

POLOLU JRK G2 24V21 USB MOTOR

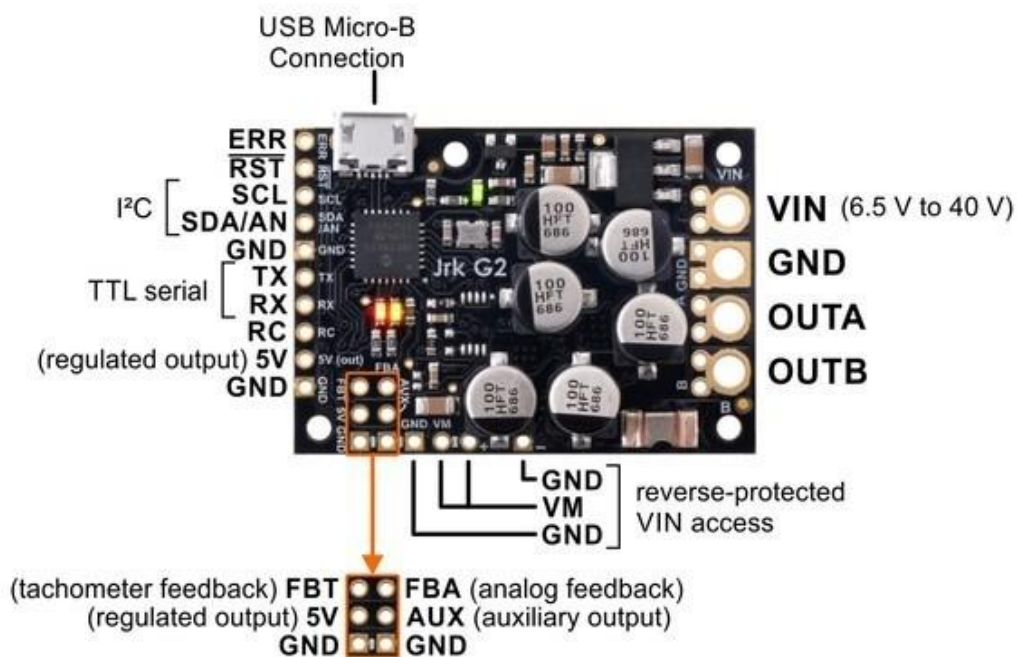
CONTROLLER WITH FEEDBACK

USER'S GUIDE

DETAILS FOR ITEM #3149

The Jrk G2 24v21 operates from 6.5 V to 40 V and can deliver a continuous output current of 21 A without a heat sink. Note that 40 V is the absolute maximum for this controller; the maximum recommended operating voltage is 34 V, and the maximum recommended nominal battery voltage is 28 V.

If you need to identify which version you have, you can just plug it into a computer through USB and the Jrk software will tell you. For quick visual identification without a computer, you can distinguish this version from the identically sized Jrk G2 18v27 by the number 100 on top of the tall silver electrolytic capacitors.

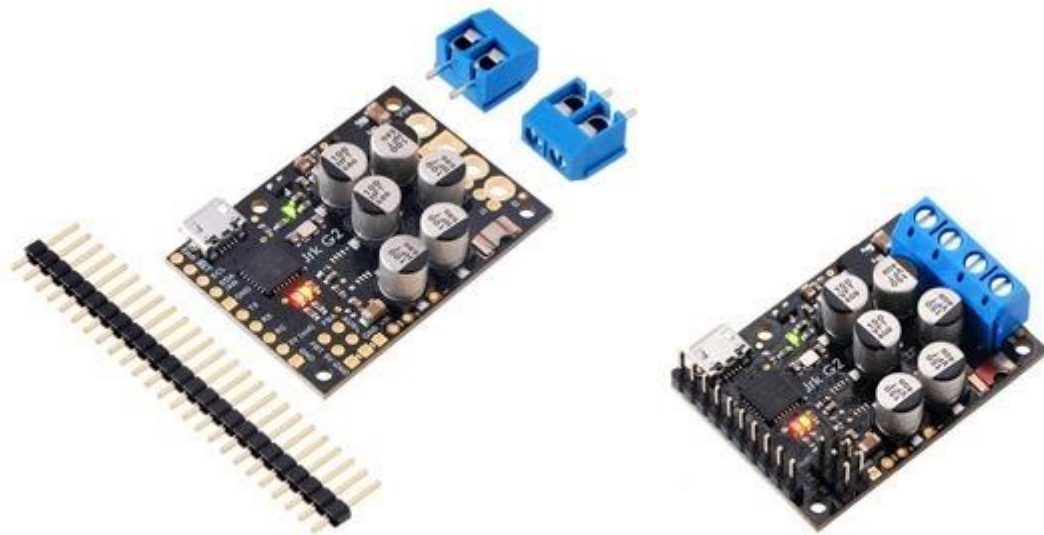


INCLUDED HARDWARE

The Jrk ships with a 0.1" breakaway male header strip and two 2-pin 5mm terminal blocks. You can solder the terminal blocks to the four large through-holes to make your motor and motor power connections, or you can solder an 8-pin piece of the 0.1" header strip into the smaller through-holes that border these larger holes. Note, however, that the terminal blocks are only rated for 16 A, and each header pin pair is only rated for a combined 6 A, so for higher-power applications, thick wires should be soldered directly to the board.

Pieces from the 0.1" header strip can be soldered into the small holes on the logic connection side of the board to enable use with solderless breadboards, perfboards, or 0.1" connectors, or you can solder wires directly to these holes for the most compact installation.

Note: A USB A to micro-B cable (not included) is required to connect the Jrk G2 to a computer for initial configuration.



COMPARISON TO THE ORIGINAL JRK MOTOR CONTROLLERS

The Jrk G2 family features a number of improvements compared to our original two Jrk motor controllers (21v3 and 12v12). Most importantly, the Jrk G2 controllers support both higher operating voltages and larger output currents while being even more compact than their predecessors. Other new features include:

- Hardware current limiting – the motor driver on the Jrk G2 uses current chopping to actively limit the motor current when it exceeds a software-configurable threshold
- More accurate speed control at low tachometer frequencies
- I²C interface provides an additional control option
- VIN measurement capability allows monitoring of battery or power supply
- USB Micro-B connector (instead of Mini-B as on the original Jrk controllers)
- Configurable deceleration limiting (the original Jrks just supported configurable acceleration limiting)
- PID coefficients can now be adjusted on the fly over the serial, I²C, and USB interfaces

The Jrk G2 controllers are not drop-in replacements for the original Jrk controllers because of differences in their form factors and pin arrangements, although wiring changes should be straightforward. The Jrk G2 serial protocol is compatible with (and generally a superset of) the original Jrk serial protocol, so in many cases, serial interface software running on a microcontroller or computer will not need to be modified to work with a Jrk G2.