

Overview & Specification

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The Holybro mosaic-H is a cutting-edge RTK GPS module that harnesses the power of Septentrio's elite mosaic-H GNSS receiver. It comes with an IST8310 magnetometer, two high-performance antennas, and an aluminum CNC enclosure. It is packed with versatile features such as effortless configuration, spectrum analysis, data logging, and post-processing for a wide range of applications.

With its dual-antenna input, mosaic-H can provide compass-less YAW information to the controller (commonly called GPS Heading or Moving Baseline Yaw). By employing GPS as the yaw source instead of a traditional compass it eliminates the inaccuracies caused by magnetic interference from vehicle motors, electrical systems, and environmental sources like metallic structures or power lines, ensuring precise yaw reports to the controller and enhancing overall navigation reliability and performance in challenging environments.

Septentrio's mosaic-H GNSS receiver module boasts a suite of proprietary technologies that set it apart from the competition. Septentrio's [AIM+ \(Advanced Interference Mitigation\) technology](#) safeguards against intentional and unintentional jamming sources, ensuring consistent and reliable performance even in challenging RF environments.

Septentrio's [LOCK+ technology](#) ensures optimal tracking even under rapid antenna displacement in the event of high vibrations or shocks, maintaining high accuracy and stable operation in high-dynamic situations. It is ideal for demanding applications such as UAVs and robotics. Furthermore, Septentrio's advanced [RAIM+ \(Receiver Autonomous Integrity Monitoring\) algorithm](#) delivers unmatched integrity and reliability, providing a safety net for mission-critical applications.

Features

- Advanced anti-jamming, anti-spoofing solutions with [AIM+ technology](#) & [OSNMA](#)

- Dual antenna support for moving baseline yaw (GPS Heading) with just one GPS module
- All-in-view satellite tracking: multi-constellation, multi-frequency (Supports L1/L2/E5)
- Best-in-class RTK performance

Specification

Product	Holybro H-RTK Mosaic-H
Application	<ul style="list-style-type: none"> • Rover • Moving Baseline Rover • Base Station • PPK
GNSS	<ul style="list-style-type: none"> • GPS: L1, L2 • Galileo: E1, E5b • GLONASS: L1, L2 • Beidou: B1, B2, B3 • QZSS: L1C/A, L1C/B, L2 • SBAS: Egnos, WAAS, GAGAN, MSAS, SDCM (L1)
RTK performance	<ul style="list-style-type: none"> • Horizontal accuracy 0.6 cm + 0.5 ppm • Vertical accuracy 1 cm + 1 ppm
Positioning accuracy	7o7mPWjQ0fiw
GNSS attitude accuracy	5iwll530T7M6
Time-To-First Fix	<ul style="list-style-type: none"> • Cold start: ≤ 45s • Hot start: ≤ 20s • Re-acquisition: 1 s
Latency	<ul style="list-style-type: none"> • < 10 ms
Magnetometer (Compass)	IST8310
Antennas Peak Gain (MAX)	<ul style="list-style-type: none"> • 2dBi
LNA Gain	<ul style="list-style-type: none"> • 33±2dB
Time precision	<ul style="list-style-type: none"> • xPPS out: 5 ns • Event accuracy: < 20 ns
Data and Update Rate	<ul style="list-style-type: none"> • Measurements only 100 Hz • Standalone, SBAS, DGPS + attitude 50 Hz • RTK + attitude 20 Hz

Port	<ul style="list-style-type: none"> • Port 1: USB Type-c • Port 2: UART1 (GH1.25 10pin) • Port 3: UART2 (GH1.25 6pin)
Antenna Connection Type	<ul style="list-style-type: none"> • Board: SMA female • Antenna: SMA male
Buttons	<ul style="list-style-type: none"> • LOG BUTTON: Mosaic-H log recording button, short press to start/end recording; long press to Mount/Unmount SD card. • SAFETY SWITCH: flight control safety switch, press and hold the flight control to unlock/lock.
Baud rate: (Adjustable)	230400 5Hz default
Working voltage:	4.75V~5.25V
Power Consumption	<ul style="list-style-type: none"> • 0.6 W typ • 1.1 W max
Operating Temperature	-40°C to 85°C
Dimension	<ul style="list-style-type: none"> • Board: 42.7*71.8*13.3mm • Antenna Diameter: 40mm • Antenna height: 76mm
Weight	54.5g (without antennas)
Advanced Technologies inside	<ul style="list-style-type: none"> • AIM+ the most advanced anti-jamming, anti-spoofing on-board interference mitigation technology on the market (narrow and wide band, chirp jammers). • LOCK+ for robust tracking during high vibrations and • APME+ multipath mitigation to disentangle direct signal and those reflected from nearby • IONO+ provides advanced protection against ionospheric