



axldrone – PDB 200A

Module Datasheet

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Introduction

PDB 200A

a Power Distribution Board (PDB) designed to efficiently manage electrical power in systems requiring a 60V input and providing regulated 2V and 5V outputs. The PDB serves as a crucial component in various Electronics Applications, offering reliable voltage regulation and distribution for diverse circuits.

The PDB incorporates advanced power management technologies to ensure stable and clean power delivery. The 60V input is carefully regulated to produce a constant and precise 12v output, suitable for powering components such as Flight controller, control boards, motor controllers and other peripherals. Additionally, a secondary 5V output is provided to accommodate lower voltage requirements, enhancing the board's versatility for a wide range of electronic devices.

Applications

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Applications

A power distribution board designed for a 60V power system can find applications in various industries and settings where a lower voltage level is sufficient for the intended electrical loads.

- **Drones and VTOLs**

Many drones and VTOL used for Agricultural, Industrial, Surveillance, operate at a voltage of 60V. A PDB can be used to distribute power to various components in the systems.

- **Electrical Vehicles (EVs)**

Many electric vehicles, including electric cars, bikes, and scooters, Surfboard, Skateboard operate at voltages around 60V. A PDB in this voltage range can be used to distribute power to different components of the vehicle, such as motors, lights, and control systems.

- **Low Voltage Lighting Systems**

60V PDBs can be employed in lighting systems that operate at lower voltages. This includes indoor and outdoor lighting in residential, commercial, and industrial environments.

- **Telecommunication Equipment's**

Some telecommunications equipment, especially in remote or off-grid locations, may operate at 60V. PDBs in this voltage range can be used to distribute power to communication infrastructure components.

- **Solar Power Systems**

In certain cases a 60V PDB can be utilized to distribute power from solar panels to batteries, inverters, and other components.

- **Marine And Boating Application**

Some marine electronics and equipment operate at lower voltages, and a 60V PDB can be used to distribute power on boats and other marine vessels.

- **Renewable Energy Microgrid**

In remote areas or microgrid setups powered by renewable energy sources, a 60V PDB can be part of the power distribution infrastructure for local loads.

- **Agricultural Equipment's**

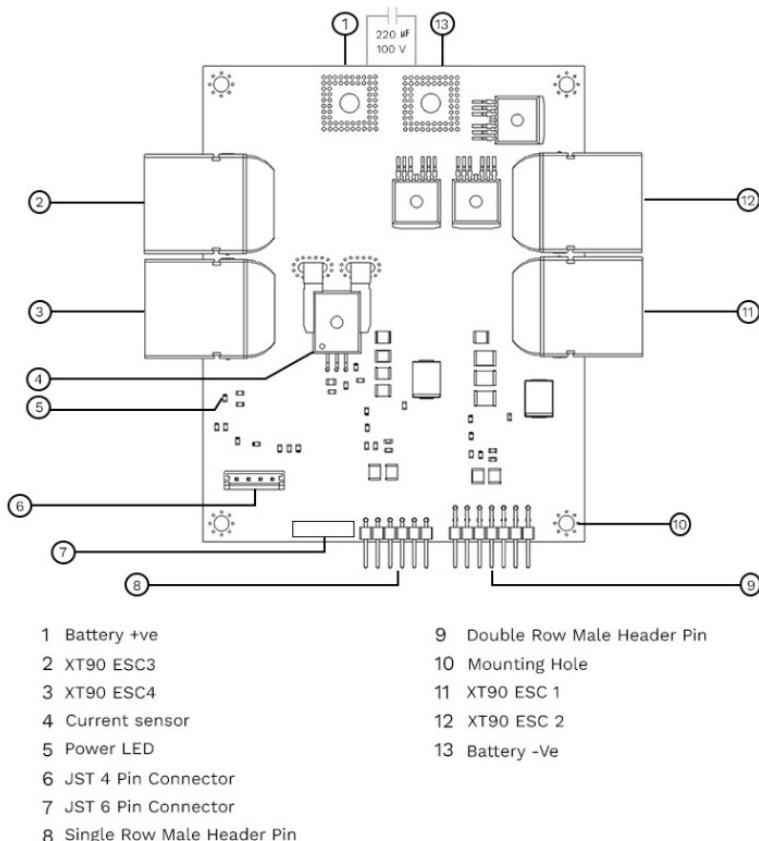
Some agricultural machinery and equipment, such as certain types of irrigation systems or electric tractors, may operate at 60V. A PDB in this range can facilitate the distribution of power to these systems.

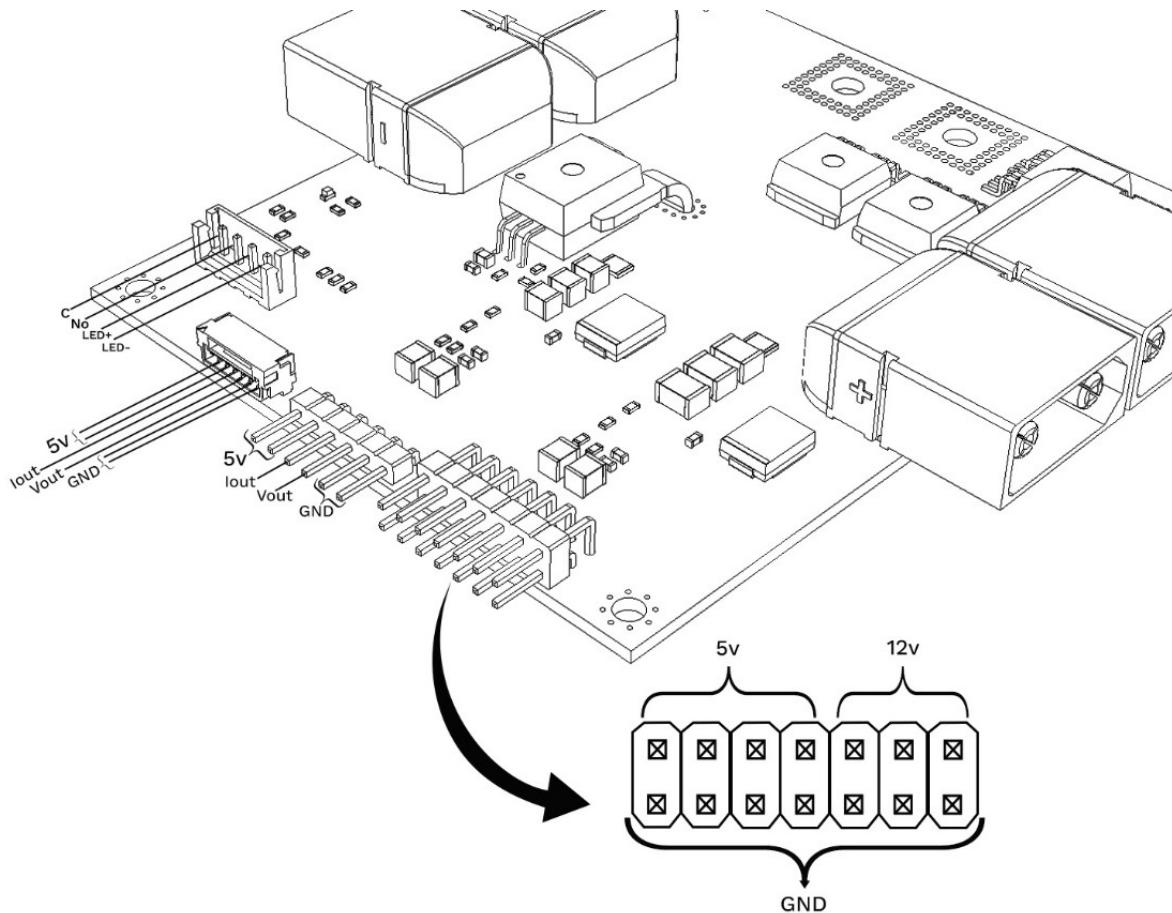
- **Emergency Light System.**

Emergency lighting systems, often used in critical facilities, may operate at lower voltages for increased safety. A 60V PDB can distribute power to emergency lights and exit signs.

Specifications

Specification	Description
Size	105x105x12 mm
Weight	90g
Input voltage	20V – 60V (14S max)
Current carrying capacity	200 Amps Max
Connectors	One SM06B-GHS-TB, header pin p14 2.5mm, header pin p6 2.5mm and four XT90
Sensors	200 Amps Current sensors
BEC	12V 5A and 5V 5A





Peripheral outputs and inputs

Peripherals	Description
XT90	The has four connectors which are the power distribution connectors for connecting the ESC from the board.
Header pins 14P 2.5mm	This header pin connector is the 12V/5V output peripheral for powering the Flight control boards, modules, sensors and other microcontroller boards.
Header pin 6P 2.5mm	This header pin connector is the 5v output power and analog signals of the current and voltage to the Flight controller.
Header pin 2P 2.5mm	This header pin connector is for the switch control of the PDB.

Power source

The power source can be used as a lithium-ion battery or acid battery with a voltage range from 20V to 60V is supported by the board and it is capable of carrying max 200A current continuously.

PDB connectors

The battery is connected to the board using nuts and bolts and makes sure it is tight. Choose a wire which can carry at least 250A (Pylon Battery DC Cable recommended) Use a ring connector in the wire tip and insulate using a heat sink. A 3mm bolt is used for wire board connection. A 200uF 100v electrolytic capacitor is recommended to connect with the battery input. The connection example is given in the fig.1 below.

Note: - Recommended to add a 220uF 100v capacitor to the source side of the PDB. Do not switch OFF or ON the Anti-spark switch when load is connected to the PDB. It is safe to turn on the switch before adding load.

If not using the switch, short the C and NO pins.

Current and voltage signal

The board has an integrated circuit for measuring the accurate value of battery voltage and current flow which is helpful to calculate the battery power monitoring. It is a Hall effect sensor which provides economical and precise solutions for current sensing. Typical applications included motor control, load detection, inverter control and over current fault detection.

The Current IC outputs an analog signal, V_{out} , that varies linearly with the bidirectional DC primary current sample. The Quiescent output voltage of the current sensor is about 0.5V This voltage can be attributed to the resolution of the Allegro linear IC quiescent voltage trim, magnetic hysteresis, and thermal drift. The analog voltage signal is from the voltage divider in the board which is designed based on the maximum voltage (60V) input.