



**LASERFORCE BATTLESUIT**

**USER MANUAL**

## **FCC INFORMATION**

### **Information to the user (FCC Part 15.105)**

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Modification Warning (FCC Part 15.21)**

Warning: Any changes or modifications not expressly approved by Laserforce International could void the user's authority to operate this equipment.

## **BATTLE SUIT**

Each Laserforce Battlesuit consists of five major parts. These are the:

1. Chestpack
2. Phaser unit
3. Shoulder units
4. Back unit
5. Vest chassis

### **Chestpack**

Purpose: The chestpack contains the Main Controller Board (MCB), which is the heart and brains of the Battlesuit - it is effectively a mini wireless computer. Its major functions are:

- Setting and identifying the colour of the player by the visible LED's.
- Housing the radio transceiver (located on the MCB).
- Housing the main MCB board.
- Housing the main power connector that is used for turning the suit on and off.

The radio provides a wireless communications link between the Battlesuit and the computer. Amongst other things, it communicates with the computer to record hits on or by other Battlesuits. The radio is built into the MCB.

The MCB board has embedded programmed Integrated Circuit (IC) chips. The MCB board controls all aspects of the suit function. The MCB can be updated with new programs by firmware update via the radio link or Over-The-Air (OTA).

The MCB also has an SD card slot. The SD card contains the Battlesuit sounds, graphics and backup firmware files.

### **Phaser Unit**

The phaser has many sub-components internal to the phaser being:

1. Lens
2. Forward special features button
3. Forward microswitch
4. Two hand detect metal shields
5. Phaser PCB
6. Laser diodes (2)
7. Optical chamber
8. Trigger microswitch
9. Trigger
10. RJ45 wiring assembly

11. Tamper plate
12. RJ45 locking plate

Purpose: The phaser has the following purposes:

- Identifying the colour of the player by the visible LED's.
- Housing infrared (IR) emitters to act as a hit zone for the players.
- Housing the infrared receiver that records hits on all other players and field devices.
- Housing the laser diodes that acts as a special visual effect and also is used as an aiming point.
- Housing the anti-vandalism accelerometer.

The phasers are supplied with the two-hand safety feature enabled. This means that the phaser will not fire unless the forward hand grip is held when the main rear trigger is pulled. This forces players to keep both hands on the phaser and generally makes the game much safer.

The phaser board in the phaser unit controls the IR receiver, IR emitters, lasers, muzzle flash, special feature button and the visible LEDs.

The IR receiver is located to the rear of the lens, which is located in the forward part of the phaser barrel. It receives the IR from other Battlesuits and targets.

Important: the phaser does not fire a beam, it receives infrared from the Battlesuit at which it is being aimed. When a phaser receives a signal it lets the player know via the beeping lock-on tone.

The phaser has a 2.5x lens located 41 mm from the sensor (in the centre slot). This magnifies and focuses the IR onto the IR receiver.

The phaser is fitted with low-power laser diodes that fire a thin beam for 0.2 seconds when the trigger is pulled (or when the trigger is held down during rapid fire). The laser is purely a visual effect. Many players will use the beam to help with their aim.

### **Shoulder Units**

Purpose: The shoulder units have the purpose of:

- Housing the speakers to provide sound to the player.
- Identifying the colour of the player by the visible LED's.
- Housing infrared (IR) emitters to act as a hit zone for the players.

The shoulders contain the speakers, visible LED's and the target infrared (IR) LED's. Care should be taken that these are not damaged or knocked out of alignment when working on the unit or removing or replacing the plastic cover.

Generally the shoulder units require little maintenance. The most likely failure will be the speaker or the wiring leading into the shoulder unit.

### **Back Unit**

Purpose: The back unit has the purpose of:

- Housing infrared (IR) emitters to act as a hit zone for the players.
- Identifying the colour of the player by the visible LED's.
- Houses the 12.8V 3.2Ah battery that provides all the power for the Battlesuit

The battery unit resides at the back of the Battlesuit. The plastic battery cover is retained on the unit by a locking tab and a spring clip. The battery is held in place by lugs and spring clips.

The back unit also contains a circuit board on which is mounted visible and IR LEDs. Care should be taken that these are not damaged or knocked out of alignment when removing or replacing the plastic cover.

### **Vest Chassis**

The vest chassis consists of the woven nylon mesh, the adjustable straps and the conduit containing the internal wiring.