

# Intager Troodon user manual

Laser tag equipment for dynamic and interactive indoor and outdoor games  
2020

Read this manual and the manuals of any accessories carefully for important operation, safety and health information. Follow all instructions and precautions to protect your health, your safety and for the correct use of the Intager Troodon. Failure to properly set up, use, and care for the Intager Troodon can increase the risk of serious damage or can spoil gaming experiences.

You must accept the terms and conditions of the Limited Warranty, and this manual to use your Intager Troodon equipment.

For replacement manuals, go to [intager.com/support](http://intager.com/support) or contact us.

For your warranty and other important information, see the Warranty title and the end of the manual.

## Table of content

|  |   |
|--|---|
| Important safety instructions.....                                 | 2 |
| Electrical safety .....  | 2 |
| Battery .....  | 3 |
| Disposable Battery Safety.....                                     | 3 |
| Water.....   | 3 |
| General Precautions .....  | 4 |
| Introduction.....  | 4 |
| The Troodon set .....  | 4 |
| Depending on the package you bought the content of your set: ..... | 4 |
| Characteristics .....  | 4 |
| Compatibility .....  | 5 |
| Wi-Fi, Bluetooth and NFC communication.....                        | 5 |
| Remote-control key.....  | 5 |
| System requirements .....  | 6 |
| Troodon marker .....   | 7 |
| Parts and functions.....   | 7 |
| Marker and headset communication.....                              | 8 |
| Hit feedback.....  | 8 |
| Play .....   | 8 |
| Detect mode.....   | 8 |
| ON.....  | 8 |
| Factory Program .....  | 9 |
| Respawn .....  | 9 |

|                             |    |
|-----------------------------|----|
| Normal shot.....            | 9  |
| Special shot.....           | 9  |
| Hit.....                    | 10 |
| Optics.....                 | 10 |
| Normal shot.....            | 10 |
| Special shot.....           | 10 |
| Game statistics .....       | 10 |
| Game Timer .....            | 10 |
| WiFi communication .....    | 11 |
| Battery and charging .....  | 11 |
| Indoor and Outdoor use..... | 11 |
| Maintenance .....           | 11 |
| Headset.....                | 12 |
| Parts and function .....    | 12 |
| Attached to marker .....    | 12 |
| Battery and charging .....  | 13 |
| Accessories .....           | 14 |
| Red dot sight.....          | 14 |
| Tactical light.....         | 14 |
| Phone holder .....          | 15 |
| Charging.....               | 15 |
| Warranty .....              | 15 |



This symbol identifies safety and health messages in this manual.

## Important safety instructions

### Electrical safety



As with many other electrical devices, failure to take the following precautions can result in serious injury or death from electric shock, fire, or damage to the Troodon equipment.

Select an appropriate power source for your charger, use only the power adapter unit supplied with your equipment or that you received from an authorized Intager dealer. In case you need a replacement power supply unit, contact us or one of the official Intager dealers listed at

www.intager.com. Please note that Intager or Intager dealers supply a third-party vendor's power adapter, be sure that you follow all related manuals and instructions and:

- Confirm that your electrical outlet provides the type of power indicated on the power supply unit (in terms of voltage [V] and frequency [Hz]). If you are not sure of the type of power supplied to your home, consult a qualified electrician.
- Do not use non-standard power sources, such as generators or inverters, even if the voltage and frequency appear acceptable. Use only AC power provided by a standard wall outlet.
- Do not overload your wall outlet, extension cord, power strip, or other electrical receptacle. Confirm that they are rated to handle the total current (in amps [A]) drawn by the console, indicated on the power supply unit) and any other devices that are on the same circuit.
- Do not connect any other devices between the power supply unit and the charger in order to avoid damaging the power cords and power supply:
  - Protect the power cords from being walked on.
  - Protect cords from being pinched or sharply bent.
  - Do not jerk, knot, sharply bend, or otherwise abuse the power cords.
  - Do not expose the power cords to sources of heat.
  - Keep children and pets away from the power cords. Do not allow them to bite or chew on them.
  - When disconnecting the power cords, pull on the plug — do not pull on the cord.
  - Do not let the power supply unit hang.

## Battery



Do not use any AC Adapter other than the one provided with your system.

## Disposable Battery Safety

Improper use of batteries may result in battery fluid leakage, overheating, or explosion. Released battery fluid is corrosive and may be toxic. It can cause skin and eye burns, and is harmful if swallowed.

- Do dispose of batteries according to the local laws and regulations of your region.
- Do not disassemble, puncture, modify, drop, throw, or cause other unnecessary shocks to batteries.
- Do not dispose of batteries in a fire or trash incinerator or leave batteries in hot places such as an automobile under direct sunlight.
- Do not store batteries near an oven, stove, or other heat source.
- Do not connect batteries directly to an electrical source, such as a building outlet or automobile power-point.
- Do not place batteries into a microwave oven, or into any other high-pressure container.
- Do not immerse batteries in water or otherwise get them wet.

## Water

Do not store the equipment in a humid place. Do not use the equipment near water (for example, sinks, baths, tubs, pools) or expose it to rain, moisture, or dripping or splashing liquids.

## General Precautions

Do not drop, hit or otherwise abuse the Console. Do not try to repair the Console, accessories or components. Doing so may void your warranty. Do not attempt to disassemble the console. Refer servicing to qualified personnel only.

Clean only with a dry cloth.

## Introduction

### The Troodon set

Depending on the package you bought the content of your set:

- Marker with battery
- Headband with battery and/or equipped extra sensor on the marker
- Headband cover or vest
- Charger with cables
- NFC Remote control key
- Smart Box (optional)
- Mobile holder (optional)
- Bag (optional)
- Helmet (optional)
- Built in red-dot (optional)
- Training session (personal or through Skype)

### Characteristics

- Totally safe, with normal use does not damage the eyes nor any other part of human body
- Endless variations of settings with Intager Game Manager
- Live game statistic from the markers: hits with the players names, awards, team results
- Stores players, results and games safely in a database
- Uploads and downloads via easy and fast Wi-Fi, NFC & Bluetooth communication
- Bluetooth communication between the marker and the head sensor – no cables
- Calibrated normal shot (shooting range is more than 200 meter in full sunshine)
- Grenade launcher (2 optics, integrated in the marker)
- Hit signal
- Optional sounds
- 'Last life' signal
- 7 levels of shooting range. Really ideal for indoor games. Also ideal for assigning roles in the teams (sniper/sharpsooter, small arms...)
- Ergonomic build-up supported by 10 years of game organizer
- Experience, head shape fitted box
- No 'self hit'
- Easily rechargeable battery (Li-Polymer)
- Battery power indicator
- In case of low power: warning signal
- Marker sensor
- Friendly fire on/off

## Compatibility

The Intager Troodon sets are no longer communicating through 868/915 mHz radio like before, but they are compatible with RII/R2S markers, using the first version of the SmartBox. The first version of the SmartBox is compatible to start and manage games on both versions. However, the Troodon and R3 sets will no longer have the features of live statistics and there will be no hit feedbacks in between the different systems. All the game modes will be limited to match the Raptor II/2S marker features. The NFC remote control key is not compatible with any previous systems.

## Wi-Fi, Bluetooth and NFC communication

- Wi-Fi: Connection between marker and SmartBox.
- NFC: Connection between marker and phone, connection between marker and control key.
- Bluetooth: between marker and headset & marker and phone.

## Remote-control key



The new remote-control key is equipped with an NFC chip which is communicating with both markers and headsets. The key is using 2 AAA Batteries to operate. The functions of the 4 buttons are:

- ON
- Factory program
- Respawn
- OFF
- Detect mode – ON+Respawn combination

Intager Mobile Operator application for Android is also capable to turn on and manage Troodon equipment. See more about the applications on our website.



<https://www.youtube.com/watch?v=mwAKpRMu2Jo>

#### System requirements

- **Using with SmartBox:** The SmartBox is only requiring a stable Wi-Fi connection to run. Game Marshals can join to the SmartBox with a computer. The SmartBox is controlled over a web browser by the users choice. – see SmartBox manual.
- **Using with Intager Operator:** The Intager Mobile operator is running only on **Android** above version 6. The application also needs **NFC** and **Bluetooth** connection to communicate with the equipment. – See Intager Operator manual.

# Troodon marker

## Parts and functions



1. Glass lens optic: Maximum range of 200m in full sunshine. Every single tube is calibrated with camera.
2. Grenade launcher: A real unique feature. Maximum range of 30m in total sunshine, drastic firepower. Optional: medic, flame or supporter function.
3. Muzzle fire led & sensor: The yellow LED flashes at shots. The sensors on the marker also register the hits. (The players cannot hide and shoot without any danger of getting hit).
4. Grenade / special shot loader: Load the grenade by pressing the button. Game marshal can set (by IGM) function, loading time, count, effect.
5. Clip reload: Definable number of clips and reloading time.
6. Display: Shows the actual number of health, ammo, clips, grenades, game time or the power of the battery.
7. Plug socket: Connect the charger cable to the marker here.
8. Trigger: During normal or special shot the muzzle fire LED flashes and the marker gives the previously set shot signal.
9. Speaker: The marker provides info through its speaker. There are some optional sounds, for example - normal shot, hit, grenade, etc....
10. Battery: 1 Li-Polymer rechargeable battery. Do not remove the battery for recharging. Use the Intager recharger and plug the recharger cable into the marker.
11. Rail: Fix marker scopes and telescopes, red dots etc. here.
12. Serial Number: Upload and download the marker using it.
13. Switch on/off NFC chip
14. Under rail

### Marker and headset communication

Between the head sensor and the marker there is no cable that would disturb the player. In similar systems the cable is often a source of problems (damage, cut...etc). The connection is provided by Bluetooth connection.

### Hit feedback

In case of a taken hit the marker gives a hit signal sound to the player in Online game modes and the key factory program. I GM software enables a choice of different feedback sounds.

### Play

The Troodon markers are ready to use after opening the package. Use either the SmartBox or our Intager Mobile Operator for Android to start your own configured games. If none of these are available, start our factory game mode **by either the NFC remote control key, or by the Intager Mobile Operator.**



### Detect mode

To register the markers to the stock, Troodon is needed to start in detect mode. Push the ON + Respawn button at the same time on the remote control key. In this state the equipment is ready to pair with the SmartBox. This procedure is only needed to be done once at the first start, after pairing the Troodons can be started with simply ON to start programmed games via SmartBox. Intager Mobile Operator does not need any pairing with detect mode. To see more about detecting check our user manual for the SmartBox.



### ON

To start a game from the SmartBox it is required to turn on the Troodon with the ON button. After pairing the Troodon will automatically connect the SmartBox over WiFi. During creating a new session, online Troodon markers will have a yellow circle sign next to the serial numbers. Before programming



a game Troodon's will be in a stand-by mode which means the display will show an Intager logo only, shooting and the side buttons are disabled during this time.

### Factory Program

In factory game mode all markers can communicate with all markers. It is a free for all game mode when no SmartBox or Mobile Operator is available. During this time the players have the same roles, they can play against each other, Game Marshals are able to respawn players during this game by NFC connection. Please note that there will be no statistics available from these games due to no programming.

### Factory Solider role specification:

|                                |                  |
|--------------------------------|------------------|
| Game duration                  | Unlimited        |
| Starting time                  | No pre-play time |
| Damage of shot                 | 1                |
| Fire mode                      | Auto             |
| Rate of fire                   | 0,3 sec          |
| Normal shot – Clip size        | 30               |
| Normal shot – number of clips  | Unlimited        |
| Special shot                   | Grenade          |
| Number of special shots        | 3                |
| Damage of special shot         | 3                |
| Clip reload time               | 1 sec            |
| Starting health points         | 10               |
| Next hit delay                 | 1 sec            |
| Marker stun delay              | 1 sec            |
| Range of fire                  | 150+ meter       |
| Friendly fire                  | ON               |
| Reloading time of special shot | 4 sec            |

### Respawn

If a marker is out of health points the Game Marshal can respawn it. After respawning, the player will get the original health points back, but the ammunition will stay the same. Use the NFC remote control key, or the Mobile Operator application to respawn the players over NFC. This feature is also available in the SmartBox commands.

### Normal shot

Maximum 200 meter plus distance in full sunshine. At normal shot there is a shot sound signal, the muzzle fire yellow LED flashes and the display shows the amount of ammo left in the clip. When the clip is empty the player cannot shoot. Instead of the shot sound there is an empty clip sound signal and the display shows 0. Reload a new clip if there is more. It is possible to reload a new clip at any time (player loses all ammo in the clip if it was not empty).

**Settings:** number of clips, shells (ammo), auto/semi auto, shot speed, shot distance (7 levels), damage, hit delay, stunt delay, load time (new clip), sounds – see SmartBox manual

### Special shot

Maximum 30m distance. Press special shot reload button (button 2). After reloading a special shot there is no way back, the next shot is going to be the special shot. For the special shot there is a special shot sound signal, the muzzle fire yellow LED flashes and the display shows the number of special shots

left. After the special shot our next shot will be a normal one automatically, unless another special shot is not reloaded. If there are no more special shots, a sound signal warns us.

**Settings:** number of special shots, mode (grenade, medic, flame thrower, supporter, off), effect – see SmartBox manual

## Hit

**Taken hit:** There is a hit sound signal, the LEDs flash once on the headset, marker and the health score decrease. During the hit delay time the player is protected. Of course, if a medic shoots on a teammate, the health score increases. At the last health there is a sound warning depending on the scenario. If the player has no more health the LEDs on the headset lit continuously.

## Optics

Troodon marker has got 2 different optics:

### Normal shot

More than 200 meters plus in full sunshine. The shot (outgoing sign) has got a round surface with 0,35-meter diameter at 15-meter shot distance, 0,75-meter at 30-meter... The diameter grows linearly with the distance. Over 200 meters the diameter decreases. In case of lower shot power, these numbers will change of course.

When a sensor is in the range of the beam it registers the hit. **Note:** Intager adjusts every single shooting LED with camera! That's why Troodon markers are so accurate and shot beams are so precise. The Intager Troodon laboratory tests show values far below the EU health limit standard values, does not cause damage to health (of course in case of normal use).

### Special shot

Maximum range is 30 meters. Diameter is 10-meter at 30-meter distance. The diameter grows linearly with the distance. There is only 1 fix shot distance.

## Game statistics

When the Troodon is online and there is no Raptor II/2S in the game managed by a SmartBox, the statistics are live. The scores can be followed during the game in the SmartBox feed. – See SmartBox manual

In games which is started with the Intager Mobile Operator application, the Game Marshal will have to download the statistics one by one after the round is ended. – See Intager Mobil Operator manual

During a mixed game managed by the SmartBox where Raptor II/2S are playing with the Troodons, the statistics will be not live. Scores need to be downloaded after the game is ended. The previous Raptor systems are not compatible with live statistics. – See SmartBox manual

## Game Timer

In case of defined game duration, the marker switches to stand-by mode at the end of the set duration time. In case of defined pre-play time + duration time the marker is in stand-by mode right after the upload till the start. In stand-by mode the player cannot use the marker, an Intager logo will appear on the screen, and also a timer until the start.

## WiFi communication

The Troodon and the SmartBox are communicating through 2,4GHz Wi-Fi connection. This connection provides the live feedback for the statistics and any other live in-game interaction. The SmartBox is designed to cover whole arenas up to 200 square meters without a repeater. This number might decrease depending on the number of props and walls. Any Wi-Fi interference can cause problems during the games, such as slow programming or connection lost during games. Before picking the final place of the SmartBox inside an arena, search for the best place in the middle with the least Wi-Fi interference.

Wi-Fi interference might happen in outdoor places as well, look for nearby radio towers to avoid these situations.

## Battery and charging

The marker uses Li-Polymer battery. **In case of using any other batteries than supplied by Intager, the manufacturer does not take any responsibility for any damage!**

With a fully recharged battery at an average of 14-16 hours of play is possible. After 300 recharges the capacity of the battery reduces to 60%. The marker checks the power of the battery. When it is below 3.4V a sound signal warns „low battery”. When the battery power goes below 3.2V the marker switches off automatically. **Recharge the battery** - Plug the Intager charger cable into the marker – and the display the battery power appears. At maximum power the recharger turns off and the display shows the battery power with a full battery icon. It means that the recharge is completed. In 4 hours, the battery gets a good power level, in 7-8 hours the maximum power level, depending on the condition of the battery.



**WARNING: NEVER RECHARGE WHEN THE BATTERY IS NOT IN THE marker!**

Since the marker consumes some minimal power even if it is switched off, discharged batteries should be recharged in 1-2 weeks and the fully charged batteries should be recharged in 1-2 months in any case.

**After the charging** take care to the USB cable and connector! If the cable is pulled out too hard or the cable was tried to plug it in too hard or even backwards the cable or the USB connector could be damaged.

## Indoor and Outdoor use

Intager Raptor & Troodon markers are ideal for both indoor and outdoor use. This is one of the main advantages of the system. For indoor play decrease the shooting distance to avoid reflection. The shell is durable and protective for both environments. IPv64 rating provides Protection from limited dust ingress, and water spray from any direction.

## Maintenance

Always store the markers in a dry room between 10-40C. The marker shouldn't get wet, however if it does get wet, always dry it out. Do not store the wet marker e.g. in a closed Intager bag.

## Headset



The headband registers the hits and sends messages to the marker via Bluetooth about hits, low power. The sensors on the headband are positioned to identify the hits in 360 degrees. (That's why Intager produces headsets with longer length for helmets) Switch on the headset with the remote control just like the marker at the power sign. The number of the LED-flashes and color indicates the power of the battery. The headset sends a message to the marker and the marker warns with a sound signal "Low battery in the sensor".

The Intager Troodon headset is available with 3 different lengths, and 1 built in version. The normal length is optimal to wear the headset on the player's head. Headsets with longer length are optimal to be put on helmets. The third version is used on Vests. The built-in version is an extra sensor on the top of the Troodon marker, suitable for quick handling.

### Parts and function

1. Sensor: The sensors identify the taken hits (360 degrees). The LEDs signal the taken hits with a flash in team colors. During recharging or after switching the headset ON, it will flash to show the power of the battery either in yellow or green. The strong PC cup cover protects the LED, the sensors and the PCB.
2. Plug: Connect the recharger plug here.
3. Headset cover: Washable, easily detachable with Velcro.
4. Battery: Rechargeable Li-on Polymer battery.
5. Headband: Adjustable rubber band with fastener.
6. ON/OFF and control LED: Switch on/off the headset with the NFC remote control here. The control LED is on, when the headset is switched on.

### Attached to marker

For quick and compact use, the Troodon is available with a built-in sensor on the top rail, by this the marker can be hit from the front, and from the sides. We recommend this version to venues where groups are continuously changing and next to the gaming experience, timing is also an important key.

## Battery and charging

The headset uses Li-Polymer battery. **In case of using any other batteries than supplied by Intager, the manufacturer does not take any responsibility for any damage!**

With a fully recharged battery at an average of 14-16 ours of play is possible. After 300 recharges the capacity of the battery reduces to 60%. The marker checks the power of the battery. When it is below 3.4V a sound signal warns „low battery“. When the battery power goes below 3.2V the marker switches off automatically.

**Recharge the battery:** During recharging or after switching the headset ON, it will flash to show the power of the battery either in yellow or green. In 4 hours, the battery gets a good power level, in 7-8 hours the maximum power level, depending on the condition of the battery.



**WARNING: NEVER RECHARGE WHEN THE BATTERY IS NOT IN THE headset!**

Since the headset consumes some minimal power even if it is switched off, discharged batteries should be recharged in 1-2 weeks and the fully charged batteries should be recharged in 1-2 months in any case.

**After the charging** take care to the USB cable and connector! If the cable is pulled out too hard or the cable was tried to plug it in too hard or even backwards the cable or the USB connector could be damaged.

## Accessories

### Red dot sight



Troodon is made with a standard sized rail to fit most of the red dot sights on the market. Specific red dot sights can be powered by the marker itself. Intager has an optional package where we pre-equip the Troodon with this kind of red dot sight. These red dot sight can be bought after the first purchase as well, the installation is easy, technician is not required.

### Tactical light

Tactical lights, lamps or LEDs can be attached under the marker at the front. This feature can be useful during outdoor games after dark.

## Phone holder

The phone holder is an optional accessory to help the players see their HUD and map during indoor and outdoor games depending on the scenario. Attach this holder to the marker which is suitable for most of the smartphones on the market, the players can easily fit their own phone into it.

## Charging

The Troodon sets are coming with 5 piece USB chargers which can be used for both markers and headsets, we are using 5V DC / 1A chargers through maximum 70cm long micro USB cables. After a few seconds the charging will start when they are plugged in. On the Troodon the battery icon will appear, and the headset will start to flash.

**IMPORTANT: When using a 5 piece charger, please plug the adapter first into the power supply and then plug in the equipment one by one and not the other way.**

## Warranty

Intager Ltd. provides 1 year parts and labor warranty for the Troodon set. The warranty is valid only for the new products if the original buyer can show the invoice and the serial number of the set. The warranty is valid for the Troodon marker, headband/vest with sensor, chargers and the SmartBox. During the warranty period Intager repair or replace (Intager's decision) the bad unit without any charge for the parts or the labor. Place of the warranty is Budapest, Hungary. Shipping costs are not covered by this warranty therefore the buyer has to cover it. This warranty is valid only for repair work or replacing bad units in the Troodon set returned to Intager Ltd. This warranty is valid only in case of proper use of Troodon sets and does not cover damages caused by improper use, natural disaster, vis major, and is not valid in the following cases:

1. Any damages caused by abuse, mishandling, improper use, or the failure to follow the instructions of the Manual, the maintenance instructions and environmental conditions determined in Intager's documentations.
2. Use of parts or units that were not supplied by Intager.
3. Repair or modification or alteration work on the products by other than Intager's repair staff.
4. Electrical current fluctuations caused by not using not proper intensity of current.
5. Crashing, dropping, scratching the product or damage caused by heavy water or impact.
6. Serial number on the marker or on the headband that was removed, altered or tempered with.

Intager Ltd. shall not be liable for loss of revenues or profits, inconvenience, expense for substitute equipment or service, storage charges, loss, or any other special, incidental or consequential damages caused by the use, misuse, or inability to use the product regardless of the legal theory on which the claim is based, and even if Intager Ltd. has been advised of the possibility of such damages. Nor shall recovery of any kind against Intager Ltd. be greater in amount than the purchase price of the product causing the alleged damage. Without limiting the foregoing, you assume all risk and liability for loss, damage or injury to you and your property and to others and their property arising out of the possession, use, misuse or inability to use the product sold by Intager Ltd. not caused solely and directly by the negligence of Intager Ltd. This limited warranty shall not extend to anyone other than the original purchaser of the product and states your exclusive remedy.

Place of warranty: Budapest, Hungary