# PRO-1500G

# USER MANUAL

**Please read this manual carefully before use!**

# I

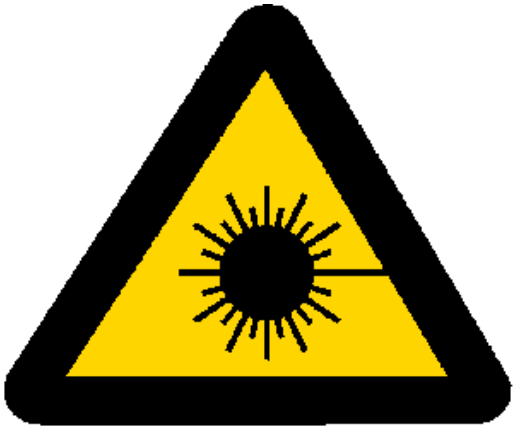
# Table of contents



## Checking Parts

Please check if the following parts are included:

1 x PRO-1500G Laser
1 x Power cable
1 x User manual



**DANGER LASER RADIATION!**

Avoid direct eye exposure!
Laser radiation can cause eye damage and/or skin damage
All protective measures for a safe operation of this laser must be applied.

## 1. SAFETY INSTRUCTIONS

- If the device has been exposed to drastic temperature fluctuation, do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.

1. The laser must only be used for shows. The operation is only allowed if it is controlled by a skilled and well-trained operator.

- Never leave this device running unattended and keep it away from children and unauthorized persons.

2. Keep away from heaters and other heating sources. In order to safeguard sufficient ventilation, leave 50 cm of free space around the device.

3. Never direct the laser beam to people or animals.

4. CAUTION LASER DIODE: Never unscrew the housing!
   There are no serviceable parts inside the device. Maintenance and service operations shall only be carried out by authorized dealers.

5. Always disconnect from the mains when the device is not in use or before cleaning it.

- **HEALTH HAZARD! Never look directly into the light source, as sensitive persons may suffer an epileptic shock!**

# 2. OPERATING DETERMINATIONS

6. The operator has to make sure that laser radiation – also reflected laser radiation –higher than the highest allowed level is avoided by technical or organisational measures.

7. Make sure that the used voltage is : AC 220V~240V, 50/60Hz

8. If the device is used in a flying installation, the mounting brackets and an appropriate safety-rope must be fixed.

9. Laser effects are not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.

10. In some countries, the operator must notify the accidence insurance and the authority for industrial safety, before operating a laser. For more information, contact the relevant authorities.

11. Please consider that unauthorized modifications on the device are forbidden due to safety reasons!

12. If this device will be operated in any way differently than described in this manual, the product may suffer damages and the guarantee becomes void. Furthermore, any other operation may lead to dangers like short-circuit, burns, electric shock, etc.

## 1. Open the box for checking

In order to use this product safety and reasonable for the users, please read over this manual carefully before use and the operation must strictly according to this manual to avoid any damage to the product and personal safety.

Once after received this products please take and put carefully. And check carefully that whether the product was damaged or not during the transportation and please check the following things were enclosed:

Laser light 1PC
9 pin signal line 1PC
3 pin signal line 1PC
User manual 1PC
Power cable 1PC

## 2. Installation

1. Please check the voltage whether is the same with the one showed on the equipment or not.
2. It must ask for the technical person and set the light safety when installation. And let the light beam at the suitable angle.
3. When install this equipment please make sure there's no flammable surfaces (decorated things, etc) within at least 1.5M and maintain minimum distance of 0.5M from the equipment to the walls.
4. Please make sure that there's no other equipment or decorating materials obstructed the exhaust fan and the vent-pipe.
5. Products should be install immobility.
6. In case of safety, it's very important that to connect the earth with line.

## 3. Attention

- Please do not open the bottom cover yourself without permission. Operate it accord the user manual. Please call the technician in case the machine broken down.
- Do not use it under the damp and rain.
- Pay attention to prevent the light from strong bump.
- Prevent the dust into the product
- Keep the vent-pipe well while working.
- Keep the plug insert well before put into power.
- Don't look the light directly to prevent make some destroy with eyes.
- Don't light or extinguish frequently, otherwise the life span of the light tube will be shortened.
- In view of the special characters, after operated the light an hour the product shall be paused about 15 minutes before be used next time.
- Keep the space between light equipments and the lighted things more than one meter.
- Don't touch the product and draw the power line if you hand wet.
- Don't open the cover for there have no parts the user can repair.
- Don't operate the light without lamps.
- If the semiconductor laser doesn't as light as before or there have some destroy with lens or other parts, please contact the distributor in time.
- When you want to retransfer the products, you'd better use the original package to shockproof.

# 5. Scan motor Replacement

**(1) Steps:**

1. Unscrew UK M6 screw and plug out male signal connector.
2. Disassemble all M4 × 10 screw for X,Y scanner socket so that scan motors can be took out,put in or rotate to adjust the scan angle.
3. After adjust ,fix M4 × 10 screws,plug in male signal connector and then screw UK M6 screw.

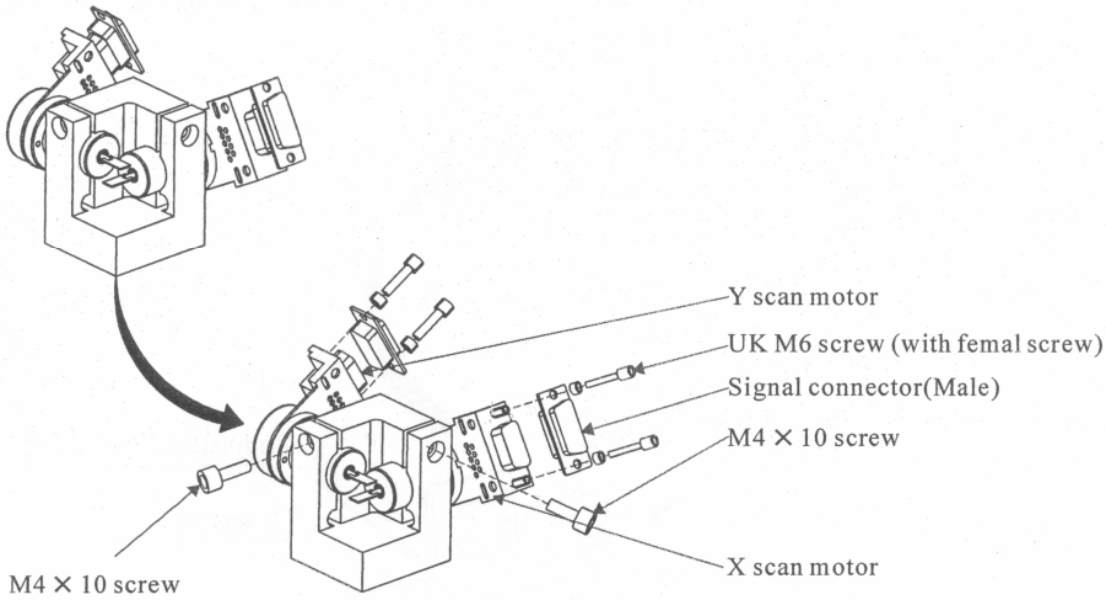



Fig5-1 Scan motor install diagram

# 6. Adjustable mirror socket

**(1) Steps**

1. Loose setscrew of X,Y and then adjust mirror socket to suitable position by X,Y adjustable screws.
2. Adjust Z adjustable screw at same time.
3. Fix X,Y setscrew.

**NOTE:** Made sure all beams through adjustable mirror socket be one point when you adjust X,Y,Z line with adjustable screw.

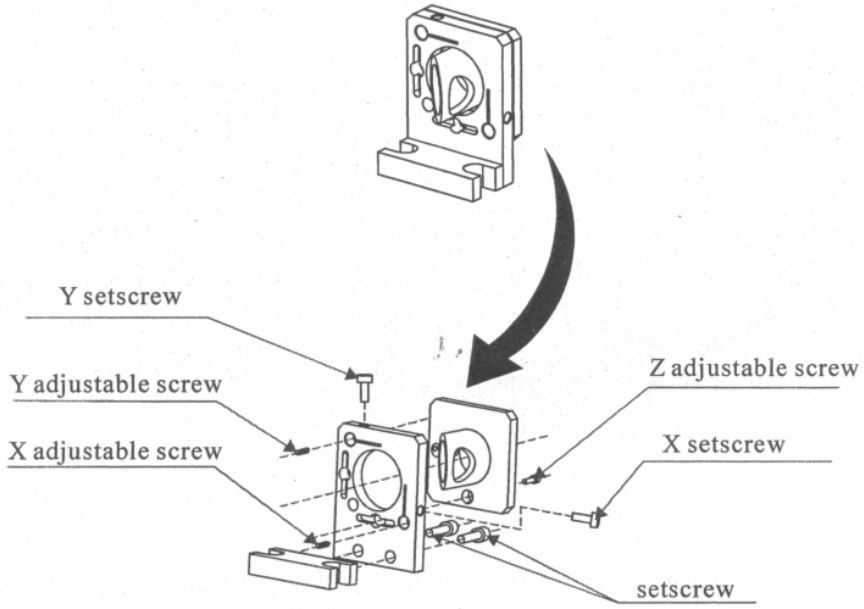
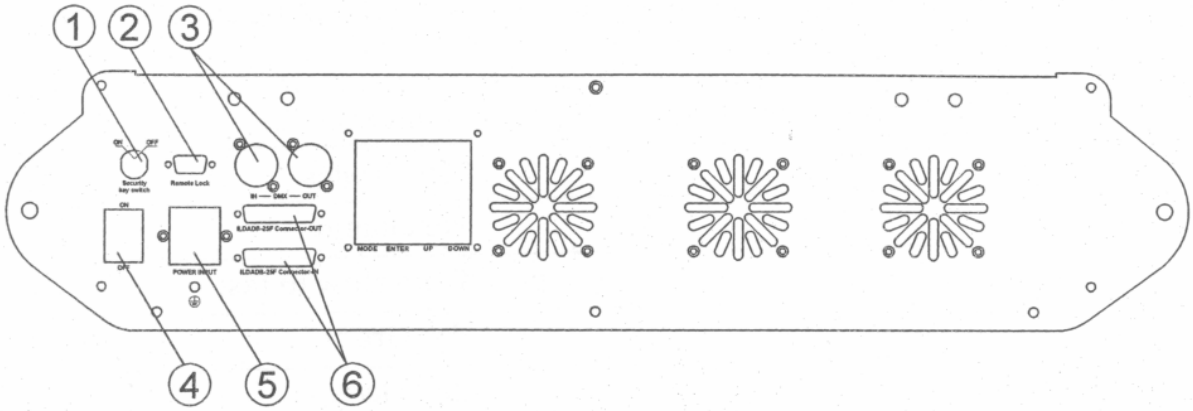



Fig6-1 Adjustable mirror socket structure

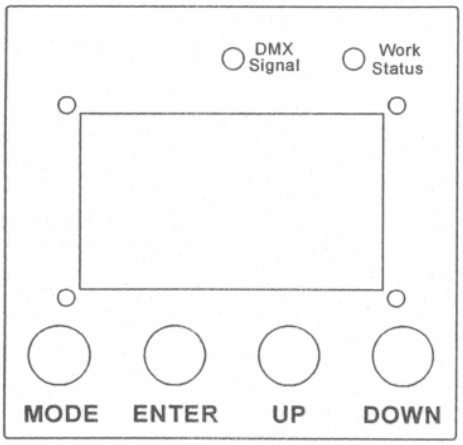
# 7. Control board instruction




| | |
|---|---|
| 1 | **Security key switch**: Laser diode ON/OFF |
| 2 | **Remote Lock**: In the event of removal, laser will not emit any beam.(E.U. IEC regulation) |
| 3 | **DMX IN/OUT:** International standard DMX512 signal input/output |
| 4 | **POWER ON/OFF:** Power on/off |
| 5 | **POWER INPUT**: Input power, with inner fuse. |
| 4 | **ILDADB-25F Connector-IN/OUT:** Signal input connection port of the laser perform software that in accordance with the ILDA standard. |

**Control board operation way:**

- MODE: Select working mode or back to upper menu.
- ENTER: Confirm setting or go to subordinate menu.
- UP: Increase DMX address value.
- DOWN: Decrease DMX address value.
- DMXSignal: DMX512 input situation.. LED on means have input DMX512 otherwise no Input DMX512 or input signal abnormality.
- Work Status: LED on means display PCB work well otherwise it is not work in good Condition.



## 8. DMX512 Operate

The product has 16 operate channels(international standard DMX512 signal),The details as follow:

| Channel | | DMX512 Value | Function |
|---|---|---|---|
| 1 | Dimmer | 0~255 | 100 Grades |
| 2 | Strobe | 0~1 | No change |
| | | 2~255 | speed from slow to fast |
| 3 | Pattern Groups | 0~31 | 1st Group |
| | | 32~63 | 2nd Group |
| | | 64~95 | 3rd Group |
| | | 96~127 | 4th Group |
| | | 128~159 | 5th Group |
| | | 160~191 | 6th Group |
| | | 192~223 | 7th Group |
| | | 224~255 | 8th Group |
| 4 | Pattern | 0~255 | 258/8=32 patterns |
| 5 | X rolling | 0~255 | from slow to fast |
| 6 | Y rolling | 0~255 | from slow to fast |
| 7 | Z rolling | 0~255 | from slow to fast |
| 8 | X move | 0~255 | from slow to fast |
| 9 | Y move | 0~255 | from slow to fast |
| 10 | X stretch | 0~255 | from slow to fast |
| 11 | Y stretch | 0~255 | from slow to fast |
| 12 | Zoom | 0~255 | from slow to fast |
| 13 | Slow-Drawing | 0~255 | from slow to fast |
| 14 | Dotting | 0~255 | from slow to fast |
| 15 | Scan speed | 0~255 | from slow to fast |
| 16 | Pattern Size | 0~1 | Original size |
| | | 2~255 | 100 Grades |

# 10. MAINTENANCE

Maintenance should be performed every 15-day period, by using a sponge which is dipped with alcohol, rather than wet cloth or other chemical liquid, to clean the mirror.

Always disconnect from the mains when the device is not in use or before cleaning it.

There are no serviceable parts inside the device. Maintenance and service operations are only to be carried out by authorized dealers.

**Never look directly into the light source.**

**Always disconnect from the mains when the device is not in use or before cleaning it.**

# 11. TECHNICAL SPECIFICATIONS

**Power supply:** AC 220V-240V, 50/60 Hz

**DMX 512:** 16 channels

**Condition temperature:** -10°C ~ +35°C

**Input signal bandwidth:** 0~1000Hz

**X/Y axes beam scanning optical angle:** 0 ~ ±20°

**Signal input power:** -5V~+5V

**Power consumption:** 145W

**Working mode:** ILDA, DMX512

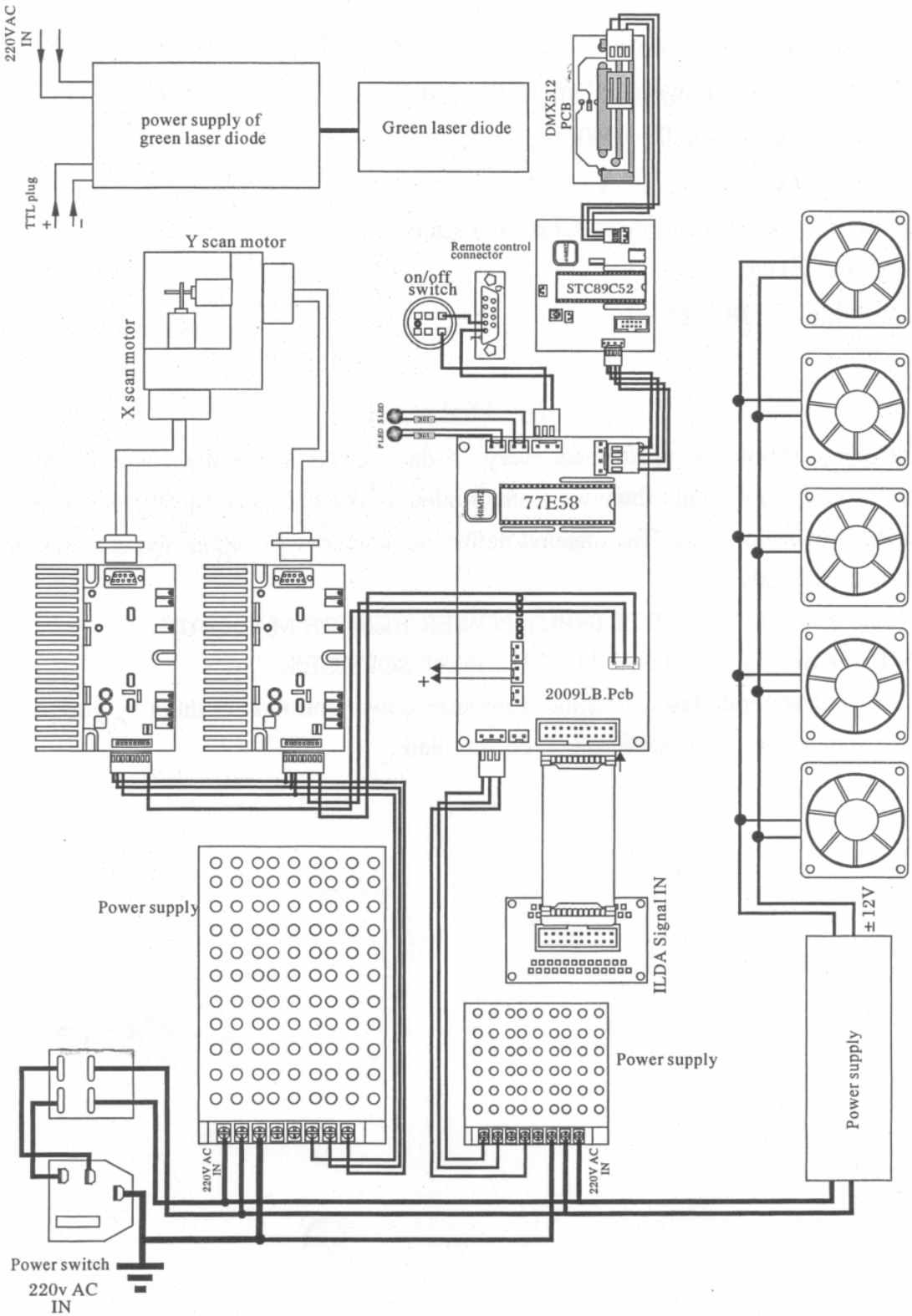
**Optical power:** Green: guaranteed: 1250mW / 532nm; typical: 1500mW / 532nm

**Laser classification:** 4

**Weight:** 20 kg

**Dimensions:** 670 x 380 x 270 mm (L x W x H)

# 11. Electrical diagram



# 12. Trouble shooting

| Problem | Causation | Replace part | Series number |
|---|---|---|---|
| No power | Fuse broke | Fuse | 09-00-3001-01 |
| | Pin4 switch broke | Pin 4 switch | 08-05-0400-03 |
| | B Power supply broke | ±15V | 16-03-0001-00 |
| | Power supply broke | ±24V | 16-03-0004-00 |
| | Power supply broke | Power supply | 16-03-0019-00 |
| X,Y scanner no strength or no pattern or scanner shaking | Scanner broke | Super scan motor | 15-01-2211-00 |
| | code control board broke | Code control board | 26-2A-2009LB-00 |
| | Power supply broke | ±24V | 16-03-0004-00 |
| | Super speed scan board broke | Super speed scan board | 26-2A-6800A-00 |
| | Code control IC broke | STC89C516RD | 00-89C516RD-00 |
| No beam or beam dim or beam can't close, but other functions OK | Scan mirror dirty | Refer to user manual | |
| | Laser diode broke | Green laser diode | 07-01-0500-02 |
| | Signal switch board broke | Signal switch board | 26-2A-2009LB-00 |
| | Control mode setting incorrect | Refer to user manual | |
| | Remote control plug broke | Remote control plug | |
| | Switch lock broke | Switch lock | 08-00-0002-00 |
| Can not control, but other function OK,Such as laser diode and fans | Control mode setting incorrect | Refer to user manual | |
| | Signal switch board broke | Signal switch board | 26-2A-2009LB-00 |
| | B Power supply broke | ±15V | 16-03-0001-00 |
| | Yx2009 display PCB broke | Yx2009 display PCB | 26-2A-YX2009DI2-00 |
| | Code control IC | STC89C516RD | 00-89C516RD-00 |
| Fan not work, other functions are OK | Power supply broke | Power supply | 16-03-0019-00 |
| | Fan broke | Fan | 16-00-0011-00 |

## Appendix: ILDADB25F PINOUTSDB 25 definens

| | | |
|---|---|---|
| 1 | X+ | -5 to +5V |
| 2 | Y+ | -5 to +5V |
| 3 | No Use | No use |
| 4 | Interlock A | Connected to Pin 17 inside the QM 2000 |
| 5 | Red+ | 0v to +2.5v |
| 6 | Green+ | 0v to +2.5v |
| 7 | Blue+ | 0v to +2.5v |
| 8 | No Use | No use |
| 9 | No Use | No use |
| 10 | No Use | No use |
| 11 | No Use | No use |
| 12 | Not connected | No use |
| 13 | No Use | No use |
| 14 | X– | +5V to -5V |
| 15 | Y– | +5V to -5V |
| 16 | No Use | No use |
| 17 | Interlock B | Connected to Pin4 inside the Qm 2000 |
| 18 | Red– | -2.5V to 0V |
| 19 | Green– | -2.5V to 0V |
| 20 | Blue– | -2.5V to 0V |
| 21 | No Use | No use |
| 22 | No Use | No use |
| 23 | No Use | No use |
| 24 | No Use | No use |
| 25 | Ground | Cable shielded |

## PLEASE NOTE

This device has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this user manual.

Laserworld cannot be made liable for damages caused by incorrect installations and unskilled operation!

# EU- Declaration of Conformity

We hereby confirm that the following device

**Laserworld Proline PRO-1500G**

complies with the essential safety requirements, laid down in the regulations of the committee to assimilate the provisions of law of all participating EU states on the electromagnetic compatibility (98/336/EWG).
The device has been classified considering the following EU-norms on electromagnetic compatibility:

DIN EN 55103-1: 1996
DIN EN 55103-2: 1996
DIN EN 61000-3-2:2000 + A2: 2005
DIN EN 61000-3-3:1995 + A1: 2001

Assessment of compliance of the product with the requirements relating to the Low Voltage Directive (LVD) was based on the following standards:

DIN EN 60065 : 2002

Furthermore, the device is verified in correspondence to the laser class regulations DIN EN 60825-1, if properly set up according to the upper mentioned laser safety regulation.
After installing the device, an inspection and official approval is indispensable for the overall setup. The inspection must follow the european guidelines EN 60825-1 and corresponding regulations for the prevention of accidents BGV-B2.

This declaration is executed on behalf of the Laserworld Proline PRO-1500G Laser manufacturer.

**Laserworld (Switzerland) AG**

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