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› Holybro Pixhawk 6C Flight Control for Four-axis Multi-axis Fixed Wing FPV Drone PX4 PIX4 Pixhawk4 Upgrade (Metal Case 6C + PM02)

## hobbyant Pixhawk 6C (Metal Case 6C + PM02)

# Holybro Pixhawk 6C Flight Control User Manual

Model: Pixhawk 6C (Metal Case 6C + PM02) | Brand: hobbyant

## 1. INTRODUCTION

The Holybro Pixhawk 6C Flight Control is the latest update to the successful family of Pixhawk flight controllers, based on the Pixhawk FMUv6C Open Standard and the Pixhawk Autopilot Bus Standard. This manual provides essential information for the proper setup, operation, and maintenance of your Pixhawk 6C flight controller.



## 2. KEY FEATURES

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- **High performance H7 Processor:** Features a powerful H7 Processor with a clock speed up to 480 MHz for advanced flight control capabilities.
- **Cost-effective Design:** New cost-effective design with a low-profile form factor, ideal for various drone applications.
- **Redundant IMU:** Equipped with a redundant inertial measurement unit (IMU) from Bosch & InvenSense for enhanced reliability and accuracy.
- **Integrated Vibration Isolation:** Includes a newly designed integrated vibration isolation system to filter out high-frequency vibration and reduce noise, ensuring accurate sensor readings.
- **Temperature-Controlled IMUs:** IMUs are temperature-controlled by onboard heating resistors, allowing for optimum working temperature and consistent performance.

## 3. WHAT'S IN THE BOX

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The Pixhawk 6C package typically includes the following components:

- Pixhawk 6C Flight Controller (Metal Case version)
- PM02 Power Module
- Various connection cables (e.g., PWM, I2C, CAN, USB)
- Mounting accessories (e.g., double-sided tape)



Image: A comprehensive view of the Pixhawk 6C flight controller and its accompanying accessories, including cables, power module, and mounting tape.

## 4. SETUP GUIDE

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### 4.1. Port Overview

Familiarize yourself with the various ports and connectors on the Pixhawk 6C. Proper connection is crucial for system functionality.



Image: Top-down view of the Pixhawk 6C, clearly labeling all input/output ports such as POWER1, POWER2, GPS1, GPS2, TELEM1, TELEM2, TELEM3, USB, CAN1, CAN2, SBUS OUT, PPM/SBUS RC, I2C, FMU PWM OUT, and I/O PWM OUT.



Image: An angled view of the Pixhawk 6C, providing a clearer perspective of the port arrangement and the overall compact design of the flight controller.

## 4.2. Initial Connections

1. **Power Module (PM02):** Connect the PM02 power module to either the POWER1 or POWER2 port. Ensure correct polarity. The PM02 provides regulated power to the flight controller and measures current/voltage.
2. **GPS/Compass:** Connect your GPS module to the GPS1 port. If using a secondary GPS, connect it to GPS2.
3. **Telemetry Radios:** Connect telemetry radios to TELEM1 or TELEM2 for ground station communication.
4. **RC Receiver:** Connect your RC receiver to the PPM/SBUS RC port. Ensure your receiver is compatible (PPM or SBUS).
5. **ESCs/Motors:** Connect your Electronic Speed Controllers (ESCs) to the FMU PWM OUT or I/O PWM OUT ports as per your vehicle's configuration (e.g., quadcopter, fixed-wing).
6. **USB Connection:** Use the USB port for initial setup, firmware flashing, and configuration via a ground control station software (e.g., QGroundControl, Mission Planner).

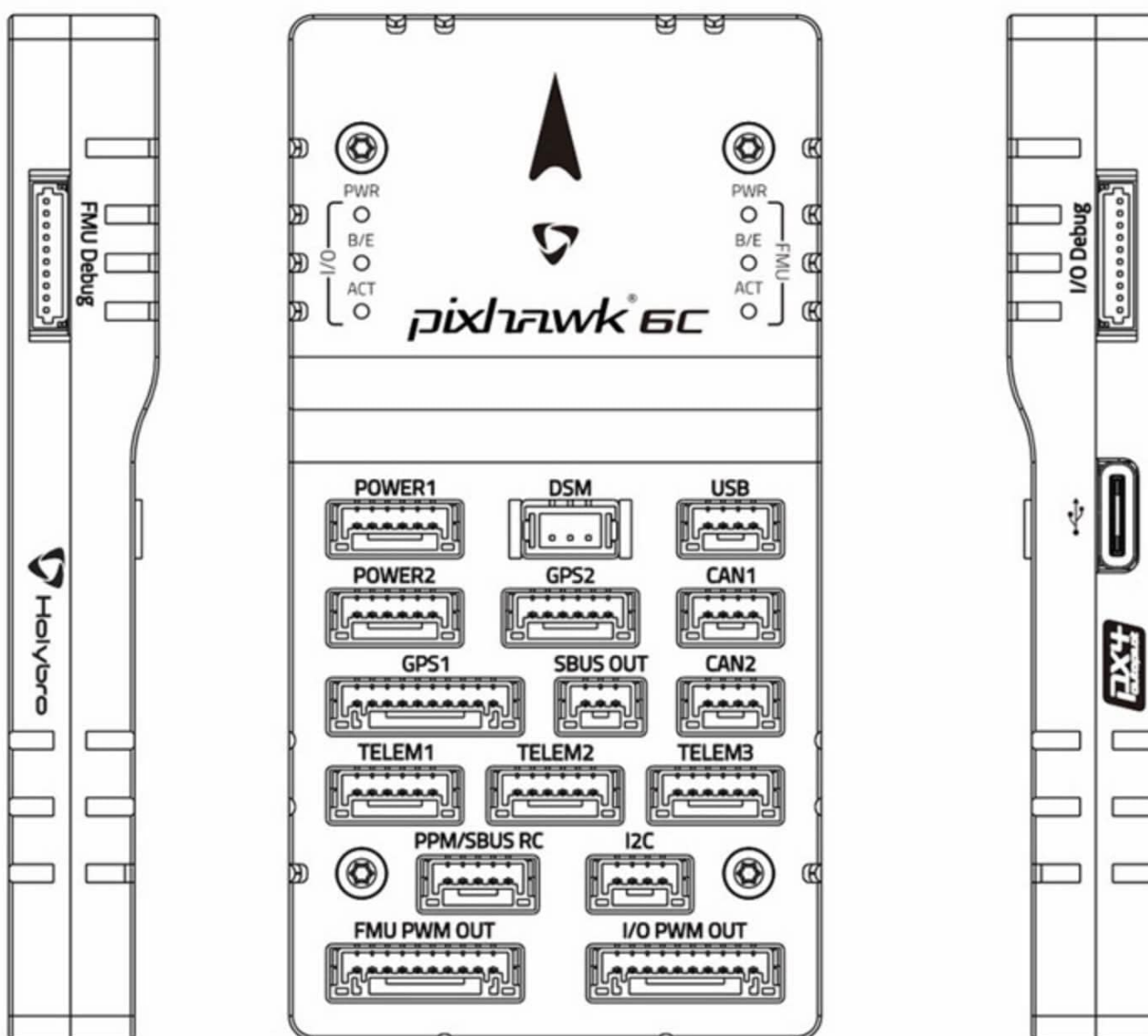


Image: The Pixhawk 6C flight controller shown connected to external modules, demonstrating typical wiring for a multirotor setup, including connections to PWM output boards.

### 4.3. Firmware Installation and Calibration

After making physical connections, the next step is to install the appropriate firmware and calibrate the sensors.

1. **Download Ground Control Software:** Download and install a compatible ground control station (GCS) software like

QGroundControl or Mission Planner on your computer.

2. **Connect via USB:** Connect the Pixhawk 6C to your computer using the provided USB cable.
3. **Firmware Flashing:** Follow the instructions within the GCS software to flash the latest stable PX4 or ArduPilot firmware onto your Pixhawk 6C.
4. **Sensor Calibration:** Perform all necessary calibrations, including:
  - Accelerometer Calibration
  - Compass Calibration (internal and external)
  - Radio Calibration
  - ESC Calibration (if required by your ESCs)
  - Level Horizon Calibration
5. **Frame Configuration:** Select your vehicle's frame type (e.g., Quadrotor X, Fixed Wing) in the GCS software.
6. **Pre-flight Checks:** Always perform thorough pre-flight checks as guided by the GCS software before attempting flight.

## 5. OPERATING INSTRUCTIONS

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### 5.1. Flight Modes

The Pixhawk 6C, running PX4 or ArduPilot firmware, supports various flight modes. Refer to the specific firmware documentation for detailed descriptions and usage of each mode (e.g., Stabilized, Altitude Hold, Position Hold, Auto, Return to Launch).

### 5.2. Safety Guidelines

- Always operate your drone in a safe and responsible manner.
- Ensure all components are securely mounted and connections are firm before every flight.
- Regularly check for loose wires, damaged propellers, or any signs of wear.
- Fly within visual line of sight and adhere to local regulations and airspace restrictions.
- Do not fly near people, animals, or private property.
- Monitor battery voltage and current during flight to avoid unexpected power loss.
- In case of an emergency, know how to disarm your motors quickly.

## 6. MAINTENANCE

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- **Cleaning:** Keep the flight controller clean and free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning.
- **Inspections:** Periodically inspect all connections for corrosion or looseness. Check for any physical damage to the board or connectors.
- **Firmware Updates:** Regularly check for and install the latest stable firmware updates from the PX4 or ArduPilot development teams to benefit from bug fixes and new features.
- **Storage:** When not in use, store the Pixhawk 6C in a dry, cool environment, away from direct sunlight and static electricity.

## 7. TROUBLESHOOTING

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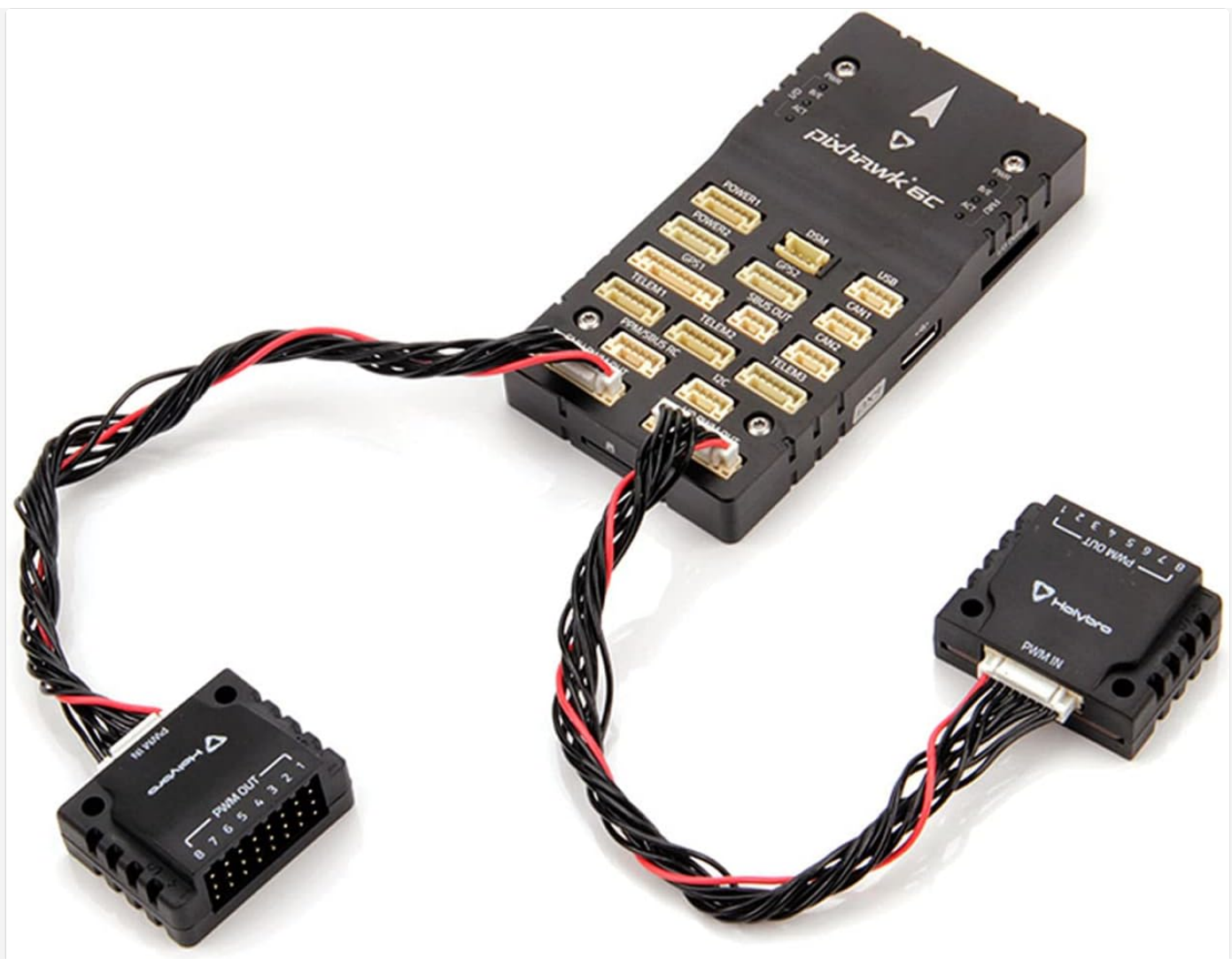
## 7.1. Common Issues and Solutions

| Issue                                   | Possible Cause                                                               | Solution                                                                                                |
|-----------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Flight controller not recognized by GCS | Driver issues, faulty USB cable, incorrect port selection                    | Install correct drivers, try a different USB cable/port, ensure correct COM port is selected in GCS.    |
| Sensors not calibrating                 | Incorrect calibration procedure, magnetic interference, faulty sensor        | Follow calibration steps precisely, move away from metal objects, check sensor health in GCS.           |
| Motors not spinning                     | ESCs not calibrated, safety switch not disarmed, arming checks failing       | Calibrate ESCs, ensure safety switch is disarmed, check GCS for arming check failures and resolve them. |
| Unstable flight                         | Incorrect PID tuning, vibration, unbalanced propellers, incorrect frame type | Review PID tuning, check for excessive vibrations, balance propellers, verify frame type in GCS.        |

For more detailed troubleshooting, refer to the official PX4 or ArduPilot documentation and community forums.

## 8. SPECIFICATIONS

- **Processor:** High performance H7 Processor (up to 480 MHz)
- **IMU:** Redundant inertial measurement unit (IMU) from Bosch & InvenSense
- **Vibration Isolation:** Integrated vibration isolation system
- **Temperature Control:** Onboard heating resistors for IMU temperature control
- **Dimensions:** Approximately 33 x 17.6 x 4.16 inches (Product Dimensions from Amazon, likely package dimensions, actual FC dimensions are smaller)
- **Country of Origin:** China
- **Manufacturer:** hobbyant



*Image: The Pixhawk 6C flight controller placed on a digital scale, indicating a weight of 59.3 grams. This highlights the lightweight design of the unit.*

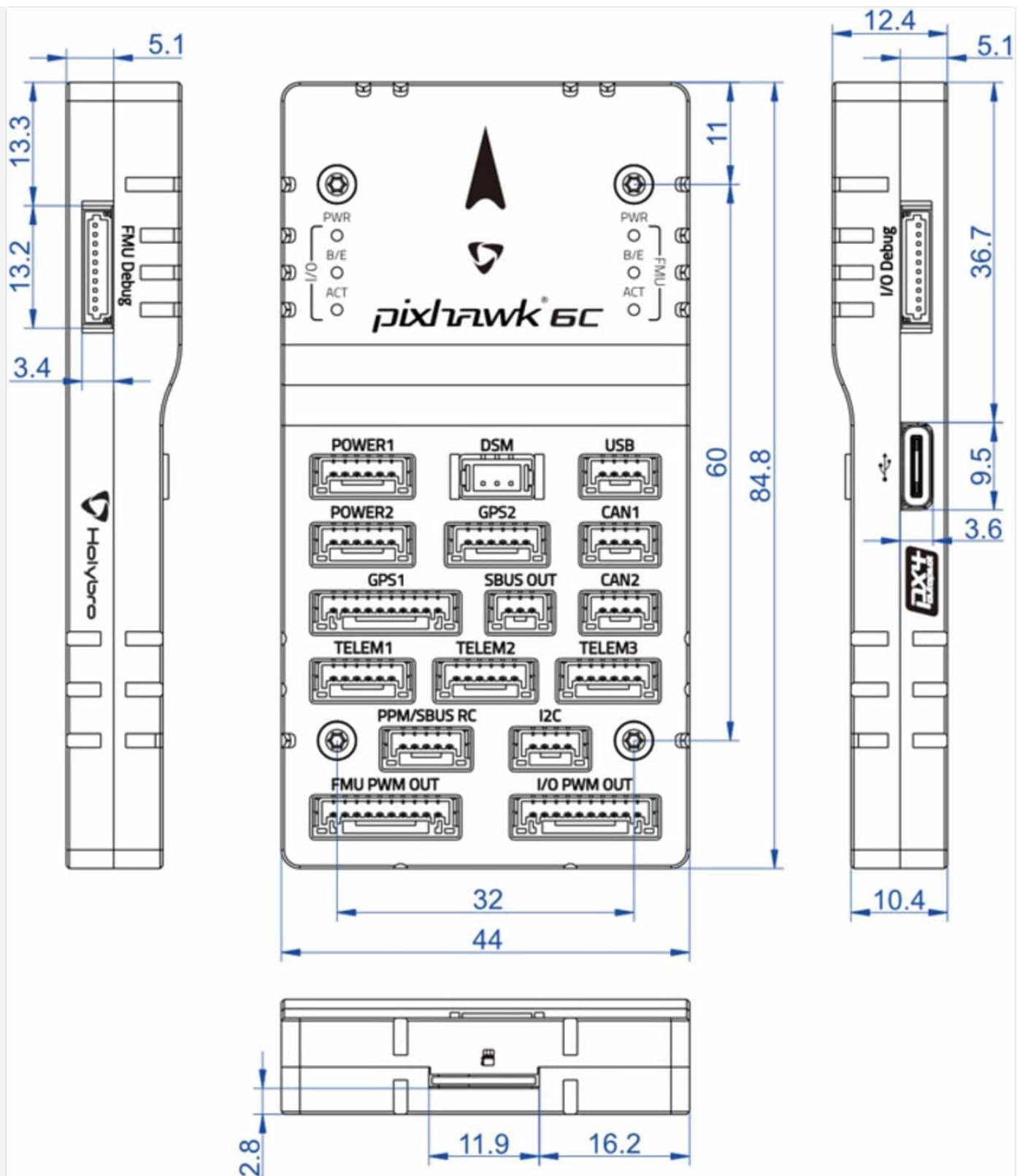


Image: Technical drawing of the Pixhawk 6C showing top and side views with detailed measurements in millimeters, providing precise dimensions for integration into custom builds.

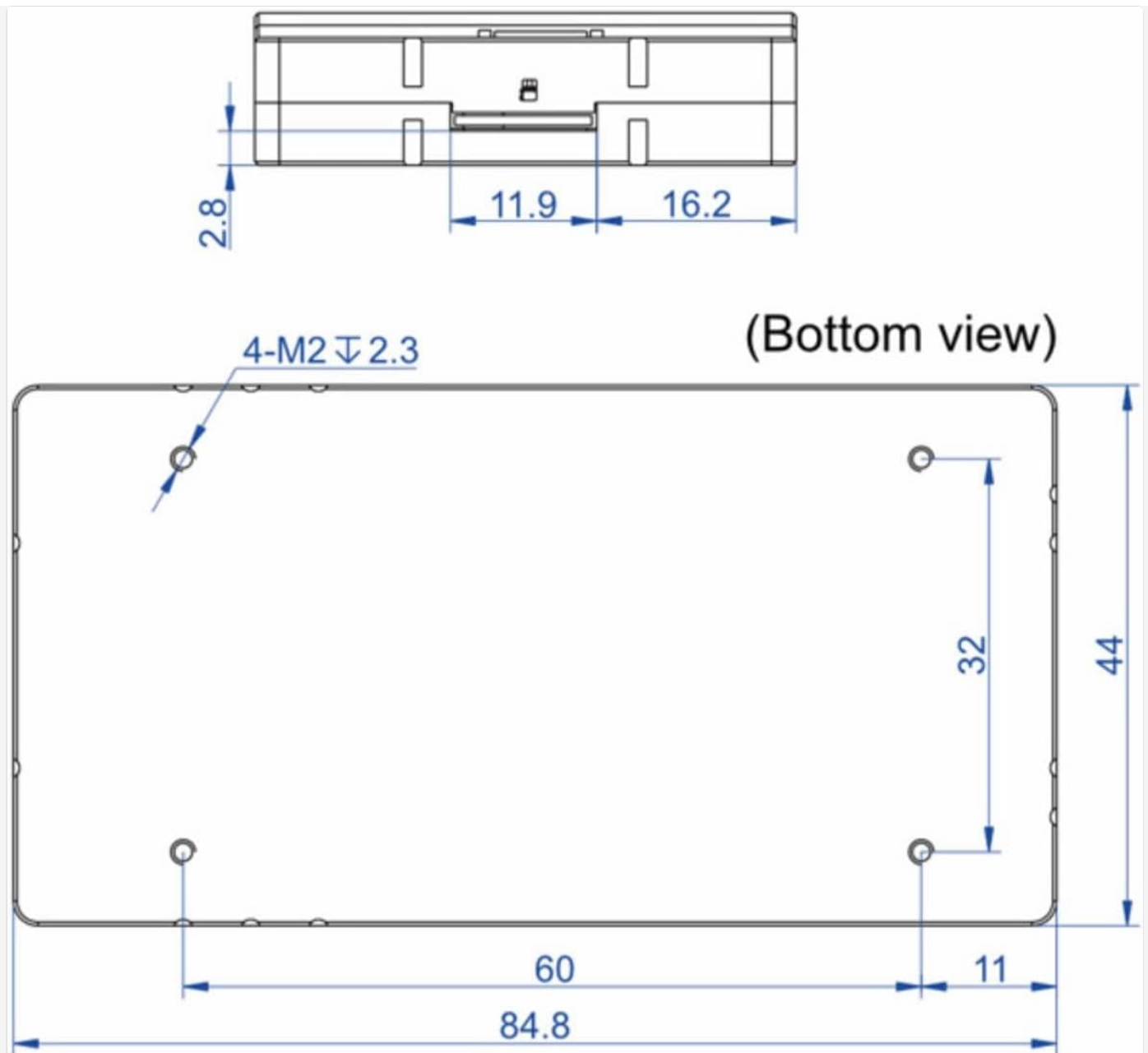


Image: Bottom view technical drawing of the Pixhawk 6C, illustrating the mounting hole pattern and dimensions (4-M2 screws), essential for secure installation.

## 9. WARRANTY AND SUPPORT

The Holybro Pixhawk 6C Flight Control is typically covered by the manufacturer's standard warranty. For specific warranty terms and conditions, please refer to the official Holybro or hobbyant website or contact your point of purchase.

For technical support, firmware updates, and detailed documentation, please visit the official PX4 or ArduPilot documentation websites, or the Holybro/hobbyant support pages. Community forums are also an excellent resource for assistance and sharing knowledge.

- **Official PX4 Documentation:** <https://docs.px4.io/>
- **Official ArduPilot Documentation:** <https://ardupilot.org/ardupilot/index.html>
- **Holybro Website:** <https://holybro.com/> (Note: Product is listed under hobbyant brand on Amazon, but Holybro is the original manufacturer of Pixhawk series)

## ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

### Name

Anonymous

### Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

### Question

Example: How do I reset this device or fix this error?

### Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question