

DKNTZO PM03D Power Module

X500 V2 Multirotor PM03D Power Module

Instruction Manual

Brand: DKNTZO | Model: PM03D

1. INTRODUCTION

The PM03D Power Module is designed for multi-rotor applications, specifically compatible with platforms like the X500 V2. It provides a regulated power supply and monitors current consumption and battery voltage through a 6-pin 2.00mm CLIK-Mate cable. This module is compatible with flight controllers that utilize I2C power monitoring, such as Pixhawk 5X and newer versions.

It features pre-installed XT-30 and XT-60 connectors for motor ESCs and battery connections, along with two 5V BECs and a selectable 8V/12V output for various peripheral devices.

Key Features:

- Plug & play functionality, requiring no additional setup for QGroundcontrol Mission Planner.
- Integrated XT30 connectors and solder pads for straightforward motor ESC connections.
- Onboard voltage regulators: two 5.2V outputs and one selectable 8V/12V output.
- 5V/3A ports for powering companion computers or peripheral devices.
- Selectable 8V or 12V triple row pin header for powering additional peripheral devices.
- Provides regulated power supply, current consumption, and battery voltage data via a 6-pin 2.00mm CLIK-Mate cable.



Figure 1: X500 V2 Multirotor PM03D Power Module and included cables.

2. PRODUCT OVERVIEW AND COMPONENTS

The PM03D board is designed for efficient power distribution and monitoring within multi-rotor systems. Understanding its layout and connections is crucial for proper integration.

Specification:

- Support up to 6S battery
- Rate current: 60A
- Max current: 120A (<60 Sec)
- Max current sensing: 164A

Note:

The voltage & current sensor onboard uses I2C digital communication and is applicable to flight controller that uses I2C digital PM such as the Pixhawk 5X.

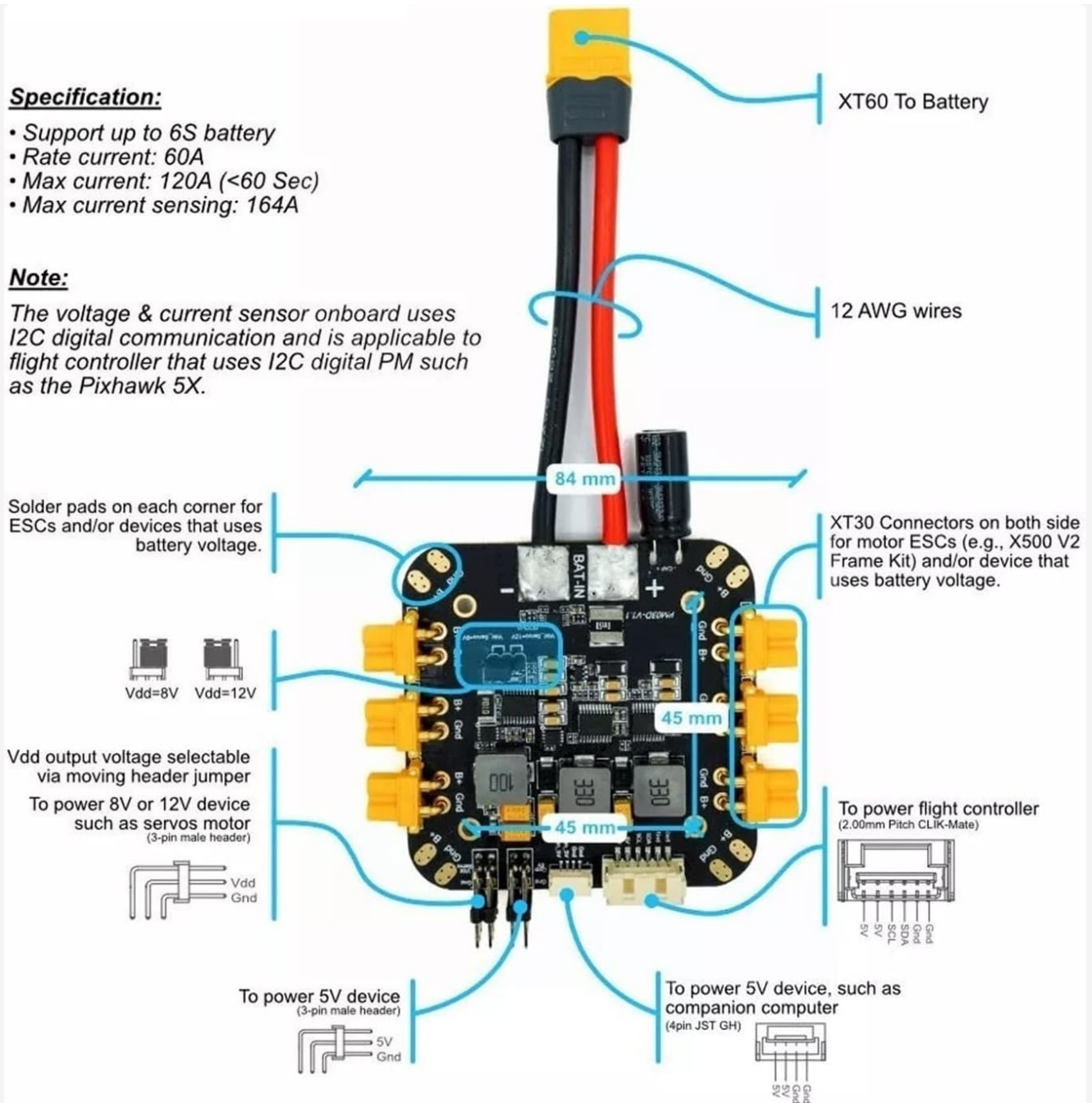


Figure 2: PM03D Power Module detailed diagram with specifications and connection points.

Package Contents:

- 1x PM06 board (Note: Product description refers to PM06 board, but context implies PM03D)
- 1x 80mm XT60 connector wire (pre-soldered)
- 1x Electrolytic capacitor: 220uF 63V (pre-soldered)
- 1x 2.0mm pitch for CLIK-Mate 6pin cable (To power flight controller)
- 1x 4pin for JST GH to USB Type C cable
- 1x 4pin for JST GH to barrel plug (2.1*5.5mm) cable
- 1x 4pin for JST GH to barrel plug (2.5*5.5mm) cable
- 2x 4pin for Pin Dupont Cable
- Nylon standoffs & nuts

3. SETUP AND INSTALLATION

Proper installation of the PM03D Power Module is essential for the safe and reliable operation of your multi-rotor system. Follow these guidelines for setup.

Compatibility Note:

Important: This PM03D module is **not compatible** with flight controllers that use analog power modules, such as Pixhawk4, Pixhawk4 Mini, Pix32 v5, or Durandal flight controllers. It is designed for flight controllers that use I2C power monitoring, like Pixhawk 5X and up.

Connections:

- **XT-60 Connector:** For battery input. Ensure the XT60 plug and 12AWG wire are appropriate for your continuous and instantaneous current requirements. The included XT60 and 12AWG wire are rated for 30A continuous and 60A instantaneous (<1 minute). If higher currents are used, the plug type and wire size must be changed accordingly.
- **XT-30 Connectors:** For motor ESCs and peripheral devices requiring battery voltage. There are solder pads in each corner for additional battery voltage connections.
- **CLIK-Mate 2.0mm 6-pin:** Connects to the flight controller (provides 5.2V/3A standalone BEC).
- **JST GH 4-pin:** For powering companion computers (5.2V/3A, BEC shared with 5.2V triple row pin header).
- **Triple Row Pin Headers (5.2V):** Two sets, providing 5.2V/3A (BEC shared with JST GH 4-pin).
- **Triple Row Pin Headers (8V or 12V):** Two sets, selectable by moving a header jumper, providing 3A.

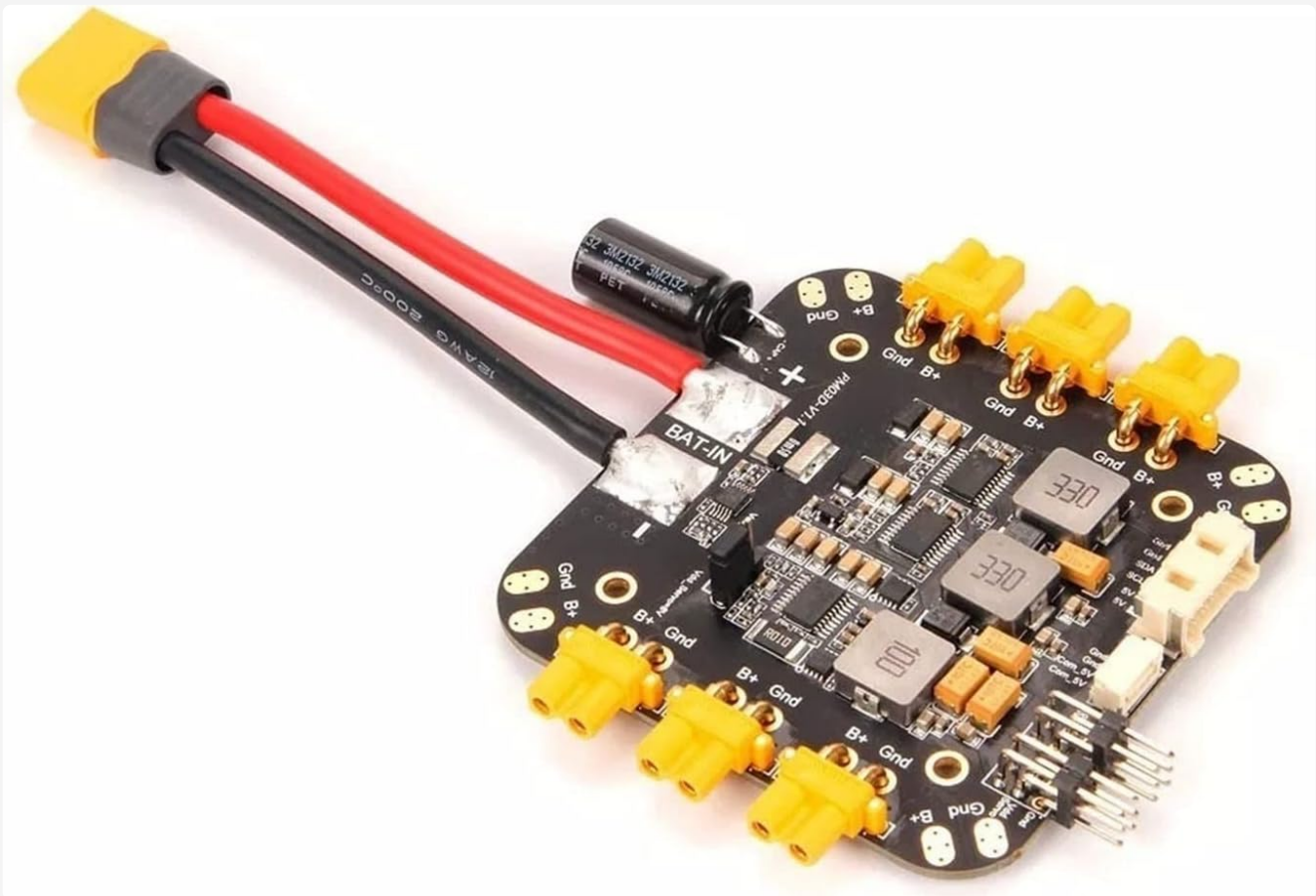


Figure 3: Top view of the PM03D Power Module.

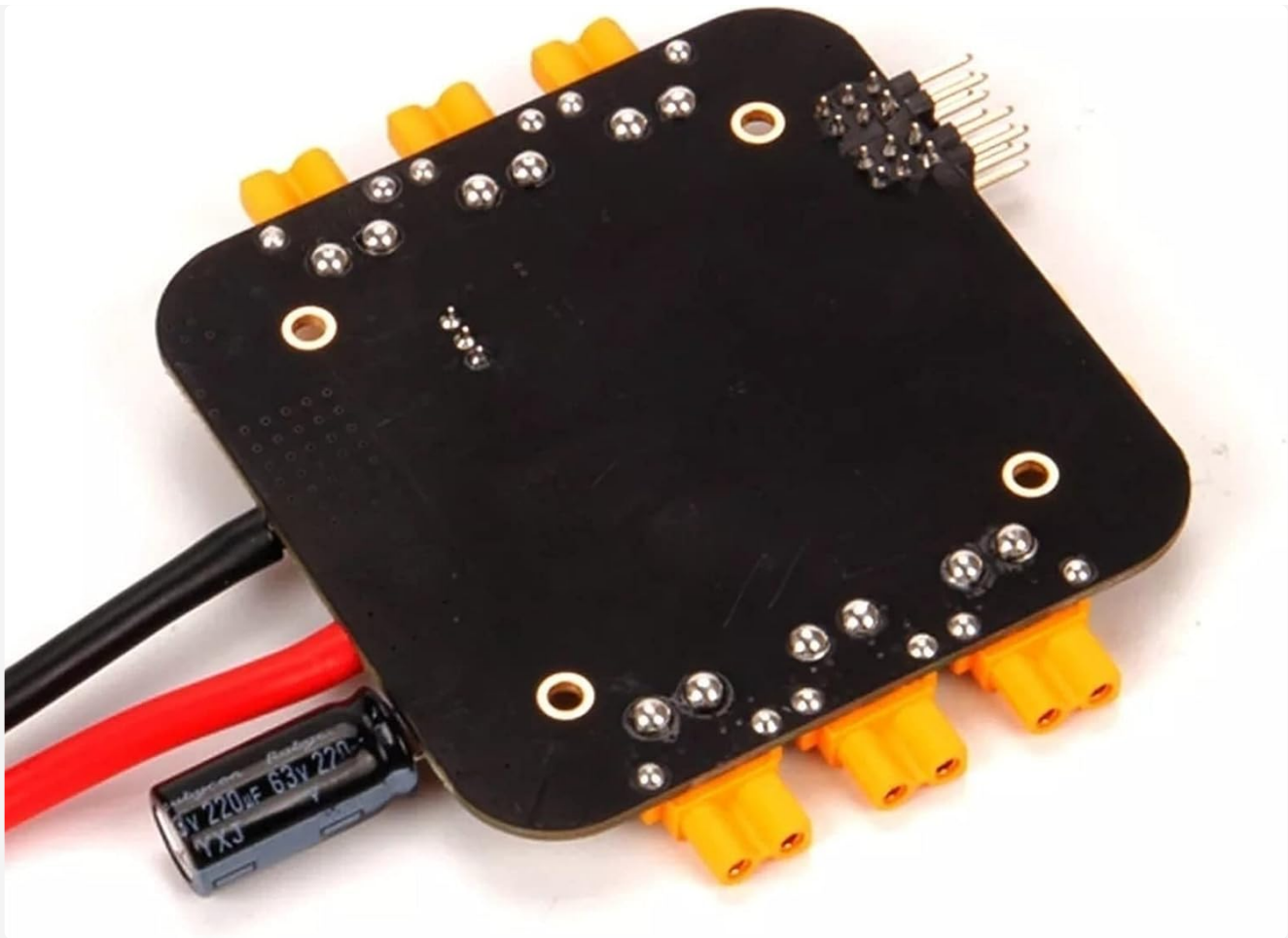


Figure 4: Bottom view of the PM03D Power Module, showing mounting points.

4. OPERATING INSTRUCTIONS

Once properly installed and connected, the PM03D Power Module operates with minimal user intervention. It is designed for plug-and-play functionality with compatible flight controllers and ground control software.

Basic Operation:

- Connect your flight battery to the XT-60 input.
- Ensure all ESCs and peripheral devices are correctly connected to the XT-30 or other designated output ports.
- The module will provide regulated power to the flight controller and connected peripherals.
- Current and voltage data will be transmitted to the flight controller via the CLIK-Mate cable for monitoring in QGroundcontrol or Mission Planner.

Current Considerations:

Pay close attention to the current ratings. The XT60 plug and 12AWG wire supplied with the PM03D are rated for 30A continuous current and 60A instantaneous current (for less than 60 seconds). If your application requires higher currents, it is imperative to upgrade the plug type and wire size accordingly to prevent overheating and potential damage.

5. MAINTENANCE AND CARE

To ensure the longevity and optimal performance of your PM03D Power Module, follow these maintenance and care guidelines:

- **Regular Inspection:** Periodically inspect all connections, including XT-60, XT-30, and other cable connections, for any signs of wear, corrosion, or loose contacts.
- **Cleanliness:** Keep the module free from dust, dirt, and moisture. Use a soft, dry brush or compressed air to clean the board if necessary. Avoid using liquid cleaners.
- **Temperature Management:** Ensure adequate airflow around the module during operation, especially under high current loads, to prevent overheating.
- **Wire Integrity:** If you modify the wiring for higher current applications, ensure that all solder joints are strong and insulated properly. Use high-quality, appropriately gauged wires.
- **Storage:** When not in use, store the module in a dry, cool environment, away from direct sunlight and extreme temperatures.

6. TROUBLESHOOTING

If you encounter issues with your PM03D Power Module, consider the following troubleshooting steps:

No Power to Flight Controller/Peripherals:

- **Check Battery Connection:** Ensure the XT-60 battery input is securely connected and the battery is charged.
- **Verify Cable Connections:** Confirm that the CLIK-Mate cable to the flight controller and all peripheral cables are correctly and firmly seated.
- **Inspect for Damage:** Look for any visible damage to the board, wires, or connectors.

Incorrect Voltage/Current Readings:

- **Flight Controller Compatibility:** Double-check that your flight controller uses I2C power monitoring. This module is not compatible with analog PM systems (e.g., Pixhawk4, Pixhawk4 Mini, Pix32 v5, Durandal).
- **Software Configuration:** While designed for plug-and-play, ensure no conflicting settings in your flight controller's ground control software (QGroundcontrol/Mission Planner).
- **Sensor Calibration:** If readings are consistently off, consult your flight controller's manual for power module sensor calibration procedures.

Overheating:

- **Current Overload:** Ensure your system's current draw does not exceed the module's rated continuous or instantaneous limits. If it does, upgrade the XT60 connector and battery wires to a higher gauge.
- **Ventilation:** Confirm the module has adequate airflow and is not enclosed in a way that traps heat.

7. TECHNICAL SPECIFICATIONS

Detailed technical specifications for the PM03D Power Module are provided below:

Electrical Specifications:

- **Maximum Input Voltage:** 6S battery

- **Rated Current:** 60A
- **Max Current:** 120A (<60 Sec)
- **Max Current Sensing:** 164A
- **BEC Output 1 (Flight Controller):** 5.2V/3A (standalone) via CLIK-Mate 6pin
- **BEC Output 2 (Peripherals):** 5.2V/3A (shared with JST GH 4pin) via 2x Triple row pin header
- **BEC Output 3 (Selectable):** 8V or 12V (selectable by jumper, 3A) via 2x Triple row pin header

Physical Specifications:

- **Dimension (excluding wires):** 84mm x 78mm x 12mm
- **Mounting Hole Pattern:** 45mm x 45mm
- **Weight:** 59g (approximately 0.035 ounces)

Additional Specifications:

- **ASIN:** B0B9FSTRPZ
- **Date First Available:** August 12, 2022
- **Manufacturer:** YALIWEIDIAN

8. WARRANTY AND SUPPORT

DKNTZO is committed to customer satisfaction. If you encounter any issues with your PM03D Power Module, please contact the seller directly for assistance.

Contact and Support:

- For product-related inquiries or if the product does not meet your expectations, please contact the seller. They are available to assist you and provide a satisfactory solution.
- The standard return policy allows for returns within 30 days for refund or replacement. Please refer to your purchase details for specific return instructions.