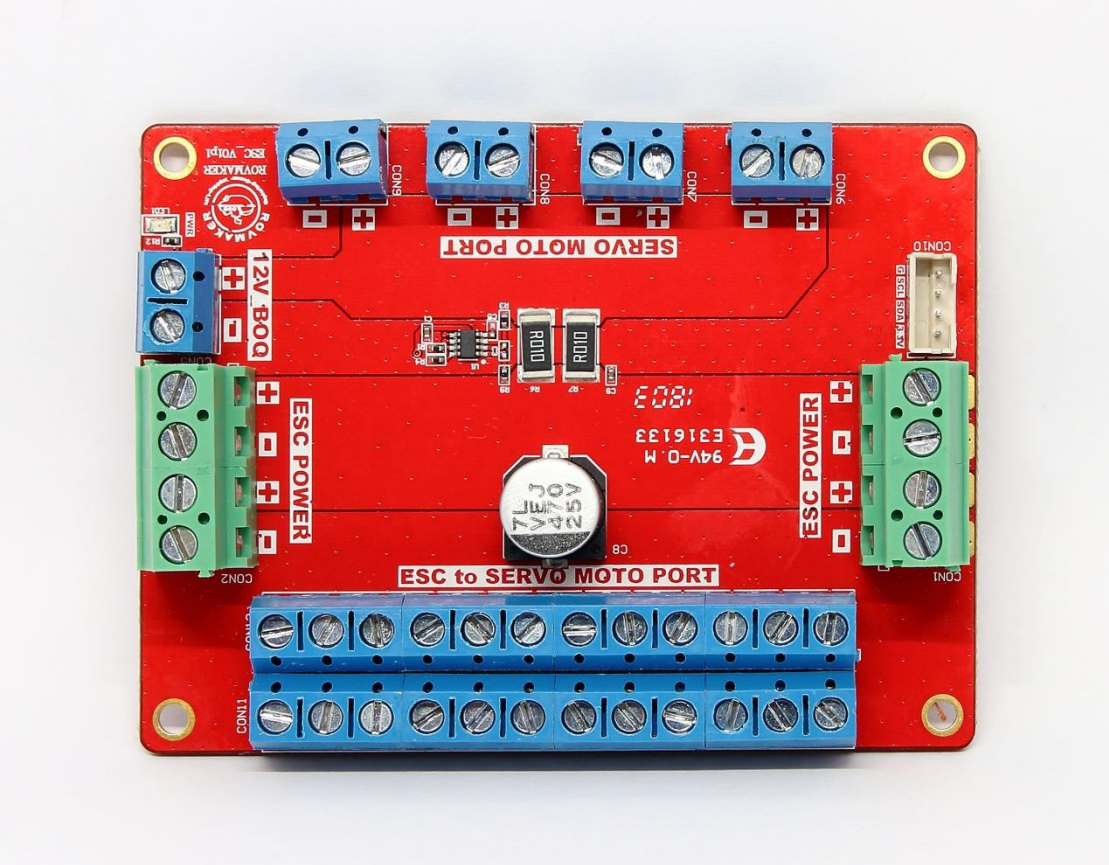


ESC Board

User Guide

ROVMAKER. LTD.

REVISION HISTORY			
Release	**Date**	**Author**	**Comments**
1.0	2018/05/15	Jenching Lee	1st Release
1.01	2019/11/26	Jenching Lee	Add ordering information

Introduction

The ESC Board, a circuit board designed for ROV/AUV and other controlled robots, can support up to 4 ESCs (Electronic Speed Controller) and provide voltage and current values accessed via the software operated by on-board INA219A. One board is intended to hold 4 ESCs. Another board will be needed if over 4 ESCs are installed. In this case, boards get stacked to save space.

The ESC Board works with the Baroque board to work as the ROV control solution, which helps save space. This feature is important for the ROV Tube, which is tight for space.

The following are the specifications and features of the ESC Board. If you have any questions or concerns, please contact us at rovmaker@rovmaker.com.

Features

The ESC Board works as the control board of ESC and has the following features.

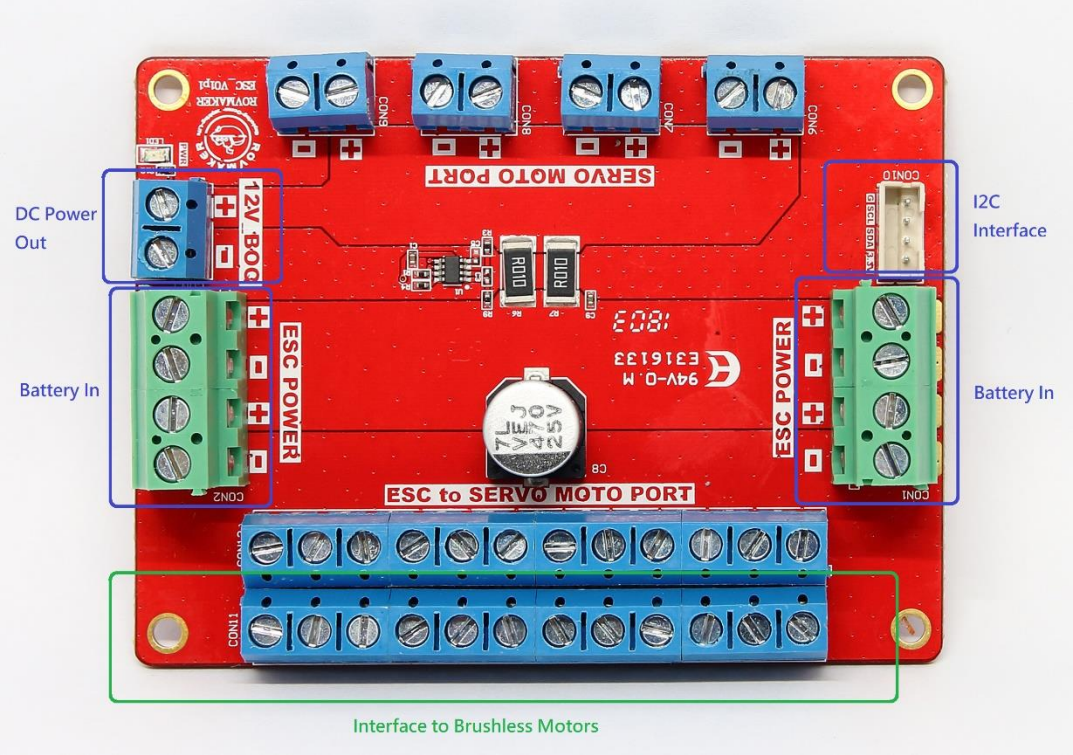
- Dimension: 85.0mm (L) x 64.0mm (W) x 1.5mm (H)
- Supporting 4 ESCs on board.
- 4 battery input interface: Terminal Block, 5mm/4pin on two sides
- Working voltage: 11V – 26V (Depending on your robotic control board and ESC)
- Max Walt : 70 W
- INA219A on board to measure working voltage and current (I2c -based and address is 0x40)
- I2c I/F : Wafter DIP 2mm/4pin/180deg
- DC power out : Output voltage distributed to another control board (same as battery input voltage)
- 3D-printed ESC board holder (open to modification and printing by users or available from the ROVMAKER store)

The working voltage of the ESC board is between 5-26 voltage and the maximum power can go up to 70 Walt. The ESC board has 4 input voltage interfaces (Terminal block, 5mm/4pin on two sides). Batteries are designed to be **connected to** the ESC board and then the power gets distributed to 4 ESCs and the control board (e.g. the Baroque board) via DC power out.

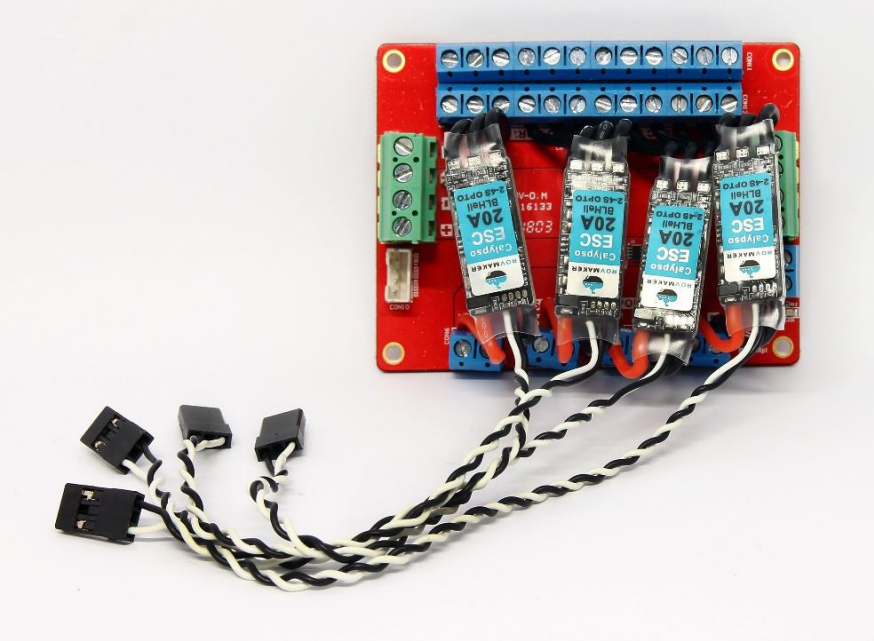
On-Board INA219A IC is devoted to measuring the battery consumption (the battery voltage and current). These values can be accessed via the software operated by I2C interface. The I2C slave address of on-board INA219A is 0x40.

The ESC board has a DC power out interface whose voltage is the same as battery voltage of the ESC board). The interface is connected to the Baroque board to supply power. In this way, there is no need to externally supply power for the Baroque board.

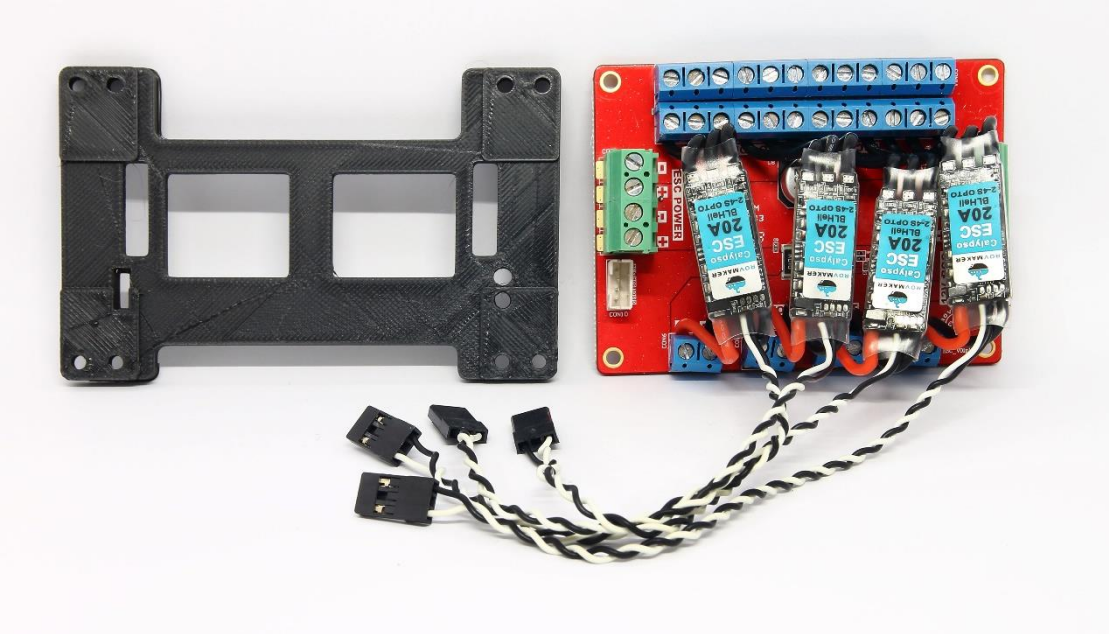
The ESC Board: **Front View**



The ESC Board: **ESC Installation**



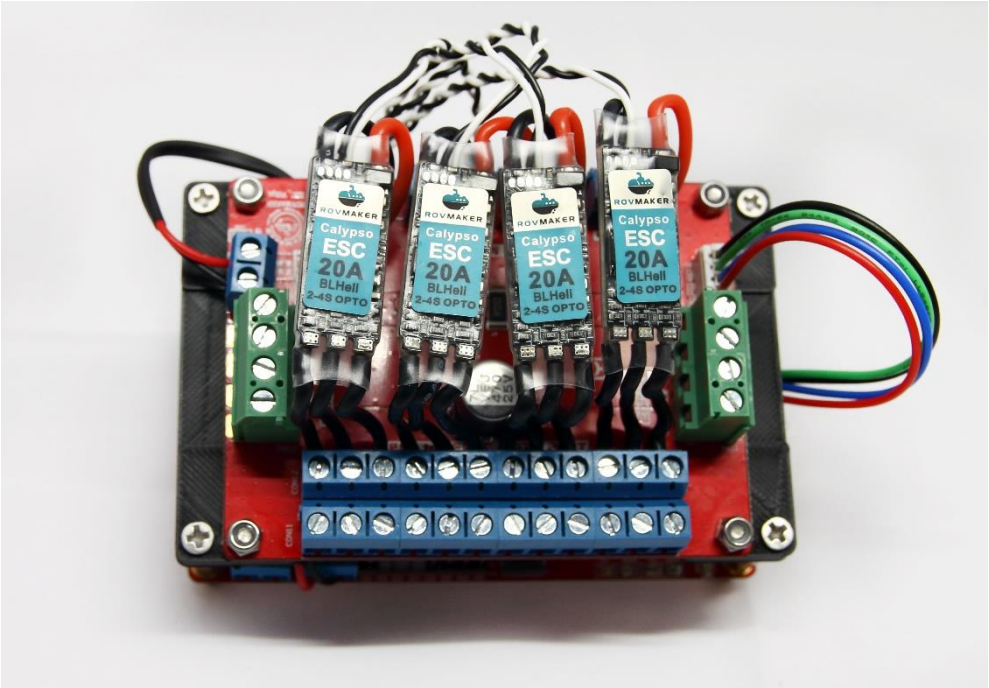
The ESC Board: 3D Printed Holder



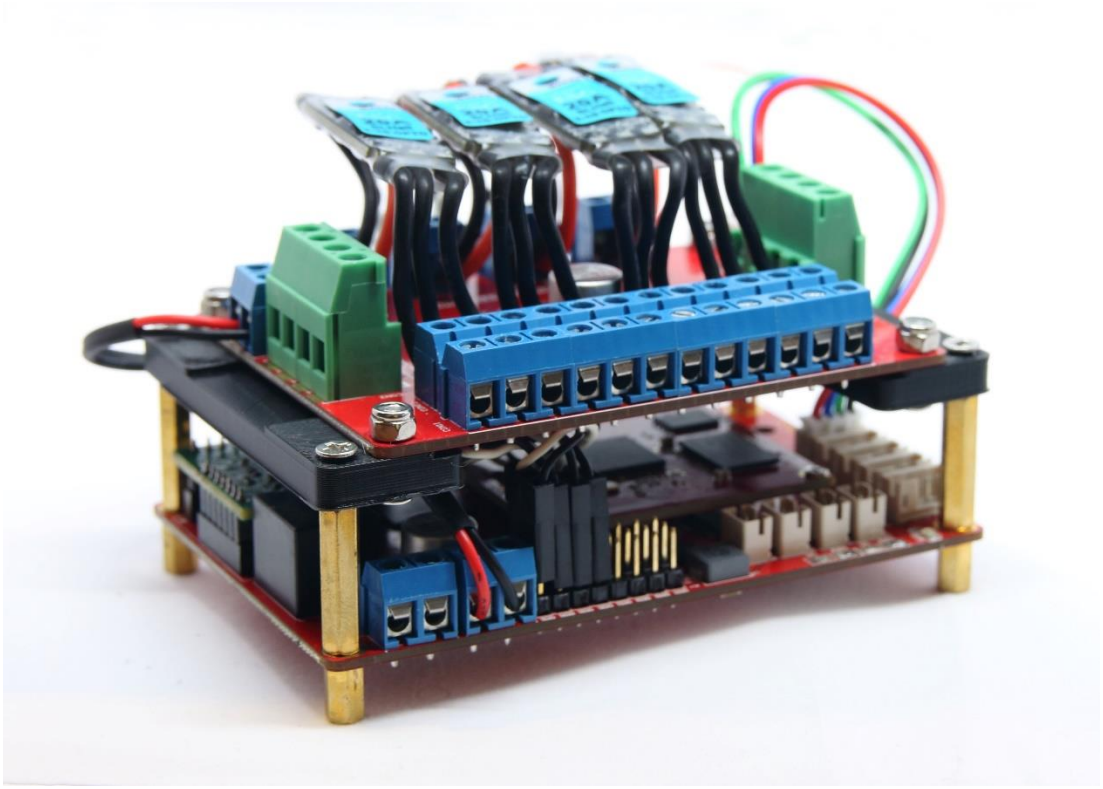
The 3D printed holder is used to stack the ESC board and the ROV Baroque board. It is open and shared at this link. Users can make modification to stack the ESC board with their own control board.

Application: Configuration of the ESC board + the ROV Baroque board

The ROV Baroque board, combined with ESC board, serves as the brain of Voyager II. Perfect stacking helps save much space on the ROV Tube.



With the ESC board and the ROV Baroque board in place, all the user needs to do is choose suitable batteries and brushless motors, and have them connected to the ESC board.



Software Driver

The link is the sample code of INA2129A driver monitoring voltage and current of the ESC board.

Ordering Information

- Please refer to the Link for individual purchases.
- For bulk purchasing or retailing in Taiwan, please contact us at rovmaker@rovmaker.com for more purchasing and contact information.

Recommended Operation Conditions

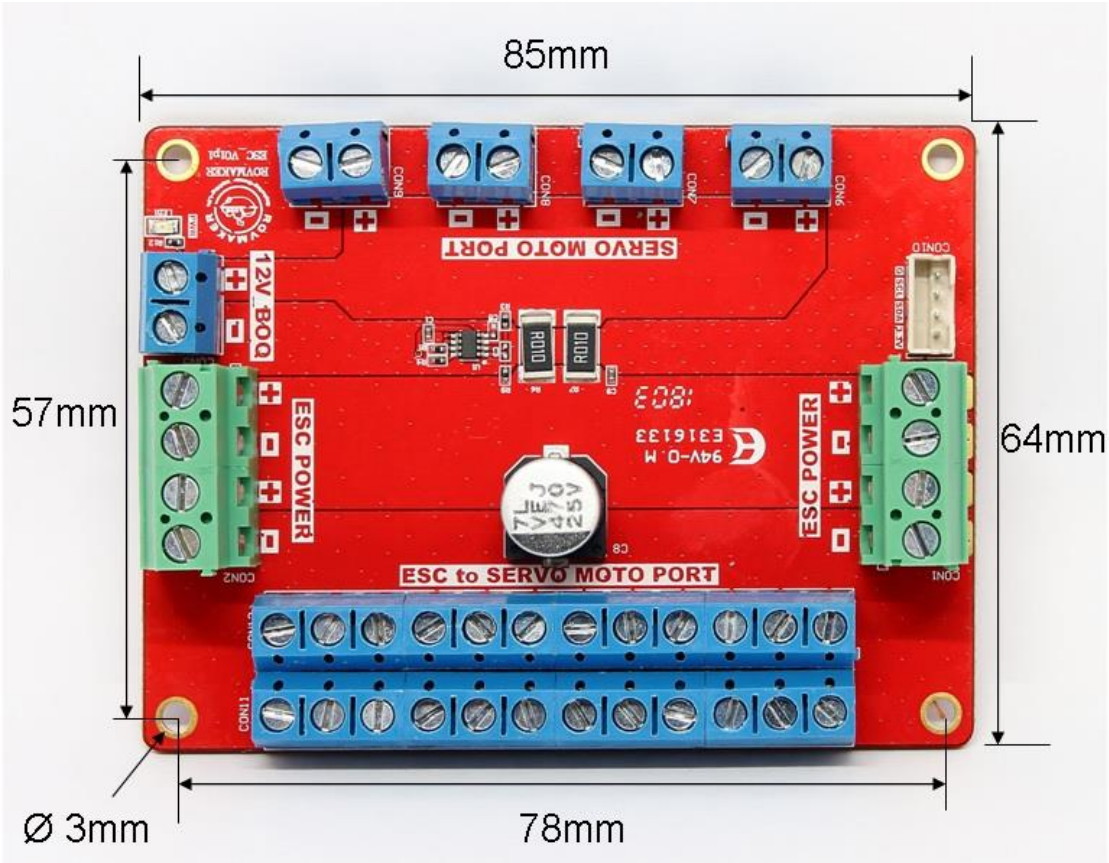
Parameters	***Min***	***Typ.***	***Max***	***Unit***
Supply Voltage	5	14.8	26	V
Power	1	50	70	Walt
Temperature	0	27	45	ºC

I2C Interface

INA219A Slave Address

Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1	0	0	0	0	0	0

Mechanical Information



Electronic Schematic

The information regarding Schematic of the ESC Board is available through this link or diagrams below: