

KAM

INSTRUCTION MANUAL

TextBeam300

Multi-colour text laser with animations & effects

M A N U A L V E R S I O N 1 . 0
0 2 - 0 6 - 1 5

For the latest instruction manual updates and information on the entire Kam range visit:

www.kam.co.uk

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If this product is ever no longer functional please take it to a recycling plant for environmentally friendly disposal.

Due to continuous product development, specifications and appearance are subject to change.

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Thank you for purchasing this Kam product, we are sure that it will serve you for many years to come.

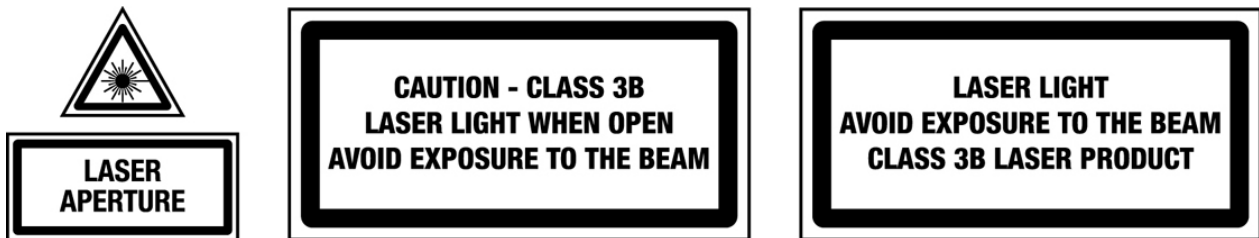
To optimise its performance, please read these instructions carefully to familiarise yourself with the basic operations of the unit. Please retain them for future reference. This unit has been tested at the factory before being shipped to you. To prevent or reduce the risk of electrical shock or fire, do not expose the unit to rain or moisture. To prevent a fire hazard, do not expose the unit to any naked flame sources. Unplug this apparatus during lightning storms or if it is unlikely to be used for long periods of time.

When installing the unit, please ensure you leave enough space around the unit for ventilation. Slots and openings in the unit are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. To prevent fire hazard, the openings should never be blocked or covered.

The unit is powered by the mains, always handle the power cable by the plug. Never pull out the plug by pulling on the cable. Never touch the power cable when your hands are wet as this could cause an electric shock. Do not tie a knot in the cable. The power cable should be placed such that it is not likely to be stepped on. A damaged power cable can cause a fire or give you an electrical shock. Check the power cord periodically, if you ever find that it is damaged, replace it before using the unit again. Contact your retailer for a replacement.

The voltage of the available power supply differs according to country or region. Be sure that the power supply voltage of the area where this unit is to be used meets the requirements of the unit.

The lightning flash symbol inside a triangle is to alert the user to the presence high voltage within the unit's enclosure that may be of sufficient power to constitute a risk of electrical shock to persons. Caution: to prevent the risk of electric shock, do not attempt to open the unit. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The exclamation mark inside a triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance. Please read and pay attention to all laser safety warning sticker labels on the unit.



Select the installation location of your unit carefully. Avoid placing it in direct sunlight or locations subject to vibration and excessive dust. Do not use the unit where there are extremes in temperature (below 41°F / 5°C or exceeding 95°F / 35°C).

Unpacking and safety Please unpack your new product carefully. Your new product should reach you in perfect condition. Please check that no damage has occurred during transit. If any damage is found, do not operate your unit. Please contact the retailer you purchased it from immediately. If there is any damage to the mains cable do not use the device. Always disconnect the unit from the mains supply when carrying out any cleaning of the unit.

Manufacturer declarations



In compliance with the following requirements: **RoHS Directive (2002/95/EU)** and **WEEE Directive (2002/96/EU)**. If this product is ever no longer functional please take it to a recycling plant for environmentally friendly disposal.

CE declaration of conformity

R&TTE Directive (1999/5/EU), EMC Directive (2004/108/EU), Low Voltage Directive (2006/95/EU).

The declarations are available on application from certification@lambapl.com


Before putting the devices into operation, please observe the respective country-specific regulations.


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

Please refer to the **Kam Class 3B Laser Product Safety Guide** for more information on laser safety issues.

Laser safety warnings...

Potential laser injury hazard exists with this product! Please read these instructions carefully, which include 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 radiation.

 **Caution** It is illegal and dangerous to shine any laser at aircraft.

 **Caution** Operating procedures other than those specified herein may result in hazardous radiation exposure.

Overhead rigging


Important - the installation must be carried out by qualified service personnel only. Improper installation can result in serious injuries and /or damage to property. Overhead rigging requires extensive experience. Working load limits should be respected, certified installation materials should be used, the installed unit should be inspected regularly for safety.

- Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- Locate the unit in a well ventilated spot, far away from any flammable materials and/or liquids. The fixture must be fixed at **least 50cm** from surrounding walls
- The device should be installed out of reach of people and outside of areas where persons may walk by or be seated.
- Before rigging make sure that the installation area can hold minimum point load of 10 times the device's weight.
- The device should be well fixed; a free swinging mounting is dangerous.
- Do not cover any ventilation opening as this may result in overheating

Before using for the first time, the unit should be inspected for safety. Inspect the unit regularly every year.

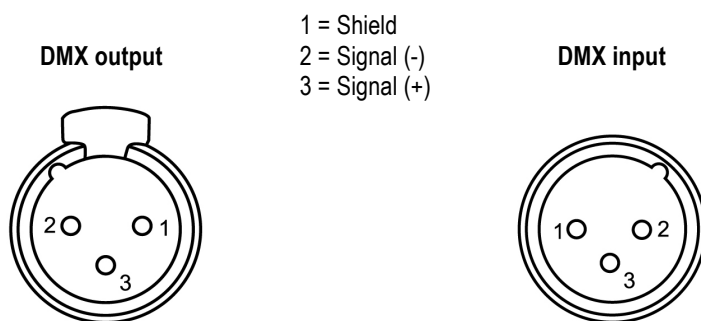
AC power

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

DMX-512 connection

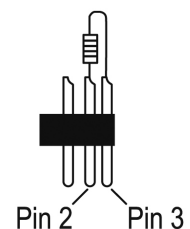
If you are using a standard DMX controller, you can connect the DMX output of the controller directly to the DMX input of the first unit in a DMX chain. If you wish to connect a DMX controller with other XLR outputs you will need to use adapter cables.



Connect the DMX output of the first unit in a DMX chain with the DMX input of the next unit in the chain. Always connect the the output of one unit with the input of the next unit until all units are connected.

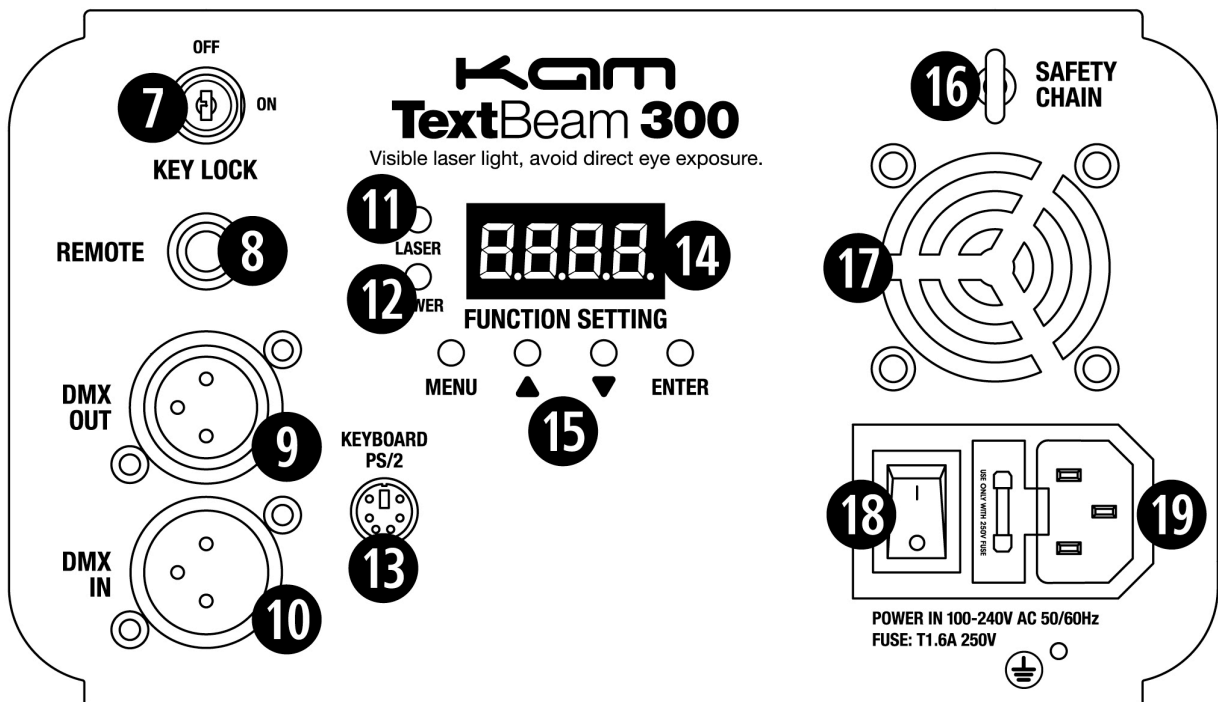
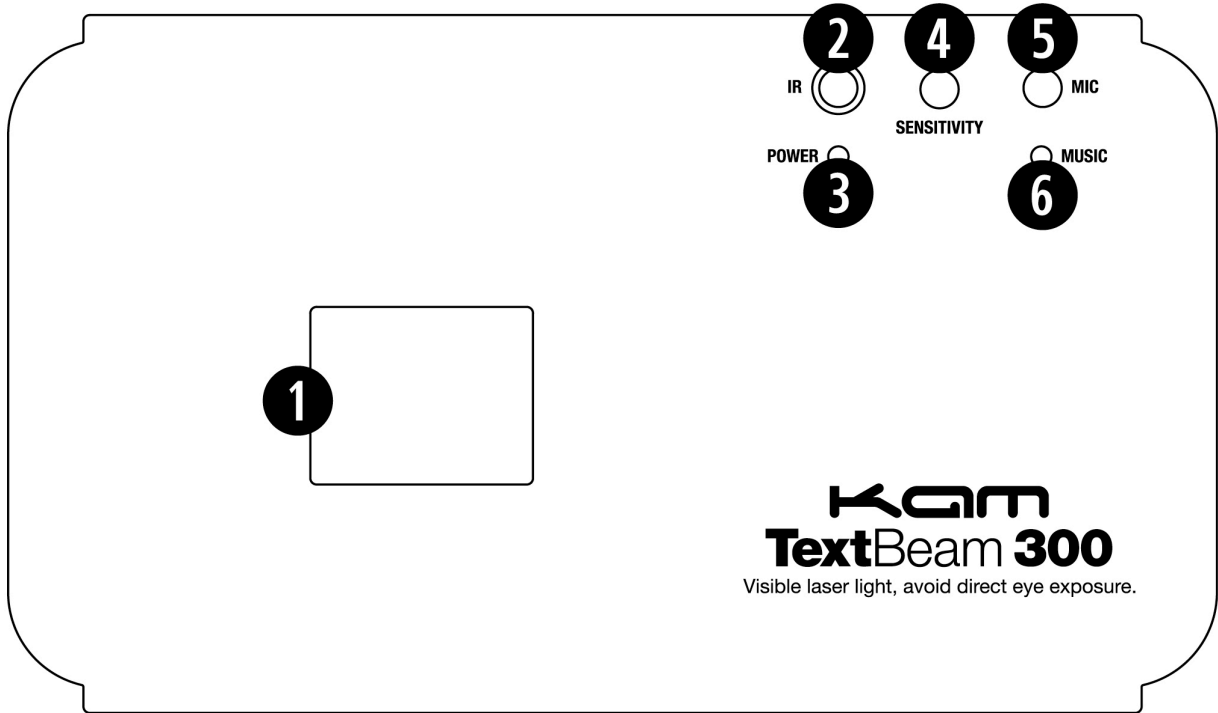
If you use a controller with 5 pin DMX connection you will need to use a 5 pin to 3 pin adapter.

Caution at the unit, the DMX cable has to be terminated with a terminator. Solder a 120 Ohm resistor between Signal (-) and Signal (+) into a 3-pin XLR connector and plug this into the DMX output of the last unit in the chain.



What is included in the package

- 1 x Kam TextBeam300
- 1 x IEC power cable
- 1 x safety key
- 1 x interlock connector
- 1 x keyboard & USB cable
- 1 x USB adapter
- 1 x user manual



Front panel features

Number	Feature	Function
1	Laser output aperture	The laser light is emitted from here. Never look directly into the hole when the unit is on.
2	IR remote sensor	Infrared remote control sensor.
3	Power indicator LED	Illuminates red when the unit is turned on to show the unit is powered up.
4	Mic sensitivity	Adjusts the microphone's sensitivity to sound/music for Sound-to-Light operation.
5	Microphone	Microphone for Sound-to-Light operation.
6	Music indicator LED	Flashes when an audio signal is received by the built-in microphone for reference.

Front panel features

Number	Feature	Function
7	Key lock switch	Even when powered up, the unit will not operate without the key inserted and turned to On.
8	Remote connect	Insert interlock connector to operate. Safety off switch (optional) can alternatively be used.
9	DMX output	3 pin XLR connectors for DMX512 output.
10	DMX input	3 pin XLR connectors for DMX512 input.
11	Laser LED	Indicates that the laser beam is operational.
12	Power LED	Indicates that the unit is connected to mains power and is on.
13	PS2 interface	For connecting PS/2 keyboard or PS/2 USB keyboard of adapter
14	Function setting LED	Displays the current operating mode.
15	Function buttons	Menu buttons to control the operating mode of the laser.
16	Safety chain eyelet	Connect safety chain/cable here.
17	Fan grille	Cooling fan grille. Do not cover.
18	Power switch	Turns the unit on or off when connected to the mains power supply.
19	Power supply input	Attach the mains cable here. Built-in fuse.

FUNCTION SETTING



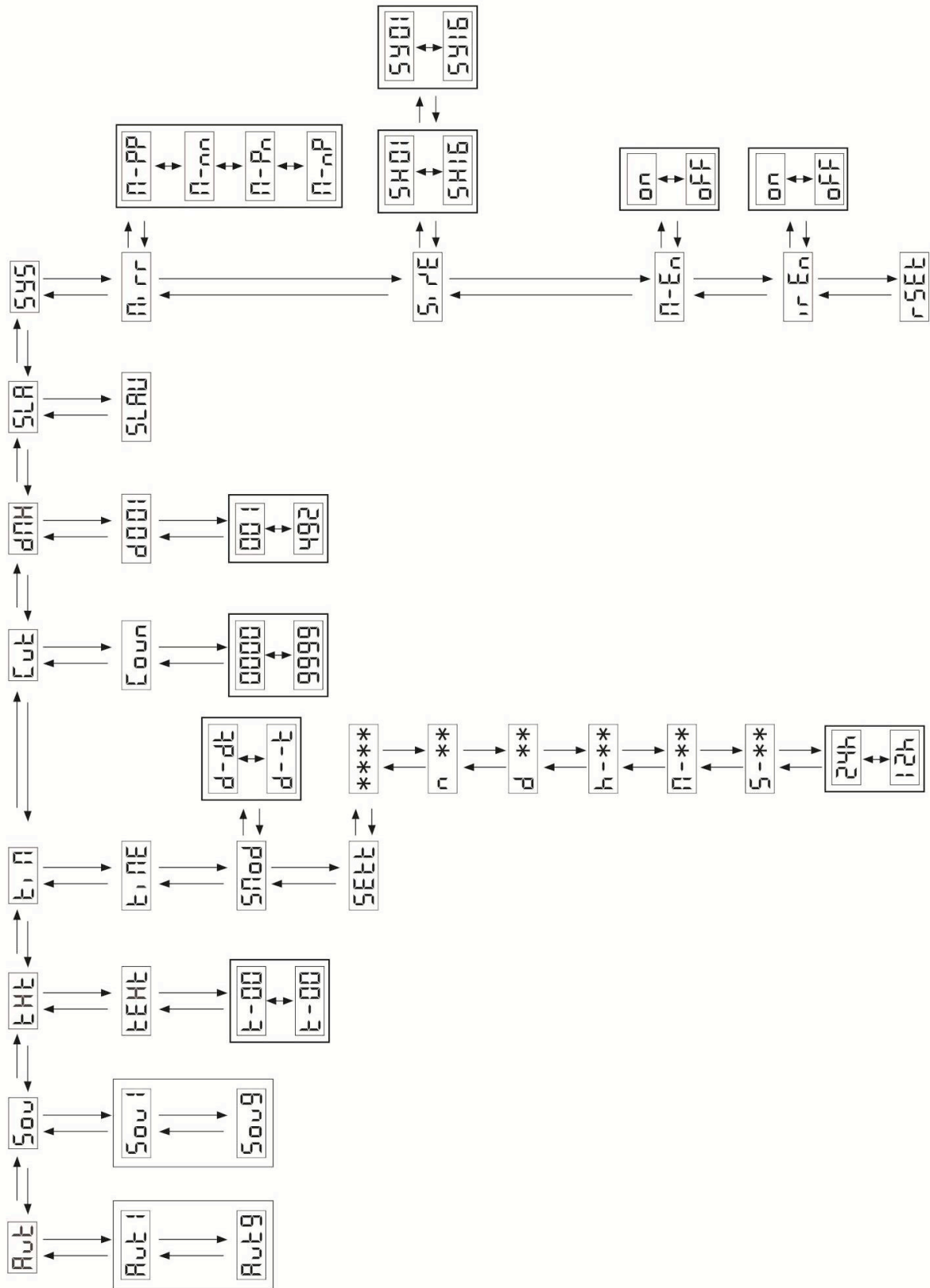
Main menu operation

Using the four function buttons on the top of the unit you can set the operating mode of the unit. Press the **Menu** button to display the different functions (see table below for a description of the functions). Use the **Up** or **Down** arrow buttons to make your selection. When you have chosen your desired mode, press the **Enter** button to confirm the change.

Function setting LED display and function

LED Display		Function
AUE	AUE1	Auto Mode 1
	AUE2	Auto Mode 2
	AUE3 ~ AUE9	Built-in themed programs: 3. New Year / 4. Christmas / 5. Love 6. Birthday / 7. Party / 8, Halloween / 9. Music
Sou	Sou1	Sound mode 1
	Sou2	Sound mode 2
	Sou3 ~ Sou9	Built-in themed programs: 3. New Year / 4. Christmas / 5. Love 6. Birthday / 7. Party / 8, Halloween / 9. Music
tEt	tEt	Loop playback of built-in TEX0-9
	t-00 ~ t-09	Text program saved in 0-9
t n	t nE	Time mode
	Snod	Time display mode: Time & Date or Only Time
	SEtE	Time setting: year/month/date/week/hour/min/second/12or24h
Cut	Count	Countdown mode
	0000 ~ 9999	Set countdown time. Press the ENTER button to confirm. Press the Up button to start. Press the Down button to stop.
dNH	d001	DMX menu
	001 ~ 492	DMX channel addresses setting
SLA	SLAU	Slave mode
SYS	n irr	Mirror setting
	S rE	Image size setting
	n-E n	Master mode
	irE n	IR mode
	rSEt	Restore the factory defaults

Function setting LED menu structure



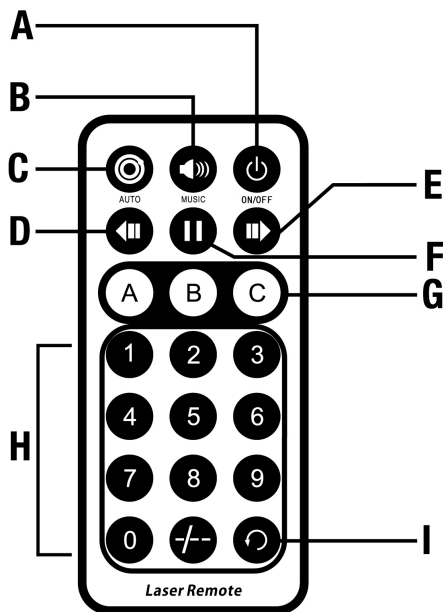
Operation

Menu button	Up / Down buttons	Enter button	Up / Down buttons	Enter button
Auto/Sound programs	Auto1 - Auto9 Sound1 - Sound9	Choose the Auto or Sound show you require. Press the Enter button to confirm.		
Text editing mode	TEXT	Loop playback of saved TEX0-9.		
	TEXT0-TEXT9	Text program 0-9. Press the Enter button to play.		
Time mode	Smod (show mode)	Selects the time display mode.	d-dt (date & time). d—t (Only time).	Time & Date mode. Time only mode.
	SETT (settings)	Time setting mode.	Year **** Hour h-** Month n** Minute N-** Date d** Second: S-** 12/24h	Press Enter button to confirm and to return to the previous step.
Countdown mode	COUN	Press Enter for countdown mode.	0000-9999	Press Enter button to confirm. Press Up button to start. Press Down button to stop.
			TEX0-TEX9 (Link to 0-9)	Directly link to TEX0-9 after countdown.
DMX mode	d001	Checks DMX signal. When DMX is not connected the LED display will twinkle.	001-492	DMX settings value.
Slave mode	slav	Press Enter button to select Slave mode. When there is no signal, LED display will twinkle.		
System setting	MIRR (set mirror)	Sets pattern direction.	N-PP/PN/NP/NN	Press Enter button to confirm and to return to the previous step.
	Zoom (set size)	Sets pattern size.	SH01-SH16 SY01-SY16	
	N-En	Master mode.	On / Off	
	Iren (set remote)	IR mode.	On / Off	
	REST	Restore the factory defaults.		

Remote control operation

Choose IR mode on laser unit

1. Press the **Menu** button on the rear of the laser unit to enter mode options.
2. Select the System settings (**SYS**), then choose **irEn**.
3. Ensure that the **On** option is selected, then press the **Enter** button to confirm the setting.



A. **On/Off button** Press button to unit on or off (blackout).

B. **Sound button** Press button to activate Sound-to-Light mode. The unit will play Sound-to-Light Auto shows randomly. Press the button again to change shows.

To adjust the mic sensitivity, press **Music** button for 2 seconds. Use the **1-9** numeric buttons to increase or decrease sensitivity. 9 is the highest sensitivity.

C. **Auto button** Press button to activate Auto mode. The unit will play Auto shows. Press the button again to change shows.

D. & E. **Colour buttons** Press buttons to cycle through laser's available colours.

F. **Pause button** Press button to pause the laser effect.

G. **Mode buttons** – Time / Countdown / Text

Press the **A** button once to enter **Time mode**.

Press the **A** button again to cycle between **Year, Month, Day, Week** and **Time**.

Press the **A** button for two seconds to enter into Time adjust mode. When the number flickers, press one of the numeric buttons (**H**) to change the value. Use the **D/E** buttons to move on to the next digit. Press the **A** button to save your changes.

Press the **B** button once to enter **Countdown mode**.

Press the **B** button for 2 seconds, you can then adjust the value by 1-9, then press the **B** button to start counting down.

Press the Pause button (**E**) to stop the Countdown.

Press the **C** button once to enter **Text mode**.




























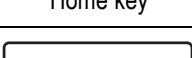
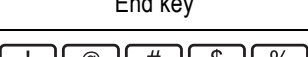

Press one of the numeric buttons (**H**) to save the text.

H. Use the **0-9** numeric buttons for single number and double number settings.

I. Pressing this key activates the **Mirror** adjustment. Each time you press it, the mirror direction changes. When you have it the way you wish, discontinue pressing the button.

Any or setting will be saved in RAM, until the unit is turned off.

Keyboard operation

 Windows key	 Enter/Return key
 Up / Down / Left / Right Arrow keys	 Escape key
 Text Flow key	 RGB Colour key
 Draw Setting key	 Zoom key
 X Axis Move key	 Y Axis Move key
 Y Axis Roll key	 X Axis Roll key
 Z Axis Roll key	 Wave key
 Text Quantity key	 Play Time key
 Mirror key	 Save key
 Play key	 Loop key
 Delete/Clear key	 Pause key
 Page Up key	 Page Down key
 Backspace key	 Home key
 End key	 Spacebar key
 Number keys 1-5	 Number keys 6-0

Press the Windows key on the keyboard to enter the options menu. The laser will start projecting the menu.

Use the Up and Down arrows on the keyboard to swap between the available options. When you have made your choice, press the Enter key to confirm your selection.

Options menu:

1. **Auto**
2. **Music**
3. **Text**
4. **Clock**
5. **Countdown**
6. **DMX**
7. **Slave**
8. **System**

1. Auto mode keyboard instructions

Press the Windows key on the keyboard to enter the options menu. Use the Up and Down arrows on the keyboard to select **Auto**. Press the the Enter key to confirm your selection.

Now that you are operating in Auto mode, use the the Up and Down arrows on the keyboard to swap between shows. Press the Mirror key to adjust the display repeat setting of the saved text. Press the RGB Colour key to choose the last edited text. Press the Pause key to stop and press the key again to continue.

2. Music (Sound) mode keyboard instructions

Press the Windows key on the keyboard to enter the options menu. Use the Up and Down arrows on the keyboard to select **Music**. Press the the Enter key to confirm your selection.

Now that you are operating in Music/Sound mode, use the the Up and Down arrows on the keyboard to swap between shows. Press the Mirror key to adjust the pattern and its mirror direction. Press the RGB Colour key to choose a different colour effect. Press the Pause key to stop and press again to continue.

3. Text mode keyboard instructions

Press the Windows key on the keyboard to enter the options menu. Use the Up and Down arrows on the keyboard to select **Text**. Press the the Enter key to confirm your selection.

Press the Flow key to set the text flow setting. Use the Up and Down arrows to set the speed. Press the RGB Colour key to choose a different colour effect. Press the Draw Setting key to set the speed. Use the Up and Down keys to adjust.

Use the Zoom key to adjust the zoom setting of the laser image. Use the Up and Down keys to adjust.

Use the X Axis Move key to adjust the left/right position. Use the Up and Down keys to adjust the speed.
Use the Y Axis Move key to adjust the up/down position. Use the Up and Down keys to adjust the speed.
Use the Y Axis Roll key to adjust the rotation. Use the Up and Down keys to adjust the speed.
Use the X Axis Roll key to adjust the rotation. Use the Up and Down keys to adjust the speed.
Use the Z Axis Roll key to adjust the rotation. Use the Up and Down keys to adjust the speed.

Use the Wave key to adjust the wave effect of the text. You can adjust the wave range, quantity and frequency. Use the Up and Down keys to adjust.

Use the Text Quantity key to adjust the quantity of characters displayed (up to 12 at one time).

Use the Play Time key to set the display time. Use the number keys to set your desired choice.

Use the Mirror key to adjust the mirror effect.

Use the Delete/Clear key to clear the cache. Use the Backspace key to delete one character. Use the Home key to go to the start of the text. Use the End key to go to the end of the text. Use the Left and Right Arrow keys to move ahead one character. Use a combination of Ctrl+Alt+Delete keys to delete all text.

Saving text

Press a combination of the Save key and a Number key (1-0) to save the text to that key.

Displaying text

Press a combination of the Play key and a Number key (1-0) to save the text to that key.

Press the Loop Playback key to adjust the repeat setting of the saved text.

Press the Page Up key to choose the last edited text. Press the Page Down key to choose the next edited text.

Press the Pause key to stop and press the key again to continue.

4. Clock mode keyboard instructions

Press the Windows key on the keyboard to enter the options menu. Use the Up and Down arrows on the keyboard to select **Clock**. Press the the Enter key to confirm your selection.

Now that you are operating in Clock mode, use the the Up and Down arrows on the keyboard to swap between Time & Date mode and Time only mode.

Use the Up and Down arrows to select the Date or Time you wish to adjust. Use the Number keys (0-9) to set the time/date. Press the Enter key to confirm your choices.

Choose between 12 or 24 hour modes. Pressing the Enter key will save the setting and return to the time setting mode.

Press the Escape key if you do not wish to save your settings.

Press the mirror key to adjust the mirror direction.

Press the RGB Colour key to choose a different colour effect.

5. Countdown mode keyboard instructions

Press the Windows key on the keyboard to enter the options menu. Use the Up and Down arrows on the keyboard to select **Countdown**. Press the the Enter key to confirm your selection.

When the number is flickering, press a Number key (0-9) to set the countdown speed. Press the Enter key to confirm your choice. Use the Backspace/Delete key to delete the previous character/number.

Use the Space key or the Pause key to pause the countdown.

Press the Escape key to set the timing again.

Press the mirror key to adjust the mirror direction.

Press the RGB Colour key to choose a different colour effect.

DMX address setting

When controlling the laser (or lasers) with a DMX controller, every unit must be set with a specific DMX address. When the laser receives a signal, it will receive the channel control signal from the DMX512 controller.

You can choose to set all units with the same DMX address or you can set every unit with its own DMX address.

If all units are set with the same DMX address, they will receive DMX signal from this DMX address. If operated in this way, all units will operate in the same way, you cannot control each unit separately.

Several optional operating modes were preprogrammed into the laser at DMX channel 1. **Before controlling other DMX channels, please ensure that channel 1 is set to the correct value.**

Channel	Value	Description
1 (mode selection)	000-009	Blackout
	010-079	Auto mode
	080-149	Sound mode
	150-200	The first pattern
	200-255	The second pattern

Auto mode

Channel	Value	Description
2	000-029	Auto 1
	030-059	Auto 2
	060-089	Auto 3
	090-119	Auto 4
	120-149	Auto 5
	150-179	Auto 6
	180-209	Auto 7
	210-239	Auto 8
	240-255	Auto 9

Music mode

Channel	Value	Description
2	000-029	Music 1
	030-059	Music 2
	060-089	Music 3
	090-119	Music 4
	120-149	Music 5
	150-179	Music 6
	180-209	Music 7
	210-239	Music 8
	240-255	Music 9

Channel	Value	Description
2 (pattern groups)	000-031	First pattern group
	032-063	Second pattern group
	064-095	Third pattern group
	096-127	Fourth pattern group
	128-159	Fifth pattern group
	160-191	Sixth pattern group
	192-223	Seventh pattern group
	224-255	Eighth pattern group

Channel	Value	Description
3 (pattern groups)	000-255	Every 16 values for a pattern, total for 128 patterns
4 (colours)	000-007	Built-in colours
	008-015	Red
	016-023	Green
	024-031	Red + green
	032-039	Blue
	040-047	Red + blue
	048-057	Green + blue
	058-063	Red + green + blue
	064-111	Single colour conversion
	112-159	Multi-colour moving up and down
	160-207	Multi-colour moving left to right
	208-255	Strobe
5 (clipping)	000	Whole pattern
	001-127	0-99% clipping fixed pattern
	128-255	Clipping speed (slow to fast)
6 (zooming)	000-127	100-5% pattern zooming
	128-169	Zoom in
	170-209	Zoom out
	210-255	Loop zooming in/out
7 (zooming speed)	000-255	Fast to slow
8 (Y rotation)	000-127	Fixed position after rotating 0-359 degrees
	128-191	Clockwise rotation
	192-255	Anti-clockwise rotation
9 (rotational speed)	000-255	Fast to slow
10 (X rotation)	000-127	Fixed position after rotating 0-359 degrees
	128-191	Clockwise rotation
	192-255	Anti-clockwise rotation
11 (rotational speed)	000-255	Fast to slow
12 (Z rotation)	000-127	Fixed position after rotating 0-359 degrees
	128-191	Clockwise rotation
	192-255	Anti-clockwise rotation
13 (rotational speed)	000-255	Fast to slow
14 (X movement)	000-127	128 different fixed position on X axis
	128-191	Clockwise rotation
	192-255	Anti-clockwise rotation
15 (movement speed)	000-255	Fast to slow
16 (Y movement)	000-127	128 different fixed position on Y axis
	128-191	Clockwise rotation
	192-255	Anti-clockwise rotation
17 (movement speed)	000-255	Fast to slow
18 (wave size)	000-255	Wave size
19 (wave frequency)	000-255	Wave frequency
20 (wave speed)	000-127	Movement position
	128-255	Movement speed

Product specification

Mains input	AC100~240V, 50/60Hz
Control modes	DMX512 Auto Sound-to-Light Master/Slave Wireless remote control
Scanner speed	10K
Laser power	Red: 150mW / 650nm Green: 50mW / 532nm Blue: 100mW / 450nm
Laser classification	Class 3B
Operating temperature	10~40°
DMX connections	3 pin XLR male/female
Dimensions (WxDxH)	236 x 199.52 x 187.82mm (inc bracket)
Weight	2Kg