HGLRC M80 Pro GPS

HGLRC M80 Pro GPS with QMC5883 Compass User Manual

Model: M80 Pro GPS

1. Product Overview

The HGLRC M80 Pro GPS module is designed for FPV racing drones, integrating a GPS receiver with a QMC5883 compass. This unit provides essential navigation data, including position, speed, and altitude, enhancing the flight capabilities of compatible drones. Its compact design allows for integration into various drone builds.



Figure 1: Front view of the HGLRC M80 Pro GPS module, showing the product label with key specifications.

2. Specifications

Detailed technical specifications for the HGLRC M80 Pro GPS module are provided below:

Feature	Value
Power Supply	5V
Antenna Type	Ceramic Antenna
Compass	QMC5883
Support Rate	115200dps
Speed Precision	0.05 m/s
Level Positioning Precision	2D ACC 2.5m (in Open Sky)
Capture Sensitivity	-160dBm
Max Height	50000m
Max Speed	500m/s
Max Acceleration	4G
Working Temperature	-40℃ to +85℃
Storage Temperature	-40℃ to +105℃
Size	25mm x 25mm x 8.3mm
Item Weight	0.273 ounces



Figure 2: Underside view of the HGLRC M80 Pro GPS module, showing its compact form factor.

3. Setup and Installation

Proper installation of the HGLRC M80 Pro GPS module is crucial for optimal performance. This section outlines the general steps for wiring and initial configuration.

3.1 Wiring Diagram

The GPS module connects to your flight controller via a standard wiring harness. Ensure correct pinout matching between the GPS module and your flight controller's UART and I2C ports. Typically, the GPS module requires 5V power, Ground, TX (Transmit), RX (Receive), SDA (Serial Data), and SCL (Serial Clock) connections.

- **5V:** Connect to a 5V power output on your flight controller.
- **GND:** Connect to a Ground pin on your flight controller.
- **TX (GPS):** Connect to the RX (Receive) pin of a free UART on your flight controller.
- **RX (GPS):** Connect to the TX (Transmit) pin of the same UART on your flight controller.
- **SDA (Compass):** Connect to the SDA pin of the I2C bus on your flight controller.
- **SCL (Compass):** Connect to the SCL pin of the I2C bus on your flight controller.



Figure 3: The HGLRC M80 Pro GPS module with its wiring harness connected, illustrating the direct plug-and-play capability.

3.2 Flight Controller Configuration

After physical wiring, configure your flight controller firmware (e.g., Betaflight, iNAV) to recognize the GPS and compass. This typically involves:

1. Enabling the GPS feature on the connected UART port.
2. Setting the correct GPS protocol (e.g., UBLOX or NMEA, as specified in the product documentation or recommended by the manufacturer).
3. Enabling the Magnetometer (compass) and selecting the correct I2C address and orientation if required.
4. Saving the configuration and rebooting the flight controller.



Figure 4: The HGLRC M80 Pro GPS module being held, providing a sense of its size relative to an FPV drone.

4. Operating Instructions

Once installed and configured, the HGLRC M80 Pro GPS module will begin acquiring satellite signals. For best performance, operate the drone in an open area with a clear view of the sky.

- **Initial Satellite Acquisition:** The first time the GPS is powered on or after a long period of inactivity, it may take several minutes to acquire a sufficient number of satellites for a 3D fix. This process is known as a "cold start."
- **GPS Lock Indicator:** Most flight controller OSDs (On-Screen Displays) or ground station software will indicate the number of satellites locked and the GPS fix status (e.g., 2D, 3D). A 3D fix is generally required for accurate positioning and GPS-dependent flight modes.
- **Compass Calibration:** It is recommended to perform a compass calibration in your flight controller software before the first flight and whenever the drone's magnetic environment changes significantly (e.g., after adding new

electronic components).

5. Maintenance

The HGLRC M80 Pro GPS module is a robust component, but proper care can extend its lifespan and ensure consistent performance.

- **Physical Protection:** Ensure the module is securely mounted and protected from physical impact, especially during crashes. Using a 3D-printed mount can provide additional protection.
- **Environmental Exposure:** While designed for outdoor use, avoid prolonged exposure to extreme moisture or dust. If the module gets wet, ensure it is completely dry before reapplying power.
- **Cable Integrity:** Periodically inspect the wiring harness for any signs of wear, cuts, or loose connections. Damaged cables can lead to intermittent performance or complete failure.

6. Troubleshooting

If you encounter issues with your HGLRC M80 Pro GPS module, consider the following troubleshooting steps:

- **No GPS Lock or Slow Lock:**
  - Ensure the drone is in an open area with a clear view of the sky, away from tall buildings or dense foliage.
  - Verify that the GPS module is correctly configured in your flight controller software (e.g., correct UART selected, GPS protocol set to UBLOX or NMEA). Some users have reported better results with NMEA protocol despite documentation suggesting UBLOX.
  - Check the wiring connections for continuity and correct pinout. Incorrect TX/RX connections are a common cause of communication failure.
- **Compass (Magnetometer) Issues:**
  - Perform a compass calibration in your flight controller software.
  - Ensure the compass is mounted away from strong magnetic fields generated by power wires, ESCs, or motors.
  - Verify I2C connections (SDA, SCL) and ensure pull-up resistors are enabled if necessary, especially if experiencing intermittent compass readings.
- **Incorrect Positioning or Drifting:**
  - Ensure a stable 3D GPS fix is achieved before arming or attempting GPS-dependent flight modes.
  - Check for potential GPS signal interference from other onboard electronics.

7. Warranty and Support

For warranty information, technical support, or further assistance, please refer to the official HGLRC website or contact

their customer service directly. Keep your proof of purchase for any warranty claims.

For additional resources and community support, consider searching online forums and video platforms for tutorials related to HGLRC GPS modules and flight controller configurations.

© 2024 HGLRC. All rights reserved.

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