Mercury altimeter specifications

Altimeter Cloud

Mercury V1 manual · v1.0

https://www.altimetercloud.com/support/mercuryv1/specifications/

The Mercury V1 is a small, smart altimeter packed with high quality sensors. Below are the full specifications across hardware revisions. **Revision 3+** boards include upgraded sensors and additional features — the hardware revision is printed on the back of the PCB near the battery connector.
You can also find out your revision via the onboard Wifi webserver, the Altimeter Cloud or via Serial data over the USB connection port.

Physical

Specification	Rev 1 & 2 Original & first update	Rev 3+ Current production
Dimensions (PCB)	30.0 × 16.9 × 12.3 mm	30.0 × 16.9 × 10.8 mm
Dimensions (in case)	39.4 x 19.0 x 13.9 mm	39.4 x 19.0 x 12.8 mm
Weight (out of case)	4.6 g	4.6 g
Weight (in case)	7.2 g	7.3 g
Weight (in ebay mount)	6.4 g	6.4 g
Min tube diameter (no case)	18.0 mm	17.0 mm
Min tube diameter (with case)	22.0 mm	21.7 mm

Case material	Black nylon	Black nylon
Connector	USB-C	USB-C
Mounting	Case, Ebay mount, Custom	Case, Ebay mount, Custom

Pressure sensor & altitude

Specification	Rev 1 & 2	Rev 3+
Pressure sensor	Bosch BMP390	Bosch BMP581
Pressure range	300 – 1250 hPa	300 – 1250 hPa
Max reliable altitude	~9,200 m (30,000 ft)	~9,200 m (30,000 ft)
Sensor output rate (default)	50Hz	80Hz
Samples per second (default)	400	1280
Temperature compensation	Automatic	
Filters	Kalman + IIR + oversampling (configurable)	
Launch pressure reference		

	Dynamic (updates while waiting)

Accelerometer & gyroscope (IMU)

Specification	Rev 1 & 2 Rev 3+
Accelerometer	3-axis 3-axis
Accelerometer range	± 32 G per axis ± 32 G per axis
Gyroscope	3-axis 3-axis
Gyroscope range	± 2,000 °/s ± 2,000 °/s
IMU sampling rate	102 Hz 102 Hz
Tilt from vertical	Yes
Pitch, roll & yaw angles	Yes
IMU fusion filter	Madgwick or Mahony (6-axis)

Data logging

Specification	Rev 1 & 2 Rev 3+
Overall sample rate	

	100 Hz
	100 Hz
Max samples per flight	
	12,000
	12,000
Recording time per flight	
	~8 mins in 1:5 hybrid mode
	~8 mins in 1:5 hybrid mode
Logged data	
	Time(ms), Altitude, Velocity, Tilt from vertical, Roll, Pitch, Yaw, Acceleration magnitude, Acceleraion (XYZ axis), Gyroscope (XYZ axis), Board temperture, External sensor temperature, Air brake servo percent, Air brake target alttiude, Predicted altitude, Air density, Air pressure.
Flight event detection	
	Launch, motor burnout, apogee, deployment(s), landing, ejection, rules start and end, output triggers.
Recording stop	
	Automatic (450 or 900 samples stable) or Manual button press.
Flight log recovery	
	Yes — automatic recoverable flash buffer if device crashes or fails before flight log is written.
Flight log format	
	Altimeter Cloud upload over WiFi & CSV files

Connectivity

Specification	Rev 1 & 2	Rev 3+
WiFi		
	2.4 GHz 802.11 b/g/n	
		2.4 GHz 802.11 b/g/n
WiFi modes		
	Access point (direct connect) + Internet WiFi (Altimeter Cloud)	
Cloud upload		
	Automatic via WiFi	
USB		
	USB-C (charge, serial, config)	
WiFi TX power		

	Configurable
Configurable via Altimeter Cloud	Yes, just turn on WiFi mode and load the website.
Internal web server	Yes (access point mode)

Power & battery

Specification	Rev 1 & 2 Rev 3+
Battery type	Internal rechargeable LiPo (1S 50mAh)
Battery life (flight mode)	7+ hours 7+ hours
Charging	USB-C (from phone, laptop, etc.)
Charge indicator	5-LED indicator on front of PCB when turned on (except revision 1), seperate charge LED indicator that goes out when charged.
Charge time	~1 hour from empty ~1 hour from empty
WiFi mode power draw	~120 mA avg ~120 mA avg
Flight mode power (emode 1)	7.9 mA avg 7.8 mA avg
Flight mode power (emode 2)	5.3 mA avg 5.2 mA avg
Max safe board temperature	55 °C (due to LiPo) 55 °C (due to LiPo)

Outputs & expansion

Specification	Rev 1 & 2 Rev 3+
Programmable output ports	GP6, GP7 GP6, GP7
Onboard high current output	Yes (1x 8-12A max) Yes (1x 8-12A max)
Output types	1x High current, 2x GPIO ports (servos / IO), 1x I2C expansion port, 1x USB port, 1x RXP port
Servo expansion (PCA9685)	Up to 6 channels Up to 6 channels
High current output board	Supported
External temp sensor (MT1)	Supported (I2C)
Action rules system	Configurable conditions & actions (6 rules)
Predicted apogee & air brakes	Supported (configurable Cd, area, mass)

Software & features

Specification	Rev 1 & 2 Rev 3+
Firmware updates	Via Altimeter Cloud website using USB port.
Configuration	Via Altimeter Cloud website (WiFi) or USB

Altimeter Cloud charts	Altitude, velocity, acceleration, gyroscope, tilt, pitch/roll/yaw, temperature, predicted apogee, air density
Flight log sharing	Direct link, embeddable chart, image export
Storage limits	Unrestricted (no limit) on the altimeter cloud
Accidental launch protection	Yes (configurable threshold)
Status LED	Multi-colour (state, battery, WiFi)
LED brightness	Configurable
Flight animation	Yes, based on actual flight data.
Predicted apogee	Yes
Configurable rules	Yes (6)

Specifications are subject to change with firmware updates. Some features require the latest firmware version. The hardware revision number is printed on the back of the PCB. If you are unsure which revision you have, please contact us.