

HiES[®] Tech

Enhancing model builders' lives

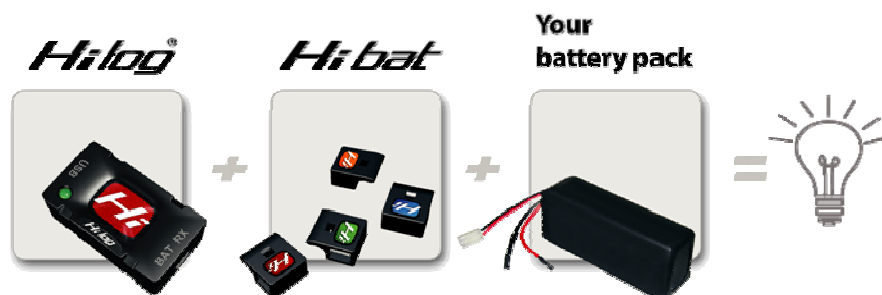
HiLOG[®]



HiLOG Unit Manual

Suitable for any RC model





Your RC model logbook

How many hours have you been flying with your model?

HiLOG archives all your model's flights autonomously during all of its lifetime. You do not need to concern yourself with anything. Upon connecting the device to a computer, you can display all of the flights and their details. Detailed and accurate times and dates for years – in a moment, in a nutshell.

HiLOG recognizes when it is switched on and performs time measurement during all flight or driving modes. It also recognizes when a model is just switched on for a moment and no flight has been done. This intelligent function refines the monitoring of powering batteries – in such cases, no discharge flight cycle is subtracted.

Order in batteries.

Know the exact count of discharge cycles!

Using the HiBAT identifier, it is possible to put all your batteries in order. You know the exact number of discharge cycles of each battery.

Order named HiBAT

Each battery that is equipped with HiBAT identifier is stored in a detailed database of all batteries. This database contains various information – when a battery was flown with, in which model, the number of its discharge cycles, etc.

Each HiBAT contains complete information about battery type, charging parameters and about the battery owner. It is possible to enter contact details of an owner, which is helpful e.g. in case of accidental swapping of batteries with other modelers or in case of its loss. A honest finder can return the battery to the owner listed in the contact details.

A handy battery cable holder provides for fixing HiBAT by a 2,5 mm strap. HiBAT can be placed anywhere on the battery power supply cable. The user can place HiBAT in any convenient position that facilitates connecting to the HiLOG unit. The device is connected to the HiLOG unit via BatLink cable with a servo connector. It can be plugged into HiBAT in any way.

Elegant design

No maintenance needed. Silent operation.

The smart and maintenance-free operation makes HiLOG a reliable brain and heart of your model.

Operator error is eliminated. Just install – and enjoy your flying for years!

The only prerequisite for detailed evidence of batteries by HiBAT is connecting the HiBAT to HiLOG via black cable before each flight or battery change.

Real-time clock

Evidence of flights – dead on time.

The real-time clock is a heart of HiLOG. The clock knows exactly what date and time it is, even when the model is switched off. This feature enables HiLOG to recognize leap years and it is not necessary to make any special settings. When used in different timezones, automatic synchronization with computer time can be done via micro USB connection.

Every flight is tracked and recorded dead on time, including time spent in normal flight or in acrobatic mode, which is more demanding as to the energy consumed from power batteries.

Giant inner memory

Years and years of logged history is a dream of every model builder

HiLOG has a giant inner memory – 4 GB. Every flight detail is stored in this memory – forever. Even in case of 100 extreme flights per day, the capacity of the memory is sufficient for storing over 20 years of history!

Motion sensor

It knows what's up.

The motion sensor recognizes when the model is static and does not consume any energy from power battery. It also knows when the model flies and what kind of flight it is. It recognizes three

kinds of motion: normal flight, acrobatic flight or extreme flight. Based on the time spent in each flight mode, it is able to evaluate the usage intensity and treatment of power batteries.

Model statistics in computer database

Easy statistics and overview of models in your computer.

A model builder can extract a detailed list of flights, either for the total lifeline of the model or for a single time period. He knows which batteries are used in a model and how long has he been flying with them.

Aren't you interested in how many hours have you been flying during the past season? Or the total number of pilot hours of the model and its age?

You can compare the number of flights in different seasons and determine the activity of a model/model builder during different flights.

Battery statistics in computer database

A detailed overview of batteries in the database.

The battery database provides unique information not only about battery discharge cycles, but also about how each specific battery was treated.

In addition to the exact number of discharge cycles, the remaining cycles until the end of battery's life can be determined as well. The model builder can easily determine, how long will the battery last.

Thanks to the detailed documentation of models and batteries you have exact information about which models a specific battery was used in, when it was used and how.

Statistics of the number of hours spent on the model

How long did the construction last? How much time and money were spent during the repairs?

The database of the model history can be also used to record details like the number of hours spent during the construction or repairs of a specific model. Costs of purchasing, repairs or tuning of a model can be also recorded. You can easily get a detailed overview of total demands of a specific model regarding working time as well as total costs spent.

This statistics also enables determining detailed information, like how long has a specific part last in the model and how many pilot hours have been spent with this part. Thus, the model builder can buy only proven and reliable parts of good quality and long operating life.

Career of a model builder

Do you know how many models and batteries have you had in your life?

A unique recording system of all models and batteries provides the model builder with perfect overview of all activities. Do you want to find out how many hours have you been flying only with helicopters during the past season? Now this (and not only this!) is possible.

Unlimited statistical evaluation of stored data! All the necessary data from the database can be easily exported to formats for external processing in Microsoft® Excel and other applications. A model builder can easily create diagrams, charts and presentation in external applications outside HiLOG, with the absolute precision of the recorded data.

Easily transferable to other models

The model „died“! What now? HiLOG reincarnates itself!

HiLOG can be easily used with another new model if the old one has already served out. Just move it to the new model, connect to computer and reset it in the application. Provide the basic details about the new model – and you can start flying right away.

Can be used also for older RC models

Keep track of your older model from the moment of installation!

HiLOG can be easily installed also to an older RC model. Set the estimated pilot time and the number of flights you have done with the model so far. From this moment on, you will be able to track all data. The total number of starts and total pilot time for the whole operating time of the model will be displayed automatically by HiLOG.

Explanation:

Tip or suggestion.



Caution or warning.

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1 Contents

1	Contents	7
2	Introduction	8
3	The unique features of HiLOG and HiBAT	8
4	Specification	9
5	Installation.....	10
5.1	Installation of the main unit	10
5.1.1	Installation with two tightening straps	10
5.1.2	Installation with one tightening strap and a double-face adhesive pad.....	11
5.1.3	Installation on a double-face adhesive pad only (just for indoor (hall) models or very small planes).....	11
5.2	Orientation of the movement sensor axes	12
5.3	HiLOG connection	12
5.4	Connecting HiBAT to a battery wire.....	14
5.4.1	Connecting the HiBAT identifier to a battery cable:.....	14
6	Connecting the HiLOG unit to a computer via USB connector.....	15
7	Specifying HiLOG configuration	15
8	Specifying HiBAT configuration	15
9	Using the HiLOG + HiBAT registration system	16
9.1	Using HiLOG	16
9.2	Using HiBAT	16
9.3	Connecting the HiLOG to your computer.....	17
9.4	Connecting the HiBAT identifier to your computer	17
10	Package contents.....	18
10.1	HiLOG.....	18
11	Accessories.....	19
11.1	BatLink adaptor cable 45 cm	19

11.2	BatLink extension cable 25 cm	19
11.3	Extension servo cable 30 cm	19
12	Notice regarding disposing of a used device	20

2 Introduction

HiLOG can be used in any kind of RC model – be it an airplane, helicopter, car, ship, copter, hovercraft, etc. It provides statistics of total pilot hours of a model, the number of starts and (in connection with HiBAT units) it automatically counts the number of discharge cycles of batteries. The database where all the data from models and batteries are stored also enables recording of costs and hours spent during the construction of models or their repairs.

Civil Aviation Authority requires in some cases an official flight records (so-called journey logbook, aircraft logbook). This is the case of models with registration marks, used for professional purposes.

The HiLOG unit enables tracking of up to 8 batteries equipped with HiBAT units at once. Multiple batteries can be connected to the HiLOG unit via BatLink adapter cables.

3 The unique features of HiLOG and HiBAT

Precise recording of:

- the number of model starts including the date and time of each start
- the number of pilot hours of a model
- the age of a model
- information about the owner including contact details in case of model/battery loss
- the number of hours spent during model construction or repairs
- the number of battery cycles
- the detection of model overloading in all three axes of movement
- career of a model builder

Control and tracking of:

- the reliability and operating life of individual parts of an RC model
- the reliability and operating life of batteries
- selection of appropriate parts and batteries for future purchases

4 Specification

HiLOG

Dimensions:	21 x 37 x 13 mm
Supply voltage:	4 - 6 V
Supply current:	44 mA _{max} / 30 mA _{nom}
Temperature range:	- 20°C + 50°C
Weight:	18 g
Max. number of HiBATs connected:	8 pcs
Movement sensor:	8G max (X, Y, Z)
Rx voltage measurement:	0 – 6V
Memory:	4GB
Length of the Rx cable:	23 cm
Length of the BatLink cable:	21 cm
PPM signal:	1,5 ms ± 500 us / 20 ms frame

HiBAT

Color coding:

- 1) Red
- 2) Pink
- 3) Magenta
- 4) Blue
- 5) Green
- 6) Orange
- 7) Yellow
- 8) White

Only HiBAT identifiers with different colors can be connected to the HiLOG unit at a time. When two identical colors are connected, the identification will not work properly.

Logbook application for HiLOG:

Operating systems supported:

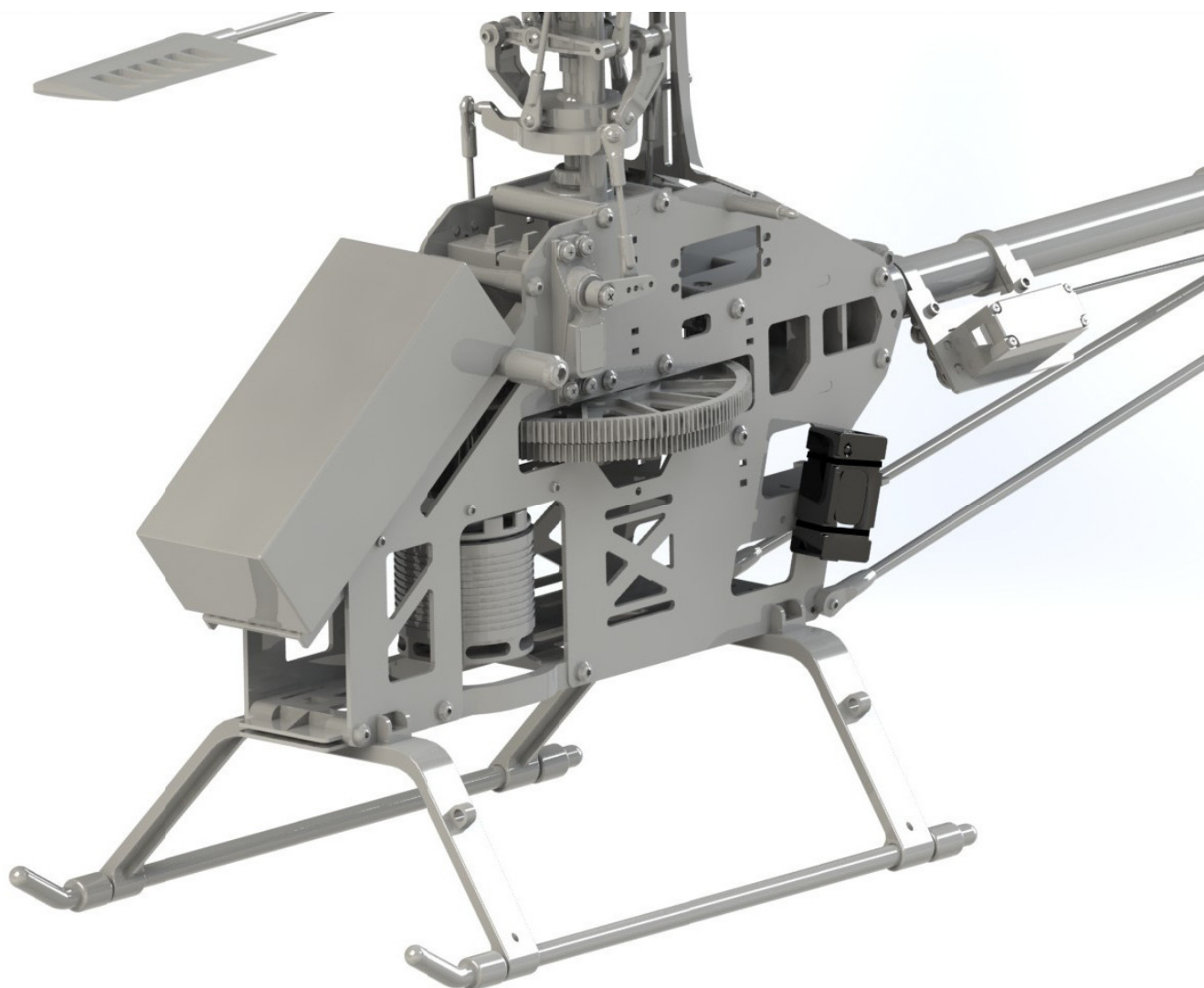
- Microsoft Windows™ XP, SP1 – SP3
- Microsoft Windows™ 7, 32b (64b)
- Microsoft Windows™ 8, SP1

5 Installation

5.1 Installation of the main unit

There are multiple ways of installation of the main HiLOG unit. Select the one that is most suitable for you. It is convenient to orient the HiLOG unit so that the USB connector is on the side where it can be easily connected to the computer via micro USB cable, without removing the cockpit of the model.

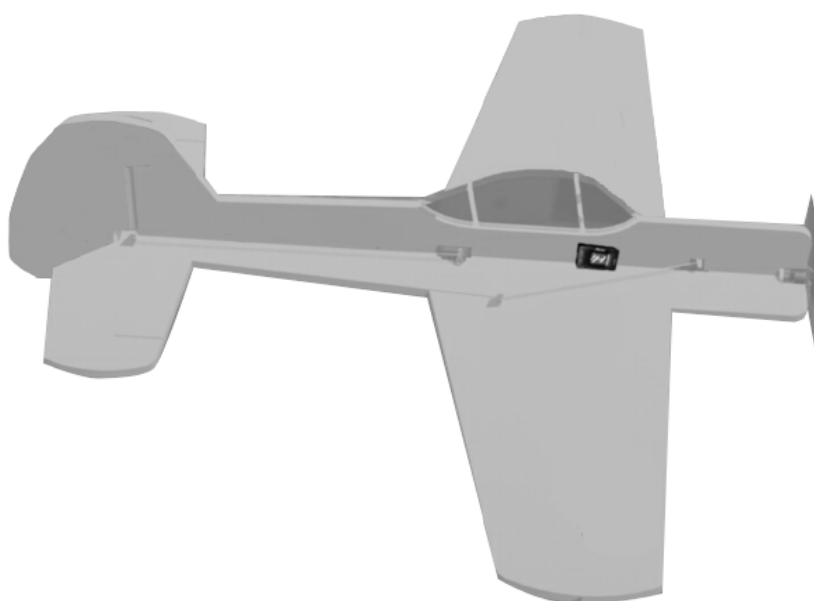
5.1.1 Installation with two tightening straps



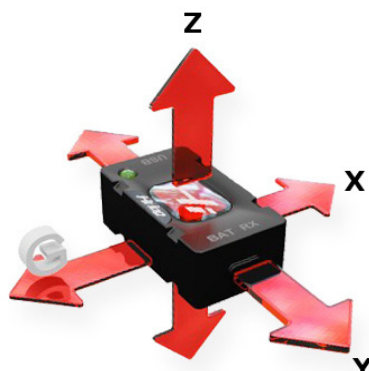
5.1.2 Installation with one tightening strap and a double-face adhesive pad



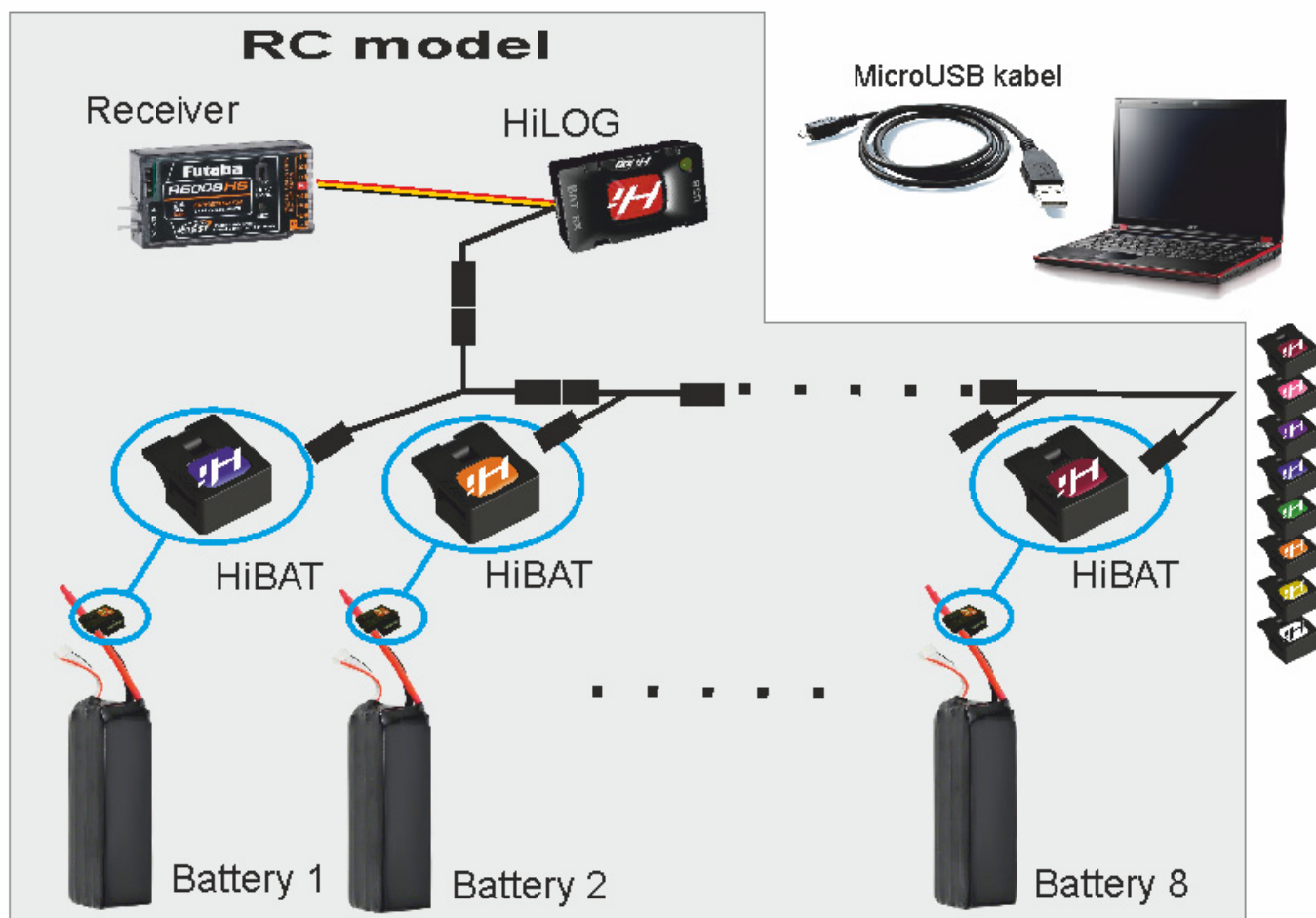
5.1.3 Installation on a double-face adhesive pad only (just for indoor (hall) models or very small planes)



5.2 Orientation of the movement sensor axes



5.3 HiLOG connection





The maximum length of the longest BatLink cable branch is 1,5 m. The connection of all BatLink cable wires is 1:1. The cables can be trimmed to fit properly. Use as short wires as possible.

Servo connector



HiLOG uses two connecting cables. A color-coded servo connector (red/brown/orange) is connected to an empty slot of the receiver. In case there is no empty slot on your receiver, connect the HiLOG to an adaptor together with a controller. This way, HiLOG will be also able to detect the throttle position automatically. This can be used later to start the timer countdown for a flight.

If you connect the servo connector to the empty slot of the receiver, you should program this free channel to the throttle function in your transmitter. Thus, the HiLOG unit will receive the same information about the model start as in the abovementioned case of connecting HiLOG to an adaptor together with a controller.

BatLink



BatLink is a black three-wire cable used for connecting the HiBAT units (battery identifiers). This connector should be installed as close as possible to the area where the registered battery is stored. The polarity of the BatLink connector does not matter. It will work for straight plug-in as well as for the reverse plug-in. On the flying field, you do not have to check the polarity when establishing the connection. If a model uses multiple batteries, an adaptor BatLink cable must be used – one for each additional battery, so that all HiBAT identifiers are connected at once.



Since these are data cables, do not install them near the wiring of alternating interfering signals from drive motors and controllers.

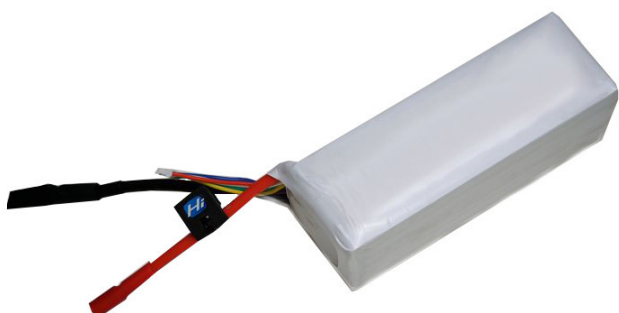
5.4 Connecting HiBAT to a battery wire



Connect HiBAT with a 2,5 mm tightening strap so that the lug of the tightening strap is hidden at the bottom of HiBAT, as shown in the pictures below.



5.4.1 Connecting the HiBAT identifier to a battery cable:



The HiBAT identifier can be connected to any of the battery terminals in a random direction and position, so that it is functional and handy.



When connecting the HiBAT identifier to the battery using the 2,5 mm tightening strap, do not tighten the strap fully so that the identifier can move freely on the battery cable. Tighten the strap fully only after inserting the battery in the model and moving the HiBAT to its final functional position.



The two-pin 2 mm connector is used for service purposes and must not be connected! Manipulating with the connector could result in HiBAT malfunction.

6 Connecting the HiLOG unit to a computer via USB connector

Before starting the application under the Windows™ operating system, connect HiLOG to your computer using an USB port. If you are connecting it for the first time, wait until the USB driver is installed and a message „Your new hardware is installed and ready to use“ is shown in Windows™ notification area (next to the hours). The detection of a new hardware by the operating system can take several minutes. After the abovementioned message is shown, you can start the main HiLOG application and specify settings for your model.



In some cases, Windows™ requires to restart the whole system after new hardware is detected. It is recommended to restart Windows™.

7 Specifying HiLOG configuration

After installation of HiLOG and HiBAT units, they can be configured easily via „**Logbook application for HiLOG**“. This application is included on a miniCD shipped with the product, or you can download the latest version from the internet.

If you have not installed the „**Logbook application for HiLOG**“ yet, make the initial connection of HiLOG to your computer via USB and after automatic installation of a native driver in Windows™ run the application according to the following instructions of the manual. When running the application for the first time, you can select the „**Settings**“ tab and choose „**HiLOG**“. The Settings menu of the HiLOG unit displays, where you can edit all the parameters of your HiLOG unit. To create a new model, press „**Create a new model**“, fill in all the necessary data and save your settings by pressing „**Save settings to HiLOG**“. For more info about creating a new model and filling in all the model data, see chapter „**Creating a new model**“ in the „**HiLOG Application manual**“.

8 Specifying HiBAT configuration

The HiBAT battery identifiers must be configured before first use. Connect them to any HiLOG unit connected to the computer via USB cable. Only when connected, in the application menu „**Settings – HiBAT**“ click the „**Create new battery**“ button. A unique ID number is created that will be used to identify the specific battery in the database during the whole operating time.



The „Create new battery“ button is active only in case HiBAT is installed to a new battery.

The name of a battery specified in the database can be used also on your battery sticker. This way, you can later easily identify a real battery based on your chosen identical name.



9 Using the HiLOG + HiBAT registration system

As soon as the HiLOG unit and the HiBAT identifiers are configured from the user's computer (see previous chapter), they can be used with the models.

9.1 Using HiLOG

The HiLOG unit needs virtually no control, it works automatically. As soon as the model is connected to power supply, HiLOG is switched on automatically due to the servo cable connection with the receiver. The stored data can be retrieved by your computer at any time, even for past few years.

9.2 Using HiBAT

If you want to use the database of batteries as well, it is necessary to connect the HiBAT identifiers before a flight via BatLink cable to the HiLOG unit. When changing the supply battery, it is also necessary to connect the HiBAT identifier that is connected to the specific battery. No further activity is needed.

The BatLink connector can be connected to HiBAT in any direction, it will work correctly for both orientations.

The HiBAT can be disconnected at any time after the flight, before or after disconnecting the power supply.



Recommended procedure of connecting HiBAT identifier: After a new supply battery is inserted to the model, connect the HiBAT identifier to the BatLink cable, no matter when you will be flying with the model. It eliminates the risk of forgetting – HiBAT will be connected and ready to fly.

Immediately before the flight, just connect the main supply connector of the battery and everything is ready.

If the power supply voltage is not connected, the HiBAT can be connected to BatLink for any time.

9.3 Connecting the HiLOG to your computer

The connection between HiLOG and the computer is done via micro USB cable. There is no need to connect the supply voltage to your model. The HiLOG unit is powered automatically via USB cable from a USB port of your computer or notebook.



A model builder can quickly and easily determine the status of all models – he simply connects his models one after another via USB cable to the computer and saves the data by a single mouse click automatically to the database in the HiLOG application. No need to switch on any model.

9.4 Connecting the HiBAT identifier to your computer

The HiBAT identifier is connected to the computer via any HiLOG unit that is connected to the computer using the micro USB cable. When establishing connection, there is no need to connect the supply voltage to your model nor connect a battery. The HiLOG unit is powered automatically via USB cable from a USB port of your computer or notebook.



A model builder can quickly and easily determine the status of all batteries – he simply uses one HiLOG from any model to connect the batteries one after another. When the HiBAT identifier is connected, the computer application automatically detects a new battery and shows its data. If necessary, the new data from HiBAT can be stored in the database by clicking the update icon.

10 Package contents

10.1 HiLOG

- 1x HiLOG
- 1x miniCD
- 4x tightening straps 2,5 x 200 mm
- 1x sticker set
- 2x 3D sticker „Hi“



11 Accessories

11.1 BatLink adaptor cable 45 cm

A thin lightweight cable with a lock preventing disconnection. Interference- and vibration-proof. 3-pin servo connector, dia. 0,14 mm.



11.2 BatLink extension cable 25 cm

A thin lightweight cable with a lock preventing disconnection. Interference- and vibration-proof. 3-pin servo connector, dia. 0,14 mm.



11.3 Extension servo cable 30 cm

A thin lightweight cable with a lock preventing disconnection. Interference- and vibration-proof. 3-pin servo connector, dia. 0,14 mm.



12 Notice regarding disposing of a used device



This product must be disposed of in accordance with all relevant waste disposal regulations at specific collecting points free of charge. Product must not be disposed of with your other household waste.



The device contains lithium battery that lasts for the whole operating life of the product and is not replaceable.

