conditions.

Male DB9 connector - The DB9 must either be able to connect as a male pin out with proper RX & TX polarity, or you will need a gender changer. In general you will need some for of gender change no matter what adapter you need because while you are connected to the controller you need a male pin out, but when configuring from your PC you will need a female pin out. Some adapters use a null modem adapter to satisfy the gender change with proper polarity, others have switchable RXTX polarity. If you have one with a null modem adapter, it often does not pass power through PIN 9.

Range - Additional Range does come in handy. While you will doubtfully be able to leave your laptop running in the pits while out making a pass, you can easily move around the garage or much further while maintaining a solid connection. A good class 1 adapter will give you a realistic practical range to tune from a few rooms away or nearly a block away in an open area. In addition the class 1 signal can help insure you do not experience interference from surrounding EM noise.

Configuration and trouble shooting.

If you are experiencing difficulty communicating with your controller via bluetooth and your adapter meets the above criteria, these are some common key settings that will cause the adapter to pair fine, but fail to pass back data from your ECU. The focus of these settings is on the Adapter, not the PC. These must be configured correctly on your RS232 Bluetooth Adapter. The default settings vary by adapter, so you must refer to the manufacturers documentation. The [Class 1 Bluetooth Adapter](#) offered by EFI Analytics come pre-configured and we offer a utility program to configure it for proper ECU communication with a single click.

Baud - Make sure the baud is set correctly on the adapter. The default speed varies between manufacturers, but is commonly 19200 or 9600 baud. There for the default settings typically will not work with an MS2 or MS3 and must be configured properly according to the instructions included with your adapter.

Hardware Flow Control - This must be turned off.

Echo - On many adapters you must make sure Echo is turned off.

RX TX Polarity - This will vary according to adapter and gender changers. On the EFI Analytics [Class 1 Bluetooth Adapter](#), it is switchable. The small switch near the DB9 must be away from the DB9 during normal operation when using the included gender changed.

