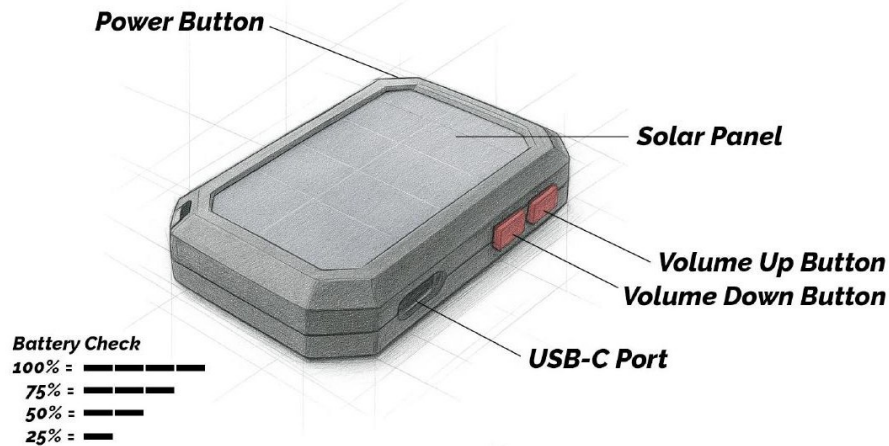


MipTrack User Guide

by MipFly



Device Overview

- **Power Button** — Located on the left top corner
- **Volume Up Button** — Located on the right side, top
- **Volume Down Button** — Located on the right side, bottom
- **Solar Panel** — Integrated charging panel
- **USB-C Port** — For charging and data connection

The MipTrack is a compact GPS flight instrument with a built-in variometer, flight logger and Bluetooth telemetry. Its main features are:

- **High-precision variometer** — fast, accurate climb/sink readout with rich, configurable audio tones
- **Inertial sensors** — accelerometer, gyroscope and magnetometer for stable readings during turns and accelerations
- **Built-in GPS receiver** — for precise position, ground speed and UTC time
- **Internal storage** — for automatic flight logging in IGC format
- **Bluetooth telemetry and file transfer** — live vario data and IGC download to your phone
- **USB Mass Storage** — internal storage appears as a USB drive on any PC
- **Integrated solar panel** — keeps the battery topped up in flight
- **USB-C charging and data** — one port for everything

Device Operation

Button Indicators

To make this guide more intuitive, we use these symbols:

- Short press = ●
- Long press = 
- Two beeps = ●●

Turning ON

Press and hold the **Power button** until you hear ●● (two beeps), then release. The device will play a distinctive crescendo sound sequence to confirm successful startup.

Turning OFF

Press and hold the **Power button** (). The device will play a descending sound sequence and power off. If a flight is being recorded, it is finalised and signed before the device shuts down.

Volume Control

- **Increase Volume:** Press the **Volume UP** button
- **Decrease Volume:** Press the **Volume DOWN** button
- **Mute:** Adjust the volume all the way down

Volume changes made with the buttons are temporary and reset to the default level on the next power cycle. To set a volume level that is remembered across power cycles, use the MipFly web interface (see Sound Configuration).

Battery Check

Short press the **Power button** for ●. The device will indicate battery level with a series of beeps:

- 100% = 
- 75% = 
- 50% = 
- 25% = 

Automatic Power-Off

To save battery, the MipTrack switches off automatically if all of the following are true for 5 minutes:

- Sound is muted (volume = 0)
- No Bluetooth device is connected
- No flight is in progress

A single warning beep (●) is played 30 seconds before shutdown.

GPS

The MipTrack starts looking for satellites as soon as it is turned on. Two distinctive sounds tell you where you stand:

- **Fix acquired** — three short, crisp blips climbing in pitch, followed by a slightly longer one on top. A clean "lock-on" cue. The MipTrack is now tracking your position and is ready to log a flight.
 [Listen to the GPS fix sound](#)
- **Fix lost** — two hollow falling tones followed by a pair of low, flat repeats. A noticeably "deflated" sound, easy to tell apart from the fix-acquired cue. Usually heard indoors or under heavy tree cover.
 [Listen to the GPS lost sound](#)

On the first valid fix, the internal clock is automatically set to UTC. You never need to set the time manually.

Automatic Flight Logging

The MipTrack records every flight automatically. You don't need to press anything to start or stop the recording. Each transition has its own distinctive musical cue:

- **Takeoff** — a bright, rising fanfare: a short pickup, then a triumphant climb up a major chord, ending on a long, soaring top note. Detected from GPS ground speed and vertical speed. An IGC file is created on the internal storage and recording begins.
 [Listen to the takeoff sound](#)
- **Landing** — a short bouncy intro followed by a long descending cascade, tumbling all the way down to a final low note. Detected when speed stays low for several seconds. The file is closed and digitally signed.
 [Listen to the landing sound](#)

Files follow the official FAI/IGC format and are named by date, with a sequential number for each flight of the day:

- 2026-05-20-01.IGC (first flight of 20 May 2026)
- 2026-05-20-02.IGC (second flight of the same day)

They can be uploaded directly to XContest, the DHV-XC, the FAI Civil database, and any other flight server that accepts IGC files.

Pilot Configuration — PILOT.TXT

Your pilot name, glider model and ID are stored in a small text file called PILOT.TXT in the root of the MipTrack's internal storage. The device creates it for you on the first boot.

How to edit it

1. Connect the MipTrack to a PC with a USB-C cable (internal storage appears as a removable drive)
2. Open PILOT.TXT with any text editor (Notepad on Windows will do)
3. Fill in your details:
PILOT=Jane Doe
GLIDER_TYPE=Ozone Mantra M7
GLIDER_ID=Yellow-Green
COMPETITION_ID=42
COMPETITION_CLASS=Sport

4. Save the file and safely eject the drive

The file is re-read at the start of every flight, so changes take effect on the very next takeoff — no reboot needed.

A note on accented characters

The IGC standard only allows plain ASCII letters (A–Z), digits, spaces and hyphens. If you write your name with accents (Müller, Ionescu, Lecoq...), the MipTrack will transliterate them automatically for the IGC file:

- ä → ae, ö → oe, ü → ue, ß → ss
- ă → a, ș → s, ț → t, ș → s

So Müller becomes Muller and Lăcătuș becomes Lacatus. Nevertheless, as some transliterations may be omitted, it is best to use plain ASCII from the beginning.

USB Mass Storage

When you plug the MipTrack into a PC with a USB-C cable, its internal storage shows up as a standard removable drive — no drivers, no special software. You can:

- Copy IGC files off the device
- Edit PILOT.TXT
- Delete old flights to free up space

Always safely eject the drive before unplugging the cable.

Bluetooth Telemetry

The MipTrack streams live flight data over **Bluetooth Low Energy (BLE)** to any compatible app (XCTrack, XCSoar, FlySkyHy, SeeYou Navigator and many others) using the standard **\$LK8EX1** and **\$POV** NMEA sentences. Pressure, altitude, vario and battery level are sent ten times per second.

Pairing

- Connect directly from your app (not from the OS Bluetooth menu)
- **Default pairing code** (if requested): 1234

Downloading Flights over Bluetooth

You don't need a cable to get flights off the MipTrack. The MipFly companion app (and any app that supports the MipFS protocol) can list, query and download IGC files directly over Bluetooth.

- Open the MipFly app and pair with your MipTrack
- Browse the list of flights stored on the device
- Tap a flight to download it to your phone — file transfer uses standard YMODEM-1K and works on both Android and iOS

Telemetry is paused during a transfer and resumes automatically when it finishes. Downloads are not allowed while a flight is being recorded — you'll need to wait for landing.

Remote Control Mode

Remote Control Mode repurposes the three buttons as a wireless remote for a connected app — for example to change pages, mark a waypoint, switch navigation mode etc.

Activation

- Long press the Volume DOWN button (————)
- Two short beeps (●●) confirm Remote Control Mode is active

Remote Control Mode can be entered on the ground or in flight. Once active, the buttons no longer change volume or trigger the battery check; instead every short and long press is forwarded to the connected app as a \$MIPRC NMEA sentence, for example:

- \$MIPRC,UP,PRESS
- \$MIPRC,DOWN,LONGPRESS

To exit Remote Control Mode: Power cycle the device.

Advanced Functions

Factory Reset

CAUTION: This will reset all settings to factory defaults.

1. Ensure the device is OFF
2. Press and hold BOTH the Power button AND Volume UP button
3. Continue holding for approximately 15 seconds
4. Release when you hear the startup sound
5. The device will reset to factory settings. Calibration and sound configuration should be performed after updating to the latest firmware

Sensor Calibration

The MipTrack features advanced MEMS sensors (accelerometer and gyroscope) that may require calibration in certain scenarios. The device comes already calibrated. Factory reset will require calibration.

Calibration Procedure

1. Start with the device OFF
2. Press and hold the Volume DOWN button at power-on for 10 seconds to enter calibration mode
3. Quickly place the device on a flat, stable surface
4. A short beep (●) will signal the completion of gyro calibration (~25 seconds)
5. Now calibrate the accelerometer by placing the device flat on each of its 6 sides, vertically aligned as best as possible:
 - Top face up
 - Bottom face up
 - Left side up

- Right side up
 - Front face up
 - Back face up
6. For each position, press the Volume DOWN button (●) to activate calibration
 7. Wait for the confirmation beep (●) before moving to the next position
 8. Long-press the Power button at any time to abort
 9. The device shuts down automatically after saving calibration

Firmware Updates

The MipTrack supports over-the-air (OTA) firmware updates through the MipFly app, as well as USB updates through the MipFly web interface. OTA updates are safe: if a new firmware fails to start correctly, the previous version is restored automatically on the next boot.

USB Update Requirements

- Google Chrome browser (latest version)
- USB-C cable
- MipFly account

USB Update Procedure

1. Power ON the MipTrack normally
2. Connect to your computer via USB-C cable
3. Enable "Experimental Web Platform Features" in Chrome: copy and paste into address bar: `chrome://flags/#enable-experimental-web-platform-features` and enable the feature if not already enabled
4. Visit the MipFly website and log into your account
5. Select the MipTrack tab
6. Choose the desired firmware version (newest is at the top)
7. When prompted, select "MipTrack" from the device list
8. The update will proceed automatically
9. The device will turn off automatically when complete

Sound Configuration

Custom Sound Profiles

1. Power ON the MipTrack
2. Connect via USB-C to your computer
3. Log into your MipFly account using Google Chrome
4. Select the MipTrack tab
5. Choose Tab 1 for Sound Configuration
6. Adjust settings to your preference:

- Climb tone threshold
 - Sink tone threshold
 - Volume levels
 - Tone frequencies
7. Click "To MipTrack" to upload settings
 8. Select "USB Serial Device" when prompted
 9. Wait for "Upload Complete" confirmation

Specifications

- **Power:** Integrated solar panel + USB-C charging
- **Battery:** High-capacity Li-Po with smart power management
- **Sensors:** MEMS accelerometer and gyroscope, magnetometer, precision barometer, u-Blox GPS receiver
- **Storage:** Internal storage for flight logs, accessible from a PC over USB
- **Connectivity:** Bluetooth Low Energy (BLE), USB-C
- **Audio:** Enhanced double speakers with volume control
- **Dimensions:** Compact and lightweight design
- **Operating Temperature:** -20°C to +50°C

Troubleshooting

Device Won't Start

- Ensure battery is charged (connect USB-C for 30 minutes)
- Try factory reset procedure

No GPS Fix

- Make sure you are outdoors with a clear view of the sky
- Allow up to a few minutes for the first fix after a long period without use
- The rising tone confirms when a 3D fix is acquired

Flight Not Recorded

- Confirm that a 3D GPS fix was acquired before takeoff
- Make sure the internal storage is not full (delete old flights from a PC over USB to free space)

Can't See the MipTrack on PC

- Use a known-good USB-C data cable (charge-only cables won't work)
- Try a different USB port
- Make sure no flight is in progress

No Bluetooth Connection

- Check if Bluetooth is enabled (short press Power button)
- Ensure device is not already connected to another device
- Try connecting directly from the app (not from the OS Bluetooth menu)

Erratic Vario Behavior

- Perform sensor calibration procedure
- Update to latest firmware

Update Fails

- Ensure stable USB connection
- Try different USB port
- Verify Chrome experimental features are enabled
- Perform factory reset and retry

Safety Information

- Do not expose to extreme temperatures
- Avoid strong magnetic fields during use
- Keep device dry; not waterproof
- Use only certified USB-C cables, don't use Y splitter cables as some devices might negotiate higher voltages for fast-charge, in which case the MipTrack charging circuit might be destroyed
- Do not remove the USB cable while a flight is being recorded
- Do not attempt to open or modify the device