



CS-400G



User Manual

Please read this manual carefully before use!

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Checking parts

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

- 1 x CS-400G laser
- 1 x power cable
- 1 x remote connector
- 2 x key
- 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: Don't open the housing!

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

OPERATING THE LASER

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

Make sure to use the correct voltage

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

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 kept dry, do not use in the rain or damp and dusty environment. Projector should be put in a water-proof housing when operated outside.

Operating temperature is 10~35°C . 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 timely.

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

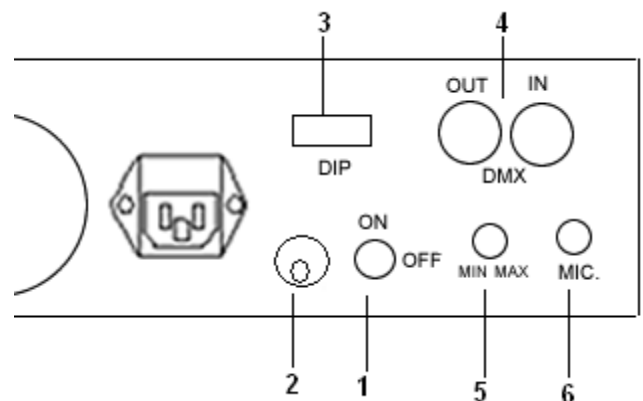
Maintenance should be performed every 15-day period. Use a sponge with alcohol, rather than wet cloth or other chemical liquid, to clean the mirror.

Using the laser

Make sure the correct voltage is used. Connect mains. Connect an emergency switch to the remote connector on the backside. Turn key switch to on position. Depending on the mode selected (see below), laser light should come out of the opening on the front panel – be careful.

Control panel

1	Safety switch: laser on/off
2	Remotelock: connect emergency switch. If no emergency switch is connected use the 9 pin plug supplied.
3	DIP switch: DMX address/mode selection (see below)
4	DMX 512 in/out
5	Music mode: sensitivity
6	Microphone



Operating modes

The following operating modes can be selected from the DIP switch on the backside of the device:

DIP switch 1-10	Mode
1,0,0,0,0,0,0,0,1,0	Music active, beam effects
0,1,0,0,0,0,0,0,1,0	Music active, animations
1,0,0,0,0,0,0,0,0,0	Automatic mode / beam effects
0,1,0,0,0,0,0,0,0,0	Automatic mode / animations
x,x,x,x,x,x,x,x,x,1	DMX

"Music activ": patterns are changed/animated to the beat of the music. Sensitivity can be adjusted with the knob on the back of the device.

"Automatic mode": patterns are changed automatically

"DMX": DMX512 Modus-. Use the first 9 switches to select the address:

	X	x	x	x	x	x	x	x	x
	1	2	4	8	16	32	64	128	256

e.g. 1000 0000 01, DMX mode address 1 (1+0+0+0+0+0+0+0+0+0)

0010 0100 01, DMX mode address 36 (0+0+4+0+0+32+0+0+0)

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.

DMX mode

CHANNEL		VALUE 0~255	CONTROL CONTENT
CH1	geometric pattern page	0~30	Laser source turn off
		31~61	DMX geometric pattern model
		62~92	DMX geometric SHOW editing model
		93~123	DMX geometric SHOW automatic model
		124~154	DMX geometric SHOW music control model
	animation patterns page		
		155~185	DMX animation patterns model
		186~216	DMX animation SHOW editing model
		217~247	DMX animation SHOW automatic model
CH2	Multiple channel	1~255	Pattern model: pattern A selection
		0~255	SHOW model ☐ laser SHOW selection
CH3	Multiple channel	1~255	Pattern model: pattern B selection
		0~255	SHOW model laser SHOW part selection
CH4	pattern C selection	1~255	Pattern model: pattern C selection
CH5	pattern D selection	1~255	Pattern model: pattern D selection
CH6	Multiple channel	0~51	A,B,C,D pattern be controlled simultaneou
		52~103	Pattern A control effect
		104~155	Pattern B control effect
		156~207	Pattern C control effect
		208~255	Pattern D control effect
		0~255	0 is the turn-off laser SHOW part editing function 1~255 is the turn-on laser SHOW part editing function
CH7	Rotation effect	1~127	Angel rotating selection, 15CH speed adjustment
		128~191	anticlockwise
		192~255	clockwise
CH8	Vertical reversal effect	1~127	Vertical rotation linearity adjustment, 15CH speed adjustment
		128~255	Vertical rotation speed selection
CH9	Horizontal reversal effect	1~127	Horizontal rotation linearity selection, 15CH speed adjustment
		128~255	Horizontal rotation speed selection
CH10	Moving effect	1~127	Horizontal moving speed selection
		128~255	Vertical moving speed selection
CH11	Gradual drawing effect	0~41	gradual increasing drawing
		42~83	gradual decreasing drawing
		84~127	gradual increasing and decreasing drawing
	Dot effect	128~255	Adjustment of point brightness
CH12	Vertical position	1~255	Vertical position adjustment
CH13	Horizontal	1~255	Horizontal position adjustment 15CH speed adjustment
CH14	Zoom in/out effect	1~127	Adjustment of pattern size 15CH speed adjustment
		128~169	Pattern from small to big 15CH speed adjustment
		170~211	Pattern from big to small, 15CH adjustment speed
		212~255	Zoom patterns 15CH speed adjustment
CH15	Speed adjustment	0~255	CH11, CH12, CH13, CH14 show speed adjustment

Maintenance / cleaning

Always disconnect from mains before cleaning/opening the laser. Regularly clean the interior from dust, especially ensure operation of the fans. Use a sponge with alcohol, rather than wet cloth or other chemical liquid, to clean the mirrors. Be careful, even light scratches reduce the output power of the laser. 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.

Technical specifications

- **Lasersources:** aircooled DPSS Laser
- **Power (of the diodes):** typical 400mW, minimum 300mW 532nm green
- **Laserclass:** 3b
- **Modes:** ILDA, DMX 512, auto, music active
- **ILDA:** 25pin ILDA standard Sub-D shaped 25pin connector
- **Galvos:** 25k scanspeed
- **DMX 512:** 15 channels
- **Patterns:** 85 + 43 animations
- **Scanangle:** ca. 40°
- **Beam:** ca. 3mm/1mrad
- **Accessories:** power cable, key switch, interlock connector, manual
- **Input voltage:** AC 220~240V 50/60Hz
- **Power consumption:** 50W
- **Size:** 300 x 300 x 150mm (W x D x H)
- **Weight:** 5kg
- **Operating temperature:** 10°-35°C

Trouble shooting

No beam: emergency switch/dongle not connected.

Low output: clean mirrors/window

Musicmode not working: wrong DIP switch setting

Sensitivity too low

No DMX control: wrong DIP switch setting

ILDA connected

Laser does not switch to ILDA mode:

- The interface does not connect pins 4 and 17 (Interlock) of the IDLA 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.

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 CS-400G

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 (89/336/EEG).

The device has been classified considering the following EU-norms on electromagnetic compatibility:

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 2006/95/EG) 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 CS-400G manufacture

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