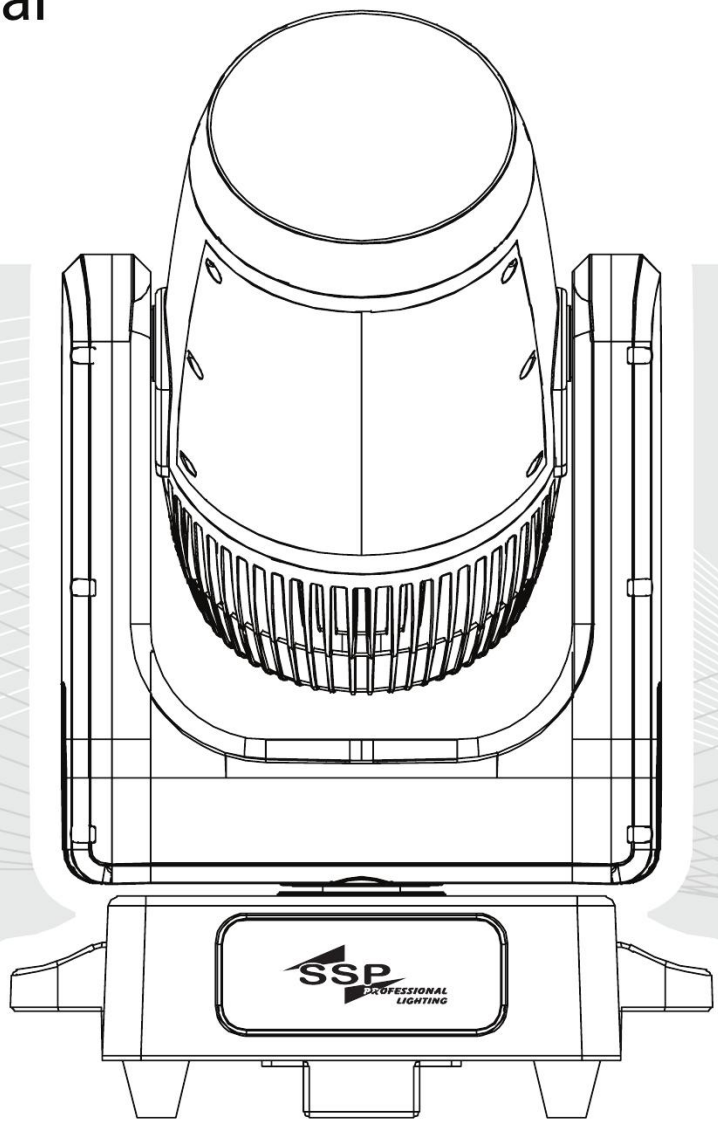
SSP PROFESSIONAL LIGHTING

BEAM 400 IP

User's Manual



LED MOVING HEAD BEAM

English

Please read the user manual carefully
before using the appliance.

BEAM 400 IP USER MANUAL – INDEX

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BEAM 400 IP USER MANUAL

The BEAM 400 IP is an LED moving head with an OSRAM 371 W lamp, 540° pan and 270° tilt with 16-bit fine control, a 14-colour wheel with a half-colour effect, a 17-gobo fixed wheel with shake, two prisms, a 7-colour rainbow effect and frost. It is rated IP66 and has a 16-channel DMX mode, RDM support and an onboard TFT panel.

1 Safety and maintenance

1.1 Maintenance

- To reduce the risk of electric shock or fire, do not expose the fixture to rain or moisture.
- Using the fixture intermittently extends its service life.
- Clean the fan, fan net and optical lens regularly to keep the fixture in good working condition.
- Do not use alcohol or any other organic solvent to wipe the housing.

1.2 Statement

All users must follow the warnings and operating instructions in this manual. The manufacturer is not responsible for results of misuse, or for faults caused by ignoring this manual. All information is subject to change without notice.

1.3 Safety precautions

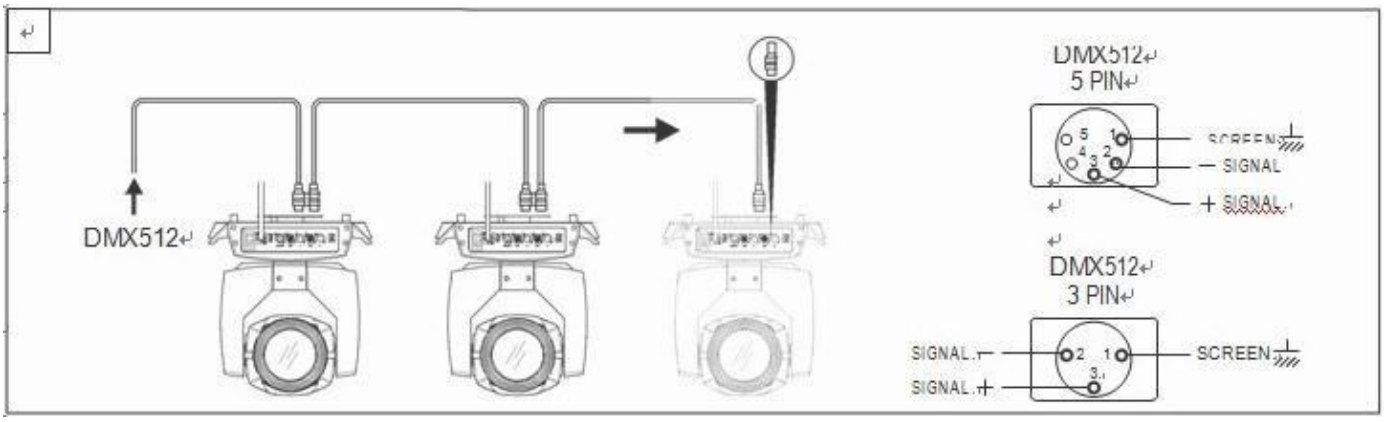
- Do not install the fixture in damp places or in an environment above 60 °C.
- Always mount the fixture securely on a safe and stable structure.
- Installation and removal must be carried out by a professional engineer.
- Keep the supply voltage within ±10% of the rated value. If the voltage is too high the lamp life is shortened; if it is too low the light output is reduced.
- After switching off the light, wait 20 minutes for it to cool fully before restarting. Frequent switching shortens the life of the lamp and bulb. Intermittent use extends it.
- Read the manual carefully before use.

2 Installation

2.1 DMX cable connection

Use a cable that meets EIA RS-485: two-core twisted pair, shielded, 120 Ω characteristic impedance, 22–24 AWG, low capacitance. Do not use microphone cable or other cable with different characteristics. Connectors must be XLR 3-pin or 5-pin, male or female. Insert a terminating plug with 120 Ω resistance (at least 1/4 W) between pins 2 and 3 on the last fixture.

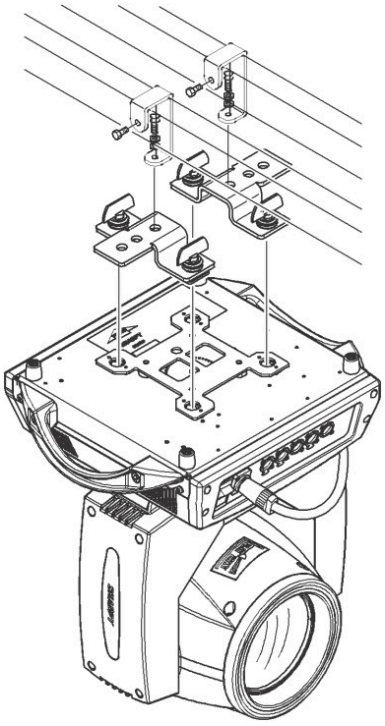
- The wires must not touch each other or the metal casing of the connectors. The casing must be connected to the shield braid and to pin 1.



2.2 Rigging

The fixture can be positioned and fixed with a clamp in any direction on the stage. The locking system makes it easy to fasten to a bracket.

- Two clamps are required. Each clamp is locked by a 1/4-turn fastener that locks clockwise only.
- Fasten a safety string to the additional hole on the side aluminium piece. The safety string must not hang from the carrying handle.
- Check that the rigging clamps are undamaged. The structure and all clamps, wiring and accessories must be able to hold at least ten times the weight of the equipment.
- Tighten the clamp screws firmly. Use one M12 screw (grade 8.8 or higher) in each clamp bracket, and fit the nuts.
- Level the two hanging points at the bottom of the clamp. Insert the fastener and lock the two levers with a 1/4 turn clockwise, then fit the second clamp.
- Attach the safety string to a point that holds at least ten times the weight of the fixture.
- Check that the pan/tilt lock is released. Keep at least 1 m between the fixture and any flammable material or light source.



2.3 RDM notes

RDM (Remote Device Management) is an extension of the DMX512-A protocol. Traditional DMX512 is one-way communication. RDM is bidirectional on the RS-485 bus, which is half-duplex, so only one device may transmit at a time. When using RDM:

- Use a console or host that supports the RDM host protocol.
- Use a bidirectional signal amplifier. A one-way amplifier blocks the return data, so fixtures cannot be found.
- Set all fixtures to DMX mode, so that only one host is on the cable.
- Insert a 120 Ω terminating resistor between pins 2 and 3 of the terminal plug. On long cable runs this reduces signal reflection.
- If the fixture responds to DMX but is not found by the RDM host, first check the signal amplifier, then check that pins 2 and 3 make good contact.

3 Specifications

Item	Specification
Voltage	AC 100–240 V, 50/60 Hz
Power	800 W
Light source	OSRAM 371 W lamp
Colour temperature	6800–7000 K
Lamp life	3000 hours
Lens diameter	156 mm
Beam angle	2°
Dimming	0–100% linear, smooth without flicker

Item	Specification
Strobe	Pulse strobe, adjustable 1–20 times per second
Focus	High-precision glass optics, electronic linear focus
Colour wheel	14 colours + white, with half-colour effect
Fixed gobo wheel	17 gobos + blank, with gobo shake
Prisms	8-facet prism and 8+16-facet prism; each rotates independently in both directions; the two can overlap
7-colour effect	Independent 7-colour rainbow effect
Frost	0–100%
DMX channels	16
Control modes	DMX512, Auto, Master/Slave, RDM
Movement	Pan 540°, tilt 270°, 16-bit fine
Pan / tilt motors	3-phase motors
Housing	Die-cast aluminium and die-cast magnesium alloy
Protection	IP66
Size	36 × 26 × 57.5 cm
Net weight	17.3 kg

4 Panel operation

4.1 Brief and operation

The top of the display shows the fixture title. The status bar below shows the DMX signal, fixture status and communication status. The fault indicator in the lower right shows "ERR" when there is an unviewed fault and "NOR" otherwise. When a controller detects the fixture over RDM, the display shows "RDM".

- Select an item with the touch keys, then press ENTER to complete the operation.
- Value setting: use the UP and DOWN buttons to change the value, then press ENTER to save it. The saved value is applied at the next power-on.
- On/off items are changed by selecting the item. The change is saved immediately.
- Items that need confirmation open a dialog. Select SURE to confirm.
- Anti-accidental-touch: after a period of inactivity the display can lock. To unlock, press the buttons in the order shown on the screen. Editing parameters after power-on brings up the lock screen once. The lock screen setting is in section 4.3.

Select PREV or NEXT to move the address to the previous or next valid value, based on the current channel mode. Select the address value to type any valid address. The fixture automatically limits the address to 512 minus the number of channels in use. The address can also be set over RDM. Use the channel mode button to cycle through the channel modes.

4.2 Operating mode

The fixture supports four operating modes: DMX, Auto, Sound control and Scene mode.

Item	Options	Description
DMX Ctrl	DMX mode	Receives DMX and RDM signals
Auto Run	Auto	Runs automatically using the built-in programs
Sound Ctrl	Sound control	When a strong sound is detected the fixture runs a scene from the built-in programs; otherwise it keeps the last scene
Scene Mode	Scene 01–10	Runs a set scene. Up to 10 scenes can be customised. Scene 1–10 outputs the scene; Auto loops the scenes in order at their set times; a scene with time 0 is skipped
M/S Choose	Master / Slave / Auto	Applies in non-DMX modes. Master: runs the built-in program and outputs data if there is no DMX signal. Slave: runs the built-in program and does not output data. Auto: runs the built-in program if there is no DMX signal, otherwise follows DMX
Lamp switch	On / Off	Switches the lamp, with a confirmation dialog. The switch interval is limited to 30 seconds

Scene mode is for a single fixture or a few fixtures that output a fixed scene or run a simple program without a console. The scene page can be edited. If the light source is a lamp, wait 10 minutes before switching the lamp off.

4.3 Display settings

Item	Options	Description
Language	English / Chinese	Display language
Screen saver	OFF / Mode 1 / Mode 2 / Mode 3 / Mode 4	After 30 s without operation: OFF keeps the last page; Mode 1 blank; Mode 2 blank with the address in the lower left; Mode 3 shows the trademark, address and operating mode; Mode 4 does the same for 30 s, then a blank screen
Screen Rot	OFF / ON	OFF: normal. ON: reversed display
DMX Indicate	Mode 1 / Mode 2 / Mode 3	Behaviour of the DMX signal indicator. Mode 1: bright with signal, off without. Mode 2: off with signal, bright without. Mode 3: flashes with signal, off without
Screen Light	1–10	Backlight level after 10 s without operation
Lock Screen	OFF / ON	OFF: the lock screen appears once after power-on when parameters are edited. ON: after a period of inactivity, the lock screen appears when parameters are edited

4.4 Scene mode

Item	Options	Description
Scene select	1–10	Selects the current scene. Each scene holds a full set of channel values
Scene time	0–255	Hold time in automatic mode, in units of 0.1 s; the final time = scene time × multiplier. 0 means the scene is not output in automatic mode
Control mode	OFF / ON	OFF: the scene is edited directly on the fixture. ON: the console controls the fixture and the console data has priority
Channels 1–N	0–255	Edit each channel value. The list matches the fixture's channel table in section 5

If a reset channel in a scene is set, the fixture resets, and the channel value returns to 0 after the reset to prevent repeated resets.

4.5 Advanced settings

Item	Options	Description
Pan invert / Tilt invert	OFF / ON	Reverses the direction of pan or tilt
P/T rectify	OFF / ON	OFF: the fixture does not correct a position after losing steps. ON: the position is corrected automatically and the fault is logged
Pan offset	4–150	Zero position of pan
Tilt offset	4–48	Zero position of tilt
Data hold	OFF / NO	OFF: with no signal, the motors and lamp return to the position and state they had after reset. NO: with no signal, the last DMX frame is held
Scene time multiple	1–255	Hold time = scene time × multiple
Lamp mode	Power on / After reset / Manual	Power on: the lamp turns on at power-up and the fixture resets 30 s later. After reset: the fixture resets 3 s after power-up, then the lamp turns on. Manual: the lamp is turned on by the menu or console after reset
Reset	SURE	Resets the fixture after confirmation
Factory setting	SURE	Restores the factory settings after confirmation

When power-on mode is used, the lamp waits 30 seconds after power-on to let it fully start and the internal voltage stabilise, then the reset starts. Power-on mode is recommended if the supply is stable. If the fixture cannot calibrate its position, check that P/T rectify is off. If the position is wrong when the signal is disconnected, check the data hold setting first. After changing the XY offset, move XY through its full stroke to check that the fixture does not hit the positioning rod or the housing.

4.6 Status and information

Item	Description
Stepper info	Status of all motors and signals. Hall: 0 means the motor is away from the correction point; 1 means it is at the correction point; no display means the motor has no Hall sensor. Status: motor reset status. PAN / TILT: real-time optocoupler position. PAN OP: optocoupler signal levels in binary
Error logging	The latest 8 error records, kept for the current power cycle only. Error: total number of faults since power-on. Time: time of the power failure in minutes. Hall error: no valid Hall signal during reset. Hall short: Hall signal always valid during reset. Opti error: no valid optocoupler signal during reset. Lose stop: the motor lost steps during operation. Hit: the motor struck the positioning rod during reset. Lamp error: lamp explosion. NTC error: abnormal temperature sensor signal. Fan error: main fan not working
Fixture status	Communication quality 0–100% (internal data link). Error count (erroneous frames since power-on). Light temperature ('---' if not detected). Panel temperature (or ambient). Sensor 1 temperature (motherboard)
Version	Device and model names (as shown over RDM), panel firmware and serial number, main board firmware and serial number. Keep this information for after-sales service
Light time	Total cumulative lamp-on time in minutes. Cannot be cleared by the user; use it for lamp maintenance planning
Total time	Total accumulated fixture on-time. Cannot be cleared

5 DMX channel table (16 channels)

The table below lists the 16 DMX channels and their value ranges.

Channel	Function	DMX value	Description
CH1	Pan	0–255	0–540°
CH2	Pan fine	0–255	0–2°
CH3	Tilt	0–255	0–270°
CH4	Tilt fine	0–255	0–1°
CH5	PT speed	0–255	From fast to slow
CH6	Strobe	0–3	Off
		4–103	Pulse strobe, slow to fast
		104–107	Open
		108–207	Fade strobe, slow to fast
		208–212	Open
		213–251	Random strobe, slow to fast
		252–255	Open
CH7	Dimmer	0–255	0–100% dimmer
CH8	Colour	0–4	White
		5–8	White + Colour 1
		9–12	Colour 1
		13–17	Colour 1 + Colour 2
		18–21	Colour 2
		22–25	Colour 2 + Colour 3
		26–29	Colour 3
		30–34	Colour 3 + Colour 4
		35–38	Colour 4
		39–42	Colour 4 + Colour 5
		43–48	Colour 5
		49–51	Colour 5 + Colour 6
		52–55	Colour 6
		56–59	Colour 6 + Colour 7
		60–63	Colour 7
		64–68	Colour 7 + Colour 8
		69–72	Colour 8
		73–76	Colour 8 + Colour 9
		77–81	Colour 9
		82–85	Colour 9 + Colour 10
		86–89	Colour 10
		90–93	Colour 10 + Colour 11
		94–98	Colour 11
		99–102	Colour 11 + Colour 12
		103–106	Colour 12
		107–110	Colour 12 + Colour 13
		111–115	Colour 13

Channel	Function	DMX value	Description
		116–119	Colour 13 + Colour 14
		120–123	Colour 14
		124–127	Colour 14 + White
		128–192	Rotate forward, fast to slow
		193–255	Rotate reverse, slow to fast
CH9	Gobo	0–4	White
		5–9	Gobo 1
		10–14	Gobo 2
		15–19	Gobo 3
		20–24	Gobo 4
		25–29	Gobo 5
		30–34	Gobo 6
		35–39	Gobo 7
		40–44	Gobo 8
		45–49	Gobo 9
		50–54	Gobo 10
		55–59	Gobo 11
		60–64	Gobo 12
		65–69	Gobo 13
		70–74	Gobo 14
		75–79	Gobo 15
		80–84	Gobo 16
		85–89	Gobo 17
		90–127	Rotate reverse, fast to slow
		128–130	Stop
		131–170	Rotate forward, slow to fast
		171–175	Gobo 1 shake, slow to fast
		176–180	Gobo 2 shake, slow to fast
		181–185	Gobo 3 shake, slow to fast
		186–190	Gobo 4 shake, slow to fast
		191–195	Gobo 5 shake, slow to fast
		196–200	Gobo 6 shake, slow to fast
		201–205	Gobo 7 shake, slow to fast
		206–210	Gobo 8 shake, slow to fast
		211–215	Gobo 9 shake, slow to fast
		216–220	Gobo 10 shake, slow to fast
		221–225	Gobo 11 shake, slow to fast
		226–230	Gobo 12 shake, slow to fast
		231–235	Gobo 13 shake, slow to fast
		236–240	Gobo 14 shake, slow to fast
		241–245	Gobo 15 shake, slow to fast
		246–250	Gobo 16 shake, slow to fast
		251–255	Gobo 17 shake, slow to fast
CH10	Focus	0–255	Far to near
CH11	Prism 1	0–127	None

Channel	Function	DMX value	Description
		128–255	Insert prism 1
CH12	Prism 2	0–127	None
		128–255	Insert prism 2
CH13	Prism 1 rotation	0–127	0–360°
		128–191	Rotate forward, fast to slow
		192–255	Rotate reverse, slow to fast
CH14	Mode (effects)	0–15	None
		16–63	Effect 1
		64–111	Effect 2
		112–159	Effect 3
		160–207	Effect 4
		208–255	Effect 5
CH15	Frost	0–127	None
		128–191	Insert 7-colour effect
		192–255	Insert frost
CH16	Reset	0–99	None
		100–105	Turn off lamp over 3 s
		106–199	None
		200–205	Turn on lamp over 3 s
		206–209	None
		210–215	Reset XY motors over 3 s
		216–219	None
		220–235	Reset effect motor over 3 s
		236–239	None
		240–255	Reset fixture over 3 s