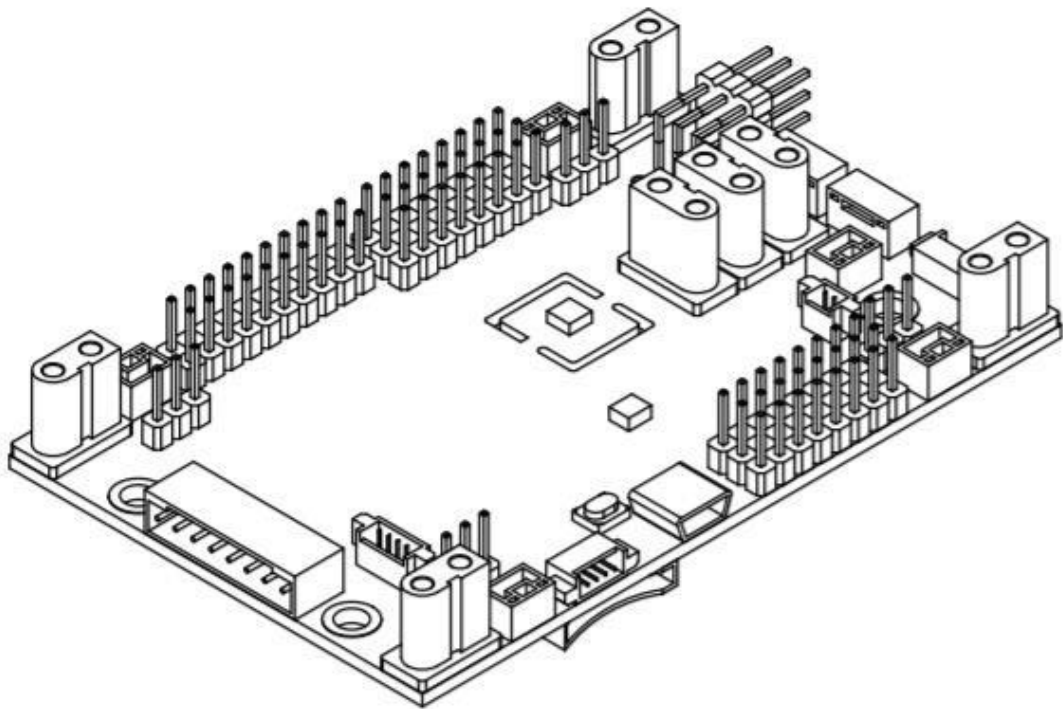

RoboMaster Main Control Board

User Manual v1.4

2017.09



Disclaimer Declaration

Thank you for purchasing the DJI™ RoboMaster™ Main Control Board. Please read this declaration carefully before use. All users will be regard as they agree and accept all of this declaration once the board is used. Please

follow the user manual, product description and related laws and regulations, policies, standard installations, and instructions of this product. During uses, users must commit to be responsible for their own behavior and consequences. DJI™ will not take the responsibilities if users improperly used, installed, or modified the product.

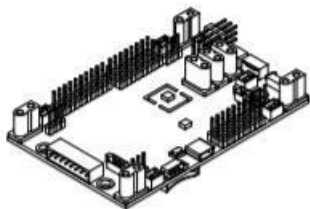
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The right of final interpretations of this declaration belongs to DJI™.

Warning

1. Please place the Main Control board on a flat insulated surface for use. Do not place unrelated metal objects next to the board in order to avoid damages.
2. Please keep the board clean to avoid performance degradation and damages by other matters.
3. Please do not touch the chips on the board with your bare hands. Performance degradation by electrostatic discharge may occur if you disregard this warning.
4. please turn the power off immediately if you observe spark, smoke, or burning smell while the board is powered on.

Inventory List



Main Control Board x 1

Power Cable x 1



SWD Wire x 1



Description

RoboMaster Main Control Board is an open source master control specifically designed for RoboMaster robots. It not only can satisfy all control demands of the robot, but also provides open port for users. This allows users to customize other desired functions.

Product Features

Master Control: STM32F427IIH6

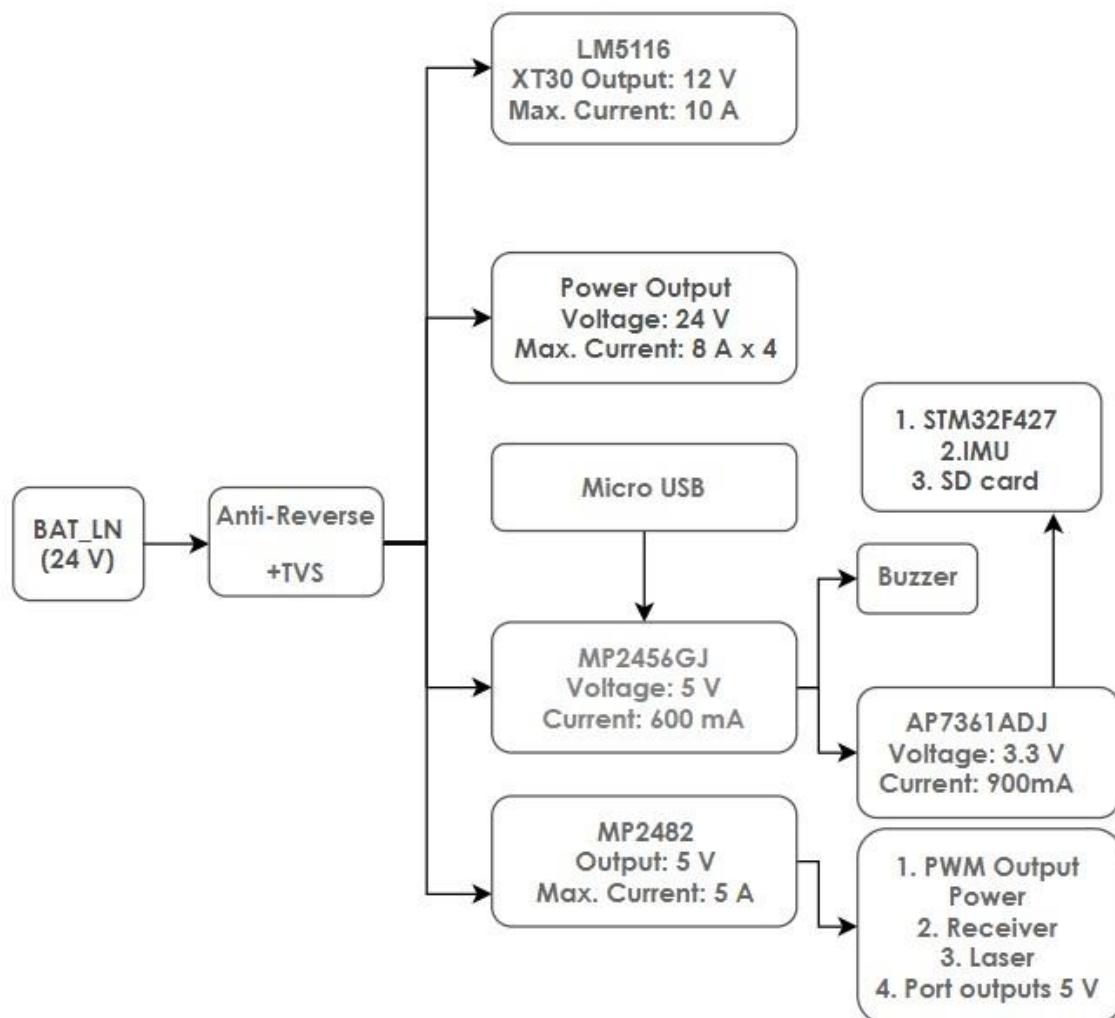
CAN bus-bar: 2-line CAN bus-bar

Power Supply: 4-line 24 V power output, 3-line 12 V power output

PWM output: 7 sets (22 lines)

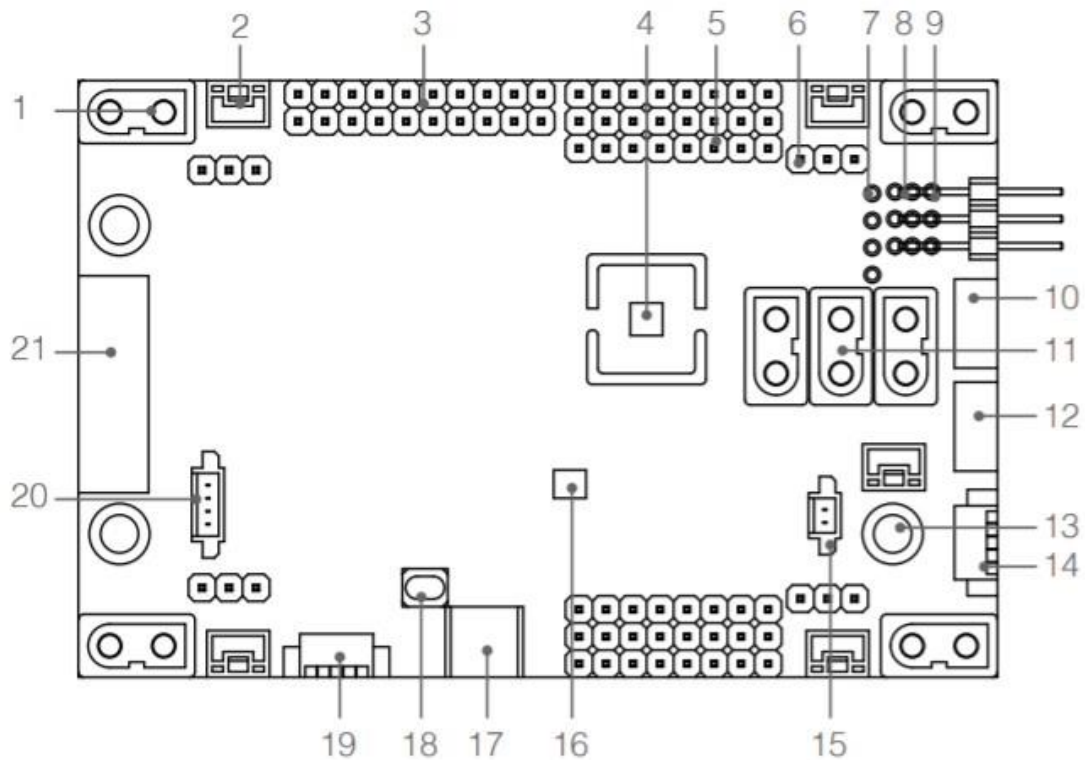
Serial output port: 3 sets

Onboard: IMU module (MPU6500+IST8310), Buzzer, buttons, and 2-color LED indicator



Ports Description

Front



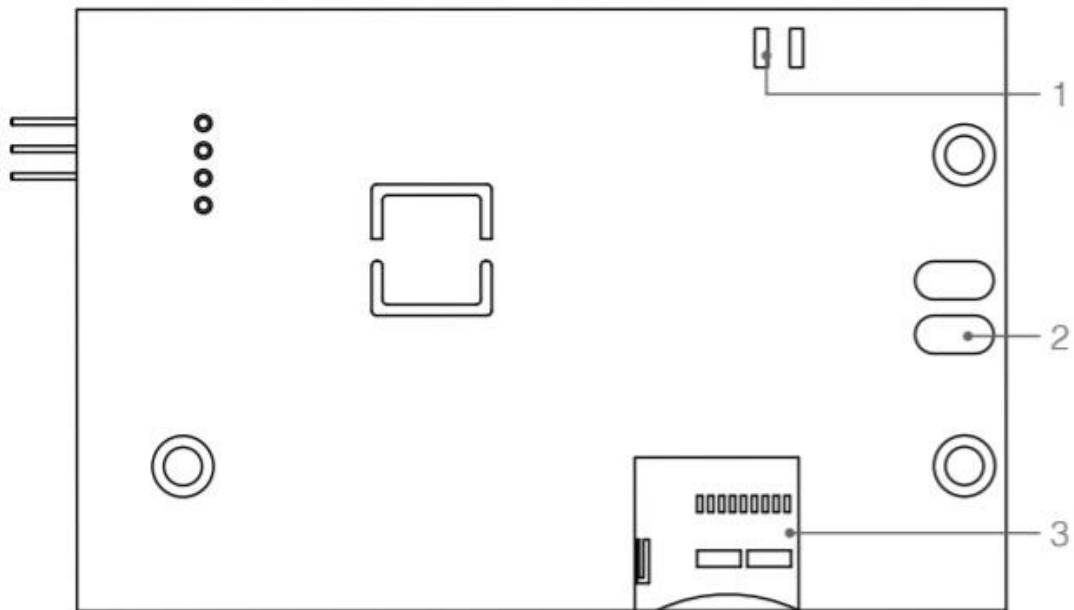
Number	Name	Quantity	Description
1	XT30 power output	4	Connects RoboMaster 820 ESC interface, and charge the robots
2	BM02B-GHS-TBT port, CAN1 communication port	5	Communicates with RoboMaster 3510 ESC interface
3	USER GPIO	20	Includes ports such as IIC, SPI, AD, DA, etc
4	Onboard IMU Module	1	Includes MPU6500, IST8310 and heating resistance
5	8-line PWM port	2	Users can connect devices such as servo based on their needs
6	1-line PWM port	4	Controls the ESC of PWM

			input signal with use of port 1
7	1-line user-selectable serial port	1	Connect Bluetooth, convenience for debugging
8	2-line PWM input	1	Control friction wheel
9	1-line DBUS output	1	Connect DJI remote control receiver
10	SM04B-GHS-TB port	1	User serial (USART6) adjustment port
11	XT30 port, 12V power port	3	Provide power for friction wheels and ammo booster, use with Port 2 and Port 8
12	SM04B-GHS-TB port, CAN2 port	1	Users can use this port based on some specific application
13	3.5/5.5mm mounting holes	3	Stabilize the board with M3 and M3.5 nails
14	Molex-53261-0471 port, SWD adjustment port	1	Adjust and test STM32F427
15	Molex-53398-0271 port	1	Control the laser
16	2-color LED indicator (red and green)	1	Customize according to the needs from users
17	USB-OTG port	1	Optional use
18	Button	1	Deploy based on user's actual commissioning requirements
19	Molex-53261-0571 port	1	User serial port (USART3)
20	Molex-53398-0471 port, CAN2	1	Connect external gyroscope

and 24V power port

21	S8B-PH-SM4-TB port, CAN1 input and 24V power input port	1	Compatible with RoboMaster 6623 ESC interface
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Back



Number	Name	Quantity	Description
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1	CAN1 port	1	Allows user to soldering based on their desire
2	Alternate 24 V power input pad	1	Soldering XT60 when large amount of current is needed
3	SD card slot	1	Insert SD card

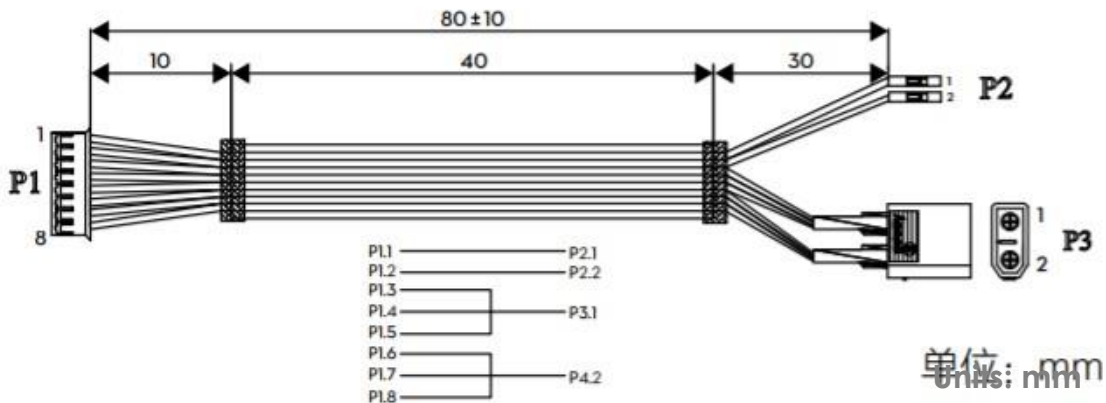
WARNING: When using four XT30 ports to charge the RoboMaster 820R ESC, the use of soldering XT60 adapter cable on the pad is recommended for larger flow demand, which is locate in the back of the 8pinJST (S8B-PH-

SM4TB) power input terminal. Four XT30 ESC interface can provide a maximum current of 8A; the board will heat up as the duration increase, therefore please do not charge for more than 10 minutes.

The Power Cable

The power cable has total of 8 Pin. P1 connects with S8B-PH-SM4_TB terminal. P2 is DuPont 2.54 terminal (1: grey, 2: yellow), which can be connected with CAN signals. P3 is XT60 terminal (1: red, 2 black), used to connect external power supply. The following is the description for P1 terminals:

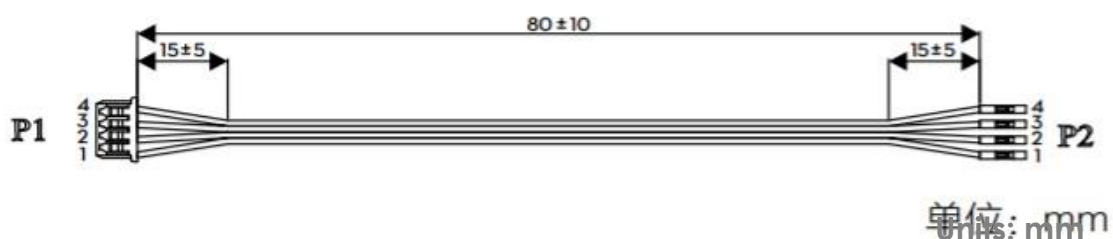
- 1 (grey), 2 (yellow): CAN_L, CAN_H
- 3 (red), 4 (red), 5 (red): VCC
- 6 (black), 7 (black), 8 (black): GND



SWD Wire

The SWD wire contains 4 Pin, P1 connects with Molex-53261-0471 terminal. P2 is DuPont 2.54 terminal, which is used for connecting the debugger of the external SWD port, testing and adjusting the board and downloading firmware. The color of P1 and P2 terminals are shown below:

- 1: white 2: black 3: grey 4: red



Parameters:

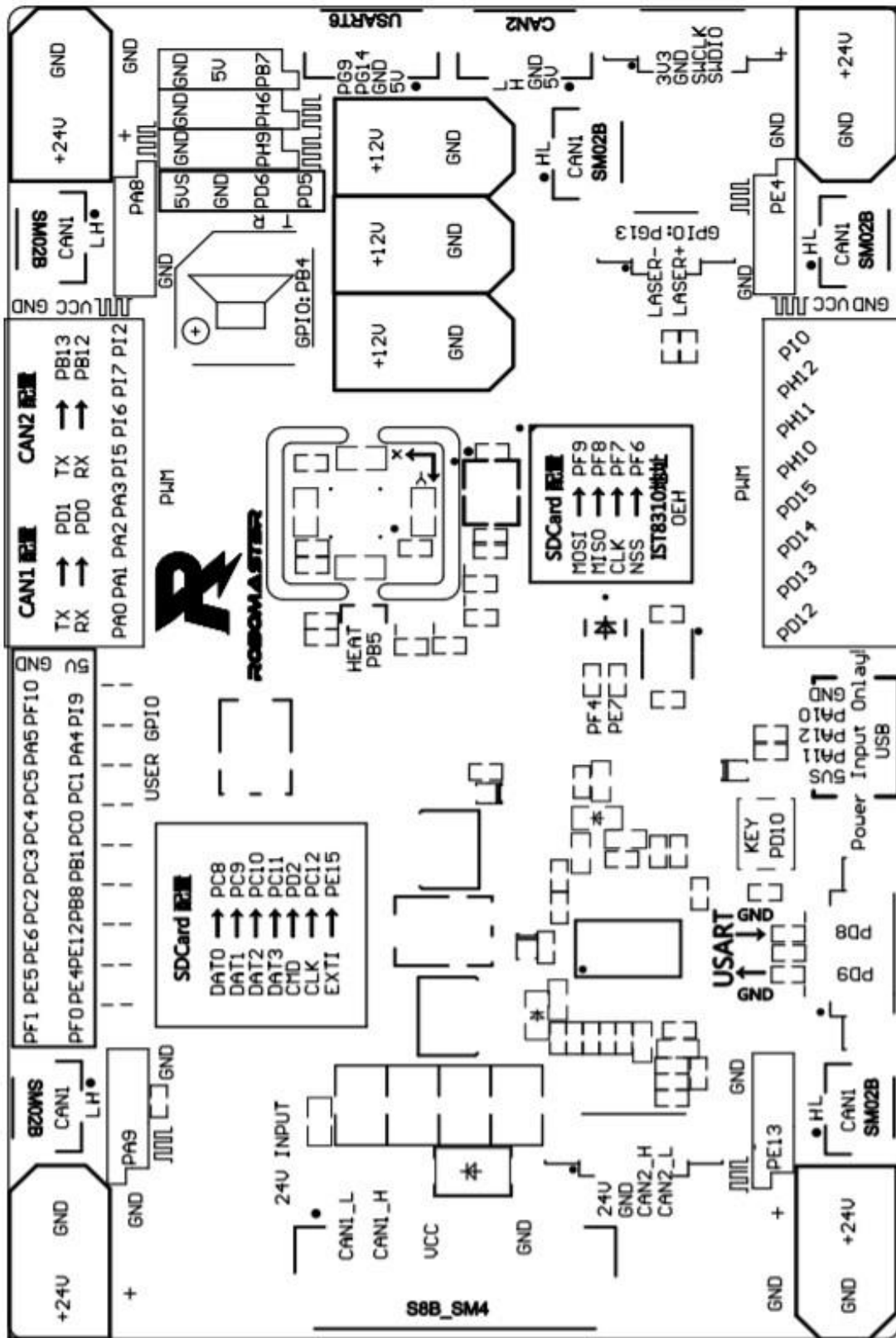
Weight: 53g

Max. Current: 20 A

Max. Voltage: 26 V

Size: 85mm x 55 mm

Appendix



Interface pin graph