

▲ ELIAS Propeller Telemetry System

USER MANUAL

Installation on the aircraft

For pilots and mechanics — Light aircraft and microlights

This document describes the procedure for installing the ELIAS system on an aircraft (light aircraft or microlight).

ELIAS is delivered mounted on a spacer matched to the propeller type concerned and supplied by E-Props.

The necessary tooling (torque wrench, suitable spanners) is the user's responsibility.

Do not fit the batteries before installation — they block access to the propeller fastening screws.

Check that the spacer supplied is suited to your propeller model.

Read the whole procedure before starting.

① INSTALLATION

System start-up

② TEST

Checking correct operation

③ SENDING THE DATA

Transfer to E-Props

Phase 1 — Installation

1.1 Required equipment

- Spacer with ELIAS (Raspberry Pi Zero + PIC32)
- 2 × 9 V batteries (supplied)
- A smartphone or tablet for the web interface (optional)
- An internet connection to send the data (optional)

1.2 Functional test

Before any installation on the aircraft, it is recommended to check that the ELIAS system is working properly. This makes it possible to detect any problem that may have occurred during transport.

Basic check — without a phone

- Insert new batteries in the holder provided (the batteries supplied are new and last for 2 to 3 test runs).
- Switch ELIAS on using the switch.
- ✓ The LED on the enclosure must light up green, or green and red — the system is operational.
- ⚠ **If the LED does not light up, contact E-Props before continuing.**
- Switch ELIAS off before proceeding with the installation.

Full check — with a phone (recommended)

If a phone is available, carry out a full test of the web interface before installation.

→ Refer to the data recovery procedure (attached document) for the Wi-Fi connection and the interface check.

This full check is particularly recommended if the unit has been transported.

Phase 2 — Fitting the ELIAS spacer

2.1 Prerequisites

Installing the ELIAS spacer requires the propeller to be present for the tests. The procedure for fitting and removing the spacer on your aircraft is specific to each model. The spacer supplied is designed to fit most models — refer to the aircraft manufacturer's manual (POH / maintenance manual) and to the installation sheet.

The propeller must be present during the tests. It is supplied by E-Props and matched to the spacer delivered.

2.2 Securing the spacer

Check that the batteries are not fitted

⚠ **Make sure the batteries are NOT installed in their holders during assembly — they block access to the propeller fastening screws, with the risk of forgetting to tighten them.**

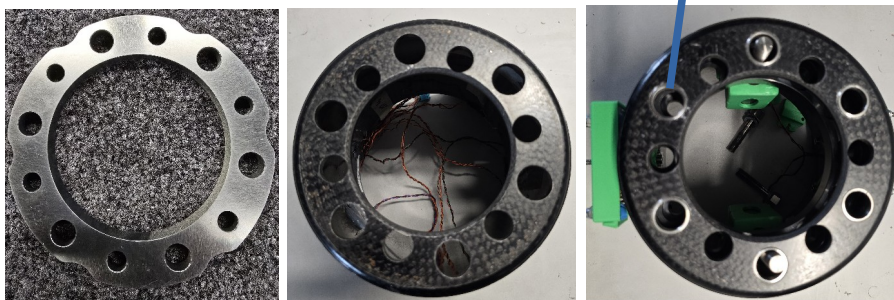
Position and secure the spacer

Position the ELIAS spacer between the engine flange and the propeller, following the standard propeller installation procedure applicable to the aircraft.

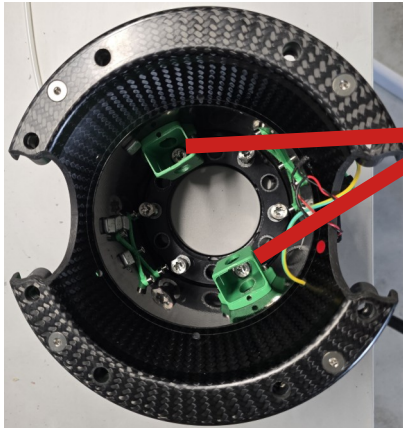
→ Fit and tighten the propeller fastening screws.

→ Apply the required tightening torque — generally 74 lb-feet, but this torque depends on the type of screw and on the model. Refer to the aircraft manufacturer's manual or contact E-Props if in doubt.

The clamping plate has holes suited to several aircraft models. In addition, some models may require bushings on the spacer.



⚠ **Never tighten without having checked the torque appropriate to the model: an incorrect torque can damage the propeller or the spacer. Do not forget the fastening screws located behind the battery holders.**



Phase 3 — Fitting the batteries

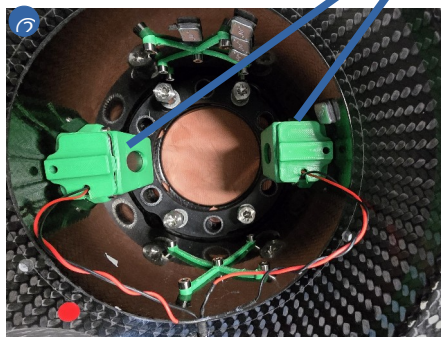
Two 9 V batteries are required. Their delivery depends on transport rules, which vary according to the carrier and to the regulations in force. The batteries are normally supplied by E-Props.



3.1 Battery mounting system

The mounting system for each battery consists of three parts:

- | | |
|---|---|
| ① | Inner part — rounded face against the spacer. |
| ② | Pair of caps — hole on the cable outlet side. |
| ③ | Clamping rings — on the outside of the spacer. |



Fitting the batteries

- Position the rounded part ① against the spacer (curved face towards the spacer).
- Place the caps ② over the supports.
- Fit the pair of clamping rings ③ on the outer side.

⚠ **Do not apply a high tightening torque — tighten just enough for the battery holder to show no visible movement.**

Over-tightening can deform the fixings.

Phase 4 — Commissioning and final check

Switch ELIAS on

- Switch ELIAS on using the switch located on the enclosure.
 - ✓ The LED lights up — ELIAS is running.
 - ELIAS starts recording automatically as soon as it is powered up.
- New batteries provide about 2 hours of operation.*

Battery status — LED colour

The colour of the LED on the enclosure indicates the battery charge status:

- **GREEN**: fully charged, the test can be carried out.
- **AMBER**: a test can still be run, but spare batteries should be provided.
- **RED**: replace the batteries before starting the test.

⚠ *A test started with depleted batteries may be cut short during recording: the file remains usable up to the cut-off, but the test will have to be repeated.*

Checking the web interface (if a phone is available)

If a phone is available, check the web interface before starting the tests.

- Refer to the data recovery procedure (attached document).
- ✓ The green ● dot on the interface confirms that the data is being received correctly.

4.1 Software start-up

The ELIAS software launches automatically at start-up. No action is required.

The software

Once the unit is switched on, the software takes about 30 seconds to start and begins recording the data.

- **You can start the test.**

The test

As soon as the software starts, a file is created and the data is written into it progressively. The file can be retrieved as soon as the test is finished.

- Once the test has been carried out, you can send the spacer back to E-Props, or retrieve the file yourself by following the next step (optional).

4.2 Wi-Fi connection (optional)

Web interface

Once ELIAS is powered up, you can connect to it over Wi-Fi and then access a web page that acts as the interface (Android, iPhone, PC, etc.).

This makes it possible to confirm that ELIAS is working properly and to retrieve the test file.

The unit needs about 30 seconds to initialise; please wait before attempting a connection.

Phase 5 — Wi-Fi connection and monitoring

5.1 Connecting to the web interface

Wi-Fi connection

To access the interface, please turn off your 4G connection and turn on your Wi-Fi connection.

Turn off mobile data (4G/5G)

Open your phone's Settings.

→ Mobile network (or Mobile data) → Turn off

This step is essential: it forces the phone to use the ELIAS Wi-Fi.

Turn on Wi-Fi and connect to ELIAS

Open Settings → Wi-Fi.

→ Select the network: ELIAS

5.2 Checking data reception

Connect to ELIAS from your smartphone or tablet using your web browser.

Open the browser and enter the address

In your browser (Chrome, Safari, etc.), type:

→ elias:5000 or 192.168.4.1:5000

The ELIAS page appears with the list of recorded files.

⚠ CAUTION

If the page does not appear, check that mobile data is turned off and that the ELIAS Wi-Fi is properly connected.

Check the connection indicator

At the top of the page, a dot (●) shows the status of ELIAS:

→ GREEN dot: data received correctly.

→ RED dot: no data received by ELIAS.

Check the RPM display

The RPM value must update in real time.

→ The value stays at “---” until the test starts; if this value does not change during the test, the system may have a problem — please contact E-Props.

Check the sensor table

The table shows: sensor name (C1 and C2) / current value / Min / Max / Amplitude.

→ Values in RED indicate that an alert threshold has been exceeded.

→ Values in GREEN are within the nominal range.

5.3 Recording the test

ELIAS starts up

When ELIAS starts up, it automatically records the data into a file.

→ This .mer file is created automatically in the enclosure.

Carry out a representative test run (following the procedure).

Test sequence:

Start the engine for the static run-up.

Allow the engine to warm up until temperatures stabilise.

Carry out the usual engine checks: magneto check, carburettor heat, mixture.

Stabilise RPM at

- 1900 RPM for 10 seconds ☐
- 2000 RPM for 10 seconds ☐
- 2100 RPM for 10 seconds ☐
- 2200 RPM for 10 seconds ☐
- 2300 RPM for 10 seconds ☐
- 2400 RPM for 10 seconds ☐
- 2500 RPM for 10 seconds ☐
- 2600 RPM for 10 seconds ☐
- 2700 RPM for 10 seconds ☐

Monitor the temperatures: CHT and oil.

If necessary, reduce power or abort the test.

Once the test is finished

Recording continues as long as ELIAS is powered up. The file can be downloaded at any time. The refresh button only updates the display.

CAUTION

If you switch ELIAS off and then on again, it will create a new file, so remember to download the right file. Each new file is created with an incremental number and a date. In addition, the size of a file is proportional to the duration of the test.

Phase 6 — Retrieving and sending the data

After the tests, follow these steps to retrieve the measurement file from the ELIAS enclosure and send it to E-Props. The operation takes about 2 minutes.

6.1 — Download the file

Identify and download the file

In the file list, tap the ↓ arrow of the required file (generally the first in the list — the most recent).

→ The .mer file downloads to your Downloads folder.

Do not rename the file.

→ Turn off the switch / ELIAS.

6.2 — Send the file to E-Props

Turn mobile data back on

Go back to Settings → Mobile network.

→ Turn mobile data back on.

Send the .mer file to E-Props

Use whichever method you prefer to send the file:

- By e-mail as an attachment
- Via WeTransfer (wetransfer.com)
- Via Google Drive, Dropbox, or any other service

E-Props receiving address: **helices@e-props.fr**

Summary — Checklist

☐	Mobile data (4G/5G) turned off.
☐	Wi-Fi connected to the ELIAS network.
☐	Page <code>elias:5000</code> or <code>192.168.4.1:5000</code> displayed.
☐	Test run completed.
☐	The <code>.mer</code> file downloaded (do not rename).
☐	Mobile data turned back on.
☐	<code>.mer</code> file sent to E-Props.

E-Props / Electravia contact

helices@e-props.fr