

# **PIDflight Lap Timing System: Android App**

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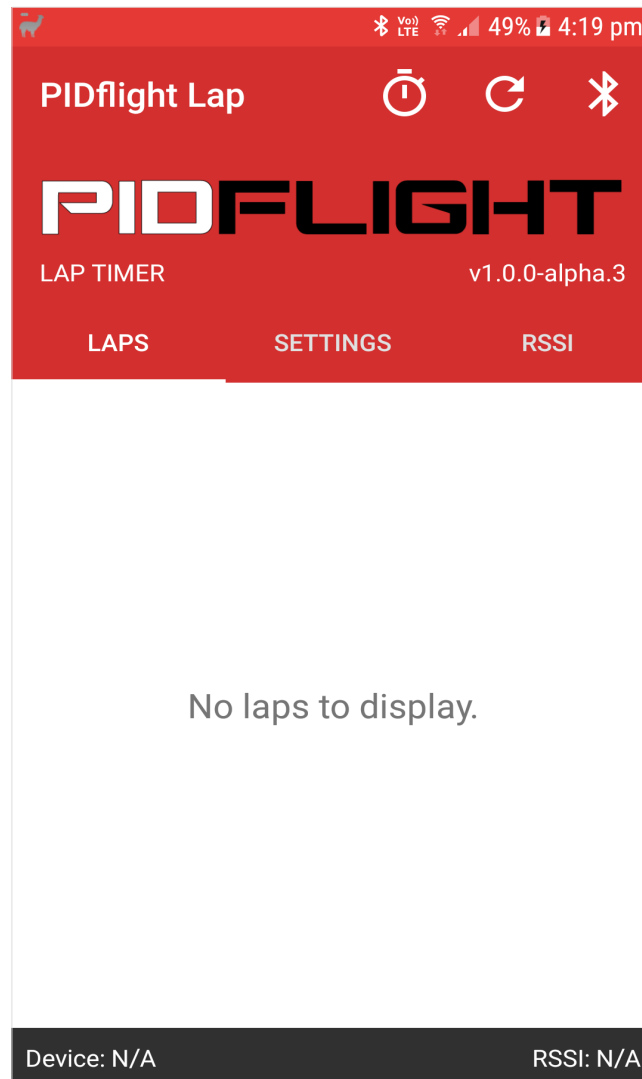
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## Introduction

PIDflight Lap is a video transmitter (VTx) lap timing solution for individual pilots.

The Android application is required to configure and display information from the lap timing device via the lap timer's Bluetooth connection.



## Getting started

1. Download and install the **PIDflight Lap** application from the Google Play Store.
2. Place the lap timing device at one side of the timing gate, power on the lap timing device.
3. Open the **PIDflight Lap** app.
4. Select the Bluetooth icon (top right) to connect to the lap timing device. *You may need to scan for the device.*
5. Navigate to the **Settings** tab, set the desired **Channel frequency** of your VTx and select **Save**.
6. Proceed to **Calibration** to perform the steps to calibrate the signal strength threshold for your crafts VTx.
7. Place the start line at least 6-10 metres away from the timing gate, place your craft at the start line.
8. Select the *Stop watch* icon to start the lap timing. *The device state will transition from **Idle** → **Timing (Waiting)**.*
9. Ready to go!

First pass through the gate will trigger the timer to start, the device state will transition from **Timing (Waiting)** → **Timing (Start)**. Once all laps have been completed, the device state will transition from **Timing (Start)** → **Timing (Stop)**.

The *Refresh* icon next to the Bluetooth connection icon is used to reset the lap timer. This action clears the current laps that have been recorded by the lap timing device to start a new timing session.

## Settings

The settings screen will automatically be updated with the values stored on the lap timing device upon the initial connection.

PIDflight Lap

PIDFLIGHT

LAP TIMER v1.0.0-alpha.3 (FW: 1.1.0)

LAPS SETTINGS RSSI

Channel frequency (Mhz)

F1 - 5740 Mhz

RSSI threshold

220 CALIBRATE

Minimum lap time (seconds)

6

Maximum laps

4

SAVE

Device: Timing RSSI: 178

- **Channel frequency:** The channel frequency the VTx is configured to use.
- **RSSI threshold:** The RSSI threshold is the value the signal strength must peak to determine if it has passed the timing gate. Refer to the *Calibration* section for guidance on setting this value.
- **Minimum lap time:** The minimum lap time of the track, this is the amount of seconds that must elapse before a valid lap can be recorded.
- **Maximum laps:** The maximum number of laps to time.

All settings changes are written and saved to the lap timing device when **Save** is selected.

## Calibration

Calibration of the VTx signal strength (RSSI) is required before use. This will calibrate an ideal RSSI threshold for your crafts VTx.

1. Place the lap timing device on one side of the timing gate.
2. Power on the lap timing device.
3. Place your craft on the opposite side (from the lap timing device) of the timing gate.
4. Power on your craft, ensure the VTx is also powered up on your craft.
5. Open the **PIDflight Lap** app.
6. Navigate to the **Settings** tab.
7. Select the **Calibrate** button. *This will take ~1 second, first beep will emit to indicate calibration has started, a second beep will indicate calibration has completed.*
8. The "RSSI threshold" value will automatically be recalculated.
9. Calibration completed!

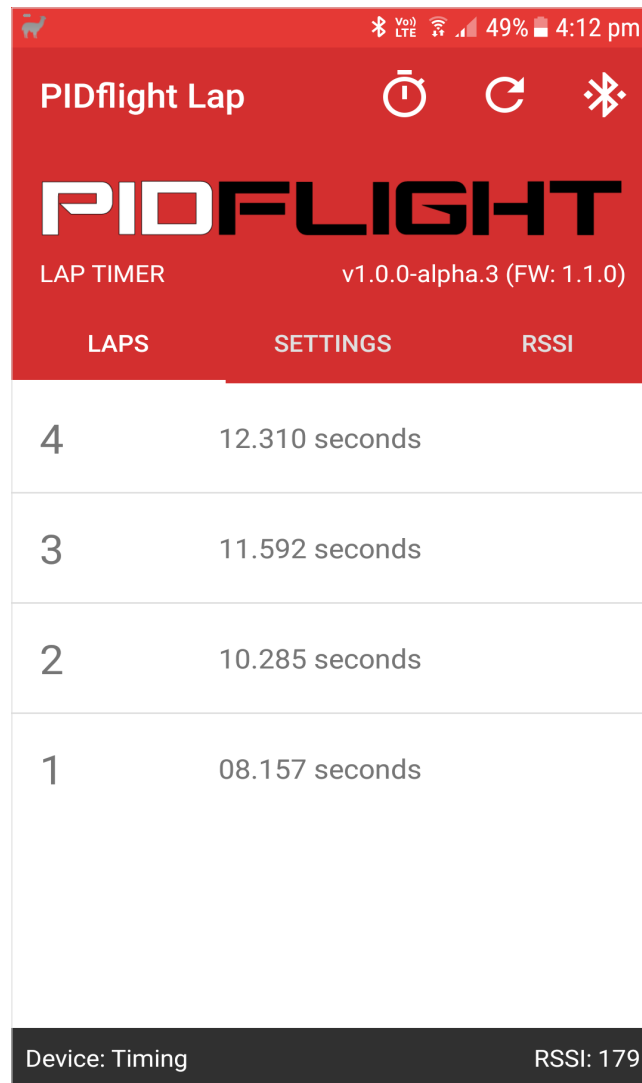
Note: You can manually override the calculated RSSI threshold by simply adjusting the value and selecting the **Save** button to use the new value.

Rule of thumb: Increase RSSI threshold to reduce the sensitivity, decrease the RSSI threshold to increase sensitivity.

*NOTE: Calibration is generally only required once for the same VTx, however may be required if you swap between multiple VTx's.*

## Laps

The **Laps** tab will display the laps recorded by the lap timing device. The app will call out laps as new ones are recorded by the device.



The screenshot shows the 'PIDflight Lap' app interface. At the top, there's a status bar with icons for VoLTE, signal strength, 49% battery, and the time 4:12 pm. Below the status bar, the app title 'PIDflight Lap' is displayed, followed by three icons: a timer, a refresh symbol, and a Bluetooth symbol. The main header area features the 'PIDFLIGHT' logo, 'LAP TIMER' text, and the version 'v1.0.0-alpha.3 (FW: 1.1.0)'. A navigation bar at the bottom of the header has three tabs: 'LAPS', 'SETTINGS', and 'RSSI'. The 'LAPS' tab is selected, showing a list of four laps. Each lap entry consists of a lap number and its duration in seconds. At the very bottom, a dark bar displays 'Device: Timing' and 'RSSI: 179'.

LAP	TIME
4	12.310 seconds
3	11.592 seconds
2	10.285 seconds
1	08.157 seconds

Device: Timing RSSI: 179

## Timing Gate

A typical gate setup (e.g. 2.3 metre wide by 1.6 metre high), place the PIDflight Lap Timing device on one side (e.g. left side). It is recommended to elevate the lap timing device above the ground.

For calibration of the RSSI, it is recommended to place your craft on the opposing side (e.g. right side).





## Device status

Status	Meaning
Idle	The device is idle and doing nothing.
Calibrating	The device is calibrating the RSSI threshold.
Timing (Waiting)	The device is ready to perform lap timing and waiting for first pass to trigger the start.
Timing (Start)	The device has started lap timing.
Timing (Stop)	The device has completed lap timing and will remain in this state until reset to idle.