



# RAPTOR

## USER'S MANUAL

Version 1.0

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# 1. Raptor set

In the followings you can read the description of Raptor laser tag set, developed by INTAGER Ltd.

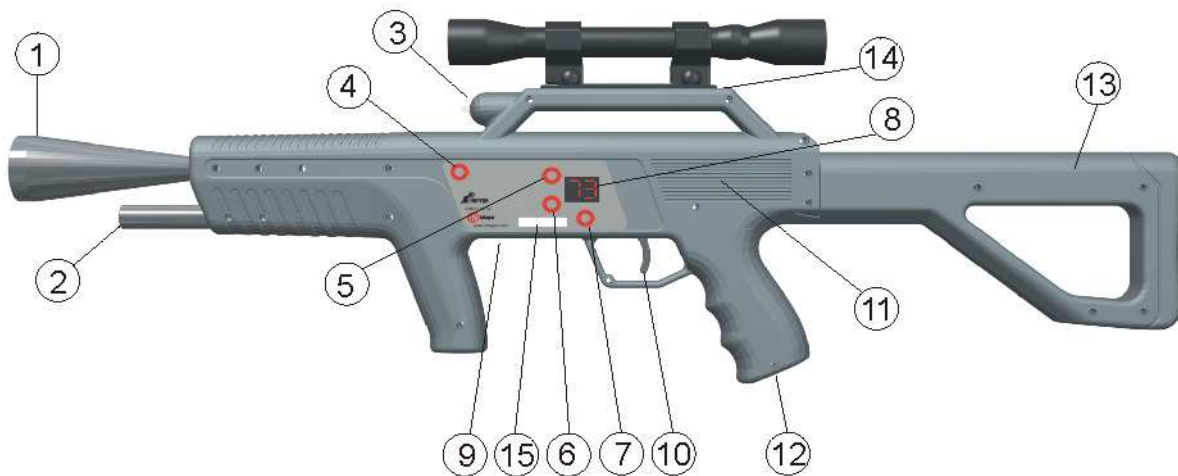
The content of the **RAPTOR laser tag** set:

- gun
- shoulder stock
- headband with sensors
- headband cover
- blocker piece
- PC program

**The RAPTOR laser tag's characteristics:**

- totally safe, no risk of damaging the eye, nor any other body parts,
- plenty of possible settings by the software
- statistics available by downloading from the guns
- keeps players, results and games safely in a database
- programming the guns and downloading data by easy and fast radio communication
- radio communication between the gun and the head sensor without any cables
- grenade launcher (2 optics, integrated in the gun)
- hit signal
- hit feedback
- optional sounds: normal, kids, extreme
- 'last life' signal
- 7 level shot power: so you really can use it for indoor games or assign the functions inside the teams (sniper/sharpshooter, small arms...)
- ergonomic build-up supported by 10 years of game organizer experience, head fit box
- no 'self hit'
- easily changeable and rechargeable batteries (AAA and 8,4V)
- battery potential sign
- in case of low potential: warning signal
- adjustable display brightness
- display can be switched off
- sensor on the gun as well

## 2. Gun



### 2.1 Parts and functions

1. **Barrel.** Shooting range minimum 150meters in total sunshine.
2. Grenade. Real unique feature. Range: 30meter in total sunshine, drastic fire-power.
3. Yellow LED flashes at shots – like “muzzle fire”. Sensors detect hits made other players on us. Radio communication between the head sensor and the gun. Hit feedback (sound effect) confirms your successful hit made on other players.
4. Grenade loader button.
5. Increasing display brightness.  
Press the button longer - you can see how many clips are there still “in the gun”
6. Decreasing display brightness. You can even switch off the display.  
Press the button longer - you can see how many bullets are there still in the actual clip. Press the buttons “5” and “6” longer at the same time – you can see how many grenades are there still “in the gun”.
7. Clip re-loader.
8. Display. It shows how many health, bullets, clips, grenades we have and the power of the batteries.
9. Plug. You can recharge the batteries through it.
10. Trigger.
11. Speaker.
12. Battery box. You can recharge the batteries through the plug.
13. Shoulder block.  
Blocker piece. When you take the shoulder block off, put this in its place. It is part of the basic set.  
Sling fixing.
14. Rail for riflescope, telescope, red dot etc.
15. Serial number

## 2.2 Operation

**Switch on the gun.** Please keep the remote close (approx. 1 cm) to the Raptor. Place it where the weapon ID is, keep it pressed for about 1 second.



1. By pressing the On button on the remote. This way we can play the last programmed scenario.
2. By pressing the “Factors settings” button. This way we can play with the factory settings!

On the gun there is a multifunctional display. When we switch the gun on:

1. It shows the power of the batteries in volts, between 6-9. When it is below 6.5V there is a sound warning „low battery”. When the batteries **are below 6.3V the gun switches off** automatically! Around 7 it is about time to recharge!
2. It shows, and then it says a short welcome message.

During the game the display shows:

1. The number of remained lives (health),
2. During the shot it shows the number of ammo left in the actual clip,
3. At special shots (grenade, medic or ammo function) the remained special shots.

Pressing longer the upper button (5) the display shows the number of the remained clips. Pressing longer the bottom button (6) the display shows the number of the remained bullets in the actual clip. If we press both bottoms at the display together we can see how many grenades we have left.

**Programming mode.** To put the gun into programming mode, switch it on by pressing the Program button on the remote. Please keep the remote close (approx. 1 cm) to the Raptor. Place it where the weapon ID is, keep it pressed for about 1 second. If the gun is in programming mode the display shows:

- P1: programming the weapon. Now we can upload games onto the weapon. During the uploading we can see 2 dots flashing and we can hear a sound.
- P2: Download: we can download the results of the last game and we can create statistics.
- P3: Check in: we can see the date and time of the last 10 use of the weapon.

Find below the parameters of the factory program and the possible changes:

Features	Factory value	Remark	Range
Game ID	1		
Team ID	1		
Player ID	weapon ID		
Duration	no		0...24 hours
New game starting time	no		0...24 hours
Damage of shot	1	In case of successful hit the number of health will be reduced by this	1...29 or end of the game at once
Fire mode	automatic		Automatic or semi automatic
Normal shot – Clip size	30	The number of ammo in a clip	1...99 or unlimited
Normal shot – number of clips	unlimited		1...99 or unlimited
Special shot	Grenade		Grenade, medic or ammo
Number of special shots	3		1...99 or unlimited
Effect of special shot	2	Grenade: the number of health will be reduced by this Medic: the number of health will be increased by this Ammo: number of ammo will be increased by this	Grenade: 1...99 or game over at once Medic: Starting health, 1...30 health, starting health and ammo Ammo: 1...9 clips
Clip reload time	3 sec		0...25 sec
Number of healths	10		1...99
Next hit delay	0,1 sec	After a taken hit for this period of time the player cannot have another hit	0,1...9,9 sec
Weapon stunt delay	0,1 sec	After a taken hit for this period of time the player cannot shot	0,1...9,9 sec
Range of fire	7. level	from 10meter up to 150meter	1...7 levels
Friendly fire	Allowed	Hit on another player in the same team	Allow/Prevent

Features	Factory value	Remark	Range
Hit echo	Allowed		Allow/Prevent
Reloading time of special shot	4 sec		0...25 sec
Rate of fire – normal shot	0,3 sec	Minimum time between two normal shots	0,3...9,9 sec
Sound of shot	Standard		Standard, child, extreme
Special shot	Standard		Standard, child, extreme
Hit taken	Standard		Standard, child, extreme
Hit given	Standard		Standard, child, extreme

### ***Use the gun:***

The gun is ready to operate only after the short welcome message is heard. The display shows the number of health.

**!NOTE:** When the gun is programmed with a new game starting time, it switches on only at starting time. In this case two red points flash on the display.

The gun has two shooting modes: normal and special. During a normal shot we can hear the sound of shot through the speaker, the muzzle fire yellow LED flashes and on the display there is the number of bullets left in the actual clip. When the clip is empty, instead of shot sound there is only the sound of empty clip and there is a 0 on the display.

***Reloading clips:*** Press the button number 7. Once the reloading is ready, the clip will contain as many bullets as many were set in the software.

### ***Loading special shots:***

We can change to a special shot by pressing the special shot reload button. (4) After reloading a special shot there is no way back. Our next shot is going to be the special shot. During a special shot we can hear the sound of shot through the speaker, the muzzle fire yellow LED flashes and on the display there is the number of special shots left in the actual clip. After the special shot our next shot will be a normal one automatically, unless we not reload another special one. When we are out of special shots a sound warns us.

During the game: at a taken hit a sound informs us and the number of health decrease (on the display). At our last health we also get a sound note. If we are out of health the LED on our head band lights continuously. We are out of that game, or a doctor can give us health points.

If we programmed duration, the gun switches off at the end of the duration time.

At the end of the game we can download the results from the gun. If it fails we still can download the result of the game in programming mode.

**Note!:** The gun stores the result of the last game until we restart it.

### ***Respawn:***

If a player is out of the game, then it is possible to respawn him/her and let him/her get back into the game. For this use the Respawn button on the remote. Use the remote as seen at 2.2, and press Respawn.

### ***Switch Off the weapon and the headsensor.***

Use the remote as seen at 2.2, and press Off!

## ***2.3 Recharging the batteries, recharger***

The gun operates with ordinary 6 pcs of AAA type, minimum 1000mAh batteries. With fully recharged batteries minimum 8 hours of play is possible. The gun checks the power in the battery. When it is below 6.6V it warns with a sound message „low battery”. In this case we can still use the weapon. However, if the battery power drops below 6.5V the gun switches off automatically. We have to recharge or change the batteries.

We can recharge the batteries through the weapon.

Intager sell 12V/500mA rechargers for the Raptor set. With it you can reach a good battery power in 2-4 hours. The maximum power is in 8-12 hours depending on the conditions of the batteries.

**Note!:** Using any other recharger than Intager's one Intager does not take the responsibility for any damage!

### ***Recharge:***

Put the recharger's plug into the gun. On the display the actual power appears. Recharging goes on till the battery power reach 9V. After that it switches off and the display shows the battery power with pale red. This means recharging is ready.

## ***2.4 Optics***

The Raptor has got 2 different optics:

- **The normal shot with lens**, working in a range of more than 150 meter in full sunshine. The shot – outgoing sign has got a round form with a 3-4 meter diameter at 150 meter. The diameter grows parallel with the distance. Over 150 meter the diameter decrease. When we change the shot power, these numbers will change of course. Intager adjust every single item with camera, so the outgoing sign is more homogeneous. This way Intager avoids arising rings in the sign.



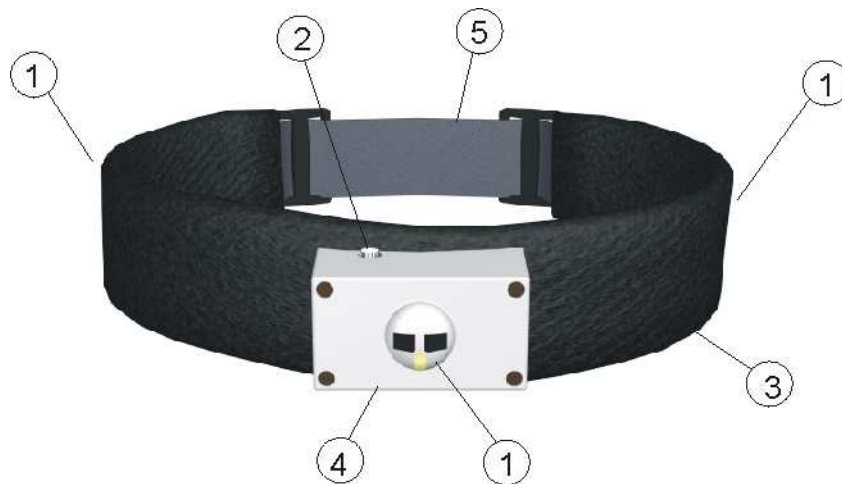
Most of the manufacturers can only achieve 150 meter range with arising rings which causes that sometimes we hit and sometimes we do not, nonetheless we aim in the same way. With arising rings - like the other manufactures mainly set it - RAPTOR could have the range over 300 meter,

The Intager Raptor laboratory tests shows values far below the EU health limit values, does not cause damage in health. Of course this is for normal use of the equipment.

- **Special shot**

Maximum range is 30 meters, diameter is 10 meter at 30 meter which grows parallel with the distance. There is only 1 shot power, not possible to change with the software.

## 3. Headband



### 3.1 Parts, functions

1. Sensor: The sensors identify the hits in 360 degrees. The LEDs are signaling the occurred hits by a flashing red light. At recharging and starting, the number of flashes shows the power of the battery.
2. Plug. You can **recharge** the batteries through it..
3. Cover of headband. Washable, easily detachable with velcro. (hygienic solution for game organizers).
4. 8,4V battery box: The ergonomic build-up of the box fits the head. Taking the cover off is not recommended!
5. Headband. Adjustable elastic band with fastener.

### ***3.2 Operation***

The headband registers the hits and sends a message to the gun via radio communication about all info (hit, low power in the battery...). The sensors on the headband are positioned to identify the hits in 360 degrees.

**To switch on the headband:** use the remote. Place the remote close the ID number on the battery box –approx. 1 cm- and Press On, keep it pressed for about 1 second. The number of the red LED flashes means the power of the battery. The maximum power is at 6 flashes. At 3 or less recharging is needed – the headband send a message to the gun and we get a warn from the speaker “Low battery in the sensor”.

The headband registers the hits. At every hit the red LED flash once and the hit is confirmed towards the gun. On the guns display the number of the health will be reduced. When the player has no health left the red LED lights are on constantly. The light is off only if we switch off the headband or if a doctor gives us extra health.

### ***3.3 Recharging the battery, recharger***

The headband operates with ordinary 8.4V/200mAh battery. With fully recharged battery minimum 8 hours of play is possible. The system checks the power in the battery. When it is low the gun warns with a sound message „low battery in the sensor”.

We can recharge the battery through the head sensor.

Intager sell 12V/500mA rechargers for the Raptor set. With it you can reach a good battery power in 2-4 hours. The maximum power is in 8-12 hours depending on the conditions of the battery.

**NOTE!** Using any other recharger than Intager’s one Intager does not take the responsibility for any damage!

Recharge:

Put the recharger’s plug into the headband. During the recharging the LED flash informs us about the actual battery power. The maximum is 6 flashes. After reaching the max power the recharging system switches off.

## 4. Sights

With a shot  $d=3-4$  meter at 150 meter seems to be easy to give a hit. However, during the play we have to aim quite precisely so it is very important to use the proper sights.

### *4.1 Red Dot or Riflescope*

Upon experience the best to use is the 2 lenses RED DOT or GREEN DOT. Its advantage is that we do not have to watch the lens from  $90^\circ$  the red dot will be on the target. So you can aim more easily when you move. We suggest the sights with 30 or 40mm lenses.

For distant targets when you don't move too much the riflescope is better. It is more like a sniper function. When the playing field is big enough it is possible to create sniper functions. These weapons should be equipped with riflescope.

### *4.2 Other equipments*

Of course it is possible to use other sights, laser pointers, lamps too. It is easy to fix them onto the weapon.

## 5. Programming adapter



## **5.1 Description**

The programming adapter builds the radio connection between the guns and the PC. You can configure the weapon's fundamental parameters (number of health, grenade, ammo, etc), functions (medic, ammo, grenade) or special things (sound effect, game timer, range of fire, etc) and you are able have information and statistics from the weapon by this device.

The adapter is connected to the PC with a printer cable.

## **5.2 Installation**

After installing the **Intager Scenario Manager** program you can setup the programming adapter's driver.

Attention! The adapter should be connected to the PC only after we installed the *Intager Scenario Manager* program!

Plug weapon adapter into a USB port on your computer.

# 6. PC program

## **6.1 General Operation**

With this software we can make plenty of adaptations or changes from the basics (lives, ammo, number of grenades) throw the functions (medic, ammo etc.) till the extra settings (optional sounds, timer, software power controlling in case of for example building-fight) and can download a range of further statistics about the game.

### **Programming possibilities:**

- 7 levels of range, perfect indoor adjustments
- fire-power (how many 'lives' a hit takes)
- fire-power for grenade launcher (how many 'lives' a hit takes)
- amount of ammo
- size of clips
- amount of clips
- duration of clip changing
- amount of grenade launchers
- duration of filling grenade launcher
- duration of filling grenade launcheramount of lifes

- automatic or semi automatic
- start and finish games at set times
- medical function adjustment (how many times how many lifes can it give)
- ammo function (how many times how many ammo can it give)
- 3-3 (normal, child, extreme) optional sound: shot, hit given, hit taken and grenade launcher function
- delay next hit taken
- delay shot after hit taken
- hit feedback
- authorise 'friendly fire'
- number of games
- number of teams
- ID by name

**Database handling and keeping stored all data such as:**

- names and data of players
- keeping personal settings and missions
- keeping personal set players and tags
- keeping results of played games
- keeping results of teams, players
- data import
- data export

**6.2 Install: See *Install Intager Scenario Manager***

**6.3 Operation**

*See "Help" menu in your Intager Scenario manager program.*

## 7. Other accessories

**7.1 GPS, walkie-talkie**

We can play 1-2 day scenarios with GPS, walkie-talkie, maps, missions, descriptions. Before playing such a long scenario it is also necessary to get familiar with the equipment (not just the Raptor, but how to use the map, GPS...)!

To create and organize such a scenario the organizer has to be experienced and well trained. Without that the scenario easily can be a flop!