

Motor Driver Card Slots And Motor terminals

The diagram illustrates the wiring for four motor driver card slots (J4, J11, J12, J13) and their corresponding motor terminals. Each slot has a 25-pin connector with pins labeled A1-A15 and B1-B15. The wiring for each motor is as follows:

- Motor 1 (J4):** -V_BAT to A1, +V_BAT to B1, GND to B7, MOTOR_1_IN to A7, MOTOR_1_A to A12, MOTOR_1_B to B12.
- Motor 2 (J11):** -V_BAT to A1, +V_BAT to B1, GND to B7, MOTOR_2_IN to A7, MOTOR_2_A to A12, MOTOR_2_B to B12.
- Motor 3 (J12):** -V_BAT to A1, +V_BAT to B1, GND to B7, MOTOR_3_IN to A7, MOTOR_3_A to A12, MOTOR_3_B to B12.
- Motor 4 (J13):** -V_BAT to A1, +V_BAT to B1, GND to B7, MOTOR_4_IN to A7, MOTOR_4_A to A12, MOTOR_4_B to B12.

Each motor terminal block has pins labeled 1 and 2 for the motor control lines. The screw terminal labels at the bottom are: Screw_Terminal_01x02 for Motor 1, Screw_Terminal_01x02 for Motor 2, Screw_Terminal_01x02 for Motor 3, and Screw_Terminal_01x02 for Motor 4.

SD Card Slot

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Pin connections for the SD Card Slot:

- VDD (4) → SD_CLK
- CLK (5) → SD_CMD
- CMD (3) → SD_D0
- DAT0 (7) → SD_D1
- DAT1 (8) → SD_D2
- DAT2 (1) → SD_D3
- CD/DAT3 (2) → SD_CD
- CD (6) → SD_CD
- VSS (6) → SD_CD
- COVER_GND (1) → SD_CD
- COVER_GND_1 (2) → SD_CD
- COVER_GND_2 (3) → SD_CD
- COVER_GND_3 (4) → SD_CD

Resistors: 10k R1, 10k R2, 10k R3, 10k R4, 10k R5, 10k R7.

Capacitor: C29 (0.1µF).

Power: +3.3V_2, GND.

Signal: SD_CLK, SD_CMD, SD_D0, SD_D1, SD_D2, SD_D3, SD_CD.

[illegible]

Battery In

The diagram shows two XT60PW-M connectors, J9 and J10, connected to a 12A battery. J9 connects to +V_BAT and J10 connects to -V_BAT, with a common ground connection.

Voltage Step-Down/Regulation

The diagram shows a DC-DC converter U13 (DI79L09DAB) connected to a -9V source and a -V_BAT output. The converter has three inputs: IN1 (pin 1), IN2 (pin 2), and IN3 (pin 3). The output is connected to -V_BAT (pin 8). The converter also has two other pins: NC (pin 7) and IN (pin 6).

[illegible]

The power supply section includes the following components and connections:

- Input Filter:** A 0.1μF capacitor (C1) is connected to the input (IN) of the first voltage regulator. A 0.33μF capacitor (C2) is connected to the output (OUT) of the first voltage regulator, which provides -V_BAT.
- First Voltage Regulator (CR1, DI78L09UAB):** The input (VIN) is connected to +V_BAT through a 0.33μF capacitor (C40). The output (VOUT) is connected to +9V through a 0.1μF capacitor (C41).
- Second Voltage Regulator (U11, LM7905_T0220):** The input (VI) is connected to -V_BAT through a 2.2μF capacitor (C36). The output (VO) is connected to -5V through a 1μF capacitor (C37).
- Third Voltage Regulator (U12, LM7805_T0220):** The input (VI) is connected to +V_BAT through a 0.22μF capacitor (C35). The output (VO) is connected to +5V through a 0.1μF capacitor (C15).
- DC-DC Converter (U10, AP63205WU):** The input (IN) is connected to +V_BAT through a 10μF capacitor (C10). The output (SW) is connected to +5V_U9 through an inductor (L1, 4.7μH) and a 22μF capacitor (C6). The feedback (FB) pin is connected to ground through a 0.1μF capacitor (C13).

U2
MUX5091PWR

+9V 14 VDD

C22 0.1μ 16 MUX_A1

0.1μ 1 A0

GND 2 EN +3.3V_1

MOTOR_1_A 4 S1A

MOTOR_2_A 5 S2A

MOTOR_3_A 6 S3A

MOTOR_4_A 7 S4A

MUX_OUT_A 8 DA

13 S1B MOTOR_1_B

12 S2B MOTOR_2_B

11 S3B MOTOR_3_B

10 S4B MOTOR_4_B

9 DB MUX_OUT_B

GND 15

V55 3 -9V

C23 0.1μ

1. All resistors measured in Ohms, tolerance of 5% or better unless noted otherwise.
2. All capacitors measured in Farads, tolerance of 10% or better unless noted otherwise.
3. All inductors measured in Henrys, tolerance of 15% or better unless noted otherwise.
4. Amplifier slots must be spaced minimum 1" apart.
5. Batteries attached to board must have external low voltage protection.
6. Fuses to be rated for current indicated and be fast blow type unless noted otherwise.
7. IMU mounted remotely for better positioning. PH08 pigtail required.

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