

**USB->TTL Programming Cable
Rev 1**



Grin's USB->TTL Programming Cable



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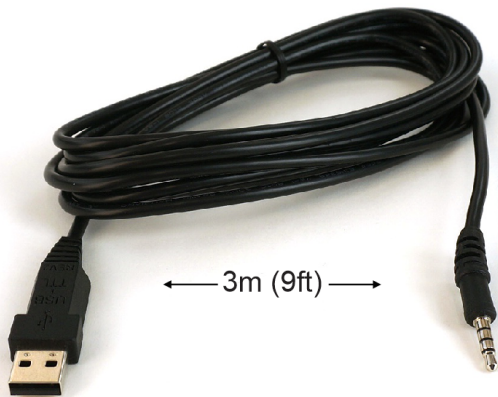
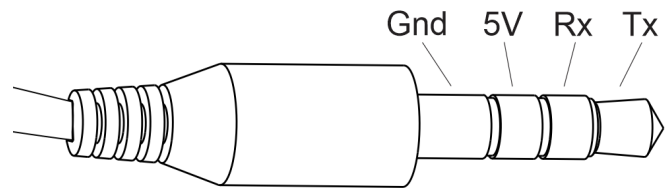
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This is a programming cable that converts 0-5V level serial data to modern USB protocol, and is used as a computer interface for all of Grin's programmable devices. That includes the Cycle Analyst display, the Cycle Satiator battery charger, and all of our Baserunner, Phaserunner, and Frankenrunner motor controllers.



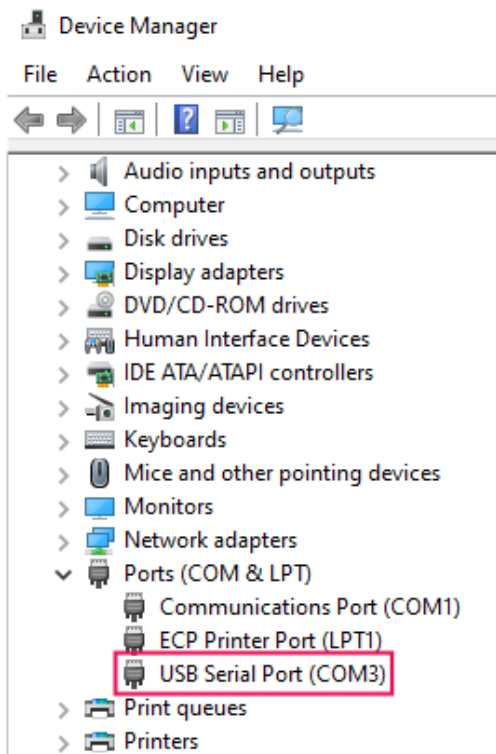
One end of the cable has a USB-A plug for hooking up to the computer, and the other end has a 4 pin TRRS jack with 5V, Gnd, and the Tx and Rx signal lines to plug into your device. The cable is 3m (9 feet) long, allowing easy reach to your bicycle from a desktop computer.

The adapter is based on a USB to serial chipset from the company FTDI, and will present itself as a COM port on your computer. On most Windows machines, the driver will install automatically and you will see a new COM Port in your device manager after plugging in the cable.

If you do not see a new COM port appear after the cable is plugged in, then the cable will not function and you may need to download and install the drivers from FTDI directly:
<https://ftdichip.com/drivers/vcp-drivers/>

With MacOS devices, the drivers are usually automatically downloaded, however if you are running OSX 10.10 or later you may need to download them via the link above. When the drivers are properly installed and you plug in the cable, you will see a new 'usbserial' appear under the *Tools -> Serial Port* menu.

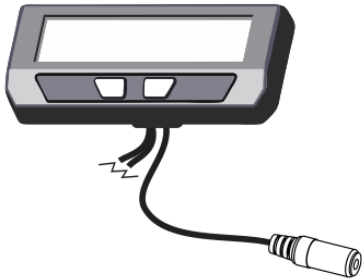
With all Grin products, communication with the device can only occur when the device is powered on and live. You cannot connect and configure something that is not powered up.



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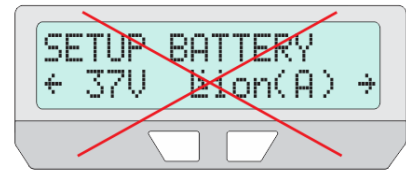
Using the Cable to Connect to a Cycle Analyst



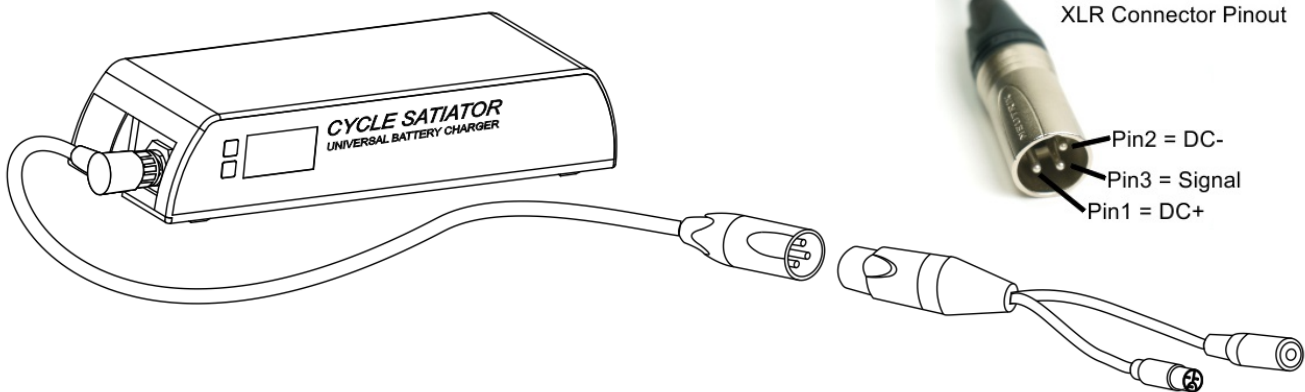
First, it is important to know that all settings on the Cycle Analyst can be readily configured via the button interface. Changing settings by software can be faster in some contexts but it is not required. In general there is *no need* to hook up a CA to a computer unless you have an older device and want to upgrade to a more recent firmware.

There are two important details about using the cable with the Cycle Analyst:

- 1. Always plug the USB cable in first, and the Cycle Analyst next.** If the USB->TTL cable is already connected to the Cycle Analyst when the USB side is plugged in, there is a possibility (with Windows machines) that the operating system will mistake the CA data as a serial mouse, and your mouse cursor will move like crazy. This is a longstanding bug in Windows and has nothing to do with the cable or the CA.
- 2. Make sure that the CA is not in the setup menu.** The software suite can only communicate with the CA3 device when it is in the normal display mode. Inside the setup menu it does not respond to commands from the computer.



Using the Cable to Connect with a Cycle Satiator Charger



As with the Cycle Analyst, the Satiator can also be fully configured via the 2 button menu interface. The ability to set and update profiles via the software suite is offered as a convenience but is by no means required to use the charger to full capacity.

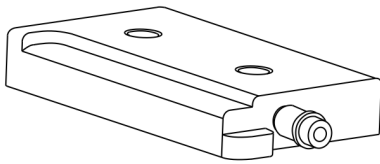
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The Satiator does not have a built-in TRRS jack. Instead, the communication signal line is present on pin 3 of the XLR plug. In order to use the programming cable, you must also have one of the many XLR adapters which converts this signal into a compatible TRRS pigtail wire.

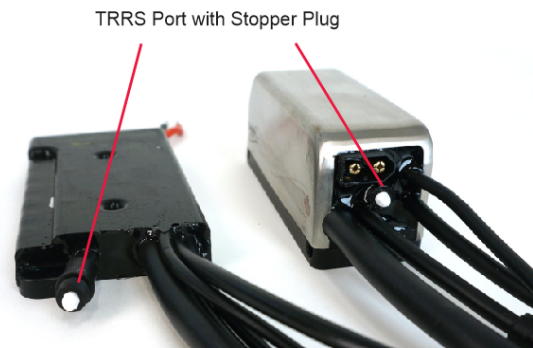
In order for the Satiator to communicate, it must first be put into bootloader mode. This is done by pressing both buttons to get into the setup menu, and from there *Connect to PC*.

Using the Cable to Connect with a Base/Phase/Franken -Runner Motor Controller



The Baserunner, Phaserunner, and Frankenrunner motor controllers all have an embedded TRRS ports on the back of the device. Often people struggle to find it as this TRRS jack is concealed among the wires and often has a stopper plug inserted to prevent potential ingress of water and debris to the jack.

The programming cable is required to change any settings on the Grin motor controllers and must be used if the motor was not purchased from Grin at the same time as the motor controller. Otherwise, Grin has already programmed the motor controller with the ideal settings for the motor it was purchased with, and there is no reason to connect to a computer except for unusual applications that require special motor controller settings. If there is a Cycle Analyst in the system, almost all desirable ride and performance modifications can and should be controlled by modifying the appropriate CA settings.



Important: Reading and saving data to the motor controller can take some time, especially if many parameters are being updated. It's vital that the controller stays powered on during this save process. Data corruption can result if it is unplugged prematurely while in the midst of saving. The "dev screen" tab of the software suite shows a live count of the number of parameters still left to save, and wait until this shows 0 before unplugging the controller or running the motor.

