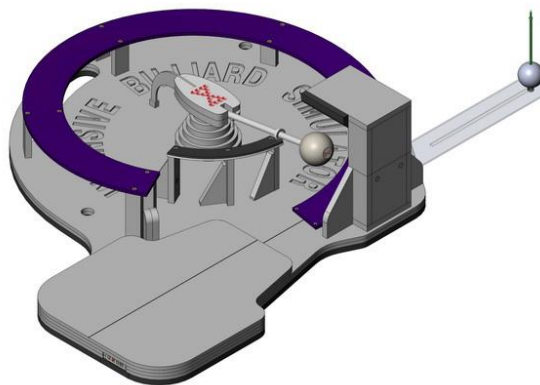


# HIBS

## Highly Intensive Billiard Simulator (HIBS)



# Manual

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## Safety instructions

- ✓ **Before using HIBS carefully read this guide.**
- ✓ Install HIBS on a stable, level surface, with at least one projecting side face for fastening the clamp.
- ✓ Before using, always fix HIBS still using the clamp. If HIBS is being installed permanently, bearing pad is recommended to be attached to the surface of the table with screws or pins. Details of the simulator must not protrude above the table surface for more than 2 cm.
- ✓ To avoid injury during training any changes in the design of HIBS fastening elements and nodes are not allowed.
- ✓ To ensure stable operation HIBS prohibits any use of home-made elements and devices, as well as the use of materials that are not mentioned by the construction.
- ✓ Before training, make sure that the ball is securely attached to the rod.
- ✓ Due to the fact that after hitting, the cue ball acquires considerable kinetic energy, it is recommended to keep children and pets away from the training place, in order to avoid accidents.
- ✓ There is a low voltage electronic device in HIBS. To ensure stable operation placing HIBS near sources of magnetic fields, static electricity and electronic radiation is not recommended.
- ✓ HIBS electronic details block must be protected from bumps, dust and moisture. When using HIBS outdoors, placing it in direct sunlight is not recommended.
- ✓ Before using HIBS make sure that there is no restriction on the motion path of the billiard ball bearing inside the track.
- ✓ As in case of a miss the cue may hit on the details of HIBS, or the cue may be hit by returning ball, it is recommended to use cheap billiard cues for trainings.
- ✓ To prevent chafing and blisters on the hands skin during intensive training, you should use gloves: a low-friction material glove for the support hand and a thin solid glove for the hand holding the cue.
- ✓ When storing HIBS upright, make sure it is securely attached to the wall.

## HIBS purpose

Highly Intensive Billiard Simulator HIBS is designed for individual use for beginners and professional billiard players. HIBS allows you to train with selected frequency, in a comfortable location and convenient time for the player.

The original design of HIBS is made for physical development of muscles, as well as for improving playing technique, improving coordination and precision of strikes.

Training on HIBS helps to acquire the automatic skills to strike the cue ball to the selected area.

The absence of distractions reduce negative component of emotional stress that occurs in the process of billiard trainings, and improves concentration on hitting technique.

Multiple and intensive repetition of exercises develops and strengthens the muscles involved in the game.

**HIBS** has the following advantages:

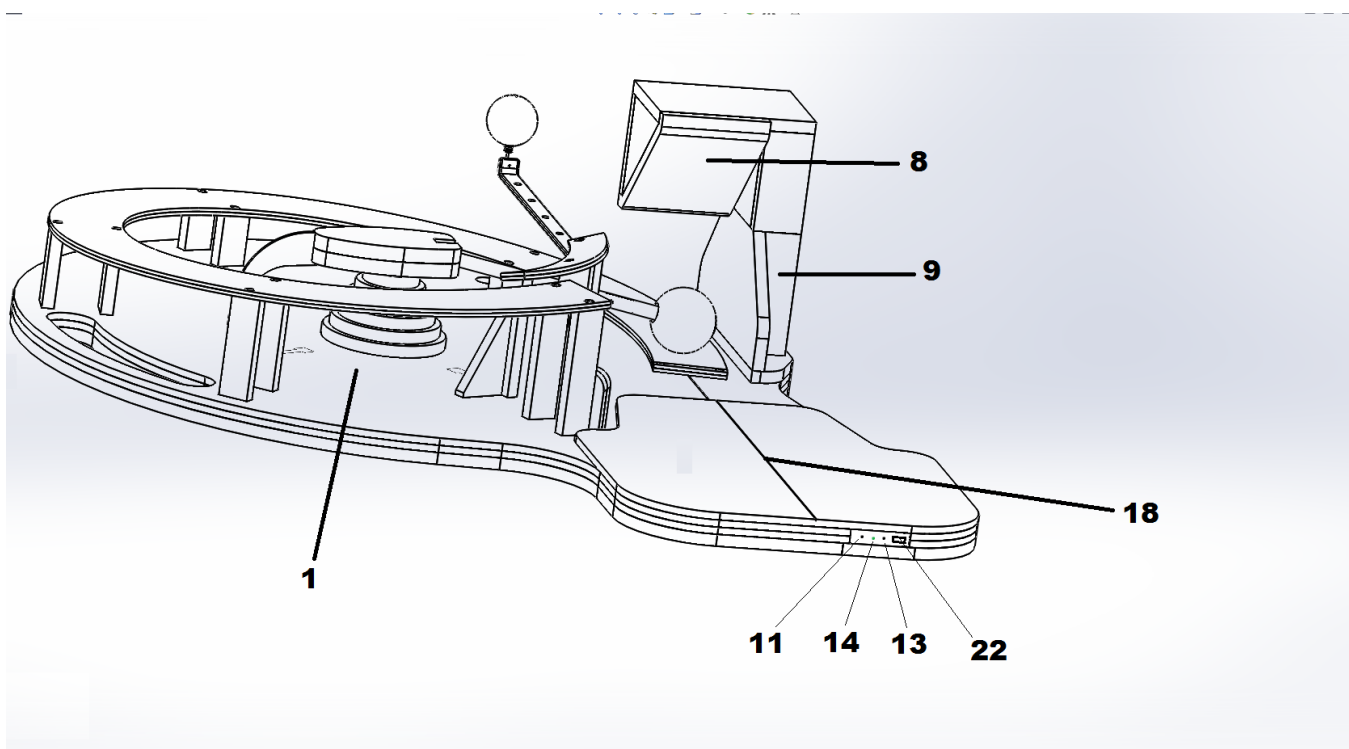
- Compact size and weight combined with functionality allow you to train without a billiard table and a set of balls,
- Absence of a billiard table, the object ball and the pocket eliminates the emotional component of the training process and allows you to concentrate on working out the best technology of hitting the cue ball,
- HIBS electronic part with original software allows you to choose types of training and control the main settings of training,
- analysis of training allows you to focus on specific technical issues, to select the optimal exercise intensity and monitor the progress of qualitative and quantitative indicators (number of hits performed, maximum and average speed, the deviation from the set speed, variation of settings per training),
- software can be used with a desktop PC, laptop and smartphone with OS Windows 8, Mac, iOS or Android,
- Free software update is available for download at <http://hibs.pro>
- **HIBS** allows you to hit the cue ball for around 3,000 times per hour with intensity of up to 50 strokes per minute. As a result, the player can save considerable time and money spent on training at schools and billiard clubs.
- a player can improve the hitting technique at home or outdoors. HIBS can be used outdoors, you just need to find a horizontal surface and connect HIBS to a mobile phone or laptop in off-line mode,
- software allows not only to optimize the process of training, but also to find a partner online, assign a game, keep the scoring in on-line or off-line modes, analyze, and share trainings and games statistics,
- **HIBS** has a high level of mobility, accessibility, autonomy and requires very little technical maintenance

## **HIBS design**

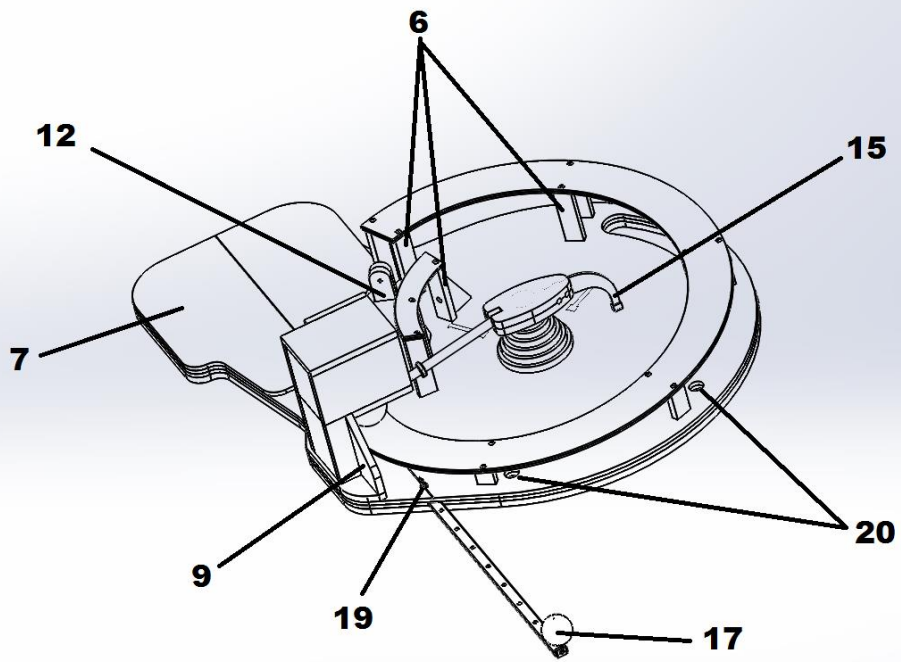
**HIBS** consists of the following elements:

1. Basis
2. Rotary element
3. A ball for Russian billiard, snooker ball or pool ball
4. The main track
5. The second track
6. Track supports
7. Hand support
8. Damper
9. Damper cup
10. Electronic device that supports Bluetooth BLE4 and Mini USB Port

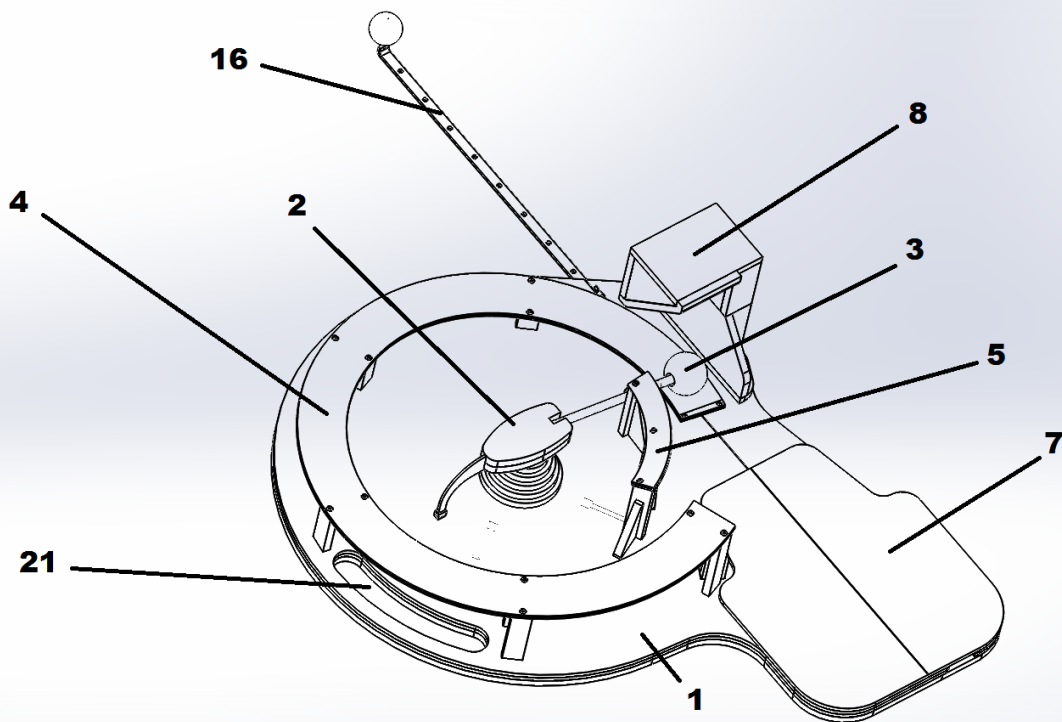
11. HIBS switch
12. Superbright LED illuminating HIBS
13. LED switch
14. Operating display
15. Magnet carrier
16. Ruler
17. Aim
18. Line for straightness control
19. Ruler fixing screw
20. Holes for wall mounting
21. Carrying handle
22. Cover of devices
23. USB port
24. Battery
25. Reed switch
26. Tightening track screws



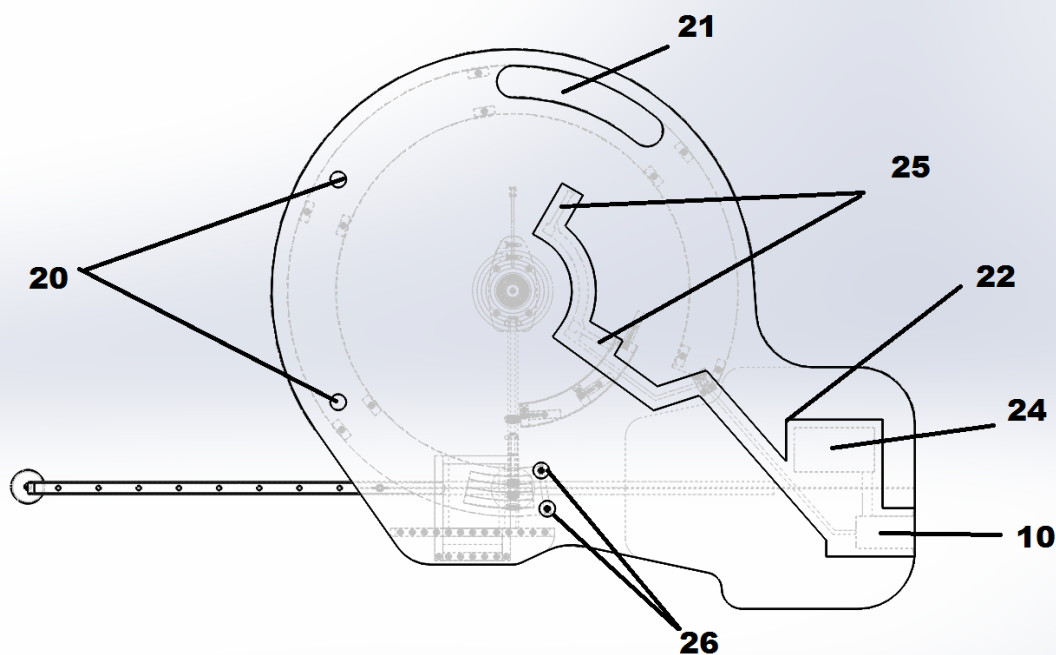
Pic. 1



Pic. 2



Pic. 3



Pic. 4


## Principle of work and functions

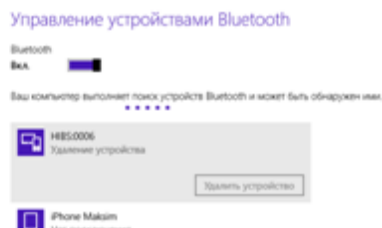
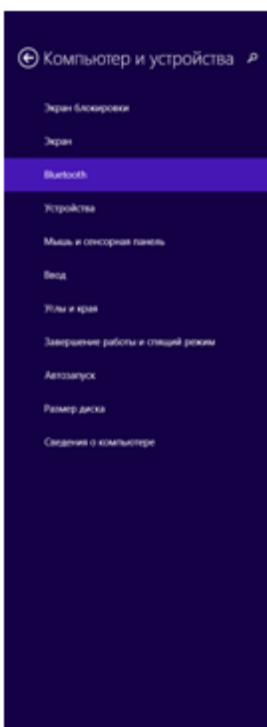
The principle of HIBS work is based on use of kinetic energy of the cue ball. Energy generated by the cue struck is used to return the cue ball to the original position. At the same time, time measurement is carried out in fixed points, as well as the information is processed and analyzed in the operating device that has the original software. The mechanical part of HIBS is designed for practicing power and precision strike, muscle training and improving coordination of movements, whereas the electronic module allows you to select and control settings and the intensity of your training. The player can choose the type of training - basic, power, or technical, and enter the required parameters for the power and technical modes.

### Preparing to start

Before you begin training with HIBS, it is recommended to carry out one or two training sessions with an instructor to get introduced to the methods of proper operation of the device in order to maximize the use of all functionalities. In the future, we recommend to contact the instructor every so often to learn new techniques and to obtain an objective assessment of the progress made in the process of training.

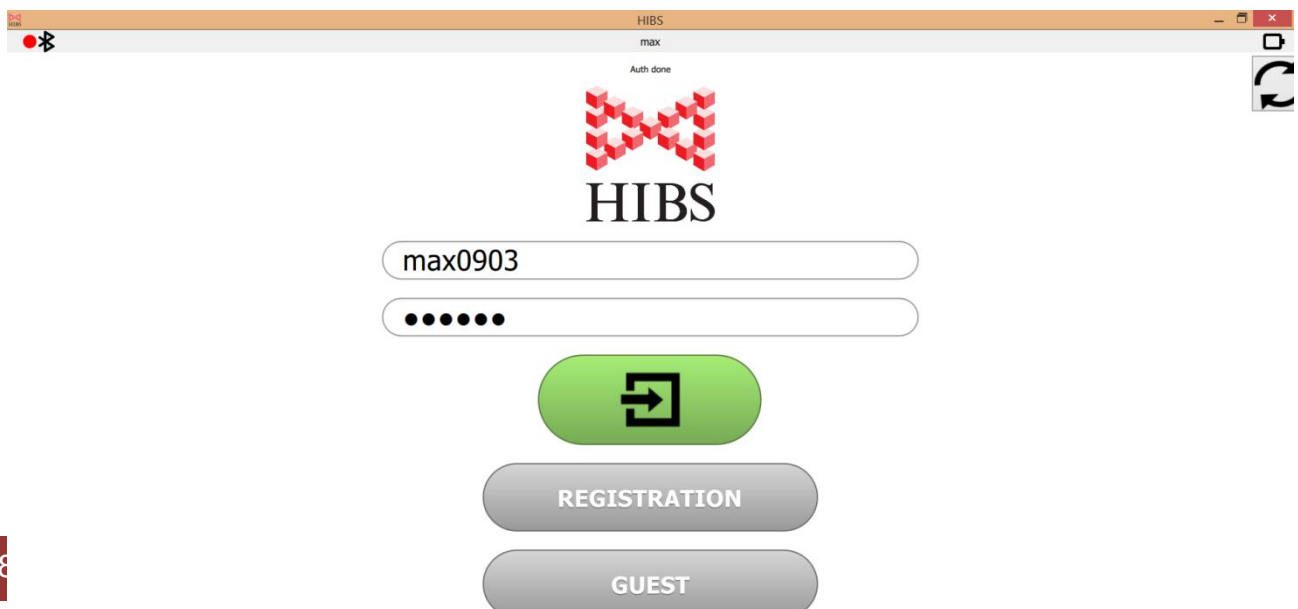
## Steps before using HIBS

1. Insert the damper and secure it with two self-tapping screws.
2. Place HIBS on a table or any appropriate level surface.
3. Secure the base of HIBS with the clamp or rest it in a corner of a billiard table.
4. Enable HIBS by pressing once on the switch button.
5. Connect HIBS to your computer, smartphone or tablet by enabling data transfer using Bluetooth. When using an application on a mobile device, HIBS connects automatically. For Windows 8 you need to go to your computer menu Devices - Bluetooth - Bluetooth Device Management - Enable connection with the device found (see pic.) and create a connection to HIBS by clicking the icon .




**HIBS** can connect to your computer using the supplied USB cable. If **HIBS** charges through USB-port, it is not recommended to use the USB-hub. In this case, the voltage supplied to **HIBS**, may not be sufficient for the correct operation of the electronic device.

1. By clicking the icon HIBS, run the application on your computer, tablet or smartphone.





2. Create an account at HIBS website (if it has not been done before) or run the program by entering your username and password. In iPhone app you can do this in the tab 
3. When you first enter a new login there must be an online connection to the server of HIBS. In future, the program may run in off-line mode. The application also features a Guest Login, which allows to get acquainted with the basic functions of the software without logging in.
4. Check up fastening security of the billiard ball selected for training.
5. If necessary, switch on the superbright LED to light the ball. There are two ways:
  - ✓ Pressing the LED switch button on HIBS
  - ✓ By the application, set the necessary brightness using the slider



Now **HIBS** is ready to start.


## Training methods

To enter the trainings directory of **HIBS**, click the icon



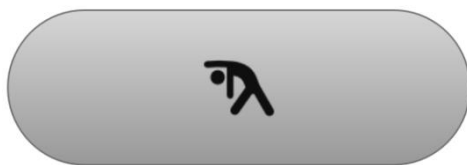
Before you start training, you must specify what type of ball you are training and what hand is striking - left or right. This is necessary for separated statistics with useful analysis afterwards. In future, when you login with the same username, the specified settings will be kept automatically. When a training starts, the selection of the type of ball and left / right hand option become unavailable. If you want to change the ball or

supporting hand, you need to finish the training, enter new settings and start a new training.

In Windows 8 the type of ball icon, LED brightness slider, and the option of left / right hand are at the bottom of the screen, in iOS devices they are in the special tab 

Click the following icons to select the training settings:

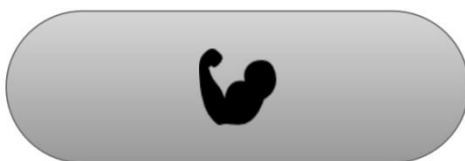
### Select the type of training



**Basic**



**Technical**



**Power**

### Choose the settings of technical and power training



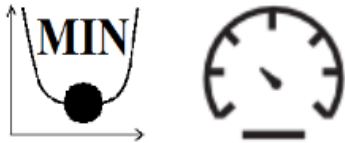
**Number of attempts**



**Number of strokes per attempt**



**Maximum speed\***



**Minimum speed\***



**Number of rates of speed**



**Autopause**



**Choose the scheme of speed change in the technical training:**

- increasing
- descending
- random



**Start the exercise**



**Back to previous menu**

\* Speed value, which is calculated by the application, is relative. The speed calculated by HIBS is adapted to the speed of the ball on the table at a similar striking force.

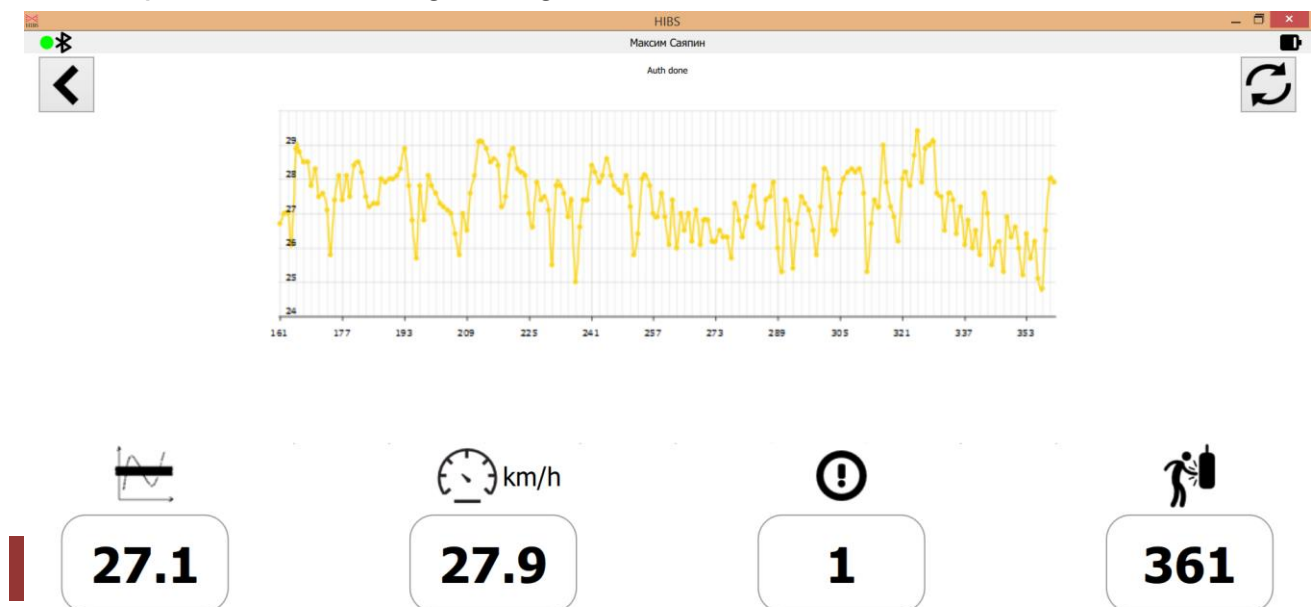
## **Basic training**

This type of training is recommended for warm-up. Basic training is especially valuable for elderly players, because with age, keeping the muscle tone becomes a serious problem. This type of training develops coordination and endurance. Do basic training before any power training, as warming up reduces the risk of muscle injury. A possible scenario of a basic training involves series of strokes, with comfortable force for the player to perform the same speed of the ball (e.g. 23 km / h). The purpose of this training is to narrow the corridor of fluctuations of speed and prevent misses. Progress in this type of training is easy to control basing on the dynamics of speed changes in different periods.

When choosing the basic type of training the speed chart of the last 200 strokes will be displayed, as well as the average speed of the whole training, current speed, number of strokes and number misses (strokes at a speed less than 10 km / h).



An example of basic training settings on iPhone



*An example of basic training settings on a computer with OS Windows 8*

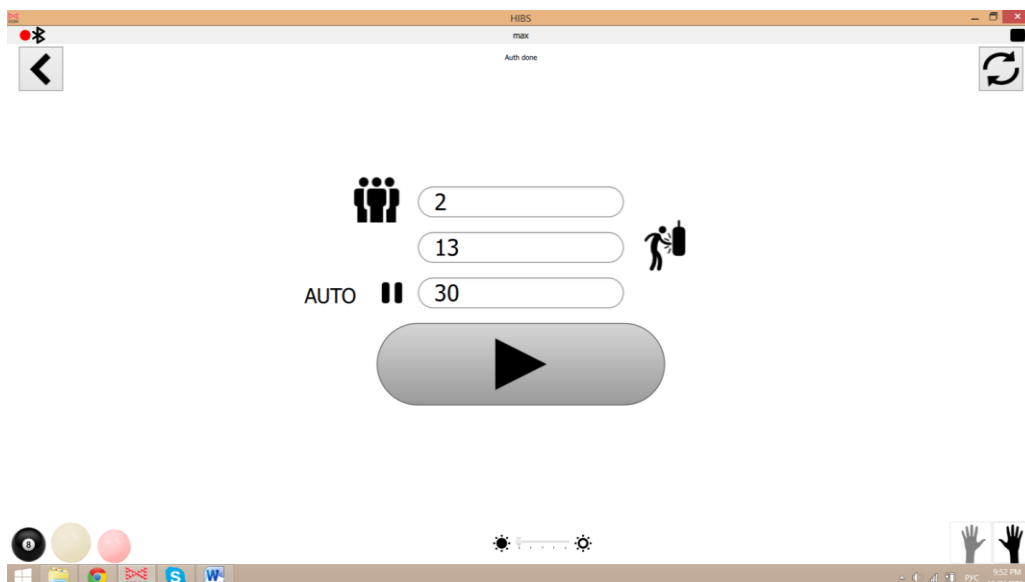
Sound indicators of the strongest stroke in a training/attempt and a miss are common for all types of trainings.

## Power training

Power training is used to develop strength and impact velocity, as well as to develop coordination in cases of critical loads on the muscles.

A possible scenario of power training involves applying several series of strokes with the fastest possible speed. In fact, it is a stroke that athletes use to break the pyramid. The purpose of the training is the peak load on the muscles.

When choosing a power training, you need to enter three parameters - the number of attempts, the number of strokes per attempt and the length of the autopause, which will let you regulate the rest periods and not be distracted by the management of the program during training.

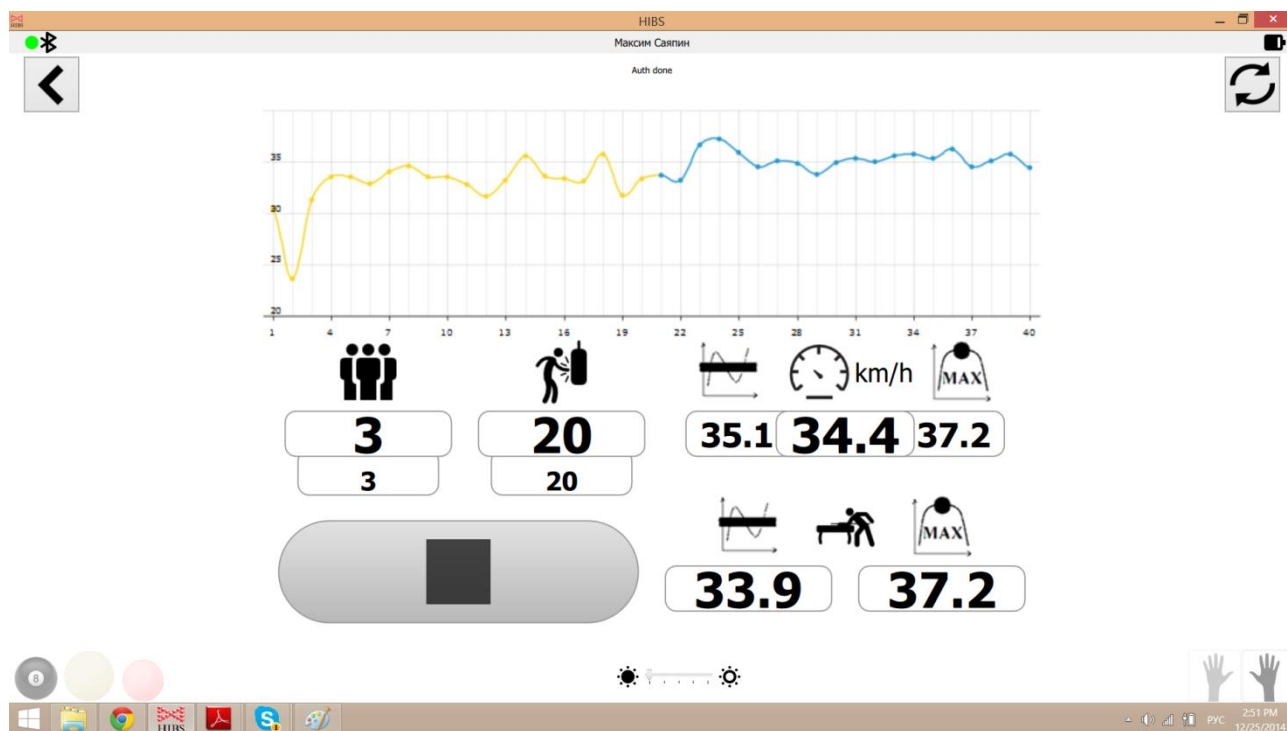


*An example of settings indication on a computer with OS Windows 8 before power training*

Click the button to start a training



After this, the screen will display the speed graph of the last two attempts, the number of attempts per set, the current attempt, the number of strokes per attempt, the order number of the current stroke in the attempt, the average speed in the attempt, the speed of the last stroke, the maximum speed in the attempt, the average speed of the training, the maximum speed of the training.




*An example of settings on a computer with OS Windows 8 during a power training*

The purpose of training is to give the maximum speed to the ball. Progress is monitored by comparing the quality of the graph (velocity dispersion), change in the average speed during training, the number of misses (a miss is a stroke with a speed less than 70% of the average speed), and the intensity of the exercise at different moments.

In power training, there is a sound indication with rising tone when there are 10 strokes left before the training finishes. After the final stroke of the training there is a bungle call sound. This principle of sound indication is applied in technical training as well.

Sound indicator provides information of the training, without distracting visual attention from the ball.

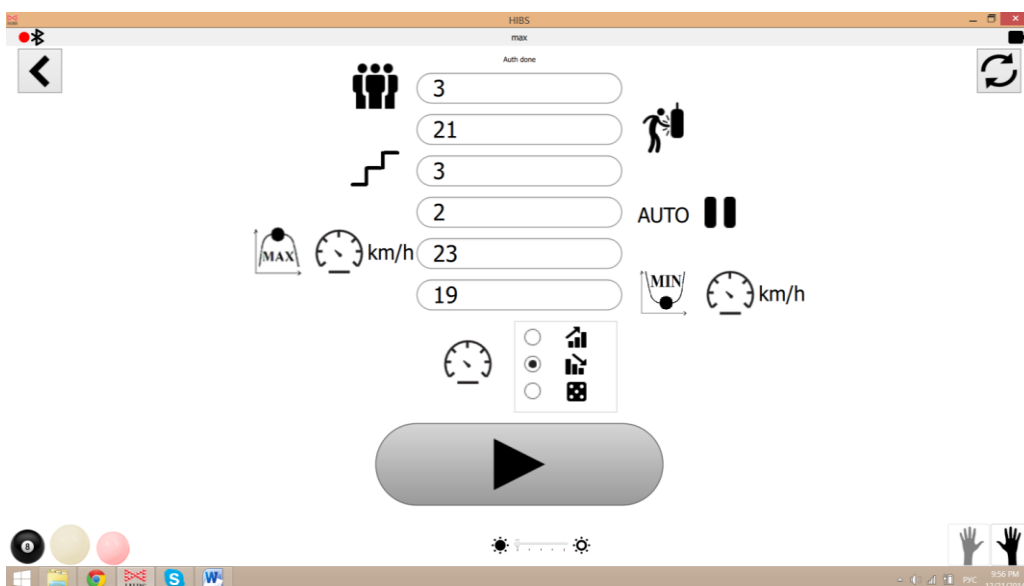
Between sets in power and technical trainings, there is a countdown of the auto pause, which is set by trainee. At the end of the auto pause, a special signal sounds. The countdown is regulated by the button  when clicked, auto pause is interrupted in manual mode.

## Technical training


This type of training is used to develop the ability of an athlete to perform strokes of a set speed. Technical training develops coordination in all power ranges of a stroke.

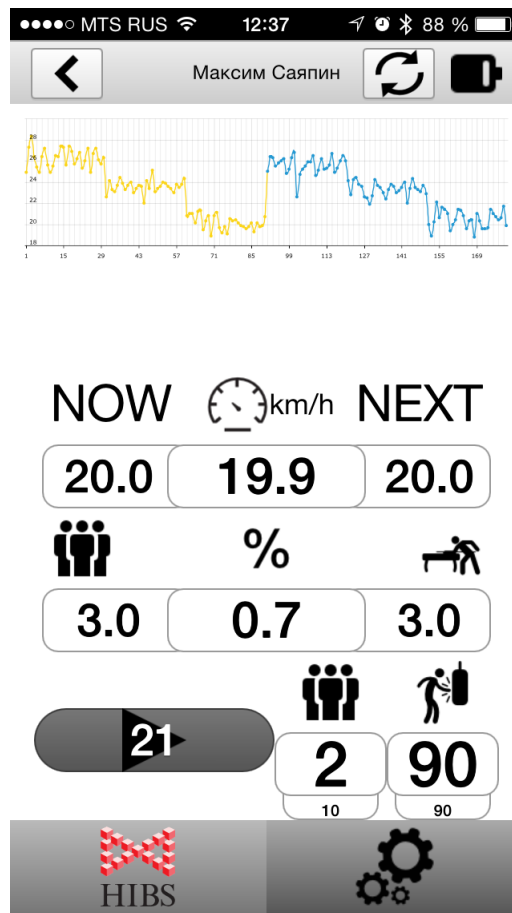
Before training an athlete enters the range of speed to be trained (minimum and maximum speed) and the number of trained rates in the range. For example, in the range from 15 km / h to 19 km / h with 3 rates, the strokes at the speed of 15, 17 and 19 km / h will be trained. The application divides the range into equal rates automatically.

The number of strokes per rate is also calculated automatically by dividing the number of strokes per attempt by the number of rates.

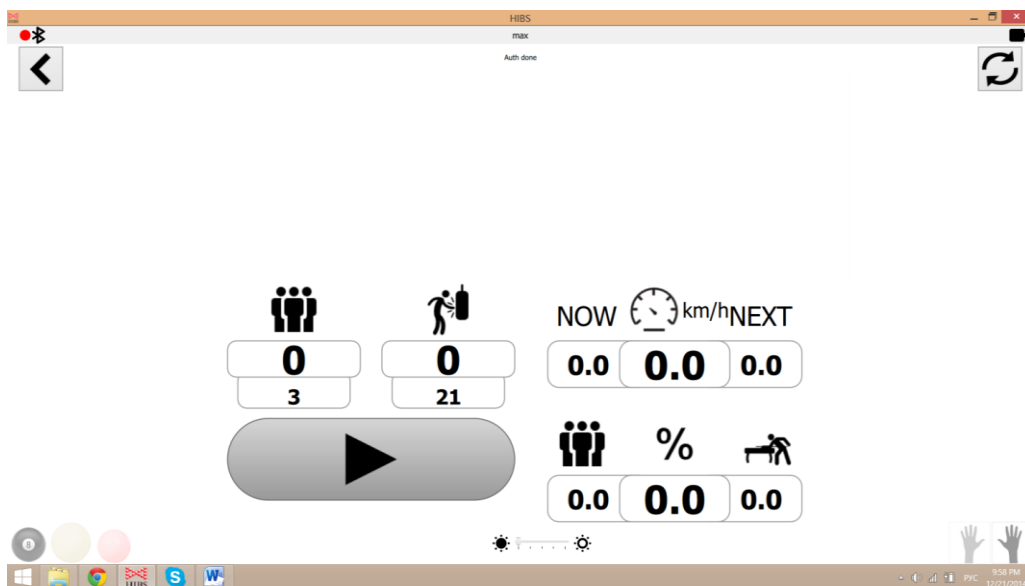


*An example of settings on a computer with OS Windows 8 before technical training*

To start a training click 



*An example of settings of a technical training on iPhone*



*A sample of settings on a computer with Windows 8 during technical training*



In the technical training the sound indication starts in five strokes before the end of the attempt, it's a special piano sound. The sound when attempt ends is similar to the power training's - it's s bungle call.

In all kinds of training the settings control and analysis of the results are made not only on a specific training, but also for a certain user-selected period of time.

After completing a task, the statistic data can be synchronized with the HIBS server on-line; for that you need to click the icon 

As the application HIBS stores the results of the recent training, in case of the absence of Internet connection, the synchronization with the server can be done later.

After training, you can turn HIBS off and close the application. If the training machine is not going to be used in the near future, it is recommended to disconnect the clamp and remove HIBS for permanent storage.

To save space, HIBS can be hung on the wall using the mounting holes specially designed for this.

## Updating the software of the electronic device of **HIBS**

HIBS electronic device is designed to record the reed switch response impulse, measuring the time between successive pulses and data transfer via USB and / or Bluetooth Low Energy protocol to the servicer - the host, which is a desktop computer, laptop or smartphone.

The device is powered by USB and by a Li-Pol battery with voltage from 3.7 to 4.2 V. The device connected by USB does not consume battery power.

To activate the device, press on / off switch on the front panel. To turn the device off press the same button once.

Holding the on / off button for 3 seconds turns the device to manual mode of software update. To turn the device back to the regular mode, hold the on / off button for 3 seconds as well.

On the front panel there is a button for adjusting the brightness of the light-emitting diodes. Pressing the button will set a maximum / minimum brightness and a long

press - to a gradual increase in brightness; it is proportional to the time of holding the button.

**Joint pressing the On / Off button and the brightness adjust button will lead to a hard reset and restart of the device.**

The device has several modes of operation, as well as it can have different states.

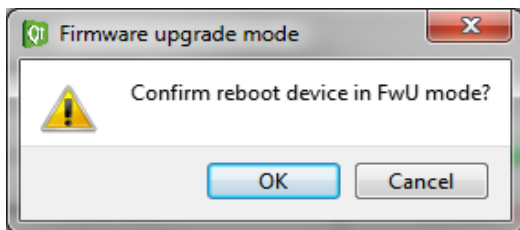
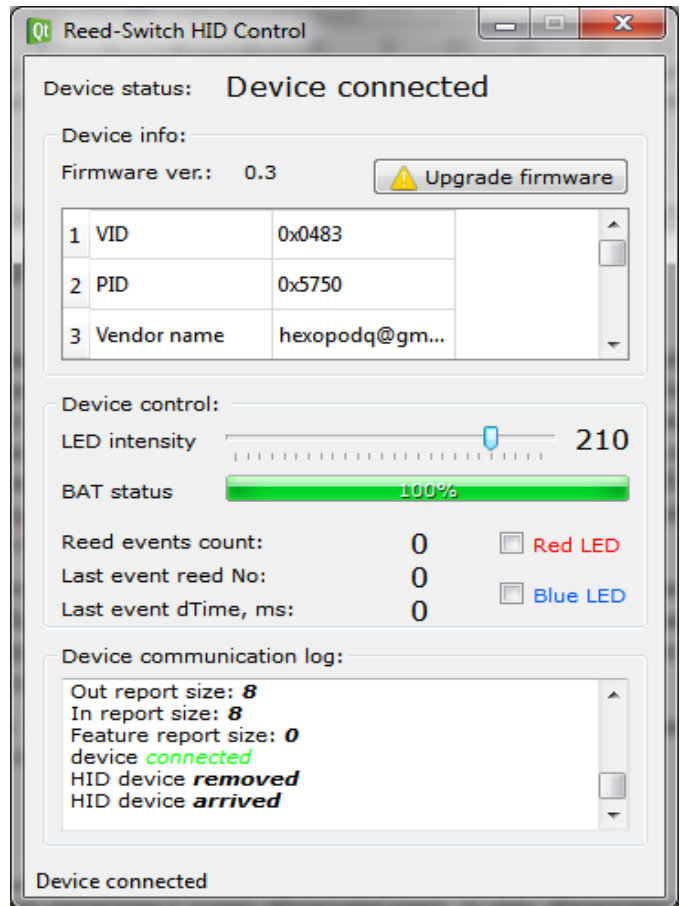
To display a specific mode or state, there is a status LED (status indicator) on the front panel, or debug LEDs on the PCB. If the unit does not receive commands for 30 seconds from the host or does not get pulses from the reed switch sensor, it goes to standby mode to save power. The recovery from standby mode happens automatically after the sensor gets a pulse, or when the host contacts to the device.

The user can monitor the status of the device due to different LEDs indicators. Debug LEDs are designed to service the device, which can be performed only by **HIBS** support specialists.

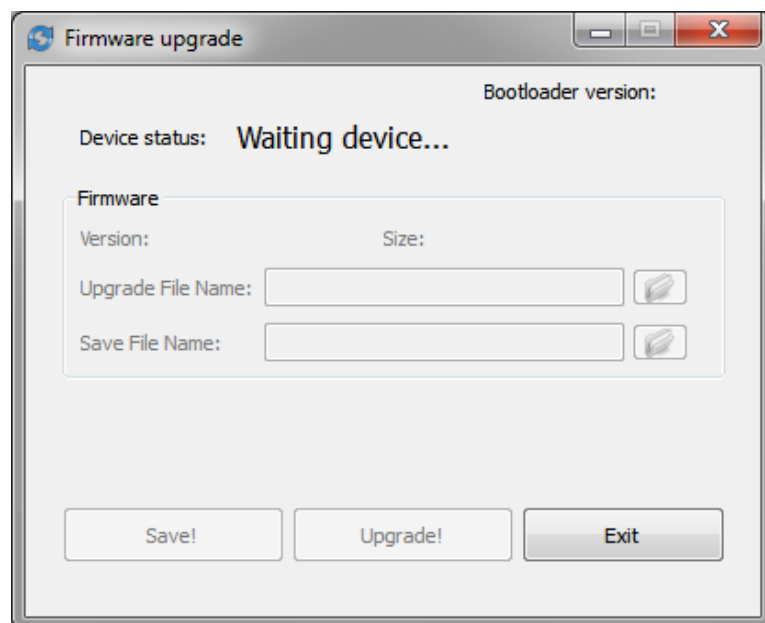
<b><i>Operating mode / status of the device</i></b>	<b><i>Indication of status LED</i></b>
Off	No indication
Off, connected to the charging device or USB host, battery is charging (100 mA)	Red color glow
On, regular mode	Green color glow
On, battery charging	Orange color glow
On, a pulse has been received	Green glow disappears for 20 milliseconds
Standby mode	Green color blinking
Standby mode, battery charging	Orange color blinking
On, software update mode, update waiting mode	Green color blinking, red debug LED is blinking

The electronic device supports updates via USB using the program HIBS HID Control. In the event of damage of the current software, the device goes to the update mode automatically. The user also can run the update manually by holding the ON / OFF for 3 seconds.

To update the soft, you need to connect the device to the USB-port of a computer running Windows and run the program **hibs-usb-hid.exe**. HIBS device will be detected automatically by the program, while in the program window "Device connected" message will appear, as well as the current soft version and device status parameters. To start the update, click the button "Upgrade firmwave".



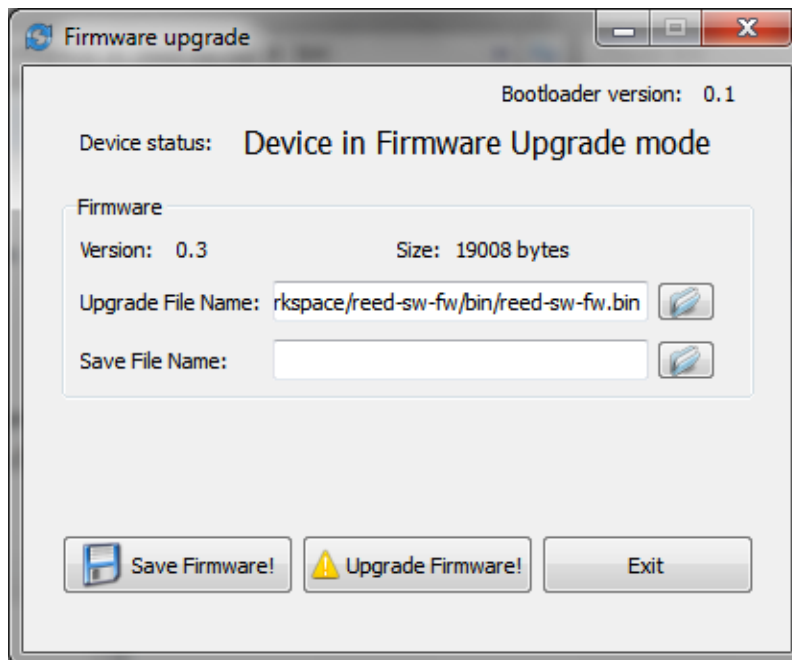
To run the device in the update mode you need to confirm the chosen step by clicking OK button in the dialog window. After that, there will be a firmware update window, and the device will be disconnected from the host.



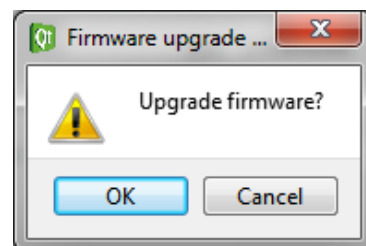
Then you should turn on the device using the on / off button, and then the operating system will detect a new USB HID device. Then you need to select the new firmware file by clicking the icon on the right from the field of file name.

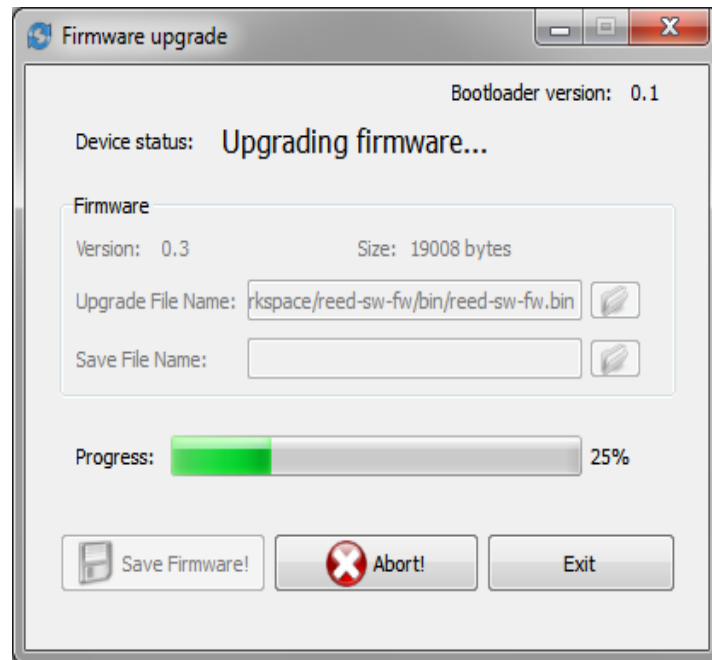


The file name will appear accordingly.



To start the update process, click Upgrade Firmware and confirm the action by clicking OK button in the dialog window. The load string completion will show the status of update.





Wait for the update process to be completed, and then exit the update by clicking Exit. The device will restart, and the program will find the updated device.

## Troubleshooting

In case of the following troubles:

- ✓ the status LED doesn't glow,
- ✓ the device doesn't react to the requests from host,
- ✓ **HIBS** doesn't send any information to the computer, or the information is shown incorrectly,
- ✓ Adjusting the LED brightness is out of order,
- ✓ The soft doesn't react to user's actions,

it is recommended to do the actions below:

- ✓ Turn off the device, then turn it on,
- ✓ If you use the battery check if it not low and working correctly,
- ✓ Simultaneously press the on / off and LED buttons,
- ✓ Check the presence of magnet in the magnet carrier,
- ✓ Make sure that the device doesn't react by LED blinking when the magnet goes upon the reed switch,
- ✓ Check if the USB port host works correctly,
- ✓ Check if the USB cable is in good order,
- ✓ Check if the computer, tablet or smartphone is in good order, restart if needed.

If you didn't succeed, be sure to contact HIBS support specialists.

## Technical specifications

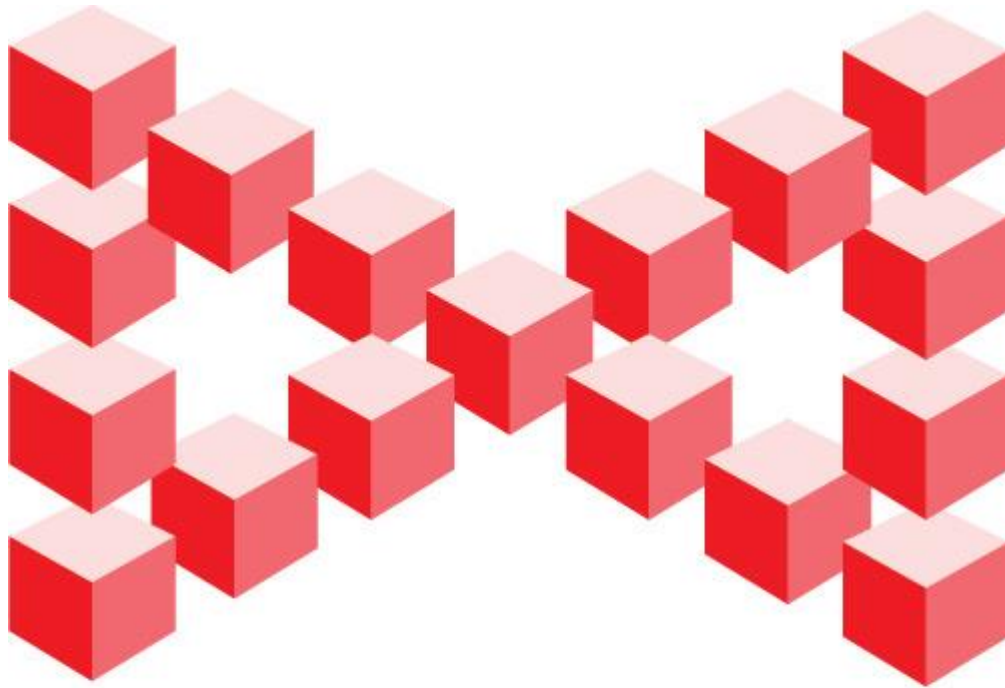
HIBS electronic device battery	USB host bus or li-polymer battery
Battery voltage	3,7 – 4,2 V
Current consumption	50 mA
Current consumption when charging the battery	450 mA
Size of HIBS: length, cm width, cm height, cm	
Weight when assembled, no more than	6,1 kg

## User's support

Technical and information support for HIBS users is carried out here: <http://hibs.pro>  
After registration, the user gets access to the site resources:

- ✓ Games meeting calendar ,
- ✓ Map for search for an interesting partner where you can esteem the achievements statistics,
- ✓ Training methods and exercises systems for developing the skills,
- ✓ Games and trainings statistics,
- ✓ Actual soft updates,
- ✓ **HIBS** soft for OS Windows, Mac, iOS and Android,
- ✓ Actual manuals,
- ✓ Written technical support.

With the tools and information support you can organize personal meetings, and arrange and organize your own trainings.



# HIBS

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