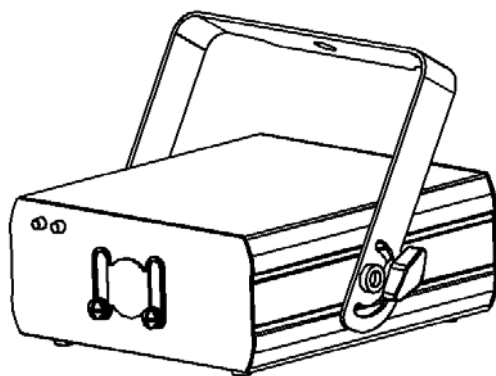




LSE-20RG



Version: 2.0

This manual contains important laser system safety and operation information. Read and understand all instructions prior to powering on laser unit the first time, to avoid laser eye injury and to avoid breaking the law. Keep this manual in a safe place for future reference.

WARNING DATA

Lasers can be hazardous and have unique safety considerations. Permanent eye injury and blindness is possible if lasers are used incorrectly. Pay close attention to each safety REMARK and WARNING statement in the user manual. Read all instructions carefully BEFORE operating this device.



Attention!

Indicates a skill or other useful information for special situations.



Important!

Indicates important information to protect personnel from laser incident or injury.



Caution!

Prevent damage or injury from incorrect operation.



Laser!

Laser safety warning labels.



Recycle

To protect the environment, recycle packing material wherever possible.



Indoor

The projector is for indoor use only, IP20. Use only in dry locations. Keep this device away from rain and moisture, excessive heat, humidity and dust. Do not allow contact with water or other fluids.



Disposal

Don't throw this product away just as general trash, please dispose of this product following the abandon electronic product regulations in your area.



Location

The projector must be installed in a location with adequate ventilation, at least 50cm (20 inches) from adjacent surfaces. Be sure that no ventilation slots are blocked.

LASER SAFETY WARNINGS



Potential laser injury hazard exists with this product! Read these instructions carefully, which includes important information about installation, safe use and service!



Caution

Avoid direct eye contact with laser light. Never intentionally expose your eyes or others to direct laser light.



Caution

This laser product can potentially cause instant eye injury or blindness if laser light directly strikes the eyes.



Caution

It is illegal and dangerous to shine this laser into audience areas, where the audience or other personnel could get direct laser beams or bright reflections into their eyes.



Caution

It is a US Federal offense to shine any laser at aircraft.



Caution

There are no user serviceable parts inside the unit. Do not open the housing or attempt any repairs yourself. In the unlikely event your unit may require service, please contact the dealer nearest to you..



Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure

NON-INTERLOCKED HOUSING WARNING

This unit contains high power laser devices internally. Do not open the laser housing, due to potential exposure to unsafe levels of laser radiation. The laser power levels accessible if the unit is opened can cause instant blindness, skin burns and fires.

LASER SAFETY AND OPERATING INSTRUCTIONS



STOP AND READ ALL LASER SAFETY DATA



Laser Light is different from any other light source with which you may be familiar. The light from this product can potentially cause eye injury if not set up and used properly.

Laser light is thousands of times more concentrated than light from any other kind of light source. This concentration of light power can cause instant eye injuries, primarily by burning the retina (the light sensitive portion at the back of the eye). Even if you cannot feel “heat” from a laser beam, it can still potentially injure or blind you or your audience. Even very small amounts of laser light are potentially hazardous even at long distances. Laser eye injuries can happen quicker than you can blink.

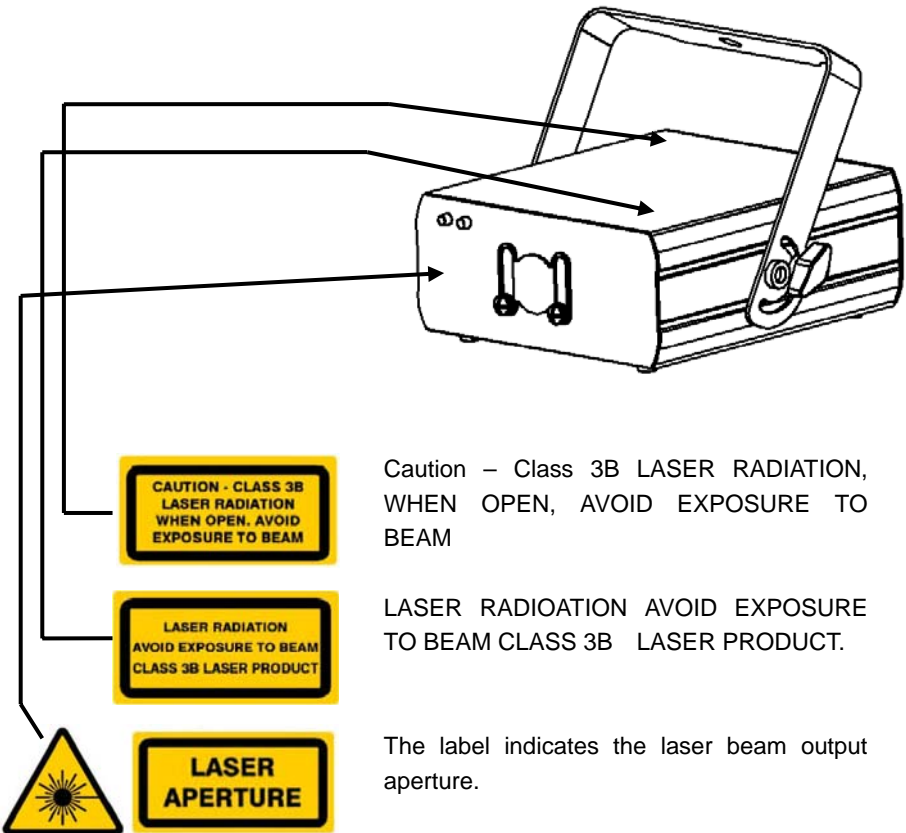
It is incorrect to think that because these laser entertainment products split the laser into hundreds of beams or laser beam is scanned out in high speed, that an individual laser beam is safe for eye exposure. This laser product uses dozens of milliwatt of laser power (Class 3B levels internally). Many of the individual beams are potentially hazardous to the eyes.

It is also incorrect to assume that because the laser light is moving, it is safe. This is not true. Nor, do the laser beams always move. Since eye injuries can occur instantly, it is critical to prevent the possibility of any direct eye exposure. In the laser safety regulation, it is not legal to aim Class 3B lasers in areas which people can get exposed. This is true even if it is aimed below people’s faces, such as on a dance floor.

- Do not operate laser without first reading and understanding all safety and technical data in this manual
- Always set up and install all laser effects so that all laser light is at least 3 meters (9.8 feet) above the floor on which people can stand. See “Proper Laser Set-up & Usage” section later in this manual
- After set up, and prior to public use test laser to ensure proper function. Do not use if any defect is detected. Do not use if laser emits only one or two laser beams rather than dozens/hundreds, as this could indicate damage to the diffraction grating optic, and could allow emission of higher laser levels.

- Do not point lasers at people or animals
- Never look into the laser aperture or laser beams
- Do not point lasers in areas in which people can potentially get exposed, such as uncontrolled balconies, etc.
- Do not point lasers at highly reflective surfaces such as windows, mirrors and shiny metal. Even laser reflections can be hazardous.
- Never point a laser at aircraft, this is a federal offense
- Never point un-terminated laser beams into the sky
- Do not expose the output optic (aperture) to cleaning chemicals
- Do not use laser if the laser appears to be emitting only one or two beams
- Do not use laser if housing is damaged or open, or if optics appear damaged in any way.
- Never open the laser housing. The high laser power levels inside of the protective housing can start fires, burn skin and will cause instant eye injury.
- Never leave this device running unattended.
- The operation of a class 3B laser show laser is only allowed if the show is controlled by a skilled and well-trained operator familiar with the data included in this manual.
- The legal requirements for using laser entertainment products vary from country to country. The user is responsible for the legal requirements at the location/country of use.
- Always use appropriate lighting safety cables when hanging lights and effects overhead

LASER SAFETY LABEL REPRODUCTIONS



LASER EXPOSURE WARNING



LASER LIGHT AVOID DIRECT EYE EXPOSURE

Further guidelines and safety programs for safe use of lasers can be found in the ANSI Z136.1 Standard “For Safe Use of Lasers”, available from “www.laserinstitute.org”. Many local governments, corporations, agencies, military and others, require all lasers to be used under the guidelines of ANSI Z136.1. Laser Display guidance can be obtained via the International Laser Display Association, www.laserist.org.

LASER EMISSION DATA

Laser Classification	Class 3B
Green Laser Medium	DPSS Nd:YVO4, 532nm
Red Laser Medium	LD GaAlAs 650nm, typical
Beam Diameter	<5mm at aperture
Pulse Data	All pulses < 4Hz (>0.25sec)
Divergence (each beam)	<2 mrad
Divergence (total light)	<160 degrees
Laser Power	Red>100mW, Green>40mW

* As measured under IEC measurement conditions for classification.

Note: The laser diode is exposed to extreme conditions due to the high output power and therefore only has a limited life. Like all wear parts, the laser diode is not subject to any guarantee claims.

LASER COMPLIANCE STATEMENT

This laser product complies with EN/IEC 60825-1 Ed 2, 2007-03, and US FDA/CDRH FLPPS via the terms of Laser Notice No. 50 dated June 24, 2007.

GENERAL SAFETY INSTRUCTIONS

Every person involved with installation and maintenance of this device have to:

- Be qualified
- Follow the instructions of this manual

CAUTION! Be careful with your operations. With a high voltage you can suffer a dangerous electric shock when touching the wires!

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



Important! The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

- Please consider that damages caused by manual modifications to the device are not subject to warranty.
- Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution!
- Make sure that the available voltage is not higher than stated on the rear panel.
- Always plug in the power plug least. Make sure that the power-switch is set to off-position before you connect the device to the mains. The power-plug has to be accessed after installing the device.
- Make sure that the power-cord is never crimped or damaged by sharp edges. Check the device and the power-cord from time to time.
- Always disconnect from the mains, when the device is not in use or before cleaning it. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.
- It is essential to connect the yellow/green conductor to earth.

- The electric connection, repairs and servicing must be carried out by a qualified employee.
- Do not switch the fixture on and off in short intervals as this would reduce the laser diode life.
- For replacement, please use fuses of same type and rating only.
- 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.
- Do not shake the device. Avoid brute force when installing or operating the device.
- When choosing the installation-spot, please make sure that the device is not exposed to extreme heat, moisture or dust. There should not be any cables lying around. You endanger your own and the safety of others!
- The minimum distance between the fixture and surrounding walls must be more than 50cm.
- Always fix the fixture with an appropriate safety-rope. Fix the safety-rope at the safety-rope only.
- The ambient temperature must be between 10°C to 40°C.
- Please use the original packaging if the device is to be transported.
- Please consider that unauthorized modifications on the device are forbidden due to safety reasons!

CAUTION! Operate the device only after having familiarized with its functions. Do not permit operation by persons not qualified for operating the device. Most damages are the result of unprofessional operation!

CAUTION! If this device will be operated in any way different to the one described in this manual, the product may suffer damages and the warranty void.

BEFORE OPERATION

Unpacking Instructions

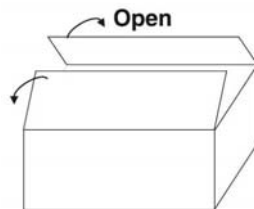


CAUTION! Immediately upon receiving a fixture, carefully unpack the carton, check the contents to ensure that all parts are present, and have been received in good condition. Notify the shipper immediately and retain packing material for inspection if any parts appear damage from shipping or the package itself shows signs of mishandling. Save the package and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

What is included

The carton or flight case contain following items:

NAME	QTY
Laser Light	1 PCS
KEYS (for key switch)	2 PCS
Interlock Connector	1 PCS
Mains Cable	1 PCS
USER MANUAL	1 PCS

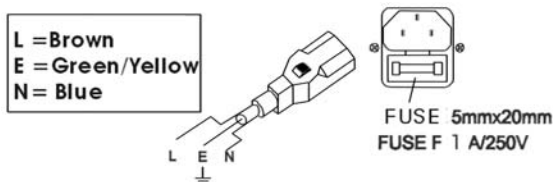



Power Supply

To determine the power requirements for a particular fixture, see the label affixed to the back plate of the fixture or refer to the fixture's specifications chart. A fixture's listed current rating is its average current draw under normal conditions. All fixtures must be powered directly off a switched circuit and cannot be run off a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel is used solely for a 0% to 100% switch. Before applying power to a fixture, check that the source voltage matches the fixture's requirement.

The unit is supplied with a power plug appropriate to its voltage and destination.

Should any other connections be required they must be carried out with the following configuration.

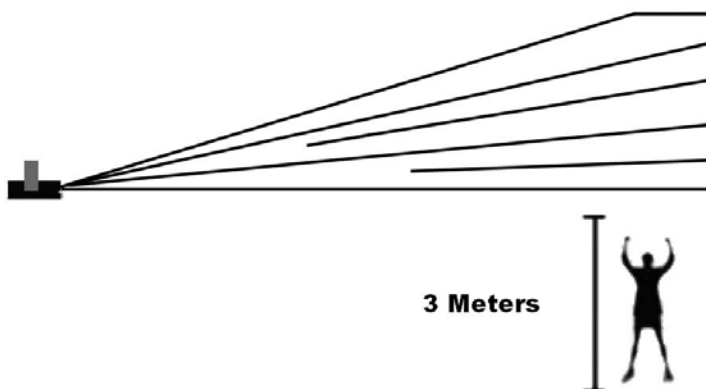


Cable(EU)	Cable(US)	Pin	International
Brown	Black	Live	L
Light blue	White	Neutral	N
Yellow/Green	Green	Earth	

Proper Laser Set Up & Usage

This fixture has been designed to be hung. It is recommended for safety purposes, your lighting effect are properly mounted using a suitable hanging clamp and safety cable. Items appropriate for safe and effective mounting are easily sourced from your lighting vendor.

International laser safety regulations require that lasers must be operated in the fashion illustrated below, with a minimum of 3 meters (9.8 ft) of vertical separation between the floor and the lowest laser light vertically. Additionally, 2.5 meters of horizontal separation is required between laser light and audience or other public spaces.





CAUTION: Use of controls, adjustments, or performance of procedures other than what is specified herein may result in hazardous radiation exposure

Rigging the Fixture

CAUTION: Please consider the respective national norms during the installation! The installation must only be carried out by an authorized employee or dealers!

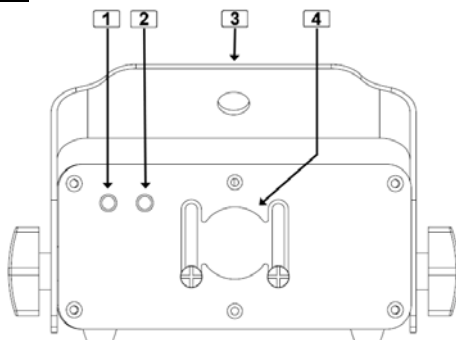
- The installation of the fixture has to be built and constructed in a way that it can hold 10 times the weight for 1 hour without any harming deformation.
- The installation must always be secured with a secondary safety attachment, e.g. an appropriate catch net. This secondary safety attachment must be constructed in a way that no part of the installation can fall down if the main attachment fails.
- Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- The operator has to make sure that safety-relating and machine-technical installations are approved by an expert before taking into operation for the first time and after changes before taking into operation another time.
- The operator has to make sure that safety-relating and machine-technical installations are approved by a skilled person once a year.
- The fixture should be installed in the position where persons cannot reach and where persons may walk by or be seated.

CAUTION: When installing the device, make sure there is no highly inflammable material (decoration articles, etc.) in between a distance of min 0.5 meter.

PRODUCT OVERVIEW

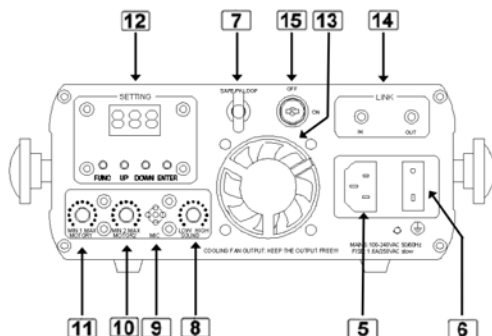
- This device has left out premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is necessary for the user to follow the safety instructions and warning notes written in this manual.

Front Panel



NO.	NAME	DESCRIPTION
1	Power LED	Indicates the fixture is switched on
2	Music LED	Synchronize to detected music signal
3	Bracket	To fasten the fixture with mounting hook
4	Laser Aperture	The laser effect output aperture. NEVER LOOK INSIDE THE FIXTURE THROUGH THIS APERTURE WHILE FIXTURE IS OPERATING.

Rear Panel



NO.	NAME	DESCRIPTION
5	Main Power Input	DC12V-1A Power Supplier
6	Power Switch	Switch ON and OFF the fixture
7	Safety Eye	Used to attach a safety cable when the fixture is rigged. Check more details in RIGGING
8	Mic Sensitivity Knob	Turn the knob (potentiometer) until the laser works in sync with the music.
9	Microphone	To detect the music/sound signal
10	Knob 2	Motor 2 Speed adjustor
11	Knob 1	Motor 1 Speed adjustor
12	Control panel	To control the fixture with digital LED display, check more information on CONTROL & FUNCTION
13	Cooling Fan	Used to cool the components inside the enclosure. Never cover this fan outlet!
14	LINK IN/OUT	For linking Master and Slave fixture
15	Key Switch	Safety key switch for laser

CONTROL & FUNCTION

- Regular breaks during operation are essential to maximize the life of this device as it is not designed for continual use.
- Do not switch the unit on and off in short time intervals
- Always unplug the unit when it is not used for a longer time. Or before replacing the bulb or start servicing.
- In the event of serious operation problems, stop using the fixture and contact your dealer immediately.

ATTENTION: Laser will be output from laser aperture in 5 seconds after the unit is powered on.

Operating Mode

When laser is powered on, LED monitor on rear panel shows the current operating standalone mode or DMX address of DMX mode. With help of LED control panel, it is very easy to set and change the operating mode of laser. After

every resetting and saved, the new mode information will be shown on LED monitor at next power on.

FUNC

Mode/Function Option, to choose the operating mode of laser.

ENTER

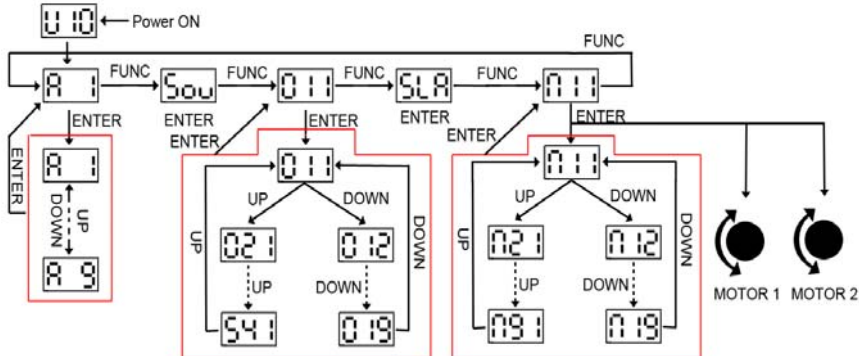
Confirmation, to confirm all setting or change of LED control panel.

UP

DOWN

UP/DOWN, to change operating mode, parameter or DMX address.

Operation



Power ON laser

When the fixture is powered and switched ON, **V10** will be shown on LED display panel. V10 stands for the technical program version of this fixture. It is Version 1.0 now. After 3 seconds, the fixture goes to the MODE which was confirmed and saved before last turn OFF.

AUTO SHOW Stand Alone Mode

- Press FUNC to enter MODE OPTION.
- Till to LED panel shows **A 1**, **A** stands for Auto, **1** stands for the rotating speed of burst patterns effect. **1** to **4** is clockwise rotating, **5** is not rotating, **6** to **9** is anticlockwise rotating.
- Press UP/DOWN to select your favorite rotating effect.
- Press ENTER to confirm the setting.

The laser is working in standalone mode – AUTO SHOW. Each time when you turn on your laser, you will have this confirmed laser show.

SOUND ACTIVATED SHOW (MUSIC SHOW) Stand Alone Mode

- Press FUNC to enter MODE OPTION.
- Till to LED panel shows Sou.
- Press ENTER to confirm the setting.

The laser is working in standalone mode – SOUND ACTIVATED SHOW. Each time when you turn on your laser, you will have this confirmed laser show.

Preprogram Fixed Pattern effect

- Press FUNC to enter MODE OPTION.
- Till to LED panel shows **011**. This is preprogram fixed pattern effect mode. There are 54 patterns optional in this fixture. **01*** stands for pattern number, press UP to select your favorite pattern from **01*** to **54***. ****1** stands for the rotating speed of burst patterns effect. ****1** to ****4** is clockwise rotating, ****5** is not rotating, ****6** to ****9** is anticlockwise rotating.
- Press UP/DOWN to select your favorite pattern and rotating effect.
- Press ENTER to confirm the setting.

MASTER/SLAVE MODE

- Press FUNC to enter MODE OPTION
- Till to LED panel shows SLA
- Press ENTER to confirm the setting.

The laser is working in “SLAVE MODE”. Connect MASTER laser and SLAVE lasers with linking cable, the SLAVE lasers do what exactly MASTER laser does.

MANUAL control mode

- Press FUNC to enter MODE OPTION.
- Till to LED panel shows **n11**. This is manual control mode. The pattern could be changed by turn the MOTOR 1 knob and MOTOR 2 knob on rear panel. ***1*** stands for blanking effect. Press UP to select your favorite blanking effect from ***1*** to ***9***. ****1** stands for the rotating speed of burst patterns effect. Press DOWN to select your favorite rotating effect. ****1** to ****4** is clockwise rotating, ****5** is not rotating, ****6** to ****9** is anticlockwise rotating.
- Turning MOTOR 1 knob and MOTOR 2 knob to do your pattern.
- Press UP/DOWN to select your favorite blanking effect and rotating effect.
- Press ENTER to confirm the setting.

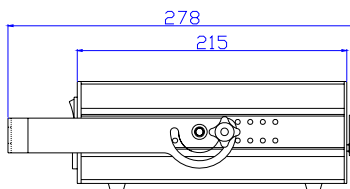
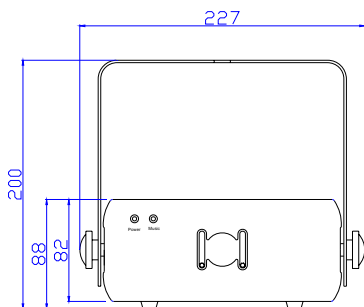
MAINTENANCE

- Make sure the area below the installation place is free from unwanted persons during servicing
- Switch off the fixture, unplug the mains cable and wait until the unit has been cooled down.
- Housings, fixations and installations spots(ceiling, truss, suspensions) should be totally free from any deformation
- The mains cables must be in impeccable condition and should be replaced immediately when even a small problem is detected
- In order to protect the fixture from overheat the cooling fans (if any) and ventilation openings should be cleaned monthly.
- The cleaning of aperture glass and scanner mirrors must be carried out periodically to optimize light output. Cleaning frequency depends on the environment in which the fixture operates: damp, smoky or particularly dirty surroundings can cause greater accumulation of dirt on the unit's optics
 - 1) Clean with a soft cloth using normal glass cleaning products.
 - 2) Always dry the parts carefully.
 - 3) Clean the Aperture glass at least once every 30 days
- The interior of the fixture should be cleaned annually using a vacuum cleaner or air-jet.

ATTENTION: We strongly recommend internal cleaning to be carried out by qualified worker!

SPECIFICATIONS

Mains Input:	AC100-240V, 50/60Hz
Fuse:	T 500 mA
Total Power:	15W
Music Control:	Internal microphone
Laser Power:	40mW 532nm Green CW 100mW 650nm Red CW
Laser Classification:	Class 3B
Laser Safety Standard:	EN60825-1 2007
Condition Temperature:	10~40℃
Measurement:	See diagram below
N Weight:	1.9 Kg



Specifications subject to change without prior notice.

The availability of particular products may vary by region. Please check with the dealer.