

Limited liability company LASERWAR

**‘LASERTAG CONFIGURATOR’
GAME PARAMETERS
CONFIGURATION PROGRAM
FOR LASER TAG EQUIPMENT
REFERENCE MANUAL**

SMOLENSK

NOTICES

This manual has been drafted for the independent study of the basics of game parameters configuration program for the *LASERTAG CONFIGURATOR* laser tag equipment. From this manual, you will learn how to create characters, select presets, do game parameters settings, send them to laser tag equipment and how to test the recorded parameters. Besides, the manual contains the information on forming statistic data, storing it, printing out and publishing in social networks.

The numerous pictures make the manual easy to understand not only for professionals, but even for beginning users.

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1 Introduction

This manual is intended for users involved in creating characters and presets, setting up game parameters, sending them to laser tag equipment, testing of recorded parameters and drafting the statistics.

It is suggested that the user is familiar with the operating systems WINDOWS Vista / 7 / 8 (8.1) / 10 and has the basic command of working with it. It is recommended that you familiarize yourself with this manual while the system is running. This way, you will learn how to operate LASERTAG CONFIGURATOR software (later referred to as Program) quicker.

The content of the pictures, examples, etc. included in the manual is assumed provisional unless otherwise stated and only serves to illustrate certain actions of the user.

2 Program objectives

The purpose of this program is setting up of game parameters of laser tag equipment. The program has a convenient interface and allows to use all the advantages of the latest versions of laser tag equipment. The programming process has now been made quicker by means of the presets of the tactical and technical characteristics of game settings and the process of sending them to laser tag equipment has been made faster. Game organizers can now create characters and presets and share them in advance, players can download them on their play sets.

The program includes the following function groups:

- creation and editing of game characters
- editing the existing presets and creation of new ones
- sending the chosen parameters to laser tag equipment
- testing the loaded game parameters immediately after configuration
- creation of game parameters for additional devices and sending them to laser tag equipment
- creating, saving and sharing of game statistics in social networks

The program of setting up game parameters has never been this easy. While designing the program, we followed this rule: the user must be able to get the most out of the functionality of the program, to change all the available game parameters and to configure the game set using the selection of presets within just a few seconds. The *LASERTAG CONFIGURATOR* game parameters configuration program has a number of advantages:

- spanking new interface
- one can set up all play sets and additional equipment using just one program
- improved settings menu
- program customization
- foreign languages support
- significantly increased speed of reading and processing of the parameters that are selected
- one can test the equipment immediately after data sending has been through
- comprehensive game statistics displaying players' achievements
- one can save game statistics and print out right from the program
- one can create an XML file and share in the Vkontakte social network
- supports various OC Windows versions, including the latest ones.

3 Conditions of operation and program contents

3.1 Hardware and software requirements

- Operating system Windows Vista, Windows 7 (x86, x64), Windows 8 (8.1), Windows 10
- Intel Pentium 3 processor 866 MHz or above
- Hard drive (the program takes up around 39 Mb of space)
- Screen resolution at least 1024 x 768
- NET Framework 4.5
- PDF file viewer for statistics creation

3.2 Software installation

LASERTAG CONFIGURATOR is easy to install. All that is required can be found in one installation file. Download the program from the [Software downloading](#) section of our website (http://laserwar.ru/index.php?do=static&page=soft_laserwar). Next, unzip the downloaded archive, launch the *LASERTAGSetup.exe* setup file and follow the installation wizard.

IMPORTANT! If NET.Framework 4.5 is not installed on the PC, internet connection will be required for the program installation. Then, NET.Framework 4.5 will be downloaded and installed automatically. If there is no internet connection, the program will not be installed.

Default program installation path: <System drive:\Program files\LASERWAR\>. Click on **Install** to start the process of installation.

Wait until the program has been installed. This will only take a few seconds.

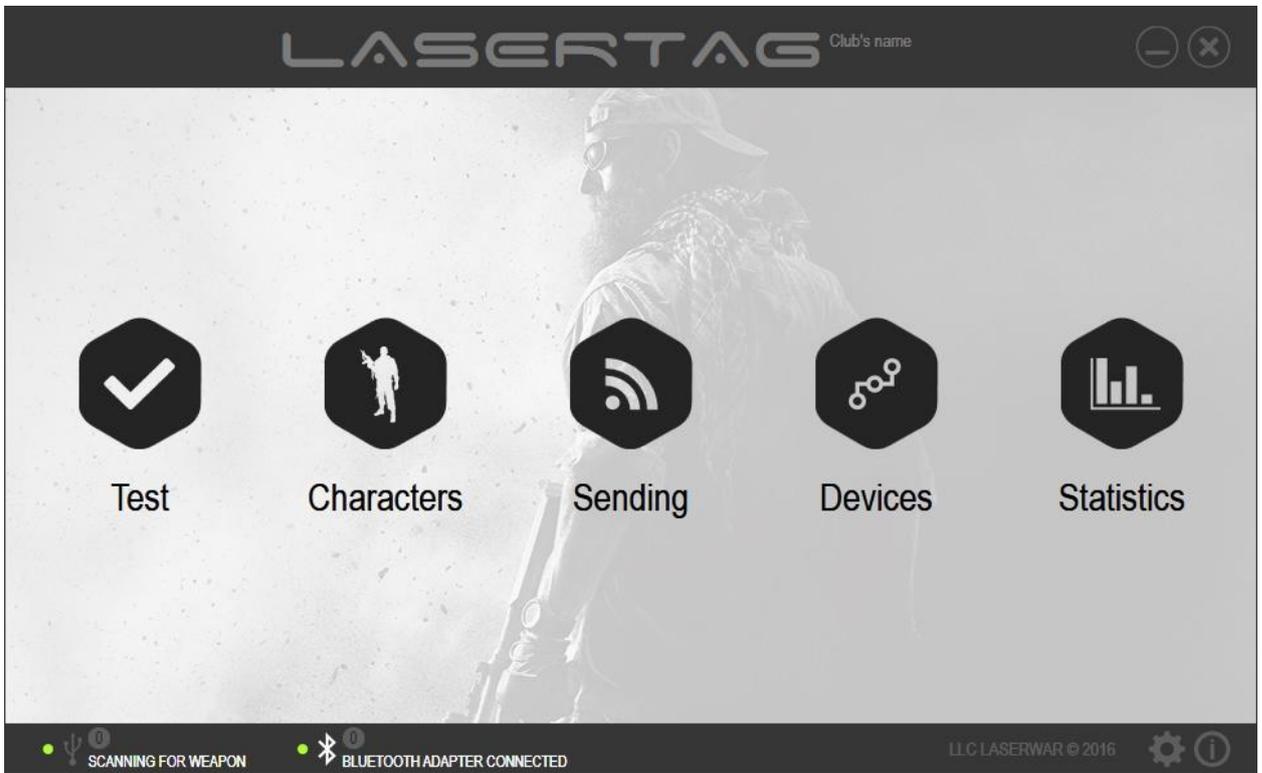
After the program has been installed, put a tick in the box next to **Launch the program** to launch software installation, or leave the box blank if you want to do it later. Click on **Finish**. The program will take up about 39 Mb of space on the hard drive.

3.3 Program launch

Launching of the *LASERTAG CONFIGURATOR* laser tag equipment game parameters configuration program is achieved by applying the standard means of the operating system. To do this, launch the *LASERTAG.exe* file or its shortcut, which is automatically created on the desktop after the installation has been completed. At that, the download screen will be displayed.

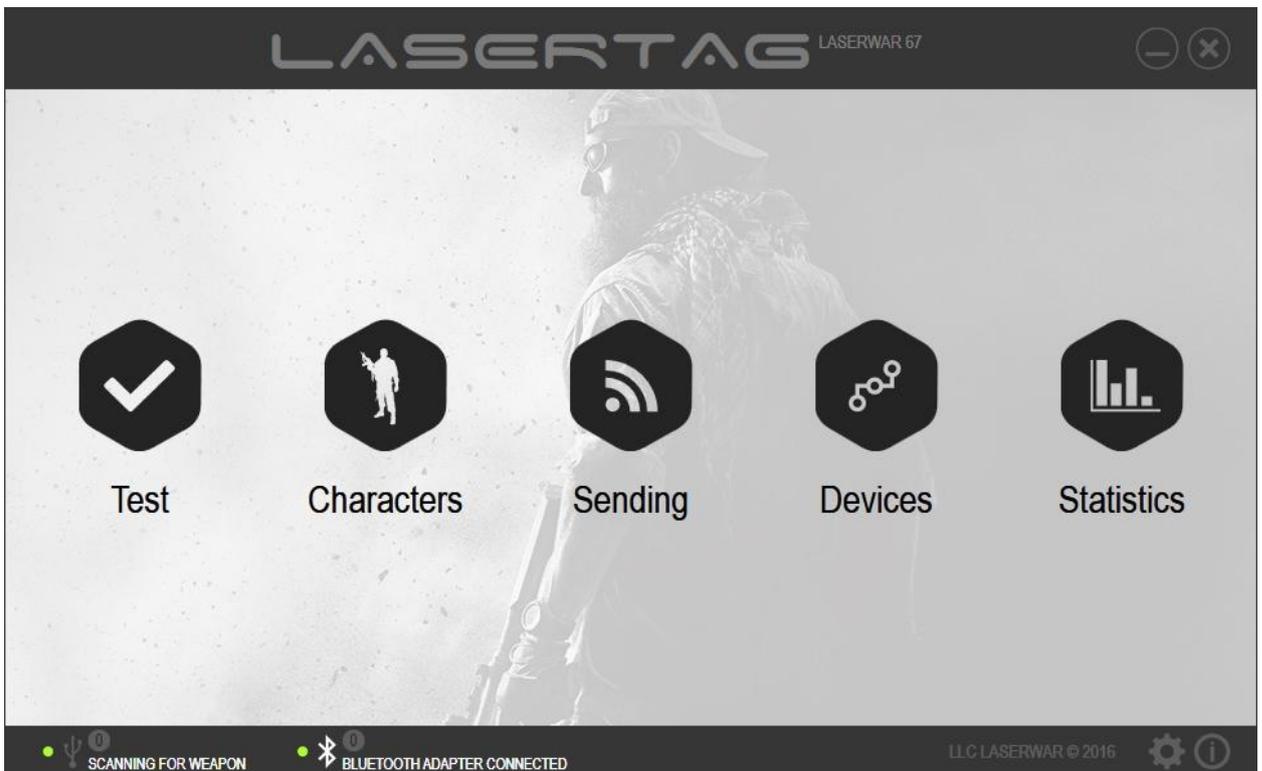
The download screen can be switched off in the settings menu (see paragraph 3.7), which allows to speed up program launch.

The main program window can be viewed in picture 1.



Picture 1

You can customize the interface by adding the name of a club or an event, as shown in picture 2. The details that are entered will be displayed at the top of each window and in the statistics.



Picture 2

Detailed information on how you can change the name of a club or an event is given in paragraph 3.7.

3.4 Program contents

The following program units can be found at the centre of the main window (picture 2) of the program (the guidance on working with the program units is given in paragraph 4):

1. Test unit – testing the configured equipment (more information about this is given in paragraph 4.1)
2. Characters unit – creating, changing or deleting game characters for equipment v.8 (more information about this is given in paragraph 4.2)
3. Sending unit – reading the configured settings on the running equipment, as well as sending the configured presets and additional parameters to the equipment, starting from team colour and ending with player's identification (more information about this is given in paragraph 4.3)
4. Devices unit – configuring the parameters of additional equipment, such as a Hostage play set or an underbarrel grenade launcher (more information about this is given in paragraph 4.4)
5. Statistics unit – viewing game statistics, printing it out and publishing in a social network (more information about this is given in paragraph 4.5)

To start working with any of the abovementioned units, click on the relevant icon.

To close the section and return to the main window of the program, click on **Back** at the top of the window.

At the bottom of the main window of the program there is the information section and a section on setting up game parameters (more information on configuration is given in paragraph 3.9).

3.5 Laser tag equipment compatibility

The program can be used on the following laser tag equipment sets:

- Wired sets, starting from firmware version 4.77 of 21.09.2011
- Wireless sets, starting from firmware version 4.084 of 01.11.2013

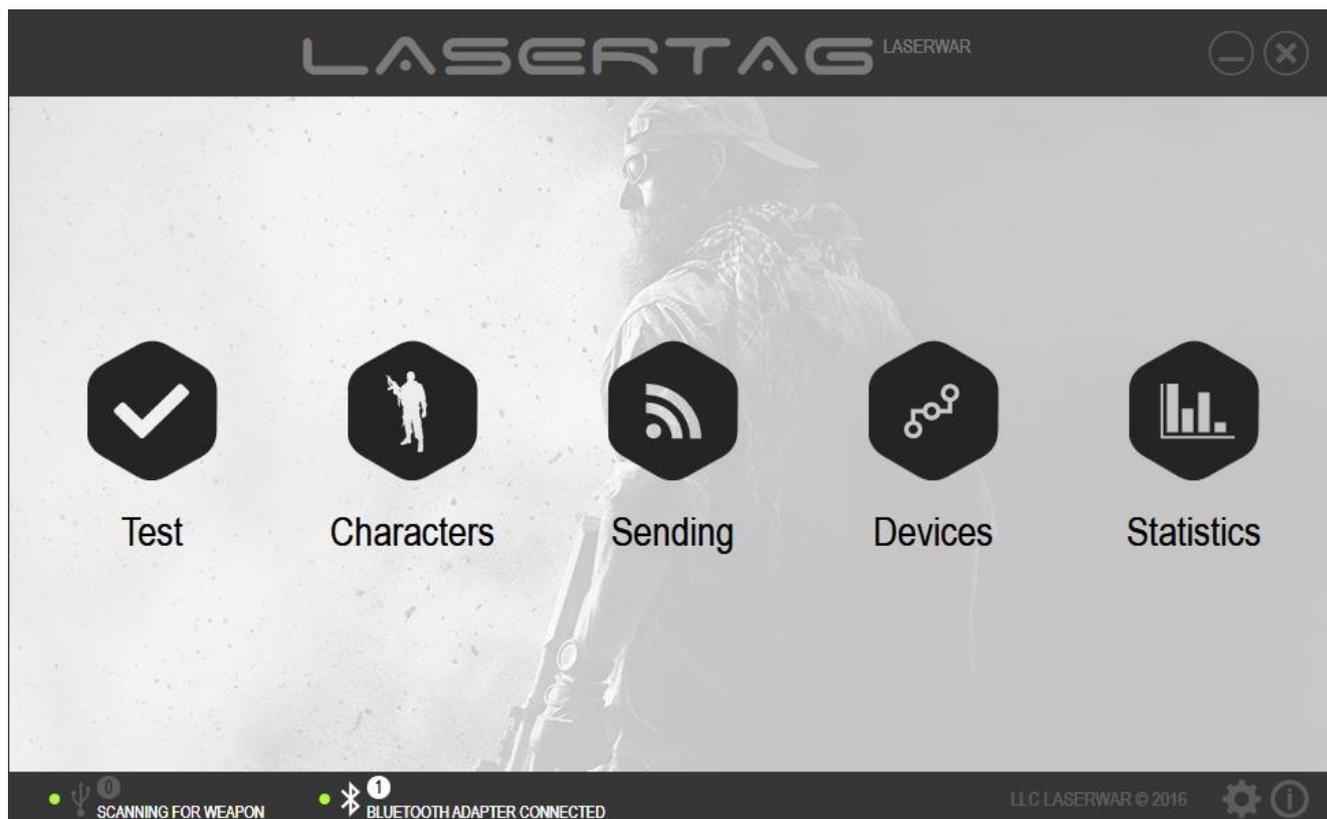
as well as on the additional equipment:

- Command point
- Smart first aid kit 2.0
- Medic v.5
- The Dome armour disruption system
- Artefacts
- Universal remote
- PRO remote
- Hostage play set v.5
- Vest/ Helmet
- Underbarrel grenade launcher

3.6 Connecting laser tag equipment v. 4-7

Before one can start working with the program sections, one must connect a USB base to a PC or a laptop (this device is used for receiving data from laser tag equipment by means of an infrared ray).

A USB base is installed automatically during program installation (more details in paragraph 3.2). When the base is being connected for the first time, OC Windows will automatically find and install the required driver. At the end of the process of installation, the colour of the USB base indicator will change to green. As the USB base is getting connected, the message next to the USB icon at the bottom of the program window will change from “Searching for a USB base” to “Searching for devices” and a green indicator will light up (see picture 3).

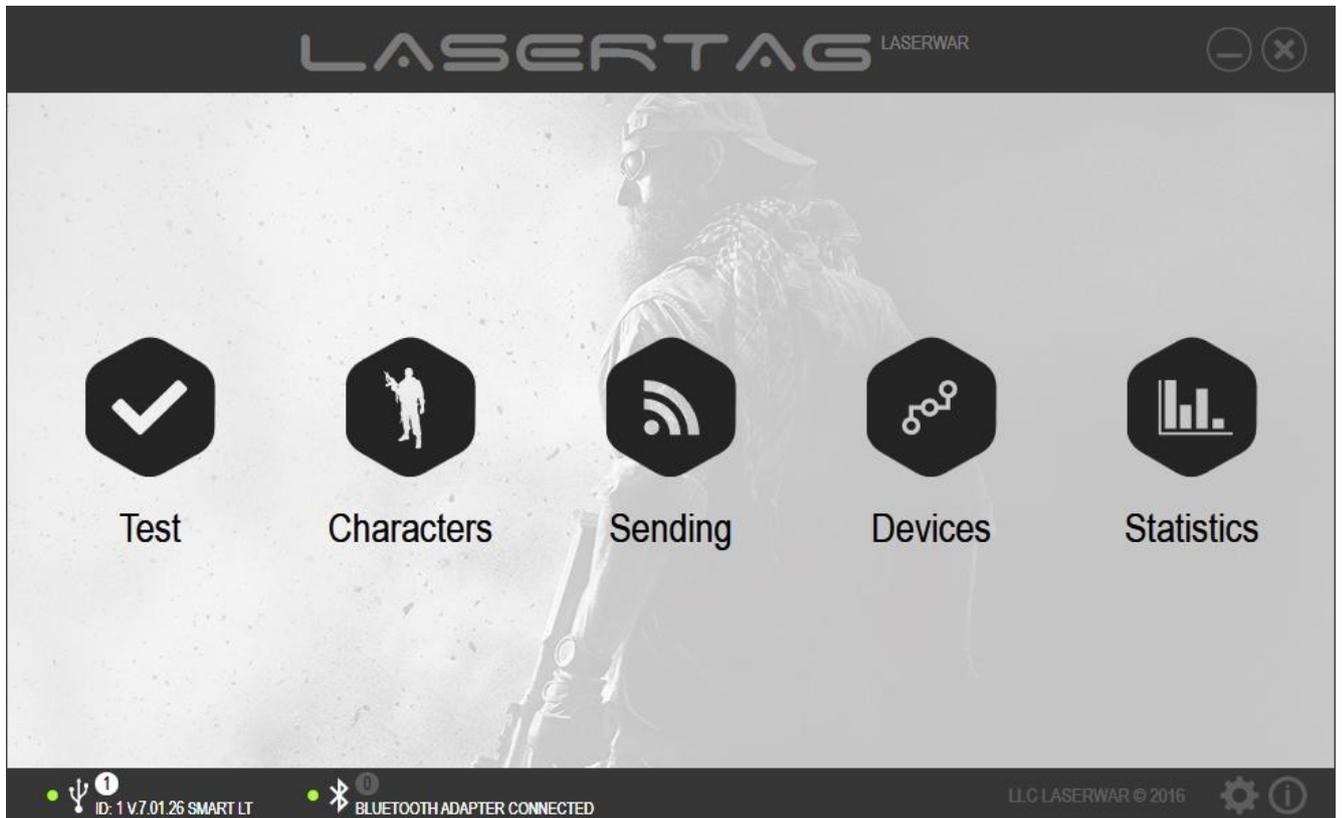


Picture 3

To launch equipment v. 4-7 in game mode, just turn on the play set. As you do this, you will hear the command *Accumulator passed testing*. After that, activate your headband. If the laser tag equipment has been turned on correctly, the headband LEDs start blinking.

To launch v. 4-7 play set in configuration mode, push and hold the reload button (closing the breech for firing) and turn the device on. The device will produce a special sound signal notifying of entering the configuration mode. Next, activate the headband and position the play set as shown in picture 10 (direct the gunpoint at the middle of the USB base, place the headband exactly in front of the USB base not further that 2 metres apart). If the play set has been connected correctly, the LEDs on the headband will start flashing.

If laser tag equipment has been connected to a PC by means of a USB base (in play mode or configuration mode), identificatory and the firmware version parameters will be displayed in the main window of the program next to the USB icon (as displayed in picture 4).

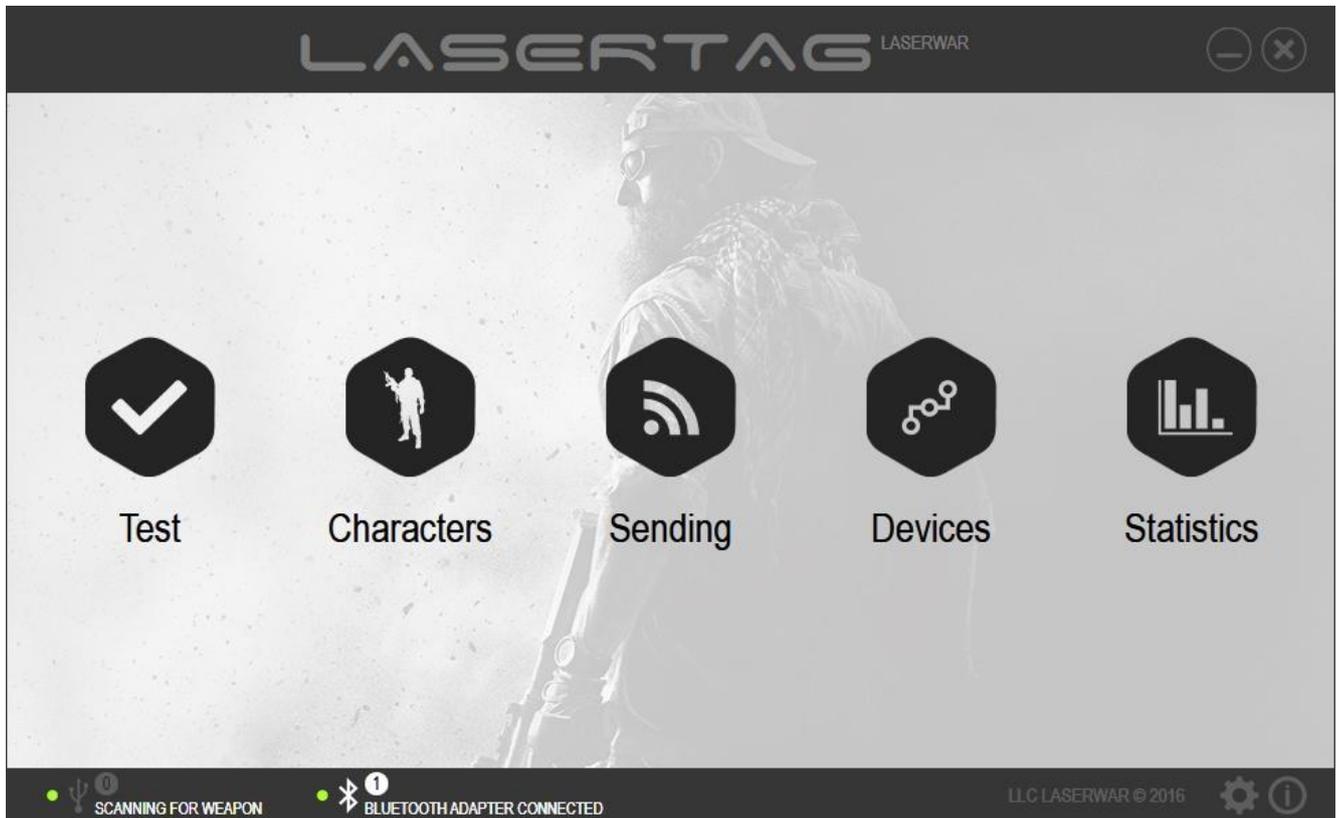


Picture 4

3.7 Connecting laser tag equipment v. 7-8

To launch v. 7-8 equipment in play mode, turn on the play set. At that, the equipment will produce a sound signal. Next, activate the headband. If the equipment has been activated correctly, the LEDs on the headband will start flashing.

To launch v. 7-8 equipment in configuration mode, connect a Bluetooth adapter to a PC, unless your PC or laptop has no built-in Bluetooth device (you will see the message “Bluetooth adapter has been connected”). Next, turn on the blaster – you should not turn on the headband though. You will hear the command *Configuration mode active*. An indicator with the number of connected play sets will be displayed at the bottom of the program window (as illustrated in picture 5).



Picture 5

The firmware of equipment v. 7-8 can be updated online (the directions are given in paragraph 3.9). To update the firmware, Boot mode must be selected. To do this, connect a Bluetooth adapter to a PC and turn on the blaster while pulling its trigger – no need to activate the headband. The rifle will not produce any sound – just the green LED notifying that the rifle is on will go on (on the rifles that are fitted with such). At that, an active equipment indicator will be displayed at the bottom of the window (picture 12).

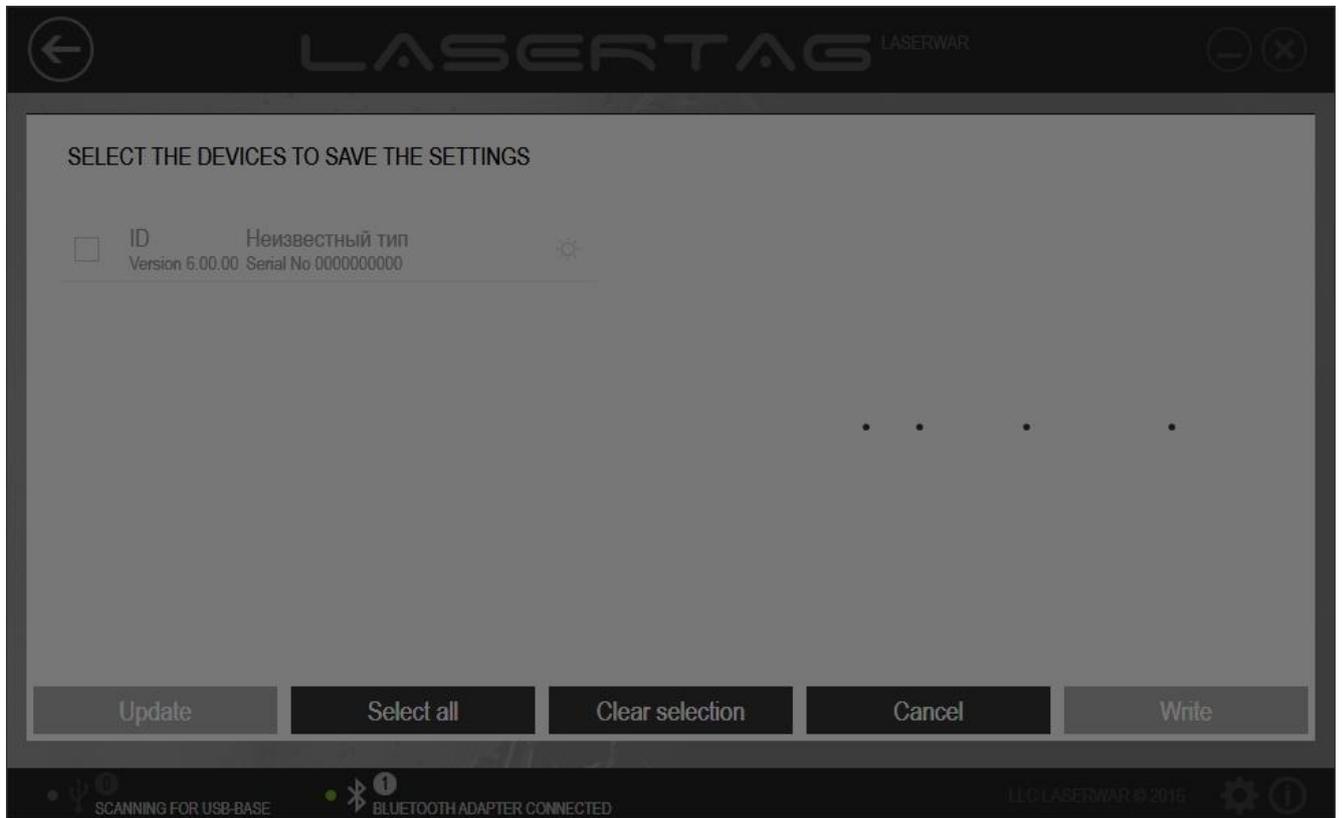
As you connect the equipment, you may need to enter a pin code. It is 1234 – same for all blasters.

3.8 Sending data to equipment v. 7-8

The program offers wide possibilities for setting up tactical and technical characteristics of the equipment. The settings can then be sent to play sets. For equipment v. 7-8, this can be done through *Characters*, *Sending*, *Settings* units. There are several points that must be considered while doing this.

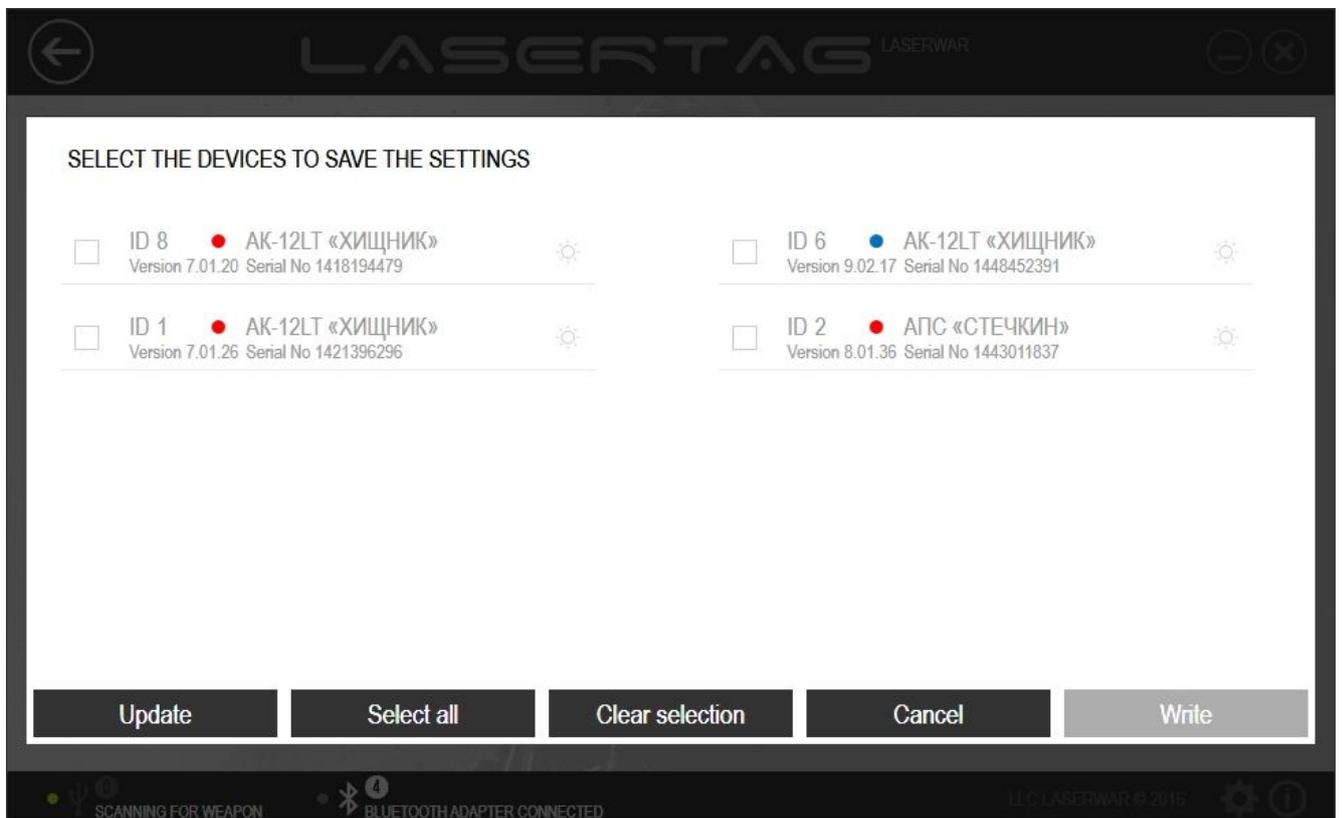
IMPORTANT! The special feature of v. 7-8 equipment configuration is the possibility to send parameters to several sets simultaneously. This can be achieved provided the parameters that need to be sent are identical.

To send data to the equipment, the Bluetooth adapter must be connected to a PC or laptop and configuration mode must be selected for the play set (see paragraph 3.7). Connected devices search menu will appear (picture 6).



Picture 6

It may take some time to search for active connections. All the play sets that are found will be displayed in the program window (see an example in picture 7).



Picture 7

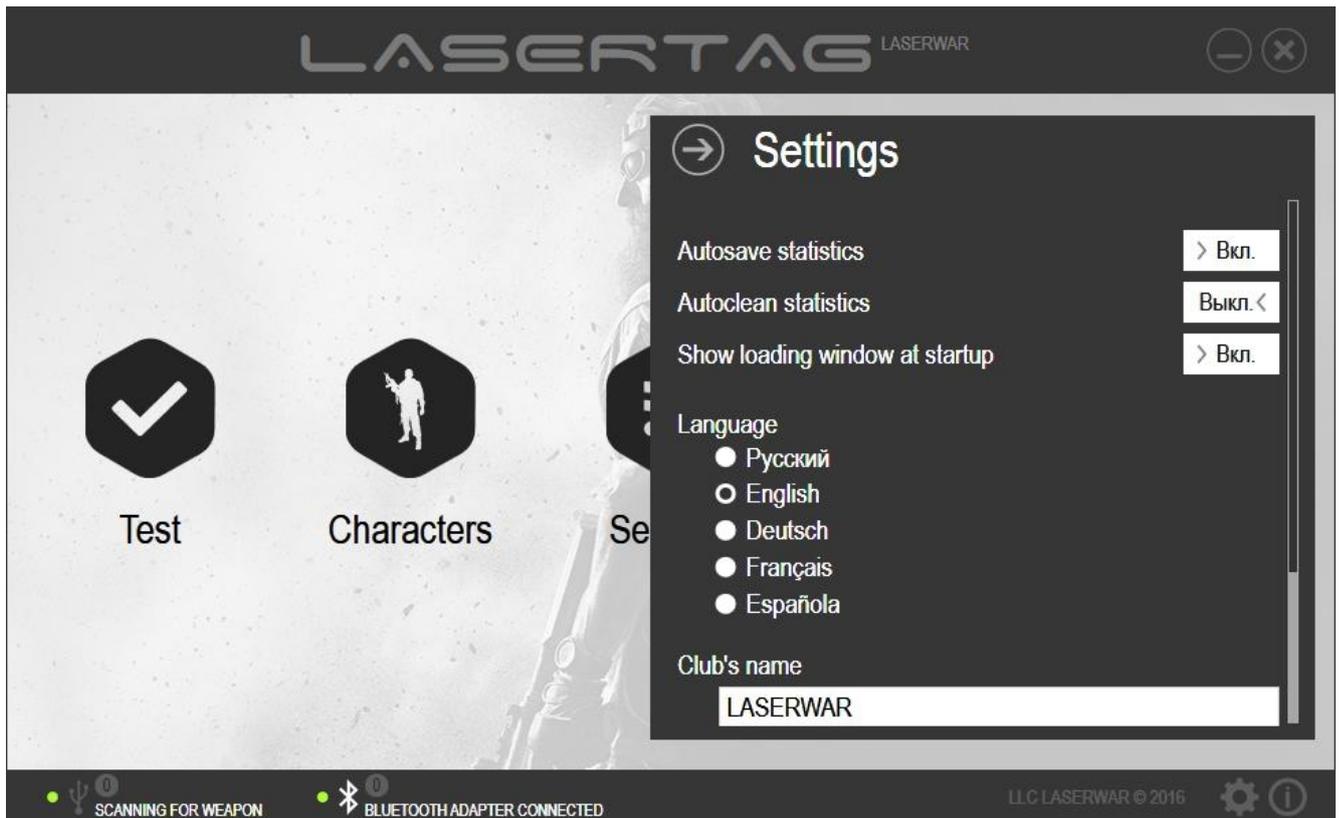
The list of the connected equipment will not be updated. To perform a new search for connected devices, click on **Update**.

Leave ticks in the boxes next to the play sets to which the data needs to be sent. To mark the connected sets, click on the sun icon. At that, the connected equipment will produce a sound signal. You can tick all the play sets by clicking on **Select all**, or untick all the play sets by selecting **Clear selection**.

Click on **Write** to send the data to the selected devices. Click on **Cancel** to cancel data sending.

3.9 Program setup

Program settings can be found in the menu, as shown in picture 8. To open the settings menu, click on **Set up**.



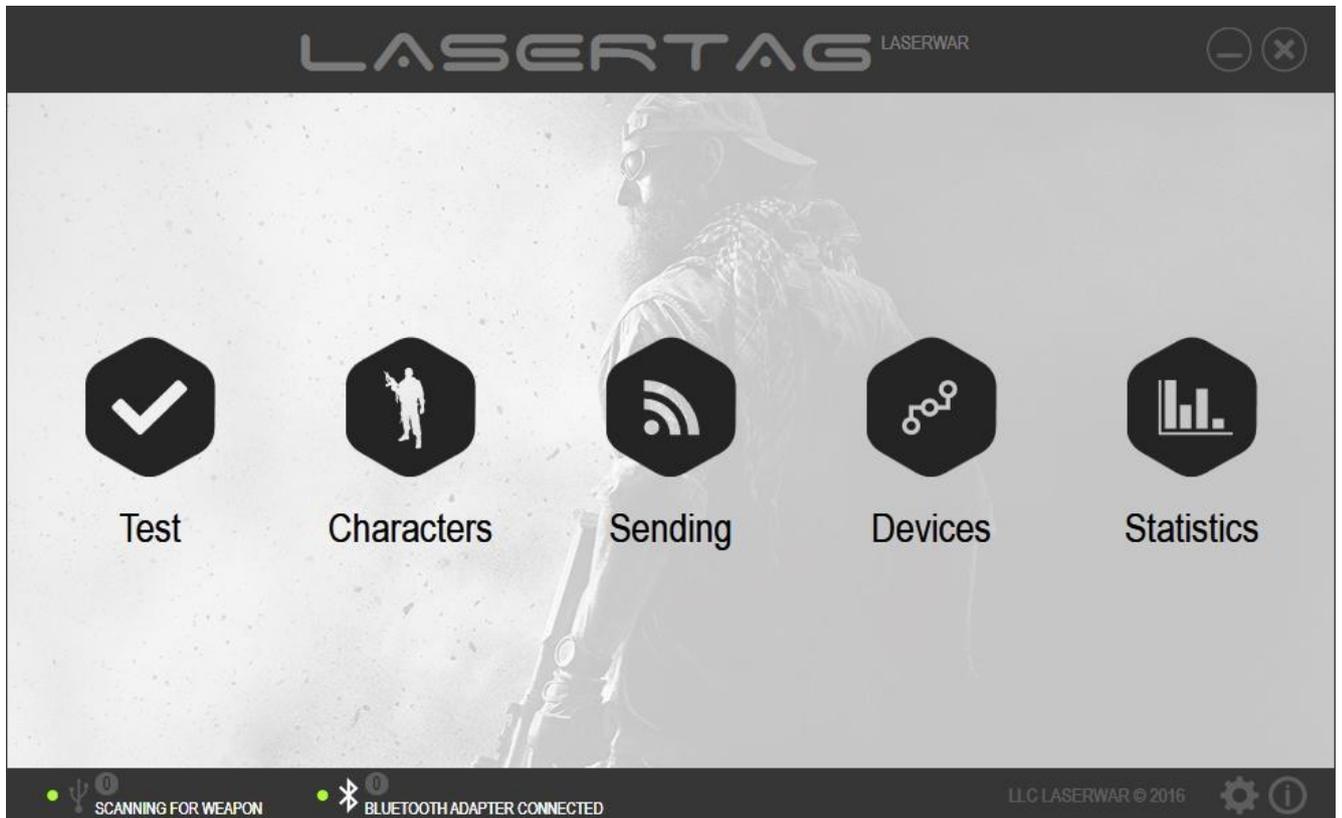
Picture 8

When the program is being launched, a loading screen will appear (picture 1). To cancel the appearance of this screen and proceed to the main window of the program (picture 2), select Off for the **Show loading window at startup**. This will speed up program launch.

As the game statistics of the equipment is being read, it is automatically saved on the computer for later use and can even be used after the program has been restarted. The statistics is saved as an xml file by default. The name of the file contains the date and time the statistics was being read. More details on this can be found in paragraph 4.5. To turn off the automatic saving of statistics, select Off for *Autosave statistics*.

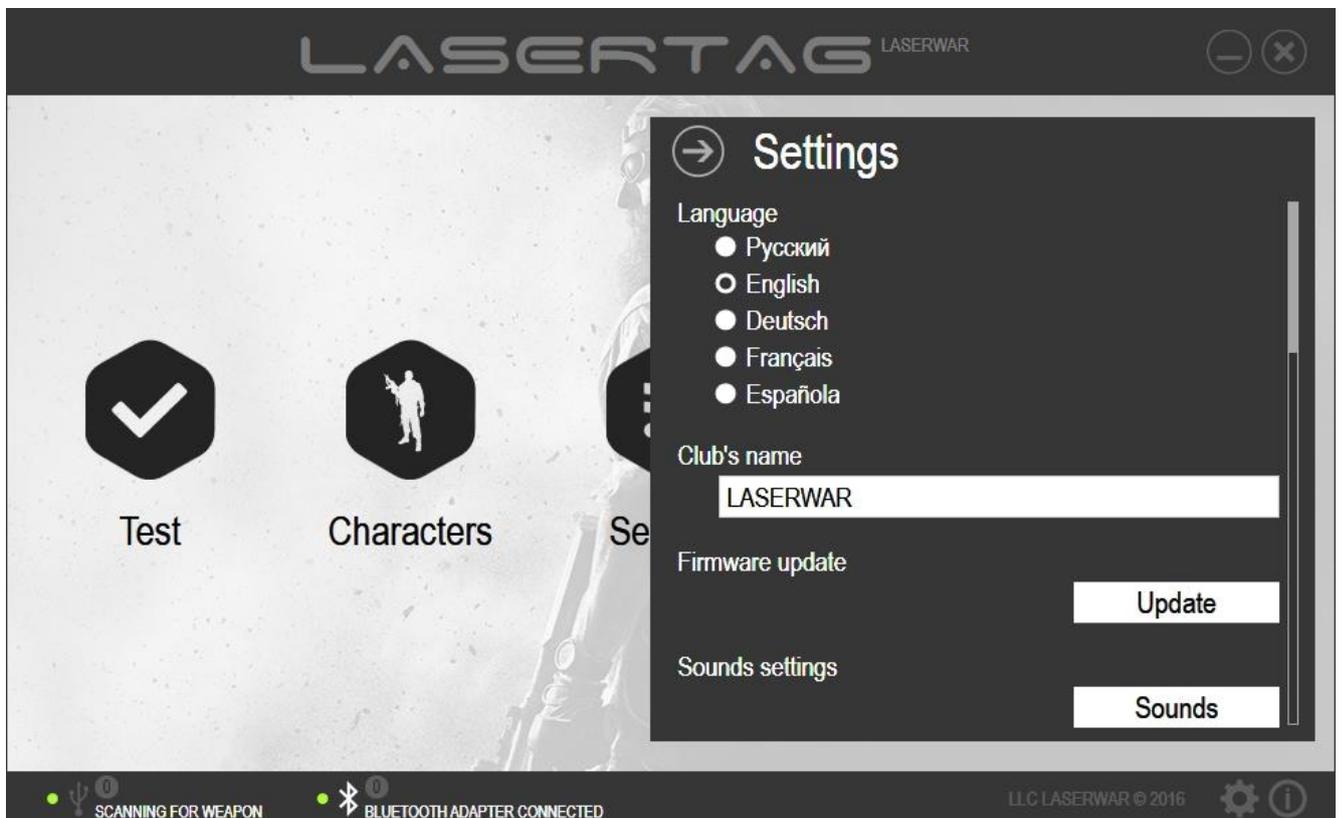
The game statistics that has been read will be automatically erased from the memory of the equipment. The *Autoclean statistics* option can be turned off whenever required. To do this, select Off for *Autoclean statistics*.

Select the **Language** for the interface (Russian, English, German, French or Spanish). See picture 9 for the main window of the program in the English language.



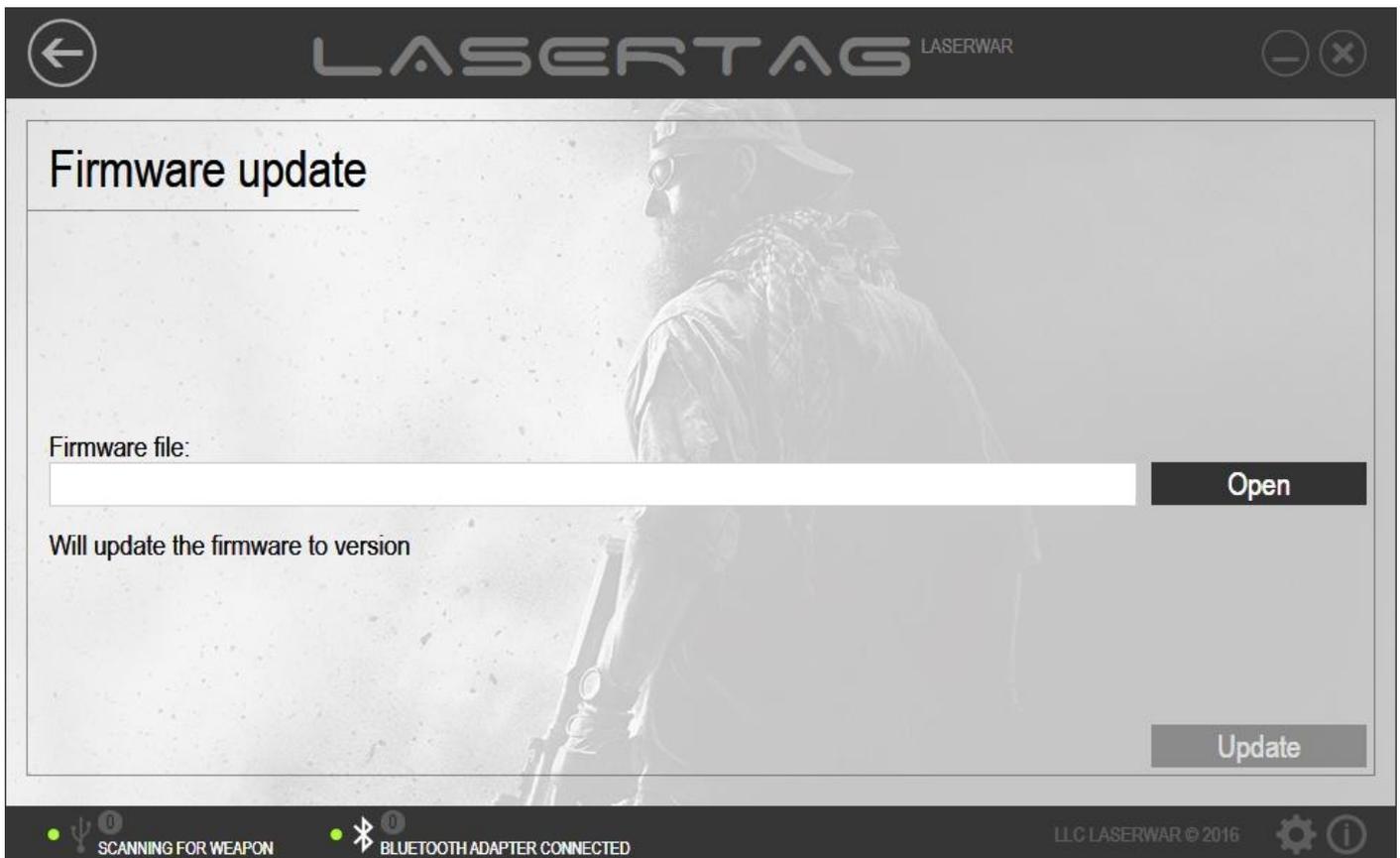
Picture 9

Under the **Club name**, enter the name of the event or the club. The entered data will be displayed at the top of the program window and in the statistics.



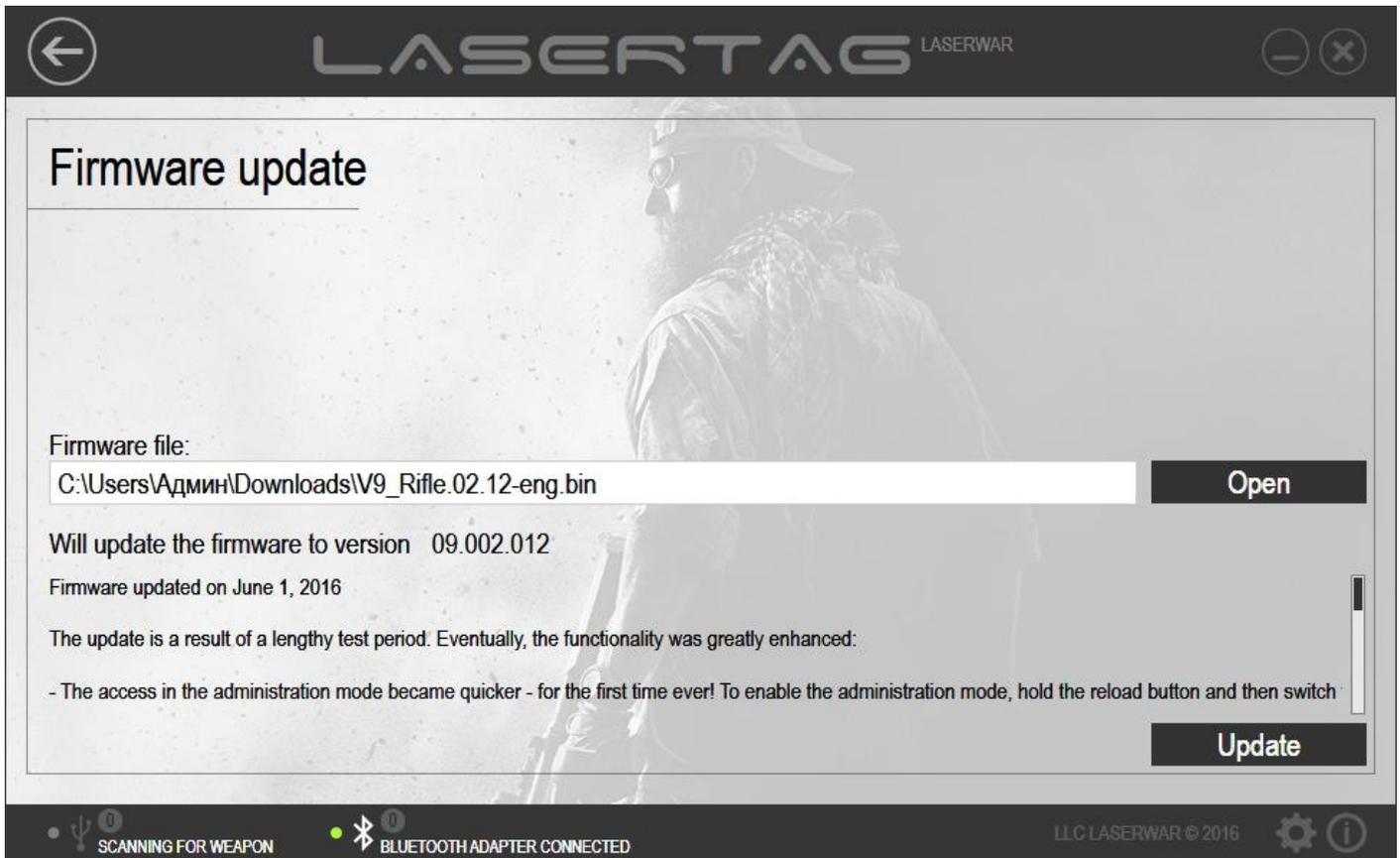
Picture 10

In the **Firmware update** (picture 10), you can update the firmware of the connected equipment v. 7-8. To do this, click on **Update** and a new window will appear through which you will be able to open a firmware file (picture 11).



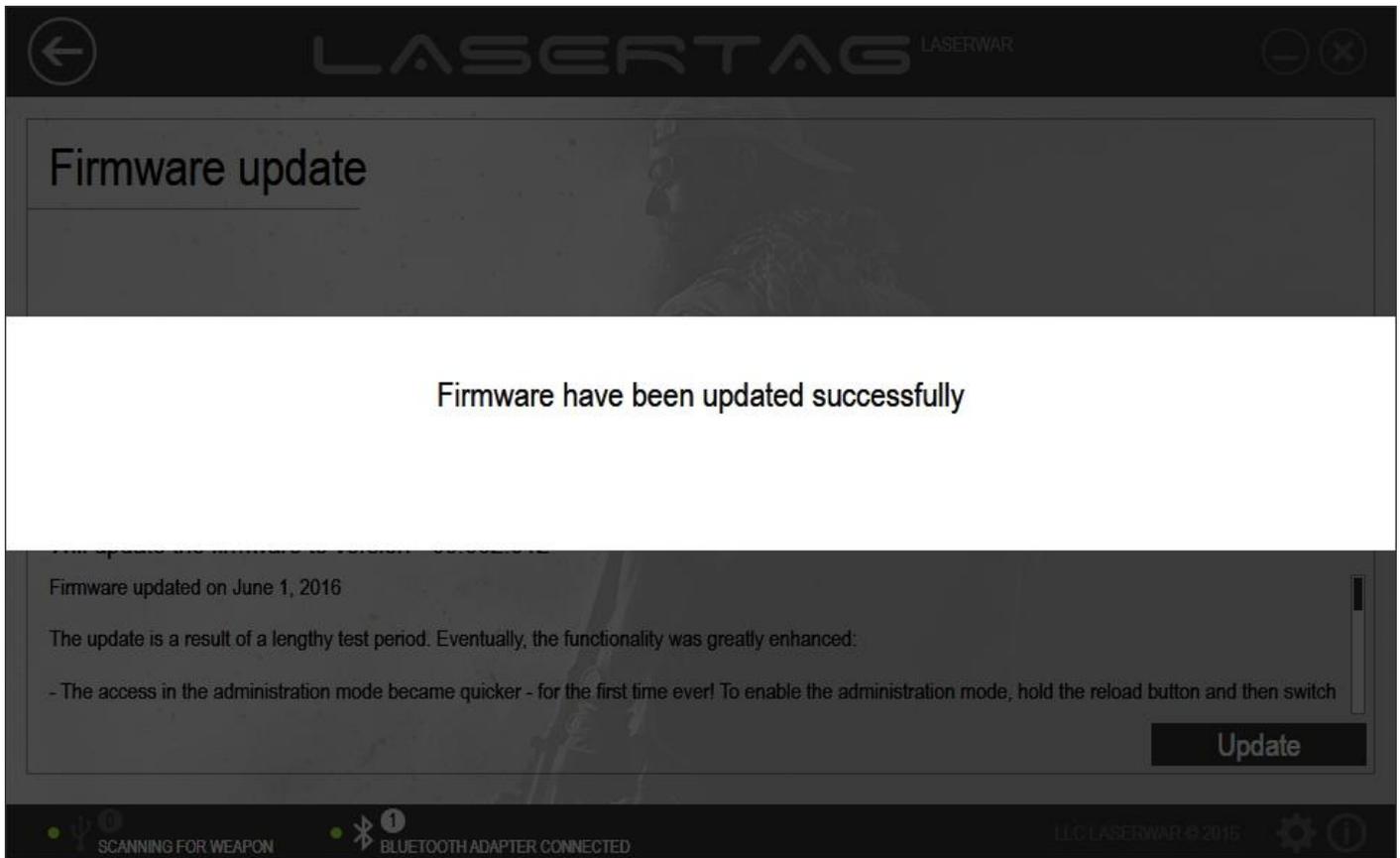
Picture 11

To update firmware, you first need to download its latest version from the [website](http://laserwar.ru/index.php?do=static&page=lw4_hsl) (http://laserwar.ru/index.php?do=static&page=lw4_hsl). The downloaded archive needs to be unzipped and .bin format of the firmware file needs to be located by clicking on **Open**.



Picture 12

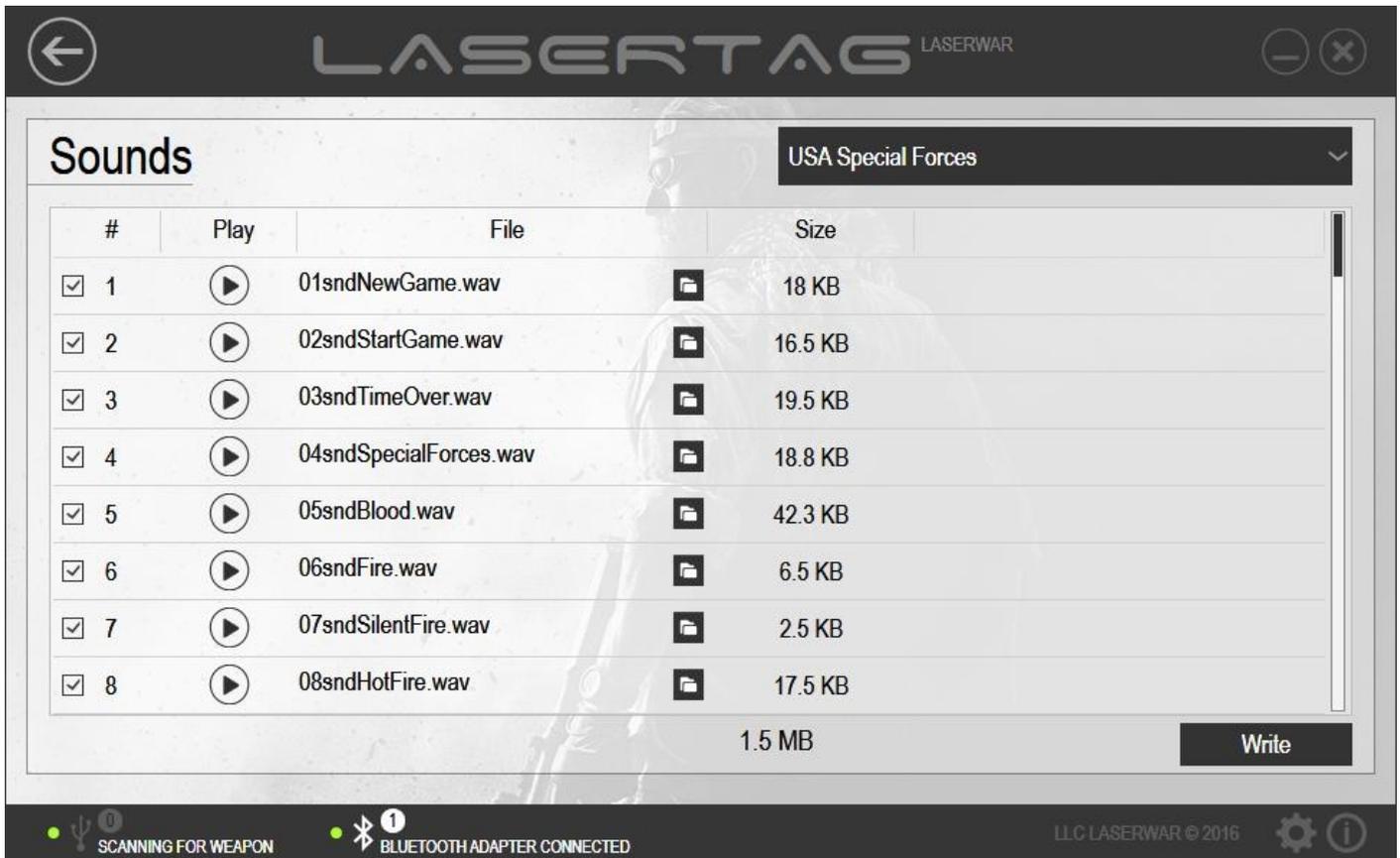
At that, at the centre of the window the information on the firmware will be displayed: its version and the main changes done to it. Launch the equipment in Boot mode (see paragraph 3.7), then click on **Update**. For a step-by-step guide on how to send data to the equipment, see paragraph 3.8. Click on **Send** and the firmware will be updated within a few seconds.



Picture 13

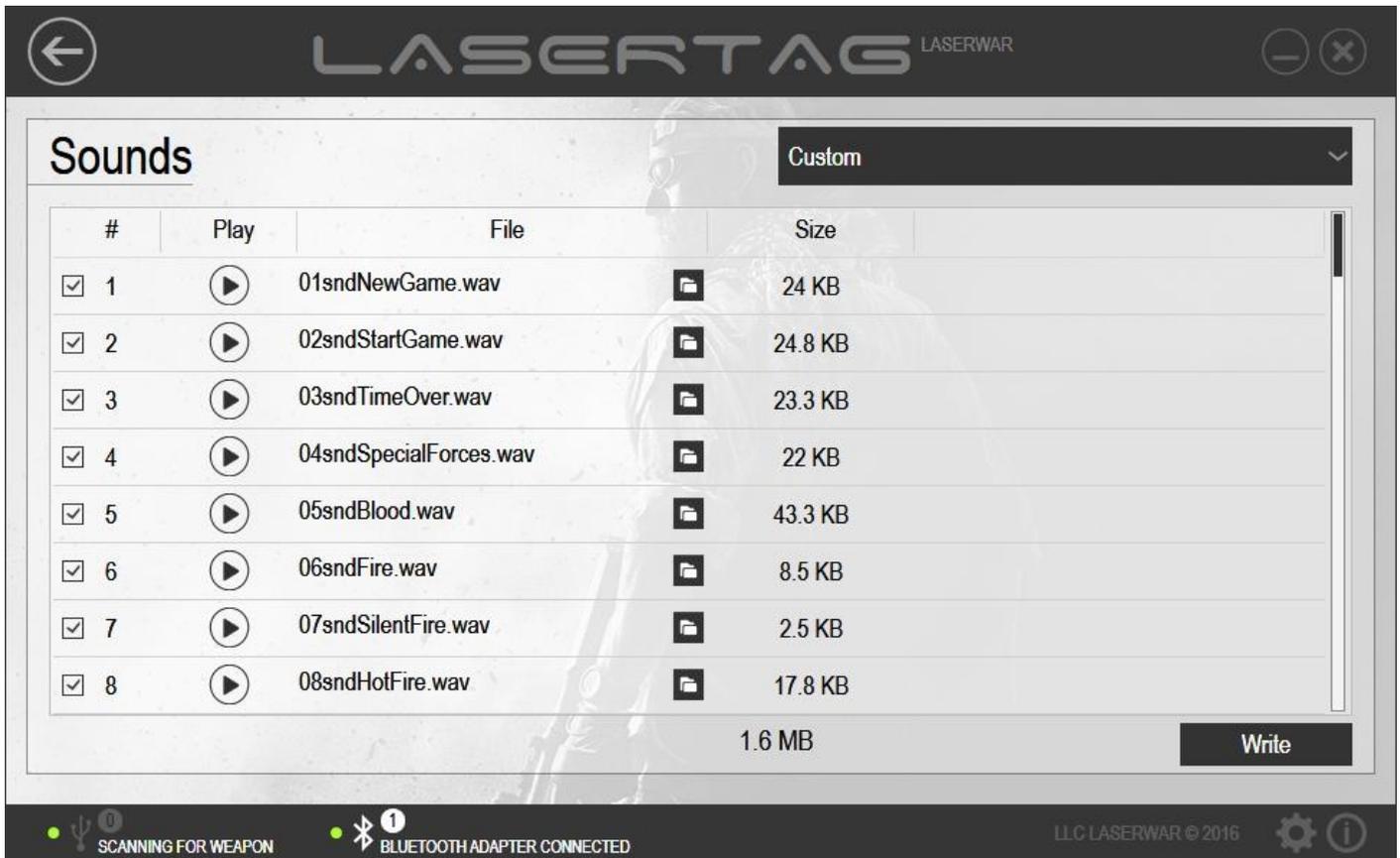
After that, the set will restart in its usual mode. If the equipment didn't restart automatically, do it manually: turn off the set and turn it on again. You need not pull the trigger while doing this. After the equipment has been restarted, it will be reset to the default factory settings. Therefore, the weapon type, game parameters (see paragraph 4.3) and characters (see paragraph 4.2) will need to be selected again.

There is an added option to customize standard sounds in laser tag equipment v. 8. To hear the sound arrangement of game events and update them, go to **Sounds settings** (picture 10). Click on **Sounds**. The following window will pop up.



Picture 14

Select the name of the preset from the field at the top of the **Sounds** window. The list of files of the selected preset will be displayed at the centre of the window. To find out to which type of event a particular sound is attached, mouse over it. Upon that, a pop-up window with the information about the type of event will appear on the screen. To listen to the sound, click on the Play icon next to its name. If a different file needs to be selected, click on the relevant icon next to it. In the window that appears, you need to locate a new wav file. The audio file must meet the following criteria: frequency – 11025 Hz, 8 bit, number of channels – 1 (mono), .wav format. If at least one track has been changed, the preset name will change to *Custom* (picture 15).



Picture 15

Having amended the list of sound files, click on **Write**. On doing that, the system will perform search for connected blasters. You will be required to select the ones that need to have their sound arrangement updated (detailed description of this process can be found in paragraph 3.8).

To close the **Settings** window and return to the main program window, click on **Back** at the top of the window.

4 Working with program units

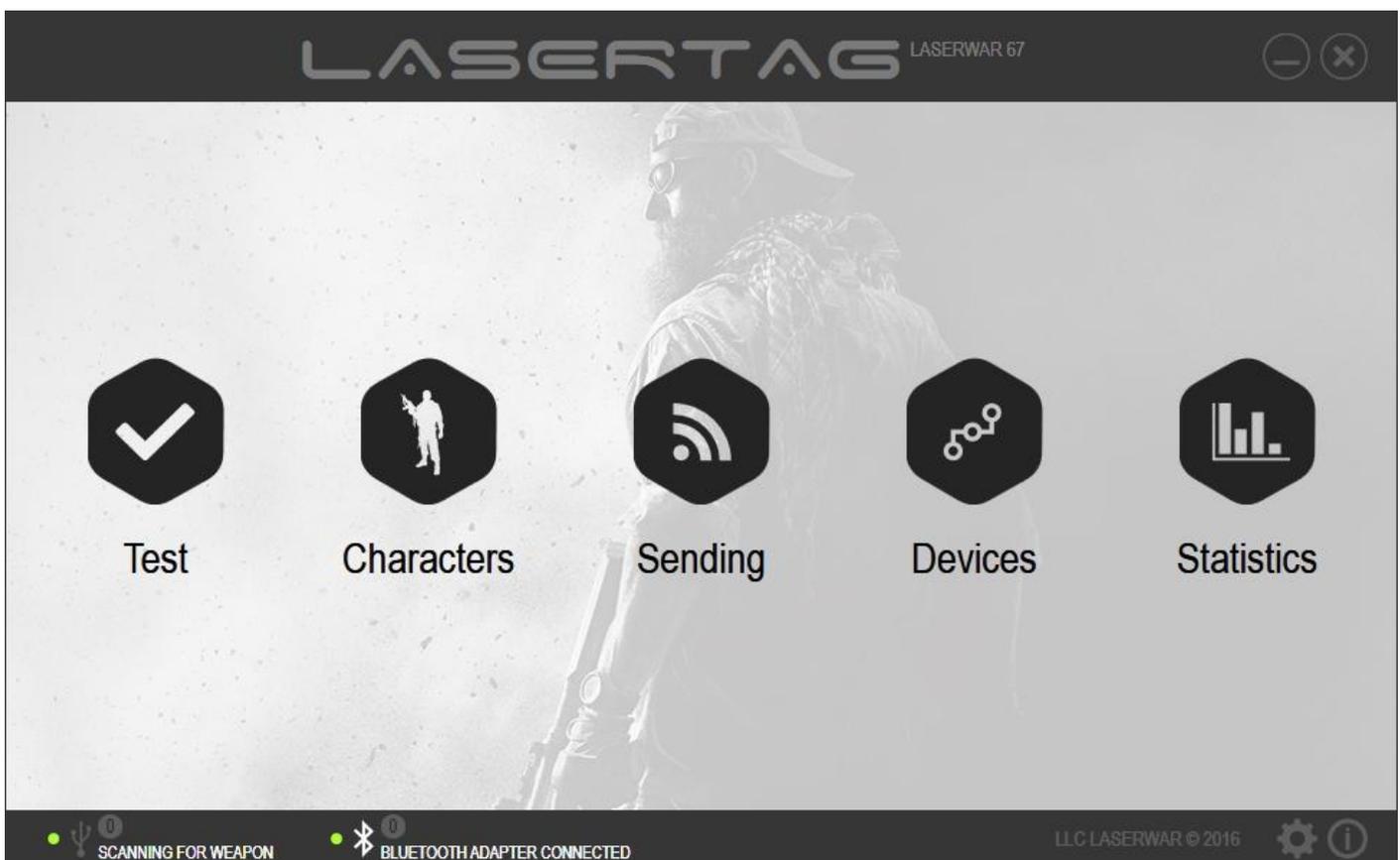
4.1 Test unit

The purpose of the Test unit is testing the configured laser tag equipment v. 4-8. In order to be able to work with this unit, you need to connect laser tag equipment in game mode using a USB base. More details on connecting the equipment v. 4-7 and on modes of operation are given in paragraph 3.6. The modes of operation of the equipment v. 7-8 are described in paragraph 3.7.

The Test unit imitates a remote used for laser tag equipment and has a number of test functions. For example, if one shoots one's blaster into a USB base, the play set identifier, team colour and amount of damage done to the equipment that is being tested will be displayed on the screen. These parameters are configured and recorded in the Sending unit in advance. More info on working with this unit can be found in paragraph 4.3. Besides, the Test unit can be used to select game settings for testing laser tag equipment.

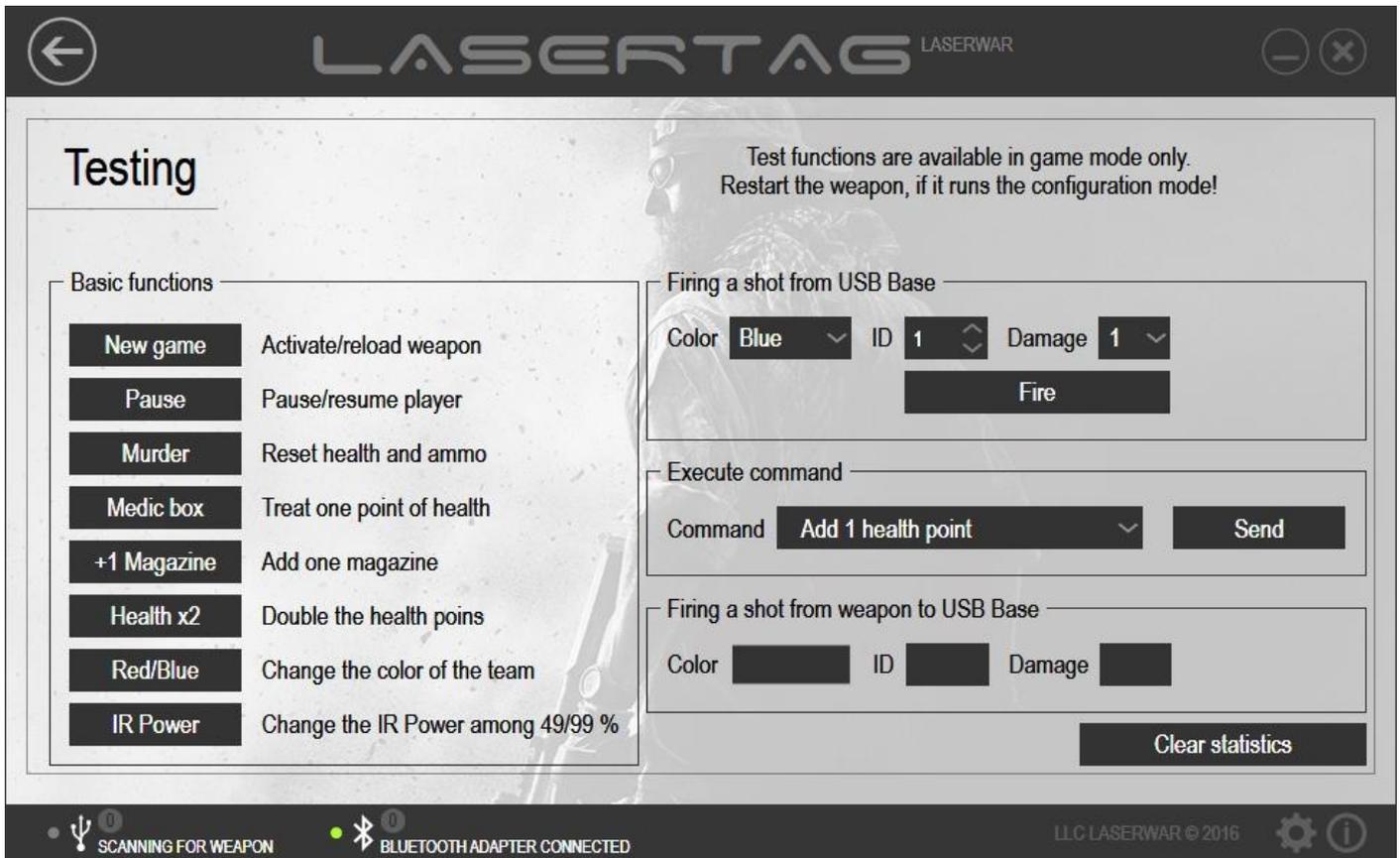
The Test unit can be used not only to test game parameters immediately after firmware has been installed on the equipment, but also for laser tag equipment maintenance. For example, this unit will help reveal an out of order infrared diode on equipment. When this happens, while shooting a USB base shot parameters will not be displayed on the screen of the play set.

In order to open the unit, click on **Test** at the centre of main window of the program (picture 16).



Picture 16

The main window of the unit is presented in picture 17.



Picture 17

To work with the Test unit, connect a USB base to a PC and launch laser tag equipment in play mode. After the USB base has been connected, unit functions become available for the user.

IMPORTANT! Test functions are only available in play mode. If the play set is in configuration mode, test functions cannot be used. In such a case, the play set will have to be restarted. One should not pull the trigger while doing that.

When working with the unit, the following parameters can be selected: firing a shot from a USB base (see paragraph 4.1.2), firing a shot from a weapon to a USB base (see paragraph 4.1.4), character parameters (see paragraph 4.1.3); and the main functions of a remote can be imitated (see paragraph 4.5). To **Clear statistics**, click on the relevant icon (picture 17).

4.1.1 Main remote functions section

The list of main test functions carried out by means of a remote is presented in the **Basic functions** section. To perform a test function, click on the relevant button.

- **New game** Click on New game to activate or restart a play set. Click on **New game** to perform test functions. Clicking on this icon is followed by light and vibro signals on the headband. At that, the play set produces readiness sound signal (for example, “Ready for a fight, commander”).
- **Pause** Click on this icon to place your play set on hold. To activate the play set again, click on the icon once again. Some test functions are not available when a play set is on hold (such as firing a shot from a USB base, firing a shot from a weapon to a USB base, Medic, +1 Magazine). Clicking on **Pause** is followed by light and vibro signals on the headband and by a sound signal produced by the play set.

- **Murder** Click on this icon to cancel all the health and armour values. Clicking on **Murder** is followed by a long light and vibro signal on the headband (the duration of the signal can be set up in the Sending unit, paragraph 4.3). The play set also produces a sound signal at the end of a game (*Killed in action! Return to the base!*). Upon that, test functions become unavailable. To restart the play set, click on **New game**.
- **Medic** Click on this icon to add another health unit. If not a single shot has been produced from the USB base from the start of the game (not even one health unit has been spent) or if the health units have been restored to the maximum, no actions will be performed upon clicking on **Medic**. If health units have been depleted, one health unit will be restored upon clicking on **Medic**. Upon that, the play set will produce a sound signal (Medic).
- **+1 Magazine** Click on this icon to add one magazine to your ammunition. If not a single shot has been produced from the play set to the USB base from the start of the game (not even one magazine has been spent) or if the ammunition has been restored to the maximum, no actions will be performed upon clicking on **+1 Magazine**. If shots have been produced from the play set and magazines have been depleted, one magazine will be restored upon clicking on **+1 Magazine**. Upon that, the play set will produce a sound signal (*Ammunition restored!*).
- **Health x 2** Click on that icon to double the original amount of health units. This action is followed by a sound signal produced by the play set.
- **Red / Blue** Click on this button to change the colour of the team. At the start of a new game, the colour of the team will not change to the one set in default settings. So, in order to change team colour to the original, click on **Red / Blue** once again. This process is followed by light and vibro indication on the headband and by a sound signal produced by the play set. To activate test functions after team colour has been changed, click on **New game**.
- **IR power** The selection determines firing distance. Click on this icon to change the IR power (49% / 99%). This action is followed by a sound signal produced by the play set. The intensity of the sound depends on the selection made.

4.1.2 Firing a shot from a USB Base section

The **Firing a shot from USB Base** section must be referred to for configuring USB base shot parameters as well as for firing a shot. The following parameters must be configured before firing a shot from a USB base:

- **Colour** Select team colour for a USB base from the following colours in a drop-down menu: Red, Blue, Yellow, Green. If the colour selected in this field and the team colour of the play set are same and Friendly fire mode is off (Friendly fire mode can be turned on or off in the Sending section, paragraph 4.3), no damage will be done when firing a shot from the USB base. If the colour selected in this field and the team colour of the play set are different or Friendly fire mode is on, the damage selected in the **Damage** field will be done when firing a shot from the USB base.
- **ID** Enter a numerical player's ID for a USB base using a keyboard or digital buttons. Select between 0 and 125. The ID can be used to collect statistics. The ID stated in this field and the play set ID must be different. If the IDs are same, the USB base and the play set will not be able to hit each other.
- **Damage** From a drop-down menu, select the damage done to health units when a shot is produced from a USB base. If team colour of the USB base, that has been

selected in the **Colour** field, and team colour of the play set are different and Friendly fire mode is off, no damage will be done when firing a shot from the USB base.

To fire a shot from a USB base, click on **Fire**. The shots will be produced according to the configured parameters.

4.1.3 Run a command section

The **Run a command** section can be used to test various commands on laser tag equipment. To do this, select a command from a drop-down menu and click on **Send**. The play set will produce a distinct sound.

4.1.4 Fire a shot from weapon to USB Base section

The **Fire a shot from weapon to USB Base** section is composed of a number of information fields displaying parameters of shots fired from a play set to a USB base.

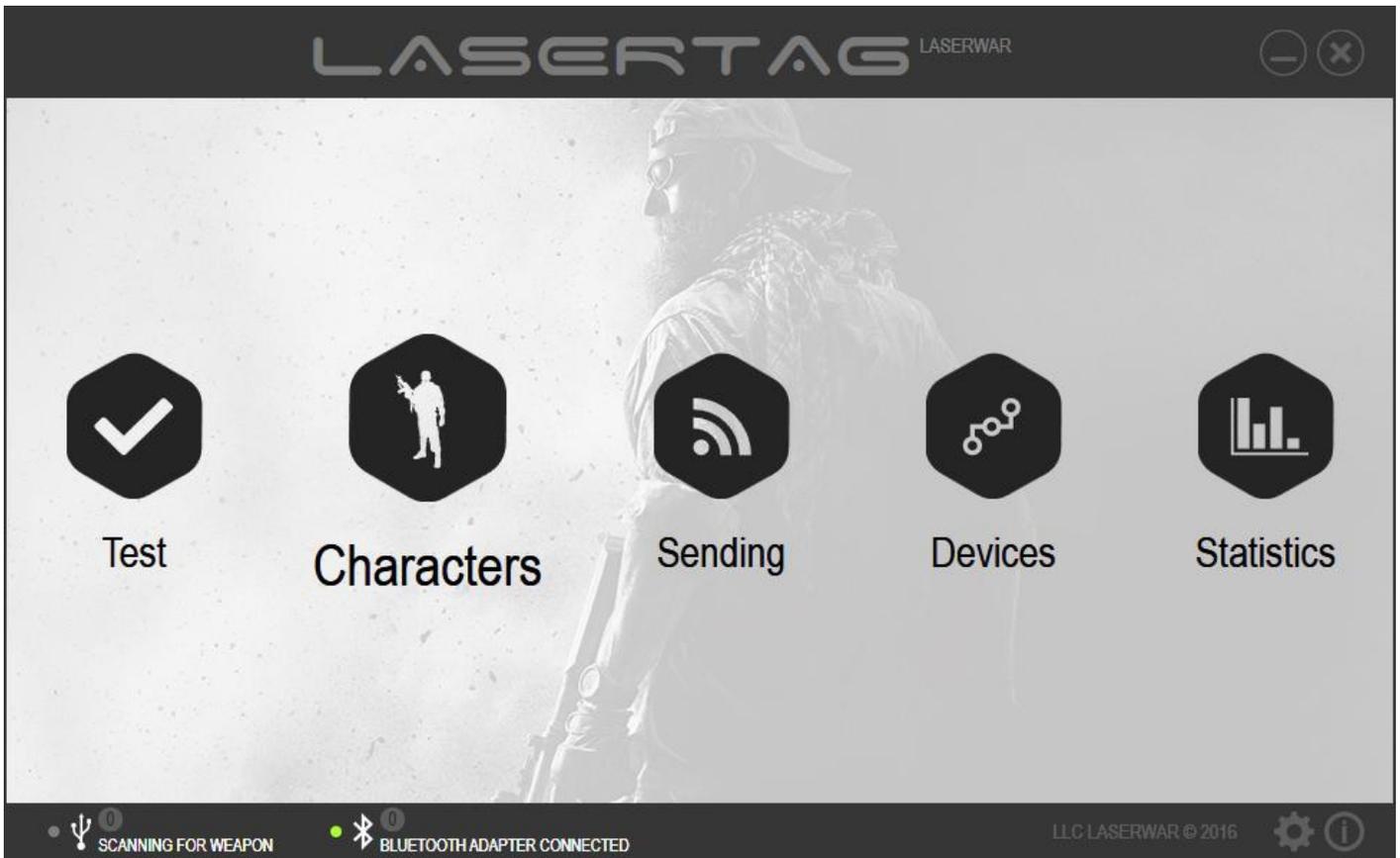
- *Colour*. Team colour (Red, Blue, Yellow, Green) can be selected in the Sending unit (paragraph 4.3).
- *ID*. A player's numerical ID for a play set can be chosen in the Sending unit (paragraph 4.3).
- *Damage*. The number of damage units produced by one shot. This parameter can be selected in the Sending unit (paragraph 4.3) or depends on the chosen character.

4.2 Characters unit

The Characters unit is aimed at creating and customizing characters and sending them to laser tag equipment v.8. To start working with this unit, connect the laser tag equipment in configuration mode. You will find more information about connecting equipment v.8 and modes of operation in paragraph 3.7.

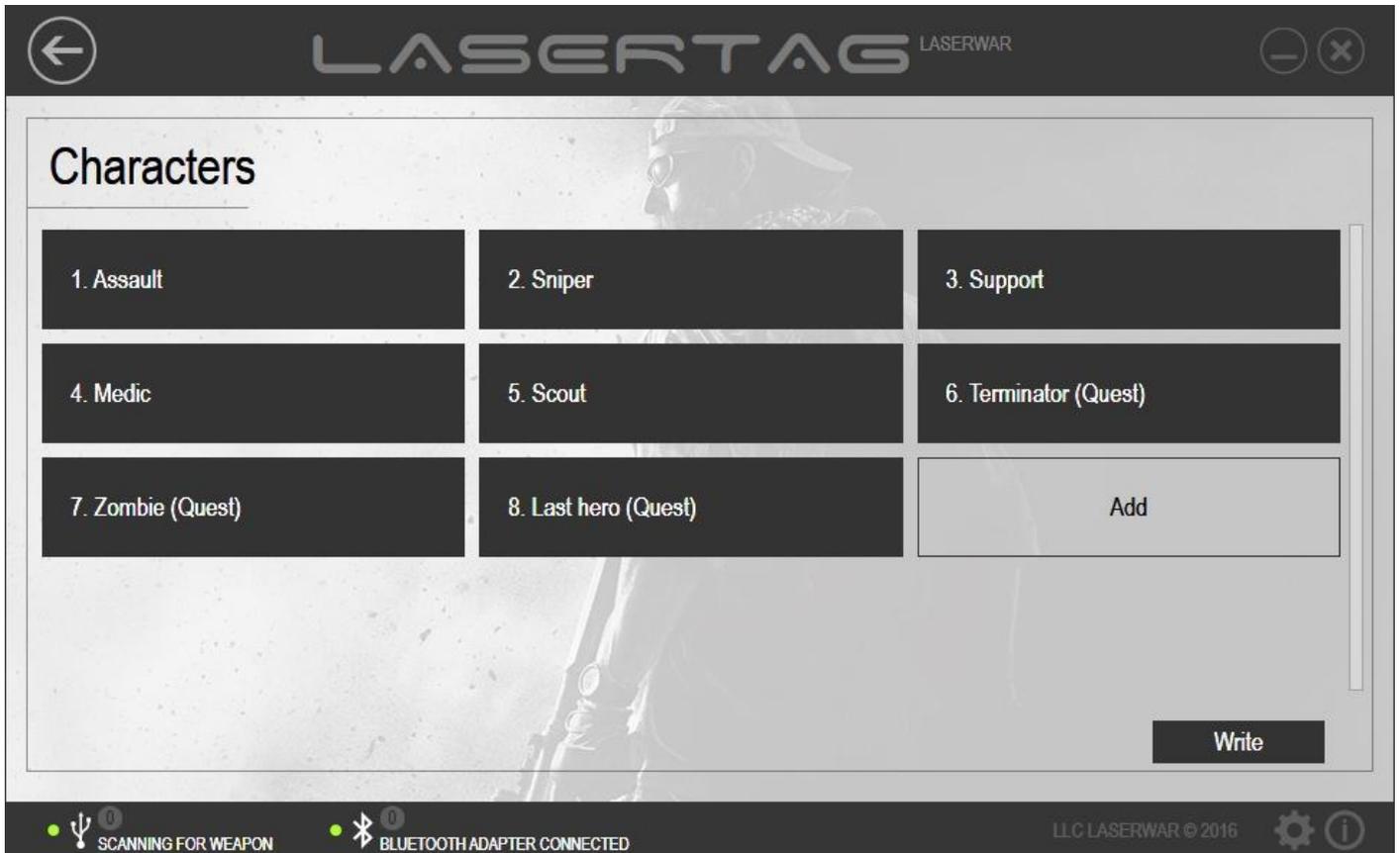
In the Characters unit, you can view the parameters of default settings of various game characters, customize them and even create characters by yourself. Use this unit when you need to promptly change all the parameters of the tactical and technical characteristics of play sets.

To open the unit, click on **Characters** at the central part of the main program window (picture 18).



Picture 18

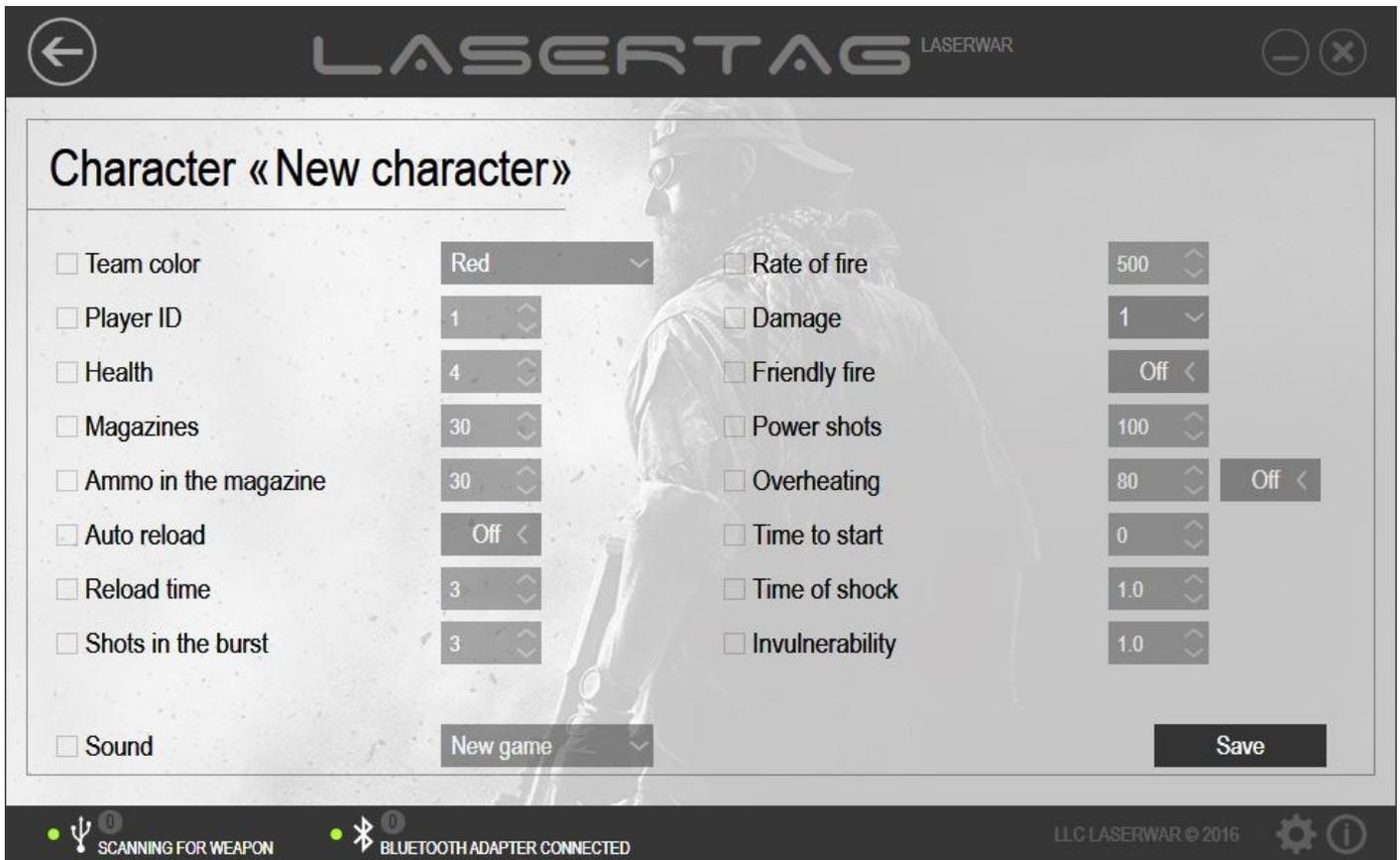
For the main program window, view picture 19.



Picture 19

In the window, you will see a list of preset characters with unique technical and tactical characteristics. There are 8 preset characters (including three quest characters). You can also create your own characters. Quest characters can be used for one round only.

To create a new character, click on **Add**. Upon that, a new window will pop up on the screen (picture 20). Use it to create technical and tactical characteristics of a character.



Picture 20

Enter the character's name in the **Character** field at the top of the window and go on to setting up the parameters.

To view or set up the parameters of a character, click on the icon with its name (picture 19). Upon that, the window with the name of the character and a list of variable parameters will open up. To change a parameter, tick the box next to it and select the required value. When sending data to the equipment, only the parameters that have been ticked will be updated. The value of the parameters that have not been ticked during customization will remain unchanged.

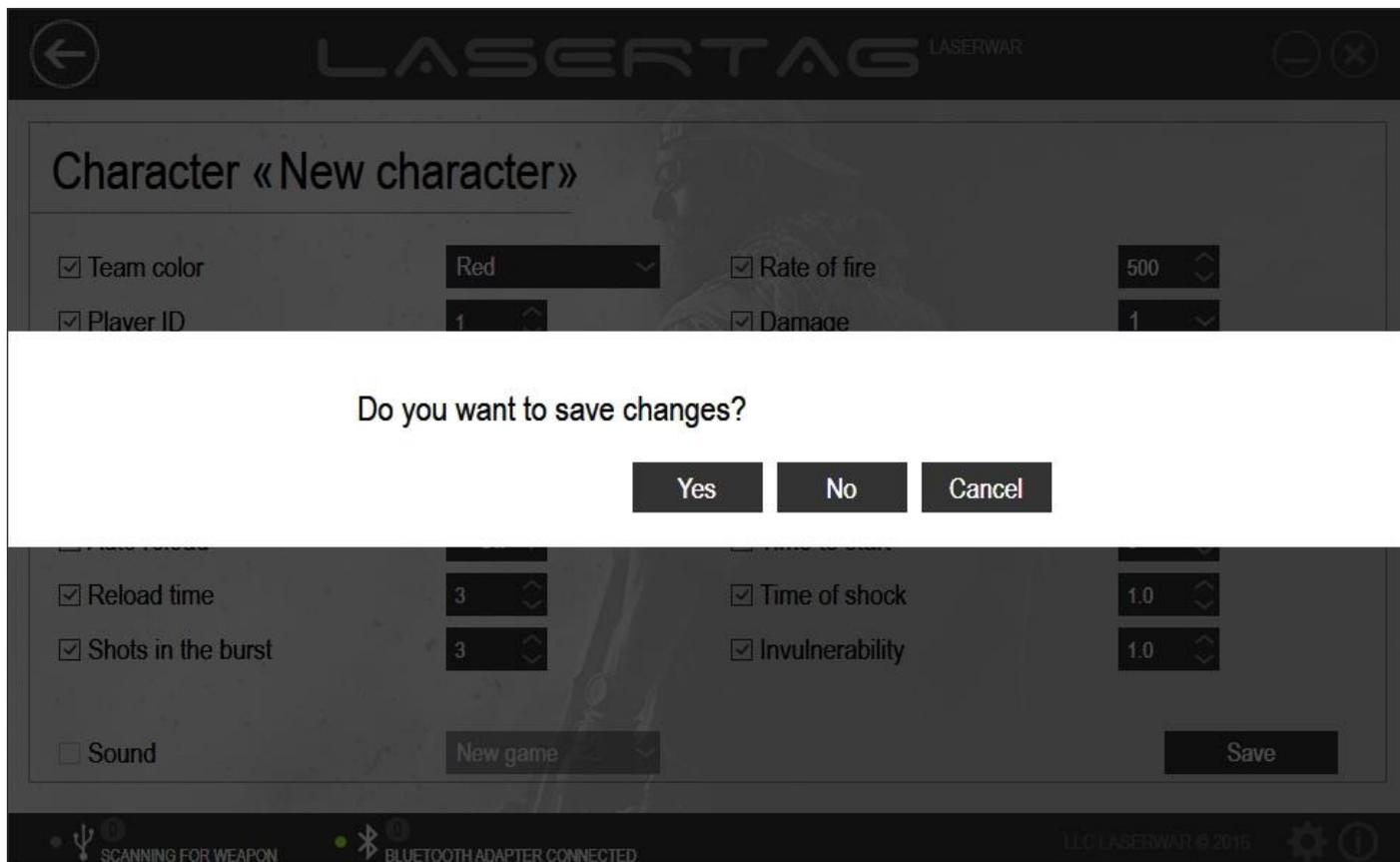
- **Team colour.** Select team colour from a drop-down menu. As a rule, 2 to 4 teams, each with their own colour, take part in a game (Red, Blue, Yellow, Green). If team colours match and Friendly fire mode is off, shooting inflicts no damage. If the colours of the sets do not match or Friendly fire mode is on, firing shots will inflict the damage, which has been set up in the **Damage** field.
- **Player ID** Enter a player's numerical ID using the keyboard or digital buttons. You may select any value between 0 and 125. The ID can be used to collect statistics. The ID stated in this field and the play set ID must be different. If the IDs are same, the USB base and the play set will not be able to hit each other.
- **Health** Number of health units. You can choose any value between 1 and 999.

- **Magazines** Number of additional magazines. You can choose any value between 0 and 255.
- **Ammo in the magazine** The number of cartridges in a magazine is usually equivalent to the real parameters of the technical and tactical characteristics of the relevant play set type. You can choose any value between 1 and 99.
- **Auto reload** When this parameter is activated, the play set will restart automatically as soon as the magazine has been emptied. This parameter will be useful for all those who assemble laser tag equipment by themselves, for there is no need for a separate button or a micro switch for reloading.
- **Reload time** Amount of time (in seconds) required to fully reload a magazine. You can choose between 1 and 255.
- **Shots in the burst** Number of shots fired when the trigger is pulled and held for a while. You can choose between 1 and 255.
- **Rate of fire** Imitation of combat weapon rate of fire: starting with a low rate of sniper rifles and ending with a high rate of machine guns. Select a value between 10 and 990 shots per minute.
- **Damage** The damage inflicted (in health units) by a weapon to a rival. By varying the shooting power parameter, you can make the technical and tactical characteristics of a play set close to those of its combat prototype.
- **Friendly fire** Select defeat mode for your team players. If team colours match and Friendly fire mode is off, shooting inflicts no damage. If the colours of the sets match and Friendly fire mode is on, firing shots will inflict the damage, which has been set up in the **Damage** field. Our personal recommendation would be that you do not activate friendly fire when playing laser tag, for the game is more interesting this way. Yet if you aim to make the game more realistic, then do activate the friendly fire function.
- **Power shots** Shooting distance parameters. The higher is the value of this parameter, the higher is the shooting distance, yet ricochets become more likely, too. The 100% value must be selected for playing outside.
- **Overheating** The number of shots fired before the barrel gets overheated. It is forbidden to fire combat weapon continuously by safety measures: the barrel may change its shape under the influence of high temperatures. When firing becomes too intensive the effect of barrel overheating is emulated, the sound produced by firing becomes quieter, the firing and firing illumination stops. The player has to wait a few seconds till the gun barrel “cools down”. The sound produced by firing gets louder again and the player may continue shooting. The higher the firing rate and the capacity of the magazine, the more overheated the barrel of this weapon gets. This parameter can be turned off altogether using a relevant switch. When you choose to leave it on, you need to set up the amount of shots required to overheat the barrel. You can choose between 10 and 255 shots.
- **Time to start** Time in seconds till the start of a game. This parameter can only be activated by using a special command on a remote *New game – start delay*. You can choose between 0 and 3600.
- **Time of shock** Time (in seconds) of shock when a player is defeated. This is the time during which the LEDs on the headband glow and it vibrates at player’s defeat. During this time, the defeated player cannot fire his weapon. You can select a value between 0.1 and 65.0.
- **Invulnerability** Time (in seconds) given to a player for hiding. Within the moment of invulnerability, a player’s headband gets deactivated, he cannot fire

shots and cannot be defeated. You can select a value between 0.1 and 3.0.

- **Sound** A sound track played when a character is activated.

When all the character settings have been done, click on **Save**. If you do not click on the **Save** icon, as you leave this unit you will be asked by the program to confirm saving of the changes that have been done (picture 21).

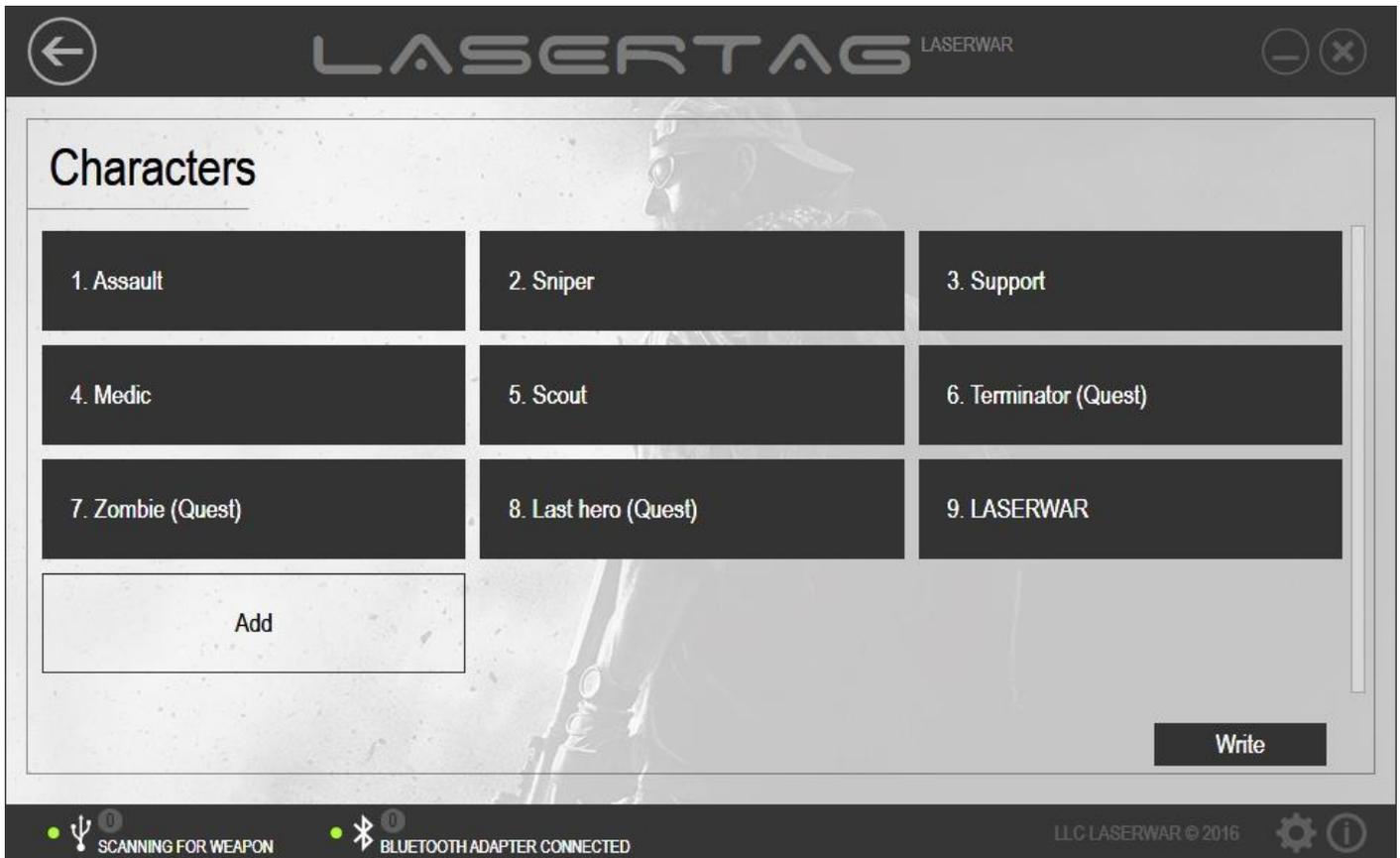


Picture 21

Click on **Yes** to save the changes, **No** to cancel them or **Cancel** to continue editing the settings.

To save the updated characters to the memory of the laser tag equipment, click on **Write** in the main window of the unit (picture 22). You will find more information about writing data to the equipment v. 8 in paragraph 3.8. In the process of writing data to equipment, only the values of the parameters which have been ticked will be updated. The values of the parameters that have not been ticked will remain unchanged.

To delete a character, mouse over the icon with its name in the main unit window and click on the relevant icon at the top of the screen (picture 22). Please note that preset characters cannot be deleted.

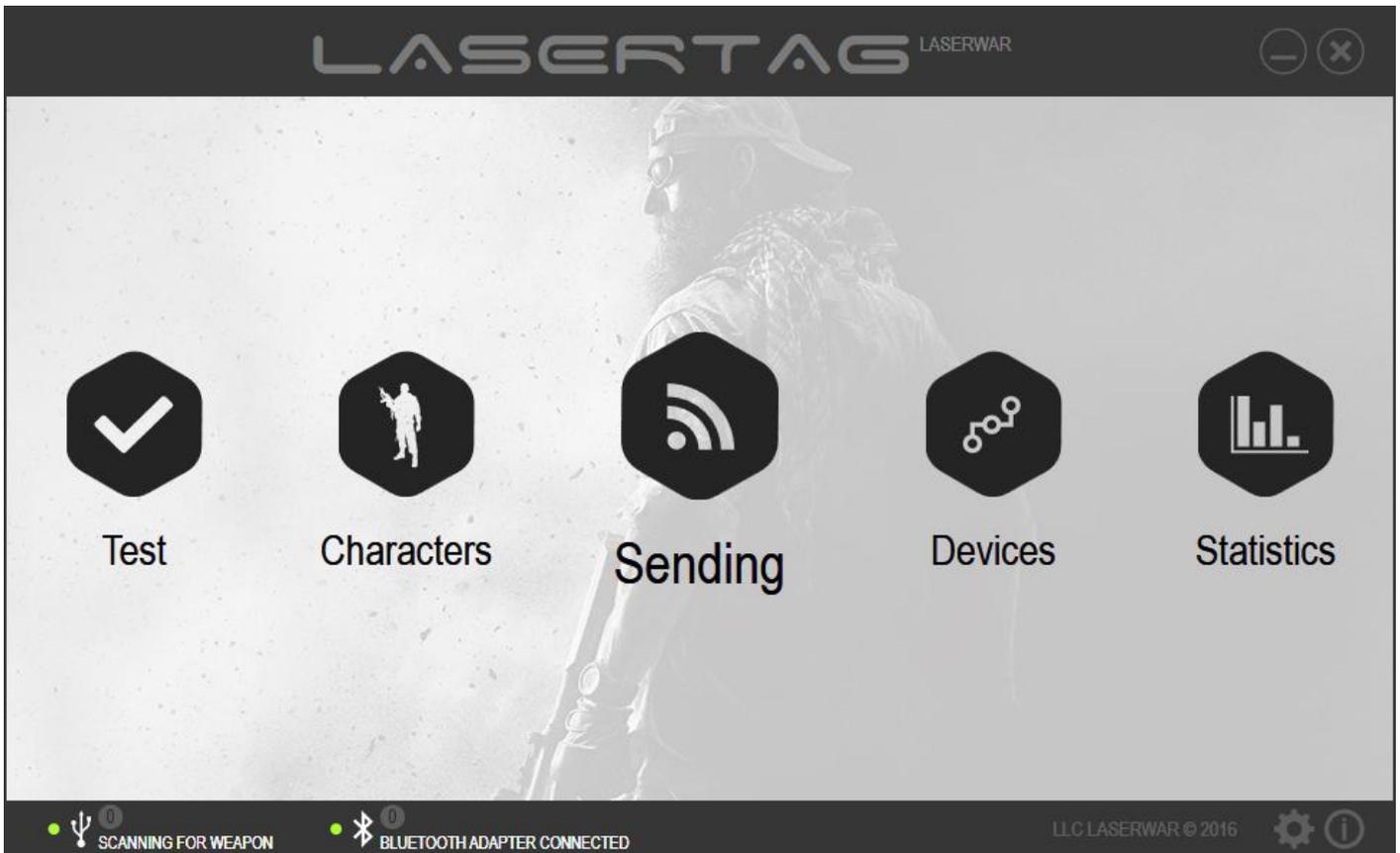


Picture 22

4.3 Write unit

The Write unit is used for viewing technical and tactical characteristics of a play set, for writing of the updated technical characteristics to play sets v. 4-8. It also allows to change the settings of a play set quickly by selecting between one of the ready presets for laser tag equipment. To start working with the unit, connect laser tag equipment v. 4-7 in configuration mode by means of a USB base. More information on connecting equipment v. 4-7 and on modes of operation can be found in paragraph 3.6. Laser tag equipment v. 7-8 must be launched in configuration mode and connected to a PC using a Bluetooth adapter. More information on connecting equipment v. 7-8 and on modes of operation can be found in paragraph 3.7.

To open this unit, click on **Write** at the centre of the main program window.



Picture 23

You can view the main window of the program in picture 24 below.



Picture 24

To start working with this unit, connect laser tag equipment v. 4-7 in configuration mode by means of a USB base. Laser tag equipment v. 7-8 must be launched in configuration mode and connected to a PC using a Bluetooth adapter. If the play set has been connected correctly, **Clear statistics**, **Read** and **Write** icons will become active (picture 25).



Picture 25

In the left section of the window you will find the area of equipment parameters settings. To select which technical parameters you want to send to the equipment, tick the boxes in the relevant fields and choose the required values. Only the parameters that have been ticked will be updated. The other parameters will remain unchanged.

- Tager type Select equipment type from a drop-down menu.
- Team colour Select team colour from a drop-down menu. As a rule, there are 2 to 4 teams with different colours that play in a game (Red, Blue, Yellow, Green). If teams use same colour and Friendly fire mode is not active, no damage is done by a shot. If teams use different colours or Friendly fire mode is on, shots will cause the damage that has been selected in the **Damage** preset.
- Player ID Enter a numerical player's ID using a keyboard or digital buttons. Select a value between 0 and 125. The ID is used for gathering statistics and must be unique for all play sets. The playsets that have same IDs cannot defeat each other. Therefore, when sending parameters to several equipment sets simultaneously, for each new set the ID value will be increased by 1. When you send parameters to each new batch of rifles, make sure that each ID is unique.
- Vibration mode Select this option if you want the equipment to vibrate at the start of game events. They will not vibrate if this option is turned off. If *Tactile connection* is on, the play set will vibrate when a player gets defeated. If

Recoil imitation is on, the blaster will vibrate when producing shots. If you select *All events*, the blaster will vibrate in both the abovementioned cases.

- **Friendly fire** Select a defeat mode for the players of your team. If all the play sets have same colour and Friendly fire mode is off, shooting will not inflict any damage. If play sets have same colour and Friendly fire mode is on, shooting will cause the damage specified in the **Damage** field of the preset. We suggest that you do not activate Friendly fire mode, as this makes a laser tag game more interesting. Yet if you are after a more realistic game – then go for it.
- **New game after power on** After the equipment has been turned on, it needs to be activated by selecting the Restart button on a remote or a first aid kit. By selecting the New game after power on parameter, you do not have to activate the equipment by means of a remote or a first aid kit. Having turned on the equipment, you can use it right away. This parameter may be useful for individual players and for play set owners.
- **Auto reload** When this parameter is activated, the play set will restart automatically as soon as the magazine has been emptied. This parameter will be useful for all those who assemble laser tag equipment by themselves, for there is no need for a separate button or a micro switch for reloading.
- **Battery discharge voltage** When laser tag equipment is turned on, the program takes the readings (V – voltage) from the accumulator. If the figure is lower than the selected value, the equipment will produce the “discharged battery” sound. If the figure is higher than the selected voltage, then you will hear the following: “Accumulator passed the test”. If you select this option, you will be notified when your play set needs to be urgently charged. Remember that if the accumulator does not pass the test you must put it on charge as soon as possible. Fully discharging as well as storing when discharged is harmful for lead-acid accumulators.

The purpose of the 8th generation functions area (picture 26) the configuration of technical and tactical characteristics of equipment v. 8.



Picture 26

- **Round time** If this parameter is off, a game round is not limited to any time. To choose the longest round duration, select On and round duration in minutes. You can choose between 5 and 240.
- **Turn off the screen** This parameter is off by default and blaster screen (when available) is on throughout the time of device operation. To turn off blaster screen, put the switch in the On position. This helps increase the life of the accumulator and helps players stay hidden during a game that takes place in low light conditions. The screen is turned off only during a game.
- **Health regeneration** Activate this parameter to enable a player to restore 1% of health within a selected time interval without the need to use a first aid kit. To do this, select On and specify restoration time in seconds. You can choose between 5 and 255.
- **Auto-revival time** This parameter is off by default. This means that loosing all health units by a player is followed by his virtual death. He then must find a first aid kit to revive himself. You can set a time, though, after which a player restores all his health units and returns to the game. No first aid kit is required to do this. In order to use this option, put the switch in the On position and state the auto-revival time in seconds. You can choose any value between 0 and 60000.
- **Bleeding start** “Bleeding” is a special mode at which a player loses 1% of his health units within a selected time interval (it is not recommended that you use both Health regeneration mode and Bleeding start mode at the same time). This mode is activated when the amount of player’s health units (in %) drops down below the configured value. To set up the amount of health units at which bleeding starts, select On and state health percentage.

- Bleeding interval Select the frequency (in seconds) with which a player loses health units in Bleeding mode. To do this, select On and state the bleeding interval in seconds. You can choose between 5 and 255.
- Fire sound volume State the volume of shots produced by equipment (percentage of the maximum volume).
- Event sound volume State the volume of sound effects of game events (percentage of the maximum volume).
- Defeat sensor of tager State if the defeat sensor (when available) of a set is On or Off.
- Rifle break time Select the type of magazine reloading:
 - Save – the required amount of cartridges is added until the magazine is full;
 - Clear – the remaining cartridges in the magazine are cleared and the whole of the magazine is reloaded.

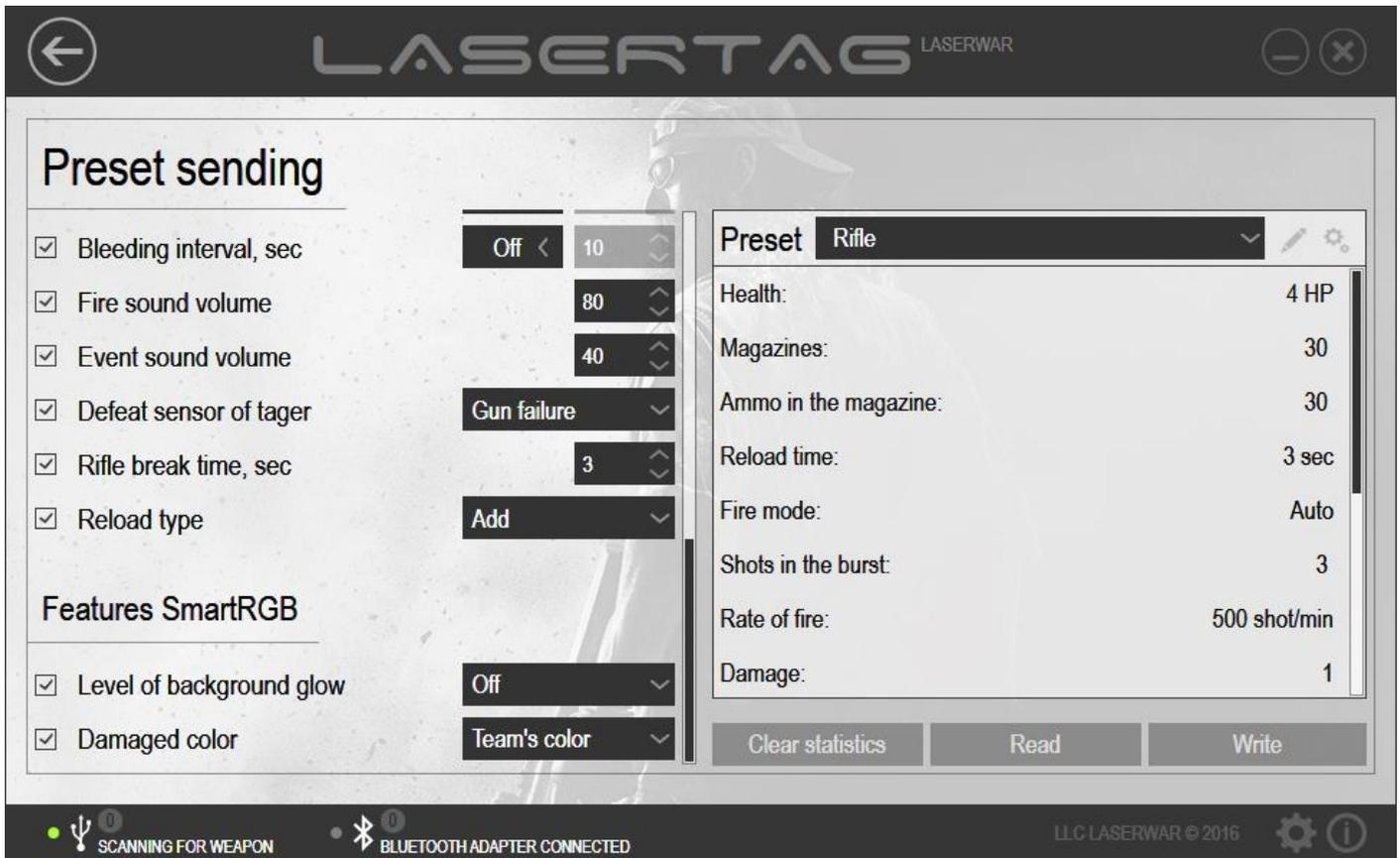
You can also set up hardware generated equipment shooting mode switch when required. To do this, launch the program with this key: *-enableHardwareSettingsGroup*. To launch the program using this key, enter a text of the following type in the command prompt:

"<путь к exe-файлу>"<пробел>*-enableHardwareSettingsGroup*. For example:

"C:\Program Files <x86>\LASERWAR\LASERTAG.exe" -enableHardwareSettingsGroup

Alternatively, in the properties of the program shortcut enter the key in the **Object** field in the **Shortcut** tab after space.

When you launch the program with the stated key, an additional section **Features SmartRGB** appears in the *Write* field (picture 27).



Picture 27

You need to put a tick next to **Reload type** and select the type of switching the shooting mode – button or switch. It is recommended that after you have sent the data to the equipment you untick this option and hide this section by launching the program without a key.

In the right-hand side of the window, there is a section on presets.

The parameters of the selected preset are displayed at the top of the presets section. To change these parameters, click on **Edit preset** or **Fast edit**. By selecting **Fast edit**, you can change the data right in the **Write preset** window (picture 28) and write it to the equipment right away. Upon that, the updated parameters will not be saved in the program. Instead, the original preset values will be displayed after the data has been sent to the equipment or after the section has been opened repeatedly.



Picture 28

As you click on **Edit preset**, the main window of the Presets section will be displayed on the screen, as shown in picture 29.

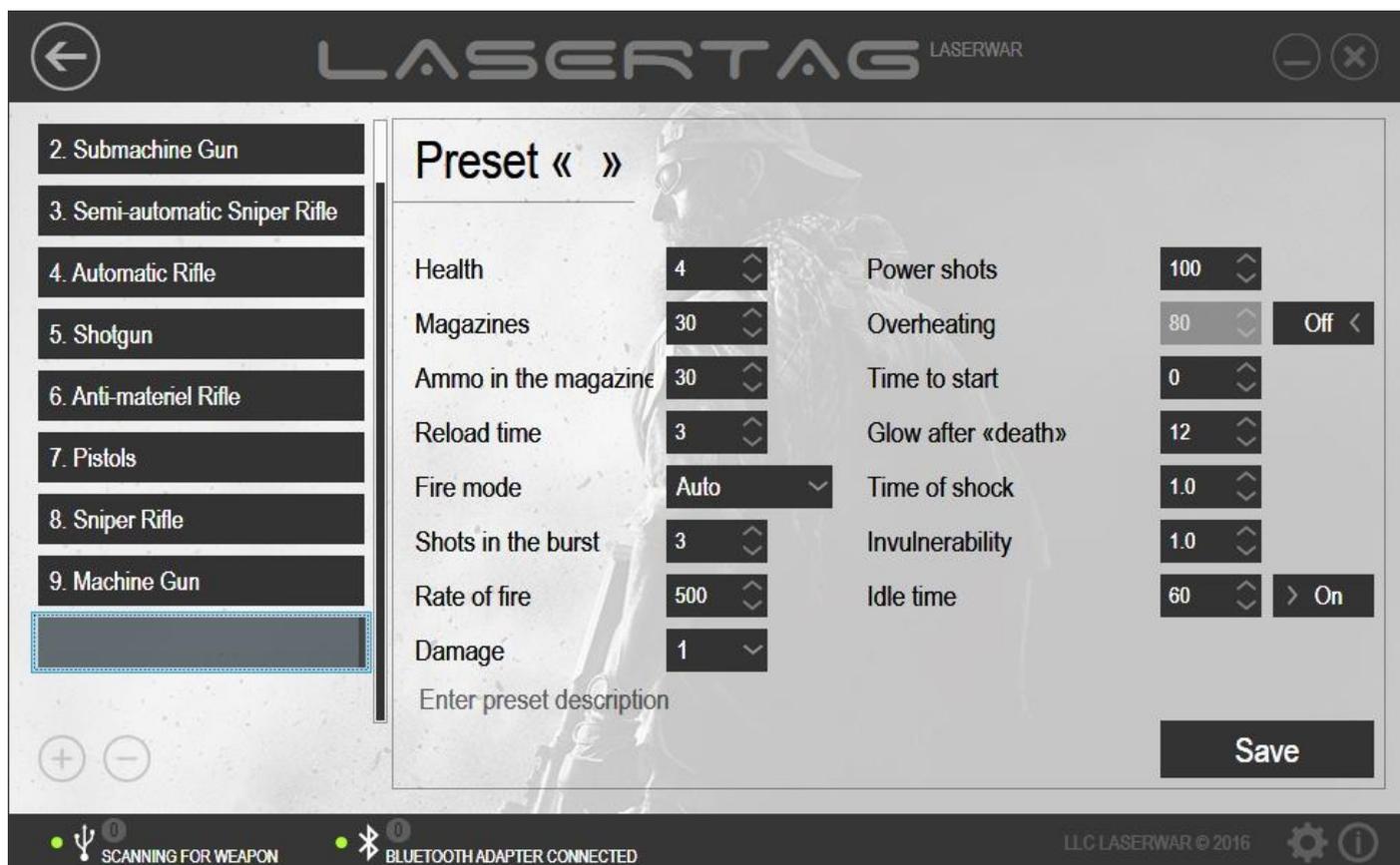


Picture 29

A list of default settings (presets) for each weapon type with unique technical and tactical characteristics is presented in the left-hand side of the window.

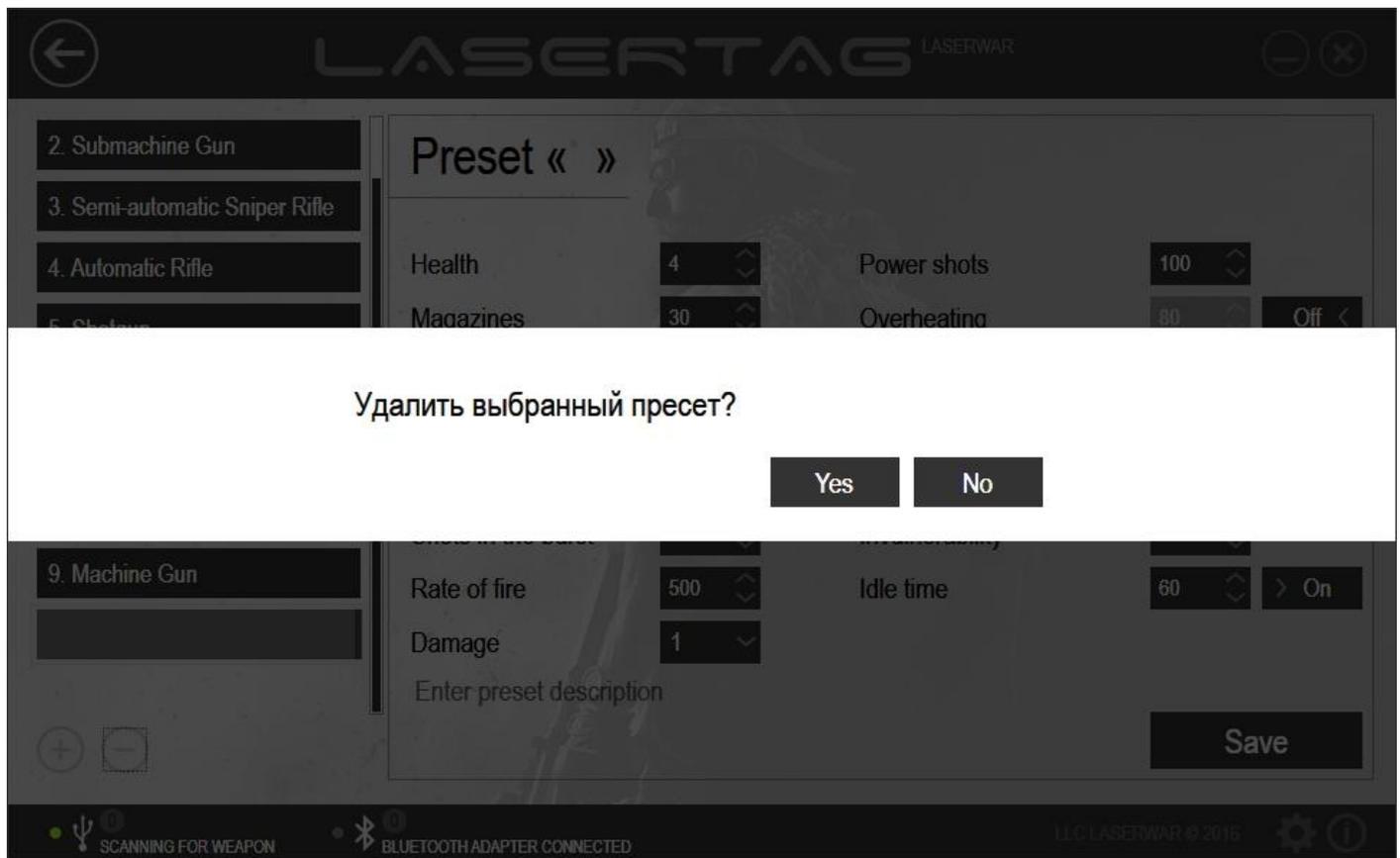
To rename a preset, mouse over its name, do the required changes and click on **Save**. If you do not click on **Save**, the program will request confirmation of the changes (picture 21). Click on **Yes** to save the changes, **No** to cancel them or **Cancel** to go back to editing the name of the preset.

Creating a list of presets all by yourself is easy. To do this, use the **Add** and **Delete** buttons below the list (picture 29). To create your own preset, click on **Add**. A new preset line will be added to the list (picture 30). After entering the name of a new preset you can go on to set up the parameters.



Picture 30

To delete a preset, select it from the list and click on **Delete**. At that, the program will request that you confirm this action (picture 31).



Picture 31

Click on **Yes** to remove the preset from the list or **No** to cancel this action. It must be noted that default presets cannot be deleted.

To view or set up parameter presets, mouse over its name and left-click on it. Upon that, the name of the preset and the variable parameters will be displayed in the right-hand side of the window.

- Health Amount of health units. Choose between 1 and 999.
- Magazines Amount of additional magazines. Choose between 0 and 255.
- Cartridges in the magazine As a rule, the amount of cartridges in one magazine matches the real parameters of tactical and technical characteristics of the relevant class of play set. Choose between 1 and 99.
- Reload Time (in seconds) required to fully restore a magazine. Choose between 1 and 99.
- Fire mode The available fire modes are as follows: *Auto* (automatic fire mode, unlimited amount of shots produced by one long trigger pull), *Cutter* (half-automatic mode, ripple fire), *Single shots* (firing single shots, i.e. *Sniper* mode). This parameter can only be configured for equipment v. 4-7. Fire mode for equipment v. 8 can be configured in the **Shots in the burst** field.
- Shots in the burst The amount of shots produced by a blaster in Cutter mode by pulling and holding the trigger once. You can choose between 1 and 255. For equipment v. 8, Fire mode and Shots in the burst mode have been united into one mode. Select 1 in the *Shots in the burst* field for *Single shots* mode, 255 – for *Auto* mode, any other value – for *Cutter* mode. Any values entered in *Fire mode* field for equipment v. 8 will be ignored.
- Rate of fire Combat weapon rate of fire imitation. Starting from slow sniper rifle rates of fire to machine gun stutter. Choose between 10 and 990 shots per minute.
- Damage Amount of damage (in health units) inflicted by weapon when a rival gets hit. The variable damage parameter (the shooting power parameter can be

changed) makes it possible to draw the technical and tactical characteristics of a play set as close to those of a combat prototype as possible.

- Power shots

The parameters of firing range and, consequently, of ricochets. The ratio table of infrared power, firing range and ricochets is given below. Average values have been given in the table. The firing range may vary by up to 50% depending on weather conditions.

Infrared power parameter	Firing range	Ricochets inside premises
1 %	10 m	No ricochets altogether
25 %	50 m	
49 %	100 m	
51 %	120 m	There are some ricochets. The game is comfortable. The ricochets depend on the surface of the walls.
75 %	150 m	
100 %	200 m	Frequent ricochets. Playing outside is recommended.

- Overheating

The number of shots fired before the barrel gets overheated. It is forbidden to fire combat weapon continuously by safety measures: the barrel may change its shape under the influence of high temperatures. When firing becomes too intensive the effect of barrel overheating is emulated, the sound produced by firing becomes quieter, the firing and firing illumination stops. The player has to wait a few seconds till the gun barrel “cools down”. The sound produced by firing gets louder again and the player may continue shooting. The higher the firing rate and the capacity of the magazine, the more overheated the barrel of this weapon gets. This parameter can be turned off altogether using a relevant switch. When you choose to leave it on, you need to set up the amount of shots required to overheat the barrel. You can choose between 10 and 255 shots.

- Time to start

Time in seconds till the start of a game. This parameter can only be activated by using a special command on a remote *New game – start delay*. You can choose between 0 and 999.

- Glowing after “death”

Time (in seconds) of LEDs operation and vibration on a headband of a player who run out of health units during a game. You can choose a value between 1 and 60.

This parameter cannot be set up for equipment v. 8. The time of glowing makes up 10 seconds.

- Time of shock

Time (in seconds) of shock when a player is defeated. This is the time during which the LEDs on the headband glow and it vibrates at player’s defeat. During this time, the defeated player cannot fire his weapon. You can select a value between 0.1 and 65.0.

- Invulnerability

Time (in seconds) given to a player for hiding. Within the moment of invulnerability, a player’s headband gets deactivated, he cannot fire shots and cannot be defeated. You can select a value between 0.1 and 3.0.

- Idle time

A period of time (in seconds) during which a play set remains idle. At the end of the period, an alarm signal will sound. It is very useful for instructors and will protect accumulators against deep discharge in case one forgets to turn laser tag equipment off. This parameter can be turned off altogether using the On /Off switch. When the switch is on the On position, one needs to select the time during which a play set can remain idle before the signal. You can choose between 30 and 240.

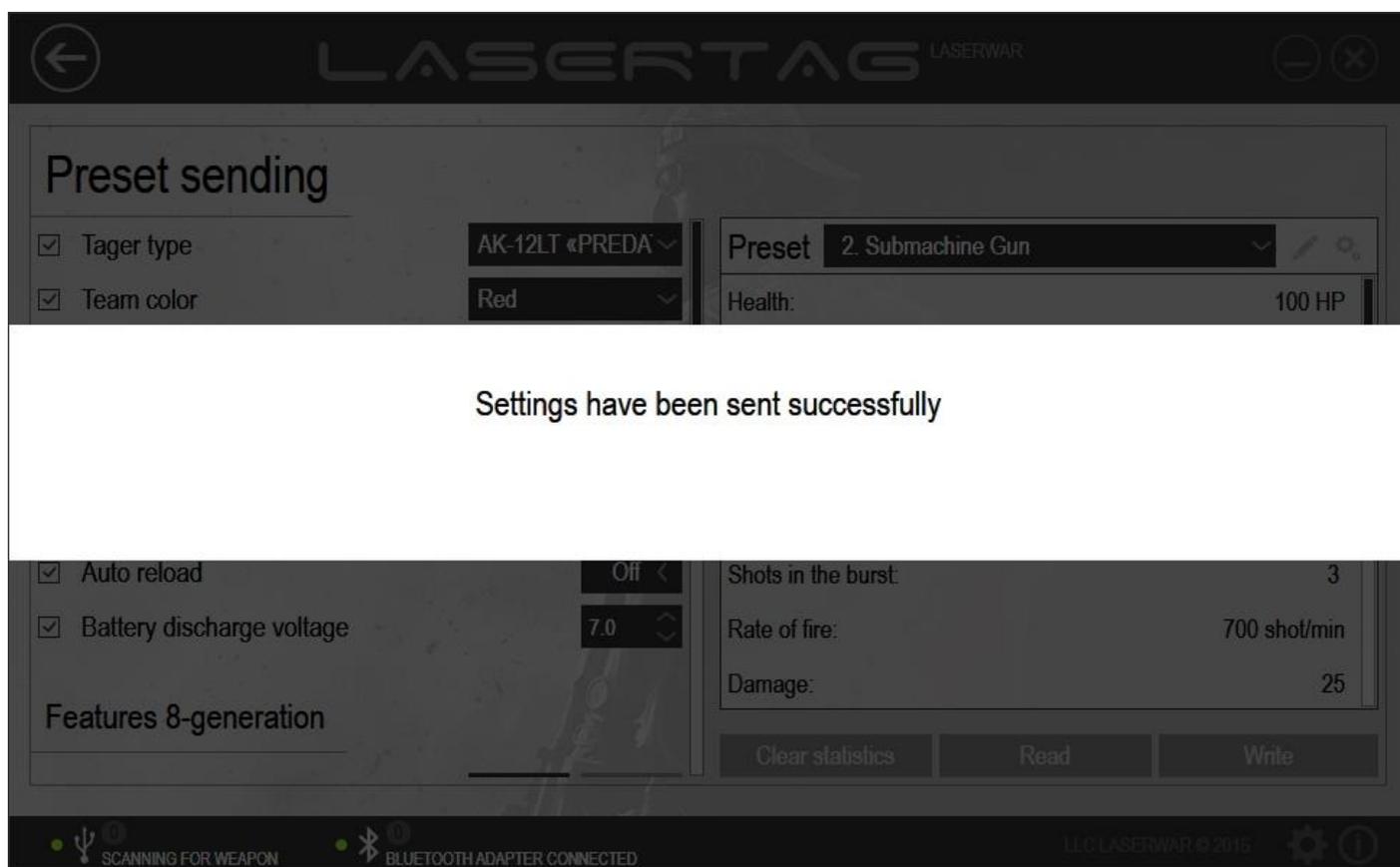
You can enter information on weapon for the preset that is being edited in the *Enter weapon description* area at the bottom of the window.

Having entered all the data click on **Save** or confirm data saving at request. Upon that, the window that has been opened earlier will appear. It is presented in picture 26.

After all the parameters have been selected and all preset data have been configured, they can be sent to the laser tag equipment. To do this, make sure that:

- When setting up equipment v. 4-7: the USB base has been connected to a PC, the play set has been launched in configuration mode (more information on connecting equipment and modes of operation is given in paragraph 3.6);
- When setting up equipment v. 7-8: there is active Bluetooth connection, the play set has been launched in configuration mode (more information on connecting equipment and modes of operation is given in paragraph 3.7).

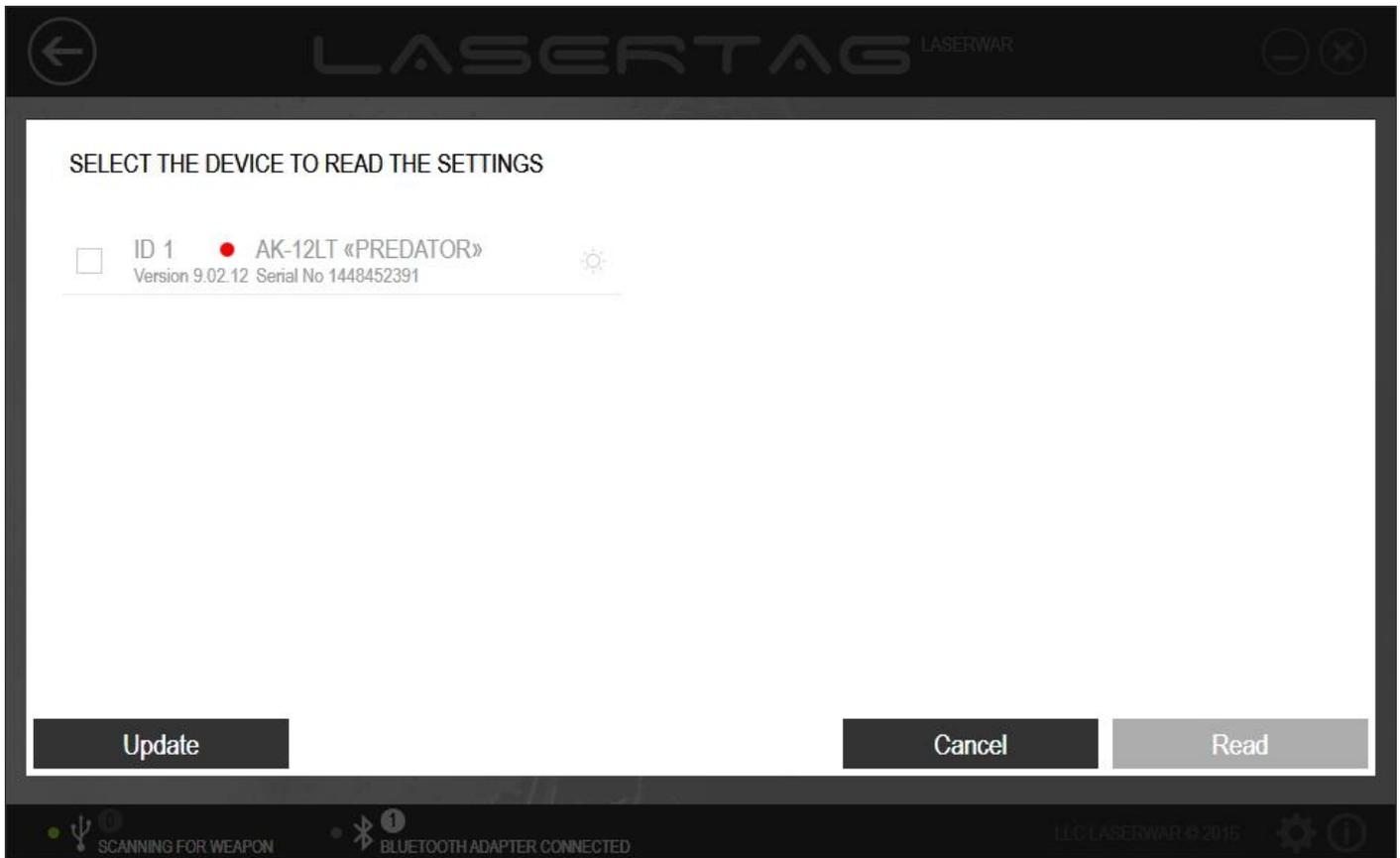
Click on **Write**. You will find more information about sending parameters to laser tag equipment v. 7-8 in paragraph 3.8. If the data sending has been successful, the play set will produce a sound signal and the program window will look as shown in picture 32.



Picture 32

The parameters that have been sent to laser tag equipment can be tested using the Test section, described in section 4.1. If sending of the parameters has been successful, the play set will automatically switch from configuration mode to play mode. Therefore, after sending the parameters you do not need to restart the equipment to work in test mode.

To view the parameters that have been sent to the equipment earlier, click on **Read** in the *Write* section. Upon that, the system will perform search for devices that can read the settings.

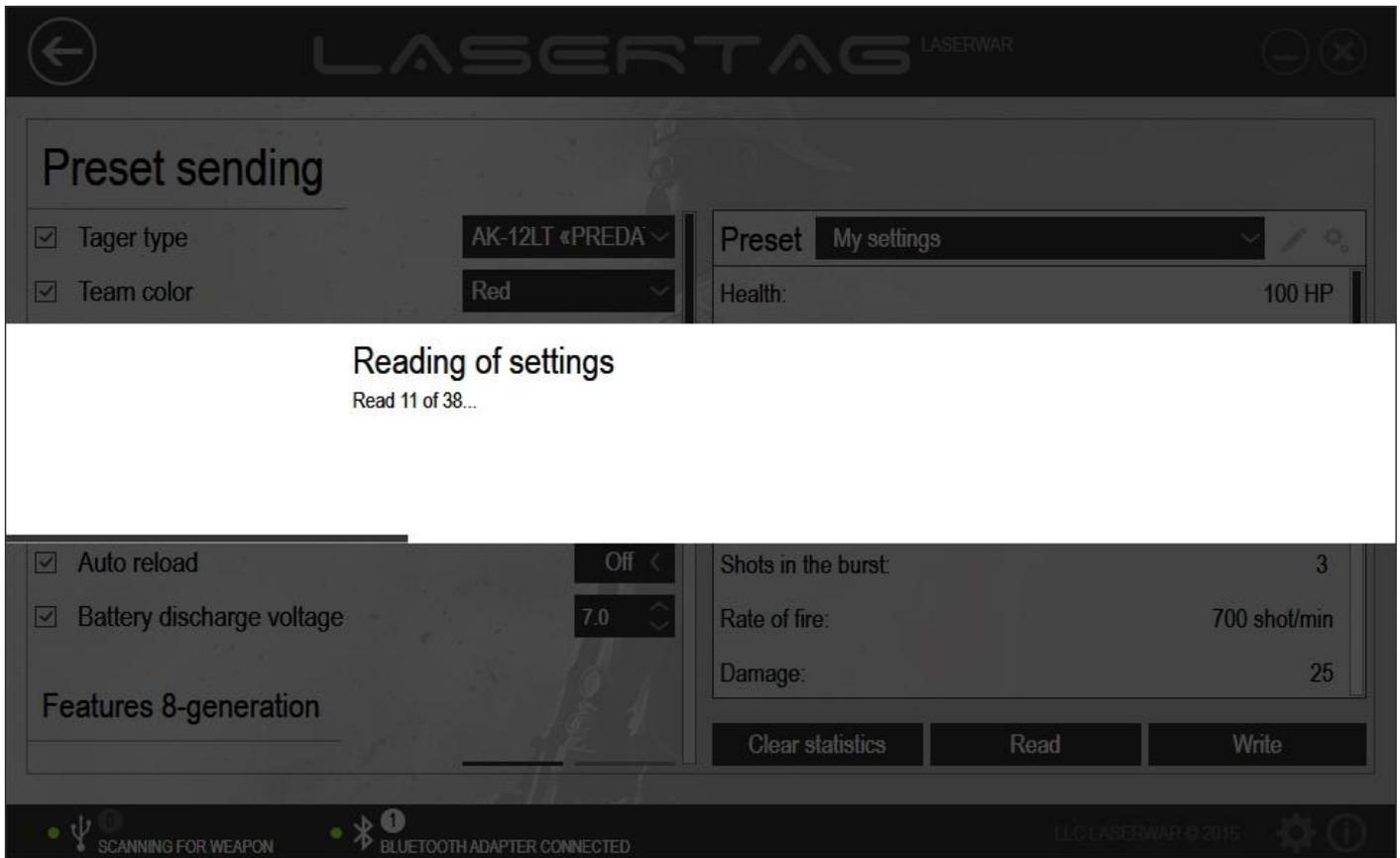


Picture 33

After that search has been performed, the list of connected equipment will not be updated. To do another search for connected devices, click on **Update**.

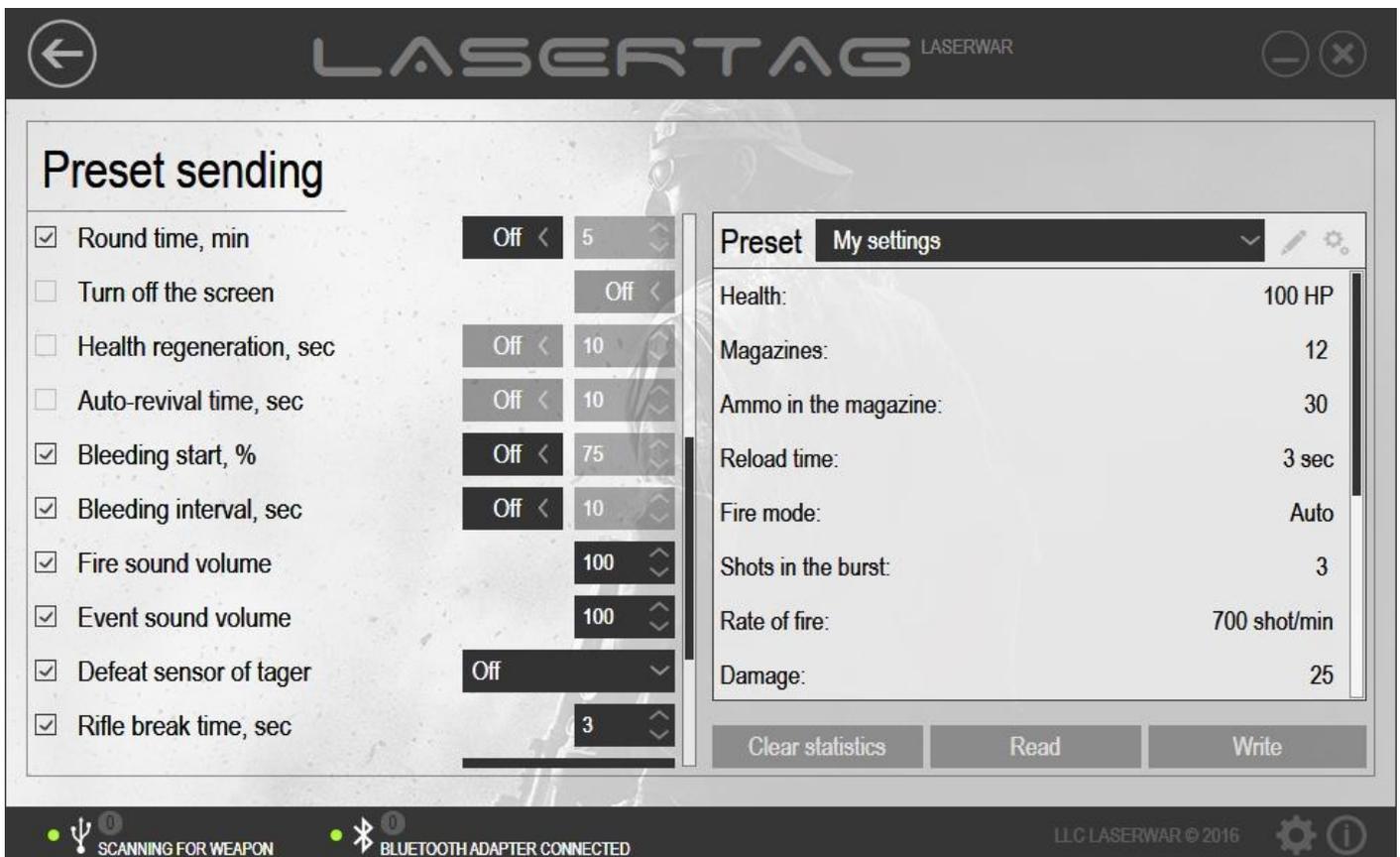
Select one device that needs to have its settings read and put a tick next to it. To identify the connected play set, click on the relevant icon. Upon that, the pertinent equipment will produce a sound signal.

Click on **Cancel** to cancel reading of the settings or **Read** to read the data from the selected device. At that, an indicator of parameters reading progress will be displayed on the screen (picture 34).



Picture 34

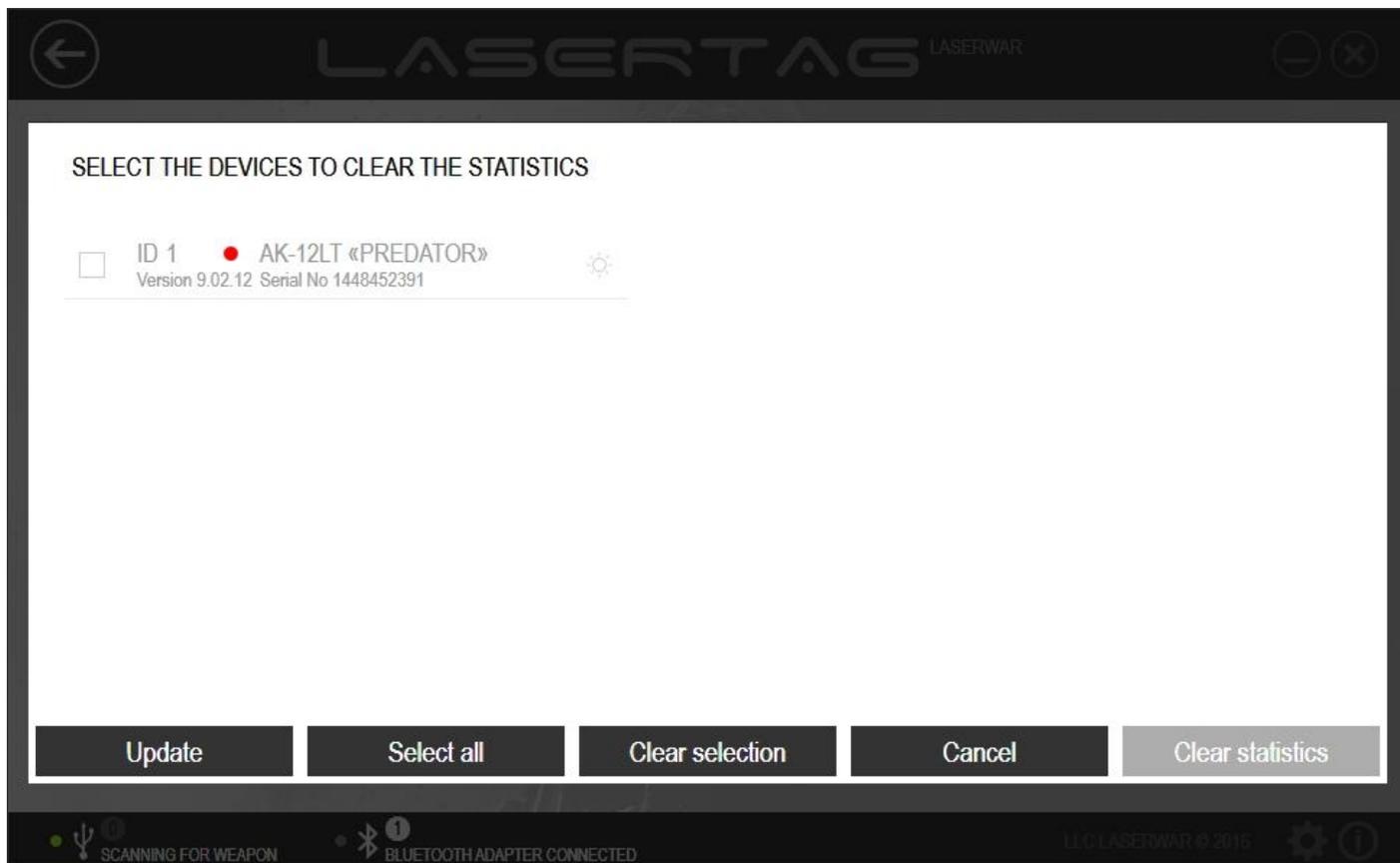
After the parameters have been read, the window will acquire the look as shown in picture 35.



Picture 35

Upon that, *My settings* will be displayed in the **Preset** field. The settings that have been earlier sent to the equipment will be displayed in the relevant fields.

You can clear laser tag equipment game statistics whenever required. To do this, click on **Clear statistics** (picture 35). If the connection by means of a USB base has been established, the statistics of this play set will be cleared. Otherwise, the system will perform search for devices that are connected by means of a Bluetooth adapter.

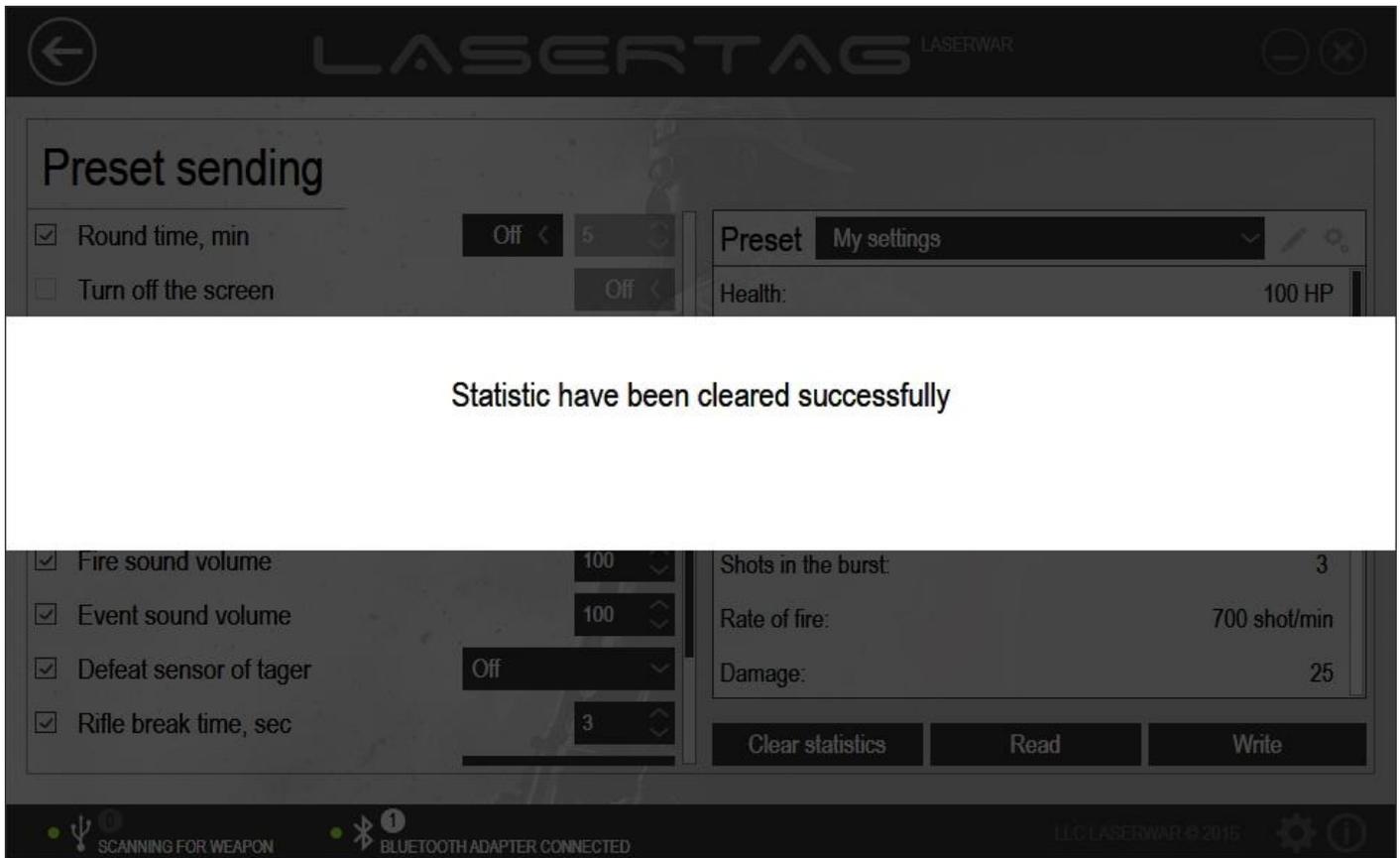


Picture 36

After the search has been performed, the list of connected equipment will not be updated. In order to perform another search for connected devices, click on **Update**.

Select the devices that need to have their statistics cleared and put ticks next to them. To identify a connected play set, click on the relevant icon. Upon that, the equipment will produce a sound signal. To tick all the play sets, use the **Select all** button. To untick all the sets, click on **Clear selection**.

Click on **Cancel** to cancel sending data or **Clear statistics** to delete all the game statistics from the memory of the selected devices. Upon that, statistics clearing progress indicator will be displayed on the screen. If the process of statistics clearing has been successful, the program window will look as shown in picture 37.

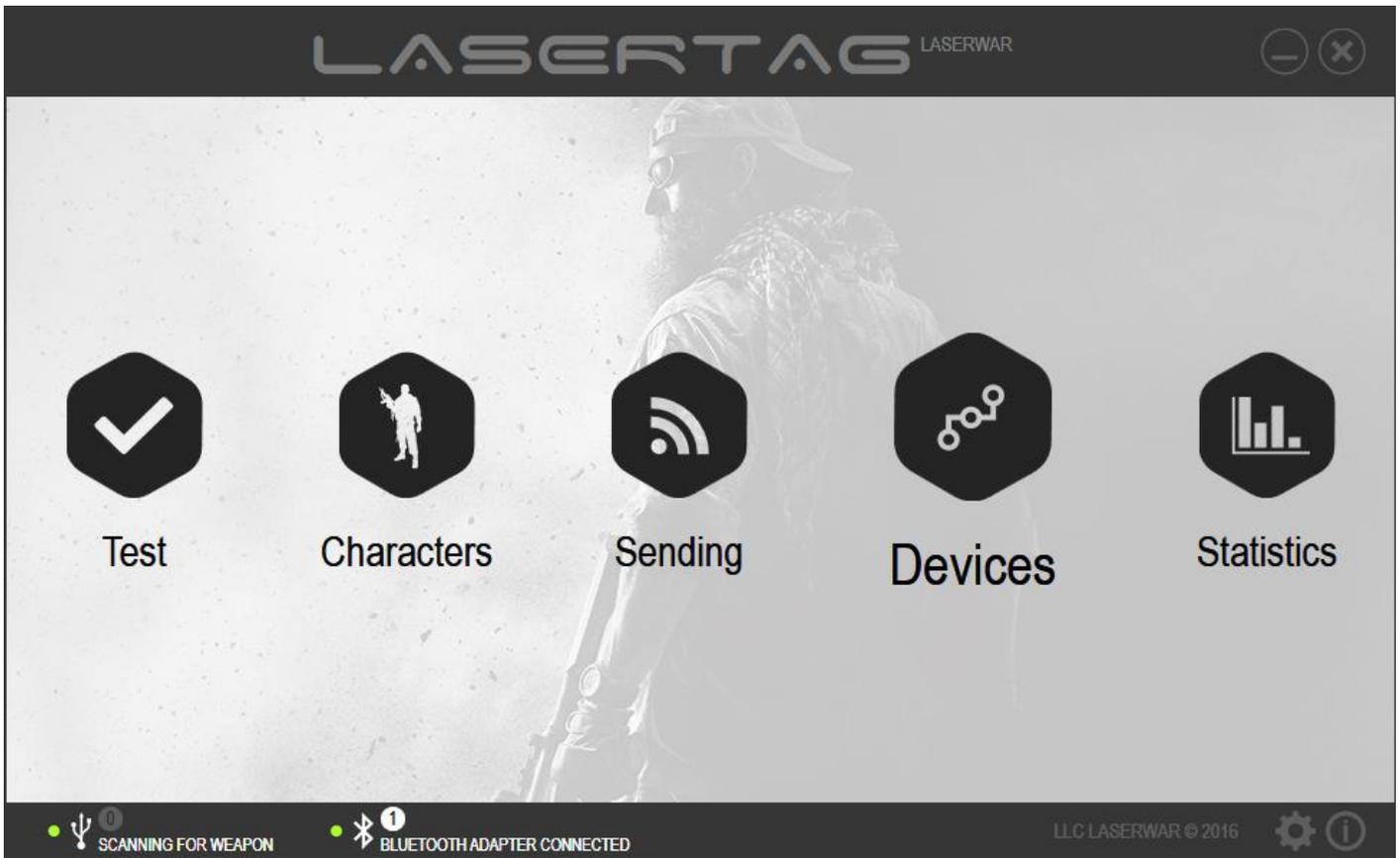


Picture 37

4.4 Devices unit

The Devices unit must be referred to when additional equipment parameters need to be set up. It can be used for a Hostage play set or an underbarrel grenade launcher, as well as for quick sending of the selected parameters to laser tag equipment.

To open the unit, select the **Devices** entry at the centre of the main window of the program (picture 38).

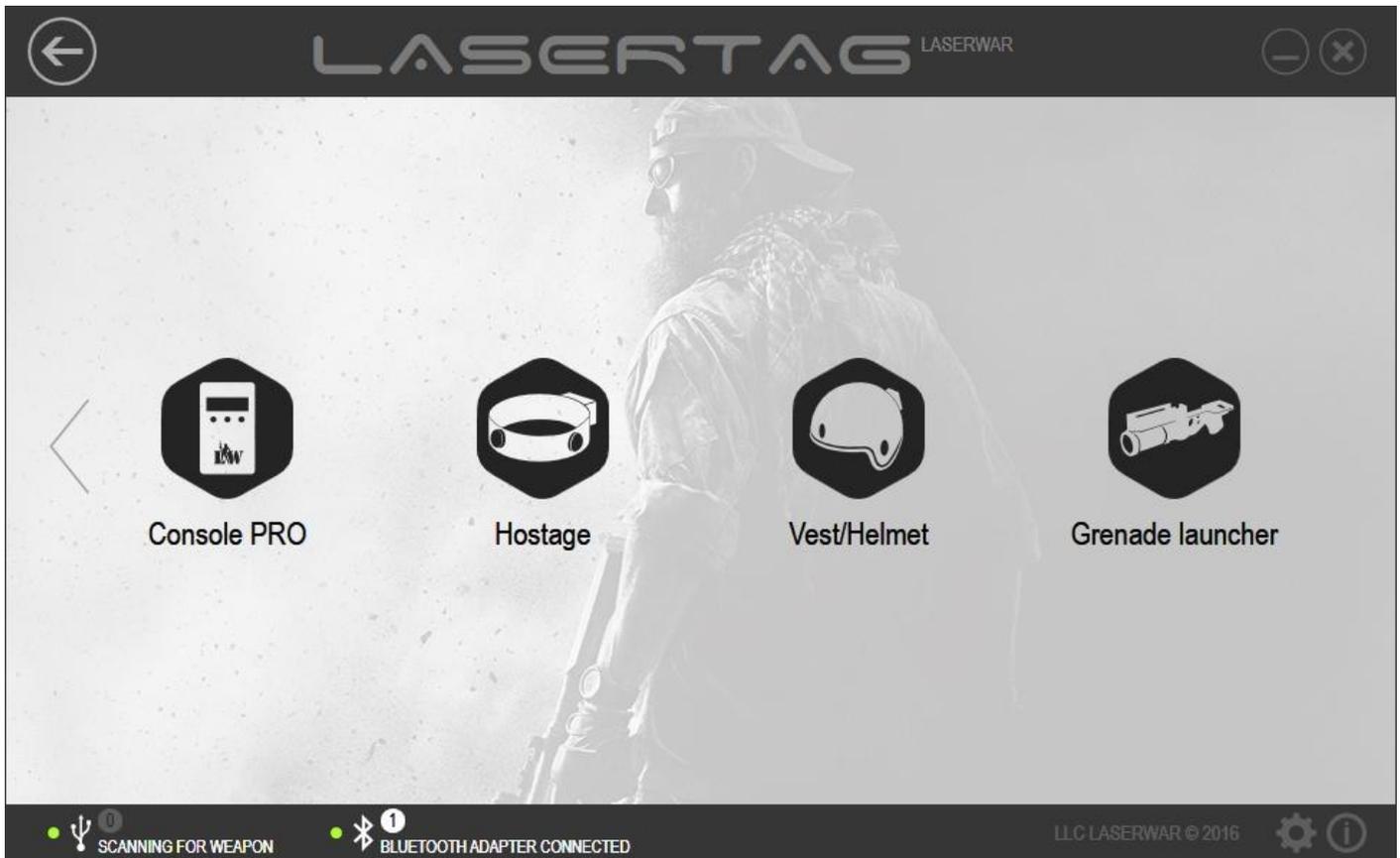


Picture 38

The main window of the unit is presented in pictures 39 – 40.



Picture 39



Picture 40

With user's convenience in mind, we created separate subunits for each additional device:

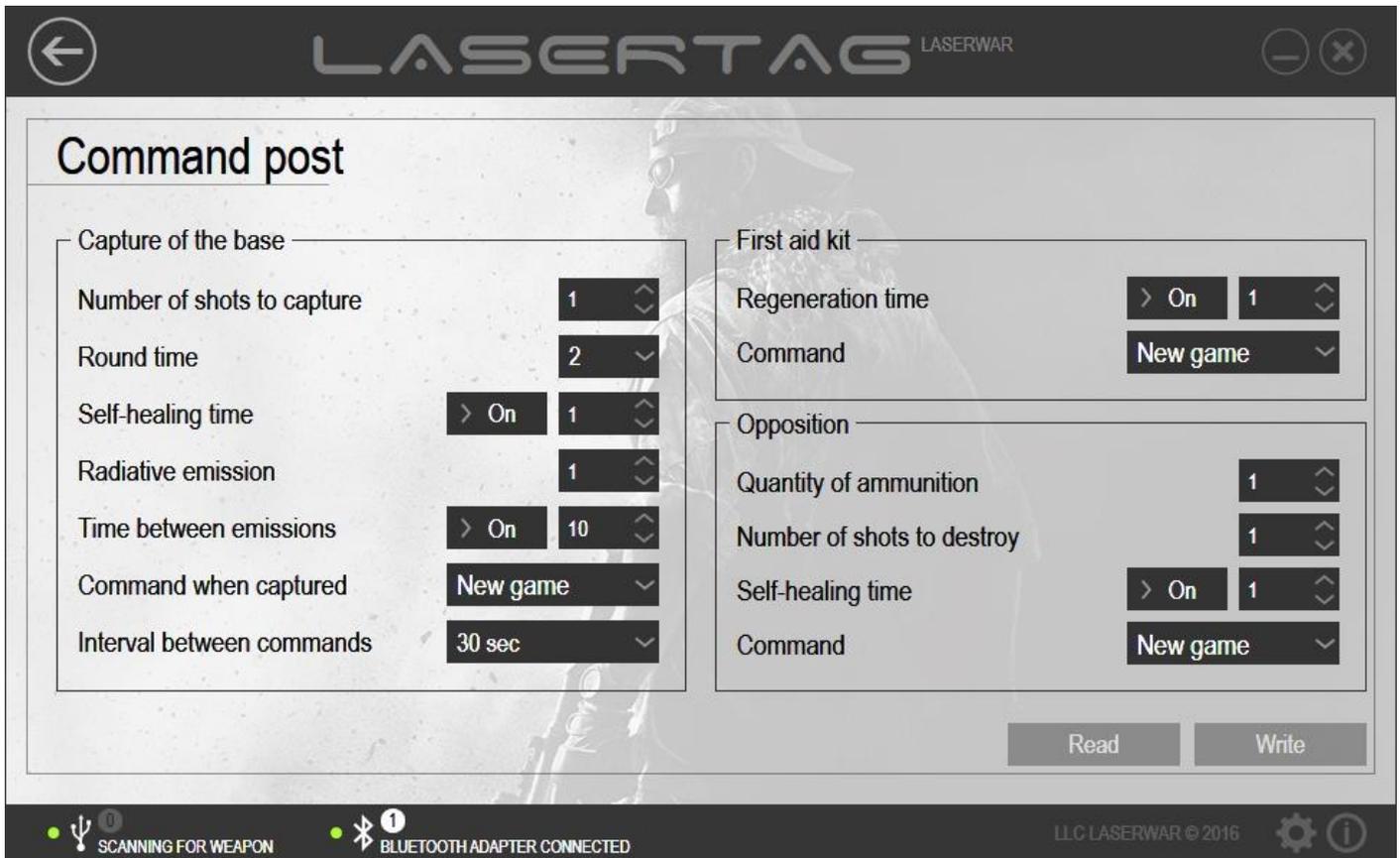
- Universal base subunit (go to paragraph 4.4.1);
- Smart first aid kit 2.0 subunit (go to paragraph 4.4.2);
- Smart medic subunit (go to paragraph 4.4.3);
- Dome system subunit (go to paragraph 4.4.4);
- Artefact subunit (go to paragraph 4.4.5);
- Universal remote subunit (go to paragraph 4.4.6);
- PRO remote subunit (go to paragraph 4.4.7);
- Hostage play set subunit (go to paragraph 4.4.8);
- Vest/ Helmet subunit (go to paragraph 4.4.9);
- Underbarrel grenade launcher subunit (go to paragraph 4.4.10).

To open a subunit, click on a relevant button. To close a subunit and go back to the main window of the Devices unit, click on **Back** at the top of the window.

In order to be able to work with subunits, you need to connect a USB base to a PC or a laptop (picture 4). A detailed description of this process is given in paragraph 3.6. A message that will appear at the top of the window upon that will notify the user that the USB base has been connected and equipment search is being performed. Game parameters can now be edited.

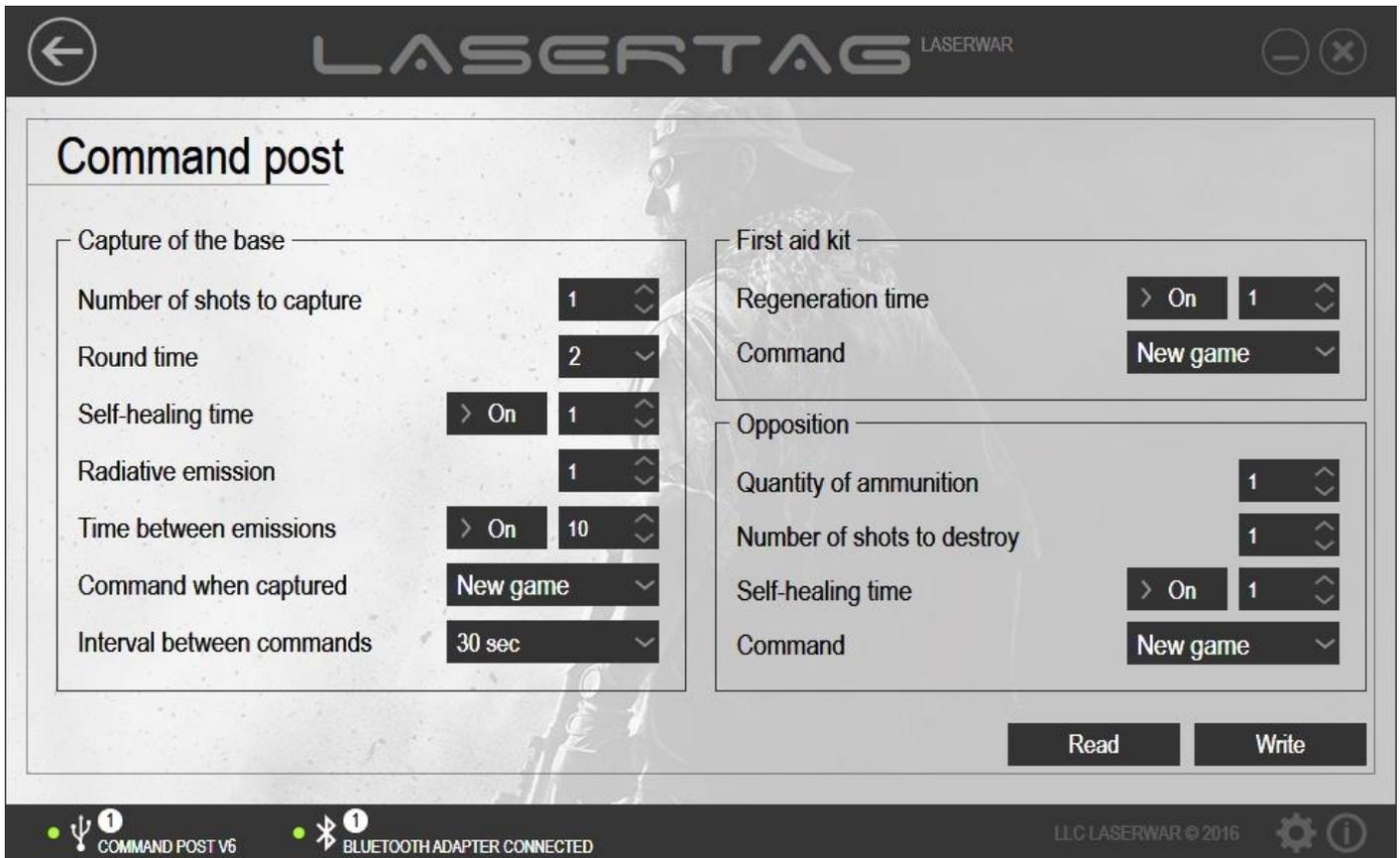
4.4.1 Universal base subunit

The main window of the *Universal base* subunit is presented in picture 41.



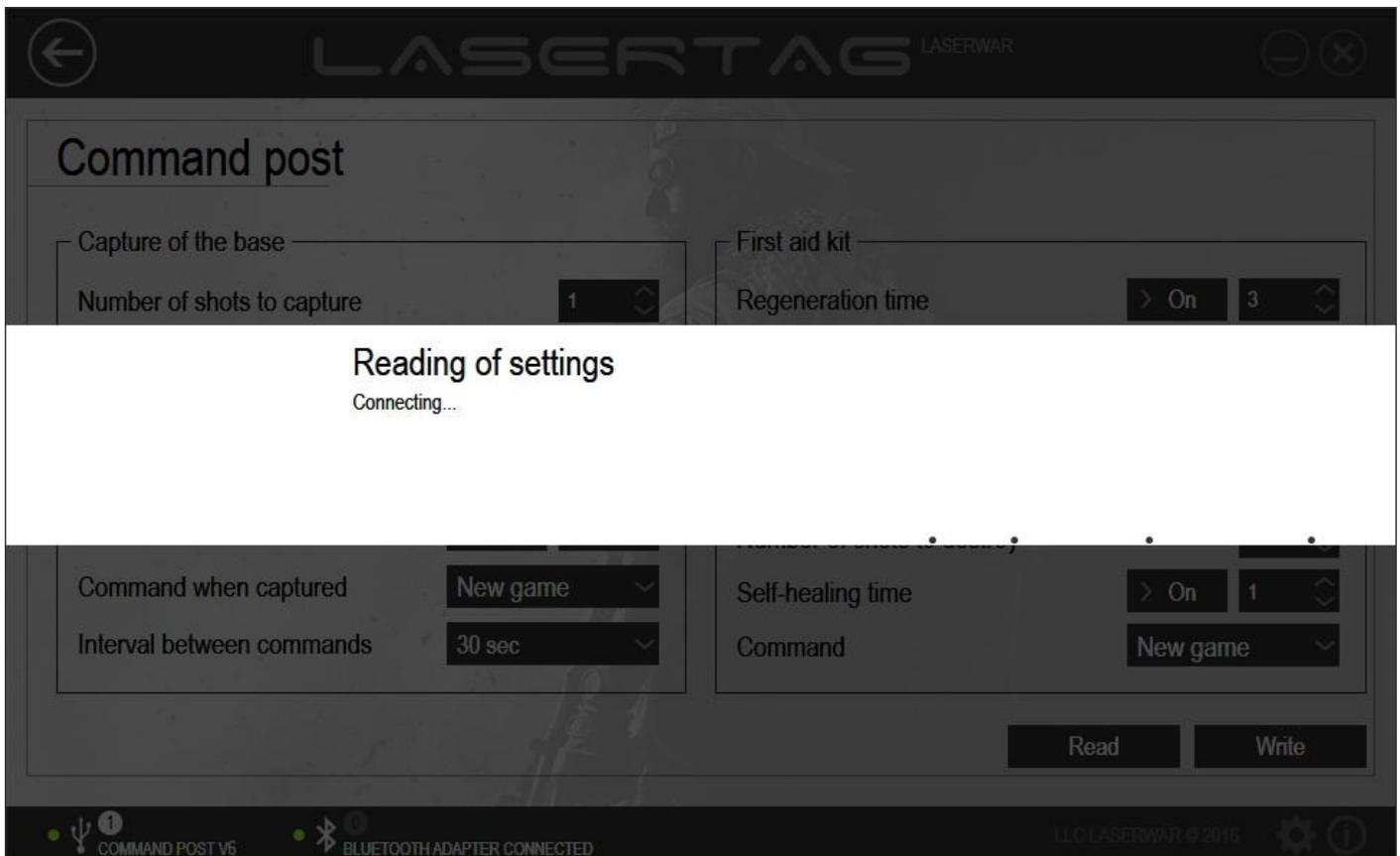
Picture 41

To work with the subunit, select the configuration mode for the universal base. To launch the universal base in configuration mode, press and hold the red button and turn on the equipment. This action is followed by a sound signal *Administrator mode activated*. Next, place the USB base sensors exactly in front of the universal base sensors (up to 1 m apart). Universal base sensors are on its top cap at either side of the button. If the equipment has been connected correctly, equipment connection and play set firmware version are displayed in the program. The **Read** and **Write** buttons become active (picture 42).



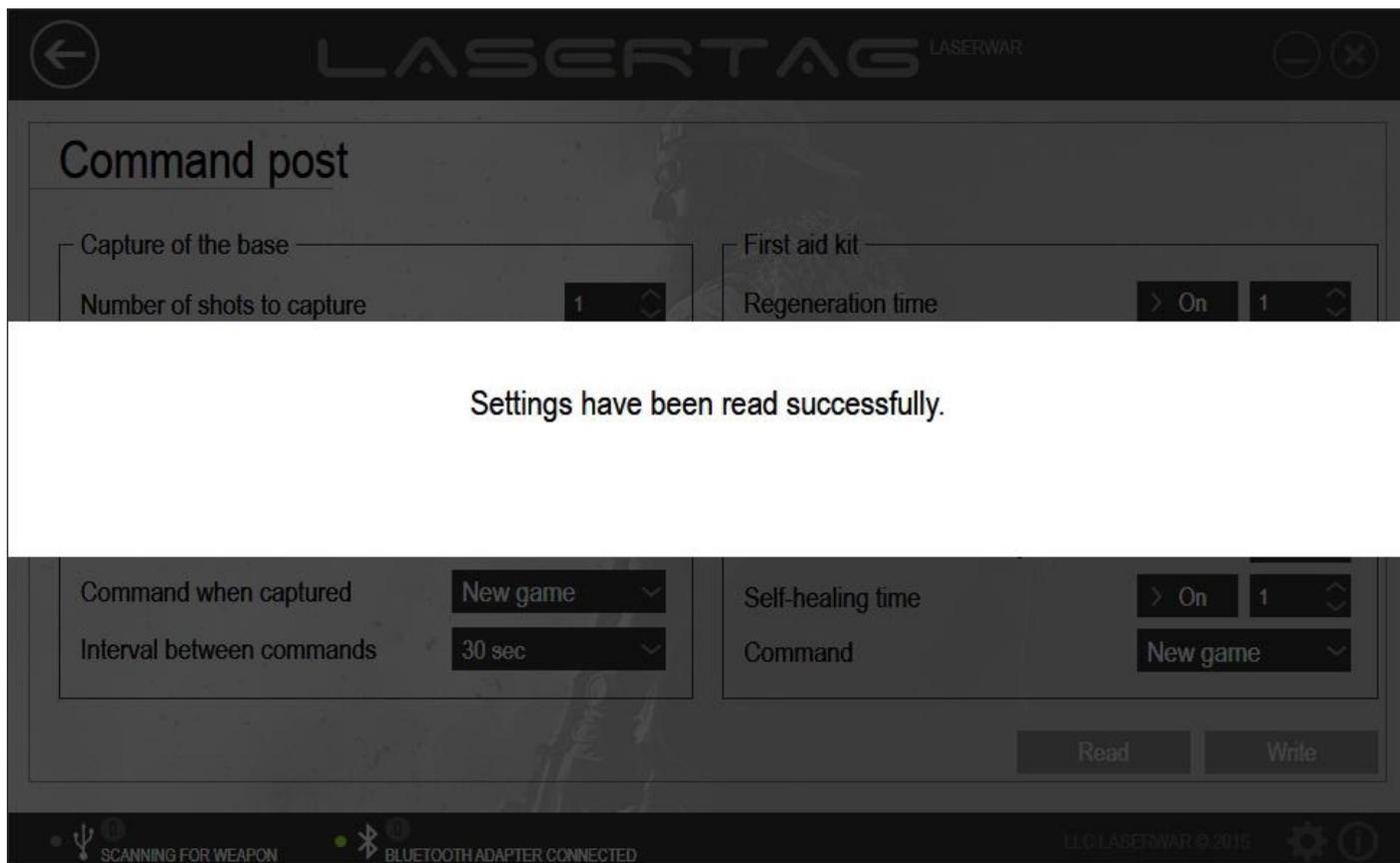
Picture 42

To view the parameters that were earlier sent to the equipment, click on **Read**. Upon that, an indicator of parameters reading process will be displayed on the screen (picture 43).



Picture 43

After the parameters reading process has been completed, the window will look as shown in picture 44.



Picture 44

After that, game parameters of the equipment can be viewed in the relevant fields of the window.

In order to set up technical parameters before sending them to the equipment, enter data values into the fields that are described below. Each of them corresponds to a particular game mode (**Base capture**, **Basic first aid kit** and **Confrontation**).

Base capture

- Amount of shots for capture The starting amount of shots that must be made to universal base in order to capture it. If the player does not manage to capture the universal base, then after the time stated in the **Self-recovery time, sec**, the amount of hits that are required to capture the base will keep increasing by one until it reaches its default value. You can choose between 1 and 10000.
- Round time, min Select round time in minutes from a drop-down menu. You can choose between 2 and 120.
- Self-recovery time, sec Time (in seconds) after which the number of shots that are required for capture will increase by 1 until it reaches the value that has been entered in the **Number of shots for capture** field. You can choose between 1 and 254. To turn off universal base self-recovery, select the Off position of the switch.
- Radiation outbreak power Amount of damage (in health units) done by the radiation outbreak of the universal base to the players that are within the radius of action. Choose between 1 and 254.
- Time between outbreaks, sec Time (in seconds) at the end of which radiation is emitted. You can choose any value between 10 and 254. To turn off radiation outbreaks, select the Off position of the switch.

- Command at capture The command that is performed when the universal base is captured.
Revival – recovery of health units of a killed player to their maximum amount.
New game immediately – end of the current game and start of a new game immediately after a universal base has been captured.
New game – start delay – end of the current game and start of a new game after a time interval.
- Command running frequency rate Frequency rate of running a Command at capture (when *Revival* command has been selected). You can choose a value between 10 seconds and 10 hours.

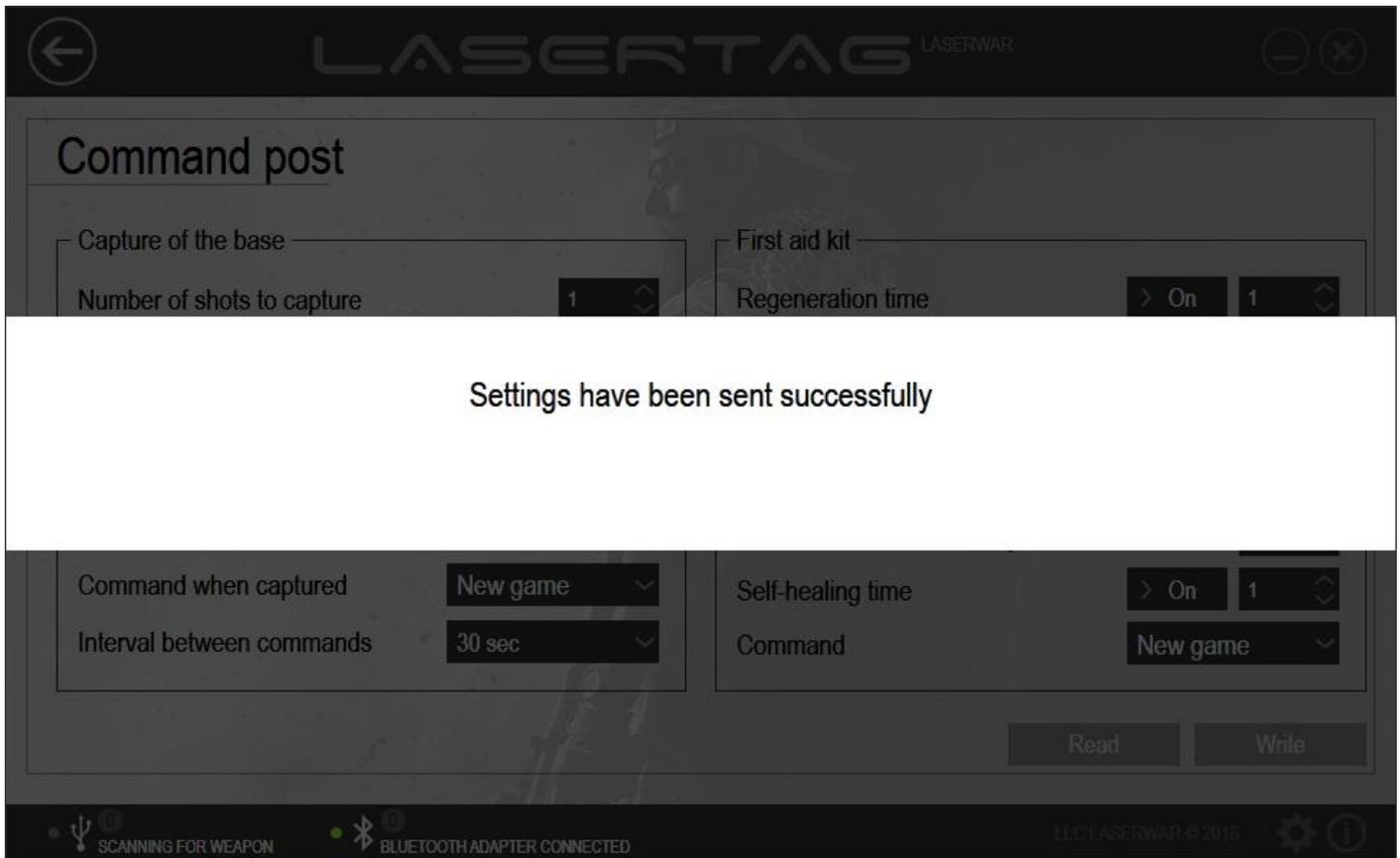
Basic first aid kit

- Regeneration time, sec In the automatic mode, players' health units and ammunition will be restored within the radius of action at the chosen rate of time. For this parameter, choose between 1 and 254 seconds. To turn off the automatic health and ammunition restoration, select the Off position of the switch.

Confrontation

- Ammunition amount The overall amount of magazine that has to be restored using a universal base within round duration. You can choose between 1 and 10000.
- Number of shots for destruction The number of times a rival team player needs to hit a universal base before its ammunition is completely destroyed. You can choose between 1 and 10000.
- Self-recovery time Time (in seconds) during which the amount of ammunition will keep increasing by one till it reaches the original value stated in the **Ammunition amount** field. Choose between 1 and 254. To turn off universal base self-recovery, select the Off position of the switch.

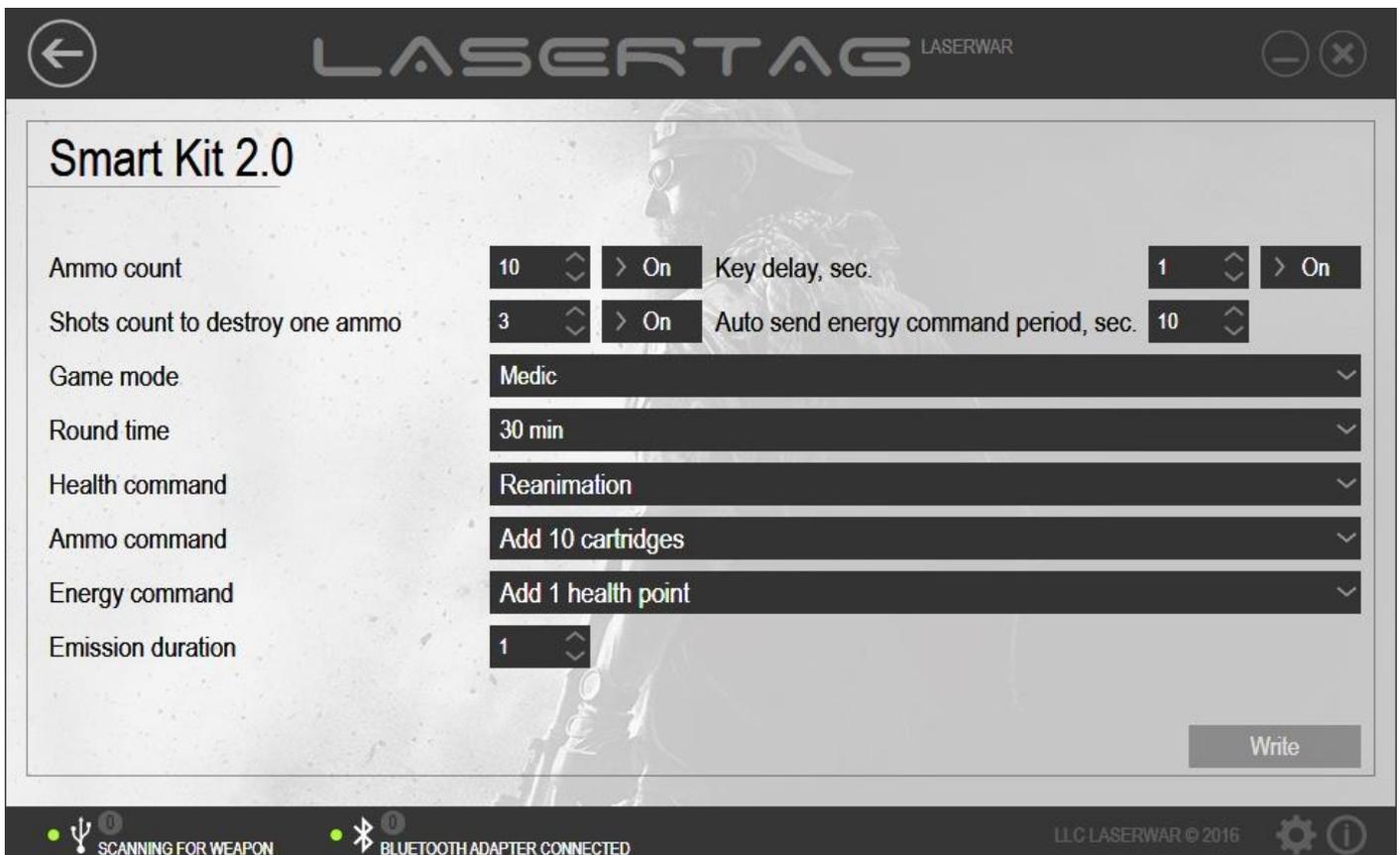
To send technical parameters to the equipment, click on **Write**. Upon that, an indicator of parameters sending progress will be displayed on the screen. After parameters sending has been complete, the program window will look as shown in picture 45.



Picture 45

4.4.2 Smart first aid kit 2.0 subunit

The main window of the Smart first aid kit 2.0 subunit is presented in picture 46.



Picture 46

To work with the subunit, select configuration mode for the Smart first aid kit. Place USB base sensors exactly in front of laser tag equipment sensors (up to 1 metre apart). If the equipment has been connected correctly, equipment connection and the firmware version of the play set will be displayed in the program. The **Write** button will become active (picture 47).



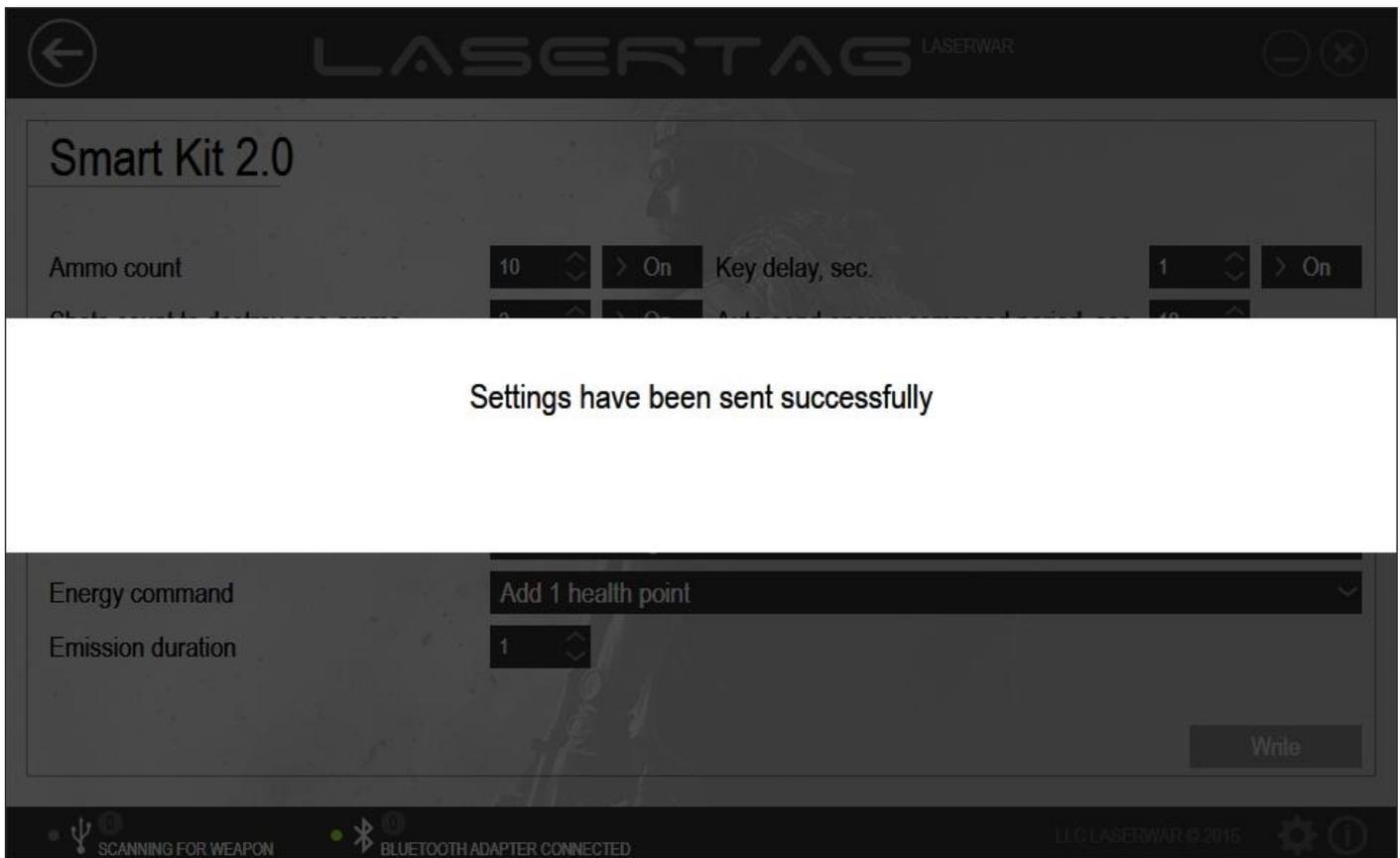
Picture 47

To set up technical parameters before sending them to the equipment, enter data into the fields described below.

- **Ammo count** Number of times Smart first aid kit is used before it is restarted. When the preset amount of play sets has nearly finished, the Smart first aid kit needs to be restarted by using *New game* command. Choose a value between 1 and 250. Turn this option off to have an unlimited amount of play sets.
- **Shots count to destroy one ammo** Number of shots that need to be fired to Smart first aid kit to destroy one play set. Select a value between 1 and 250. Select off to turn off this parameter.
- **Game mode** Select **Medic**, **Ammo** or **Energy** game mode. The device will enter the mode you have selected after you exit programming mode as well as when you turn the device on.
- **Round time** Select a value between 1 minute and 4 hours. At the end of the chosen time period, all the play sets of the Smart first aid kit will be annulled and the device will have to be restarted. You can also set up unlimited round time.
- **Health command** Select one of the commands: *Restore health*, *New game – start delay*, *New game immediately*, *Revival*. The selected command will be active in Health mode.

- Ammo command Select one of the commands: *Restore ammunition, Add 1 (2, 5, 10) magazines, Add 10 (50, 100) cartridges*. The selected command will be active in Ammo mode.
- Energy command Select one of the commands from the list. There is a comprehensive list of commands for the Energy mode. The selected command will be active in Energy mode.
- Key delay, sec The time you need to press and hold the button in order to use one play set.
- Auto send energy command period, sec Time required for the device to be activated. You can choose between 1 and 1800.

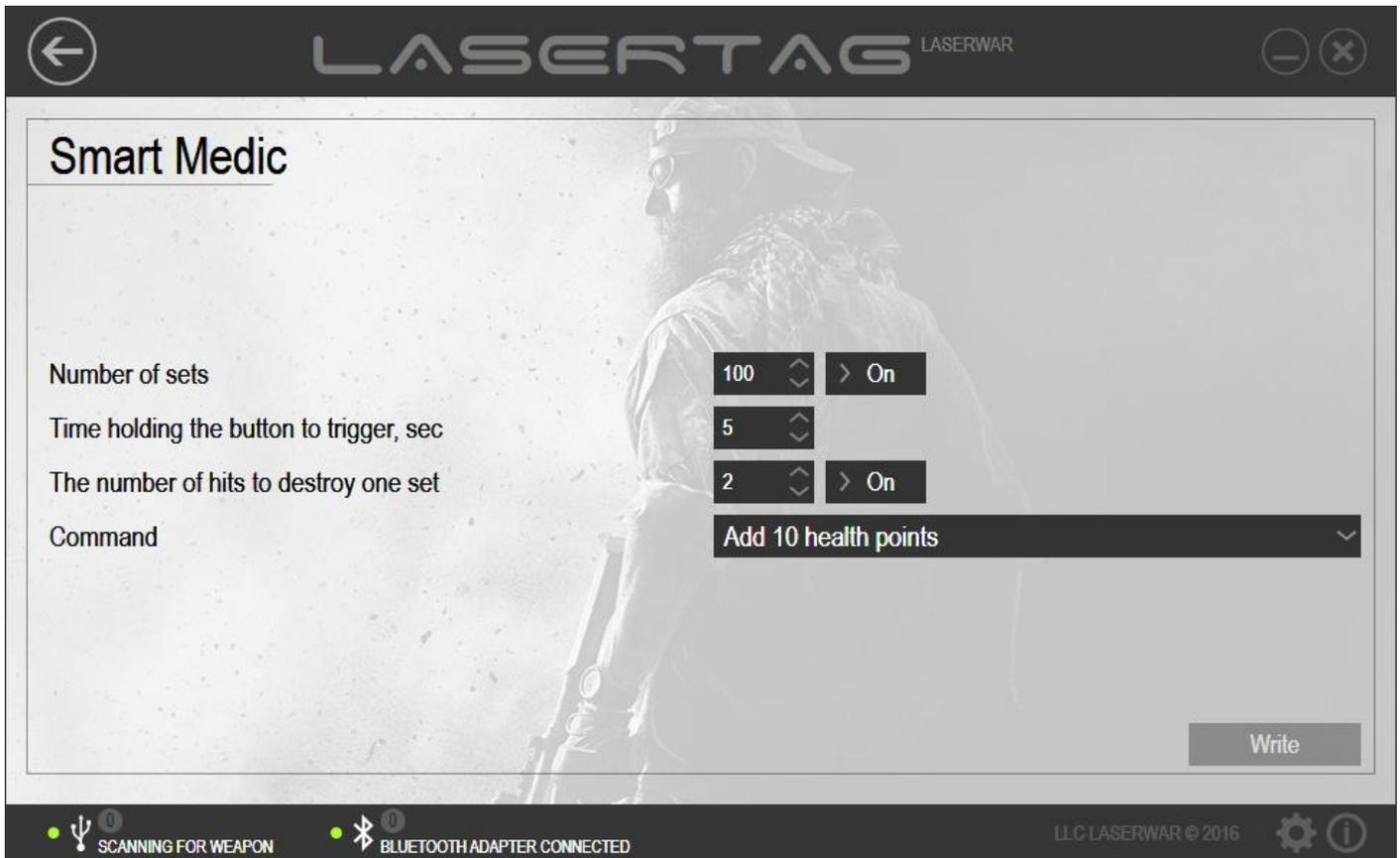
To send technical parameters to the equipment, click on **Write**. At that, an indicator of parameters sending progress will be displayed on the screen. When parameters sending has been complete, the program window will look as shown in picture 48.



Picture 48

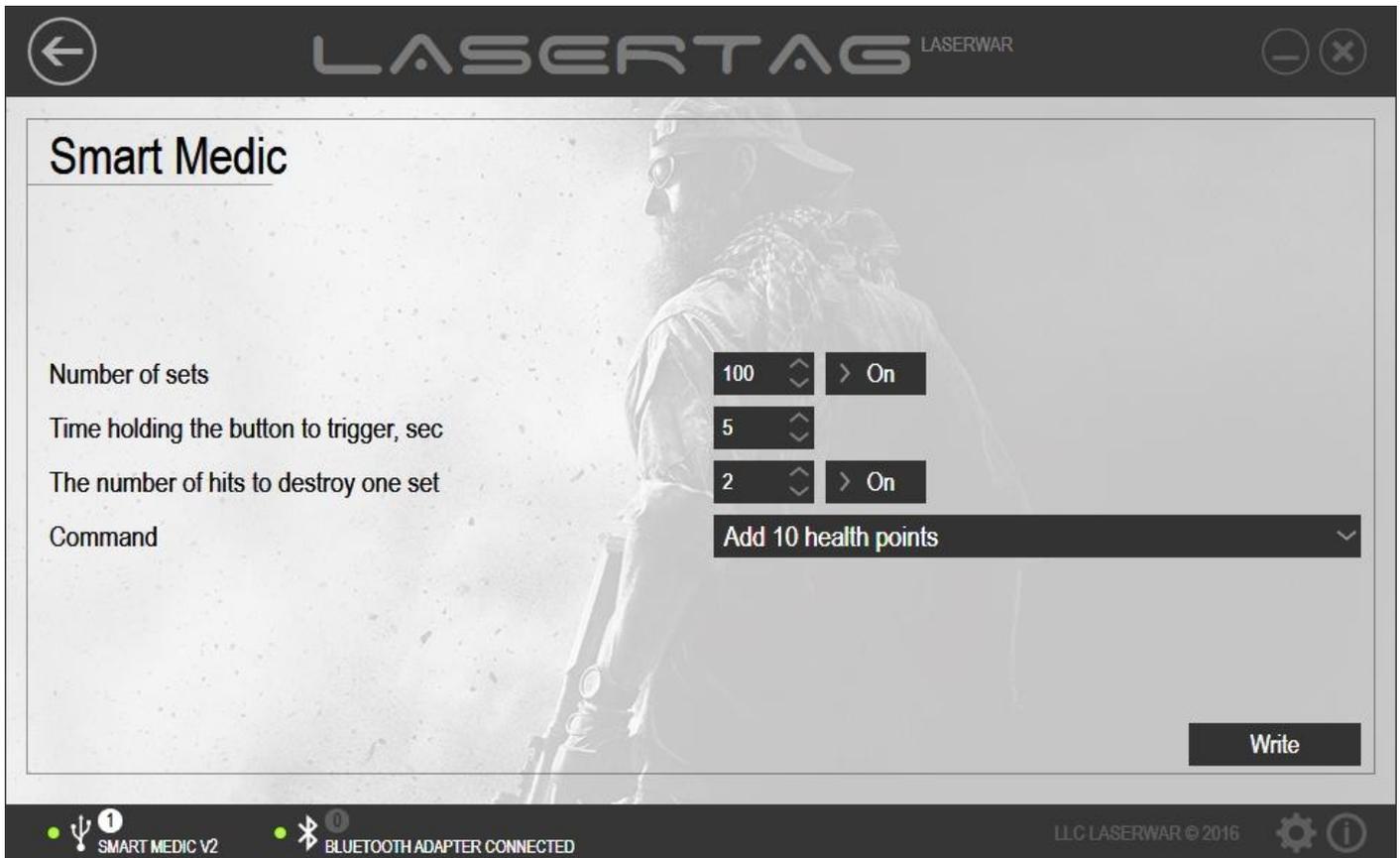
4.4.3 Smart medic subunit

The main window of the Smart medic subunit is presented in picture 49.



Picture 49

To work with the unit, select configuration mode for your laser tag equipment. Place USB base sensors exactly in front of Medic sensors (up to 1 metre away). If the equipment has been connected correctly, equipment type and firmware version will be displayed in the program (picture 58), the Medic LEDs will glow violet and three brief sound signals will be produced.



Picture 50

To set up technical parameters for sending them to the equipment, enter data into the fields that are described below.

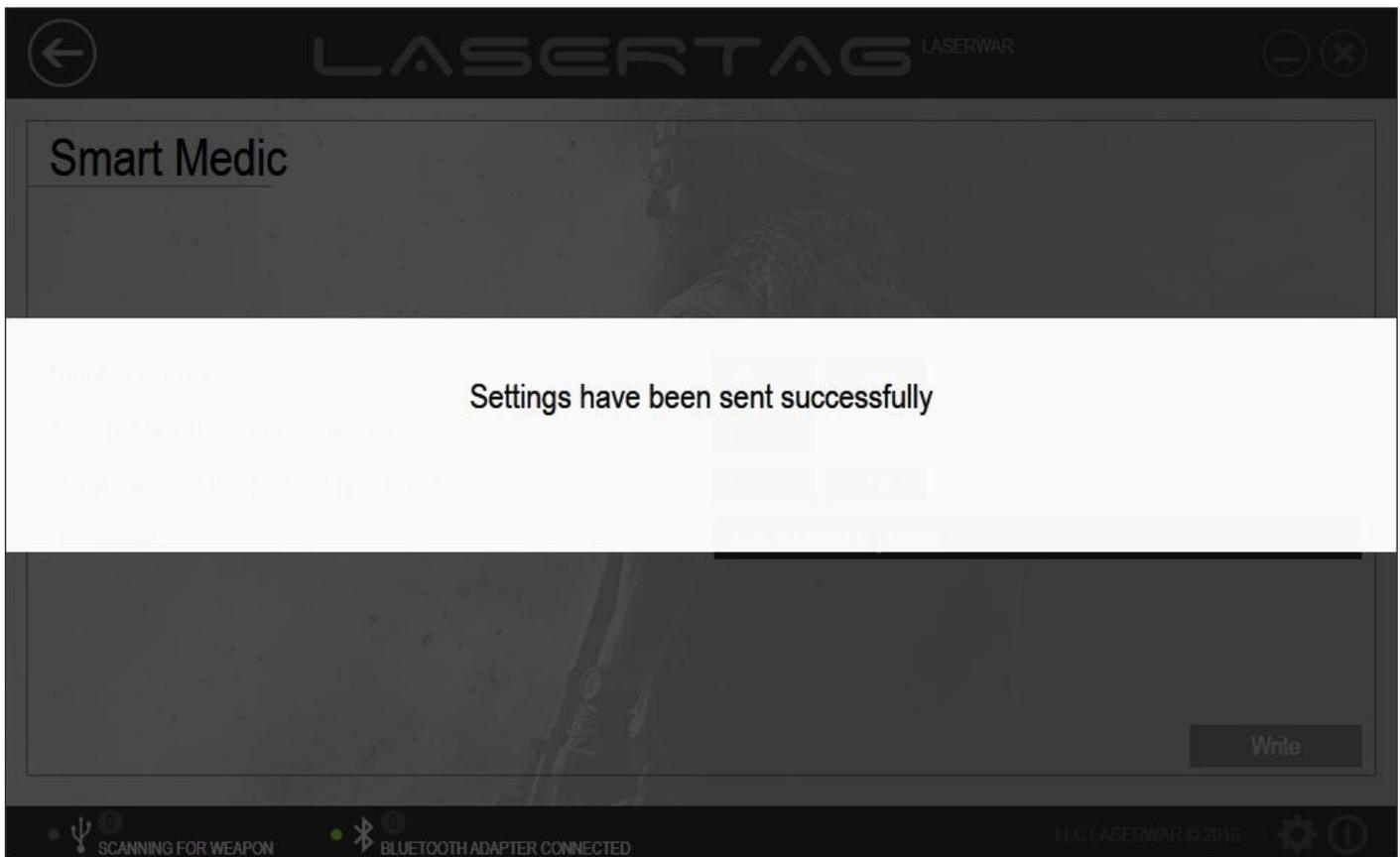
- **Number of play sets** Number of times a Medic can be used before it has to be restarted. This parameter can be turned off. When the preset amount of play sets has nearly finished, you will have to restart the Medic by means of the *New game* command. Select Off to have an unlimited number of play sets.
- **Button hold time before activation, sec** The time during which the button needs to be pressed and held. After this action the play set can be used.
- **Hits to destroy one play set** The number of shots that need to be fired to a Medic to destroy one play set. Select Off to deactivate this function.
- **Action** The action performed after pushing the button.

In order to select an action performed by means of a remote on clicking the button, enter the required item in the **Action** field. The list of commands is presented below.

- **Add 1 (5, 10, 50, 100) health unit** Awards a player with the chosen amount of health units (unless the player already has the maximum amount of health units).
- **Add 10 (50, 100) cartridges** Add the respective amount of cartridges to a player's ammunition (unless the player already has the maximum value).
- **Revival** Restore killed player's health to the maximum.
- **New game immediately** Start a new game. Activate the play set.
- **Restore ammunition** Restore ammunition of a player to the maximum value.

- Restore health Restore health units of a player to the maximum value.
- Add 1 (2, 5, 10) magazine Add the respective amount of magazines to the ammunition (unless the player already has the maximum amount of magazines).
- Adrenalin (1 (4, 15, 75) units Restore 1 and 4 health units when the maximum preset amount of health units equals 4. Alternatively, restore 15% and 75% of health when the maximum preset amount of health units is 100%.
- Stop bleeding (bandage) Stop the activated Bleeding mode of a player.

In order to send technical parameters to the equipment, click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. After the data sending has been complete, the window will look as shown in picture 51.



Picture 51

To exit the programming mode, push the button on the Medic. Three short beeps will sound upon that. They will be followed by changing of the LEDs colour from green to red to blue and to green.

4.4.4 Dome system subunit

The main window of the Dome system subunit is presented in picture 52.



Picture 52

To start working with the subunit, select the configuration mode for the Dome system of armour disruption (the Dome system is automatically launched in configuration mode if the *New game from console* parameter is on). Place the USB sensors exactly in front of the laser tag equipment sensors (up to 1 metre away). If the equipment has been connected correctly, equipment connection will be displayed in the program. Besides, **Write**, **Read** and **Clear statistics** will become active (picture 53).

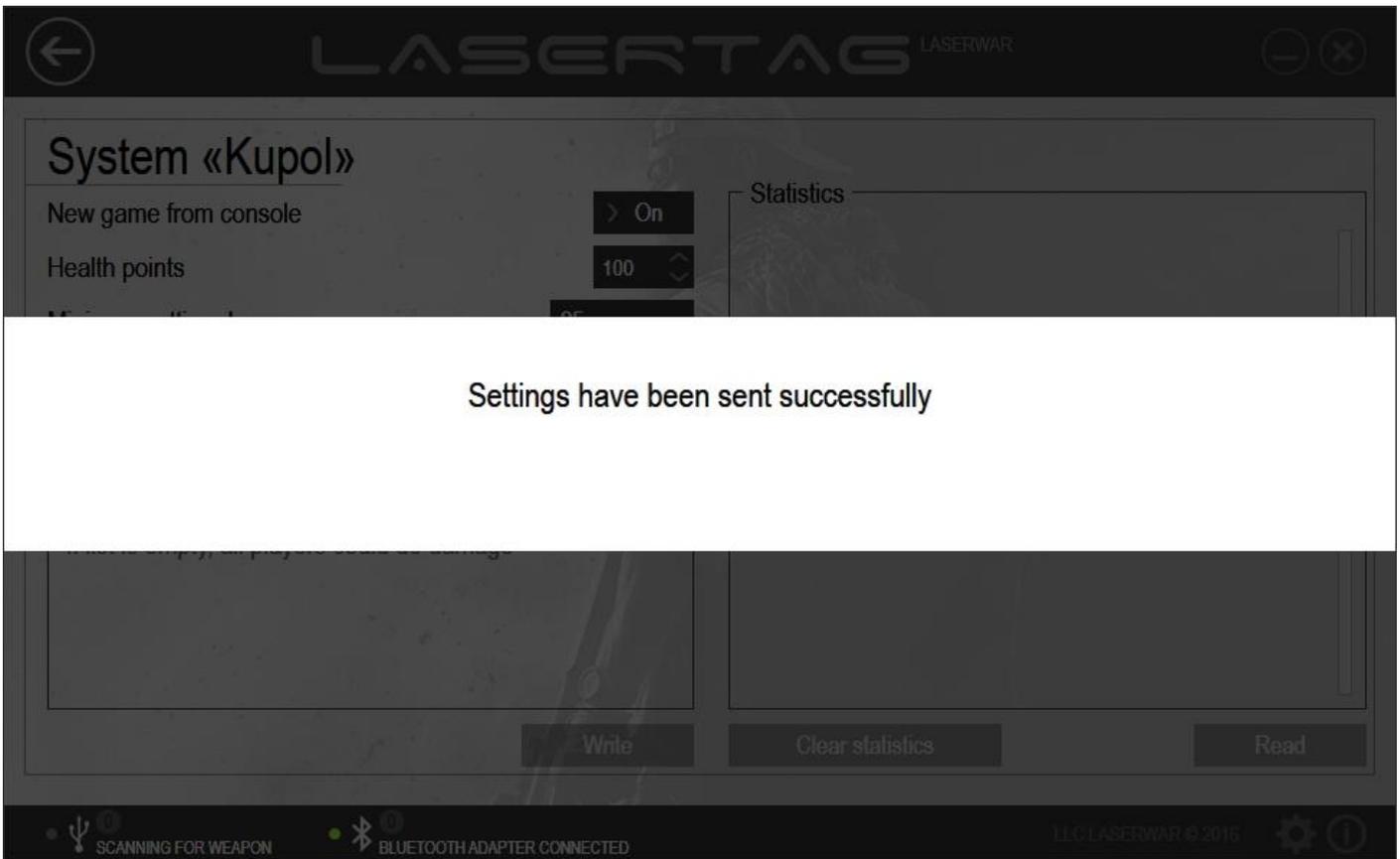


Picture 53

To set up technical parameters for sending to equipment, enter data into the fields that are described below.

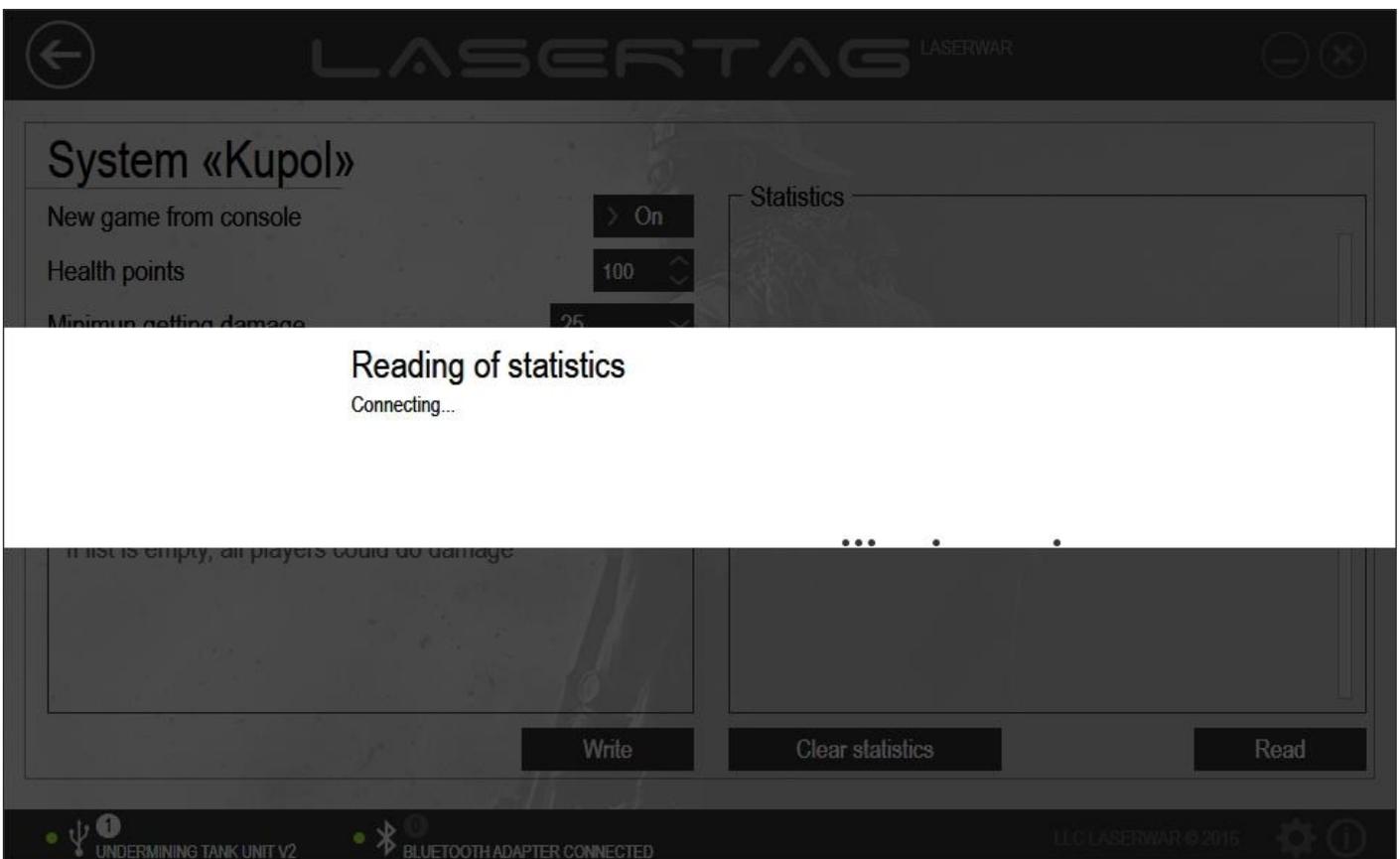
- **New game from console** Select On to only be able to enter the game mode using a remote. If you select Off, the Dome system will enter the game mode immediately after activation.
- **Health points** Enter the number of health units using a keyboard or digital buttons. You can select a value between 1 and 65000.
- **Damage at above** Choose the minimum damage amount (in health units) that is done to the Dome system for armor damage. The shots that are below the minimum damage amount will be ignored by the system. You can choose a value between 1 and 100.
- **Blast after damage** Select the damage (in health units) that needs to be done to the Dome system to completely destroy armour. You can choose a value between 1 and 100. To turn off the blast function altogether, select Off.
- **Players that cause damage** If you leave this field blank, all the players will be able to damage the Dome system. In order to enable only particular players to inflict damage, enter their numerical IDs separated by commas. You can also enter IDs range using a dash.

In order to send technical parameters to the equipment, click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. If the data sending has been successful, the window will look as shown in picture 54.



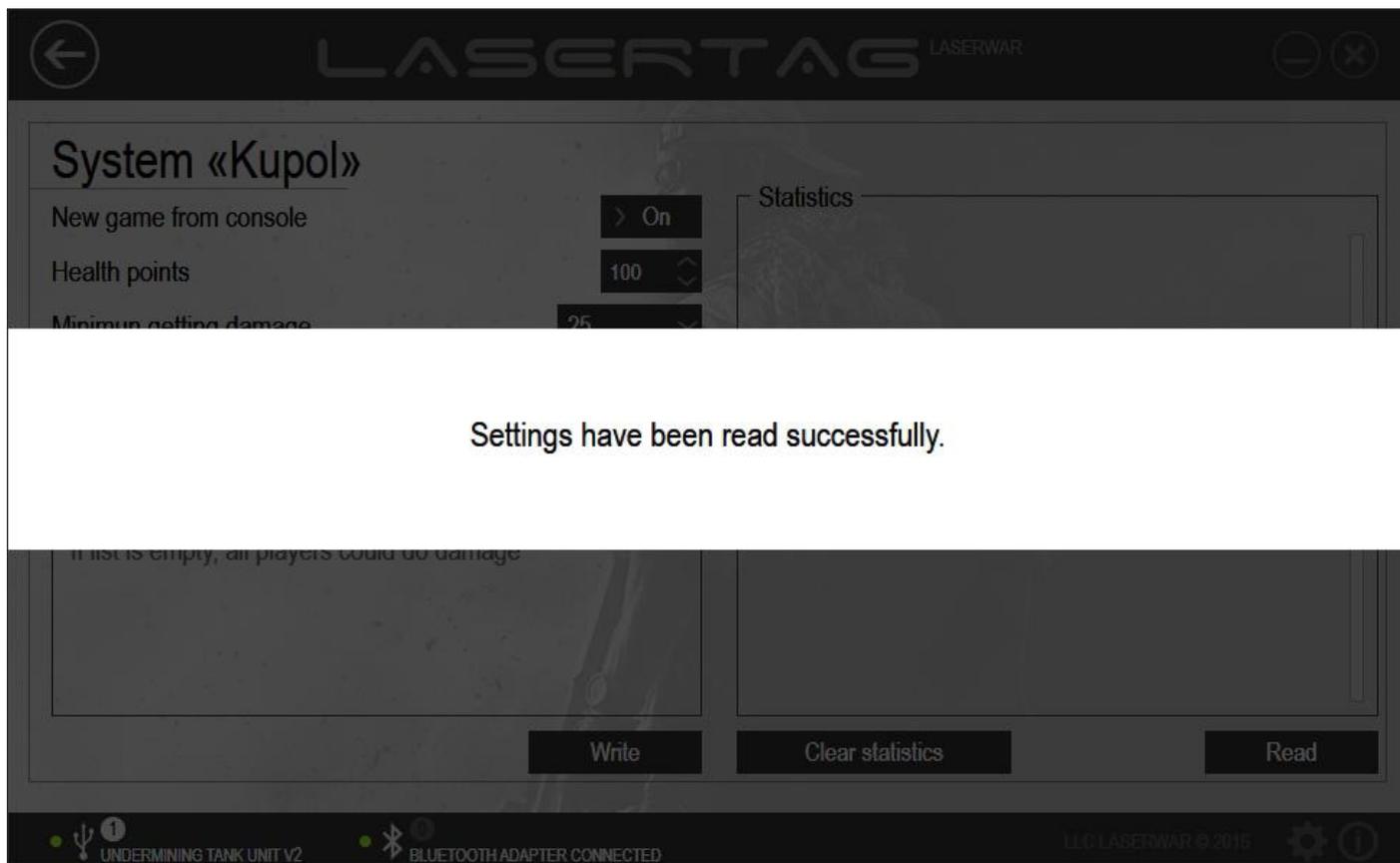
Picture 54

In order to read the data of the Dome system game statistics, click on **Read**. At that, an indicator of statistics reading progress will be displayed on the screen (picture 55).



Picture 55

After statistics reading has been complete, the window will look as shown in picture 56.



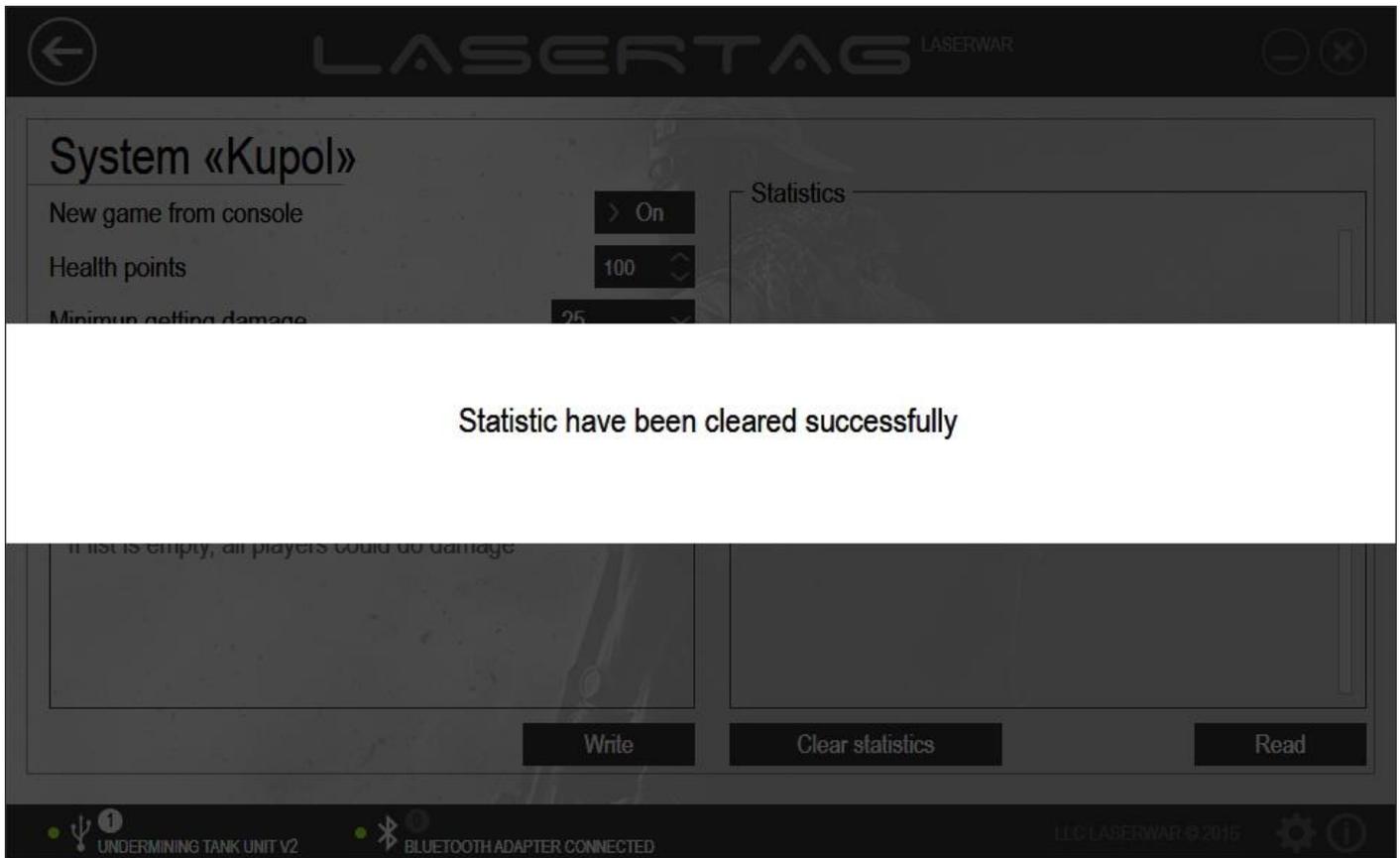
Picture 56

The equipment game statistics data can now be viewed in the **Statistics** field.

The following commands are listed in statistics:

- Infrared command *Blast*
- Hit registered - <Team colour>:<ID>damage<value>
- Health level in %
- *Kill* command
- *New game* command
- Device activation, health in %

To **Clear statistics**, click on the relevant button. At that, an indicator of statistics clearance process will be displayed on the screen. If the process has been completed successfully, the window will look as shown in picture 57.



Picture 57

Please note that the statistics will be deleted in the program interface as well as in the laser tag equipment.

4.4.5 Artefact subunit

The main window of the Artefact subunit is presented in picture 58.



Picture 58

In order to start working with the subunit, select the configuration mode for the laser tag equipment. To select the configuration mode for the device, you need to do the following. As you turn on the artefact, push and hold the **Config** button. A LED lights up at that. Place the USB base sensors exactly in front of the equipment sensors (up to 1 metre away). If the equipment has been connected correctly, the **Write** button will become active in the program (picture 59).



Picture 59

To set up technical parameters for sending to equipment, enter data into the fields that are described below.

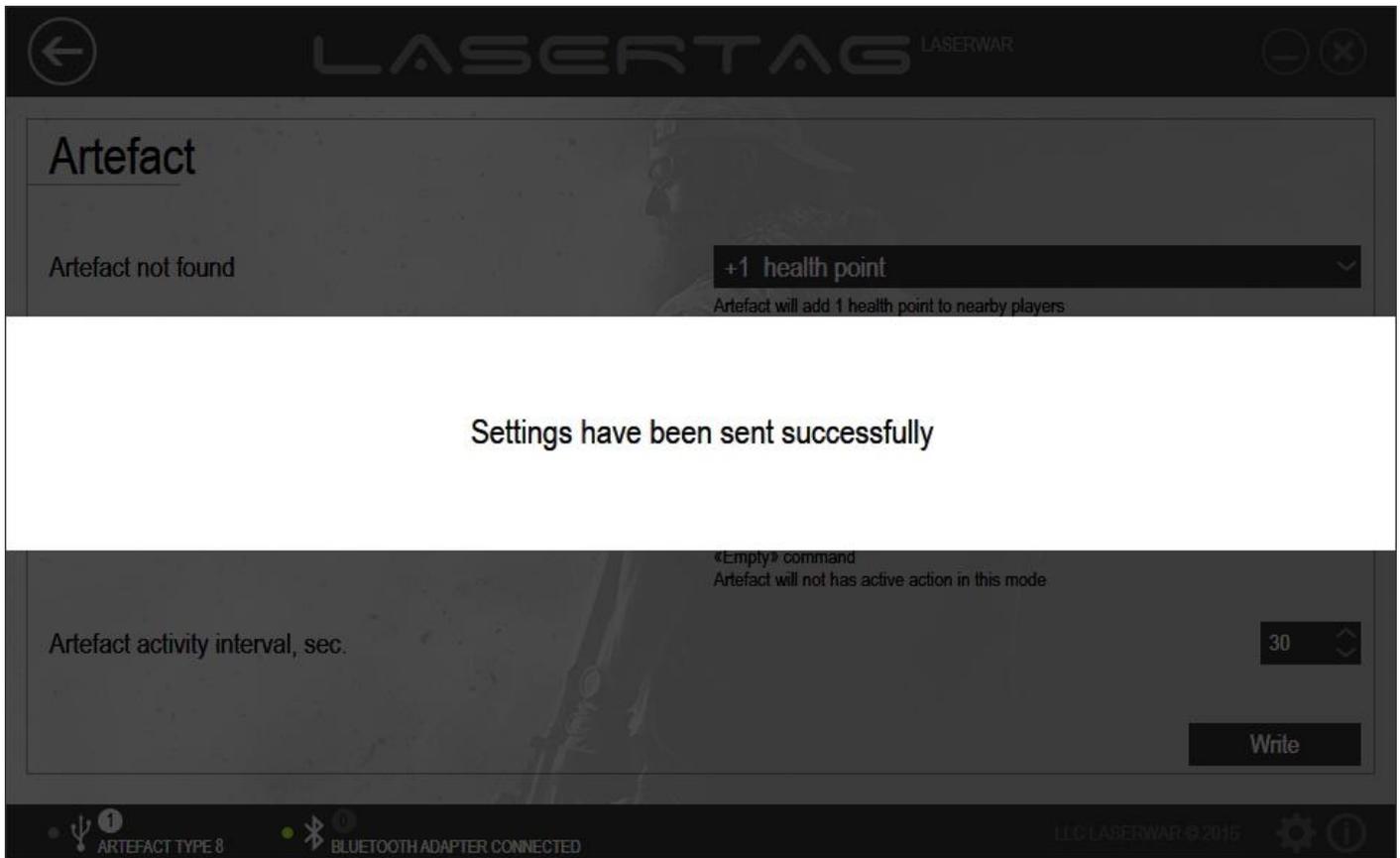
- Artefact not found The artefact affects players the way that has been configured in the *Waiting* mode (before a player from any team fires a shot in him).
- Artefact captured The artefact affects players the way that has been configured in the *Captured* mode (after a player of some team shoots the artefact).
- Artefacts interact The artefacts affect players the way that has been configured in the *Pulled together* mode (artefacts of various types are captured by one team and are placed next to one another).
- Artefact activity interval, sec State a time interval during which artefacts affect players (in seconds). You can select a value between 10 and 240.

The following items can be picked in the fields described above.

- Inaction Empty command. The artefact is inactive in this mode.
- +1 (10, 25, 50, 100) health point The artefact awards the players that are nearby the chosen number of health points (unless a player already has the maximum amount of health)
- Restore health The artefact fully restores health of the players that are close by.
- +10 cartridges The artefact awards the players that are close by 10 cartridges.
- +1 magazine The artefact awards the players that are close by one magazine.
- Full ammo The artefact fully restores the ammunition of the players that are close by.
- New game (respawn) The artefact fully restores the ammunition and health of the players that are close by.
- Disarm player The artefact damages all the ammunition of the players that are close by.
- Knock out player The artefact temporarily knocks out the players that are close by.

- Kill player The artefact kills the players that are close by.
- Anomaly +2 (25, 50) health (v. 4) The artefact adds the chosen number of health units to the players that are close by (unless a player already has the maximum amount of health). Available in the 4th generation of LASERWAR equipment.
- Radiation -2 (25, 50) health (v. 4) The artefact takes away one health unit from the players that are close by. Available in the 4th generation of LASERWAR equipment.
- Restore owner's health (v. 4.04) The Artefact fully restores health ONLY of the player that captures it. Available in LASERWAR equipment starting from version 4.04.
- Restore owner's ammo (v. 4.04) The Artefact fully restores ammunition ONLY of the player that captures it. Available in LASERWAR equipment starting from version 4.04.
- +1 (10, 25, 50) health to owner team (v.4.04) The Artefact awards ONLY the team that captures it one health unit. Available in LASERWAR equipment starting from version 4.04.
- Restore owner team health (v.4.04) The Artefact fully restores health ONLY of the team that captures it. Available in LASERWAR equipment starting from version 4.04.
- Full ammo to owner team (v.4.04) The Artefact fully restores ammunition ONLY of the team that captures it. Available in LASERWAR equipment starting from version 4.04.
- Maximum rate of fire (v.4.06) The artefact increases the rate of fire of a play set to the maximum. This setting remains active until the player's death. Available in LASERWAR equipment starting from version 4.06.
- Double up health (v.4.06) The artefact doubles up a player's health irrespective of the preset maximum value. This setting remains active until the player's death. Available in LASERWAR equipment starting from version 4.06.
- Restore health to the RED (BLUE, GREEN, YELLOW) (v.4.04) The artefact fully restores the health of a team with the selected colour. Available in the 4th generation of LASERWAR equipment.
- Restore ammo to the RED (BLUE, GREEN, YELLOW) (v.4.04) The artefact fully restores the ammunition of a team with the selected colour. Available in the 4th generation of LASERWAR equipment.

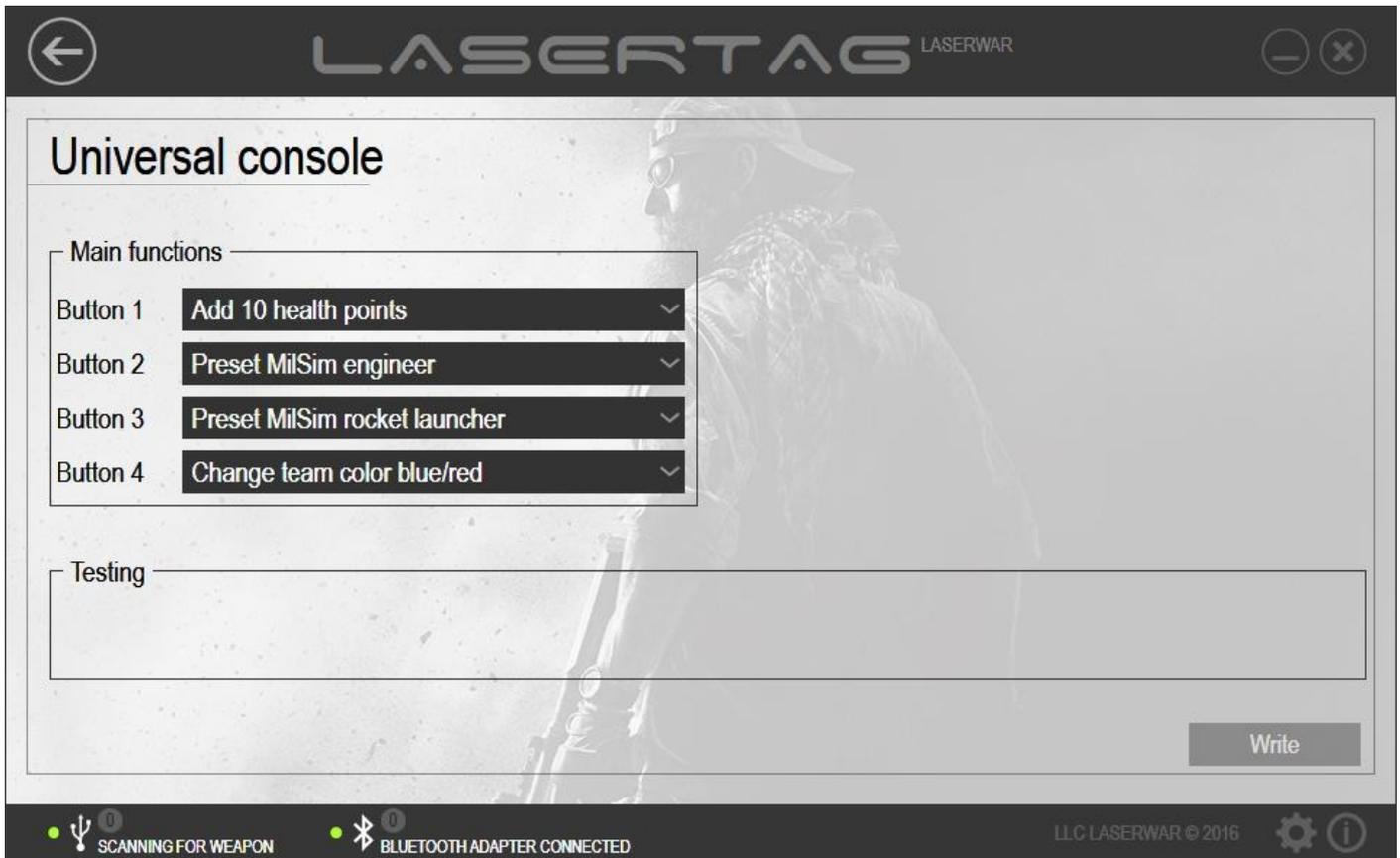
In order to send technical parameters to the equipment, click on **Write**. Upon that, the artefact LED will start flashing and an indicator of the parameters sending progress will be displayed on the screen. If the data sending has been successful, the window will look as shown in picture 60.



Picture 60

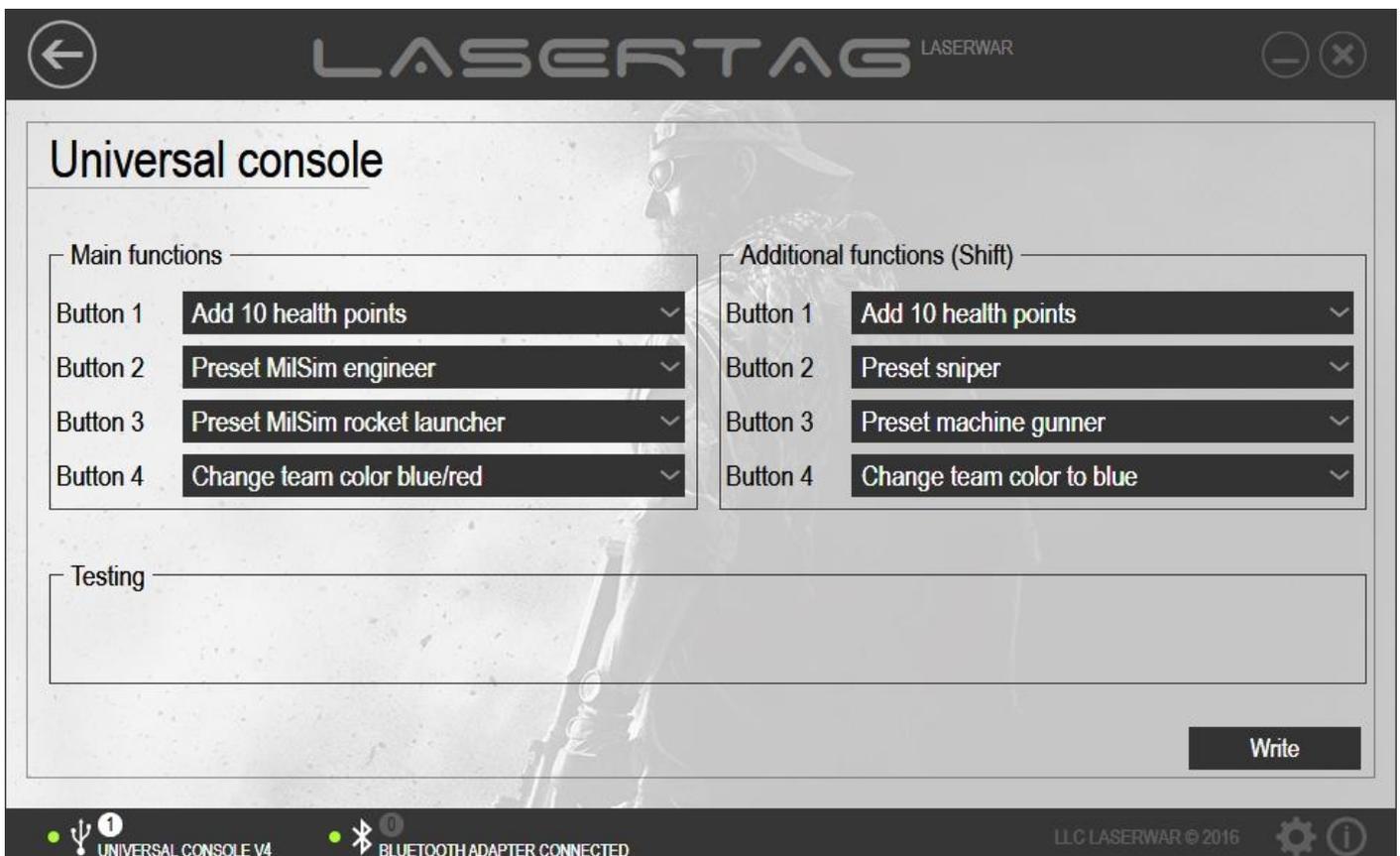
4.4.6 Universal remote subunit

The main window of the Universal remote subunit is presented in picture 61.



Picture 61

In order to start working with the subunit, select the configuration mode for the laser tag equipment. Place the USB base sensors exactly in front of the remote sensors (up to 1 metre away). If the equipment has been connected correctly, *Additional functions* column will be displayed in the program (picture 62).



Picture 62

The technical parameters that can be configured for sending to the equipment have been divided into two groups: **Main functions** and **Additional functions (Shift)**. The **Additional functions (Shift)** field is available for equipment version 4 and above.

To enter the *Shift* mode, push and hold button **1** for 5 seconds. Brief LED flashes will indicate that the mode has been activated. Upon that, buttons functions will change according to the settings. To exit the mode, push and hold button **1** for 5 seconds once again. If the user does not perform any actions, the device will automatically exit the *Shift* mode in 4 minutes and will enter energy saving mode.

To set up an action that will be performed by pushing a particular button on a remote (**1, 2, 3 or 4**), enter the required item into the **Button 1 (2, 3, 4)** field. The list of remote commands is given below.

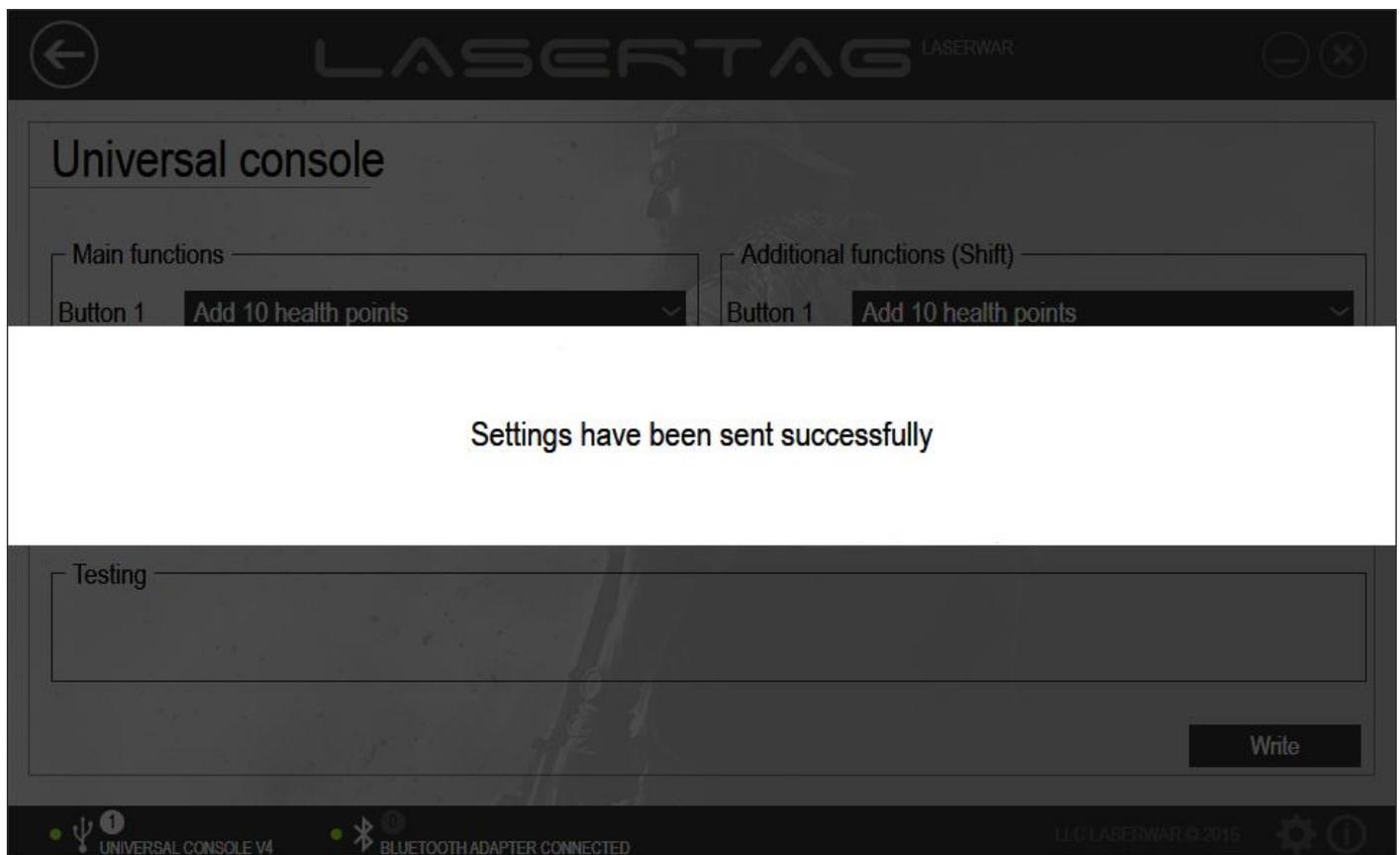
- Add 1 (10, 50, 100) health unit Award a player the chosen amount of health units (unless the player already has the maximum amount of health).
- Add 10 (50, 100) cartridge Award a player the chosen amount of cartridges (unless the player already has the maximum amount of cartridges).
- Admin kill End of the current game.
- Pause / On When a play set is paused, no commands can be applied to it. Activate the play set by clicking on the same icon.
- Revival Fully restore the health units of a killed player.
- New game immediately Start a new game. Activate a play set.
- Restore ammo Restore a player's ammunition to the maximum (unless the player already has the maximum amount of ammunition).
- Change colour blue/ red Change the colour of a player's team.
- New game – start delay Start a new game with a delayed start. The delay can be configured in the play set settings.
- Restore health Restore the health units of a wounded player to the maximum.
- Power change 49%/ 99% Change the infrared power (the value changes to 49% if it was 50% before applying this command. The 50% value changes to 99%). This parameter influences the firing range.
- Clear statistics Delete the statistics data of a play set.
- Knock out player Deprive a player of the ability to fire shots for a 7 minutes' time interval. Any damage done to the player during this time interval cancels the knock out effect.
- Disarm player Fully destroy a player's ammunition.
- Rage Increase the damage done by a player by 1 point according to the MILES protocol (unless the damage done by the player is above 100).
- Double life till end of round Double the maximum amount of a player's health units (irrespective of the damage received by the player before this health units increase).
- Power 49% (99%) Set up the infrared power value (49% / 99%). This parameter affects the firing range and, accordingly, ricochets. The ratio table for infrared power, firing range and ricochets is given below.

Infrared power parameter	Firing range	Ricochets inside premises
1 %	20 m	No ricochets altogether
25 %	30 m	
49 %	60 m	
51 %	120 m	

75 %	140 m	There are some ricochets. The game is comfortable. The ricochets depend on the surface of the walls.
100 %	180 m	Frequent ricochets. Playing outside is recommended.

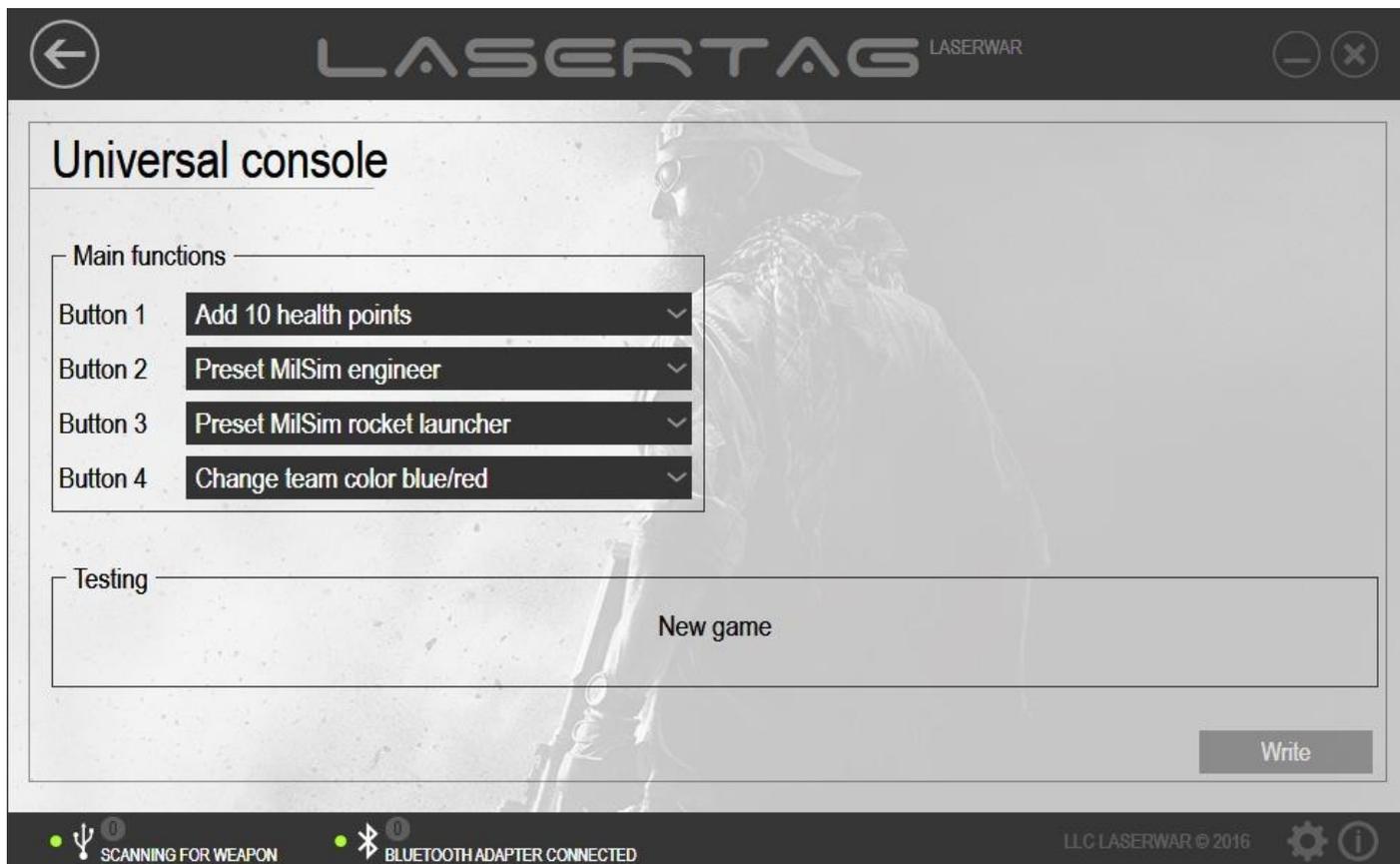
- Anomaly Award player 1 health unit unless he has a maximum amount of health.
- Stormtrooper preset (sniper, machine gunner, medic, scout, TERMINATOR, ZOMBIE, Last Hero, MilSim support, MilSim medic, MilSim recon, MilSim engineer, MilSim rocket launcher, MilSim heavy sniper) Select a preset for the equipment from the list.
- Change team colour to red (blue, yellow, green) Change the colour of a team.
- Friendly fire On (Off) Turn on/ off friendly fire mode. In this mode, players from the same team can defeat one another.
- Round time 15 min. (1, 2, 3 hours) Select a round duration.

In order to send technical parameters to the equipment, click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. If the data sending has been successful, the window will look as shown in picture 63.



Picture 63

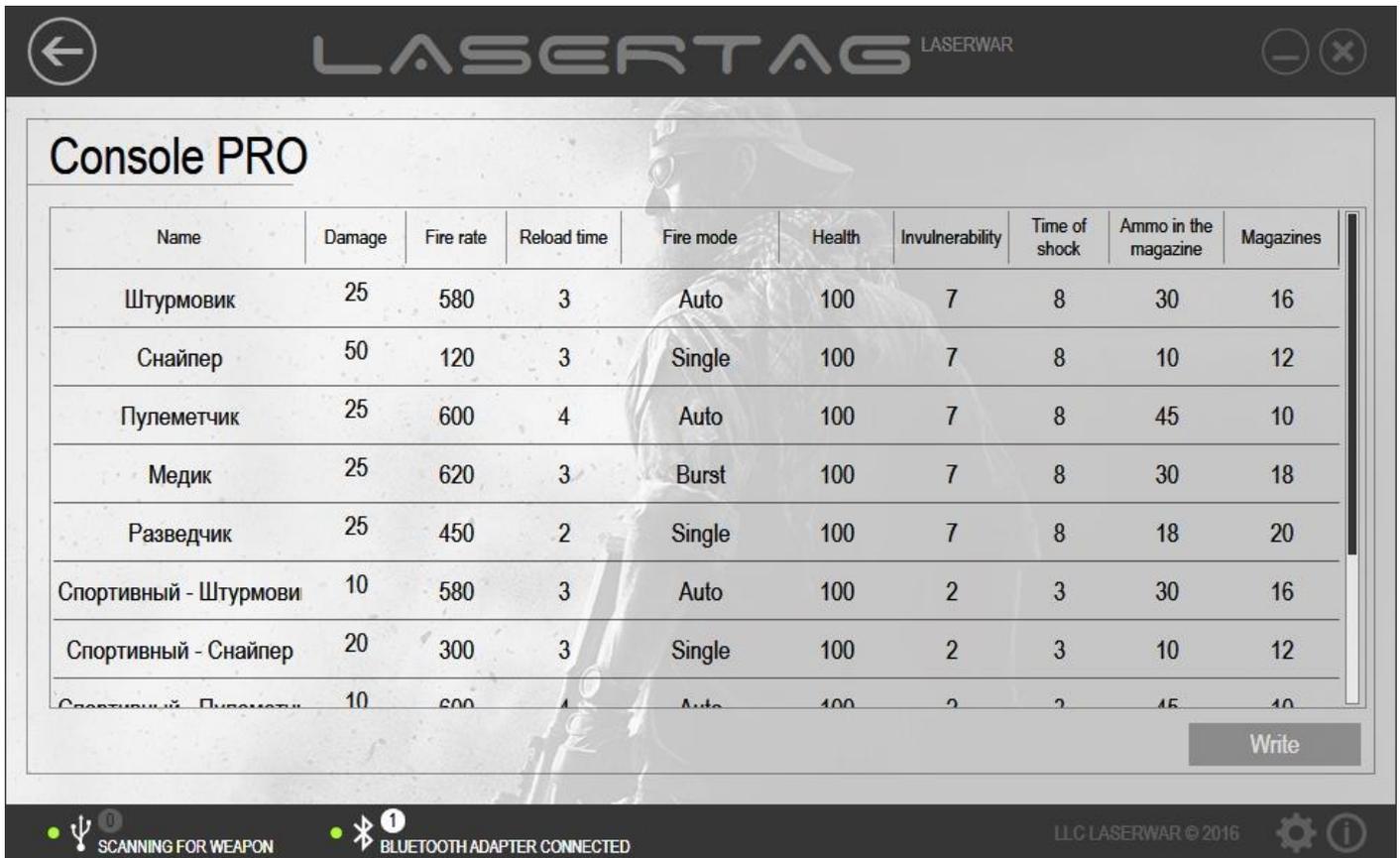
The function of immediate testing of the remote game parameters will become available upon that. To use this function, push any button (the remote will exit configuration mode and will start working in the *Remote* mode). Direct the remote sensors to the centre of the USB base and push a button on the remote. Upon that, the name of the function that has been preset for this button will be displayed in the **Testing** field (an example can be viewed in picture 64).



Picture 64

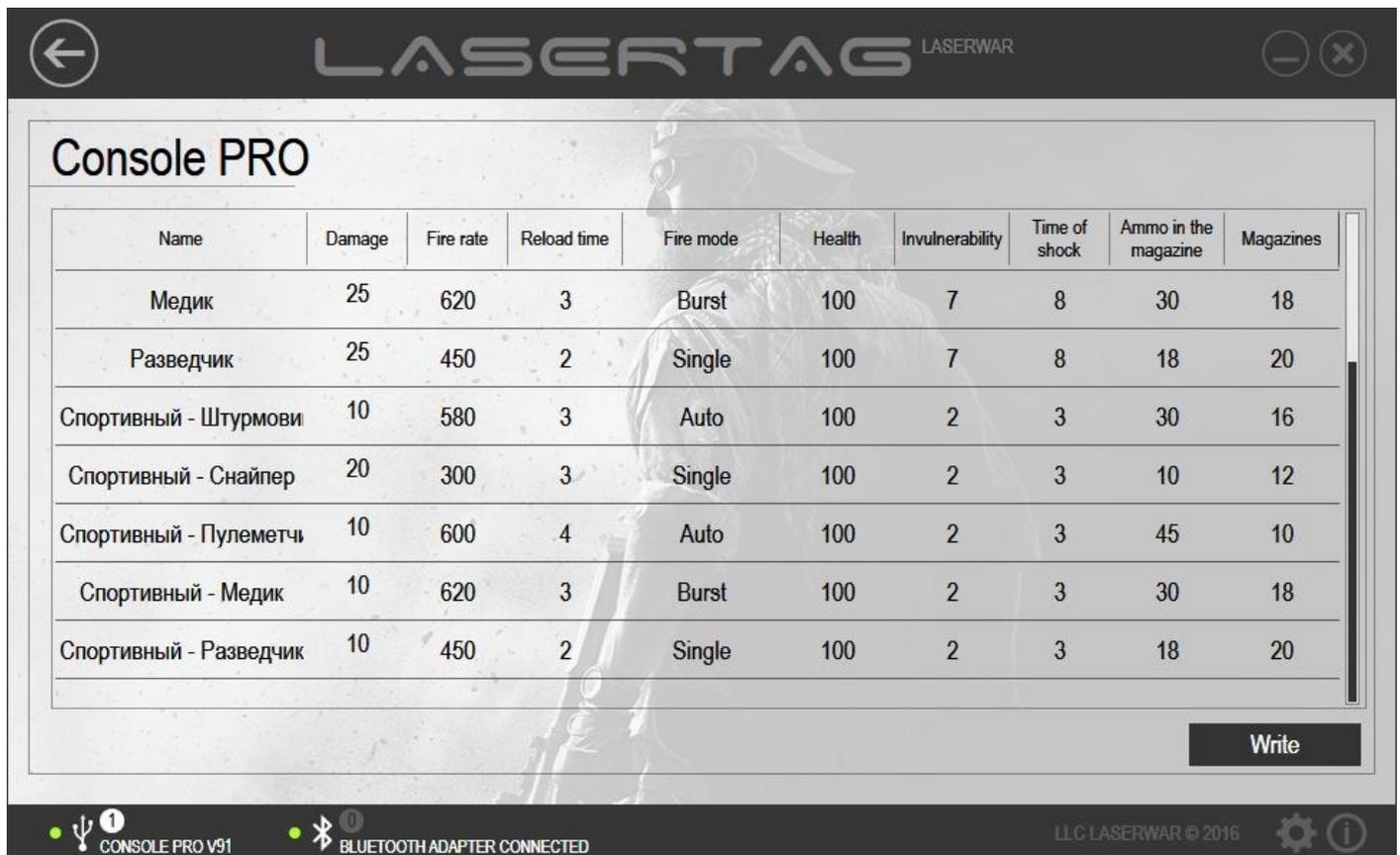
4.4.7 PRO remote subunit

The main window of the *PRO remote* subunit is presented in picture 74 (a USB base is not connected) and in picture 75 (a USB base is connected, equipment search has been performed). A detailed description of USB base connection has been given in paragraph 3.6).



Picture 65

In order to start working with the subunit, select the configuration mode for your laser tag equipment. Position USB base sensors exactly in front of remote sensors (up to 1 metre apart). To enter the programming mode, turn on the remote by pushing and holding the button in the middle. If the equipment has been connected correctly, the photo sensor starts producing blue flashing and the **Write** button becomes active.

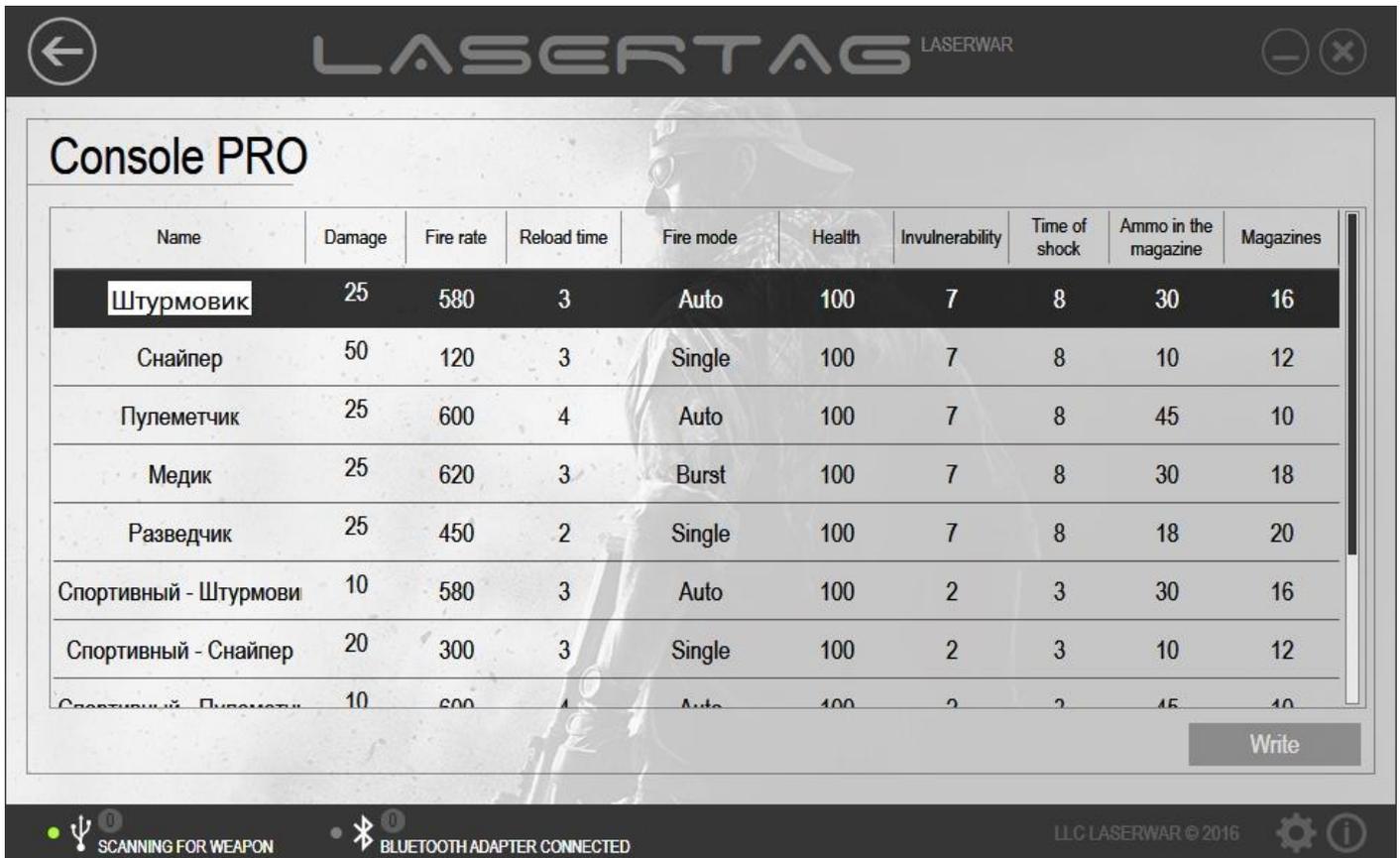


Picture 66

The technical parameters that can be selected for sending to the equipment include the following presets: **Stormtrooper, Sniper, Machine gunner, Medic, Scout, Sports – Stormtrooper, Sports – Machine gunner, Sports – Medic, Sports – Scout**. For each of the presets, there are nine variable settings. They are described below.

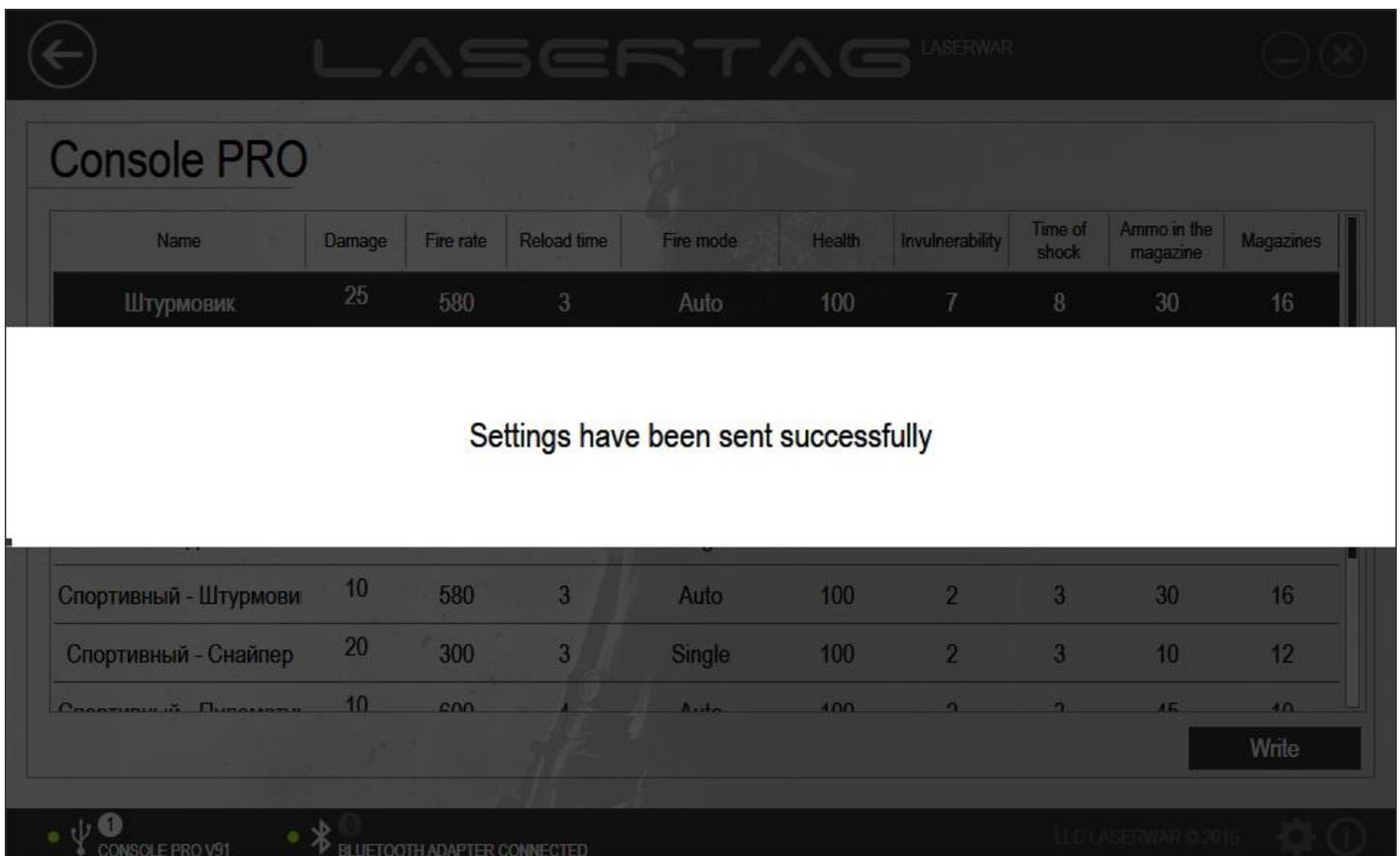
- **Damage** Amount of damage inflicted on players.
- **Shots per min** Fire rate of a player (number of shots fired per minute).
- **Reloading** Play set reload time in seconds.
- **Fire mode** *Auto* – automatic, *Cutter* – half-automatic, 3 shots at a time, *Single* – firing single pellets, i.e. *Sniper* mode.
- **Health** Amount of health units of a player.
- **Invincibility** Time (in seconds) given to a player to hide. During the invincibility time, a player's headband is switched off, so he cannot shoot and cannot be damaged. You can choose a value between 0.1 and 20.0.
- **Shock time** Time of shock (in seconds) at defeat. This is the overall time of LEDs glowing and vibration on the headband when a player gets damaged. Within this time interval the player is deprived of the ability to fire. You can choose a value between 0.1 and 99.9.
- **Cartridges in a magazine** Number of cartridges in the magazine of a play set.
- **Magazines** Number of magazines.

The **Name** of the preset can be changed when required (picture 67). In order to do this, click twice on the row with the preset name.



Picture 67

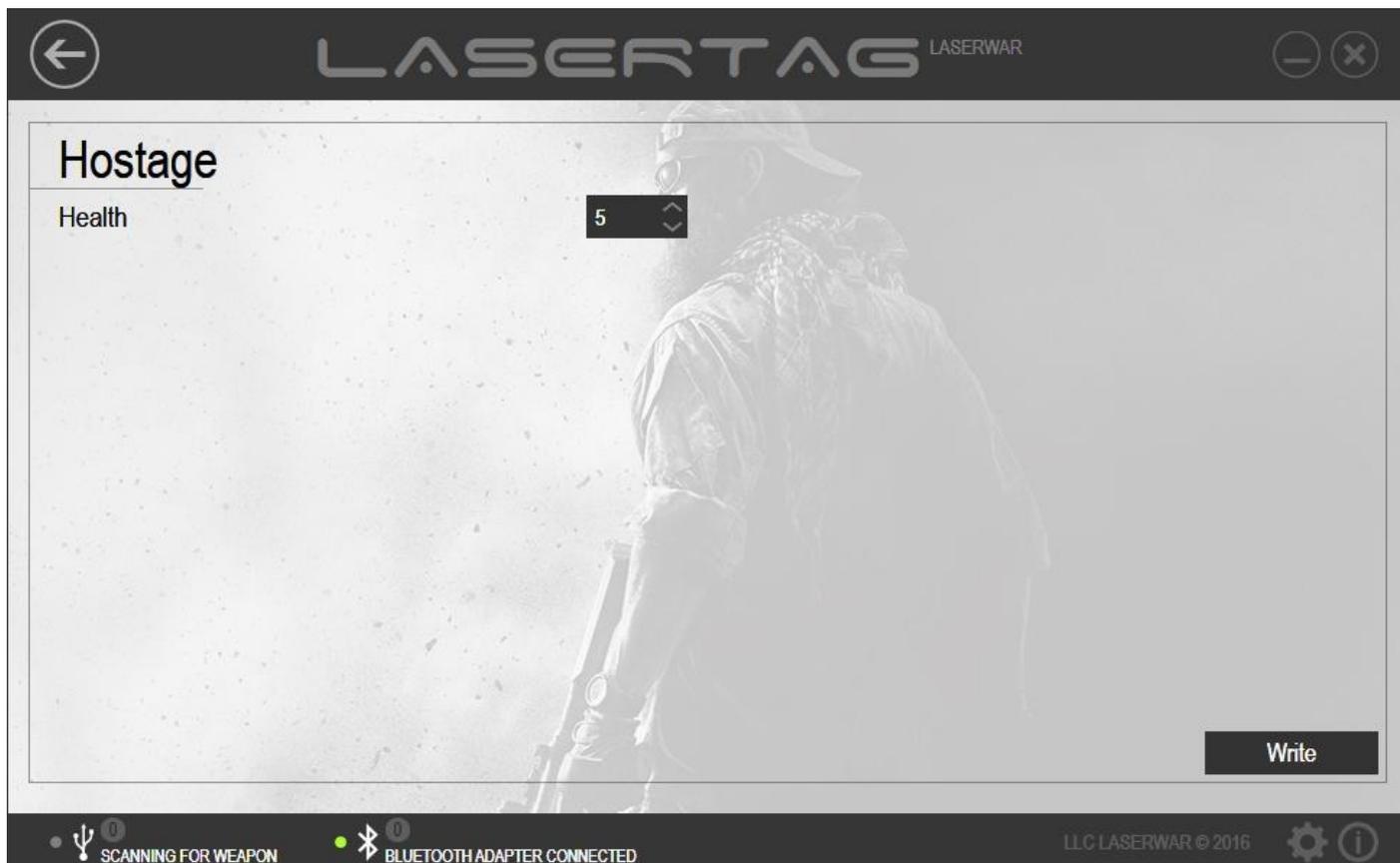
In order to send technical parameters to the equipment, click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. If the data sending has been successful, the window will look as shown in picture 68.



Picture 68

4.4.8 Hostage play set subunit

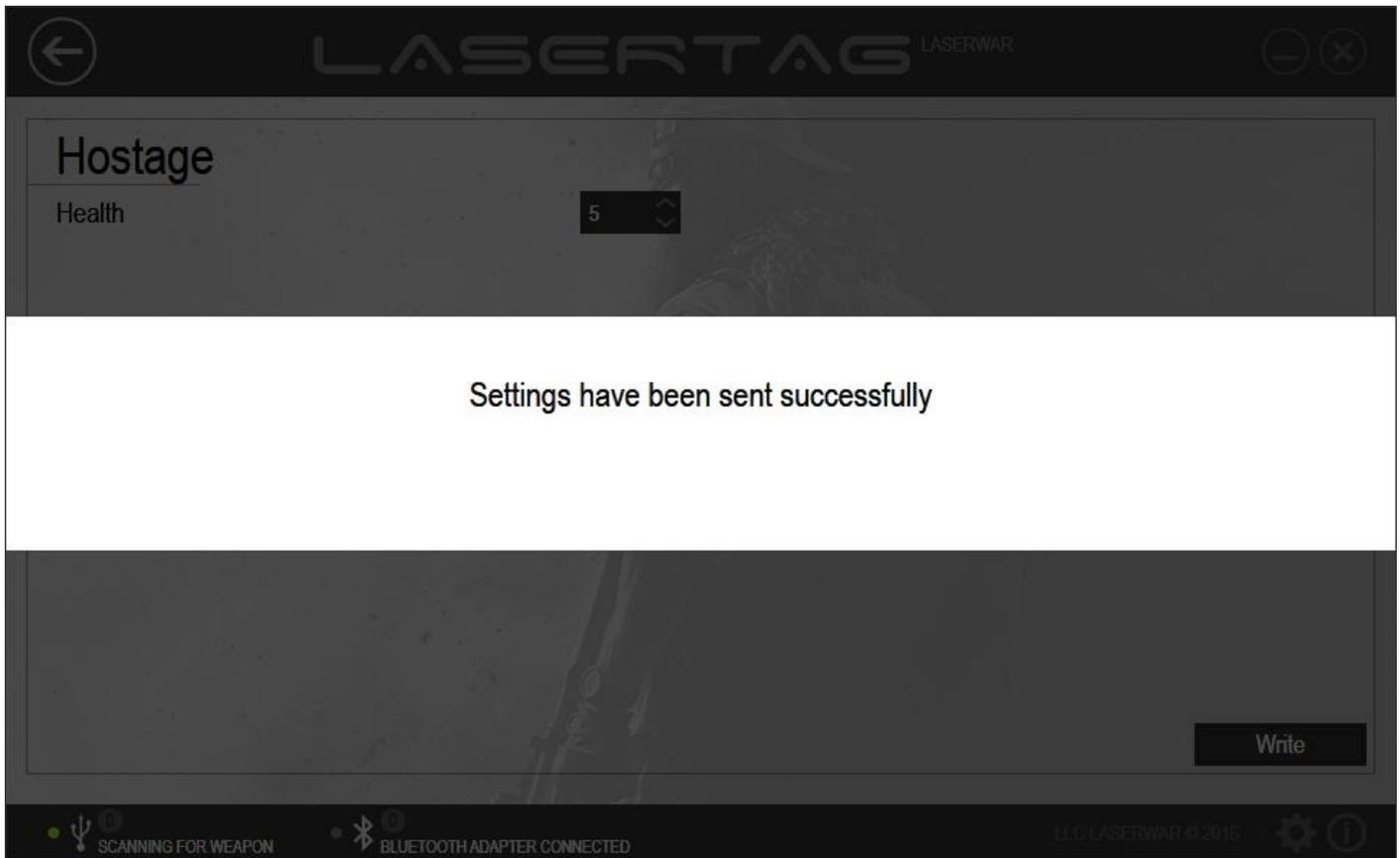
The main window of the *Hostage play set* subunit is presented in picture 69.



Picture 69

In order to start working with the subunit, turn on the equipment and select the *New game* mode for it. The *Hostage* play set must be no further than 30 cm away from the USB base.

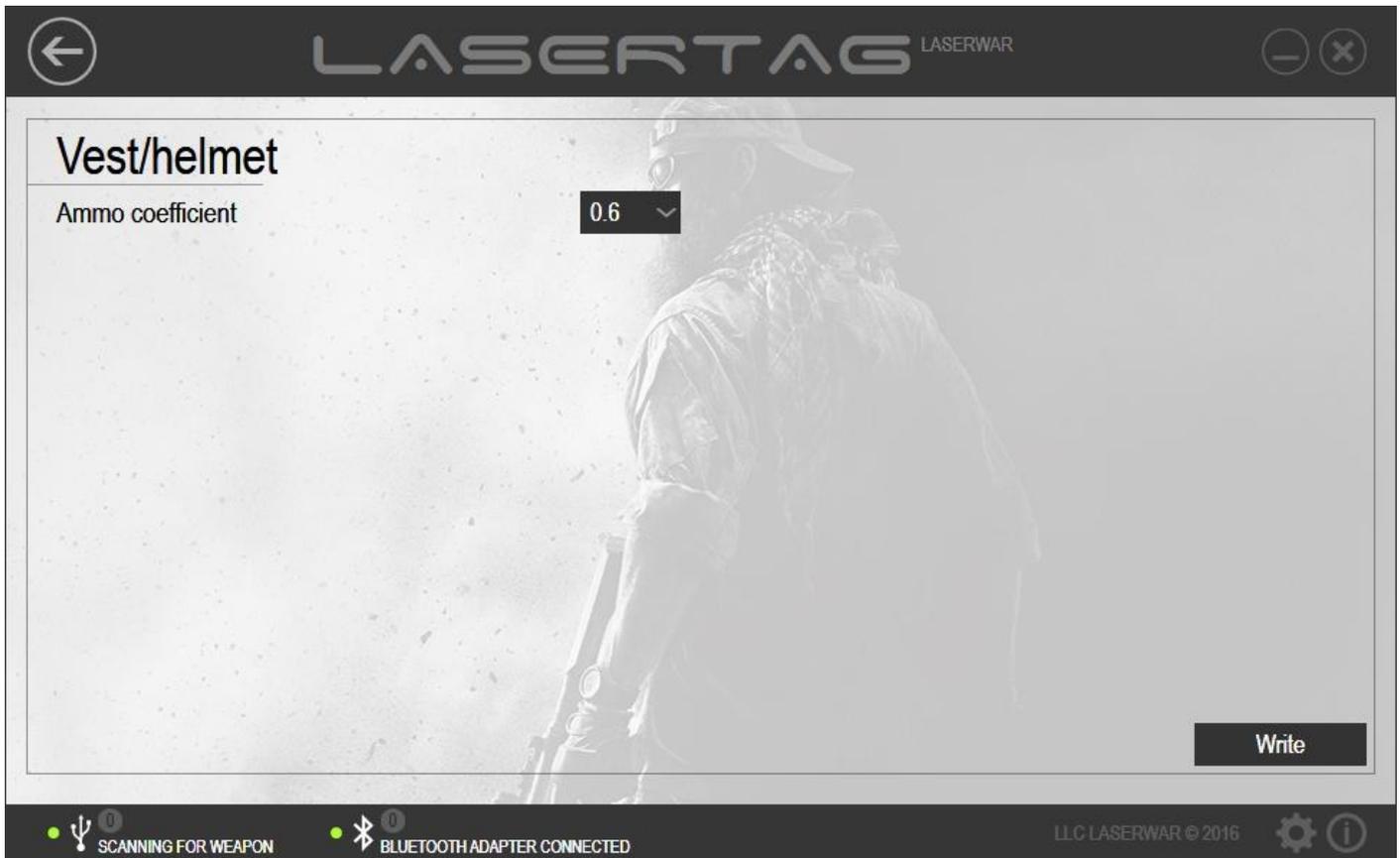
To send the *Health* parameter to the equipment, enter data into the relevant field (select a value from 1 to 200) and click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. When the data sending has been complete, the window will look as shown in picture 68. The *Hostage* play set will produce a sound signal notifying that the settings sending has been successful.



Picture 70

4.4.9 Vest/ Helmet subunit

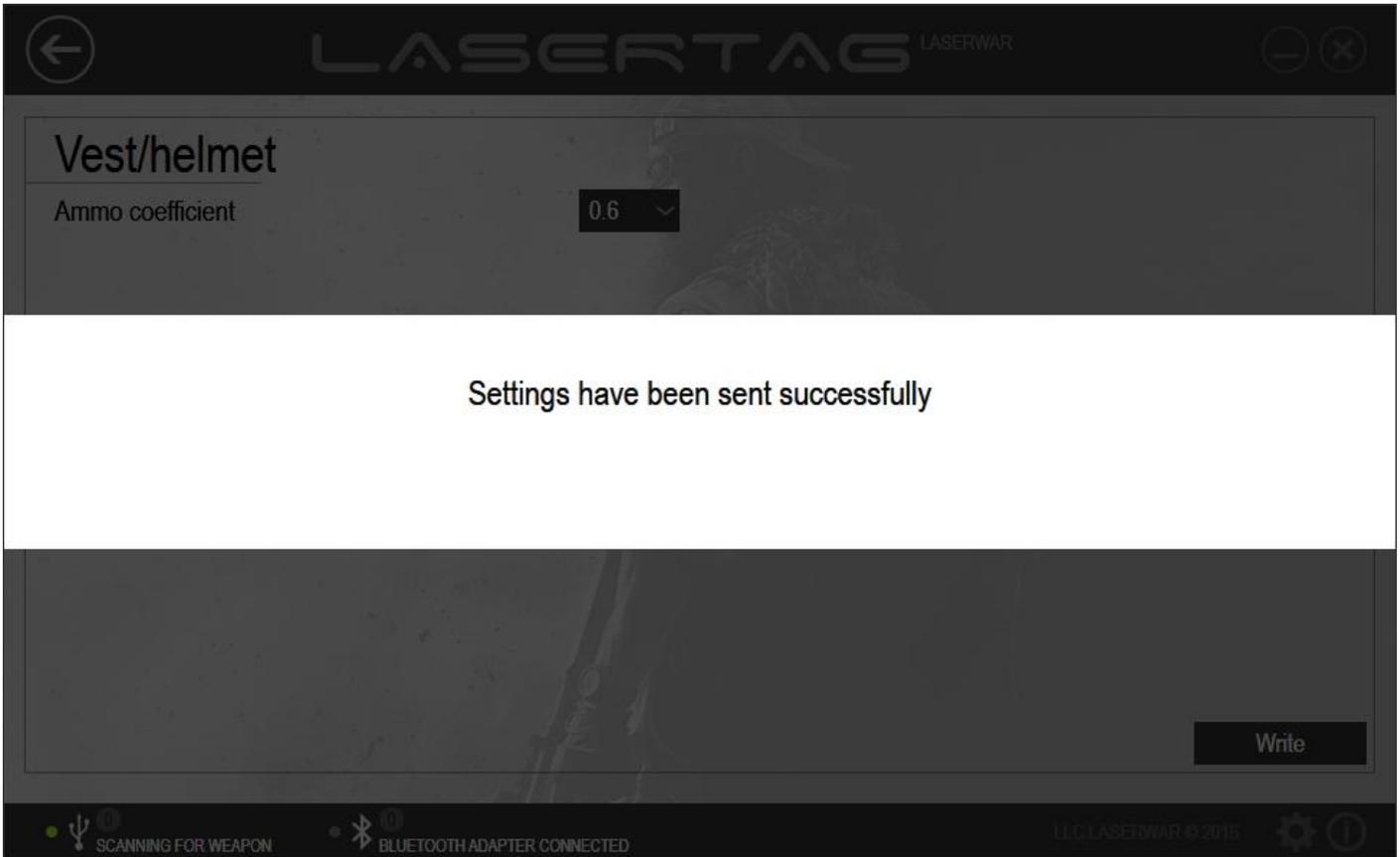
The main window of the *Vest/ Helmet* subunit is presented in picture 71.



Picture 71

To work with the subunit, select the configuration mode for your equipment. Position the equipment exactly in front of a USB base not further than 1 metre away and direct the sensor at its centre.

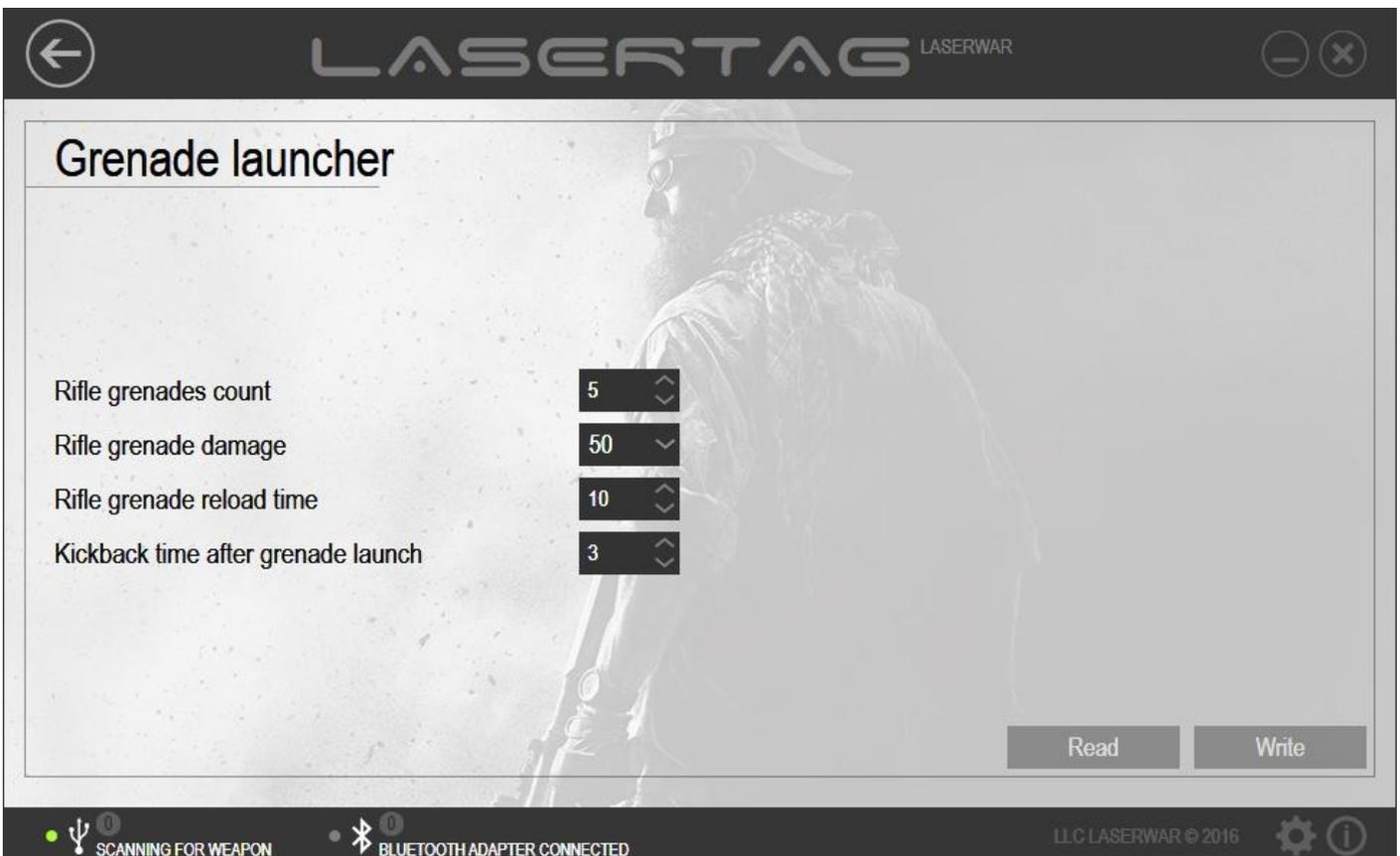
In order to send the *Ammo coefficient* to the equipment, enter data into the relevant field (choose a value from 0.2 to 1 sec with step size 0.2) and click on **Write**. Upon that, an indicator of the parameters sending progress will be displayed on the screen. When the data sending has been complete, the window will look as shown in picture 81. The laser tag equipment will produce sound signals. Their number will depend on the preset value (0.2 – 1 signal, 0.4 – 2 signals, 0.6 – 3 signals, 0.8 – 4 signals, 1 – 5 signals).



Picture 72

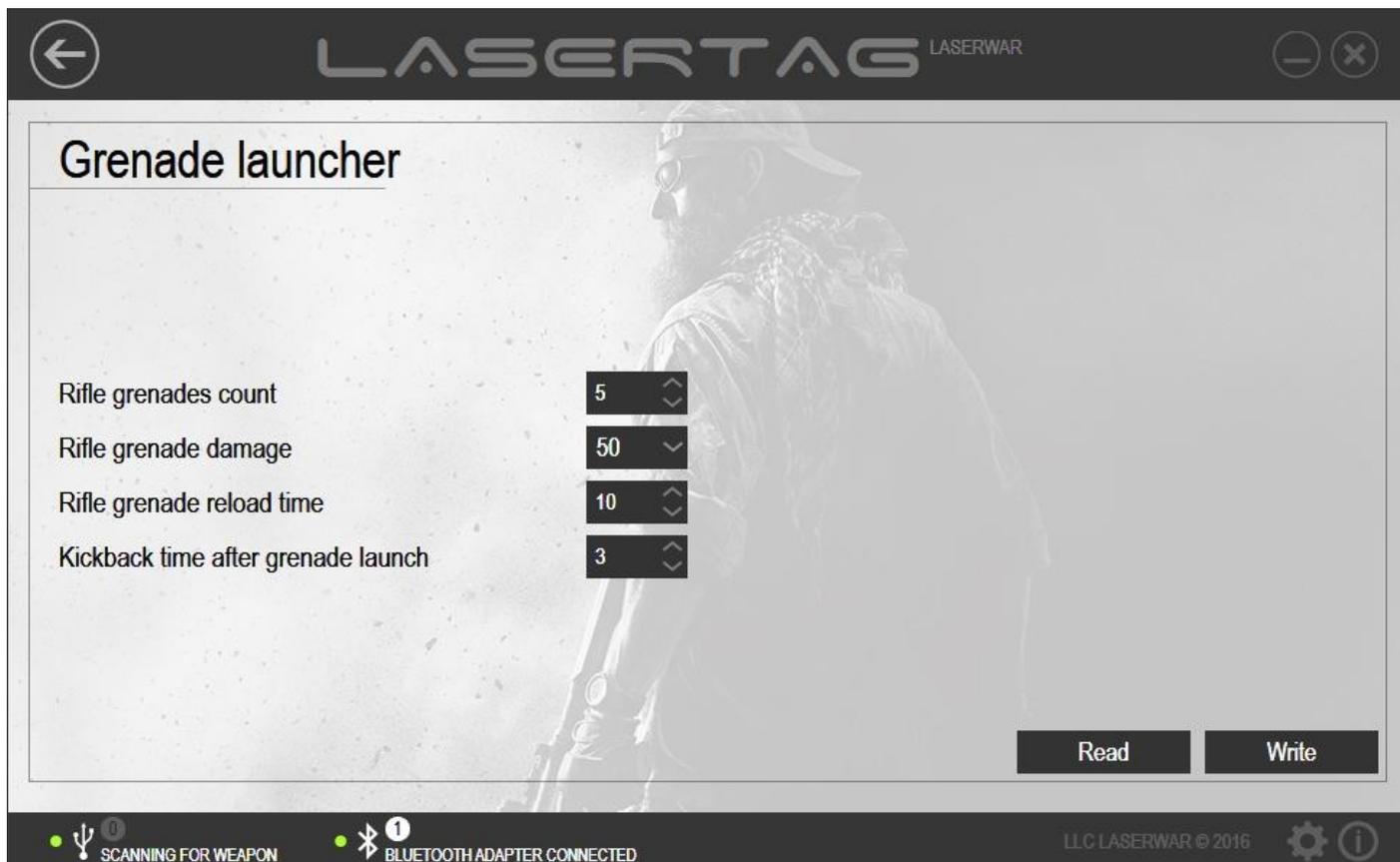
4.4.10 Underbarrel grenade launcher subunit

The main window of the *Underbarrel grenade launcher* subunit is presented in picture 73.



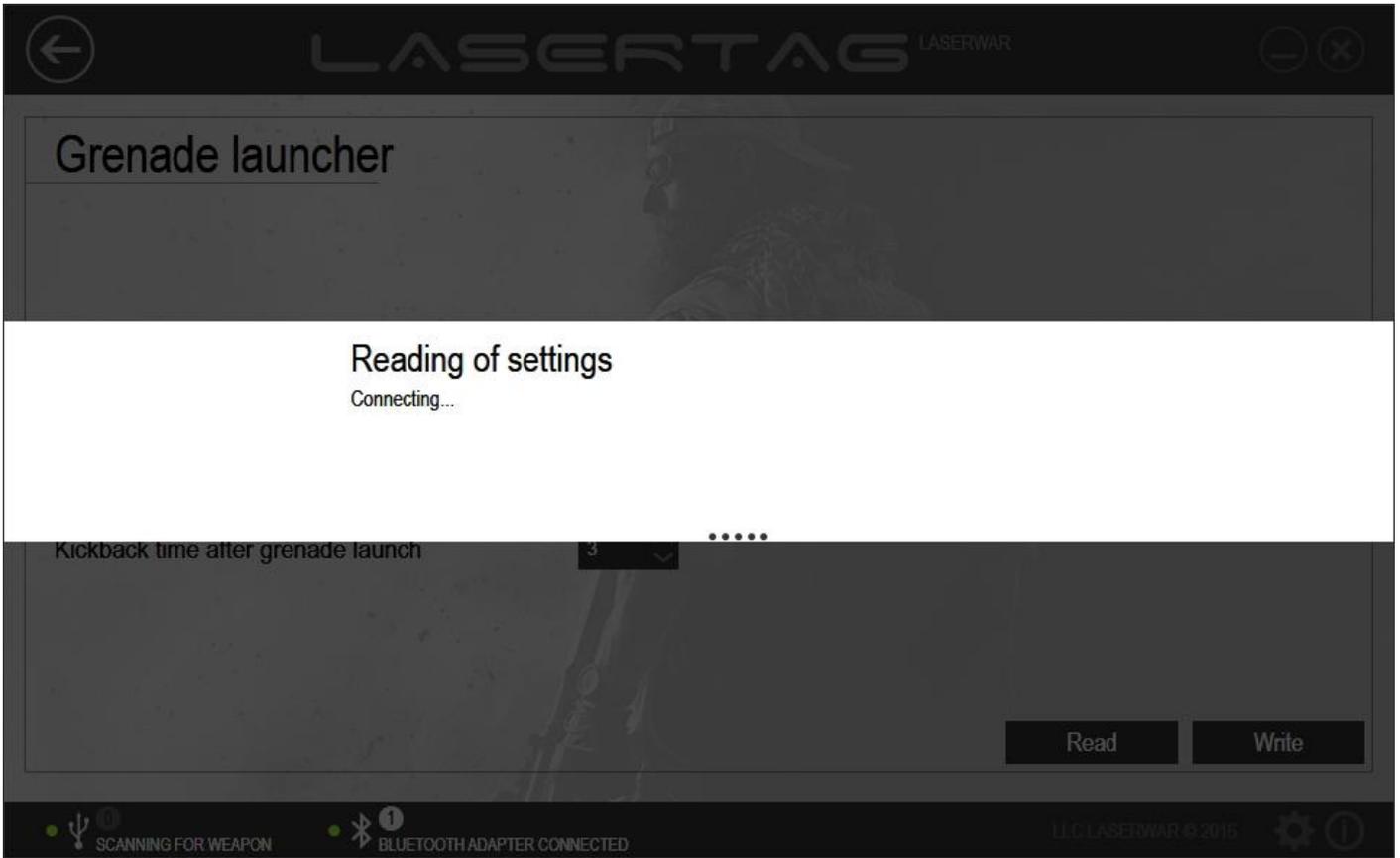
Picture 73

To work with the subunit, select the configuration mode for your equipment. Detailed information on play sets connection and modes of operation is given in paragraph 3.6. If the play set has been connected correctly, the headband LEDs start flashing and the **Read** and **Write** buttons become active (picture 74).



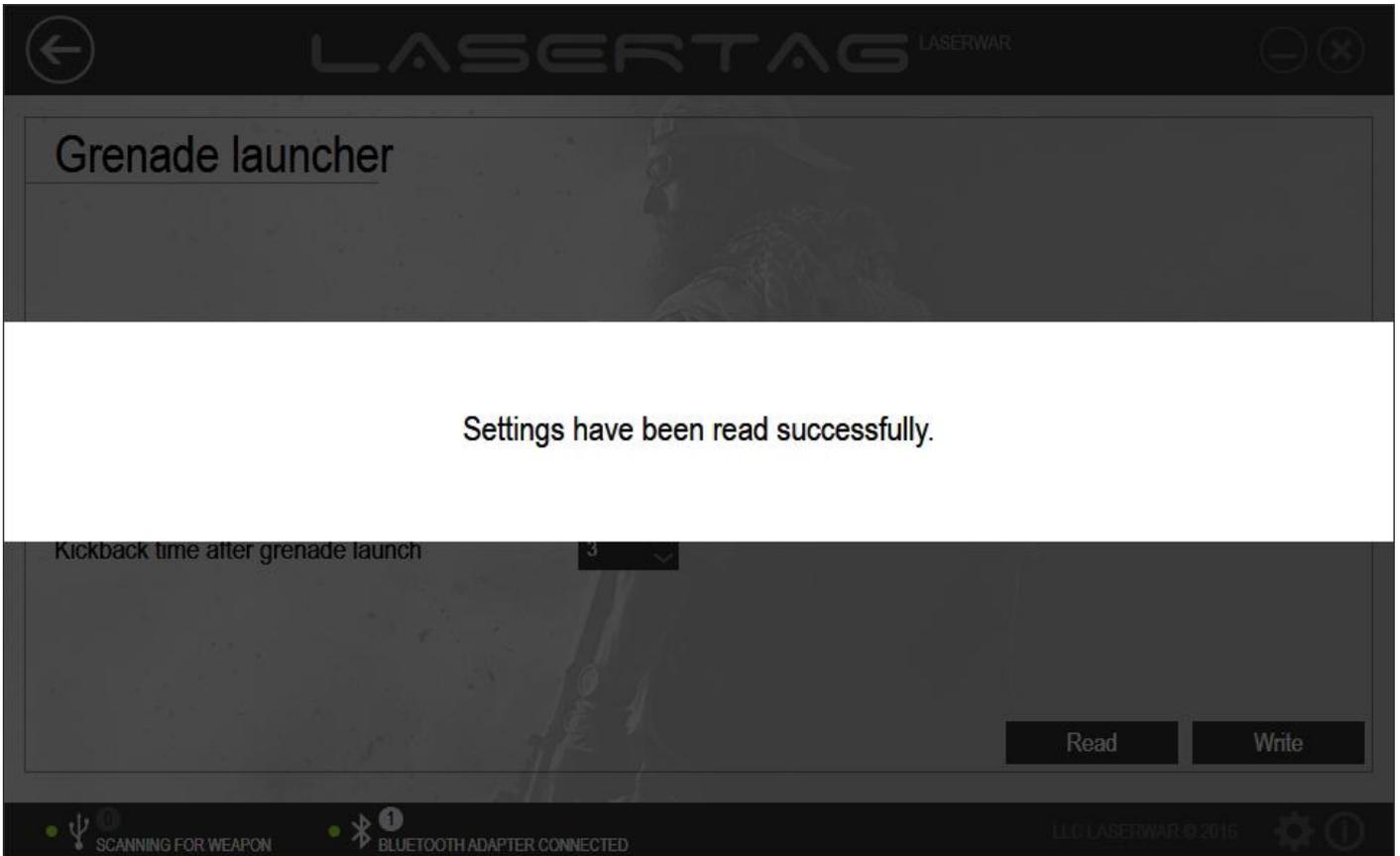
Picture 74

To view the parameters that were earlier sent to the equipment, click on **Read**. As you do this, an indicator of parameters reading progress will be displayed on the screen (picture 75).



Picture 75

When parameters reading process has been complete, the window will look as shown in picture 76.



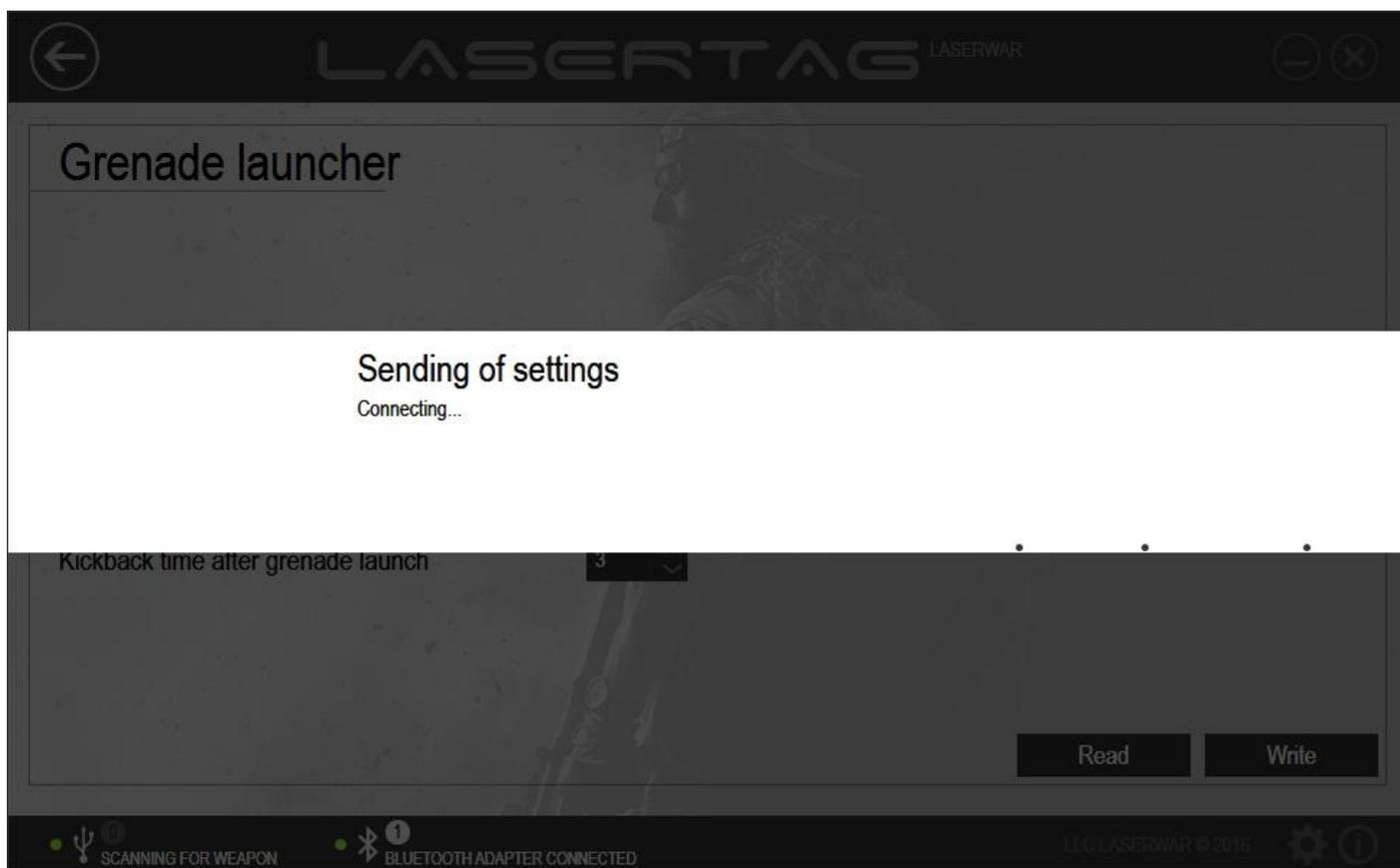
Picture 76

The game parameters of the equipment can now be viewed in the respective fields of the window.

To set up technical parameters for sending to equipment, enter data into the fields that are described below.

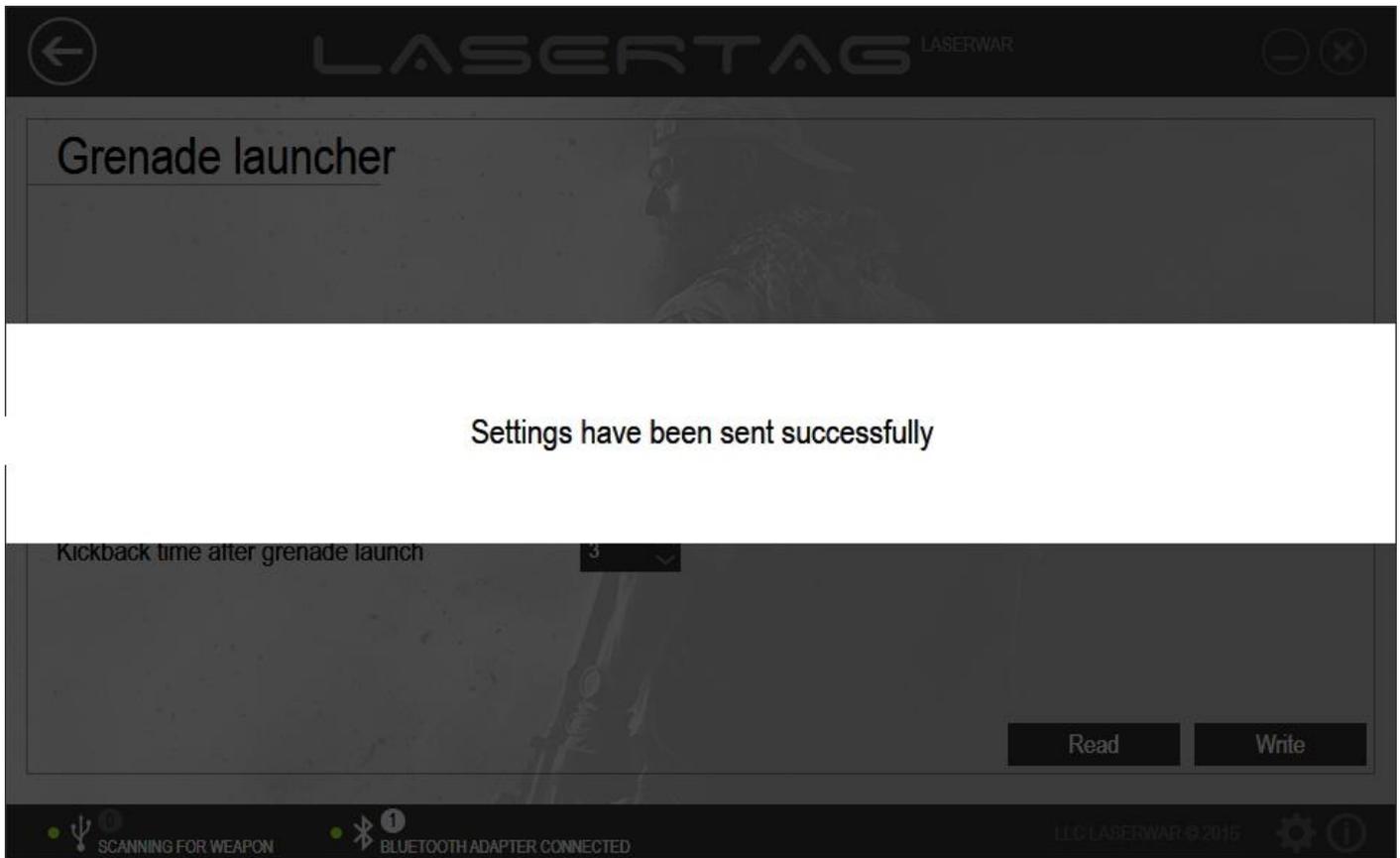
- Underbarrel grenades number Enter the number of underbarrel grenades using a keyboard or digital buttons. You can choose any value between 0 and 100.
- Damage from underbarrel grenade blast Select the amount of damage (in health units) done to a rival by an underbarrel grenade explosion. By selecting damage value, you can simulate real combat weapon power. Choose a value between 1 and 100 from a drop-down menu.
- Underbarrel grenade reload time Select time (in seconds) that is required to reload a play set using a keyboard or digital buttons. Throughout this time interval, the play set will be blocked and the player will not be able to fire a shot. Select a value between 0 and 100.
- Recoil time after explosion Select time (in seconds) within which a player will not be able to use his main play equipment after he has fired a shot. Choose a value between 0 and 60.

Having set all the parameters, send them to your laser tag equipment. To do this, make sure that the USB base has been connected to a PC and the play set operates in configuration mode. Then, click on **Write**. Upon that, an indicator of parameters writing progress will be displayed on the screen (picture 77).



Picture 77

If the process has been successful, the window of the program will look as shown in picture 78.

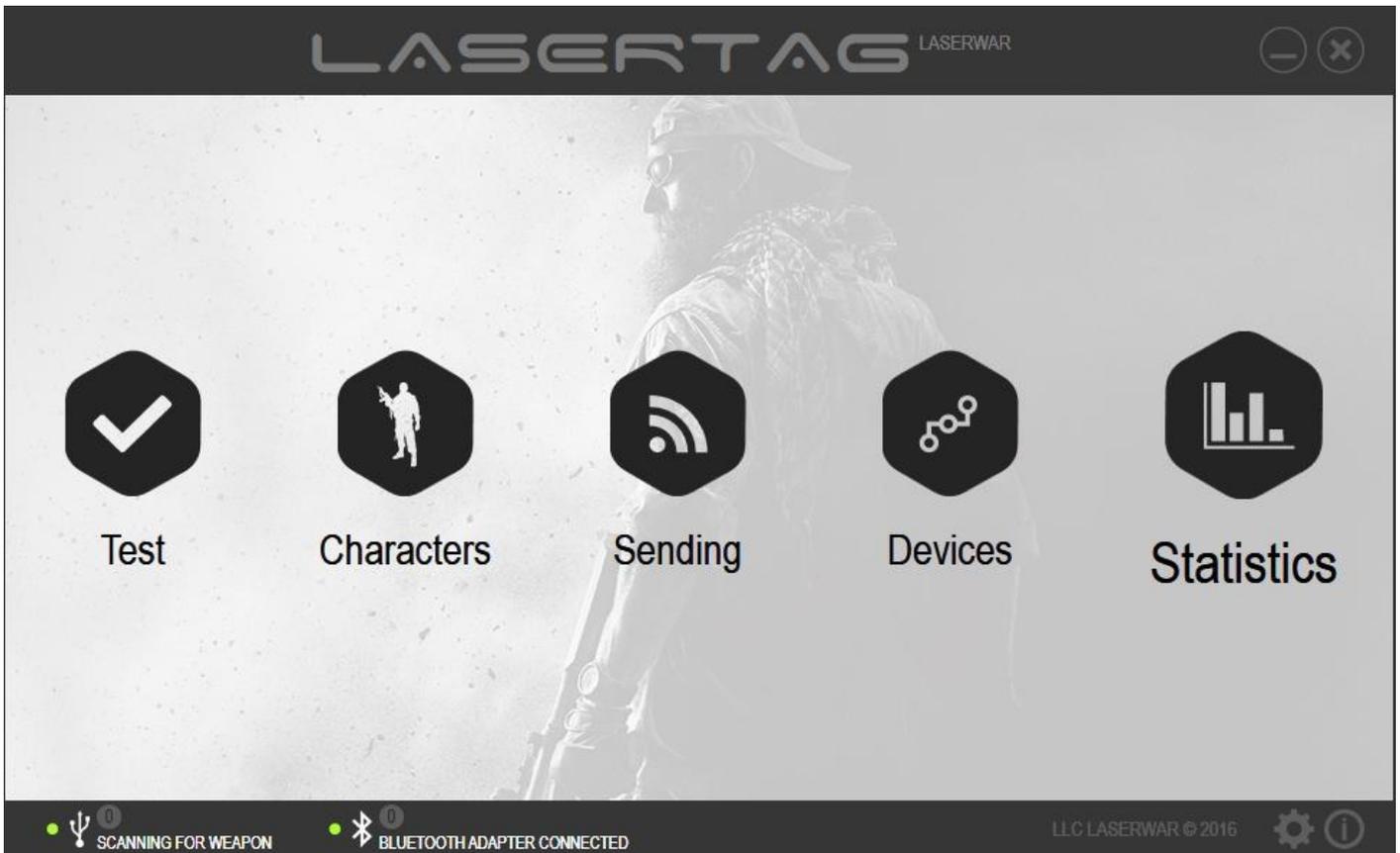


Picture 78

4.5 Statistics unit

Use the *Statistics* unit to view game statistics, print it out and post in social networks. In the LASERTAG CONFIGURATOR program, the speed of statistic data reading has been significantly increased. That said, the program works well both with old and new equipment versions. In order to work with the unit, connect equipment v. 4-7 in configuration mode using a USB base. Detailed information on equipment v. 4-7 and modes of operation is given in paragraph 3.6. Laser tag equipment v. 7-8 needs to be launched in configuration mode and connected to a PC by means of a Bluetooth adapter. Detailed information on equipment v. 7-8 and modes of operation is given in paragraph 3.7.

To open the unit, select **Statistics** at the centre of the main window of the program (picture 79).



Picture 79

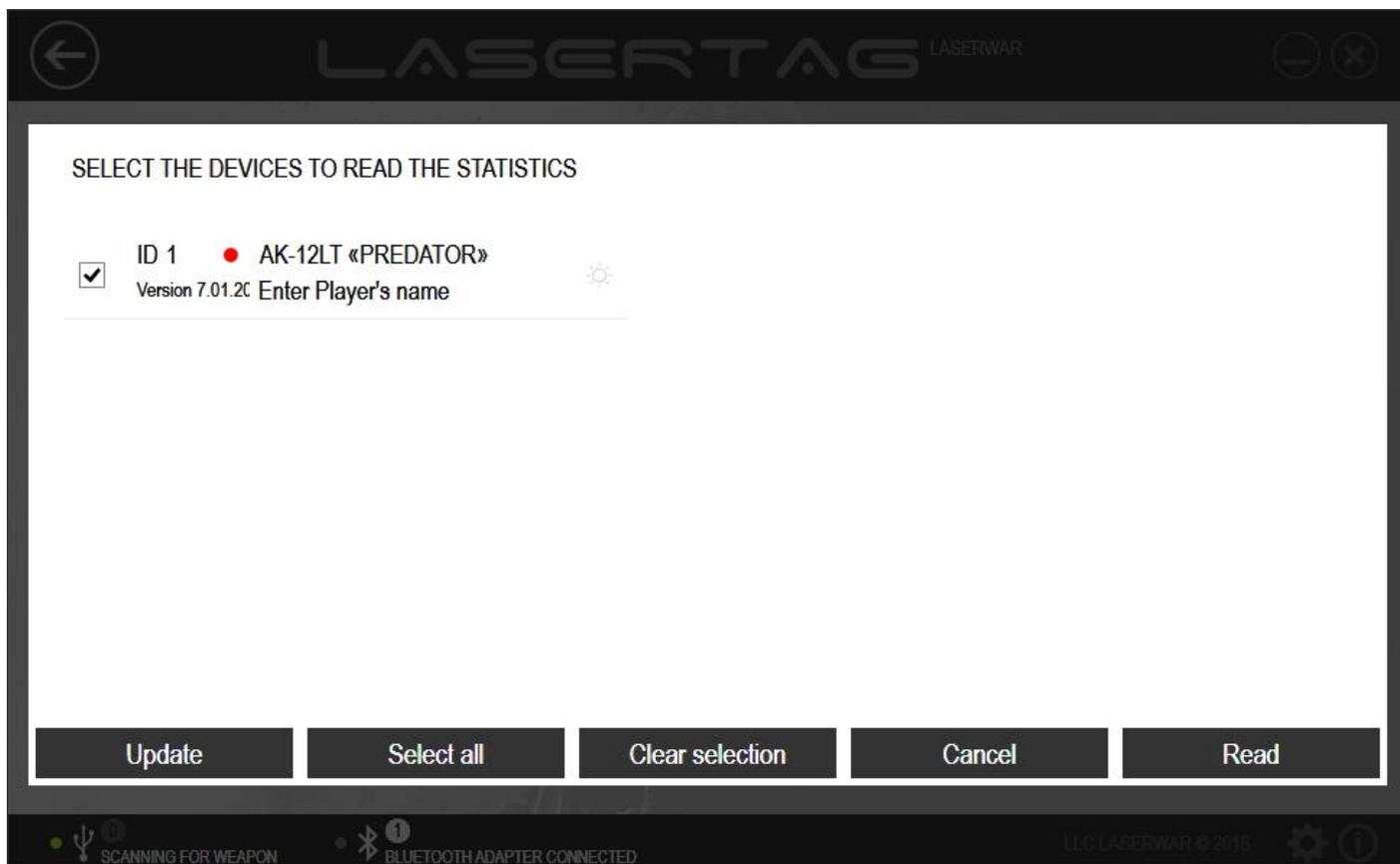
The main window of the unit is presented in picture 80.



Picture 80

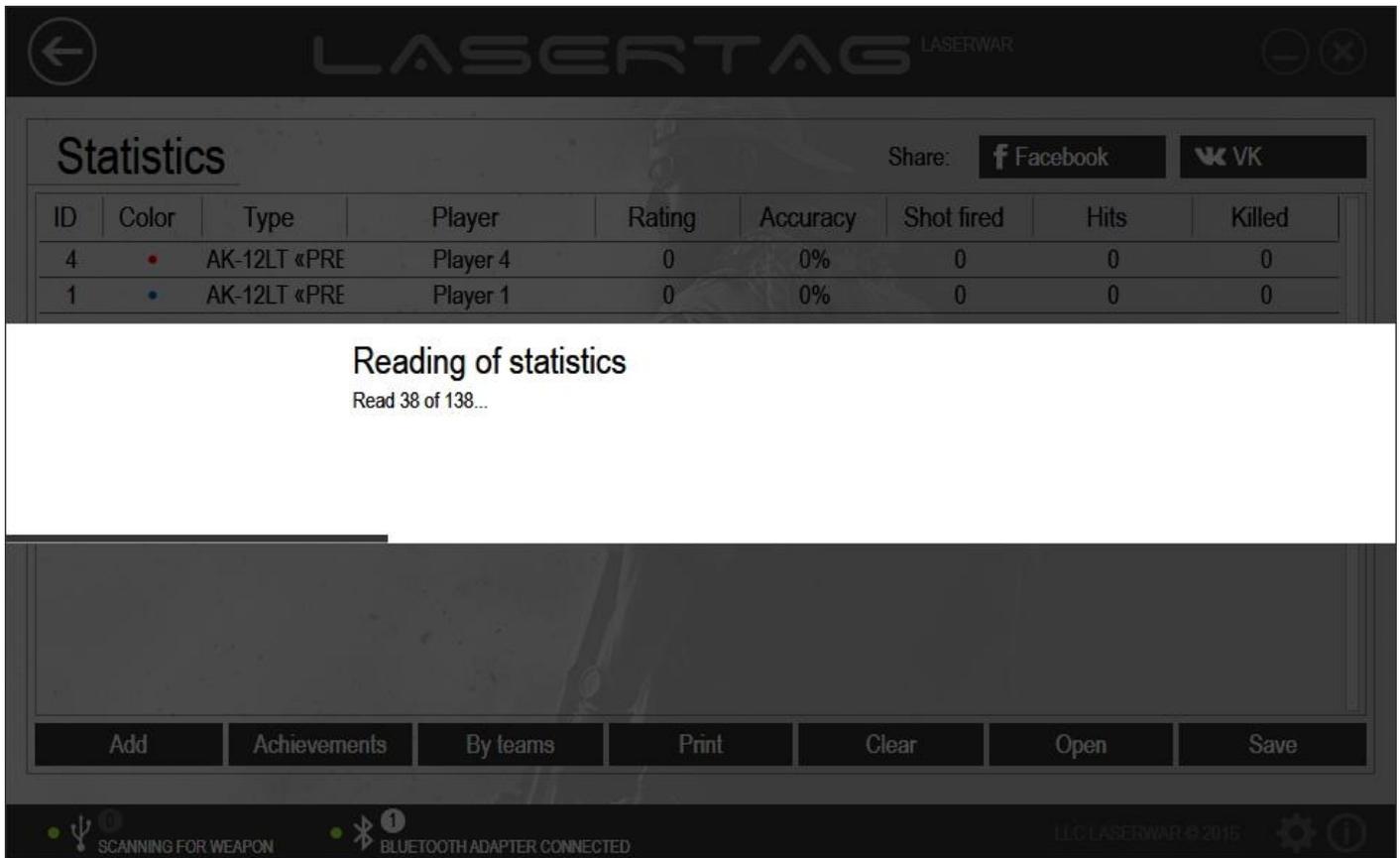
If no game equipment has been connected or if the statistics hasn't been read, most functions of the unit will not be available. If the statistics has been read and saved in *.XML format, it can be **Opened** by clicking on the relevant button.

To read the statistics of equipment v. 4-7 using the USB base, click on **Add**. A window with a player's ID and a field into which a player's name must be entered will pop up (picture 81).



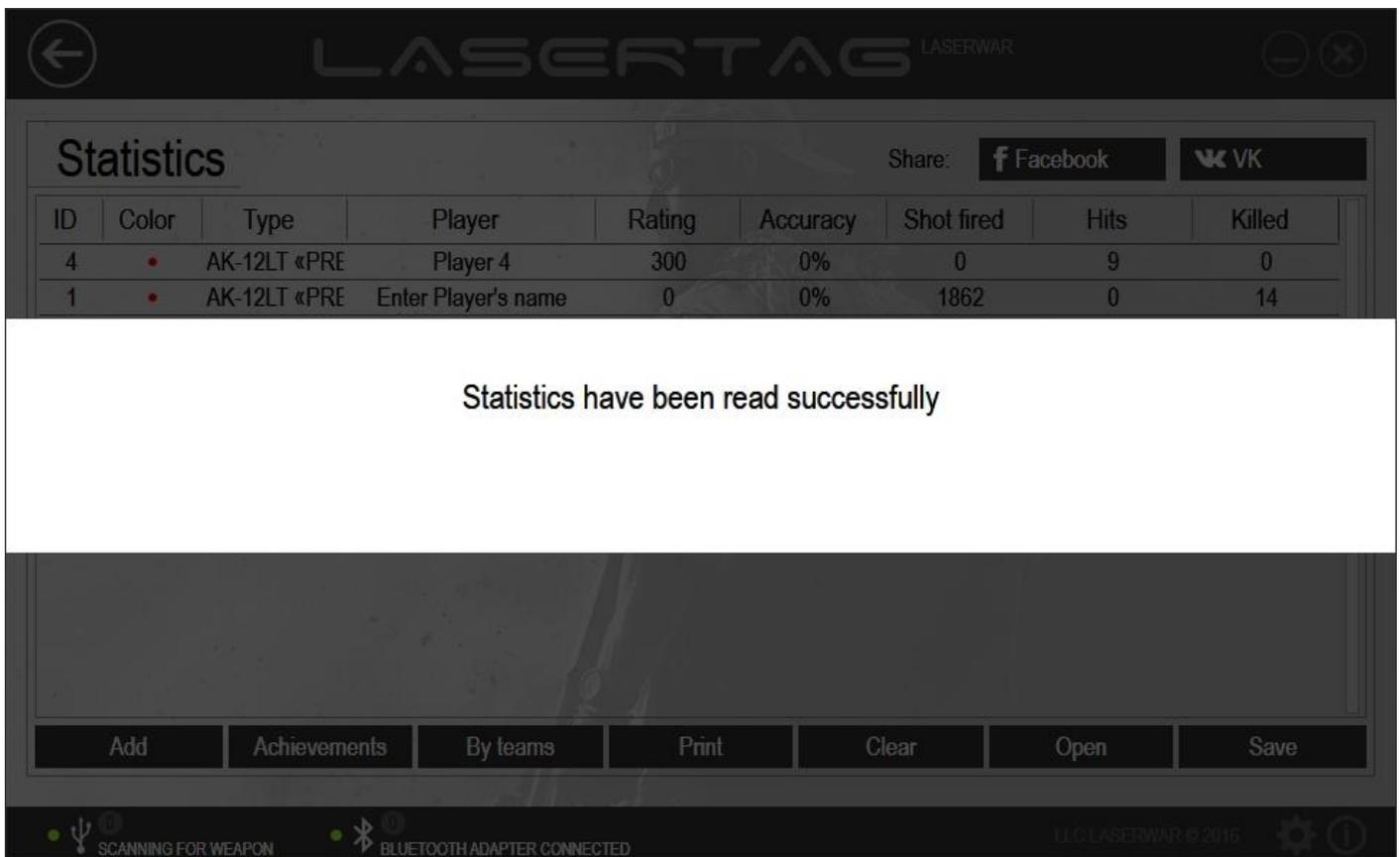
Picture 81

Having entered a player's name, click on **Continue**. The process of game statistics reading will begin. This will only take a few seconds. Thereupon, an indicator of statistics reading progress will be displayed on the screen (picture 82), while the LED indicator will produce a succession of red and green flashes.



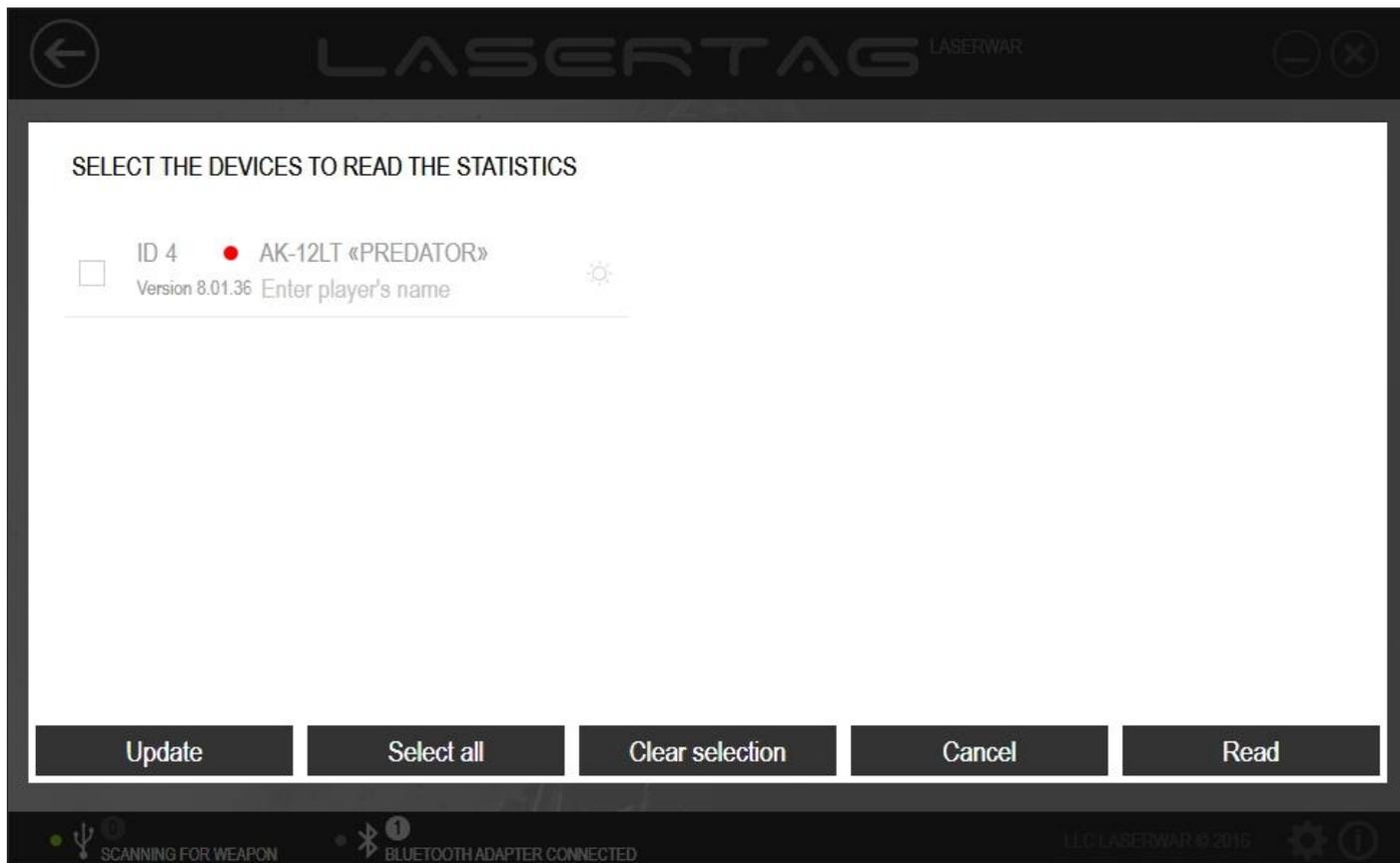
Picture 82

If statistics reading has been successful, information on this will be displayed on the screen (picture 83).



Picture 83

In order to read the statistics of connected equipment v. 7-8 using a Bluetooth adapter, click on **Add**. thereupon, the system will perform search for devices for statistics reading.



Picture 84

After the search has been performed, the list of connected equipment will not be updated. To perform another search for connected equipment, click on **Update**.

On equipment v. 7-8, it is possible to read game statistics from many game sets simultaneously. To do this, select the devices that need to have their statistics read and leave ticks in the boxes next to them. To identify the connected play set, click on the relevant icon. Upon that, the pertinent equipment will produce a sound signal. You can tick all the play sets by clicking on **Select all**, or untick all the boxes by clicking on **Clear selection**.

For each selected play set, you can choose a player's name by entering it into the *Select player's name* field. The entry will be displayed in the statistics.

Click on **Cancel** to cancel reading of the settings or **Read** to read the data from the memory of the selected devices. At that, an indicator of parameters reading progress will be displayed on the screen. On successful completion of this process, the window of the program will look as shown in picture 85.

IMPORTANT! The statistics data may be considered accurate only after the statistics of each play set of all the teams has been read.

After the statistics data has been read, it will be deleted from equipment memory, set by default. You can cancel this option in the program settings. A step-by-step guide on how to do this is given in paragraph 3.9.



Picture 85

The statistics contains the following information.

- ID Individual numerical player's identification.
- Colour Player's team colour
- Weapon The type of weapon selected in the settings (in the *Write* section). This parameter is displayed as *Unknown type* in equipment v. 4-6.
- Score The formula used to calculate a player's score is:

$$\frac{\text{Hits made}}{\text{Wounded} + 1} \times \frac{100 + \text{Precision} \times 2}{3}$$

- Precision Percentage ratio of hits and overall number of shots that have been fired.
- Shots Overall number of shots during a game.
- Hits Overall number of hits during a game.
- Wounded Overall number of wounds during a game.
- Killed Overall number of deaths during a game.

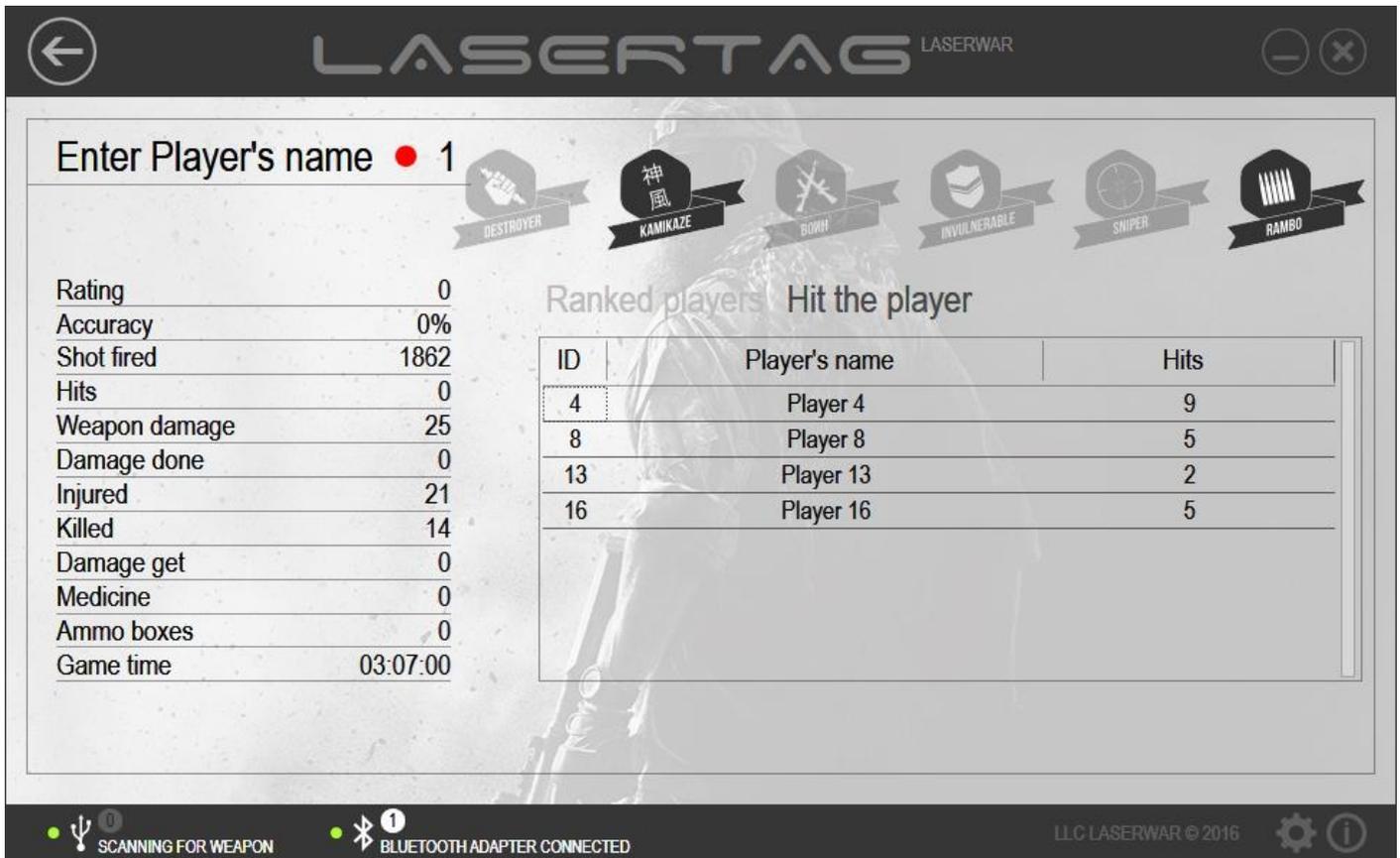
.....

The name of the player can be changed in the statistics when required. In order to do this, left-click twice on the name in the **Player** column and enter the changes (an example is presented in picture 86).



Picture 86

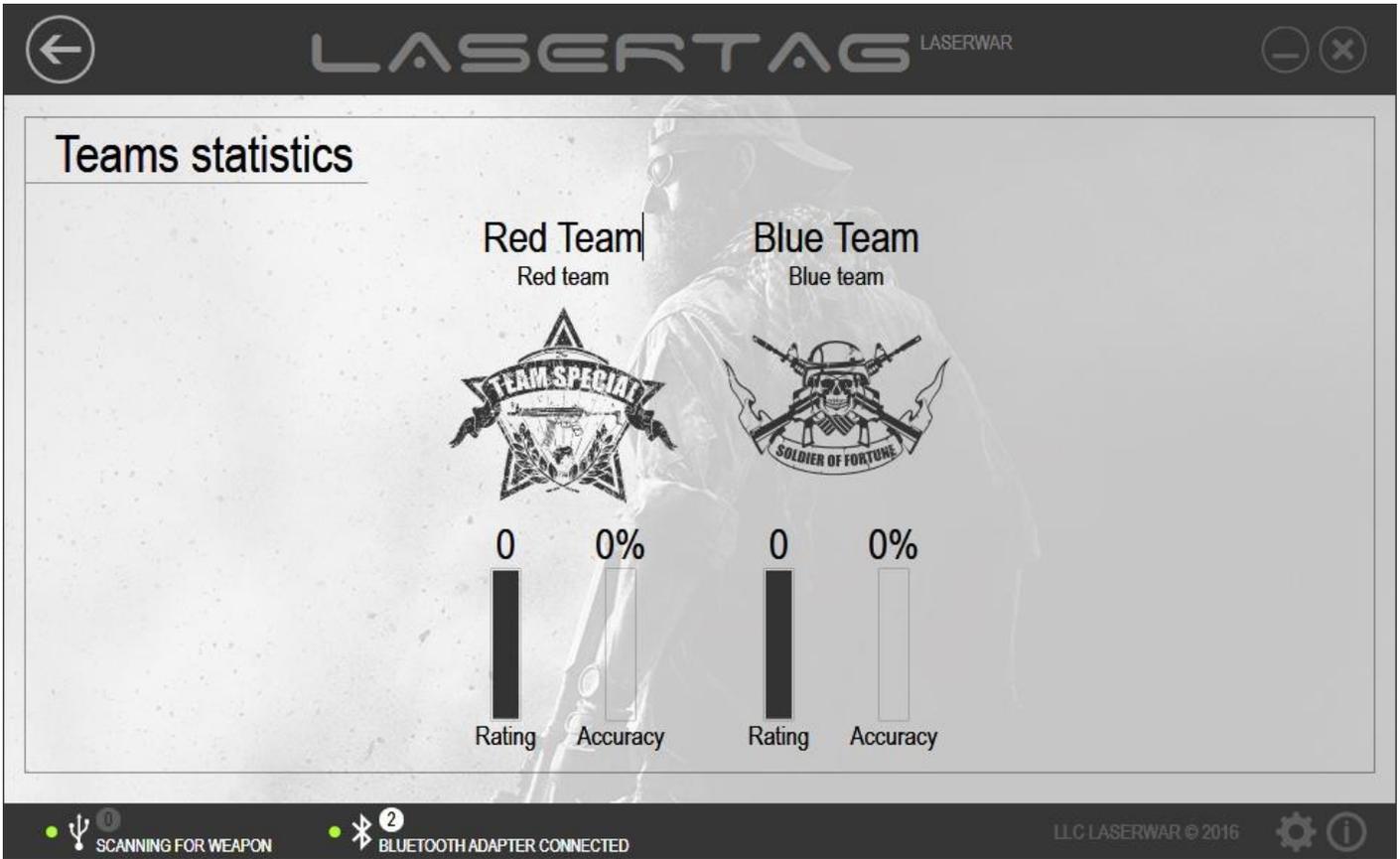
Detailed statistics for each player is also available. In order to open detailed statistics, double-click the left button of the mouse on the row with the player's details. On doing that, a window similar to the one presented in picture 87 will open.



Picture 88

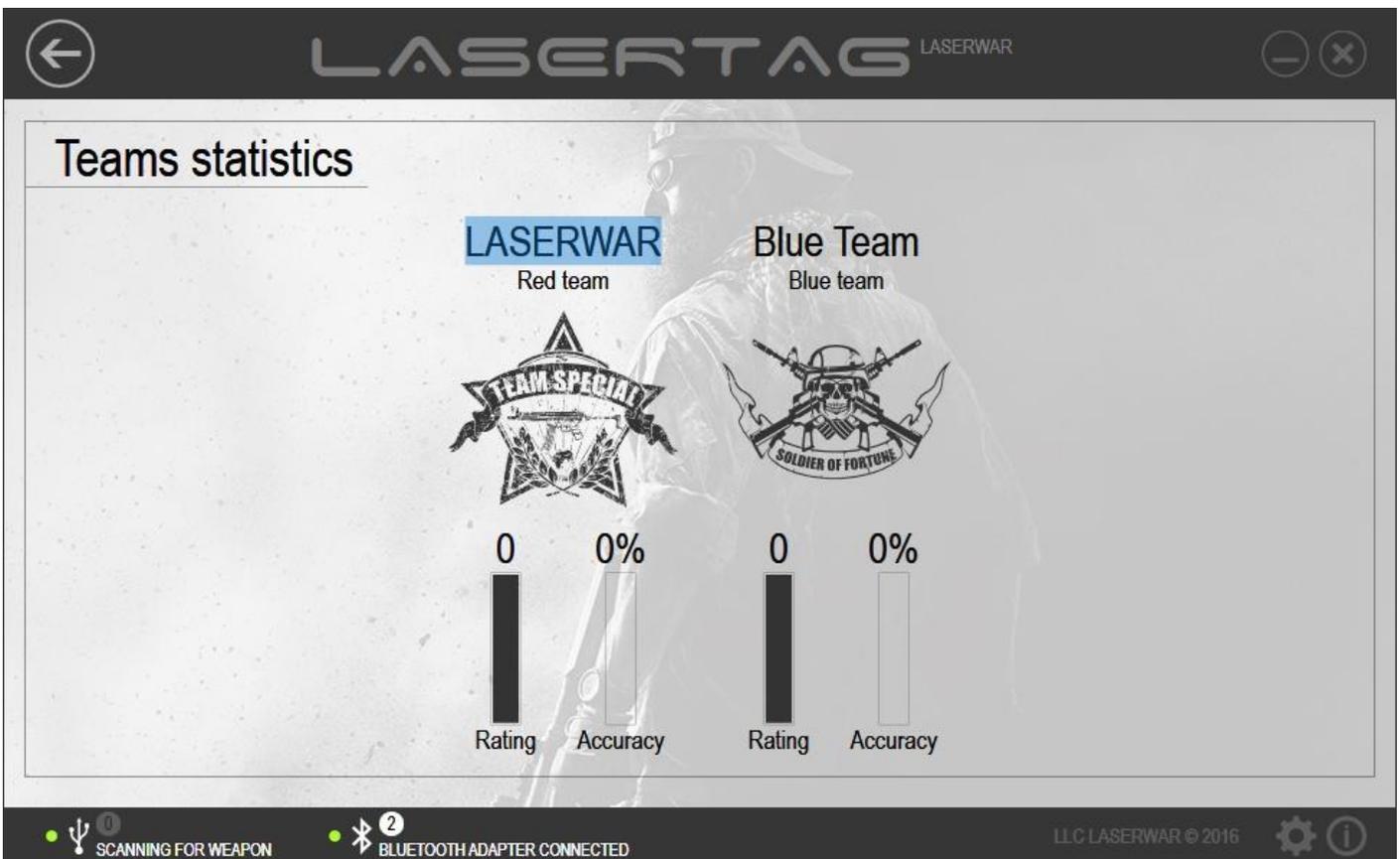
Click on **Back** to return to the general statistics display mode (picture 86).

Based on the general statistics, a list of players' achievements is composed. To view it, click on **Achievements** in the main window of the unit (picture 86). A list of players' achievements will be displayed on the screen upon that (an example can be viewed in picture 89).



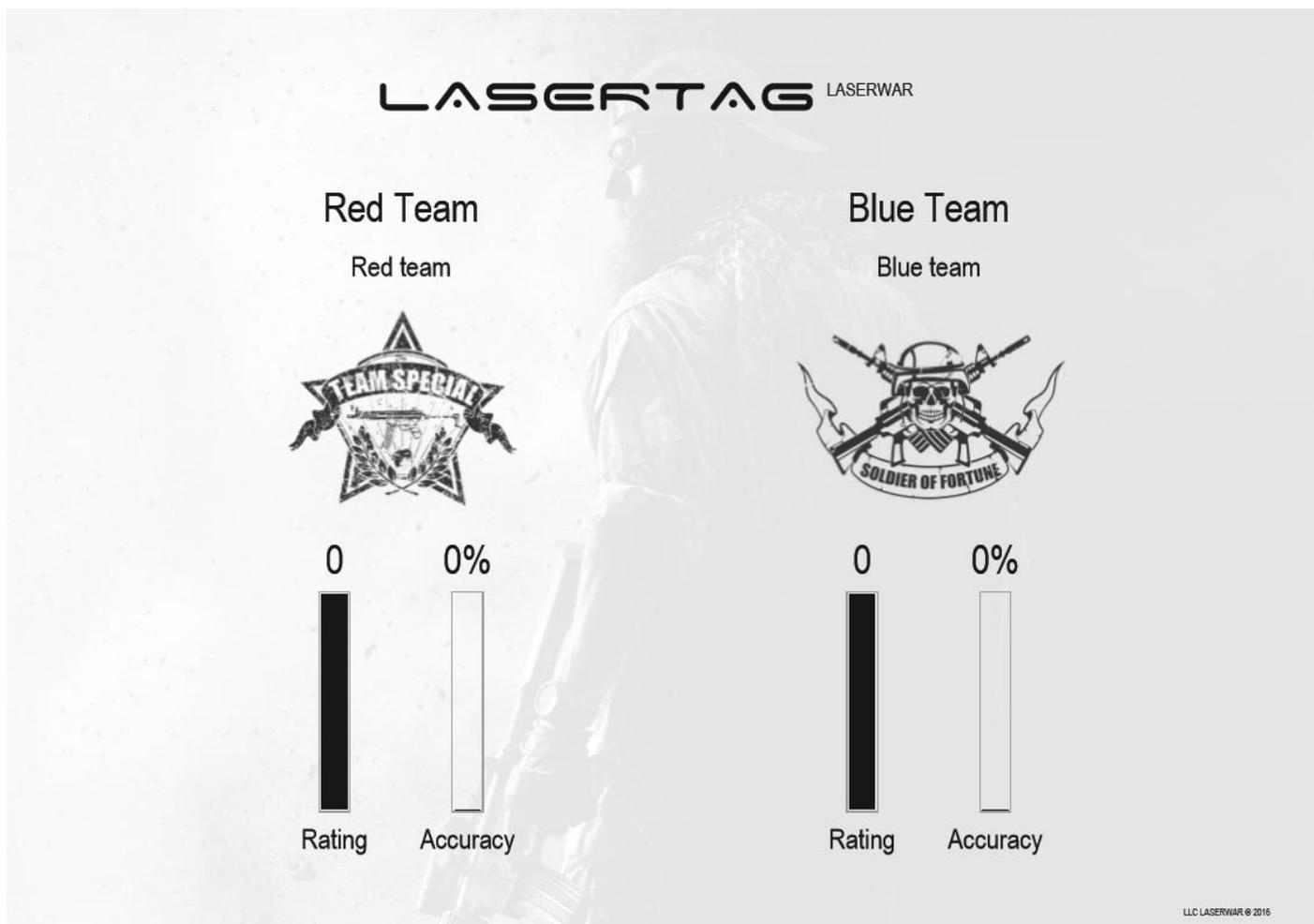
Picture 90

The name of a team in the statistics can be changed when required. In order to do this, double left-click on the name of the team and enter the changes (an example is presented in picture 91).



Picture 91

To save the changes or print out the statistics, click on **Print** in the main window of the unit (picture 86). Thereupon, a PDF file will be created. It will contain comprehensive information – general statistics (picture 94), team score (picture 92), achievements (picture 93) and players' personal statistics (picture 95). At the top of each page of the PDF file, you will find the name of the club or of the event (go to paragraph 3.3).



Picture 92



Picture 93

LASERTAG LASERWAR

ID	Color	Type	Player	Rating	Accuracy	Shot fired	Hits	Killed
4	● Red	AK-12LT «PREDATOR»	Player 4	0	0.00 %	0	0	0
1	● Blue	AK-12LT «PREDATOR»	Player 1	0	0.00 %	0	0	0

LLC LASERWAR © 2016

Picture 94

● Player 4



Rating	0	Injured	0
Accuracy	0%	Killed	0
Shot fired	0	Damage get	0
Hits	0	Medicine	0
Weapon damage	25	Ammo boxes	0
Damage done	0	Game time	00:00:00

Hits to enemy

Player's name	Hits
---------------	------

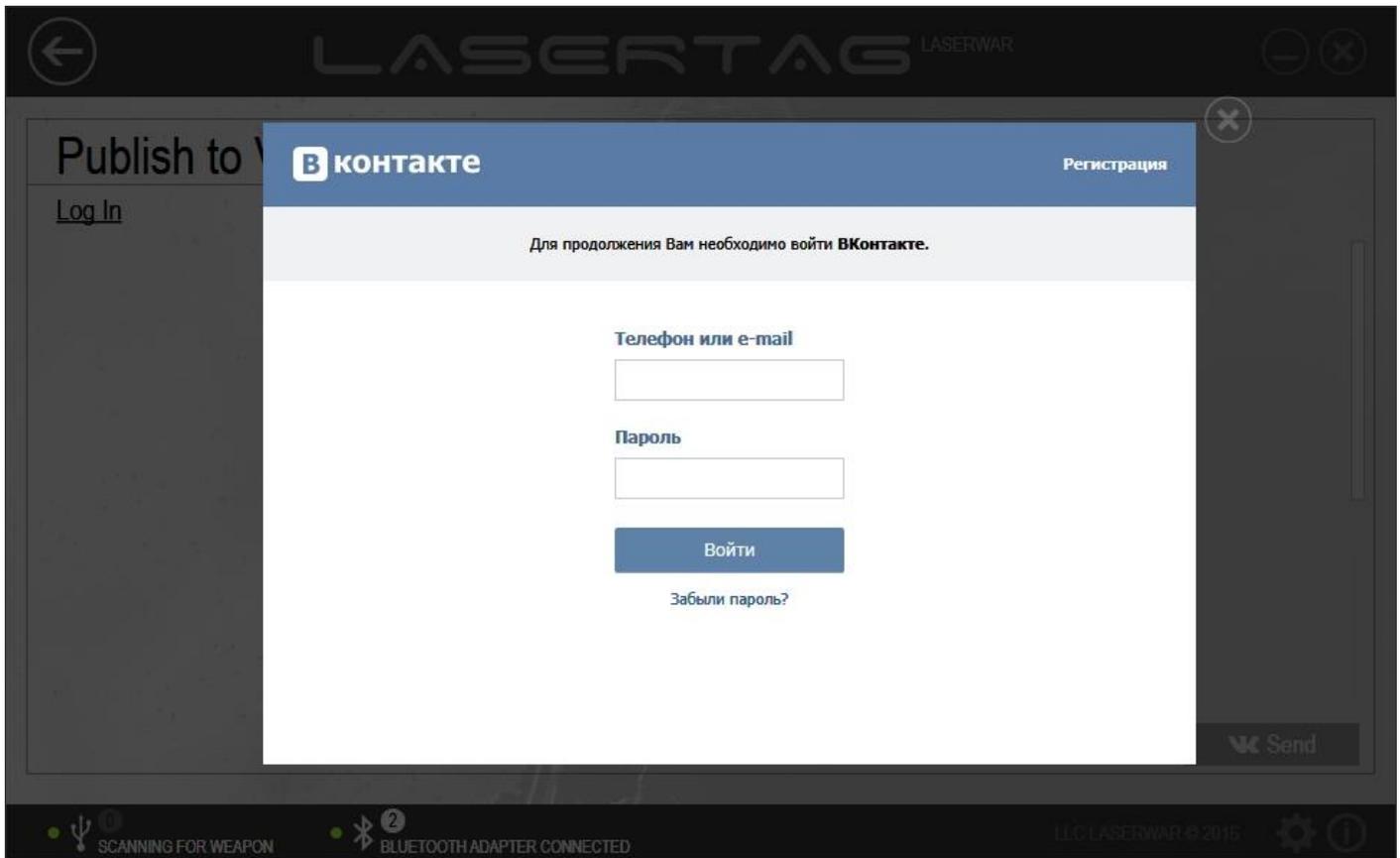
Received injuries

Player's name	Hits
---------------	------

Picture 95

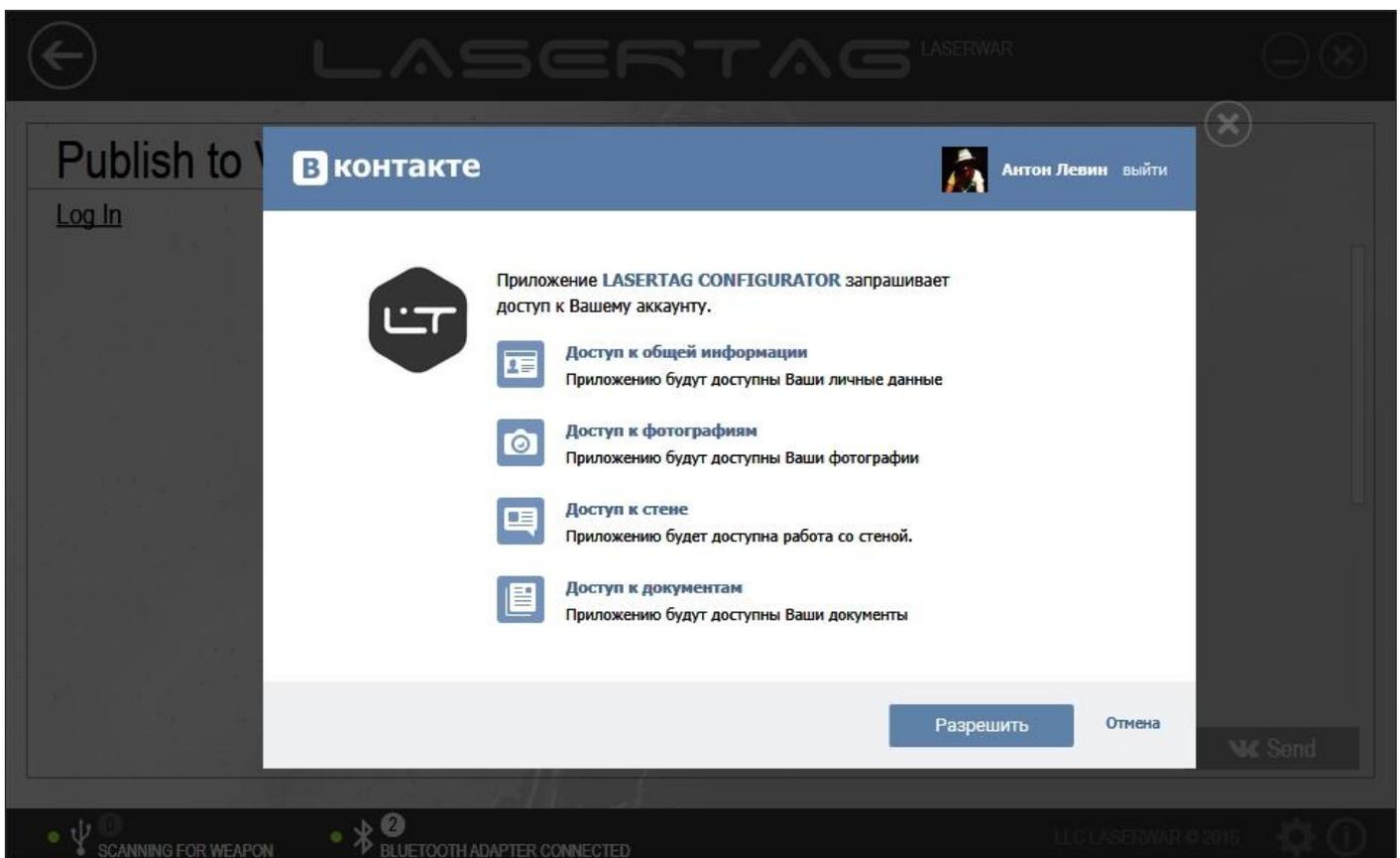
The PDF file can be printed out or saved using standard editor tools.

The statistics can be published in the Vkontakte social network. In order to do this, click on **Vk** at the top of the main window of the unit (picture 86). Upon this, the program will suggest that you enter your personal account page in Vkontakte (picture 96).



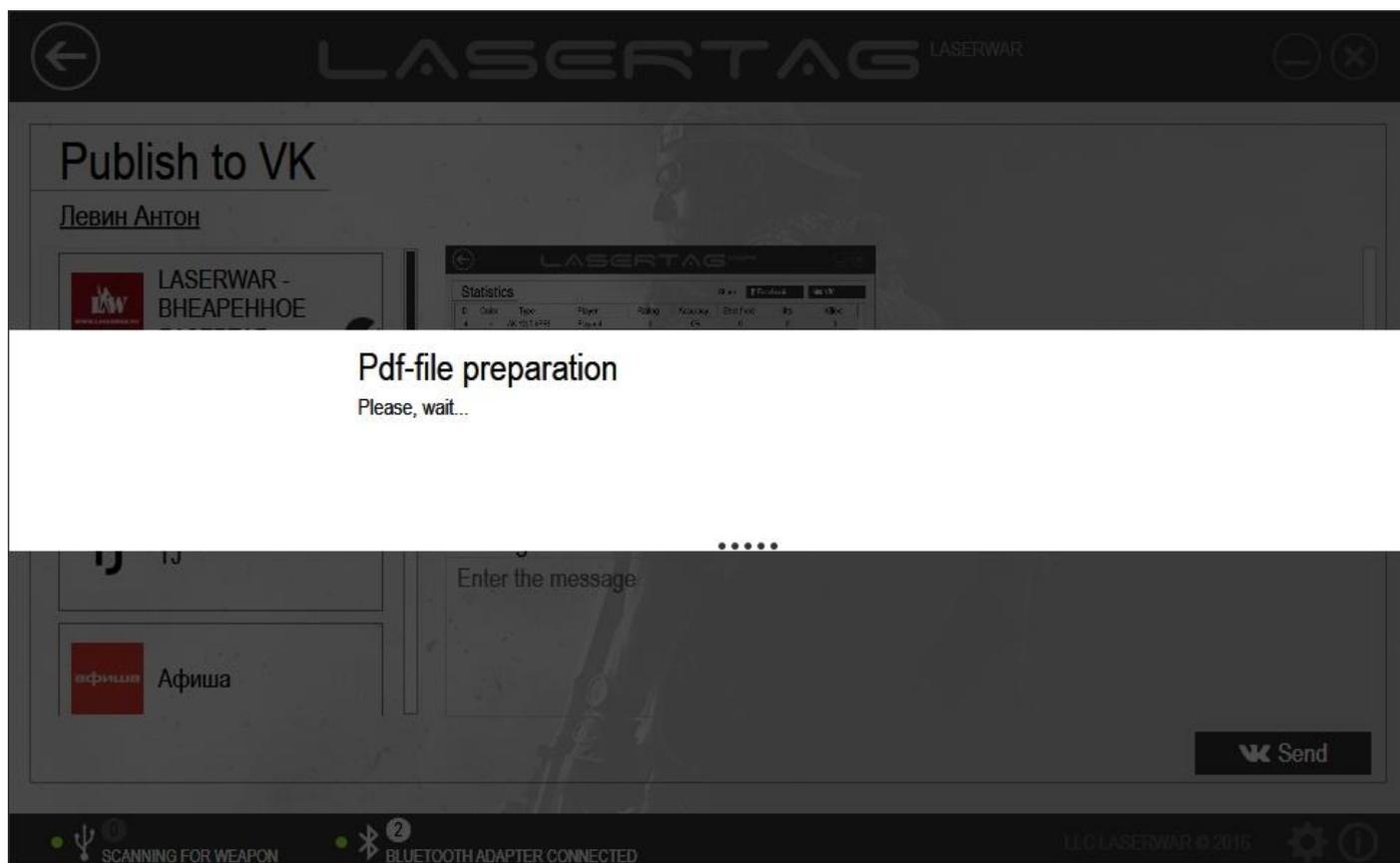
Picture 96

As you enter your account page, you must allow the program access your personal account (in order to do this, click on **Разрешить** in the window, as presented in picture 97).



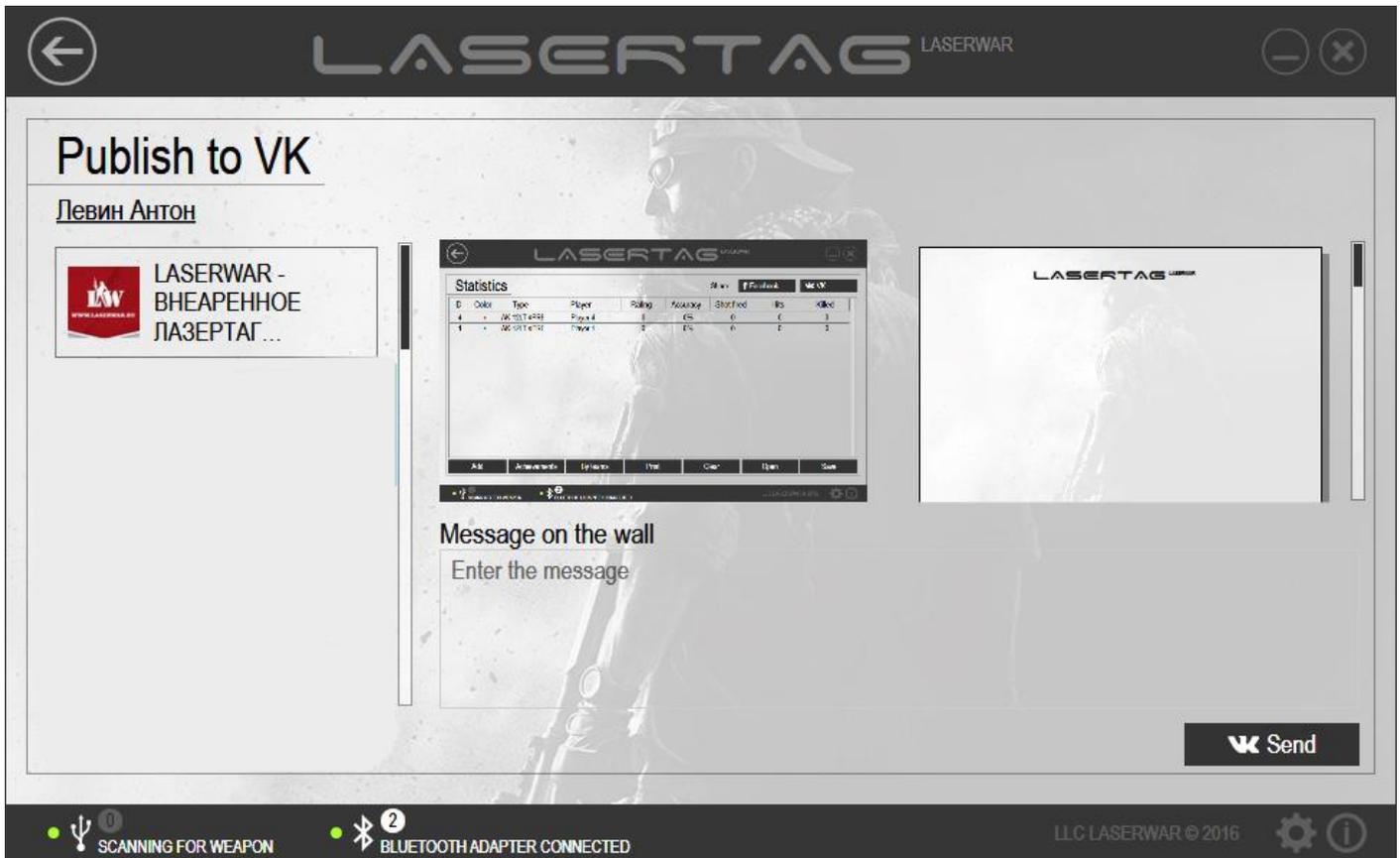
Picture 97

Upon that, the process of PDF file preparation will start. It is equivalent to the one presented in pictures 92 – 95. A relevant message will pop up on the screen (picture 98).



Picture 98

The ready document will be presented for preliminary viewing at the centre of the window (picture 99). It can be viewed using the scrollbar. On the left of the document, there is the screenshot of the statistics window.



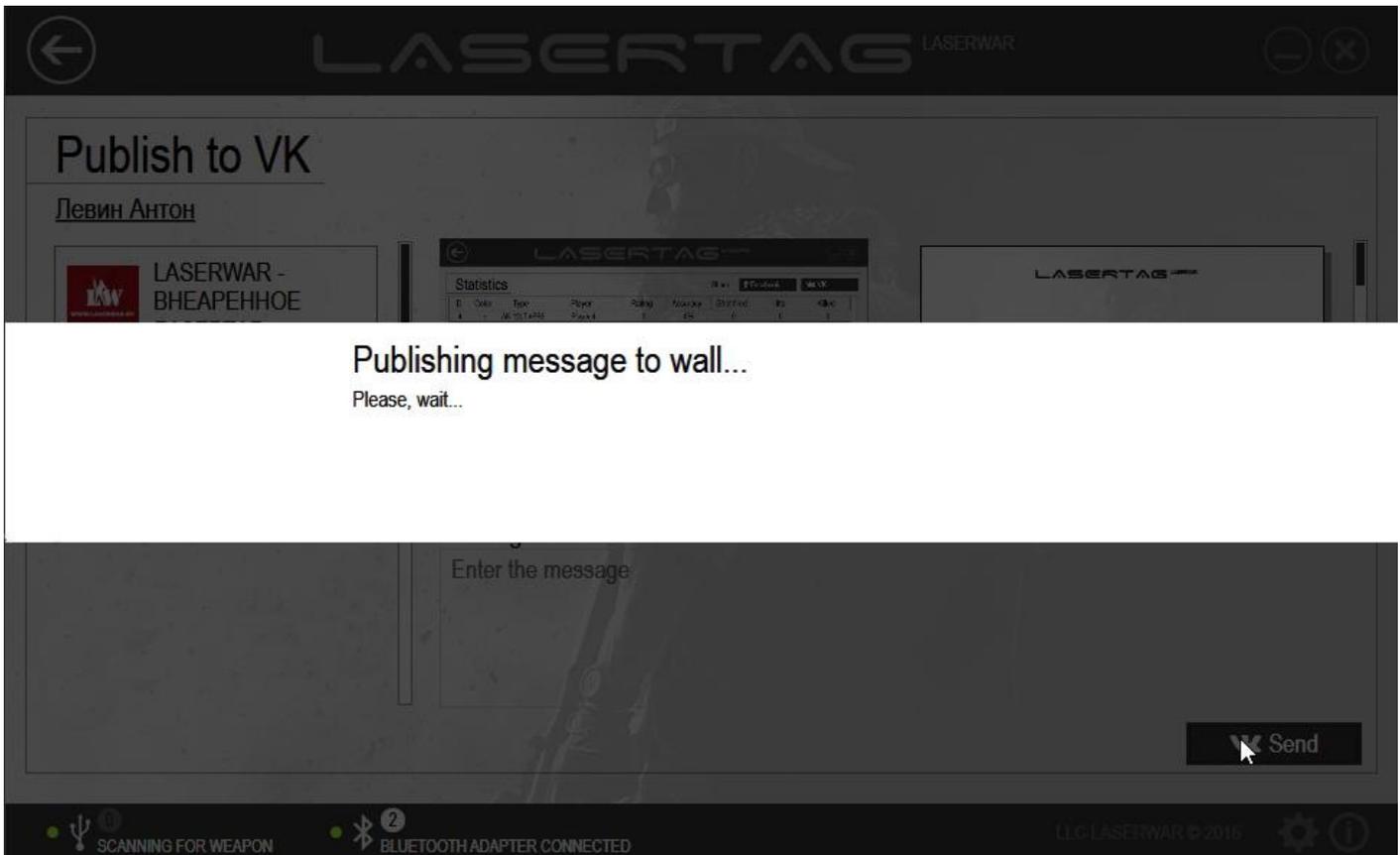
Picture 99

In the **Message on the wall** section, which is above the document, enter the text of the message.

The list of groups that you have joined will be on the left. To select a group in which you want to publish the statistics, left-click on its name. As you do this, a tick will appear next to the name of the group, as presented in picture 99.

IMPORTANT! You can leave a post on the wall of a group only if you are member of this group and have admin rights.

To post statistics on the wall of a group, click on **Send**. A message will appear on the screen, just as shown in picture 100.



Picture 100

IMPORTANT! In order to publish statistics correctly, you must gain access to the group's wall, photographs and documents.

If publishing the message on the wall of the group has been successful, a message notifying about this will appear on the screen.

To **Clear** the statistics, click on the relevant button in the main window of the unit (picture 86).

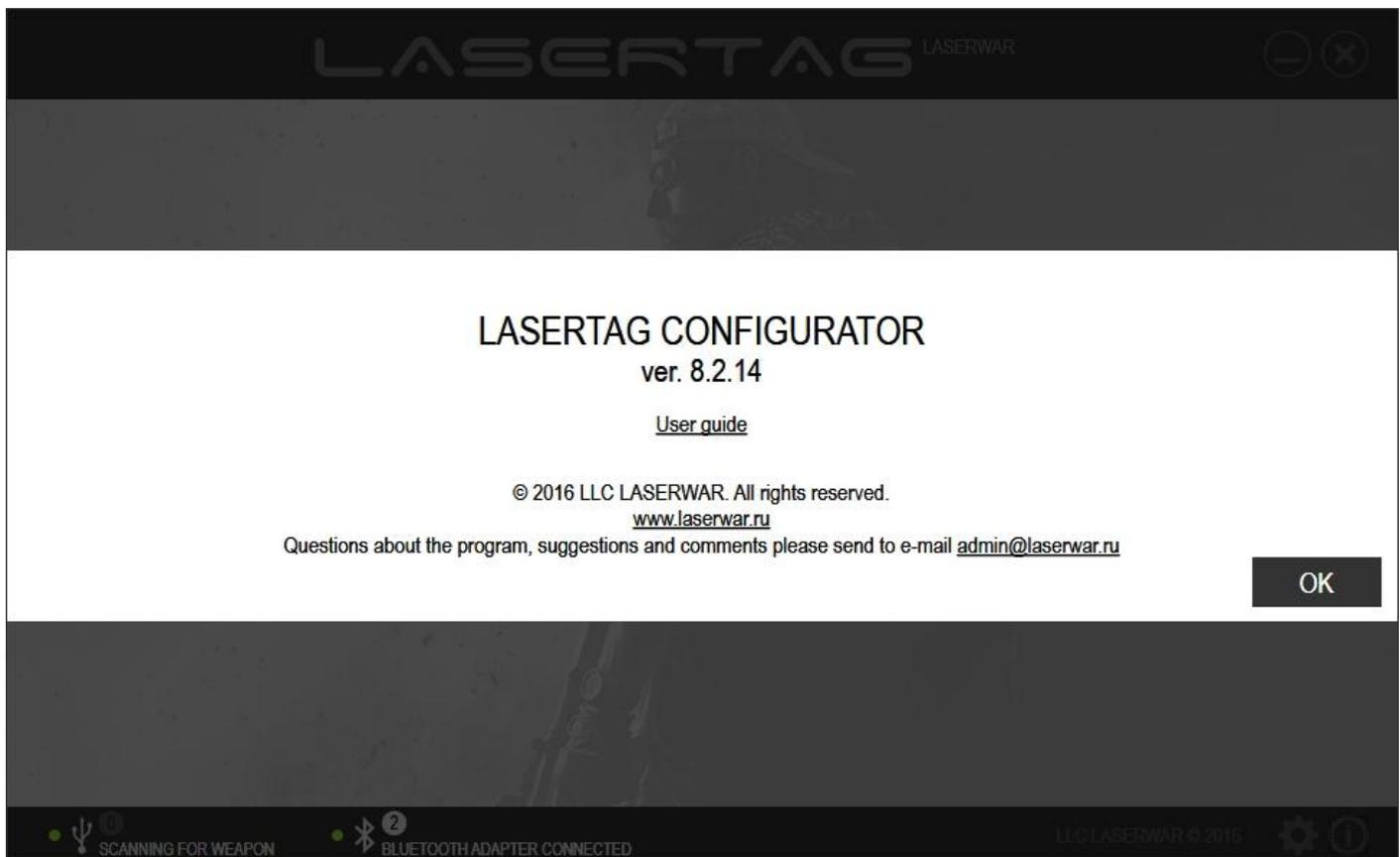
In order to save the statistics in the *.XML format, click on **Save** in the main window of the unit (picture 86). The standard Windows window **Save as** will open at that. The file will be save in a standard way. The saved file can be viewed at any time. To do this, click on **Open** (picture 95) and select the XML file in the standard Window Open window. The saved statistics will appear on the screen at that (an example is presented in picture 86).

5 Technical support

If you have any questions about using the program of configuration of the LASERTAG CONFIGURATOR laser tag equipment game parameters or if you have any problems with it, contact our technical support team 10 a.m. till 6 p.m. (Moscow time) Monday to Friday on these telephone numbers: +7 (800) 555-95-90, +7 (4812) 377-000 (or call the additional telephone numbers: +7 (964) 616-15-15, +7 (951) 694-01-00), or write to our e-mail: help@laserwar.ru or contact us through our website www.laserwar.ru.

As you contact our customer support team, have the following information at hand:

- The situation when the problem appeared.
- The actions of the User that caused the problem.
- Program version. To find out what the version of the LASERTAG CONFIGURATOR program is, click on **About the program** at the bottom of the main window of the system. An information window will appear on the screen upon this. An example can be viewed on picture 101.



Picture 101

To **Close** the window, click on the relevant button.

An attached screenshot of the problem message may be useful.