WCP Spartan Board - User Guide (Rev1)

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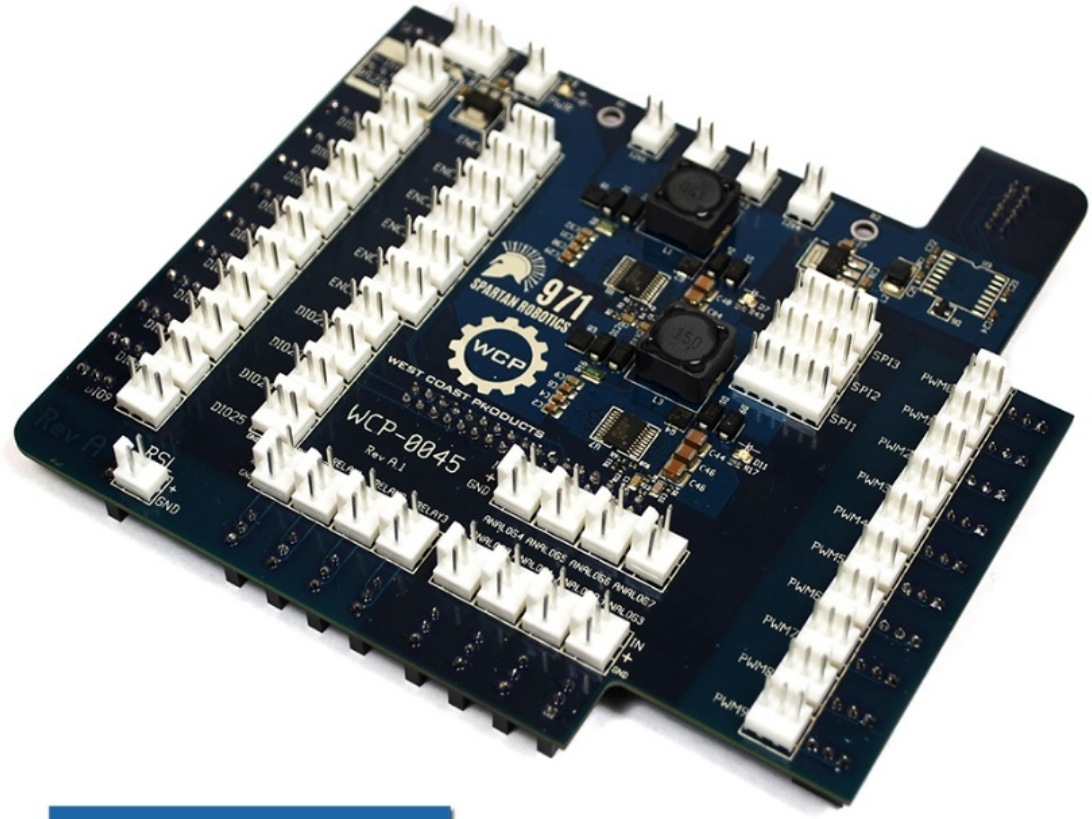
Guide Notes

This guide is designed to help teams use and integrate the Spartan Board into their robot. Please email support@wcproducts.net for any questions.

Revision: Rev1 - 11/23/2016

About The Board

The WCP Spartan Sensor Board is designed to reliably power all your sensors and provide latching Molex connectors to prevent sensors from coming unplugged in the heat of battle. The board comes in one style. WCP-0045 comes equipped with the ADXRS810 gyro.



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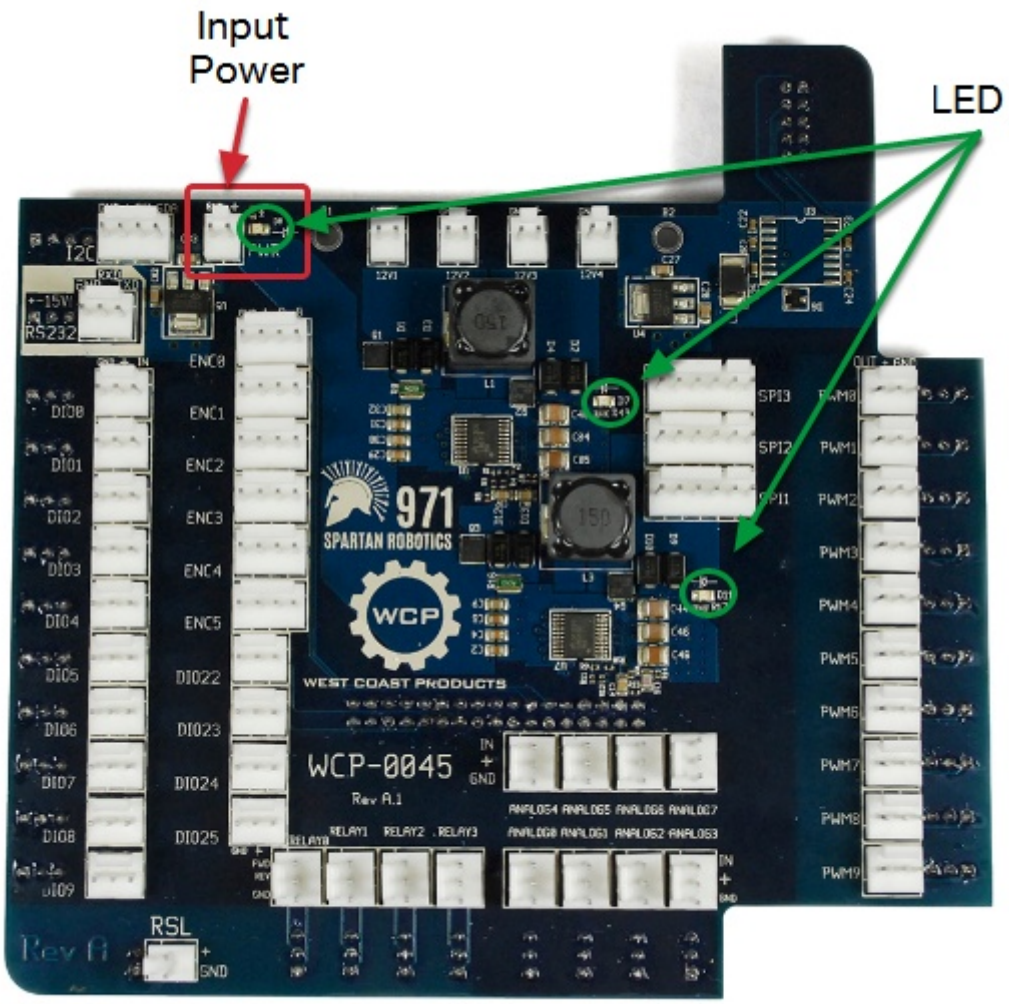
1. Powering the Board

The board requires power to run. It is recommended to power the board using a 20A PDB slot. Teams have had success powering the board from the high current 12V VRM ports. When the board is functioning, you should see 3 LEDs light up.

- Apply 12V to the 2 pin connector outlined by the red box.
- 3 Lights should turn on outlined by the green circle.

*Note: If all 3 lights do not turn on, please turn off power. Check to make sure board is clean and that there are no shorts in the cabling.



1.1 Operating Range, Software and Recommended Connectors

Operating Range

- Input Voltage Range: 4-16V
- 12V Output Current: 200mA
- 5V Output Current: 200mA

*Note: The board will supply more than the specified power, but will start to struggle.

Software

- The WCP Spartan Board requires no special software to operate.
- In order to use the gyro, use the ADXRS450 class on SPI Port 0

Recommended Connectors

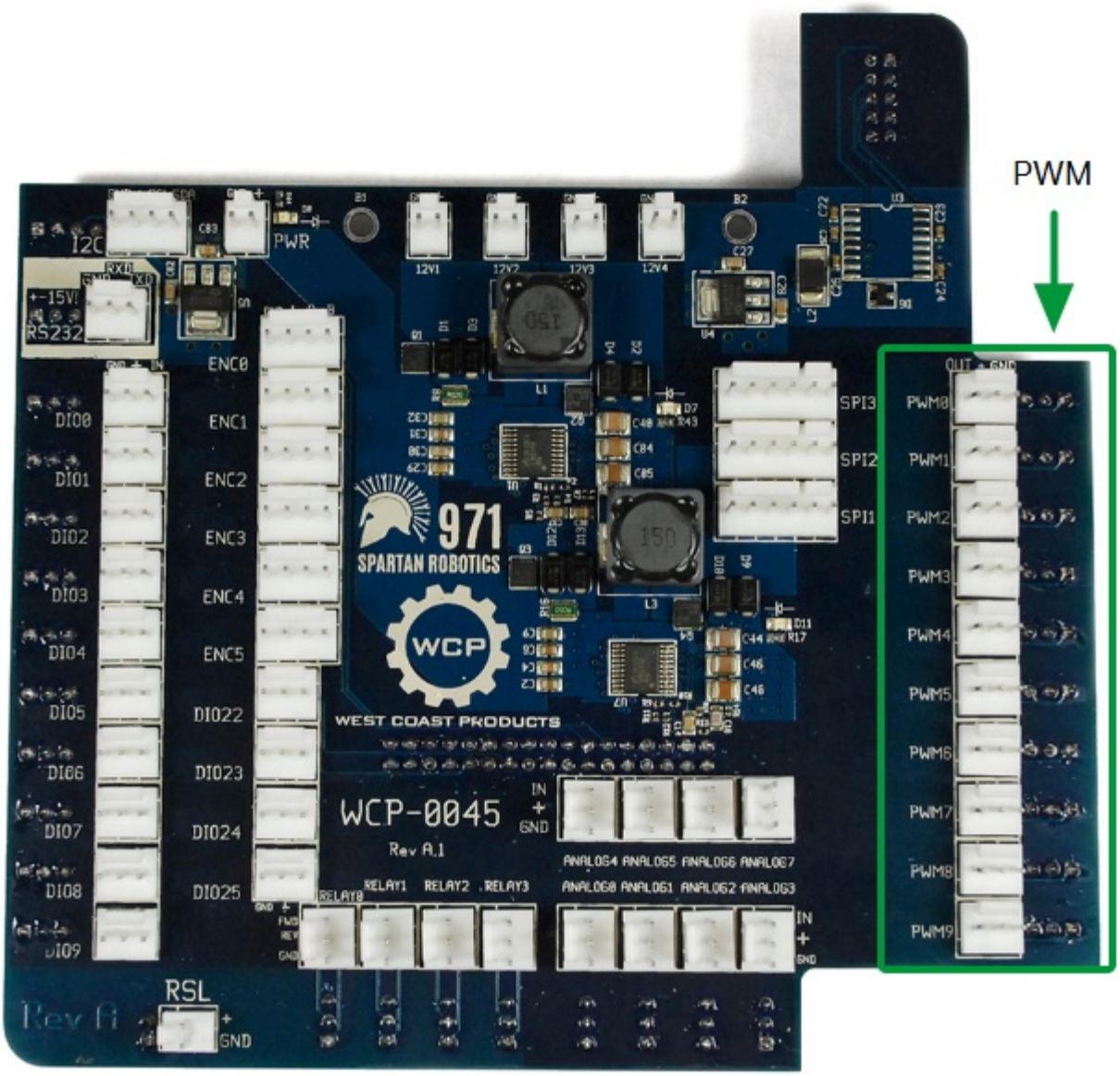
- All the connectors are from the Molex 22-01-30X7 series. Any 0.1" pitch pin will work, though Molex parts are recommended.
- 22-01-3027 is the 2 pin connector, 22-01-3037 is the 3 pin connector, 22-01-3047 is the 4 pin connector, and 22-01-3067 is the 6 pin connector. 08-52-0123 is the crimp for the wire.
- WCP Offers all of the above connectors on the website. Follow the link here to purchase.

2. PinOuts

Below is a breakout of all the pins available for use on the WCP Spartan Board

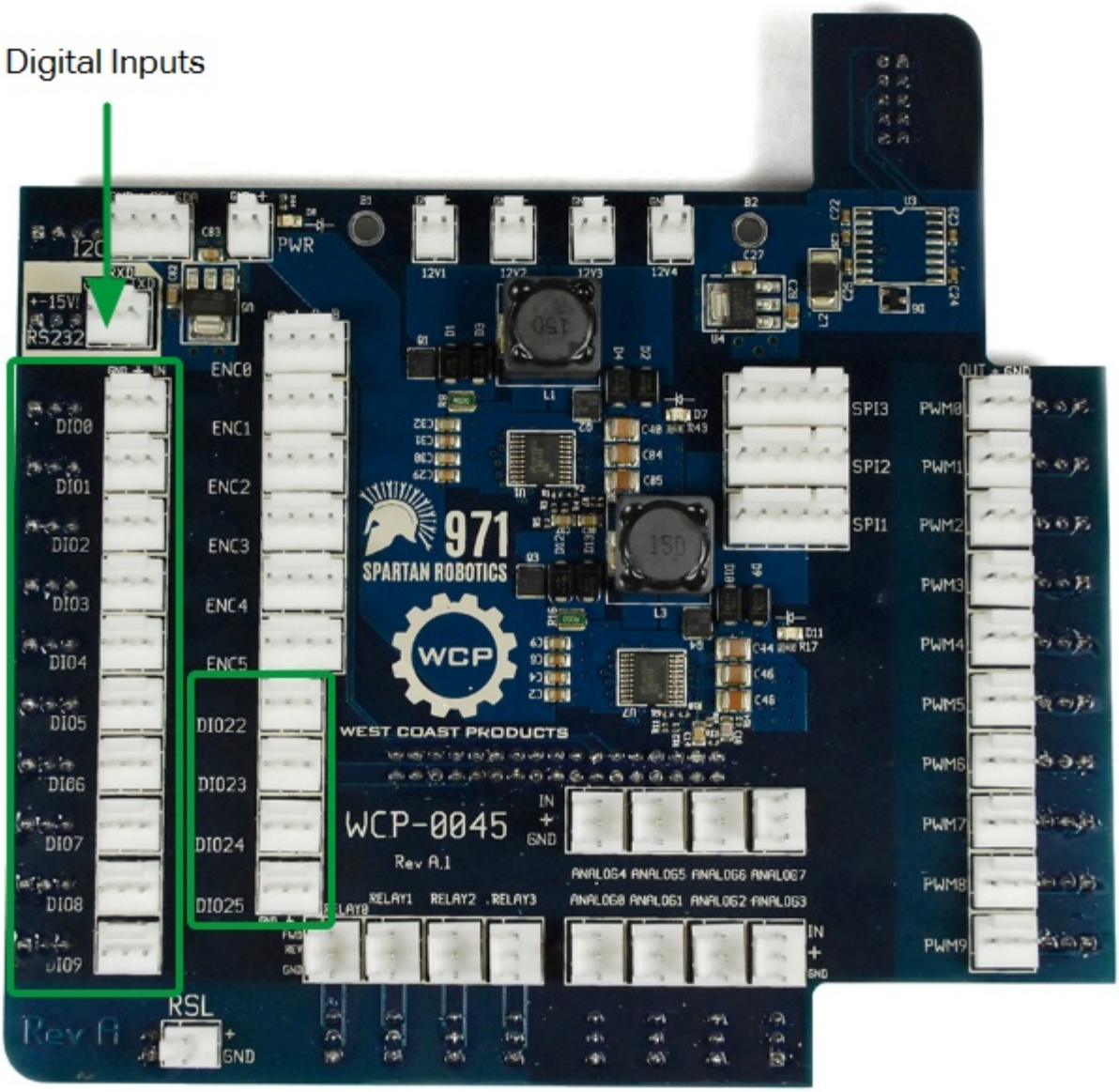
2.1 PWM Ports

PWM ports 0-9 are directly passed through with no modification.



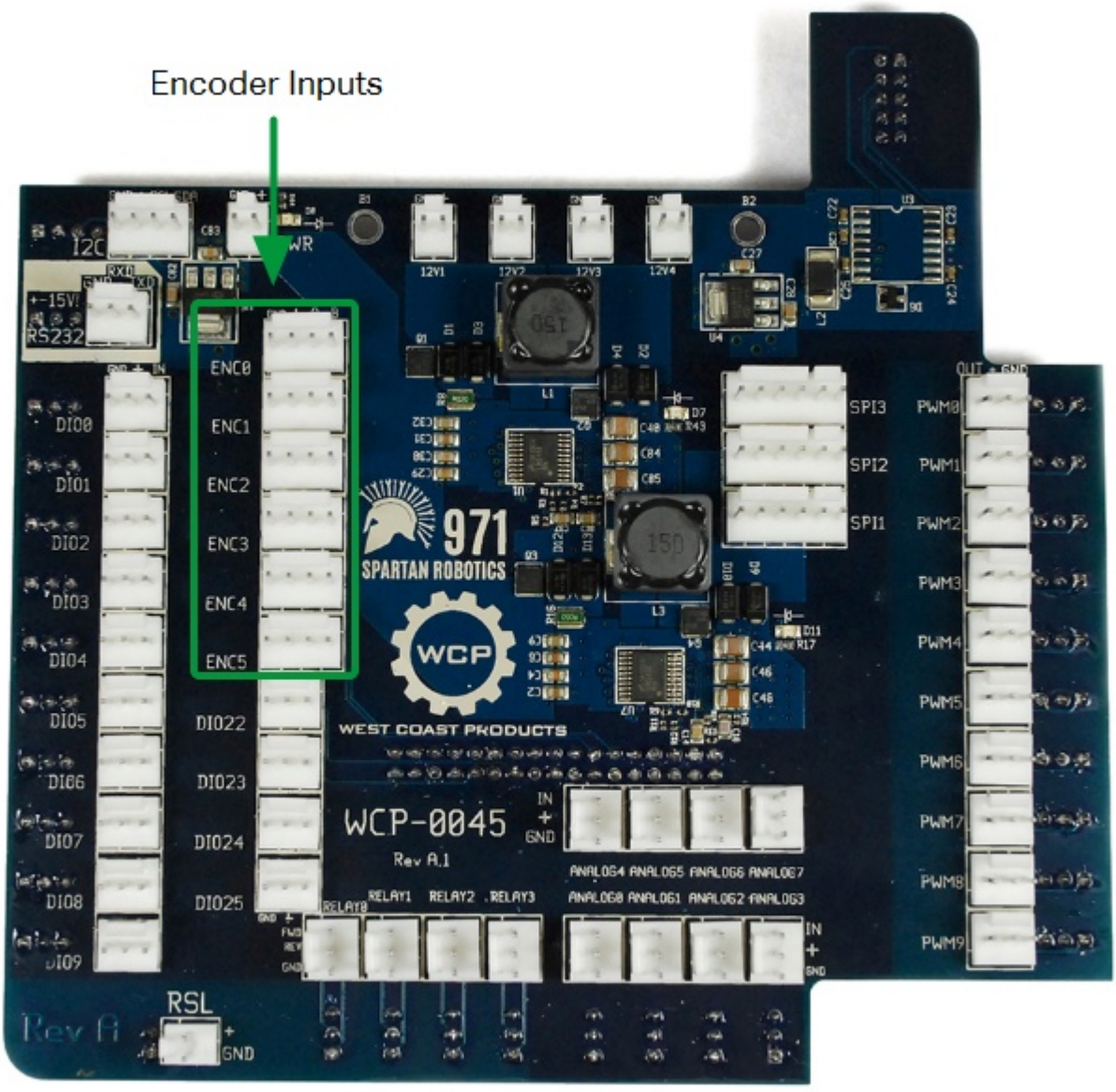
2.2 Digital Inputs

Digital Inputs 0-9 and 22-25 are directly passed through. The power from the roboRIO is replaced with the power regulated by the board.



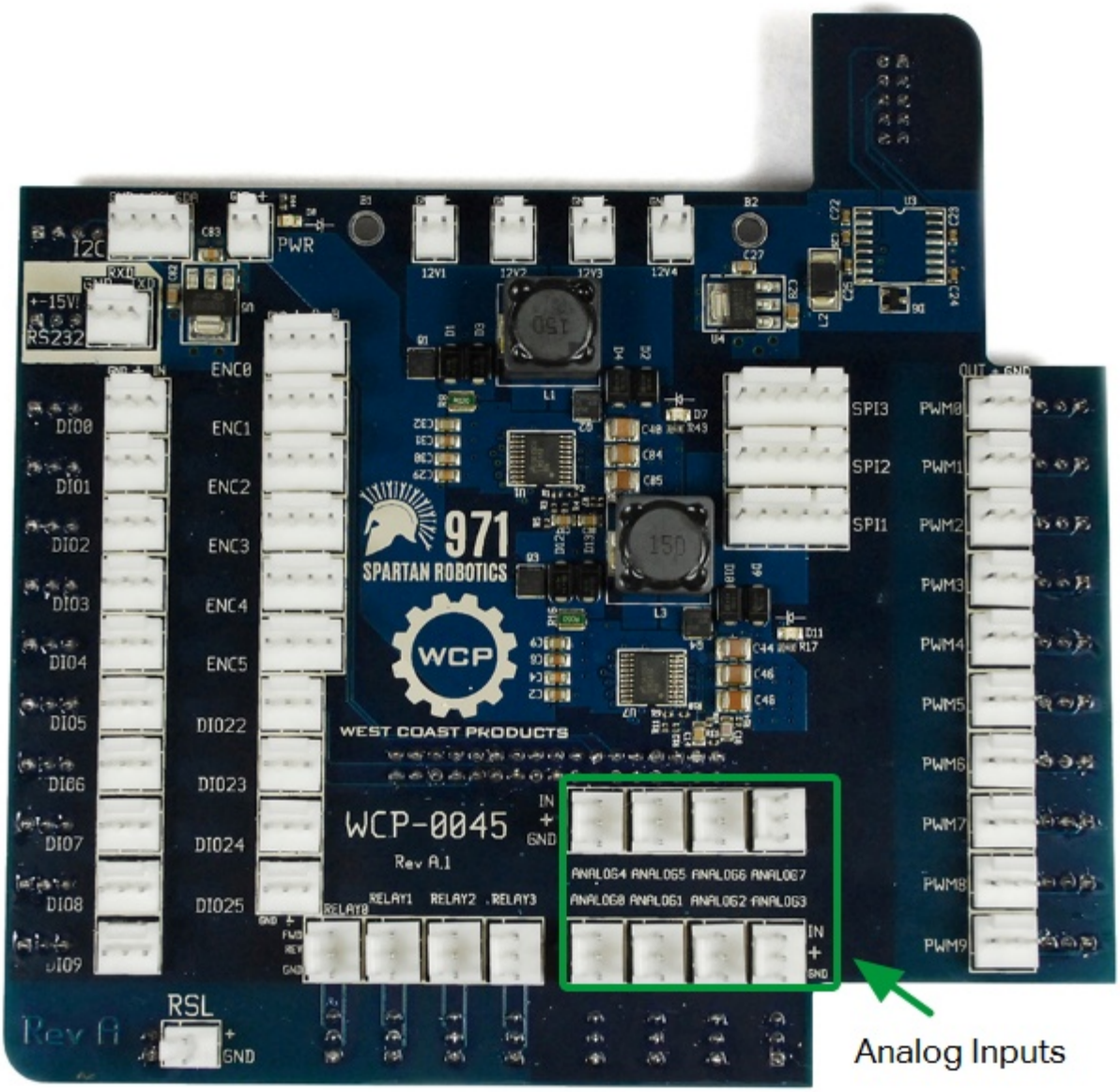
2.3 Encoder Inputs

Encoder inputs 0-5 are mapped to pairs of digital inputs. The power from the roboRIO is replaced with the power regulated by the board. The A channel is 10 + 2 * encoder_number, and the B channel is 11 + 2 * encoder_number. For example, Encoder 0 would be mapped to ports 10 and 11. These inputs may be used as standard digital inputs as well.



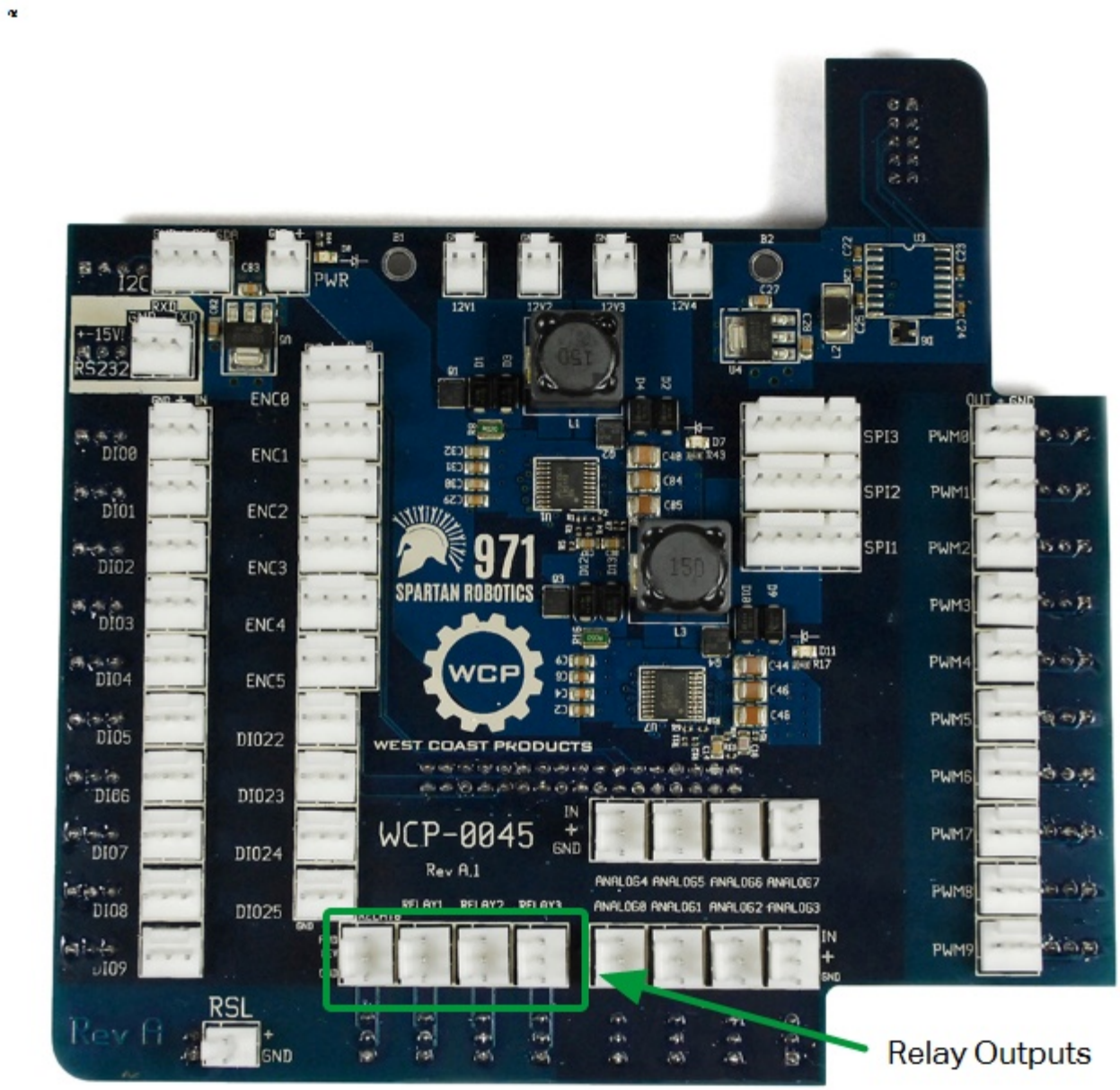
2.4 Analog Inputs

Analog Inputs 0-7 are directly passed through. The power from the roboRIO is replaced with the power regulated by the board.



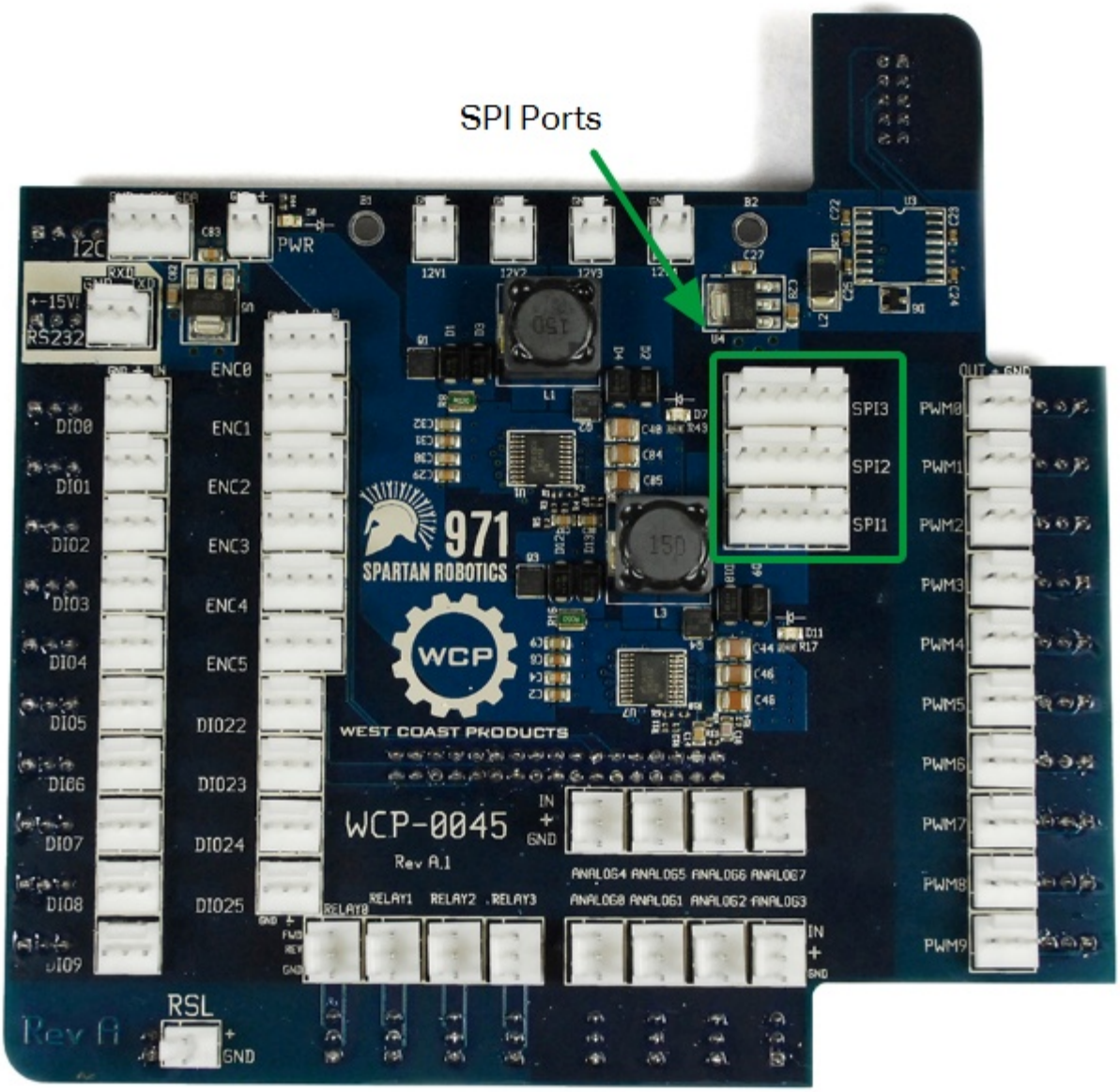
2.5 Relay Outputs

Relay outputs 0-3 are directly passed through.



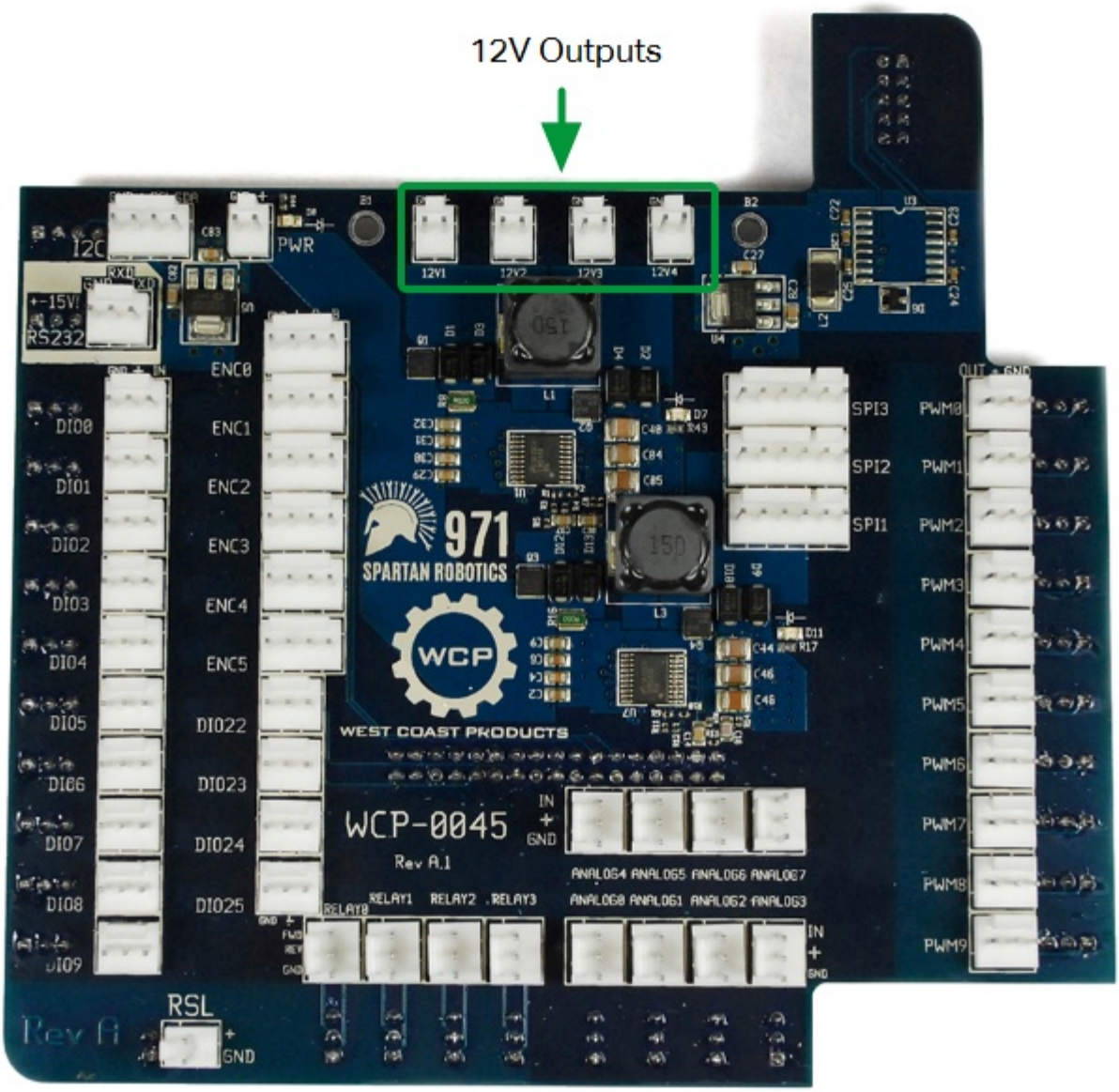
2.6 SPI Ports

SPI port 0 is mapped to the gyro. SPI ports 1-3 share SCK, MOSI, and MISO with the gyro, but have CS1, 2, and 3 connected respectively.



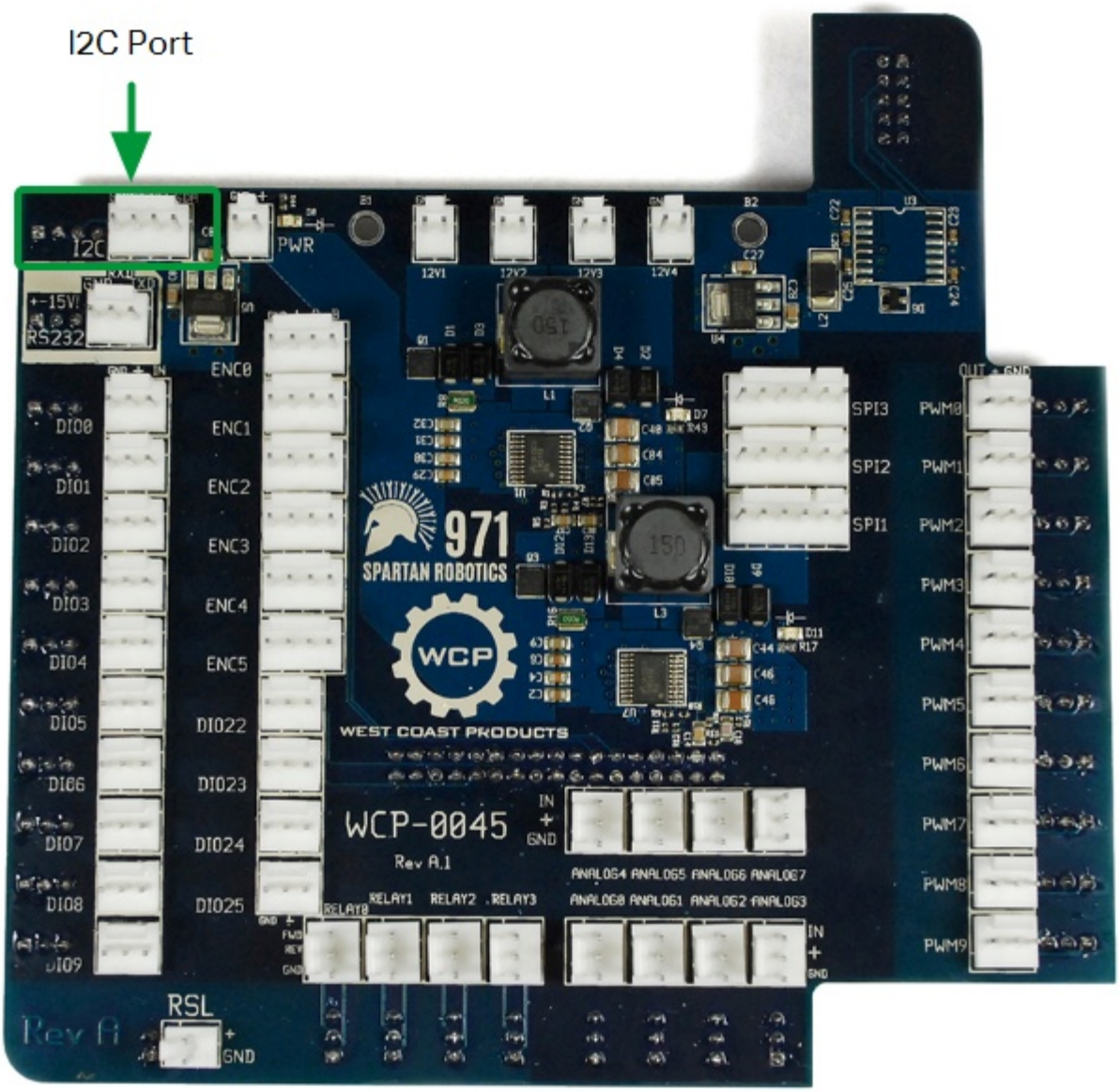
2.7 12V Ouputs

There are 4 2-pin molex connectors available for the 12v regulated output. These are available for various sensors which need 12V.



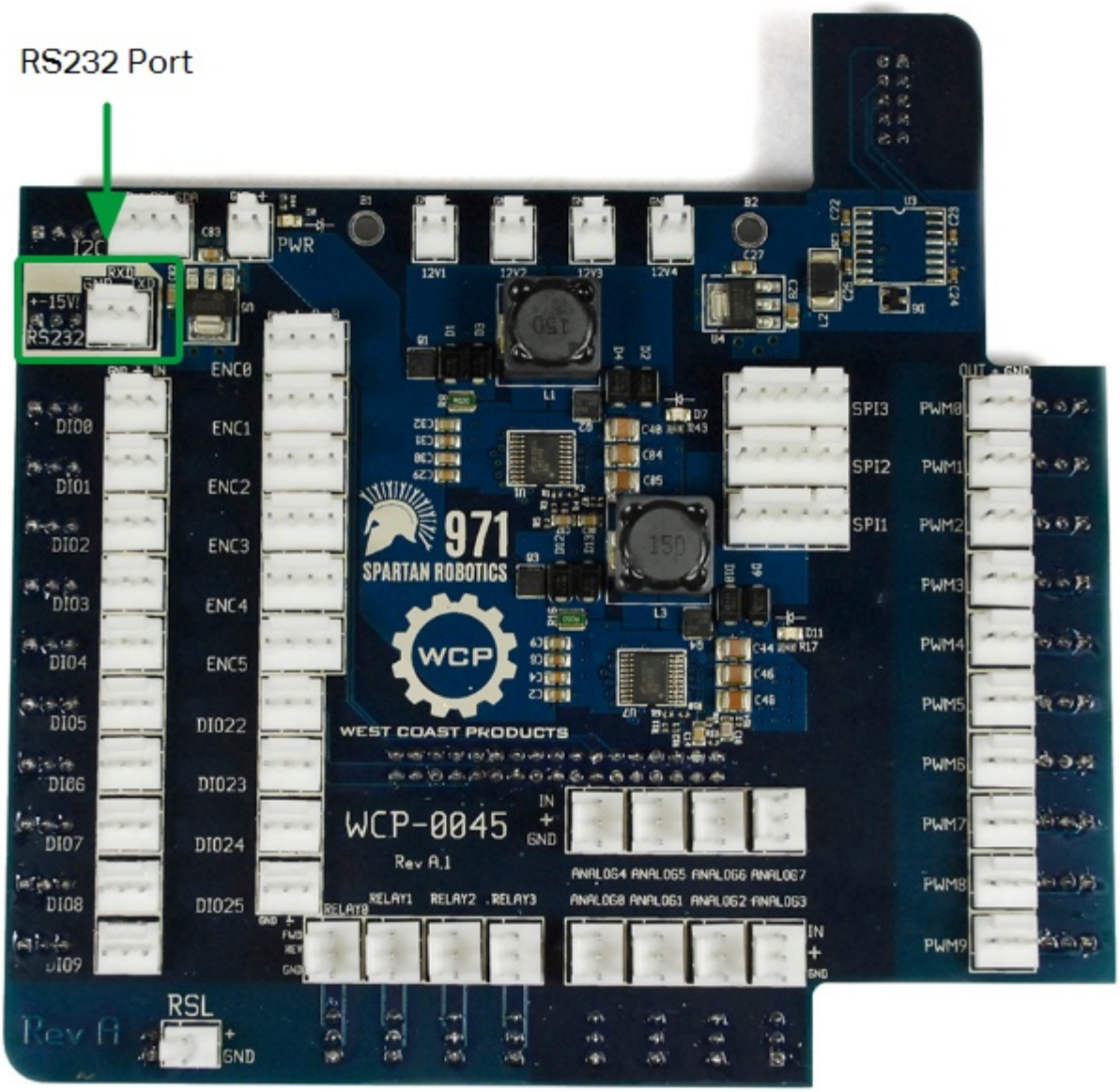
2.8 I2C Port

The I2C port is mapped to the I2C connection on the main board. The power is replaced with regulated power.



2.9 RS232 Port

The RS232 port is directly passed through with no modification.



2.10 Robot Signal Light (RSL)

The Robot Signal Light is passed through with no modifications.