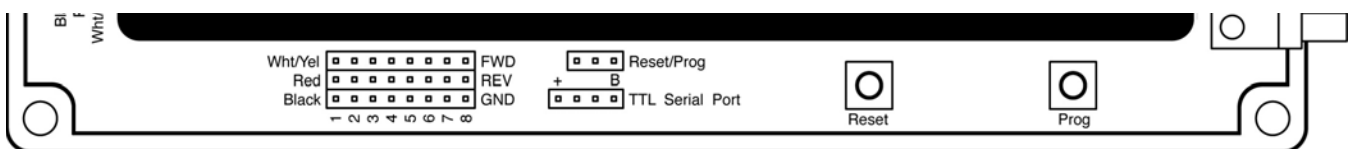


## 14. TTL Serial Port

The four-pin header labeled “TTL Serial Port” is an auxiliary serial port from the User processor inside the Robot Controller. The PROGRAM connector is actually the User processor’s Serial Port 1, with circuitry to convert the TTL level signal to RS-232 levels so that it can be interfaced with a standard PC serial port. The TTL Serial Port connector is the User processor’s Serial Port 2, but without any conversion. This enables the Robot Controller to use serial communications with other TTL-level digital circuitry. If it is necessary to use this serial port to communicate with RS-232 devices (such as a PC), various TTL to RS-232 adapters can be purchased from the internet, or plans to make one’s own are also available from the internet.

Both Serial Port 1 and Serial Port 2 are available to the user through custom programs. While Innovation First does not support this feature, general programming information can be found in the Programming Reference Guide from the Innovation First web site, and more specifics on the Microchip PIC18F8520 microcontroller can be found in the datasheet from Microchip’s web site. Note that no dedicated handshaking lines are provided, but any of the digital I/O lines could be used for this purpose in software, if necessary.



### TTL Serial Port Pin-out

