jolly logic
altimeter**TWO**

Complete flight analysis
for model rockets

Quick Start

Welcome!

This is the second generation of rocketry's most comprehensive flight analysis instrument, Altimeter Two. For this version, we increased the size of the battery and moved to a more advanced bitmapped display. There's also a new History feature that lets you review your last 100 flights.

This guide was designed to get you started. More complete information is available online at **www.jollylogic.com**. You can also shop for accessories and read stories about how others are using Altimeter Two on our News page.

We'd love to hear from you, as well.

Happy flying!

John Beans
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❶ A quick button click turns it on and off

❷ Hold the button to open the menu...

```
Menu
Launch
History
Units
Erase
Cancel
```

❸ ...and let go to choose an item

❹ Select Launch before each flight

❺ When you see Ready it's ready to fly!

Ready
ALTIMETER TWO

Visual Tour

Attachment Point

Here is where you fasten your altimeter.

(Also, see *Mounting Tips*.)

Push Button

- Quick press for ON/OFF

- Hold the button to see more options.
  Release the button when you see the option you want:

```
Menu
Launch    ......  Begin next flight
History   ......  Show last 100 flights, most recent first
Units     ......  Switch between feet and meters
Erase     ......  Erase all flights from memory
Cancel    ......  Leave menu, do nothing
```

Display

Displays the peak altitude after each flight, and the current battery charge level.

Be sure to select Launch and see "Ready" before each flight.

Ready
aLTIMETER TWO

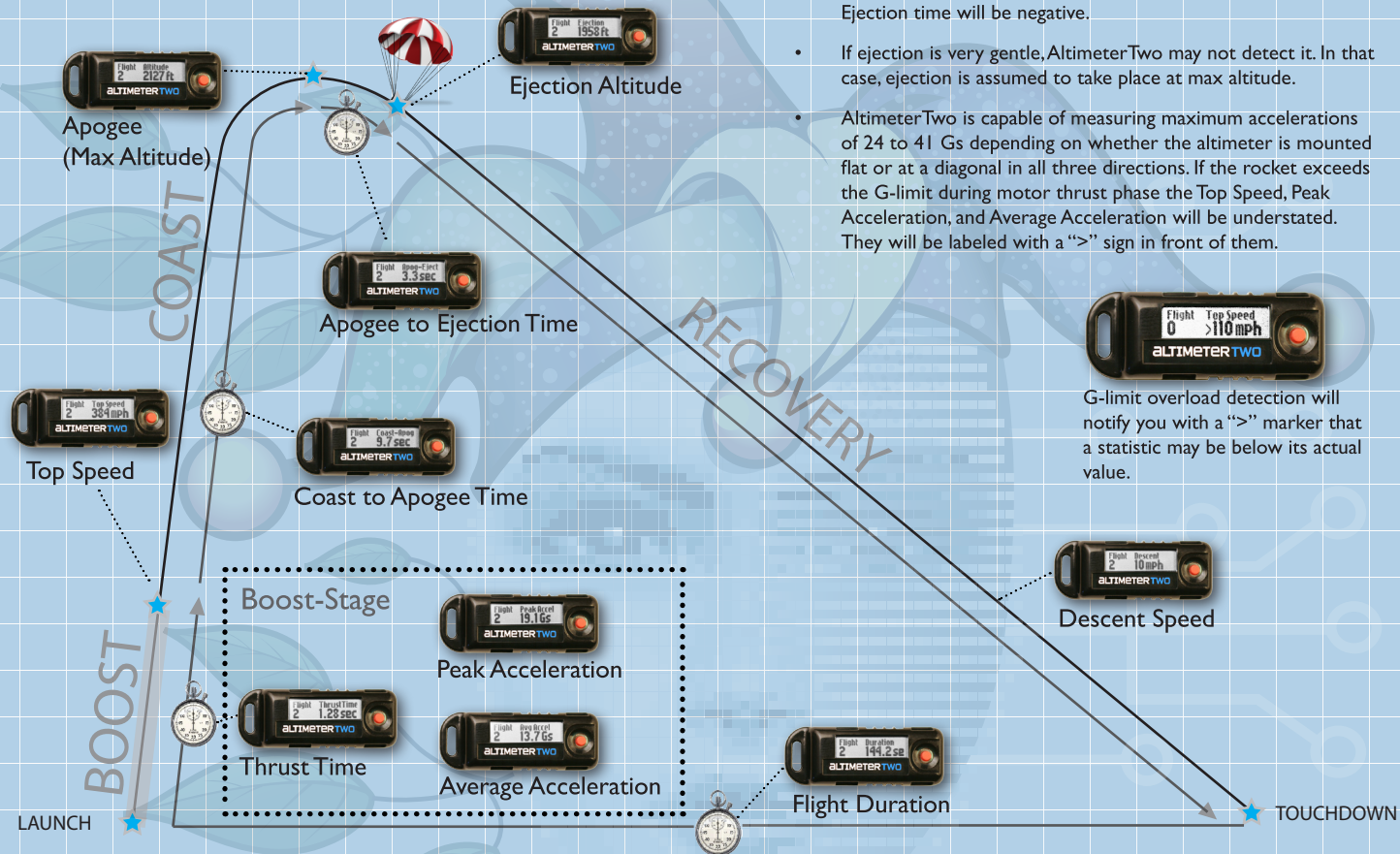Flight 2   Altitude 2127 ft
aLTIMETER TWO

Recharging Connector

This is a USB Micro-B port. Plug the included cable into standard USB ports to recharge.

See the *Recharging* section for more info.

Flight Data

Special Situations

- If ejection occurs BEFORE the apogee (max altitude), Apogee-Ejection time will be negative.

- If ejection is very gentle, Altimeter Two may not detect it. In that case, ejection is assumed to take place at max altitude.

- Altimeter Two is capable of measuring maximum accelerations of 24 to 41 Gs depending on whether the altimeter is mounted flat or at a diagonal in all three directions. If the rocket exceeds the G-limit during motor thrust phase the Top Speed, Peak Acceleration, and Average Acceleration will be understated. They will be labeled with a ">" sign in front of them.

Flight 0   Top Speed   >110 mph
ALTIMETER TWO

G-limit overload detection will notify you with a ">" marker that a statistic may be below its actual value.

Flight 2   Altitude   2127 ft
ALTIMETER TWO

Apogee
(Max Altitude)

Flight 2   Ejection   1958 ft
ALTIMETER TWO

Ejection Altitude

COAST

Flight 2   Apog-Eject   3.3 sec
ALTIMETER TWO

Apogee to Ejection Time

Flight 2   Top Speed   384 mph
ALTIMETER TWO

Top Speed

Flight 2   Coast-Apog   9.7 sec
ALTIMETER TWO

Coast to Apogee Time

RECOVERY

Flight 2   Descent   10 mph
ALTIMETER TWO

Descent Speed

BOOST

Boost-Stage

Flight 2   Peak Accel   19.1 Gs
ALTIMETER TWO

Peak Acceleration

Flight 2   Thrust Time   1.28 sec
ALTIMETER TWO

Thrust Time

Flight 2   Avg Accel   13.7 Gs
ALTIMETER TWO

Average Acceleration

Flight 2   Duration   144.2 sec
ALTIMETER TWO

Flight Duration

LAUNCH

TOUCHDOWN

Mounting Tips

Let It Breathe: Air Holes in Containers

AltimeterTwo uses an atmospheric pressure sensor to detect altitude, so it needs to be exposed to outside air pressure. If you put it in a container, or if your flying model is airtight, be sure to add a few holes to allow air to escape at altitude.

The larger the airspace is in your model, the larger the holes should be. Remember: if your model can rapidly gain or lose altitude, your vent holes need to allow air to rapidly enter and exit the enclosure.

Avoid Really Strong Airflow

Rapid gusts of wind and turbulence can create pressure waves that can sometimes confuse AltimeterTwo and result in odd readings.

If you experience odd readings and are exposing AltimeterTwo to airflow during flight, try wrapping it in a little fabric pouch to break up the airflow around it.

Specialized Mounting Accessories

Check the Jolly Logic website for mounting accessories such as the Snap Mount. The Snap Mount can be taped, screwed, or attached with Velcro™ to hold it in place. AltimeterTwo can then be quickly snapped in place.

If you mount your AltimeterTwo with your parachute, try to ensure that the altimeter is protected from direct contact with ejection gases.

Basic Flight Instructions

Before Each Flight

❶ **Press and hold the button to bring up the menu**

❷ **Let go of the button when you see Launch**

You should see **Ready** on the screen.

You are ready to fly!

After Each Flight

❶ **You will see each of the data items for the flight**

❷ **The flight has been stored; you can turn the altimeter off or perform other activities safely.**

Flight Logic

• AltimeterTwo senses a launch by sensing acceleration. Try not to bump or jostle it too much as you load it on the launch pad, or it will falsely sense a launch and collect nonsense data. If you ever have a flight with a very low altitude, it is probably because of rough handling just before launch.

• AltimeterTwo will automatically turn off after 2 hours from the time that the button was last pressed, or from launch.

• For multi-stage flights, AltimeterTwo will report Thrust Time, Acceleration, and Top Speed based on the first engine only. Coast to Apogee time will begin after the first engine burnout and include subsequent stages. Apogee to Ejection Time and Ejection Altitude will not be reliable. Max Altitude, Descent Rate, and Flight Duration will work as usual.

Recharging

Plug AltimeterTwo into any USB port to recharge. If you don't see a light when you plug it in, the USB port must not have power. Try another one.
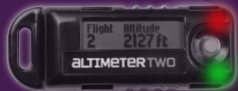
Red Light

Your altimeter is charging correctly. Recharging should be complete in less than 2 hours.

Green Light

Your altimeter is 100% charged.

Red + Green Light

Problem! Either this USB port is not providing enough power, or your battery has a problem.

1.   Try another USB port.

2.   Open your altimeter and make sure the battery connector is snapped in. See our website for instructions on how to do this.

3.   Contact support@jollylogic.com.

Does It Hurt to Charge It All the Time?

Nope. In fact, Lithium Polymer batteries like the one in the AltimeterTwo prefer to be charged all the time, and there's no "memory effect" to worry about.

What Type of Connector Does AltimeterTwo Have?

The very common USB Micro-B

Can I Use My Own Charger?

Sure. AltimeterTwo needs less current than most devices (about 90 milliamps), so if you happen to already have a USB charger for something you own (like your phone or a headset), you can use that for AltimeterTwo. Electronics stores usually have a nice selection of "USB Micro-B" rechargers.

Why Does the Red Light Come On Every Time I Plug It In?

Even when it is 100% charged, the red light will come on when you first plug in AltimeterTwo while the recharging logic checks the status of the battery. In just a few moments, it will turn green again. This is normal behavior.

Will the Battery Eventually Wear Out?

Well, yes, all batteries wear out. If your battery life drops below 4 hours, you should consider replacing it. This is a unique battery; Jolly Logic is the only place you can get a replacement. See our website for instructions.

More Info & Support

More info is available at www.jollylogic.com, including helpful videos, tutorials, FAQs, and troubleshooting guides.

The plastic case, LCD display, and battery are user-replaceable. If you damage your AltimeterTwo, please see www.jollylogic.com to order replacement parts and to see repair instructions.

Have questions or suggestions? Contact us at **support@jollylogic.com**. We'd love to hear from you, including your experiences with AltimeterTwo.

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ALTIMETER TWO

Flight Altitude
2 2127 ft

ALTIMETER TWO

- For rockets ONLY

- Measures peak altitude to 29,500 feet (9000 m)

- Also measures
  Top speed
  Engine thrust time
  Acceleration (to 23 Gs)
  Coast-to-apogee time
  Apogee-to-ejection time
  Parachute ejection altitude
  Descent rate
  Flight duration

- Stores 100 flights

- Rechargeable from any USB port

**Visit www.jollylogic.com
for complete information**

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ALTIMETER TWO

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