

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 × 19.0 × 13.9 mm
	39.4 × 19.0 × 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	$\pm 32$ G per axis	$\pm 32$ G per axis
Gyroscope	3-axis	3-axis
Gyroscope range	$\pm 2,000$ °/s	$\pm 2,000$ °/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, Acceleration (XYZ axis), Gyroscope (XYZ axis), Board temperature, External sensor temperature, Air brake servo percent, Air brake target altitude, 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), separate 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.*