

# Technical Specification of LaserVenture Products

## General

### System Software

The programs used for controlling **LaserVenture** products are written in **Borland Delphi**. This ensure compatability with all Windows platforms (from W98 upwards).

### Electronics Build

**LaserVenture** sub-assemblies are built by machine using a Versatronics RV1 pick-and-place machine, which precisely mounts the component resistors, capacitors, integrated circuits etc. Assembled PCBs are then cured in an infra-red oven.

After being loaded with the system firmware, completed PCB assemblies go through a number of test routine to ensure 100% functional integrity.

### Plastics Build

Plastic piece parts for **LaserVenture** products are moulded on a **Clarke 750** vacuum forming machine. Moulded parts are then machined to the correct finished size.

Clear parts are moulded from PETG ( Polyethylene Terephthalate Glycol )  
Textured black parts are moulded from ABS (Acrylonitrile Butadiene Styrene )

Unmoulded parts are machined from stock on one or two of Micromat MM470 CNC drilling/milling machines. Materials used include the above two, plus also Tufnol, GRP (Glass Reinforced Plastic) and various fibrous materials.

### Firmware Upgrades

Most **LaserVenture** products are based on the Atmel 89C51ED2 processor, allowing in-system firmware up-grading at will, using our ISP adaptor and ISP.EXE.

### Counry Of Manufacture

All **LaserVenture** products are manufactured entirely in England (United Kingdom) in our workshops in **Rye, East Sussex**.

# Products

## Crystallite Real-Time LaserTag System

Maximum Number of Packs per system	<b>80</b>
Maximum Number of Radio-Linked Intelligent Targets per system	<b>16</b>

### Laser

Class 1 red laser to international approvals (< 1.0 milliwatt radiation). This is acknowledged as being totally safe under all circumstances of use.

### Radio Link

- Operating frequency – 868 bands and 920MHz bands using pre-approved LPRS transceiver modules
- 400 MHz band also available for extended range, especially outdoor use
- Over air data rate - 20 kbits/second
- Pack Poll rate - 4 packs per second
- PC comms data rate - 19200 baud

Real-Time data is available on a continual basis. A 12 pack system is fully polled every 3 seconds, a 30 pack system is fully polled every 10 seconds.

### Packs

- Number of IR Sensors - Phaser 4, Vest 8
- Illuminated LCD Display - Yes
- Shoulder Sensor Modules - Yes
- 6 channel Vest Display - Yes
- 4 channel Shoulder Display
- Charging - **6 channel chargers**
- Battery - 6 x AA 2000 mAH **NimH** packs
- Battery Life - up to **20 hours**
- Battery saving circuitry and firmware - **Yes**
- Stainless Steel fixings - **Yes**
- Easy service access - **Yes** (a few seconds)
- Pluggable IR emitter - **Yes**
- Pluggable laser module - **Yes**
- Pluggable speaker - **Yes**
- Lightweight (approx 2.5kg) - **Yes**

## AtriumPlus Operating Software

• Licence-free	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Score Monitor Option	-	<b>Yes</b>
• Management Data Files	-	<b>Yes</b>
• Editable Player Aliases	-	<b>Yes</b>
• Editable Rank Messages	-	<b>Yes</b>
• Individual Player Handicaps	-	<b>Yes</b>
• 1000 editable Handicaps	-	<b>Yes</b>
• Multiple Game Plans	-	<b>Yes</b>
• Multiple Booking Screens	-	<b>Up to 6</b>
• Fast Track (single button) Gameplay	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Multiple Music Playlists	-	<b>Yes</b>
• Automatic Score Form Printing	-	<b>Yes</b>
• Option to Import Player Data	-	<b>Yes</b>
• Comprehensive Help File	-	<b>Yes</b>

**AtriumPlus** is available for evaluation from our Downloads Page at <http://www.laserventure.com/downloads-page.htm>

## Crystallite System Contents

- Crystallite Packs - Phaser and Vest
- Storage Hangers
- Chargers (1 per 6 packs)
- PC Interface
- Arena Transceiver
- 20m Cat5 data cable
- Mini-ITs (Small Intelligent Target)
- Intelligent Targets (Optional)
- System Software (Downloadable without fee)

## Other Requirements

- PC
- Monitor
- Second Monitor if score monitor is required
- If score monitor is required, then PC requires a dual monitor video card
- Smoke Machine
- Sound System

## Other Crystallite System Products

- **Vest Hanging Rack** - This is 0.45 m long and is affixed to the wall of the vesting room by two 90mm screws. The wall plate is trimmed with a textured ABS cover. The hanging post itself is clad with heat-shrink sleeving. The purposes of this is to make the rack wipe-clean so that perspiration can easily be cleaned off.
- **Six Channel Charger** – This product is used to charge Crystallite packs and will charge up to 6 packs. The chargers operate on 15v DC input from CE/UL approved power supply. The construction of the charger is using a diecast aluminium case with a clear PETG front panel
- **Intelligent Target** – This is a wall-mounted unit used in the arena to act as a recharge station or for up to 14 other purposes. It operates from 12v DC, supplied by a CE/UL approved power supply. Appropriate power cables for the country in question are supplied with all power supplies. The Intelligent Target is mounted on a machine ABC wall plate and has a clear PETG cover.
- **Mini-IT** – This is a small version of the Intelligent Target (described above) and provides limited but very useful functionality, acting as a recharge station, mine etc. It is housed in an ABS case and is mounted on a wall mounting ball-joint. The wall mount is steel and the ball of the joint is phenolic resin. The Mini-IT operates from 12v DC, supplied by a CE/UL approved power supply. Appropriate power cables for the country in question are supplied with all power supplies.
- **Home Base Target** – The Home Base Target is a more recent version of the Intelligent target, with the additional feature of radio-linked scoring. It can be used for all the features of the Intelligent target and Mini-IT, but also features a 100mm twin-team count-down display, allowing sophisticated team games to be played. The Home Base Target operates from 12v DC, supplied by a CE/UL approved power supply. Appropriate power cables for the country in question are supplied with all power supplies. Casing is as for the Intelligent Target.



## LaserMaze “Mission Impossible” style obstacle game

# Lasers+Receivers per standard system	-	<b>16</b>
Maximum Number of Lasers+Receivers per system	-	<b>32</b>

### Laser

Class 3R red laser to international approvals (< 5.0 milliwatt radiation) – Risk Assessment available from our downloads page:

<http://www.laserverventure.com/downloads-page.htm>

### PinPoint Operating Software

• Licence-free	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Score Monitor Option	-	<b>Yes</b>
• Management Data Files	-	<b>Yes</b>
• Editable Player Aliases	-	<b>Yes</b>
• 1000 + editable Gameplans	-	<b>Yes</b>
• Fast Track (single button) Gameplay	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Multiple Music Playlists	-	<b>Yes</b>
• Automatic Score Form Printing	-	<b>Yes</b>
• Comprehensive Help File	-	<b>Yes</b>

### LaserMaze System Contents

• Laser+Reciver modules	-	<b>typically 16</b>
• Laser Group Box	-	<b>1</b>
• Receiver Group Box	-	<b>1</b>
• PC Interface	-	<b>1</b>
• Power Supply	-	<b>1</b>
• 5m Cat5 data cable	-	<b>2</b>
• 10m Cat5 data cable	-	<b>1</b>
• 4 core data cable	-	<b>100m</b>
• RJ11 connector	-	<b>100</b>
• Cable Tool	-	<b>1</b>
• Cable Tester	-	<b>1</b>
• System Software (Downloadable without fee)		

**PinPoint** is available for evaluation from our Downloads Page at

<http://www.laserverventure.com/downloads-page.htm>

## **Other Requirements**

- PC
- Monitor
- Second Monitor if score monitor is required
- If score monitor is required, then PC requires a dual monitor video card
- Smoke Machine
- Sound System

## **CTarget Target Game**

Maximum number of Targets	-	<b>20</b>
Maximum Number of Phasers	-	<b>12</b>

## **CTarget Operating Software**

• Licence-free	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Management Data Files	-	<b>Yes</b>
• Editable Player Aliases	-	<b>Yes</b>
• Editable Gameplans	-	<b>Yes</b>
• Fast Track (single button) Gameplay	-	<b>Yes</b>
• Free lifetime upgrades	-	<b>Yes</b>
• Multiple Music Playlists	-	<b>Yes</b>
• Automatic Score Form Printing	-	<b>Yes</b>
• Comprehensive Help File	-	<b>Yes</b>

## **CTarget System Contents**

• Targets	-	<b>typically 12</b>
• Phasers	-	<b>typically 4 or 6</b>
• PC Interface	-	<b>1</b>
• Power Supply	-	<b>1</b>
• 1m Cat5 data cable	-	<b>1 per target</b>
• 10m Cat5 data cable	-	<b>2</b>
• System Software (Downloadable without fee)		

**CTarget** is available for evaluation from our Downloads Page at <http://www.laserverture.com/downloads-page.htm>