



Laserworld Proline Series

Pro-7000 RGB



Manual

Read carefully before using this device!

Checking parts

Please check if all listed parts are included, and are not damaged. Included:

- 1 x Laser projector
- 1 x Power cable
- 1 x 9-pin plug
- 2 x key
- 1 x safety cord
- 1 x manual



Safety instructions

If the device has been exposed to great temperature changes, do not switch it on immediately. Condensation water may damage your device. Leave the device switched off until it has reached room temperature.

The laser must only be used for shows. Any operation has to be attended and supervised by a skilled and well-trained operator.

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

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

Never direct the laser beam to people or animals.

CAUTION LASER DIODE: If you open the device for cleaning, always disconnect from mains!

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

These lasers are considered a definite eye hazard, particularly at the higher power levels, which WILL cause eye damage. So these laser series models supplied with a key switch to prevent unauthorized use, warning labels and aperture labels affixed to the laser.

Installation safety

Prior to installation and operation of the laser, the paths of the beams and effects should be considered, particularly with respect to how they will reach the audience. If direct audience scanning is desired, then the laser energy in the effects needs to be considered to decide if the effects are safe for direct viewing. Always ensure, that the maximum permissible exposure (MPE) is not exceeded in the area accessible to the public. So install the laser in such a way, that minimum distances and heights ensure the MPE is never exceeded in the public area.

When setting up the laser, make sure the laser is affixed firmly, to avoid vibrations.

Warning labels on the device

Laser radiation

Avoid exposure

To the beam

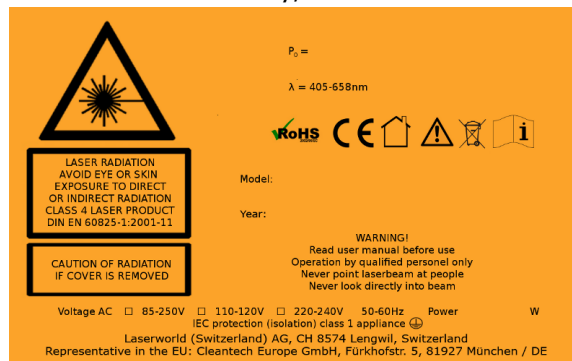
Laser class 4

Caution of radiation

If cover is removed

Indoor use only

At front opening: Avoid exposure – laser radiation is emitted.



Read manual
before use
Operation by qualified
personal only
Never direct laser
Beam at people
Never look directly
into beam

OPERATING THE LASER

Don't remove the warranty/serial number label - removal voids warranty

The operator has to make sure that laser radiation – for laser class 4 also reflected laser radiation – higher than the maximum permissible level is avoided by technical or organisational measures. (Especially with respect to the MPE, see above.)

Make sure to use the correct voltage. Use a power socket with earth/ground. **Don't use dimmer, RC, or other electronically switched sockets.** Whenever possible, don't use the laser together with large appliances, especially fog machines, on the same mains!

If the device is used in a flying installation, the mounting brackets and an appropriate safety-rope must be affixed. In some countries, the operator must notify the accident insurance and the authority for industrial safety, before operating a laser. For more information, contact the relevant authorities.

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

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.

Keep surrounding dry and clean. This unit should be keep dry, do not use in the rain or damp and dusty environment, don't put liquid fileld containers on the device. Projector should be put in a water-proof housing when operated outside.

Regularly open the device (see "cleaning" further down) to check for dust inside, or if fog fluid condenses in the housing (if so rearrange hazer and/or laser position).

Operating temperature is 10~35°C. In a new installation, check after some 15-30 minutes whether the outlet air gets too warm. Regularly check the inside for dust deposits, especially around the fans. Let laser cool off 10minutes after 2 hours of operation, to ensure maximum lifetime for the diode.

Distance between laser aperture and projection screen should be not less than 1 meter.

Do not turn device on and immediately off again frequently.

Do not look into the laser beam directly, especially not with optical instruments.

Do not touch the device with wet hands.

When the laser diode becomes dim or broken, please contact your dealer.

When returning laser to dealer/manufacturer always use original packaging.

Maintenance should be performed every 15-day period. See "cleaning" further down.

To ensure maximum lifetime of the laser:

Don't overheat the laser:

- Always ensure good ventilation
- Don't have stage lights (especially moving heads) directed towards the laser
- Regularly clean the fans and the interior from dust
- In a new installation check the temperature after 30 minutes of operation

Keep the laser dry

- Make sure fog/hazer fluid doesn't condensate inside the laser - fog has to be in front of the laser – not inside
- A few days after (each new) installation, open the cover to check if fluids condensate inside
- If fluids condensate inside, reposition the laser or fogger/hazer

Turn the device off, when not used. The diode is on, when the device is on. Even if it is not lit.

If the laser is equipped with a remote connector, connect an emergency switch to the Remote lock connector on the backside, if no emergency switch is used, insert the 9 pin dangle instead. If the laser has no remote lock, use an emergency switch in the mains connection.

Using the laser

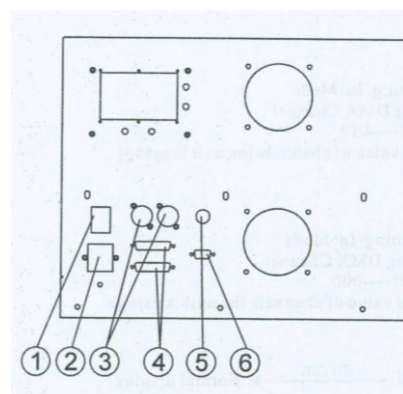
Caution – use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Make sure the correct voltage is used. Connect mains. Connect an emergency switch to the 9-pin connector on the backside (pins 1 and 2). If you do not wish to connect an emergency switch, connect the 9-pin plug instead.

Depending on the mode selected (see below), laser light should come out of the opening on the front panel – be careful.

Control panel

1	Power on/off
2	Power input: make sure the correct voltage is used
3	DMX in/out
4	ILDA connector in/out
5	Safety switch: Laser on/off
6	Remotelock: connect emergency switch. If no emergency switch is connected use the 9 pin plug supplied.



- **MODE:** select mode, or go up in menu
- **ENTER:** confirm changes, or go down in menu
- **UP/ DOWN:** change DMX address

Operating modes:

Automatic mode: built-in patterns are displayed

Music active: laser is controlled from built-in microphone

"DMXAddr": DMX512 mode-. Here you can change the DMX address:

"Open": change address

"Up" & "down": increase/decrease address

"Save": save new address

"LCD display memory function": save settings automatically.

Laser: On/Off, when set to Off, laser is off in Auto/DMX mode (ILDA mode only)

X/Y-Axis: mirrors projection horizontally/vertically

Upside down: Display turned upside down

ILDA mode

When an ILDA compatible interface is connected to the laser, the laser is automatically switched to ILDA mode. Output is then controlled from a PC running software. The laser uses pins 4 and 17 of the ILDA signal to detect the presence of an ILDA interface. Further information can be found in the software manual.

Please note: the scanners are set to a scanspeed of ca. 22000 PPS at ca. 30° scanangle. If you increase the scanspeed, first reduce the scanangle (image size). Otherwise you may damage the scanners! When using with different scanspeed/scanangle readjustment of the scanner drivers may be necessary, if in doubt, contact your dealer.

DMX mode

Channel		DMX512 value	Function
1	Red	0~255	0~100% Dimmer
2	Green	0~255	0~100% Dimmer
3	Blue	0~255	0~100% Dimmer
4	Colour	0~25	Original colour
		26~51	White
		52~77	Yellow
		78~103	Red
		104~129	Green
		130~155	Cyan
		156~181	Blue
		182~207	Purple
		208~233	Change colour
		234~255	Colour flux, slow to fast
5	Pattern group	0~51	Pattern group 1
		52~103	Pattern group 2
		104~154	Pattern group 3
		155~205	Pattern group 4
		206~255	Pattern group 5
6	Pattern	0~255	160/5=32pcs
7	Horizontal rotation	0~255	slow to fast
8	Vertical rotation	0~255	slow to fast
9	Rotation about Z-axis	0~255	slow to fast
10	Horizontal movement	0~255	slow to fast
11	Vertical movement	0~255	slow to fast
12	Horizontal size	0~255	slow to fast
13	Vertical size	0~255	slow to fast
14	Hor. and vert. size	0~255	slow to fast
15	Drawing speed	0~255	slow to fast
16	Point draw	0~255	slow to fast
17	Scanspeed	0~255	slow to fast
18	Pattern size	0~1	Original size
		2~255	Size (120=original)

Maintenance / cleaning

Always disconnect from mains before cleaning/opening the laser. You can open the device by removing the top: remove the mounting bracket (4 quick locks), the 5 Philips screws, and the eye bolt.

Regularly clean the interior from dust, especially ensure operation of the fans. To clean the mirrors, ideally use acetone and lens cleaning paper (fold paper to get an edge with which to clean the mirrors). If not available, you can also use window cleaner, and a paper towel. Be careful, even light scratches reduce the output power of the laser; always clean with strokes in one direction, to minimize the effect of scratches. Mirrors need cleaning, when a "halo" is noticeable around the beam, or an unusual high amount of diffuse light can be seen inside the device. When fog fluid condenses in the device, clean all traces, and rearrange the position of faser and/or laser.

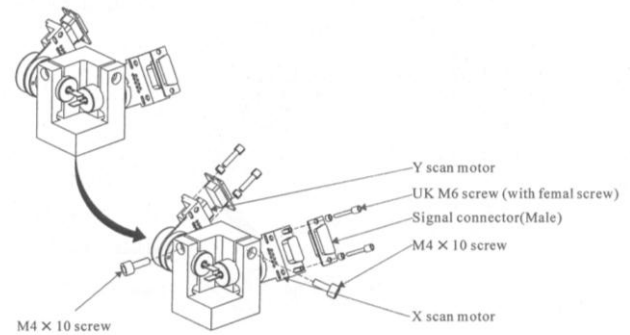
Technical specifications

- **Output power (in mW, at the laser):** max 7000mW, >1500mW 655nm red, >1200mW 532nm green, >2000mW 445nm blue
- **Lasersources:** aircooled DPSS laser (green), laser diode (red, blue)
- **Laser class:** 4
- **Modes:** ILDA, DMX 512, auto
- **ILDA:** ILDA standard Sub-D shaped 25pin connector
- **Galvos:** max 50k scanspeed (at 4°)
- **DMX 512:** 18 channels

- **Patterns:** 160
- **Scanangle:** set to ca. 40° optical (60° max)
- **Input voltage:** AC 110-120, 220-240V switchable 50/60Hz
- **Power consumption:** 450W
- **Size:** 800 x 530 x 350mm (W x D x H)
- **Weight:** 69kg Laser, **total:** 96kg (**with flightcase**)
- **Operating temperature:** 10°-35°C
- **Loudness:** <70db

Change scanner

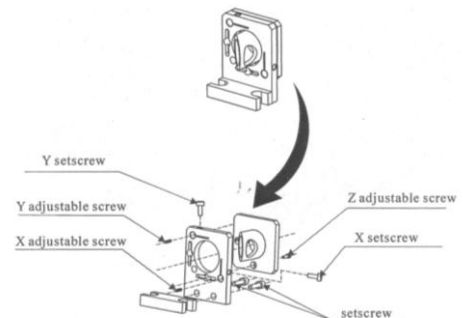
1. Unscrew UK M6 screws and disconnect signal cable.
2. Loosen M4 x 10 screw and remove galvo.
3. Insert galvo, reconnect and fix signal cable.
4. Rotate galvo to center projection. Fix galvo.



Adjustable mirror mounts

Loosen setscrews, then adjust with X/Y adjustable screws. Make sure beam is centered on scanner mirrors. Adjust Z-screw simultaneously Tighten setscrews.

When combining beams (RGY/RGB laser), first make sure the beams are (roughly) on the same spot on the mirrors/dichros. Then use a test pattern (e.g. rectangle) to do fine adjustment. For adjustments, always turn output power down (if possible).



Troubleshooting

Problem	Possible reason	Damaged part	Replacement
No power	Fuse blown	Fuse	09-00-3001-01
	Power supply defective	+ -24V	16-03-0039-00
Music mode not working	Microphone defective	Microphone	16-03-0001-00
	Control board defective	Control board	26-2A-LT12V2-00
	Potentiometer defective	Potentiometer	04-03-0104-01
	CPU defective	IC	00-89C516RD-00
X and/or Y axis no deflection	Scanner defective	Galvo	15-01-2215-00
	CPU defective	IC	00-89C516RD-00
	Control board defective	Control PCB	26-2A-LT12V2-00
	Power supply defective	+ -24V	16-03-0039-00
	Scanner driver board defective	Scanner driver board	26-2A-6800A-00
Laser dark or dim	Lenses / mirrors dirty	Clean with alcohol	
	Laser diode defective	Laser diode	Inquire
	Control board defective	Control board	26-2A-LT12V2-00
	Configuration / wrong mode	Check configuration (see paragraph control panel)	
No output	Configuration / wrong mode	Check configuration (see paragraph control panel)	
	Control board defective	Control PCB	26-2A-LT12V2-00
	Power supply defective	+ -24V	16-03-0039-00
	Display board defective	Display	26-2A-YX2012DI-00
	Pins 4 and 17 of the ILDA signal not connected	See below	

Laser does not switch to ILDA mode:

- The interface does not connect pins 4 and 17 (Interlock) of the ILDA signal. See interface manual
- The cable does not connect pins 4 and 17. Use a cable that connects pins 4 and 17.
- Use an adapter, that connects pins 4 and 17.

ILDA signal

Pin out of the standard ILDA signal:

1 Scanner X+	-5V..+5V	14 X-	+5V..-5V
2 Scanner Y+	-5V..+5V	15 Y-	+5V..-5V
3 Intensity/Blanking+	0V..+2.5V	16 Intensity/Blanking-	0..-2.5V
4 Interlock A		17 Interlock B	
5 Red+	0..2.5V	18 Red-	0..-2.5V

6 Green+	0..2.5V	19 Green-	0..2.5V
7 Blue+	0..2.5V	20 Blue-	0..-2.5V
8 – 12 Not used		23-24 Not used	
13 Shutter +5V, max. 20 mA		25 GND Signal ground	

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!

For service contact your dealer, or Laserworld.

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Appendix: Technical diagram

