# USER GUIDE for SATR CODE V1.4+

By Peter & Nicole Lander

This is the A to Z guide of how to use the SATR (Small Arms Transmitter Receiver) system by Battlefield Sports for version SATR code version 1.4 and later.



Unit 1/6 Graham Street
Underwood, Brisbane Qld
Australia

support@BattefieldSports.com

BattlefieldSports.com

Version 4.2.1

**FCC Compliance**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

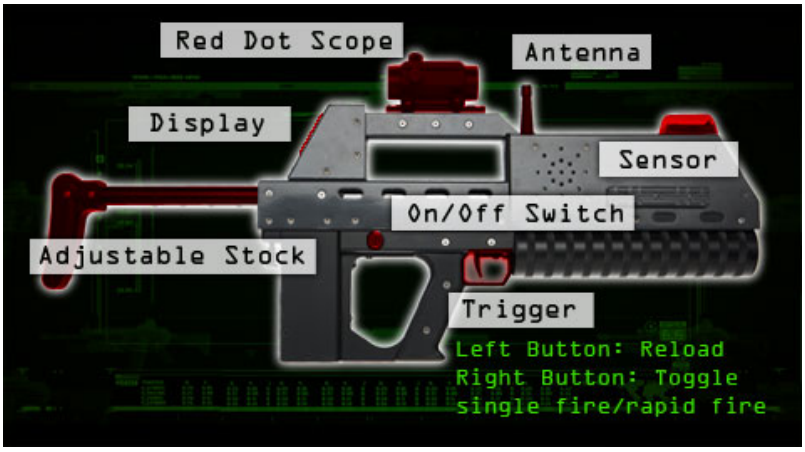
**CE Compliance**

## Contents

# SATR Quick Start

## 1.1 Getting Started FAST

### Quick Start:




- *To switch the gaming gun on, turn the key ¼ TURN clockwise.*
- *The sensors are mounted on a headband using Velcro & elastic. The headband goes over a bandana or hat. These tell the teams.*
- *Once the gaming gun is on, pull trigger to commence the countdown. It takes a couple of seconds for the gaming gun to boot.*
- *After a few seconds your gaming guns is ready to go.*
- ***Take the key out** to play.*
- *Aim at the head sensors or the gun barrel sensor.*
- *Reload ammo by pushing left button once and let go (do not hold down).*
- *When you are finished turn the gun off using the key (turn ¼ anti-clockwise).*

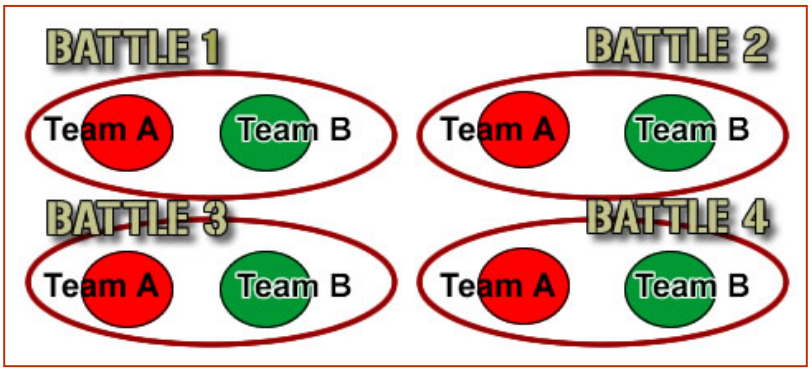
## 1.2 Quick Start: Gun Settings

**BOOT TO LAST CONFIGURATION**

A gaming gun remembers its setting between boots. After turning the gaming gun on, wait a couple of seconds and then pull the trigger. Then you are ready to play!

**BATTLE GROUPS & TEAMS**

This system can play up to 4 groups simultaneously without crossfire. So, for example, you have a private group for Michael's Buck's Party and another separate group of people, for a Corporate Team Building booking, these two *battle groups* can play in the one area without interference. If it seems that one gaming gun cannot shoot another, double-check that all gaming guns are set to the same battle. If the shooting gaming gun is on battle 1 and the target is on, say, battle 3 they will not hit each other.




Within each battle group you can also set the TEAMS. We recommend playing with friendly fire off, and dividing your players in half so one half is on TEAM A and the rest on TEAM B. Please note TEAM A gamers will not be able to shoot others on their own team. TEAM A gamers can only hit people from TEAM B. If you are having trouble, double-check that you are not trying to shoot someone on your own team.

**RE-SETTING FREQUENTLY CHANGED SETTINGS**

- Turn the gaming gun on with the key
- Push the left (red) button
- Set the difficulty level required using the left or right button
- Pull trigger to lock in selection
- Select weapon from list based on current gun class
- Select the spare ammunition measured in magazines
- Select heath in hit points
- Select language for audio
- You will then return to the initial boot screen.
- To enter live state now, pull the trigger and wait a few seconds, then you are ready to play!

**CHANGE RARELY USED SETTINGS**

- Boot the gaming gun with the key
- Push the right (black) button
- Gun Reset (YES/NO) Choose yes to return to factory default settings.
- Pull the trigger to move to the next menu.
- Select device role—Choose "weapon mode" for a gaming gun.
- Select gun class (ideally consistent with the gaming gun case)
- Select FIRE MODE—Shooting = normal game-play i.e. one hit, takes one HP off your opposition. Killing = one shot, one kill.
- Select the muzzle flash colour (white is standard; however you can also select red or green. Or if you have Cobras you can ask to swap the green for blue. This must be done when ordering).
- Select hit light colour (select red, green/blue, or none)
- Select range (outdoor or indoor). We recommend outdoor mode unless you are playing in a tight indoor space. Indoor mode greatly reduces the infrared range. Use Default range.
- Set voice feedback ON.
- If all gaming guns have friendly fire ON, then all gaming guns on the same battle can hit each other. We recommend, however, using the team settings (Team A & Team B) and to turn OFF friendly fire, so only Team A gamers can hit Team B, and cannot hit members of their own team.
- Select sound volume, usually leave on HIGH
- Set battle, recommend all gaming guns remain on battle 1

## *1.3 In-Game Functions*

The left button reloads the gaming gun [LEFT = LOAD].

If the weapon selected supports it, the right button changes fire mode from fully automatic or burst fire to semi automatic.

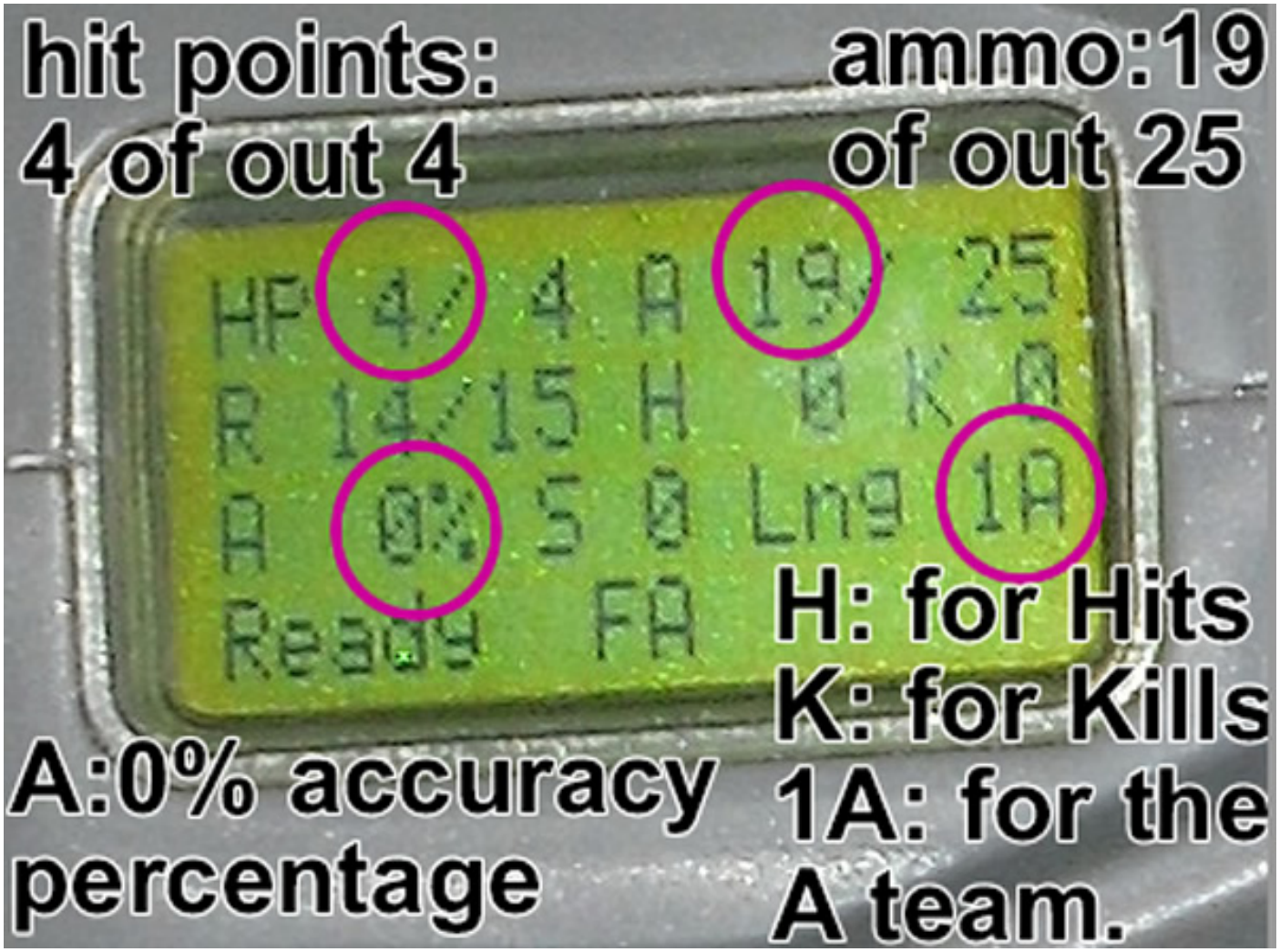
## *1.4 Reading the Display*

This guide explains how to read the gaming gun display while in the "ready" state.

| Normal Display | Laser Tag Display | Meaning |
|---|---|---|
| **HP x/y** | HP x/y | **HP is short for hit points** and is a measure of "Health". The digit/s before the '/' is the current hit points and the digits after the '/' is the hit points at game start or after a re-spawn. |
| **A x/y** | C x/y | **A is short for ammunition**. Before the '/' is the ammunition left in the current magazine and after the '/' is the |

| | | |
|---|---|---|
| | | capacity of the magazine.<br><br>**C is short for charge**. In Laser Tag games the weapon is assumed to be some form of Laser unit powered by batteries. |
| **R x/y OR R UNLIM** | R x/y OR R UNLIM | **R is short for reloads**. Before the '/' is the number of reloads remaining. After the '/' is the number of reloads at game start, after receiving a reload from a master controller or ammunition box or after a re-spawn.<br><br>**R UNLIM is short for unlimited reloads**. When the gaming gun is set to "easy" mode, then it gives the player unlimited reloads. And the gaming gun reloads automatically. |
| **H** | T | **H is short for hits**. This is the number of hits made on an opponent during this simulation that did not cause the target to "die".<br><br>**T is short for tags**. The number of tags in this game on an opponent that did not cause a deactivation. |
| **K** | D | **K is short for kills**. This is the number of times this gaming gun made the hit that caused the target unit to enter dead state during the simulation.<br><br>**D is short for deactivations** during the simulation. This is the number of opponents the gaming gun has deactivated during this game. |
| **A xxx%** | A xxx% | **A is short for Accuracy percentage**. For example if you fire twice and hit once then you'll have an accuracy of 50%. |
| **S** | S | **S is short for spawns**. It is the number of times this unit was re-spawned or in laser tag mode, reactivated during this game. |
| **Ind** | Ind | **Indoor** range which is significantly shorter than short range. Used to reduce infrared bounce. |
| **Sht** | Sht | **Short** range |
| **Med** | Med | **Medium** range |
| **Lng** | Lng | **Long** range. |
| **1X** | 1X | SATR enables up to four separate groups to play simultaneously without cross-fire. This stands for **battle 1** (or "game 1" in laser tag). The X indicates that is friendly fire on. |
| **1A** | 1A | This stands for **battle 1** (or "game 1" in laser tag) with this gaming gun assigned to **team A**. Team A gaming guns cannot shoot other Team A units. Team A gaming guns can only shoot Team B. |
| **2B** | 2B | This stands for **battle 2** (or "game 2" in laser tag) with this gaming gun assigned to **team B**. |
| **Ready** | Ready | This is the current **status**. Ready is in a live game but not currently performing any action |

| | | |
|---|---|---|
| **Firing** | Tagging | **Shooting** the infrared beam at the target. |
| **Reload** | Chrgng | Currently **loading a new magazine** or in laser tag terms loading a new battery. |
| **Empty** | Empty | In weapons using BA mode, when a round is fired, the status changes to "Empty" until the right button is used to simulate working of the bolt. |
| **Open Bolt** | Open Bolt | In BA mode, after pushing the right button once, the bolt enter into open bolt state. |
| **Close Bolt** | Close Bolt | A unit in open bolt state to fire again, must have the bolt closed; this is done by pushing the right button again. |
| **Wound** | Tagged | In normal mode, this means an enemy has recently hit this gaming gun and is close to "death". In laser tag mode this means an opponent has recently tagged this phaser and is now close to being deactivated. |
| **Paused** | Paused | This gaming gun/phaser is in paused state and will need a resume command by radio or infrared to resume. |
| **Resume** | Resume | A paused gaming gun/phaser has recently received a resume command after being in paused state. |
| **Game Over** | Game Over | This unit has received a end game signal by radio from a master controller or if out of radio range has had the game timer reach zero. |
| **Near Miss** | Near Miss | This unit has recently been hit or tagged but hit points are still high. |
| **FA** | FA | Fully automatic. |
| **SA** | SA | Semi-automatic meaning one shot per trigger pull |
| **BA** | BA | Bolt Action meaning one shot per trigger pull and the right button must be pushed twice between each shot. |
| **SS** | SS | Single Shot: must be reloaded after each shot |
| **RV** | RV | Revolver simulation, similar to SA |
| **AL** | AL | Automatically loading handgun similar to SA |




### *1.5 The statistics explained*

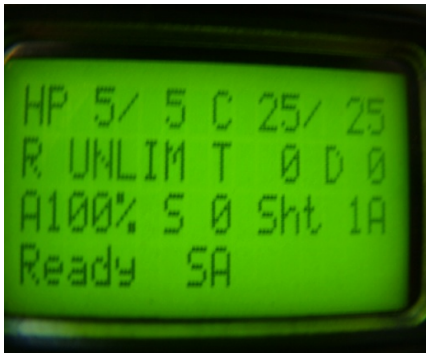
Take a look at the image above. On the display "H" stands for hits. Now gamers know exactly how many hits they have made. "K" stands for kills. Say a gamer has 4 hit points, the first time you shoot them your opponent will hear a near-miss sound effect, like a bullet whizzing past, the second time you hit them they will hear an "OAUGH" or wound sound effect, hit 'em again and they'll hear another "OAUGH" and the last time you get 'em they will hear the "AAAAAARGH!" dead sound effect. On your display (see above) you will see H 0 K 0. Because, in this example case you used 6 bullets for 0 hits, your accuracy percentage is 0%.

Different SATR guns are allocated different amounts of ammo depending on the weapon it is currently emulating. Next "R" stands for reloads, in this case the gamer has 14 of a possible 15 reloads left. "S" stands for number of spawns (how many times you have been re-spawned). The next section represents the gaming gun's current weapon's range

- Lng: Long (Outdoors for machine guns and most rifles)
- Med: Medium (Outdoors for carbines and the personal defence weapons)
- Sht: Short (Outdoor for sub machine guns and pistols) or
- Ind: Indoor (All units operating in a tight indoor environment or around inflatable's).

The letters "FA" stands for Fully Auto, you can also have SA for semi-auto or BA for bolt action. The word "Reloading" on the display indicates the gun is currently in the process of reloading.

### 1.5.1 The Display Screen Basics (Laser Tag Theme)




HP = Health Points 5/5
C = Charge 25/25
R = Reloads Unlimited
T = Tagged (counts how many they have Tagged)
D = Deactivated (count how many they have deactivated)
A 100% = Accuracy %
S= Zero re-spawns/re-activations
SHT = Short Range (this could be medium or long as well)
1A = Game 1, Team A (this could be 1B; meaning Team B)
Ready = Status of the phaser (this can be tagging, game over, deactivated)
SA = Semi Automatic (this could also read FA = Fully Automatic)

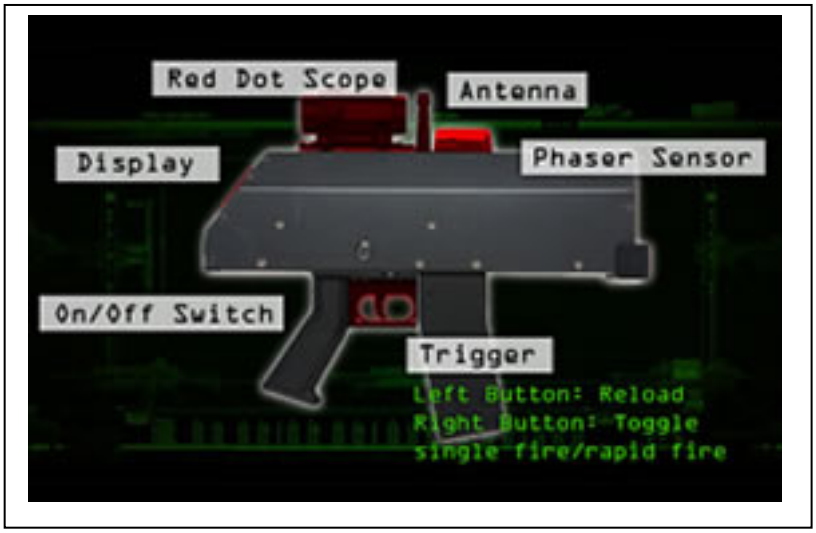
# 2 SATR System – An Overview

SATR is short for Small Arms Transmitter/Receiver. SATR is an electronic system used for the live action combat simulation for entertainment. SATR is purposely designed to be configurable to be suitable for "Laser Tag" style games all the way up to realistic training programs for the military.

Each SATR unit is capable of acting in various modes. The options include:

- Weapon
- master controller
- battle box (medic box, ammunition box) and
- Mine.

This manual applies only to SATR code versions 1.4 and later. A separate guide is available for earlier versions of code.




SATR supports a Laser Tag theme that can be used instead of the normal military theme. With the Laser Tag theme the terms used changes and some alternative functionality is available.

## 2.1 Key SATR Features

- Software support for 69 different small arms including a range of hand guns, sub machine guns, rifles and machine guns
- Real time hit feedback
- Real time on gun individual performance statistics
- Back lit LCD display (back lit controlled by a special button)
- Radio control system to help staff manage the games
- Three difficulty levels
- Automatic re-spawn counting
- Indoor support (lower infrared power
- Removing of friendly fire (optional)
- Smart medic and ammunition boxes
- Three mine modes.
- Laser Tag settings (when the language selection is "Laser Tag")

## 2.2 Factory Default Settings

Unless otherwise stipulated at the time of order, the factory default settings are:

- Difficulty: Easy
- Range: Long
- Mode: Outdoor
- Battle: 1
- Friendly Fire: On (i.e. no teams)
- Muzzle flash color: White
- Voice feedback: on
- Volume: high
- Language: American Female English (unless you've specified an alternate language).

## 2.3 Backward Compatibility

Version 1.4 of SATR is backwardly compatible with older versions of SATR with the following limitations:

- An ammunition box must be version 1.4 to reload gaming guns with 1.4 code loaded
- An medic box must be 1.3a or later to re-spawn a gaming gun with 1.3 or later code
- A master controller must be 1.3a or later code to re-spawn gaming guns with 1.3 or later code.
- For a gaming gun to use the kill mode, the target gaming guns also require 1.4 code.
- A master controller must be 1.4 code to reload 1.4 code version gaming guns
- Gaming guns will only get the new features if they are upgraded to 1.4 code version.

## 2.4 Master Controller Mode

The Master Controller can perform both infrared & radio functions:

Normal **Infrared** (direct line of fire – target a single unit)

| COMMAND | FUNCTION |
|---|---|
| **Spawn** | Target gaming gun is re-spawned if they were in dead state |
| **Reload** | Target gaming gun that has used at least 1 magazine of ammunition will have all their ammunition restored. |
| **Pause** | Target gaming gun enters into a pause state. |
| **Resume** | Target gaming gun in pause state returns to normal operations. |
| **Target Reset** | Reset all factory default settings except language to target gaming gun. |
| **Kill** | Target gaming gun immediately enters dead state. |
| **New Mission** | Target gaming gun starts a new game restoring all health, ammunition and resetting all statistical information. This is useful if you have send a “game start” command via RF to the entire group and one unit didn’t start. |
| **Sensor Test** | Target gaming gun head sensor light flashes if the sensor system is working. |
| **Shoot** | Target gaming gun has their hit points reduced by 1. |
| **Set Health/Ch Hth** | Set the target gaming gun to a new maximum hit point level. |
| **Set Difficulty** | Updates the difficultly level of the target gaming gun including setting the hit points to the default value of the specified difficulty level |
| **Set Game Timer** | Specifies the number of minutes the battle will run for from the time the start function is used before the gaming guns automatically enter the game over state. |

| | |
|---|---|
| **Set Battle** | A gaming gun will only accept radio commands, accept hits and hit others if they are all in the same Battle group (or game group if you are using the Laser Tag settings). This function means separate battles can be played in close proximity to each other without them affecting other groups. |
| **Set Team** | This function allows to the teams to be set to team A or team B by infrared command. Phasers on team A cannot be hit by gaming guns on their own team. Team A units can only hit Team B. Do not mix friendly fire on with team settings – all gaming guns should be set to a team or all gaming guns should have friendly fire on. Generally for civilian use Battlefield Sports recommends that friendly fire is turned off by assigning gaming guns to a team. |
| **Set/Chg Weapons** | Step 1: Specify what weapon emulation in each gun class (Hand guns, Sub machine guns, Rifles and machine guns) you want to use.<br>Step 2: Then use the Chg Weapons command and shoot the master controller towards the gaming guns to change their weapon emulation to match the one you just specified on your master controller. . |

**Infrared** functions when Laser Tag language is selected
Please note: Instead of gaming guns we use the word phaser.

| COMMAND | FUNCTION |
|---|---|
| **Reactivate** | Function is to reactivate a phaser that is currently deactivated. |
| **Charge** | Equivalent of reload ammunition, except with a laser theme, one has power depletion that can be recharged. |
| **Pause** | Sends the target phasers into pause state. |
| **Resume** | Target phaser in pause state return to their state before the pause. |
| **Laser Tag A** | Resets the target phaser back to a working set of defaults suitable for laser tag themed games. It also sets the phaser to team A. All phasers will be configured to easy mode, Scorpion emulation and medium range. |
| **Laser Tag B** | Resets the target phaser back to a working set of defaults suitable for laser tag themed games. It also sets the phaser to team B. |
| **Target Reset** | Resets most settings back to factory default values except for language settings. |
| **Deactivate** | Sends target phaser into deactivation state regardless of health of the phaser. |
| **New Mission** | Target a phaser starts a new game. This is useful if you have send a "game start" command via RF to the entire group and one unit didn't start. |

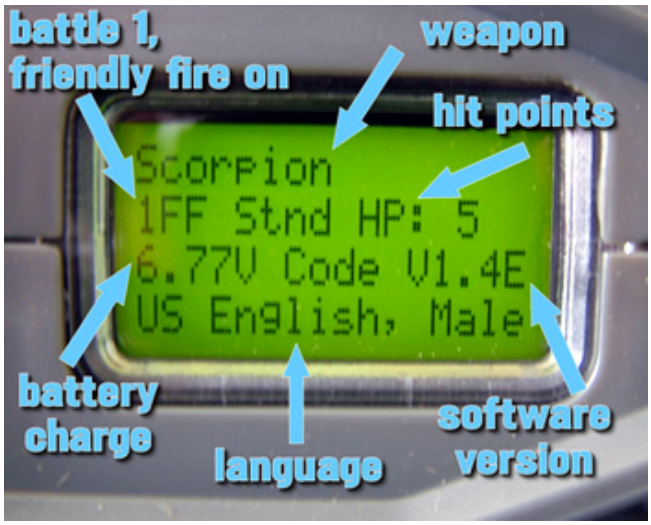
| | |
|---|---|
| **Sensor Test** | Target phaser's head sensor lights flash if the sensor system is working. |
| **Tag** | Target phasers hit points are reduce by 1. |
| **Set Health/Ch Hth** | Updates the hit points of target phasers based on the value specified by the operator. |
| **Set DifficultyCh Dif** | Updates the difficultly level of the target phasers including setting the hit points to the default value of the specified difficulty level. |
| **Set Gamer Timer** | Specified the number of minutes the game will run for from the time the start function was used before the phasers automatically enter into the game over state. |
| **Set Game/Chg Game** | Game is the equivalent of Battle. A phaser will only accept radio commands, accept tags and tag others if they are all on the same game. |
| **Set Team/Chg to Team** | This function allows to the teams to be set to team A or team B by infrared command. Phasers on team A cannot be tagged by phasers on team B and vice a versa. Do not mix friendly fire on with team settings – all phasers should be set to a team or all phasers should have friendly fire on. |
| **Chg Phasers (Set Phaser)** | Specify what phaser emulation in each phaser class (Tiny, Small, Medium, Large) and then use the Chg Phasers command to make that so on phasers targeted by the master controller. |

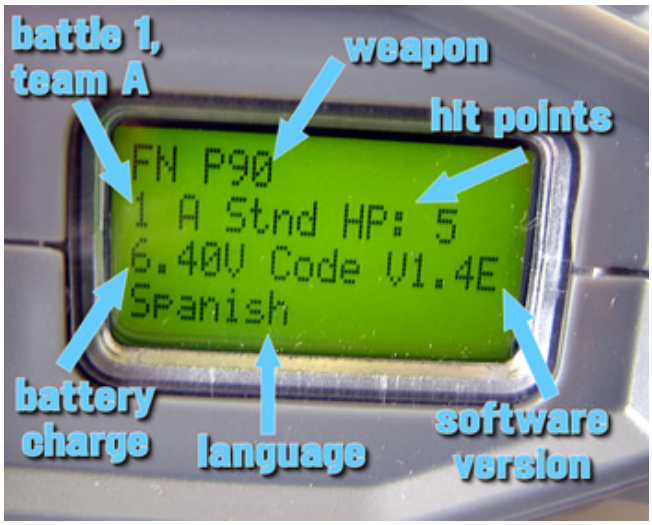
**Radio** commands affect all SATR units configured to the same battle group (or game group).

- Pause
- Resume
- End Game (disables all SATR units in this battle)
- Start Game (enables all SATR units that were disabled)

# 3 SATR – Standard Playing Unit

## *3.1 Boot Sequence*




The SATR unit is turned on and off using a switch operated by a key. Upon boot there are 3 options available to the user:

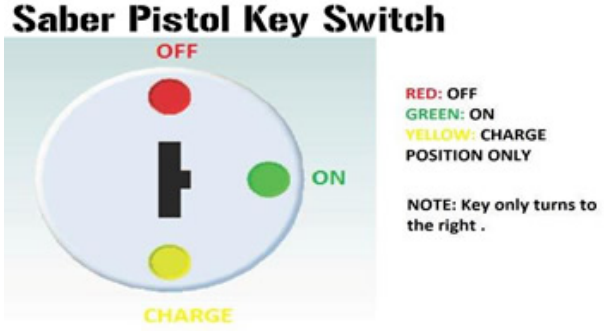
1. **Pull trigger**: Commence a few second count down to use the last configuration
2. **Push left (red) button**: Go to menu for selecting difficulty level, weapon, reloads, health, and language.
3. **Push right (black) button**: Go to menu for selecting mode (weapon, medic box, ammunition box, claymore mine, normal mine and dirty mine), gun class, muzzle flash, hit light color, battle, indoor/outdoor mode, voice feedback status, Master Controller mode on/off, volume.

During the boot sequence the back light on the display is automatically turned on until the 3 second count down commences. The back light is also on when the SATR unit is used in controller mode. During a ready state, the back light will only come on after pressing the right button.

### 3.1.1 Saber Pistol Key Switch

Most gaming gun models have a standard electronic key switch, which needs to be ¼ turn clockwise to switch on (and the reverse to switch off).

The Saber Pistol has a smaller key. See below for settings.



## 3.2 Menu Scroll and Select

All menus in SATR operate in the same manner. Press the left (red) button to scroll *down* to the list of options. The right (black) button is used to scroll *up* the list of options. The trigger is used to select the current option.

## 3.3 Reload (left/red) Button Menus

**SELECT DIFFICUTLY LEVEL**

On pressing the reload button, the menu to select the difficulty level comes up.

Scroll using the left or right buttons to select a difficulty level and then pull the trigger to lock in the selection.

| Difficulty Level | Unlimited Reloads | Minimum Time between hits (seconds) | Automatic Reload | Default Health (hit points) | Recoil (turn off scope power) |
|---|---|---|---|---|---|
| Easy | Yes | 2 | Yes | 5 | No |
| Standard | No | 1 | No | 5 | Yes |
| Hard | No | 0.5 | No | 3 | Yes |

**SELECT WEAPON**

After selecting the difficulty level, the selection of available weapons for the current gun class is listed. To change the gun class, press the right (black) button on initial boot must be used.


As the user scrolls through the list, a verbal description of the weapon is played explaining the weapon and its capabilities. A full description of each weapon is available in the appendix.

“Rels” is the default number of reloads

“Mag” is the magazine capacity of the weapon.

**SET RELOADS**

The default number of ammunition reloads is determined by the weapon selected in the previous step. But you can override this and set the number of reloads.


**SET HEALTH**

Health is measured by a hit point system. Each time a gamer takes a hit, the number of hit points is reduced by 1. The lower the initial health value is, the more realistic and harder the simulation is. For beginners, Battlefield Sports recommends 5 hits (hit points) and for advanced gamers, between 2 and 3 hit points works best.


**SELECT LANGUAGE**

A language can be chosen for the in game spoken sound effects.


The languages available are:

1. US English – Female (*this is the factory default, unless otherwise stipulated*)
2. US English – Male
3. British English – British
4. Arabic
5. Mandarin
6. Deutche (German)
7. French
8. Italian
9. Japanese
10. Portuguese
11. Russian
12. Spanish
13. Vietnamese
14. Laser Tag US English-Female (changes voice sounds and display settings to Laser Tag)

15. Custom (*you can have your own language, you will just need to provide us certain sound files when you order, i.e. 11khz 8 bit mono wav file format please contact us if you would like this option*).

The Laser Tag sound scheme is for those operators that need something tamer than the normal spoken sound effects. Usually the Laser Tag sound scheme is used in conjunction with the Scorpion weapon emulation. Laser Tag sound effects say "Tagged", "De-activated", "De-activated Already", "Game Start" and "Game Over" in US female English. The display also changes in ready mode to have C for charges (ammunition), T for tags (hits), and D for deactivations (kills).

| Custom file name on SD card | Sound |
|---|---|
| **NOAMMO.WAV** | Ammunition Depleted |
| **DEAD.WAV** | Dead Already |
| **HIT.WAV** | Casualty |
| **KILL.WAV** | Kill Confirmed |
| **COMPLETE.WAV** | Mission Complete |
| **START.WAV** | Mission Start |
| **PAUSED.WAV** | Paused |
| **RELOADED** | Reloaded |
| **RESPAWN** | Re-spawned |
| **CONTINUE.WAV** | Resumed |

## *3.4 Mode (RIGHT/black) Button Menus*

This series of menus is entered after initial boot with key switch and pushing the mode switch found on the right hand side of the SATR unit.


**GUN RESET/PHASER RESET**
To set a gaming gun back to factory default settings for the current gun class, then use this option to do so.

Push the left button and then pull the trigger to reset to defaults. This will not change the gun class.


**DEVICE ROLE**
This determines if this SATR unit should act as a Master Controller, mine, medic box, ammunition box or a standard weapon.

| SELECTION | EFFECT |
|---|---|
| **Weapon Mode** | Means this gaming gun acts like a normal weapon for a gamer. |
| **Ammunition Box** | Unit will boot in reload mode each time the trigger is then pulled in a game, it will perform the Master Controller function of "Reload".<br><br>When set to an Ammunition Box the unit can be configured to perform a specified number of reloads or reload for a specified time. |
| **Medic Box** | Unit will boot in respawn mode, If the medic box is assigned |

| | |
|---|---|
| | to a team it will only re-spawn that team. When in ready state, the reload and mode buttons are disabled. A gamer re-spawns by pushing the main trigger button on the unit while ensuring the sensor can be hit by the infrared beam.<br><br>It also resets the respawn counter on the RF "game end" and "game start" function. While in live state, the reload and mode buttons are disabled.<br><br>Medic boxes can be configured to perform a specified number of spawns or spawn for a specified period of time. A RF end/start sequence will restart these counters.<br><br>In timed games, with voice feedback turned on, a medic box will provide an audible warning at the 1 minute, 30 seconds and 15 seconds to go marks. |
| **Combo Box** | This mode combines the functionality of a medic box and an ammunition box. The left reload button generates a reload command and the trigger button generates a spawn. The right button remains disabled. |
| **Controller** | Standard Master Controller formerly known as a referee gun. |
| **Claymore Mine** | Designed for claymore mine case. A claymore in this mine will use the kill mode causing the target gaming gun to reduce to 0 hit points immediately. |
| **Normal Mine** | Claymore mine that only causes 1 hit per explosion |
| **Dirty Mine** | Using shoot signal from claymore but shoots continuously for 22 seconds. |
| **Radio Repeater** | This mode is designed to repeat the radio signals from a master controller. The signals repeated are pause, resume, start and end. A device configured as a radio repeater should be placed at the highest point of the field ideally in a tower with minimal amount of line of sight blocking objects. |

Follow on menu if medic box option is selected

| SELECTION | EFFECT |
|---|---|
| **Medic Box Type**<br>• **Unlimited Spawns/Unlimited ReAcvt**<br>• **Time Limited**<br>• **Limited Respawns/Limited ReActvts** | Unlimited means the medic box is perform re-spawns<br>Time limited means the operator can specify how many minutes to perform re-spawns. Best to set this, perform an radio end game to set the medic box into game over state and then start the timer with the master controller Start (radio) function.<br><br>Limited means setting a fixed number of re-spawns the |

| | |
|---|---|
| | medic box will perform before it will automatically stop. |
| **Any Team** | Can respawns gaming guns set to team A, Team B or Friendly fire ON. |
| **Select Range**<br>• **Outdoor**<br>• **Indoor** | Outdoor is the same as long range for a weapon and indoor is the same as indoor for a weapon. |
| **Voice Feedback On/Off** | Can be used to turn off the audible warnings when the game is close to finishing. In most cases we recommend you leave that on. |
| **Battle Modes**<br>• **Any Team**<br>• **Team B**<br>• **Team A** | With any team, the medic box will perform spawns regardless of what team the gaming gun is set to.<br>If gaming guns are assigned to a team, then it is best to assign the medic box to the same team. A medic box configured for team A can will not respawns gaming guns on team B. |
| **Battle/Game X** | It is important to assign a medic box to the same battle/game as the gaming guns and master controller that will be used for this game. The Battle/Game value is used to isolate one battle from another so they don't interfere with each other. |

Follow o n menu if a **Mine** option is chosen

| SELECTION | EFFECT |
|---|---|
| **Multi Mine Always Live** | Mine rearms in 6 seconds automatically |
| **Single Mine One fire only** | Once fired must be reset before it can fire again. A mission end/mission start by RF will rearm the mine. |
| **Regen Mine 2.5min Reload** | Mine rearms in 150 seconds automatically |
| **Trigger Mine Shoot to Fire** | The mine can be triggered if the sensor on the claymore is hit by any gaming gun. |

**GUN CLASS**

The gun class is used to specify the general class of weapon that this SATR unit has been installed on. It reflects the size, weight and general looks of the weapon so that only weapons from the same gun class can be selected in normal operation.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|



The machine gun class is assumed to be weapons on some sort of mounting such as a bipod or tripod or vehicle. The result is machine guns have a lower recoil value than many rifles.

There are 4 gun classes available including hand gun, rifle, sub machine gun and machine gun.

**LASER TAG CLASS**

When Laser Tag sound scheme is in effect, the classes change to Tiny Phaser, Small Phaser, Medium Phaser and Large Phaser. Here are the equivalent terms:

| | |
|---|---|
| **Tiny Phaser** | Handgun |
| **Small Phaser** | Sub machine gun |
| **Medium Phaser** | Rifle |
| **Large Phaser** | Machinegun |

**RECOMMENDED GUN CLASS BY MODEL**

| MODEL | RECOMMEND GUN CLASS | LASER TAG EQUIVALENT |
|---|---|---|
| **Spitfire** | Submachine gun (sometimes handgun) | Small Phaser |
| **Scorpion** | Submachine gun | Small Phaser |
| **P90** | Submachine gun (P90) | Small Phaser |
| **Commando** | Rifle | Medium Phaser |
| **Pulse Rifle** | Rifle | Medium Phaser |
| **M4** | Rifle | Medium Phaser |
| **M16** | Rifle | Medium Phaser |
| **Morita Sniper** | Rifle | Medium Phaser |
| **Morita SAW** | Machinegun | Large Phaser |

**FIRE MODE**

SATR supports variable damage. You can select either a standard "shooting" or tagging mode; or a one-shot/one-kill mode.


| | |
|---|---|
| **Shooting/Tagging** | This is the normal mode that means the target gaming gun hit points are reduced by 1 on each hit or tag. |
| **Killing/De-Activating** | In this mode a single hit or tag from the shooting gaming gun will cause the target unit to go into dead/deactivated state. Normally only used with high powered sniper rifle weapon emulations. |

**MUZZLE FLASH**


The muzzle flash is the forward facing LED's that flash when a gaming gun is firing. The colour of the flash is configurable. The default white is used usually as it tends to look the most realistic. However the red and green options are sometimes used to distinguish teams at night, this is typically done in conjunction with setting the hit light to the same colour.

The default is white muzzle flash. The options are:

- White Muzzle Flash
- Red Muzzle Flash
- Green Muzzle Flash (or alternative a blue muzzle flash if you've ordered Cobras, this needs to be stipulated at time of order)
- No Muzzle Flash

Even if a muzzle flash colour is selected, a SATR unit configured as an MP5 SD will still not generate a muzzle flash.

**HIT LIGHT**

The hit light is the LED that flashes in the sensor domes when a unit takes a hit and stays on while in dead state.

The default "No hit light" option results in no hit light showing when SATR is hit but does result in a red hit light when the unit is dead. Because SATR has a radio hit feedback system, the hit light is unnecessary in many circumstances.


The other options are green and red hit light.

**RANGE: INDOOR/OUTDOOR**

When operating a very close quarter's games typically of an indoor environment, the indoor option should be selected. The indoor option significantly reduces the power of the infrared beam. The purpose of range reduction is to minimize the level of infrared rebound sometimes known as IR bounce. Setting indoor mode means the gaming gun will ignore the normal range for the specified weapon including range override. Indoor range is even shorter than "short range".

When operating indoors Battlefield Sports recommends that all walls are painted matt black and we recommend that friendly fire is turned off by setting the teams.

**RANGE OVER RIDE**

Every individual weapon simulated by SATR has a range specified for it. However the default range associated with the weapon are designed to create fair game balance between different model gaming guns. However if required, you can specify the range independently of the weapon emulation by using the "Select Range" menu item.

If the default range is selected, then the range used is the range of the weapon selected at the time of firing unless indoor mode is selected.

If SATR is installed in a unit with a short range 25mm lens such as a Spitfire made prior to 2009, the range over ride should be used to force the long range while simulating a sub machine gun. For example a Spitfire configured as an UZI would normally be short range but it is recommending that the range over ride be used to set it to long range otherwise the range will be ultra short (double short range, one from the SATR electronics range reduction and one from the limitations of the small 25mm lens).

**SOUND VOLUME**

For certain situations the volume of the SATR units needs to be reduced especially for indoor use or in public venues. There are three volume levels to choose from:


- High
- medium or
- low.

**VOICE FEEDBACK**

Some gamers may prefer that the voice sound effects are turned off so they can be stealthier. Hit feedback is still provided by flashing the red dot scope twice when the gaming gun makes a hit and four times when it makes a kill. Battlefield Sports recommends that the voice feedback is set to ON for all gamers in all standard sessions for the public.

With a medic box, ammunition box and a master controller if the voice feedback is ON and a timed game is in operation each of these devices will make an audible warning with 1 minute, 30 seconds and 15 seconds to go.

**FRI ENDLY FIRE**

This option allows the operator to disable friendly fire if required. This is most applicable to events where there is very high gamer to space ratio. In normal Battlefield Live games, friendly fire should be allowed.


"Friendly fire ON" means that this SATR can accept hits from any SATR unit assigned to this battle.

"Team A" means this SATR unit will only accept hits from SATR units assigned to TEAM B and only if they are in the same battle. Therefore Team A gaming guns cannot hit this unit.

"Team B" means this SATR unit will only accept hits from SATR units assigned to TEAM A and only if they are in the same battle.

**BATTLE/GAME**

SATR is designed to allow one battle to be isolated from another battle so that radio and infrared messages between battles is prevented. Four separate battles are supported. In Laser Tag mode this is called "Game" instead of Battle.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|



The Battle can also be set using a SATR unit working in Master Controller mode.

## *3.5 Standard Playing Mode*

Assuming the unit has not been configured to operate as a Master Controller, this is the mode of operation after the boot/menu selection sequence is complete.

### 3.5.1 Count Down/Save Configuration

Whenever SATR processes a re-spawn or starts a new game, it commences a 3 second count where the gamer cannot take any action but also cannot be hit by any other SATR unit. After the 3 second count down is complete, the audio files load into memory. The result is to give a gamer approximately 4 seconds to move to a safer position. By pulling the trigger the user can bypass the 3 second count down and go to audio file load immediately.

If a gaming gun is started with a radio message, the gaming goes immediately to ready.

The countdown also displays the current battle so that gamers can check their unit will work with the other units in the same battle.

### 3.5.2 Ready

Upon start up or whenever SATR is alive and is not performing another function like shooting, reloading or taking a hit, it goes into ready mode.

**FIRING STATISTICS**

| Character | Meaning |
|---|---|
| **H/T** | Hits/Tags: Number of hits made on another SATR unit this game that did not result in a kill. |
| **K/D** | Kills/Deactivations: The number of hits made on another SATR unit this game that resulting in a kill (dead) |
| **A** | Accuracy: The number of hits including kills compared to number of rounds fired as a percentage |

**MODES OF FIRE**

| Mode of Fire | Description |
|---|---|
| FA | Fully Automatic |
| BF | Burst Fire – limited to 3 rounds per automatic burst |
| SA | Semi Automatic |
| BA | Bolt Action |
| RV | Revolver |

| | |
|---|---|
| AL | Auto Loader (Pistol) |
| SS | Single Shot |

### 3.5.3 Firing

From the ready state, a trigger pull will cause SATR to commence firing assuming there is ammunition left in the current magazine. For weapons with a BA mode of fire, the right button will need to be pushed after each shot before another shot can be fired.

Upon firing SATR will generate an infrared pulse for every round fired as well as a muzzle flash and appropriate shooting sound effect.

If the fire mode is FA, then SATR will keep firing while the trigger is pulled until it runs out of ammunition or receives an external event such as a hit.

If the fire mode is BF, SATR will fire up to 3 rounds with the trigger pulled. To continue firing the trigger must be released and then pulled again.

In all other modes of fire, after each shot the trigger must be released before another shot can be made.

If the SATR unit makes a hit on another SATR unit that does not result in a kill, the number of hits 'H" is incremented by 1. If SATR unit makes a hit that causes a kill, the number of kills 'K' is incremented by 1. Upon making a hit, a voice message in the selected language will be heard saying "Casualty". If a kill is made, a voice message in the selected language will be heard saying "Kill Confirmed". If the Laser Tag sound scheme is employed, then we have T for tags, D for deactivations and the sound effect for a tag is "Tagged" and for making the final tag it says "Deactivated"

If a SATR unit hits another SATR unit that is already in dead state, a voice message will be heard saying "dead already" in the language selected. The red dot will also flash once. If the Laser Tag sound scheme is used it will say "Deactivated already".

All such voice messages are produced by the firing SATR unit.

Each time a shot is fired which misses the target, the accuracy percentage will reduce (minimum of 0%) and each time a hit is made, the accuracy percentage will go up. Accuracy is rounded to the nearest whole number.

If the gaming gun has a recoil value greater than 1, then the red dot will be powered down immediately after it fires. The power down time is 0.5 seconds for each point over 1 of recoil associated with the current weapon, typically in the range of 0.5 to 1.5 seconds. Each shot fired re-starts the power down timer. This function does not occur on easy mode.

Because easy mode does not have the recoil simulation feature, it is the recommended mode for zeroing the scope.

The bolt action rifle requires manual working of the bolt after every shot. In SATR this is simulated by the operator having to push the right button twice after each shot.

After a round is fired, the status changes to “Spent Case”. After the first right button push the mode changes to “Open Bolt”

And then after the second button push the status will go back to “Ready”

### 3.5.4 Reload

While in the ready state, pushing and releasing the reload button (left side) will start the ammunition reload sequence assuming there are still reloads available. If the current magazine is full, the reload button is disabled.

While reloading SATR cannot shoot but can be hit by other SATR units. Taking a hit, while reloading slows down the reload process.

Once the reload process is complete, all the ammunition in the current magazine is restored to full.

### 3.5.5 Right Button

The right button during a live game is used to toggle between fully automatic or bust fire and semi automatic fire. This mode does not perform any action on weapons that do not have secondary mode of fire. For example some machine guns only have fully automatic fire and therefore pushing the right button will have no effect.

The current fire mode is shown on the bottom line of the LCD. For example FA means fully automatic and SA means semi-automatic.

Pushing the right button during live state will always cause the back light to come on for the LCD.

### 3.5.6 Hit State

When a unit is alive and it receives an infrared signal from another SATR unit in the same battle, a hit is triggered. If the hit reduces the health to 0, SATR enters into a “dead’ state.

When hit, a sound effect is heard, the actual sound effect depends on the current health level

| Health Level | Sound Effect |
|---|---|
| 4 or more | Near miss |
| 2 or 3 | Wound |

SATR assumes that the character cannot really take 4 or more hits before being incapacitated, so when high hit points are used, early reduction in hit points are assumed to be a combination of skill and luck that the character managed to just avoid taking serious damage. For realistic games, Battlefield Sports recommends 2 or 3 hits points are used.

### 3.5.7 Dead/Deactivate State

The “Dead” status is reached when a SATR unit receives a hit from another SATR unit in the same battle and the receiver’s health was 1 before the hit was received. Health is then reduced to 0.

In dead state, all gamer controlled functions are disabled. To escape from this state requires one of the following events

- Re spawn from a Master Controller or medic box (recommended for in game spawns)

- Game end/start radio signals
- New Game IR signal from a Master Controller
- Re-start using key switch (not recommend usually as this clears the statistics)

In Laser Tag mode, the term "Deactivated" is used instead of "Dead".

### 3.5.8 Pause

A SATR unit currently in live state can be stopped from taking any further gamer input by receiving a pause signal.

A pause signal can be received by radio, in which case all SATR units in the same battle will enter pause state or the signal can be received via an IR message. In the case of an IR message from a Master Controller, only the SATR unit targeted by the Master Controller will enter pause state.

When a SATR is first paused, a spoken sound effect is heard on the paused unit saying "Paused" in the language selected.

### 3.5.9 Resume

The resume function only works on SATR units that are currently in pause state.

When a SATR gaming gun is resumed, a spoken sound effect is heard on the resumed unit saying "Resumed" in the language selected.

### 3.5.10 Game Over

The "Game Over" signal comes via a radio signal from the Master Controller and impacts all SATR units in the same Battle as the Master Controller is configured too.

When the signal is received a voice saying "Mission Complete" can be heard on the receiving unit in the language selected.

While all gamer controlled functions are frozen, the final game statistics can be seen on the LCD.

To exit game over you need to send a "start" via radio, or "new mission" via infrared, or manually use of the key switch.

If a timed game is used, the time left in the game will be displayed on the LCD of the master controllers and all gaming guns in weapon mode. If the gaming gun is out of RF range of a master controller at game end, it will still enter game over state based on the game timer.

### 3.5.11 Game Start

The game "Start" function starts a new game including resetting all statistics to 0 and restoring health and ammunition to full values assuming the target gaming guns are currently in game over state.

The game start signal can be received either via IR signal or radio signal. The radio signal only has effect if the gun is configured to the same battle as the Master Controller.

When the signal is received a voice saying "Mission Start" (or "Game Start" in Laser Tag sound scheme) can be heard on the receiving unit in the language selected.

If a timed game is started, then a countdown time will be displayed on the master controller and all target gaming guns in weapon mode. For gaming guns already started, a new radio start command will reset the countdown timer.

## *3.6 Master Controller Mode*

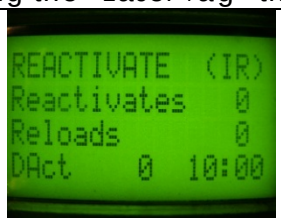
To configure a unit as a master controller on initial boot push the right button and then change the mode of operation to "Controller".

The functions of the Master Controller can be broken down into three types

| Characters after function name | Meaning |
|---|---|
| **(IR)** | Signal is sent by infrared beam and only affects the SATR unit/s being aimed at by the Master Controller. Generally the target gaming gun hit light flashes when it receives an IR signal from a master controller. |
| **(Radio)** | The signal is sent by radio message and will be received and processed by all SATR units currently configured to the same battle as the Master Controller |
| ***Blank*** | These functions do not send a signal to any SATR units. They are used to change internally values such as difficulty level, team, game timer, hit points and battle. |

### 3.6.1 Spawn/Reactivate Mode (IR)

The default function of a Master Controller is to perform spawns on SATR units that are currently in dead state and to count the number of times this has been successfully performed during the current game.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |





The first line indicates the current mode the Master Controller is operating in; in this case it is in "SPAWN" mode. The "(IR)" indicates the function is performed by the infrared emitter directed by the referee towards the target SATR unit.

Other modes are accessed by using the reload button to scroll down and the mode button to scroll up. To trigger the current function, the trigger is pulled.

A spawn restores all the ammunition and hit points of the target SATR unit.

### 3.6.2 Reload/Charge Mode (IR)

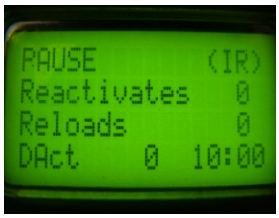
This mode restores the number of magazines on the target SATR unit to the amount specified in the initial configuration of the target SATR unit.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

On the third line of the display, it shows the number of reloads performed this game. This is a useful feature for some games where the amount of spare ammunition is limited.

### 3.6.3 Pause Mode (IR)

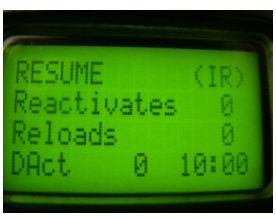
A SATR unit in live state can be paused from the Master Controller using this mode.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

Pausing prevents the gamer from performing any actions with the gun until it receives a resume signal in IR or radio form.

### 3.6.4 Resume Mode (IR)

This works on a SATR unit that is currently paused and resumes the target units operation.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

### 3.6.5 Target Reset (IR)

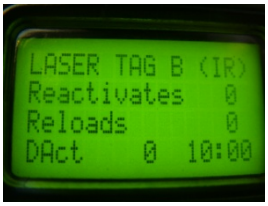
This function is available from version 1.1b or later of SATR software. A target gaming gun will have the following settings reset to factory defaults:

- Muzzle Flash: White
- Hit Light: Red
- Default weapon emulation for the gun class
- Default Range
- Outdoor mode
- Voice Feedback On
- High Volume
- Friendly Fire On
- Battle – this sets the battle to the same battle as the Master Controller.

The purpose of this function is to set the units back to a working set of defaults before then changing the settings to suit the next Live-Play.

Please note the language setting is not changed by the target reset function.

If you are using the Laser Tag theme the target reset function works in a slightly different way. It enables you to automatically set half of your equipment to Team A and the other half to Team B.

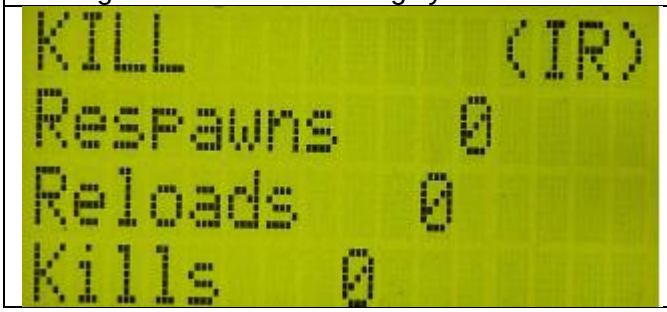
| Set half the group to… | And the other half… |
|---|---|
| Resets the 'Tagged' phasers to the defaults for Team A; Red muzzle, Red hit light, Team A, Game 1  | Resets the 'Tagged' phasers to the defaults for Team B; Green/Blue muzzle, Green/Blue hit light, Team B, Game 1  |





### 3.6.6 Kill/Deactivate (IR)

The kill function is a quick way to move a target SATR unit into a dead state. This is for those times that a referee is acting in a non gamer role of some very destructive weapon such as artillery or automated defence system. Any SATR unit currently alive that receives the infrared kill signal instantly "dies".

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

### 3.6.7 New Mission (IR)

The "New Mission (IR)" function resets a target SATR unit into a live state ready for a new game using the infrared system.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

All the statistics on the target unit are reset. A new mission IR does not restart the game timer on the master controller unlike the Start (Radio) function. If a gaming gun fails to start with the initial start radio function and timed games are being used then use New Mission IR to start those gaming guns.

### 3.6.8 Sensor Test (IR)

The purpose of this function is to test the target unit sensors to make sure they are receiving hits and processing the radio feedback to the initiating unit.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

The head sensor on the target will flash when it receives an infrared message and the Master Controller will make a short beep sound indicating that is had received a successful radio message from the target unit.

The sensor test process can occur regardless of the state of the gaming guns except if the target unit is turned off.

### 3.6.9 Shoot/Tag (IR)

The Master Controller can shoot at a target SATR unit. The target SATR unit will process the hit exactly the same as if it was hit by another SATR unit.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|

| | |
|---|---|
|  |  |


### 3.6.10 Pause (Radio)

All currently active units within radio range in the battle currently configured for this Master Controller will pause upon receipt of this radio message.


### 3.6.11 Resume (Radio)

All currently paused SATR units within radio range in the same battle as this Master Controller will resume upon receipt of this signal.

### 3.6.12 Start Game (Radio)

Any SATR units within radio range, on the same battle as the Master Controller currently in "game over" state will commence 3 second count down and the go to live game status.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

If the master controller is set to a timed game, a start game command will start the time countdown. Gaming guns in RF range of the master controller will also start or re-start the game timer countdown which is displayed on the bottom right of the LCD.

The start function needs to be confirmed by the user before taking effect.

### 3.6.13 End Game (Radio)

All SATR units within radio range on the same battle as the Master Controller that is currently active will go to "game over" state. Game over state continues to display the statistics on the LCD but otherwise all functions are disabled.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|

| | |
|---|---|
|  |  |

The end function needs to be confirmed by the user before it takes effect.

### 3.6.14 Interrogate IR


This function is used to obtain key configuration and statistical information from the device targeted by an infrared message. This is a really useful function.

With this function you can get the stats of the player you 'Shoot' or 'Tag'. On your screen you will get their HP #/5, Accuracy, how many people they have tagged and deactivated.

The target is determined by infrared however the statistical information is sent back to the master controller by digital radio.

### 3.6.15 Set Health

This function changes the hit points of the target gun using the infrared system to the value specified after "HP". To change the value the "set health" function is used. The target gaming gun sensor lights will flash to indicate message received.

The sequence is "SET HEALTH", then specify the hit points, then point the master controller at the target gaming guns and use the "CH Hth XXHP (IR)" function

A setting of 'Invulnerable" health means the target SATR unit can take unlimited hits without dying.

| If using the standard settings you will see… | If using the "Laser Tag" theme you will see… |
|---|---|
|  |  |

### 3.6.16 Set Difficulty


This function uses the infrared system to change target gaming guns to the specified difficulty level. The target gaming gun sensor lights will flash to indicate message received. The difficulty level is specified using the "Set Difficulty" function.

Changing the difficulty level also resets the hit points to the default value for that difficulty level. If you want use the Master Controller mode to change the hit points and the difficulty level where the hit points are different from the default, then change the difficulty level first and then change the hit points.


### 3.6.17 Set Game Timer

SATR allows the operator the set time that a particular battle/game will run for before it automatically ends. The time starts when a Start (Radio) command is performed. At the end of the time, the master controller will automatically send an End (Radio) command. If a timed game is used the time left in the game is displayed on the master controller and each gaming gun/phaser assigned to this battle/game.


### 3.6.18 Set Battle

This function allows the referee to quickly change a target SATR unit to operate in a new battle/game. The first step is the specify the battle and then use the trigger to go to the CHG BATTLE X command. The CHG BATTLE command is an infrared function so it only effects those gaming guns hit.


### 3.6.19 Set Team

A master controller can be used to set the team value of a target gaming gun by IR.

"Set FF On" – Turns on friendly fire so that gamers from the same team can hit each other.

"Set Team A" – All gaming guns hit with the IR beam will be set to team A. Team A gaming guns cannot hit other team A gaming guns.

"Set Team B" – Sets target gaming guns to team B.

It is very important to not mix friendly fire ON with gaming guns set to a team.

### 3.6.20 Chg Weapons (IR)/Chg Phasers (IR)


The change weapons function sets the weapon on the target gaming gun based on two factors:

1) The Gun Class of the target gaming gun (Handgun, Sub machinegun, Rifle and Machinegun).
2) The weapon specified on the Master Controller in each class using the "Set Weapons" function.

For example if the Master Controller current settings for weapons in each class was

- Handgun: 9mm Makarov
- Sub machinegun: PPS-43
- Rifle: AK47/AKM
- Machinegun: RPK LMG

And the target guns current gun class is Rifle, then it will change to a AK47/AKM as the current weapon.

If no weapons have been set since the last boot of the Master Controller, then the default settings will apply:

The target gaming gun sensor lights will flash to indicate message received.


### 3.6.21 Set Weapons/Set Phasers

The SATR unit configured as a Master Controller can use the infrared system to establish a specific weapon for each gun class. The principle is SATR when installed into a case will have the Gun Class configured so that the selection of weapons is consistent with the case shape. However when running a Live-Play each team might be assigned a particular model of gun class, for example for a World War II Soviet force the following could be used:

- All handguns become Tokarev TT-33's
- All submachine guns become PPS – 43's
- All rifles become Mosin-Nagant Rifles
- All machine guns become Degtyarev DP LMG's

The process is for the referee to configure on the Master Controller the weapon to be used in each gun class and then when ready "shoot" all the target gaming guns (they must be switch on) changing their statistics and sound effects to match those of the specified weapon.

Step 1: Select the function "Set Weapons" and then pull the trigger.

Step 2: Select the gun class you wish to change by using the reload/mode buttons followed by a trigger pull. The display shows the gun class and the current weapon that the unit target unit in this gun class will change to.

Step 3: Select the weapon from the list and then pull the trigger.

The trigger pull will bring up the next gun class

Repeat steps 2 and 3 to set a weapon for each gun class. Selection of a machine gun with the trigger pull will take you back to the main menu at "Set Weapons". A left button push on the gun class selection when machine gun is currently listed will also return you to the "Set Weapons" menu option.

## *3.7 Battle Box (Medic Box)*

After initial boot go the right menus and work through until it says "weapon mode", then change this to "medic box" and then just keep pulling the trigger.

Once in a live state the medic box, the medic box will only accept the trigger button input, causing it to transmit a re-spawn signal to gaming guns nearby and in direct infrared line of sight.

The reload and mode buttons are disabled so the gamers cannot access any other function, it will only perform re-spawns. The medic box will count the number of re-spawns it performs by using the radio feedback system, up to 3 people can be spawned at a time and get fairly accurate counting.

Medic box can be easily re-configured to work as an ammunition box.

The medic box will reset the counter for number of spawns after received a radio end/start combination. A medic box allows the number of re-spawns to be restricted to a specific count nominated by the referee on initial boot or the referee can set it to re-spawn for a certain number of minutes or it can remain unrestricted like 1.2e. Any gaming gun or Master Controller can also be configured to work as a medic box.

**TEAM SPECIFIC RE-SPAWNS**

Assuming all gaming guns are upgraded to 1.3a or later software, the medic box can be configured to only re-spawn a specific team. If you set the medic box to team A, it will only re-spawn gaming guns also on team A. This only applies if you have friendly fire off.

**CONFIGURING FIXED NUMBER OF RESPAWNS**

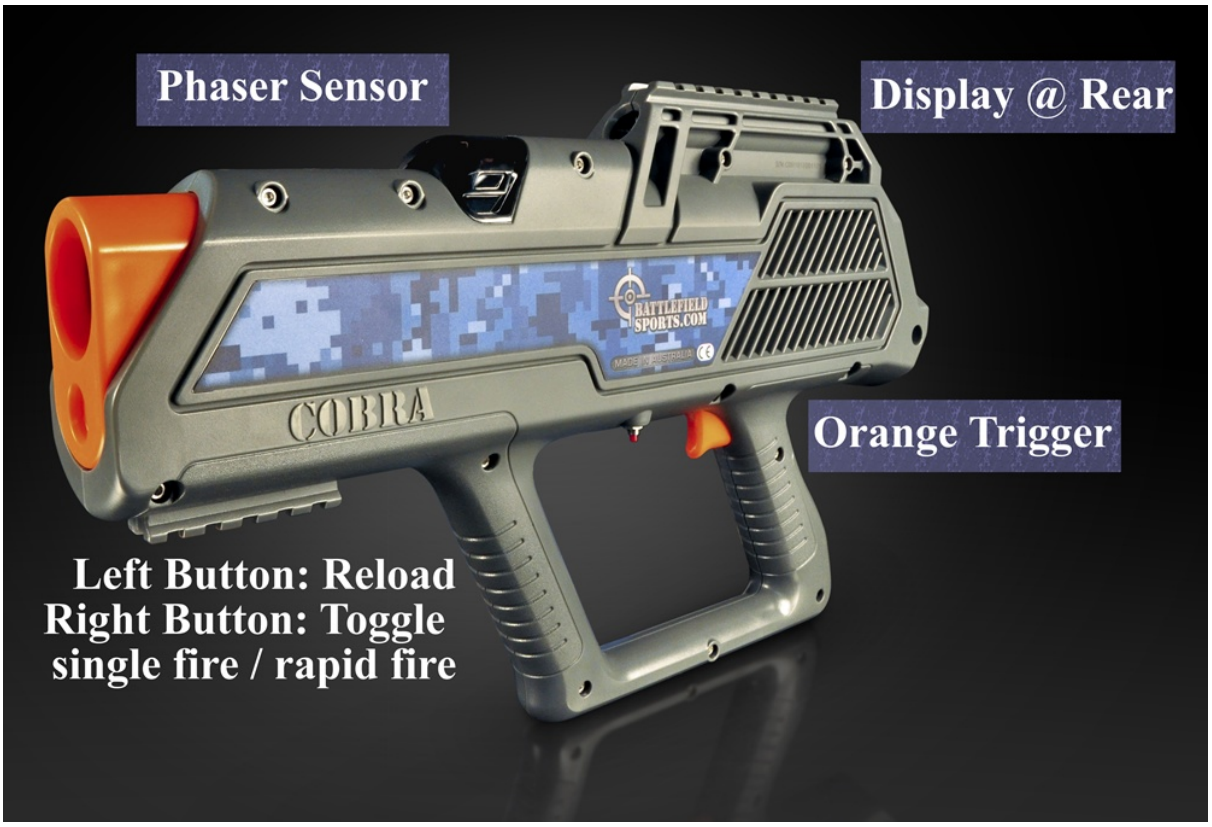
On initial boot with key switch go to the right button menus, scroll through the list and make sure the current mode says "Medic Box" rather than something else like "weapon mode", "Controller mode", "Ammunition box", "Claymore Mine", "Normal Mine" or "Dirty Mine" .

After trigger push (pull on a gaming gun) the heading will say "Medic Box Type". Scroll through list using left or right button until it says "Limited Respawns" and then push trigger button. Use the left/right buttons to specify a number of respawns. Finally keep triggering through until the unit fully boots with a heading of "MEDIC Battle x" where x is the battle this medic box is assigned to.

**CONFIGURING FIXED TIME RESPAWNS**

This is very similar to configuring fixed number of re-spawns. Go to the "Medic Box Type" and make sure it says "Time Limited", push the trigger button and then use the left/right buttons to change the value in minutes. Allowable values are:

- 1 to 30 – select individual minutes, e.g. 4 or 12 or 15 etc
- From 30 – select minutes in increments of 5, e.g. 35, 50, 55 etc
- From 60 – select minutes in increments of 10, e.g. 70, 80, 100 up to a maximum of 120.



# 4 APPENDIX – SATR Weapon Chart

## *4.1 GUN CLASS #1 - Handguns*

| Weapon | Box *Capacity* | Fire Modes | Recoil | ROF | Range | Reloads | Reload Time (Secs) | Ammo | Origin | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Colt M-1911* | 7 | AL | 3 | 180 | Short | 20 | 3 | .45ACP | USA | **The Colt M-1911 Automatic Pistol, has a 7 round box, is short ranged, comes with 20 boxes of .45ACP ammunition and takes 3 seconds to reload. .This was the standard US army service sidearm from 1911 until mid 1980s. The M-1911 served with distinction proving to be extremely reliable in harsh combat conditions.** |
| Beretta 92FS (M9) | 15 | AL | 2 | 180 | Short | 11 | 3 | 9 x 19mm P | Italy | **The Beretta FS Automatic Pistol, has a 15 round box, is short ranged, comes with 11 boxes of 9mm Parabellum ammunition and takes 3 seconds to reload. Production of Beretta 92 commenced in 1976 in Italy. The US military adopted the Model 92SB-F (later renamed to model 92FS) in 1985 as the M9 pistol.** |
| Browning GP35 - HP | 13 | AL | 2 | 180 | Short | 12 | 3 | 9mmx 19mm P | Belgium | **The Browning HP35 Automatic Pistol, has a 13 round box, is short ranged, comes with 12 boxes of 9mm Parabellum ammunition and takes 3 seconds to reload. The Browning High Power has been widely used and copied with over 55 countries adopting it. Has proved very reliable and serviceable pistol. In WWII the German used it as Pistole 640(b).** |
| H&KUSP Match | 15 | AL | 2 | 180 | Short | 11 | 3 | 9 x 19mm Luger | Germany | **The Heckler & Koch USP Match Automatic Pistol, has a 15 round box, is short ranged, comes with 11 boxes of 9mm Luger ammunition and takes 3 seconds to reload. Heckler & Koch developed Universal Self-loading with manufacturing commencing in 1993. The concept of the new design was to** |

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| | | | | | | | | | | **provide a universal weapon for police and military forces, available in a variety of versions and sizes.** |
| 9mm Makarov | 8 | AL | 2 | 180 | Short | 18 | 3 | 9 x 18mm Soviet | Russia | **The Makarov Automatic Pistol, has a 8 round box, is short ranged, comes with 18 boxes of 9mm Soviet ammunition and takes 3 seconds to reload. The Makarov appeared in the 1950's and is based on the Walther PP, it was the standard issue side arm of the Russia forces until 2003. Widely used by many Warsaw pact countries.** |
| Tokarev TT-33 | 8 | AL | 2 | 180 | Short | 18 | 3 | 7.62 x 25mm Soviet | Russia | **The Tokarev TT-33 Automatic Pistol, has a 8 round box, is short ranged, comes with 18 boxes of 7.62 Soviet ammunition and takes 3 seconds to reload. The Tokarev TT (aka "Tula") pistol was developed for the red army as a new, modern semiautomatic pistol to replace obsolete Nagant M1895 revolvers. The TT-33 was used by the Soviet military from 1934 to the late 1960's.** |
| Luger Pistole '08' | 8 | AL | 2 | 180 | Short | 18 | 3 | 9 x 19mm P | Germany | **The Luger Automatic Pistol has a 8 round box, is short ranged, comes with 18 boxes of 9mm Parabellum ammunition and takes 3 seconds to reload. The luger was the standard issue German sidearm during WWI and saw frequent service until 1945. The last Luger was made in June 1942** |
| Walther P38 | 8 | AL | 2 | 180 | Short | 18 | 3 | 9 x 19mm P | Germany | **The Walther P38 Automatic Pistol has a 8 round box, is short ranged, comes with 18 boxes of 9mm Parabellum ammunition and takes 3 seconds to reload. The Carl Walther company began development of the new military pistole in the mid-1930's, and in 1938 the Werhmacht (German Army) adopted Walther MP model experimental pistole as "Pistole 38". The P38 was the standard issue German sidearm in WWII.** |
| Nambu 14 Shiko | 8 | AL | 2 | 180 | Short | 18 | 3 | 8 x | Japan | **The Nambu 14 Shiko Automatic Pistol has a 8** |

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| | | | | | | | | 22 mm Nambu | | **round box, is short ranged, comes with 18 boxes of 8mm ammunition and takes 3 seconds to reload. The type 14 pistol was designed by Japanese general Kijiro Nambu in 1925. This pistol was adopted by Imperial Japanese Army and widely used through out WWII as the standard sidearm.** |
| Smith & Wesson M & P | 6 | RV | 2 | 180 | Short | 22 | 7 | 0.38 Special | USA | **The Smith & Wesson M&P Revolver has a 6 shot cylinder, is short ranged, comes with enough spare bullets to reload 22 times, and takes 7 seconds to reload. Ammunition is the 0.38 Special. The Smith & Wesson's "Military And Police" Revolver began production in 1899. During the next century, the total number revolvers manufactured by Smith & Wesson could be estimated at roughly six million including over 1 million guns delivered to the US Government in WWII.** |
| Nagrant M-1895 | 7 | RV | 2 | 180 | Short | 20 | 6 | 7.62mm Russian | Russia | **The Nagrant M-1895 Revolver has a 7 shot cylinder, is short ranged, comes with enough spare bullets to reload 20 times and takes 6 seconds to reload. Ammunition is 7.62mm Russian. The Nagant revolver was adopted by the Russian Army in 1895 and were manufactured in Tula Arsenal until the late 1930's.** |
| Enfield Revolver | 6 | RV | 2 | 180 | Short | 18 | 7 | .38 British | UK | **The Enfield Revolver has a 6 shot cylinder, is short ranged, comes with enough spare bullets to reload 18 times, and takes 7 seconds to reload. Ammunition is .38 British. This revolver was developed at the Royal Small Arms Factory in Enfield between 1926 and 27. This revolver was adopted for Her Majesty's Military service in 1932 as the Enfield revolver, .38 caliber, No.2 Mark 1.** |

*Autoloader (AL) pistols get an addition 1 round in the first magazine to represent the round pre-loaded into the chamber

## 4.2 GUN CLASS #2 – Sub Machine Guns

| Weapon | Magazine capacity | Fire Modes | Recoil | ROF | Range | Reloads | Reload Time | Ammo | Origin | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Scorpion** | 25 | FA,SA | 2 | 330 | Short | 15 | 5 | N/A | N/A | The Scorpion has been a standard Battlefield Sports gaming gun since 2004. It is designed to function as typical sub machine gun. It has a more science fiction shooting sound. |
| **H&K MP5** | 30 | FA,SA | 2 | M | Short | 6 | 3 | 9mm P | Germany | The Heckler & Koch MP5 submachine gun, features a 30 shot magazine, is capable of fully automatic and semiautomatic fire, has short range, has 6 spare magazines of 9mm Parabellum ammunition and takes 3 seconds to reload. The MP-5, is one of the most famous and wide-spread firearms of its class. Production commenced in 1965. |
| **H&K MP5 SD** | 15 | FA,SA | 2 | M | Short | 12 | 5 | 9mm P | Germany | The Heckler & Koch MP5SD submachine gun, features a 15 shot magazine, is capable of fully automatic and semiautomatic fire, has short range, has 6 spare magazines of 9mm Parabellum ammunition and takes 3 seconds to reload<br><br>MP5SD was introduced in 1974. It has an integrated suppressor and a special barrel which reduced the muzzle velocity of its ammunition to just below the speed of sound. It is almost inaudible at distances of more than 15 meters. The muzzle flash is virtually invisible. It is a weapon of choice for stealthy operations. The longer reload time reflects the lower reliability of silenced weapons. |
| **UZI** | 25 | FA,SA | 2 | M | Short | 8 | 3 | 9mm P | Israel | The UZI submachine gun features a 25 shot magazine, is capable of fully automatic and semiautomatic fire, has short range, has 8 spare magazines of 9mm Parabellum ammunition and takes 3 seconds to reload. The UZI was designed in Israel by namesake Uziel Gal, and manufactured by IMI. The UZI has been adopted by police and military of more than 90 countries, |

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| | | | | | | | | | | including Israel, Germany and Belgium. |
| **M-1928A1 Thompson** | 100 | FA,SA | 2 | M | Short | 4 | 12 | .45ACP | USA | The Thompson submachine gun features a huge 100 shot drum, is capable of fully automatic and semiautomatic fire, has short range, has 4 spare drums of .45ACP ammunition and takes 12 seconds to reload. Tommy guns were used by both Police and criminals to spread death in the 1920's. This gun was also widely used during WWII and later in the Korean war. |
| **M-3 Grease Gun** | 30 | FA | 2 | 450 | Short | 6 | 4 | .45ACP | USA | The M3 submachine gun features a 30 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of .45ACP ammunition and takes 4 seconds to reload. The M3 submachine gun was also known as the Grease gun. The M3 was developed and manufactured by General Motors Corp. The M3 was introduced in 1942, and a simplified M3A1 launched in 1944. It remained in service in the USA until 1960. |
| **Owen SMG** | 33 | FA | 2 | M | Short | 6 | 4 | 9x19mm P | Australia | The Owen submachine gun features a 33 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of 9mm parabellum ammunition and takes 4 seconds to reload<br><br>About 45 000 Owen SMGs were made in Australia from 1942. These remained in service with Australian forces until the 1960s. These weapons were well liked by soldiers due to their robustness, reliability and simplicity. |
| **Sten Mark 2** | 32 | FA | 2 | 450 | Short | 6 | 4 | 9x19mm P | UK | The Sten Mark 2 submachine gun features a 32 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of 9mm parabellum ammunition and takes 4 seconds to reload<br><br>It was one of the most crude and ugly SMG designs of WWII . But more than 4 million STEN's of different versions were made from |

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| | | | | | | | | | | 1941 until 1945. |
| **MP38/40** | 32 | FA | 2 | 500 | Short | 6 | 3 | 9mm P | Germany | The MP38 submachine gun features a 32 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of 9mm parabellum ammunition and takes 3 seconds to reload. The MP-38 and later MP-40 were adopted by the Wehrmacht in 1938 and 1940, respectively. The MP40 was often incorrectly called the **Schmeisser** by the Allies, after Hugo Schmeisser who produced the guns' magazines. Some 1.2 million MP-38 & 40s were manufactured prior to and during WWII. Initially, the MP-38 was intended for use by paratroopers, but later was widely used by the German infantry. |
| **MP18** | 32 | FA | 2 | 400 | Short | 6 | 8 | 9mm P | Germany | The MP18 submachine gun features a 32 shot helical drum, fires fully automatic only, has short range, has 6 spare drums of 9mm Parabellum ammunition and takes 8 seconds to reload. The rate of fire is only 400 RPM.<br><br>This is the world's first successful submachine gun. The MP18 saw action in WWI with 30,000 manufactured. The high reload time reflects the difficulty with the snail drum fed rounds. |
| **MP28-50** | 50 | FA,SA | 2 | 500 | Short | 5 | 8 | 9mm P | Germany | The MP28 submachine gun features a 50 shot magazine, is capable of fully automatic and semiautomatic fire, has short range, has 5 spare magazines of 9mm Parabellum ammunition and takes 8 seconds to reload.<br><br>The MP 28/II is a direct descended of the MP18/I with the primary improvements being selective fire and faster rate of fire. The long reload time reflects the high chance of jamming. |
| **MAT 49-20** | 20 | FA,SA | 2 | 404 | Short | 9 | 3 | 9mm P | French | The MAT49 submachine gun features a 20 shot magazine, is capable of fully automatic and semiautomatic fire, has short range, has 9 spare magazines of 9mm Parabellum ammunition and |

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| | | | | | | | | | | takes 3 seconds to reload.<br><br>The MAT-49 submachine gun was developed at the French state arms factory “Manufacture Nationale d'Armes de Tulle” in the late 1940s, and was adopted French Army in 1949. First batches were made in 1950, and production continued until 1979. |
| **MAT 49-32** | 32 | FA | 2 | M | Short | 6 | 4 | 7,62mm Soviet | Vietnam | The North Vietnamese MAT49 SMG is a simplified version of the French model, it features a 32 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of 7.62mm Soviet ammunition and takes 4 seconds to reload.<br><br>The MAT-49 saw widespread combat use during the Indo-China war.<br><br>After French forces left Indochina, the NVA converted many captured MAT-49s to the Soviet Tokarev pistol cartridge, then available in large quantities from the Soviet Union and the People's Republic of China. |
| **PPS-43** | 35 | FA | 2 | M | Short | 6 | 4 | 7.62x25mm Soviet | Russia | The PPS-43 submachine gun features a 35 shot magazine, fires fully automatic only, has short range, has 6 spare magazines of 7.62mm Soviet ammunition and takes 4 seconds to reload.<br><br>The PPS-42 launched in 1942 and was further refined in 1943 to become the PPS-43. Many consider the PPS-42 the best SMG of WWII; it was widely exported to pro-Soviet regimes around the world and widely copied. |
| **PPSch-41** | 71 | FA | 2 | M | Short | 4 | 10 | 7.62x25mm Soviet | Russia | The PPSch-41 submachine gun features a 71 shot Suomi drum, fires fully automatic only, has short range, has 4 spare drums of 7.62mm Soviet ammunition and takes 10 seconds to reload.<br><br>The PPSch-41, Pistolet Pulemjot Schpagina model of 1941 was one of major infantry weapons of the Soviet troops during WWII. More than 6 million we made. The PPSch 41 |

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| | | | | | | | | | | was widely exported to some pro-Soviet countries, including Vietnam and many African countries. The 71 round drum provides a lot of firepower but is slow to reload. |
| **FN P90** | 50 | FA,SA | 3 | M | Medium | 4 | 4 | 5.7x28 mm FN | Belgium | The P90 personal defense weapon, features a 50 round magazine, supports both fully automatic and semiautomatic fire, has medium range, has 4 reloads of 5.7mm FN ammunition and takes 4 seconds to reload.<br><br>The FN P90 was developed in the late 1980s as a defensive weapon for the troops whose primary activities do not include small arms. Troops such as vehicle, tank & artillery crews. Standard Pistols and SMGs chambered for pistol rounds had proven ineffective against enemy soldiers, wearing bulletproof vests, so FN developed a new round with enhanced penetration - the SS190. |

## 4.3 GUN CLASS #3 - Rifles

| Weapon | Magazine capacity | Fire Modes | Recoil | ROF | Range | Reloads | Reload Time | Ammo | Origin | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Commando** | 30 | FA,SA | 2 | 330 | Medium | 12 | 5 | N/A | N/A | The Commando has been the standard issue carbine by Battlefield Sports since 2004. It is designed to function as a typical modern carbine. |
| **Pulse Rifle** | 30 | BF,SA | 3 | 330 | Long | 12 | 5 | N/A | N/A | The classic Pulse Rifle has been manufactured for live gaming since 2002 by Battlefield Sports. It is simulates a typical heavy assault rifle. |
| **M16A2** | 30 | BF,SA | 2 | M | Long | 6 | 3 | 5.56x 45mm NATO | USA | The M16A2 combat rifle features a 30 shot magazine, both burst and semiautomatic fire, long range, 6 spare magazines of 5.56mm NATO ammunition and takes 3 seconds to reload..<br><br>The M16A2 became the general issue rifle with the US armed forces in 1985. The action was modified, replacing the fully-automatic setting with a three-round burst.<br><br>The M16 rifles are used by many foreign military groups, most notably the British SAS, who preferred the M16 over the infamous L85A1 rifle. |
| **M16A1 -1970** | 30 | FA,SA | 2 | M | Long | 6 | 3 | 5.56x 45mm NATO | USA | The M16A1 assault rifle features a 30 shot magazine, both automatic and semiautomatic fire, long range, and has 6 spare magazines of 5.56mm NATO ammunition and takes 3 seconds to reload.<br><br>The M16A1 was the general-issue rifle with the US Armed forces from 1970. This model featured a larger magazine from its predecessor. Improved ammunition and cleaning significantly reduced jamming compared to the earlier issued equipment. |
| **M16 - 1967** | 20 | FA,SA | 2 | M | Long | 8 | 5 | 5.56x 45mm | USA | The M16 assault rifle features a 20 shot magazine, supports both automatic and semiautomatic fire, has long range, has 8 spare |

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| | | | | | | | | NATO | | magazines of 5.56mm NATO ammunition and takes 5 seconds to reload.<br>The initial version was fielded by the US Armed Forces in the early 1960s. The early version which saw action in Vietnam only had a 20 round magazine. Reload time is increased to simulate the high risk of jamming. |
| **Colt Commando** | 20 | FA,SA | 2 | M | Medium | 8 | 5 | 5.56x45mm NATO | USA | The Colt Commando features a 20 shot magazine, supports both automatic and semiautomatic fire, has medium range,has 8 spare magazines of 5.56mm NATO ammunition and takes 5 seconds to reload..<br>A carbine version M16 assault rifle appeared under the name of CAR-15 in 1965, and was intended for the US Special Forces who fought in Vietnam. In mid-1967 Colt slightly upgraded the Commando by lengthening the barrel up to 11.5 inches, and this version was adopted as XM-177E2. |
| **M14 Rifle** | 20 | SA | 3 | M | Long | 8 | 3 | 7.62x51mm NATO | USA | **The M14 Rifle features a 20 shot magazine, has semiautomatic fire only, has long range, has 8 spare magazines of 7.62mm NATO ammunition and takes 3 seconds to reload..**<br>**The M14 Rifle was adopted by the US Military as the general issue rifle in 1957 until its replacement by the M16. Most M14 Rifles permitted semiautomatic fire only to avoid overheating the barrel.** |
| **M24 Sniper Rifle** | 6 | BA | 3 | 45 | Long | 20 | 3 | 7.62mmx51mm NATO | USA | **The M24 Sniper Rifle is a bolt action rifle with a 6 shot box, has long range, has 20 spare boxes of 7.62mm NATO ammunition takes 3 seconds to reload.**<br>**The Remington M24 is the standard sniper rifle in the US military. First shipments commenced in 1987.** |
| **Simonov Carbine** | 10 | SA | 2 | M | Long | 25 | 5 | 7.62x39m | Russia | **The Simonov Carbine has a 10 shot magazine and fires in semiautomatic only, has long** |

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| **SKS** | | | | | | | | | m Soviet | | **range, has 25 spares magazines of 7.62mm Soviet ammunition and takes 5 seconds to reload.**<br><br>**A very simple, easy to operate automatic loading carbine widely used in communist countries.** |
| **AK47/AKM** | 30 | FA,SA | 2 | | M | Medium | 6 | 3 | 7.62x39mm Soviet | Russia | **The AK47 assault rifle features a 30 shot magazine, supports both automatic and semiautomatic fire, has medium range, has 6 spare magazines of 7.62mm Soviet ammunition and takes 3 seconds to reload.**<br><br>**The Kalashnikov assault rifle, also known as the AK-47, or simply "the AK" is the most prolific small arm since WWII. The total number of the AK-type rifles made worldwide is estimated at 90+ million. This is a true legendary weapon, known for its extreme ruggedness, simplicity of operation and maintenance, and unsurpassed reliability even in worst conditions.** |
| **AK74** | 30 | FA,SA | 2 | | M | Long | 6 | 3 | 5.45x39mm | Russia | **The AK74 combat rifle features a 30 shot magazine, supports both automatic and semiautomatic fire, has long range, has 6 spare magazines of 5.45mm Russian ammunition and takes 3 seconds to reload.**<br><br>**At the present time the AK-74M, along with the earlier AK-74 and AKS-74 is the standard issue rifle of the Russian Army. The AK74 is a heavily updated AKM which uses a smaller caliber, high velocity round.** |
| **Dragunov SVD** | 10 | SA | | 3 | 30 | Long | 19 | 3 | 7.62x54 mm Rimmed | Russia | **The Dragunov sniper rifle has a 10 shot magazine and fires in semiautomatic only, has long range, has 19 spare 7.62mm Russian magazines and takes 3 seconds to reload.**<br><br>**In 1963 the SVD (Snaiperskaya Vintovka Dragunova) was accepted by the Soviet Military. The SVD has seen much action and** |

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| | | | | | | | | | | **passed all combat tests including service in Vietnam, Afghanistan and the Chechen conflict.** |
| **M-1903 Rifle** | 5 | BA | 3 | 30 | Long | 25 | 3 | .30in M1903 | USA | **The M-1903 is a bolt action rifle with a 5 shot box, has long range, has 25 spare .3 inch M1903 ammunition boxes and takes 3 seconds to reload.**<br><br>**The M1903 rifle is a manually operated, rotating bolt,. magazine fed rifle. M1903 saw service in WWI and WWII.** |
| **H&K G3** | 20 | FA,SA | 3 | 500 | Long | 8 | 3 | 7.62x51mm NATO | Germany | **The Heckler & Koch G3 assault rifle features a 20 shot magazine, is capable of fully automatic and semiautomatic fire, has long range, has 8 spare magazines of 7.62mm NATO ammunition and takes 3 seconds to reload.**<br><br>**In 1959 the Bundeswehr adopted the Heckler & Koch rifle as the G3. Until 1995 the G3 in various modifications served as a general issue shoulder weapon not only for German Armed forces, but also for many other countries.** |
| **M1 Garand** | 8 | SA | 3 | M | Long | 25 | 3 | .30 M1906 | USA | **The M1 Garand rifle features an 8 shot internal box, has semiautomatic fire only, has long range, has 25 spare .30 M1906 ammunition and takes 3 seconds reload.**<br><br>**M1 Garand was the most widely used semi-automatic rifle of WWII amongst US forces. The M1 Garand was also used in the Korean war and the early stages of the Vietnam war.** |
| **M1 Carbine** | 15 | SA | 2 | M | Medium | 12 | 3 | .30 M1906 | USA | **The M1 Carbine features a 15 shot magazine, has semiautomatic fire only, has medium range,has 12 spare .30 M1906 ammunition and takes 3 seconds reload.**<br><br>**Winchester delivered its first carbines to the US Military in July, 1942. During the period from 1942 till 1945 more than 6 million carbines were manufactured.** |

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| **M2 Carbine** | 30 | FA,SA | 2 | M | Medium | 6 | 3 | .30 M1906 | USA | **The M2 Carbine features a 30 shot magazine, fires both automatic and semiautomatic, has medium range, has 6 spare magazines of .30 M1906 ammunition and takes 3 seconds to reload**<br><br>**The M2 was an improved, selective-fire version of the M1. It also had a larger 30 round magazine. Its lack of effectiveness at long range was its primary drawback compared to many other assault rifles.** |
| **Lee-Enfield SMLE** | 10 | BA | 3 | 30 | Long | 19 | 3 | 0.303 Br | UK | **The Lee-Enfield SMLE is a bolt action rifle with a 10 shot box, has long range, has 19 spare .303 British ammunition boxes and takes 3 seconds to reload.**<br><br>**Various versions of the Short, Magazine, Lee-Enfield were issued to the British Army from 1903 to the mid 1950's. The weapon proved reliable and accurate with a high rate of fire for bolt action rifles of the period.** |
| **Mosin-Nagant Rifle** | 5 | BA | 4 | 30 | Long | 25 | 3 | 7.62x54mm R | Russia | **The Mosin-Nagant is a bolt action rifle with a 5 shot box, has long range, has 25 spare 7.62mm Soviet ammunition boxes and takes 3 seconds to reload.**<br><br>**The Mosin-Nagant rifle, known in Russia as a "Vintovka Mosina", was officially adopted for service by the Russian Tsar in 1891. Production of this rifle continued until 1948. The rifle in was the standard military arm of the Russian and the Red army for some 60 years.** |
| **Steyr AUG** | 30 | FA,SA | 2 | M | Long | 6 | 3 | 5.56mm NATO | Austria | **The Steyr AUG rifle features a 30 shot magazine, has both automatic and semiautomatic fire, has long range, has 6 spare magazines of 5.56mm NATO ammunition and takes 3 seconds to reload.**<br><br>**The Steyr (Armee Universal Gewehr – in other words the Universal Army Rifle) was adopted** |

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| | | | | | | | | | | **by the Austrian Army in 1977, as the Stg.77**<br><br>**The Steyr AUG has been used by many armed forces including Australia, Austria, New Zealand, Oman, Malaysia, Saudi Arabia and, Ireland.** |
| **FN-FAL/L1A1 SLR** | 20 | SA | 3 | M | Long | 10 | 3 | 7.62mm NATO | Belgium | **The FN FAL features a 20 shot magazine, has semiautomatic fire only, has long range, has 10 spare magazines of 7.62mm NATO ammunition and takes 3 seconds to reload.**<br><br>**The FN** Fusil Automatique Léger **(light automatic rifle) or** FAL **was first adopted as the C1 in 1955. Belgium adopted the rifle in 1956 and Britain in 1957 as an L1A1 SLR (Self-loading rifle). It is often issued with 4X SUIT optical scopes. The FN FAL was widely adopted until the 1990s.** |
| **L85A1-2 /SA80** | 30 | FA,SA | 2 | M | Long | 6 | 5 | 5.56mm NATO | UK | **The L85A1 combat rifle features a 30 shot magazine, fires both automatic and semiautomatic, has long range, has 6 spare magazines of 5.56mm NATO ammunition and takes 5 seconds to reload.**<br><br>**The British army adopted the L85A1 for the Falkland war in 1984. Originally L85A1s were quite unreliable and troublesome to handle and maintain. The long reload time reflects the high chance of stoppages.** |
| **H&K G36** | 30 | FA,SA | 2 | M | Long | 6 | 2 | 5.56mm NATO | Germany | **The Heckler & Koch G36 combat rifle features a 30 shot magazine, fires both automatic and semiautomatic, has long range, has 6 spare magazines of 5.56mm NATO ammunition and takes 2 seconds to reload.**<br><br>**The H & K G-36 is the service rifle of the German Armed Forces. It was adopted by the Bundeswehr in 1995 and the Spanish Army in 1999. The guns have a distinctive translucent plastic magazine which is fitted with studs to allow magazines to be clipped together easily** |

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| | | | | | | | | | | **which enables faster reloading. A 100-round drum magazine can also be attached.** |
| **MP-43 Mp-44 Stg.44** | 30 | FA,SA | 2 | 500 | Medium | 6 | 4 | 7.92x33 Kurtz | Germany | **The MP-43 assault rifle features a 30 shot magazine, fires both automatic and semiautomatic , has medium range, has 6 spare magazines and takes 4 seconds to reload.**<br><br>**The world's first assault rifle was developed in Hitlers' Germany during WW2. The total number of MP-43s, MP-44s and StG.44s produced was about 500 000. And these rifles proved very effective in combat.** |
| **Kar 98K** | 5 | BA | 4 | 30 | Long | 25 | 3 | 7.92x57mm Mauser M98 | Germany | **The Kar 98k is a bolt action rifle with a 5 shot box, has long range, has 25 spare 7.92 Mauser M98 ammunition boxes and takes 3 seconds to reload.**<br><br>**The Kar 98k was the standard German Army rifle of WWII. This Bolt Action Rifle while largely obsolete proved to be reliable and strong. Manufacturing of this rifle continued throughout the war.** |
| **Musket** | 1 | SS | 4 | 30 | Long | 30 | 19 | | | **This is typical example of a pre 20th century musket. It is capable of a maximum of firing 3 rounds per minute. It has long range for the period.** |

## 4.4 GUN CLASS #4 – Machine Guns

| Weapon | Magazine capacity | Fire Modes | Recoil | ROF | Range | Reloads | Reload Time | Ammo | Origin | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Morita** | 99 | FA,SA | 2 | 400 | Long | 6 | 10 | N/A | N/A | The Morita is the standard issue gaming gun representing a typical light machine gun from Battlefield Sports. The Morita has been in continuous manufacture since 2002. |
| **FN Minimi / M249** | 200 | FA | 2 | M | Long | 7 | 6 | 5.56x45mm NATO | Belgium | The Minimi light machine gun features a 200 shot belt, fires fully automatic only, has long range, has 7 spare belts of 5.56mm NATO ammunition, and takes 6 seconds reload.<br><br>The Minimi light machine gun was developed by FN Herstal. Mass production began in 1982 in Belgium. About the same time it was adopted by the US Armed forces as the M249 Squad Automatic Weapon (SAW). The Minimi is used by many western allied countries. The longer reload time reflects time it takes to let the barrel cool down and then change. |
| **M60 GPMG** | 100 | FA,SA | 2 | 550 | Long | 7 | 8 | 7.62x51mm NATO | USA | The M60 general purpose machine gun features a 100 shot belt, fires both fully automatic and semiautomatic, has long range, has 7 spare belts of 7.62mm NATO ammunition and takes 8 seconds to reload.<br><br>The M60 machine gun was designed in the late 1940's based on the German MG42. The M60 was adopted by the US military in 1950. The longer reload time reflects the time it takes to let barrel cool down and the awkward barrel change as well as the general poor reliability of the M60. |
| **RPD/Type 56 LMG** | 100 | FA | 2 | M | Long | 7 | 12 | 7.62x39 mm Soviet | Russia | The RPD light machine gun features a 100 shot drum, fires fully automatic only, has long range, has 7 spare drums of 7.62mm M1943 Soviet ammunition and takes 12 seconds to reload.<br><br>The RPD was the standard light machine gun of |

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| | | | | | | | | | | Soviet army since the early 1950s till the 1960s. It was widely exported to many pro-Soviet countries and regimes around the world. The Chinese made a copy called the Type 56 LMG. The longer reload time reflects time it takes to let the barrel cool down. |
| **RPK LMG** | 40 | FA | 2 | M | Long | 9 | 6 | 7.62x39 mm Soviet | Russia | The RPK light machine gun features a 40 shot box, fires fully automatic only, has long range, has 9 spare boxes of 7.62mm M1943 Soviet ammunition and takes 6 seconds to reload.<br><br>The RPK became the standard issue LMG of the Red Army from the early 1960's. The RPK is an AK assault rifle modified with a sturdier receiver, a heavier and longer, non detachable barrel, and a re-contoured wooden stock. The non detachable, folding bi-pod is mounted under the muzzle. The longer reload time reflects time it takes to let the barrel cool down. |
| **RPK 74 LMG** | 45 | FA,SA | 2 | 600 | Long | 8 | 8 | 5.45x39mm Soviet | Russia | The RPK-74 light machine gun features a 45 shot Magazine, fires both fully automatic and semiautomatic, has long range, has 8 spare Magazines of 5.45mm Russian ammunition and takes 8 seconds to reload.<br><br>The RPK-74 is the standard issue light machine gun of the Soviet/Russian army since the late 1970's. It is the LMG version of the AK74 combat rifle. The longer reload time reflects time it takes to let the barrel cool down and then change. |
| **M1919A4 MMG** | 250 | FA | 2 | 500 | Long | 4 | 12 | .30in M1906 | USA | The M1919A4 medium machine gun features a 250 shot magazine, fires fully automatic only, has long range, has 4 spare boxes of .30inch M1906 ammunition and takes 12 seconds to reload.<br><br>The Browning Machine Guns were adopted by the US Military as the M1917. The 1919A4 was virtually the standard US medium machine |

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| | | | | | | | | | | | gun of WWII. |
| **M-1918A2 BAR** | 20 | FA | 2 | | 450 | Long | 15 | 4 | 0.30in M1906 | USA | The BAR automatic rifle features a 20 shot magazine, fires fully automatic only, has long range, has 15 spare .30inch M1906 ammunition and takes 4 seconds to reload.<br><br>The M1918A2 BAR filled a Squad Automatic Weapon role with the US troops during WWII and later in the Korean War. The limited 20 round magazine meant it was under powered as a Light Machine Gun. |
| **Maxim MG08 MMG** | 250 | FA | 2 | | 450 | Long | 4 | 12 | 7.92x57mm Mauser | Germany | The Maxim Medium Machine Gun features a 250 shot belt, fires fully automatic only, has long range, has 4 spare belts of 7.92 Mauser ammunition and takes 12 seconds to reload.<br><br>The Maxim was widely used in WWI by the German Army. It was a heavy duty water cooled machine gun capable of long and sustained fire. But it was very heavy. |
| **Degtyarev DP LMG** | 47 | FA | | 2 | 600 | Long | 10 | 8 | 7.62X54 R Soviet | Russia | The Degtyarev Light Machine Gun features a 47 shot drum, fires fully automatic only, has long range, has 8 belts of 7.62mm Soviet ammunition and takes 10 seconds to reload.<br><br>Adopted by the Red Army in 1928 it remained the Soviet Union's standard issue LMG until the 1950's. The DP and the DPM (Modernized) LMG's were widely exported to Soviet-friendly countries. |
| **DShK M1938 HMG** | 50 | FA | 2 | | 550 | Long | 9 | 4 | 12.7x107 mm | Russia | The DShK M1938 Heavy Machine Gun features a 50 shot belt, fires fully automatic only, has long range, has 9 belts of 12.7mm Soviet ammunition and takes 4 seconds to reload.<br><br>This was the standard issue heavy machine gun in the Soviet Union throughout WWII. And was also widely used in the Korean war. After WWII, the weapon was widely distributed to Warsaw Pact countries. The 12.7mm (.50) AP bullets used can pierce 15mm armor plate at |

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| | | | | | | | | | | 500yards. |
| **Lewis Mk1 LMG** | 47 | FA | 2 | 550 | Medium | 10 | 12 | .303in British | UK | The Lewis Light Machine Gun features a 47 shot pan, fires fully automatic only, has medium range, has 10 belts of .303in British ammunition and takes 12 seconds to reload.<br><br>The Lewis gun was the first light machine gun used extensively in war. It saw action throughout WWI and some saw action in WWII with the British Army. A careful reload process is required to avoid accidental discharge and frequent stoppages are reflected in its long reload time. |
| **Bren MkII LMG** | 30 | FA | 2 | 500 | Long | 11 | 8 | .303in British | UK | The Bren Light Machine Gun features a 30 shot magazine, fires fully automatic only, has long range, has 11 magazines of .303inch British ammunition and takes 8 seconds to reload.<br><br>The designation BREN stands for (BRno-ENfield). Manufacture of the Bren Mk.1 began in Enfield in the United Kingdom in 1937. The Bren was widely used by Commonwealth countries. |
| **Vickers Mk 1 MMG** | 250 | FA | 2 | 450 | Long | 4 | 10 | .303in British | UK | The Vickers Medium Machine Gun features a 250 shot belt, fires fully automatic only, has long range, has 4 belts of .303inch British ammunition and takes 10 seconds to reload.<br><br>This machine gun was adopted by the British army in 1912 and remained the standard support fire machine gun until the mid 1960's. It is a heavy slow firing weapon that proved very reliable. The water cooled barrel ensured a long barrel life. |
| **MG42 LMG** | 50 | FA | 2 | M | Long | 9 | 8 | 7.92x57mm Mauser | Germany | The MG42 Light Machine Gun features a 50 shot belt, fires fully automatic only, has long range, has 9 belts of 7.92 Mauser ammunition and takes 8 seconds to reload.<br><br>One of the best machine guns of WWII, it was |

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|---|---|
| | the standard issue German LMG. Modified versions of the MG42 are today still in production. |

Reload time on Machine Gun takes into account barrel cool down. Most machine guns have low recoil values reflecting their usual mounting on a bipod or tripod.

# 5 Appendix – Recommend Weapon Emulations by Model

Battlefield Sports recommends that gamers are restricted in what they configure their gaming gun too. It's important to retain game balance and the principle of what you see is what you get is maintained. Certain Live Plays specify particular models and when they do, that takes precedence over this list.

| BATTLEFIELD SPORTS' MODEL | ALLOWABLE WEAPONS |
|---|---|
| **SCORPION / COBRA** | Scorpion,MP5 (not SD),M-3 Grease Gun, Owen SMG, Sten Mark 2, P38/40, P18, MAT 49-20, MAT 49-32, PPS-43 |
| **SPITFIRE** | Any Hand Gun, MP5,UZI (preferred),M-3 Grease Gun, Owen SMG, Sten Mark 2, MP38/40, MP18,MAT 49-20 |
| **P90** | FN P90, MP28-50,PPsch-41 |
| **COMMANDO** | Commando, Colt Commando, AK47/AKM, M1 Carbine, M2 Carbine, MP-43, MP-44, Stg 44 |
| **PULSE RIFLE** | Pulse Rifle, M16A2, M16A1 – 1970, M16-1967, M14 Rifle, Simonov Carbine SKS, AK74, M1903 Rifle<br>H&K G3, M1 Garand, Lee-Enfield SMLE, Mosin-Nagant Rifle, Steyr AUG, FN-FAL / L1A1 SLR<br>L85A1-2/SA80, H&K G36, Kar 98K |
| **MORITA SAW** | M60, RPD,RPK, RPK 74, M-1918A2 BAR, Degtyarev DP LMG, Lewis Mk1 LMG, Bren MkII LMG<br>Vickers Mk 1 MMG, MG42 LMG |
| **MORITA SNIPER** | M24 Sniper Rifle, Dragunov SVD |
| **M16** | M16A2, M16A1 – 1970, M16-1967, M14 Rifle |
| **M4** | Commando, Colt Commando (preferred), AK47/AKM, M1 Carbine, M2 Carbine, MP-43, MP-44, Stg 44 |
| **M9 SABER PISTOL** | Any hand gun |

# 6 TROUBLE SHOOTING

## 6.1 A Gaming Gun will not hit another one! (BATTLE/GAME)

- The first thing to check is to make sure both the shooting gaming gun and the target gaming gun are on the same "Battle" (the term "**Game**" is used with Laser Tag sound effects). SATR is designed to allow one battle/game to be isolated from another battle/game so that radio and infrared messages between battles/games is prevented. Four separate battles/games are supported. By default Battle/Game 1 is used.

- To check what battle the gaming gun is set on:
  - Turn the gaming gun off, then on again with the key.
  - Pull the trigger and then look at the display
  - As the gun says "mission start" the display will show on the first line "countdown" and on the second line "battle 1." If this "battle 2" or "battle 3" or "battle 4" you are on the wrong battle.

To return the gaming gun back to Battle 1:

OPTION 1: Use the Set Battle function on the master controller

OPTION 2: Use the Target Reset function on the master controller to reset all the settings except language but including battle back to factory defaults.

OPTION 3: Use the menus accessible upon initial boot through the right button (black) and scroll through to "Battle" and change this value to 1.

## 6.2 A Gaming Gun will not hit another one! (FRIENDLY FIRE OFF)

Often friendly fire is turned off by assigning gaming guns to teams. The result is a gaming gun on team A cannot hit another gaming gun on team A, similarly for team B. Gaming guns not assigned to a team do not work properly with gaming guns assigned to a team.

Assigning gaming guns to teams is common practice and recommended for most civilian groups. However the referees need to be careful that they have assigned the gaming guns to the right team. When in doubt check the LCD while the gaming gun is in ready state. The last character on the 3rd line indicates the team (A means team A, B means teams B and X means not assigned to a team). The best way to assign gaming guns to teams is to move each team into their form up position and then use the Set/Chg Team functions on the master controller to configure each team independently. It is recommended the team function be set before each game in case the gamers have changed gaming gun during the break.

Instead of the master controller, teams can be also be configured during the initial boot process. Use the right button immediately after turning the gaming gun on with the key and then scroll through the menus using the trigger until you get to "Battle Modes". Then use the left or right buttons to select the right team or indeed turn friendly fire on before using the trigger to work through the rest of the menu options.

## 6.3 A Gaming Gun will not hit another one! (FLAT BATTERY)

The next thing to check is IF the battery is flat. Remember new gaming guns come with unconditioned batteries which must be conditioned before use. Conditioning involves performing a complete charge, discharge and full charge again.

To check the current voltage turn the gaming gun on with the key to see to voltage displayed on the 3rd line.

The gaming guns should work to down till around 5.5V. If the voltage is low, the LCD turns off.

If the gaming guns get too low, simply connect the gaming gun on the charger. Remember the maximum power for recharging is 1amp.

## 6.4 A Gaming Gun will not hit another one! (DON'T KNOW WHY!)

There can be a few causes for this.

Use the target reset function on the Master Controller to shoot all gaming guns and then re-try, this will correct any software settings that may cause the gaming gun not to take hits.

The first thing to check is to make sure both the shooting gun and the target gun are on the same "Battle".

Gaming guns on a different battle cannot be hit or hit another gaming gun in a different battle

The next thing to check is that all the gaming guns are configured as "Friendly Fire ON" (see 6.2 above).

It is a good idea to use the sensor test function on the master controller to ensure the target gaming gun is accepting infrared messages.

Make sure also the shooting gaming gun has a well zeroed scope.

If all else fails turn the gaming gun off, wait, then on again and see if it fixes the problem.

If all of the above fails to fix the problem, then try changing the head sensor with one from your spares kit.

**My Master Controller radio functions have no effect.**

The most likely reason for this is the Master Controller is configured to be on a different battle/game to the gaming guns. Reboot the gaming gun and go through the menus access by the mode button to change the battle to the same as the target gaming guns.

**The hit light can be seen but is dim all the time**

This means there is moisture in the sensor. However this should not cause any problem, the sensor will continue to work normally in all other respects. The dim light will disappear when the sensor has chance to dry.

**We used 2 way radios that had been rented and the hit feedback hardly worked**

This is most likely due to using a radio that intrudes into the same frequency as SATR uses for the hit feedback. Radio systems near the 433mhz band should not be used when SATR is being used in the same vicinity. SATR is very RF friendly to other devices, if the channel is busy, it will not transmit and therefore all radio functions including hit feedback will cease. Infrared functions like shooting will continue to work without the hit feedback.

**The LCD is blank yet the gaming gun appears to be working?**

This nearly always means the battery is running flat. The LCD will be the first thing to stop functioning when the battery is low.

**My gaming gun will not toggle between automatic and semi-automatic fire**

This is usually because the weapon emulation chosen does not support two modes of fire, refer to APPENDIX A – SATR Weapon Chart.

**My gaming gun re-boots sometimes during play**

This means there is some fault with the power supply, the gaming gun main board is not getting continuous power. Check all connections and if needed try replacing the battery.

## *6.5 What are the recommended range settings?*

The range of a gaming gun is determined by the range configured by the user and also the type of lens assembly used. A lens with a long focal length such as found on the Morita model, causes the beam be tightly focused increasing the range but making it necessary for the shooter to be more accurate. The diameter of the lens impacts the amount of infrared light collected by the lens and re-focused into a beam.

| Gaming Gun Model | Lens assembly | Range Effect | Beam width |
|---|---|---|---|
| **Morita Sniper or SAW** | 50mm lens with 165mm focal length | Very long | Narrow |
| **M16 and M4** | Some M16 and M4 use the same lens as the Morita model (very long), however the most commonly they have 50mm lens and a 100mm focal length | Long | Standard |
| **Pulse Rifle** | 50mm lens with 100mm focal length | Long | Standard |
| **Commando 2004 edition** | 50mm lens with 165mm focal length | Very Long | Narrow |
| **Commando 2005 onwards** | 50mm lens with 100mm focal length | Long | Standard |
| **Scorpion** | 40mm lens with 100mm focal length | Medium | Standard |
| **Spitfire 2009+ edition** | 40mm lens with 100mm focal length | Medium | Standard |
| **Spitfire 2002-2008** | 25mm lens with 75mm focal length | Short | Wide |

The software settings establish how much current flow goes to the infrared LED -- the more current; the longer its range. The range categories in ascending power are indoor (set by using the indoor mode), short, medium and long. To minimise infrared bounce and sometimes to provide game balance between different weapons, ranges other than long are sometimes appropriate.

Spitfires built before 2009, should use the range override to set them to long range in all conditions except tight indoor settings.

| Terrain | Recommend range settings |
|---|---|
| **Indoor with line of sight generally less than 30 metres** | Indoor (except Spitfire 2002-2008 use short) |
| **Indoor with line of sight over 30 metres** | Short |
| **Jungle, medium forest and dense forest** | Weapon Defaults |
| **Light Forest, open or outdoor urban** | Long |

## *6.6 How do I zero my Gaming Gun?*

Battlefield Sports recommends that each gaming gun needs to be zeroed once per week. SATR requires the scope to be better zeroed then the classic system so that the sensor receives a clear error free digital signal.

Zeroing is best done with an infrared camera connected to a black/white monitor. A target sheet showing the distance above the beam the red dot or cross hair should be located is available for download from the online BFSU. The most important thing to take into account is that the scope is above the lens assembly where the infrared beam comes out, therefore the scope must be zeroed to be this distance above the beam and when a gamer is aiming they also need to aim this much above the sensor.

# 7 Glossary

| *Term* | *Definition* |
|---|---|
| *A Zeroed gaming gun* | *A gun that shoots accurately on first trigger pull when correctly aimed. The gun is hitting the target indicated by the Red Dot or Cross Hair scopes by aiming above the sensors the same distance the lens is below the scope* |
| *AO* | ***A**rea of **O**peration. This has a military term and can be used in situations where it is clearly explained to the customer or where the group is familiar with the term – this is the area of play bounded by defined boundaries* |
| *Battlefield LIVE* | *Live combat simulation game directed at Teen and adult gamers & Corporate events.* |
| *Beginner's LIVE-Play* | *Introductory mission that has simple objectives and rules with lots of re-spawns* |
| ***BFSU*** | *Battlefield Sports University. This is online and is password protected for access by field owners.* |
| *Check list* | *A list of equipment, materials and/or actions required on a post for the staff member to check off each time it is done to ensure nothing is missed* |
| *Clan War* | *Tournament played for trophies and/or prizes aimed at veteran players (those who have played more than 20 times)* |
| *Configuring a Gaming Gun* | *Using the display to set up a gun with various "lives", "sounds" and delays (refer to the Equipment Handling Procedure)* |
| *Death Match* | *This is a session where players make up two teams. There are Unlimited re-spawns & a set time. The team with the least number of re-spawns WINS!* |
| *Family Fun Session* | *A session for primary school aged children and their Parents, or carers, played in 15 minute game increments* |
| *Hit* | *A hit is when a player's sensors are hit by another player's fire. It registers an "ouch" each time and reduces the hit point counter by 1* |
| *Laser Skirmish* | *A brand of outdoor army games of 15 minute duration run for Primary School age children's birthday parties & their parents* |
| *Laser Tag* | *A more sci-fi theme aimed at home birthday parties and Vacation Care events or any polictically sensitive group. Do not use the terms "shooting" or "combat" or "gaming gun" when dealing with a Laser Tag event.* |
| *Live-Play* | *The script for a live action scenario, including mission objectives, descriptions of scenes, conceptual situation maps and props (such as which gaming guns will be used), and if relevant, team backgrounds. Live-Play is a combination of theme and plot usually with specific mission objectives for the teams involved. A typical Live-Play includes victory conditions, suitable terrain, length of game, hit points, re-spawns and sometimes special rules and weapons.* |
| *Live-Play Briefing* | *The C.O. briefs the gamers on gaming gun operation, safety rules, and the missions to be played in a particular session.* |
| *Live-Play C.O.* | *A C.O. stands for Commanding Officer, this is a trained Staff Member who oversees operations from the time of leaving the warehouse to return to the warehouse and which is for under 100 players and up to 3 other Staff* |
| *LMG* | *Short for "light machine gun", generally air cooled machine guns that can be carried and utilized at the squad level by infantry. LMG's are usually bipod mounted. LMG's are prone to overheating and therefore cannot sustain continuous fire for extended periods.* |
| *Private Session* | *This is a session strictly for the client and their guests and is at a time and place of their determination* |
| *Public Session* | *A site where regular games are scheduled & held at regular and fixed times and open for several different groups to book into* |
| *Referee or N.C.O* | *N.C.O. stands for Non-Commissioned Officer - a trained or in training, staff member who assists the C.O. run the event* |
| *Re-spawn* | *This is a function by a referee in the session whereby a player's hit points are restored by use of a special gun or key. After re-spawning, a player can continue the game and in a Death Match it is the number of re-spawnings which determines the game outcome. The lower number of re-spawnings is the winner* |
| *Valuable Final Product (VFP)* | *This is the product produced by a staff member at his/her post. It is a "thing" not just something one does. As a staff member we get paid, receive support and reward & satisfaction from the job. In return for that we do not simply do things. We actually produce a final recognisable product that is at least equal in value to what we receive. For example there could be the idea that one is paid to be a Referee – in actual fact we are paid for a well refereed game or a safe, enjoyable and fair game. It must be something which one knows one actually "got" as a result of what one "did".* |
| *Veteran* | *A gamer who has played more than 20 times. These guys are generally not allowed to book into a "Beginners" session, otherwise they will smash the newbies.* |

# 8 Laser Tag Terminology

In SATR different terms are used on the display and also on spoken sound effects when the sound scheme is set to "Laser Tag". Here is how to translate between normal modes and Laser Tag modes.

| Standard Term | Laser Tag Alternative |
|---|---|
| **Shoot** | Tag |
| **Kill** | Deactivate |
| **Dead Already** | Deactivated Already |
| **Weapon** | Phaser |
| **Submachine gun** | Small Phaser |
| **Rifle** | Medium Phaser |
| **Hand Gun** | Tiny Phaser |
| **Machinegun** | Large Phaser |
| **Spawn** | Reactivate |
| **Gun** | Phaser |
| **Firing** | Tagging |
| **Dead** | Deactivated |
| **Wound** | Tagged |
| **Hit** | Tag |
| **Battle** | Game |
| **Mission** | Game |
| **Reloading** | Charging |
| **Magazine** | Charge |
| **Reload** | Charge |
| **Gaming Gun** | Phaser |
| **READY DISPLAY LETTERS** | |
| **H** | T |
| **K** | D |
| **A (top line)** | C |

# 9 WEEE Regulations & Recycling

Discarded electric appliances are recyclable and should not be discarded in domestic waste. Please actively support us in conserving resources and protecting the environment by returning this applicant to collect centers, if available.