

USER MANUAL

Powerful LED moving head, 480W, 3in1 BSW, CMY & CTO, DMX

LED695



Code LED695

1 About this manual

This user manual applies to the product Powerful LED moving head, 480W, 3in1 BSW, CMY & CTO, DMX (code LED695).

Read this manual carefully before installing the product and putting it into operation for the first time, follow all of its instructions, and keep it for future reference. If you pass the product on to another person, include this manual.

Safety notices are marked with signal words according to the severity of the hazard: DANGER – an imminent hazard that will result in death or serious injury; WARNING – a potential hazard that could result in death or serious injury; CAUTION – a potential hazard that could result in minor injury or property damage; NOTE – additional information for correct and safe use.

NOTE This product is designed for stage and effect lighting. It is not suitable for household room illumination.

2 Safety instructions

WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

WARNING

- Connect the device only to a properly installed mains outlet with a protective earth (ground) contact. The outlet or other means of disconnection must remain easily accessible.
- Power supply: 230 V AC, 50/60 Hz, PowerCon IN/OUT. Before connecting, make sure that the mains voltage matches this value and the value on the rating plate of the device.
- Do not connect the device to a dimmer or to a dimmed circuit.
- Use only the original power cable or a cable with identical ratings. Protect the cable from damage, do not run it over sharp edges, and never unplug it by pulling on the cable.
- When connecting several devices to one circuit, do not exceed its permitted load.
- Do not touch the device with wet hands.

WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Ingress protection rating: IP20.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

CAUTION

- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them longer than necessary.

WARNING

- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
- Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

WARNING Do not operate the product in damp places or environments exceeding 60 °C.

WARNING The supply voltage variation should be within $\pm 10\%$. Excessive voltage shortens lamp life; insufficient voltage impairs performance.

CAUTION Keep the distance between the equipment and flammable materials or lighting sources greater than 1 meters.

3 Installation

WARNING

- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 24 kg.
- Use suitable mounting hardware (for example truss clamps) and tighten all screw connections properly.
- Always secure the suspended device against falling with a safety cable of adequate load capacity, routed through a fixed point of the device and around the supporting structure.
- During installation and removal, keep people out of the area below the work position.
- Regularly inspect the fixings and the safety cable for damage, corrosion and loosening.

The fixture can be positioned and clamped in any orientation on the stage using the 1/4-turn quick-lock bracket.

Two clamps are required to mount the fixture. Lock each clamp by turning its 1/4-turn fastener clockwise.

Use M12 screws (Grade 8.8 or higher) to fasten the rigging clamp securely to the bracket.

The rigging clamp and supporting structure must support at least ten times the total weight of the fixture, clamps, and cables.

Ensure the Pan/Tilt lock is disengaged before operating.

Maintain a distance of more than 1 meters between the fixture and any flammable materials or light sources.

4 Connections

- Use shielded cable designed for DMX512 with an impedance of 110 Ω . Ordinary microphone cable is not suitable for DMX, especially over longer distances.
- Connect the devices in a daisy chain: connect the DMX OUT of one device to the DMX IN of the next. Do not split the line with Y-cables or wire it in a star; the line may be split only with a DMX splitter.
- Connect the shield to pin 1 only. Do not connect the shield (ground) to the metal shell of the connector; this can cause short circuits or erratic behavior.
- XLR pin assignment: pin 1 – shield (ground), pin 2 – Data- (Data Complement), pin 3 – Data+ (Data True). On 5-pin connectors, pins 4 and 5 are not connected; a 5-pin connector can be connected to a 3-pin one with a cable adapter.
- Terminate the end of the line (for impedance matching): plug an XLR connector with a 120 Ω , ¼ W resistor between pins 2 and 3 into the DMX OUT of the last device. This reduces the risk of erratic behavior.
- Connect no more than 32 devices to one DMX line. For more devices or longer runs, use a DMX splitter or booster.

Connector	Purpose
DMX IN (3-pin or 5-pin XLR)	DMX signal input
DMX OUT (3-pin or 5-pin XLR)	DMX signal output / link

5 Operation

Switching on and off

- Connect the fixture to an AC 100–240V 50/60Hz power source.
- Depending on the Lamp mode setting, the fixture will either turn on the lamp at power-up and reset after 30 seconds, reset after 3 seconds and then turn on the lamp, or wait for manual lamp ignition after reset.

Control panel

Buttons: ESC, UP, DOWN, ENTE.

Switches and indicators

Control	Function
Rotary encoder with push button	Rotary encoder or push button to navigate, select parameters, and confirm settings
DMX indicator	Indicates DMX signal reception status.
MIC	Detects sound for sound-activated operation

Display menu

Code	Values	Function
ADDRESS		Set DMX address and related settings. Access the DMX address settings submenu.

Code	Values	Function
MODE		Select fixture operating mode and settings. Access the operating mode submenu.
DISPLAY		Access display options and settings.
SCENE		Scene editing and playback mode. Access scene settings and editing.
ADVANCED		Advanced fixture run parameters. Access advanced fixture parameters and calibration.
STATUS		View fixture status and system information. Access status and information displays.
– DMX Ctrl		DMX mode. Receives DMX signal and RDM signal.
– Auto Run		Automatic program mode. The fixture runs automatically according to built-in programs.
– Sound Ctrl		Sound mode. When a strong sound is detected, the fixture runs a scene according to the built-in program; otherwise, it remains on the last scene.
– Scene Mode 01	1-10, Auto	Custom scene editing and playback. Runs a set scene, supporting custom editing of up to 10 scenes. Options are 1–10 (outputs the specified scene) or Auto (automatically loops through scenes with a non-zero scene time).
– M/S Choose	Master, Slave, Auto	Master and Slave selection, effective in non-DMX modes. Detects DMX cable status to avoid data conflicts. Master: runs built-in programs and outputs synchronization data if no DMX signal is detected. Slave: runs built-in programs and does not output data. Auto: runs built-in programs if no DMX signal is detected; otherwise follows DMX mode.
– Lamp switch	Off, On	Lamp light source control. Turn the lamp on or off via a confirmation dialog box ('SURE'). The switching interval is limited to 30 seconds. Off turns off lamp output; On turns on lamp output.
– Language	English, Chinese	Display language settings. Select English or Chinese display language.
– Screen saver	OFF, Mode1, Mode2, Mode3	Screen behavior after 30 seconds of inactivity. OFF retains the last operational screen. Mode1 turns black. Mode2 displays a black screen with the fixture's DMX address in the lower-left corner. Mode3 displays trademark information, address code, and operating mode.
– Screen Rot	OFF, ON, AUTO	Set display orientation. OFF disables display inversion. ON enables display inversion. AUTO automatically detects fixture orientation and inverts the display accordingly.
– DMX Indicate	Mode1, Mode2, Mode3	Set indication mode for the DMX signal indicator. Indicator is lit when signal is detected, off when no signal. Mode2: Indicator is off when signal is detected, lit when no signal. Mode3: Indicator flashes when signal is detected, off when no signal.
– Signal Bright	1~10	Set the brightness of the signal indicator. Adjust the brightness of the signal indicator from 1 to 10. Default: 10.
– Screen Lihgt	1~10	Set screen backlight brightness after 10 seconds of inactivity. Adjust the backlight brightness after 10 seconds of inactivity from 1 to 10. Default: 10.
– Touch switch		Enable or disable touch screen function. Choose whether to disable touch input. If the touchscreen is damaged, disable it and use the auxiliary encoder/buttons.
– Touch		Calibrate touch screen accuracy. Enter the touch calibration screen to recalibrate touch accuracy if the touch function behaves abnormally.
– Scene Select	1~10	Select the current operational scene. Selects which of the 10 scenes to edit.
– Scene Time	0, 1-255	Set hold time of the current scene in auto mode. The time unit is 0.1 seconds. Setting this to 0 skips the scene during auto playback. Values 1–255 provide hold times from 0.1s to 25.5s.
– Pan Invert	OFF, ON	Invert Pan rotation direction. OFF maintains normal Pan rotation; ON inverts Pan rotation.

Code	Values	Function
– Tilt Invert	OFF, ON	Invert Tilt rotation direction. OFF maintains normal Tilt rotation; ON inverts Tilt rotation.
– P/T Rectify	OFF, ON	Detect and correct Pan/Tilt step loss. OFF leaves the position uncorrected after step loss. ON automatically corrects the position after step loss and logs an out-of-step error.
– Pan Offset	4-150	Set Pan zero point. Calibrates the Pan mechanical zero point.
– Tilt Offset	4-48	Set Tilt zero point. Calibrates the Tilt mechanical zero point.
– Data hold	OFF, ON	Output state when DMX signal is lost. OFF returns the motors and light source to the completed reset position when signal is lost. ON holds the last received frame of DMX data.
– Lamp mode	Power on, After reset, Manual	Set how the lamp turns on after power-up. "Power on" turns the lamp on at power-up and resets after 30 seconds. "After reset" resets the fixture 3 seconds after power-up and then turns on the lamp. "Manual" requires manually turning on the lamp through the menu or console after reset.
– Factory Setting		Restore factory settings. Opens a confirmation dialog; select "SURE" to reset lamp parameters to factory defaults.
– Stepper info		Display the status of all motors and signals. Displays Hall sensor status, motor reset status, Pan/Tilt real-time position feedback, and Pan/Tilt optocoupler two-signal level states in binary.
– Error Logging		Display error log. Shows the last 8 error records detected during reset and operation. Records are not saved after a power failure.
– Fixture status		Display critical real-time status data. Shows internal communication link quality (0–100%), error count, light source temperature, panel temperature, and sensor 1 motherboard temperature.
– Version		Display fixture information and firmware version. Shows device name, model, panel firmware version and serial number, and main board firmware version and serial number.
– Light time		Cumulative light source runtime. Displays the cumulative operating time of the light source in minutes; can be reset by the user.
– Total time		Cumulative fixture operating time. Displays total accumulated fixture power-on time; cannot be reset.

Auto mode

Fixture runs automatically according to built-in programs.

Sound mode

When the fixture detects a loud sound, it automatically runs a scene according to the built-in program; otherwise, it remains in the last scene.

Scene Mode 01

Runs in a set scene, supporting custom editing for up to 10 scenes.

Setting the DMX address

- Select previous or next to automatically calculate the adjacent start address.
- Click the address value to open the numeric keypad, enter a valid start address, and confirm.
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in 24CH mode: 24.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.

- For several devices in a row in 24CH mode, you can use, for example, the start addresses 1, 25, 49, 73.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

Selecting the DMX mode

- On the DMX Address screen, cycle through the channel modes using the Channel Mode button.

Master/Slave mode

- In the fixture operating mode setting screen, select M/S Choose.
- Set slave units to Slave; they will run the built-in program without outputting data.
- In Master/Slave mode, one device (Master) controls the other devices (Slaves), which copy its behavior in sync. No controller is needed.
- Connect the devices with DMX cable in a daisy chain, just as for control from a desk (DMX OUT to the DMX IN of the next device), and terminate the end of the line.
- On the master device, select the desired standalone mode (auto mode or sound mode, depending on the device), and set all other devices to Slave mode.
- Only one master device may be on the line; do not connect a DMX controller to the line in Master/Slave mode.
- For reliable synchronization, link only devices of the same type.

NOTE RDM requires a bidirectional signal amplifier; traditional one-way splitters will block return data.

NOTE Do not use sharp objects on the TFT touchscreen to avoid damaging the display.

NOTE After turning off the lamp light source, wait 10 to 20 minutes for it to fully cool down before restarting.

6 DMX channels

Mode	Channels
24CH	24

Mode 24CH

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

CH	Function	DMX	Description
1	Pan	0–255	Pan 0-540°
2	Pan Fine	0–255	Fine adjustment of CH 1
3	Tilt	0–255	Tilt 0-270°
4	Tilt Fine	0–255	Fine adjustment of CH 3
5	Speed Pan/Tilt	0–255	Fast to slow
6	Strobe	0–3	Dark
		4–103	Pulse strobe slow to fast
		104–107	Open
		108–155	FadeIn strobe slow to fast
		156–207	FadeOut strobe slow to fast
		208–212	Open
		213–251	Random strobe slow to fast
		252–255	Open
7	Dimmer	0–255	0-100% dimmer
8	Cyan	0–255	Cyan 0-100%
9	Magenta	0–255	Magenta 0-100%
10	Yellow	0–255	Yellow 0-100%
11	CTO	0–255	CTO 0-100%
12	Colors	0–9	White
		10–19	Colour 1
		20–29	Colour 2
		30–39	Colour 3
		40–49	Colour 4
		50–59	Colour 5
		60–69	Colour 6
		70–79	Colour 7
		80–89	Colour 8
		90–99	White + Colour 1
		100–109	Colour 1 + Colour 2
		110–119	Colour 2 + Colour 3
		120–129	Colour 3 + Colour 4
		130–139	Colour 4 + Colour 5
		140–149	Colour 5 + Colour 6
		150–159	Colour 6 + Colour 7

CH	Function	DMX	Description
13	Gobo	160–169	Colour 7 + Colour 8
		170–179	Colour 8 + Colour 9
		180–215	Rotate forward (fast to slow)
		216–220	Stop
		221–255	Rotate reverse (slow to fast)
		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	Shake slow to fast Gobo 1
		70–74	Shake slow to fast Gobo 2
		75–79	Shake slow to fast Gobo 3
		80–84	Shake slow to fast Gobo 4
		85–89	Shake slow to fast Gobo 5
		90–94	Shake slow to fast Gobo 6
		95–99	Shake slow to fast Gobo 7
		100–104	Shake slow to fast Gobo 8
		105–109	Shake slow to fast Gobo 9
		110–114	Shake slow to fast Gobo 10
		115–119	Shake slow to fast Gobo 11
		120–127	Gobo 12
		128–190	Rotate reverse (fast to slow)
		191–192	Stop
		193–255	Rotate forward (slow to fast)
14	Gobo 2	0–9	White
		10–19	Gobo 1
		20–29	Gobo 2
		30–39	Gobo 3
		40–49	Gobo 4
		50–59	Gobo 5
		60–69	Gobo 6
		70–79	Gobo 7
		80–89	Shake slow to fast Gobo 1

CH	Function	DMX	Description
		90–99	Shake slow to fast Gobo 2
		100–109	Shake slow to fast Gobo 3
		110–119	Shake slow to fast Gobo 4
		120–129	Shake slow to fast Gobo 5
		130–139	Shake slow to fast Gobo 6
		140–149	Shake slow to fast Gobo 7
		150–200	Rotate forward (fast to slow)
		201–205	Stop
		206–255	Rotate reverse (slow to fast)
15	Gobo 2 Rotation	0–127	0-360°
		128–190	Rotate reverse (fast to slow)
		191–192	Stop
		193–255	Rotate forward (slow to fast)
16	Prism 1	0–127	None
		128–255	Insert prism 1
17	Prism 1 Rotation	0–127	0-360°
		128–187	Rotate forward (fast to slow)
		188–195	Stop
		196–255	Rotate reverse (slow to fast)
18	Prism 2	0–127	None
		128–255	Insert prism 2
19	Prism 2 Rotation	0–127	0-360°
		128–187	Rotate forward (fast to slow)
		188–195	Stop
		196–255	Rotate reverse (slow to fast)
20	Frost	0–127	None
		128–255	Insert frost
21	Zoom	0–255	Large to small
22	Focus	0–255	Far to near
23	Focus Fine	0–255	Fine adjustment of CH 22
24	Reset	0–209	None
		210–215	Reset XY motor over 3 second
		216–219	None
		220–235	Reset Effect motor over 3 second
		236–239	None
		240–255	Reset fixture over 3 second

7 Technical specifications

Parameter	Value
Effects	1x rotating pattern wheel (7 effects + white light)
Equipment	2 locking levers to secure the head during transport, side carrying handles, clamps for mounting the head to a structure or truss
Light source	480 W LED module
Colors	CMY + CTO + white light, split-color function
Dimming	0-100% linear 16-bit dimming, smooth, flicker-free
Strobe	adjustable flash speed 1-25 / sec.
LED lifetime	>20000 hours
Focus and zoom	linear 0-100%, 16-bit precision bidirectional
Gobos	2 gobo wheels with autofocus, 1 static gobo wheel with 12 gobos + white light
Prism	3- and 8-facet bidirectional rotating prism
Pan	540°
Tilt	270°
Maximum pan speed	2,5 sekundy / 540°
Maximum tilt speed	1,3 sekundy / 270°
Operating modes	Auto, Sound, Master/Slave, DMX
DMX channels	24 CH mode
DMX connection	3-pin XLR / DMX IN/OUT connectors
Controls	full touchscreen or via 4 buttons, text inversion option
Power supply	230 V AC, 50/60 Hz, PowerCon IN/OUT
Total power	600 W
Dimensions	680 x 380 x 255 mm (H x L x D)
Weight	24000 g
Ingress protection	IP20

8 Maintenance and cleaning

- Before cleaning and maintenance, switch the device off, disconnect it from the power supply and let it cool down.
- Clean the housing with a soft, dry or slightly damp cloth. Do not use solvents, abrasive cleaners or pressure washers, and make sure no liquid gets into the device.
- Clean optical parts (lenses, front glass), if the device has any, with a soft lint-free cloth and a cleaner intended for optics or glass.
- Regularly inspect the housing, cables, connectors and fixings. Have damaged parts replaced by a service center.
- How often to clean depends on the environment; dust, smoke and fog make the device dirty much faster.

Clean the fan, fan grille, and optical lens regularly to maintain good operating condition.

Do not use alcohol or other organic solvents to clean the outer housing.

9 Troubleshooting

- The device does not switch on – check the supply voltage, the cables and the fuse, if the device has one.
- The device does not respond to DMX – check the start address, the selected DMX mode and whether it matches the profile in the controller, the cable connection to DMX IN, and the controller output (universe).
- The device behaves erratically or flickers – check the terminator at the end of the line, the condition and wiring of the cables (shield on pin 1 only), the number of devices on the line (32 at most), and that the line is not split without a splitter.
- Only some devices on the line respond – check the cable and connectors between the last working and the first non-working device, and make sure all devices on the line are switched on.
- Devices respond to the wrong channels or affect each other – check that the addresses do not overlap and that the DMX mode on the devices matches the patch in the controller.
- The device or the connected load does not light up although it receives DMX – check the values of the dimmer, shutter and strobe channels against the DMX channel table.
- Movement is reversed – check whether Pan/Tilt inversion is enabled in the device menu or in the controller.
- Moving parts do not reach the correct position after power-on or transport – switch the device off and on again to reset the position, and make sure the transport lock, if any, is released. If this does not help, contact a service center.
- Movement is jerky – check the value of the Pan/Tilt speed channel, if the device has one, and the stability of the DMX signal.

Problem	Remedy
Hall sensor error	Check the connections and position of the motor and Hall sensor.
Hall sensor short	Inspect the Hall sensor circuit and wiring for short circuits.
Optocoupler error	Clean or replace the optocoupler sensor and check its alignment.
End-stop lost	Check the movement mechanics, belts, and motors for obstructions.
Collision	Verify the optical limit sensor and physical positioning rods.
Lamp error	Inspect the light source and lamp circuit.
NTC error	Check the temperature sensor connection and sensor board.
Fan error	Check fan operation and wiring, and clean any dust blocking the fan blades.

10 Disposal

The crossed-out wheeled bin symbol on the product, in the manual or on the packaging means that the product must not be disposed of with unsorted household waste at the end of its life.

Take the end-of-life equipment to a collection point, for example a municipal collection site or a retailer. Proper disposal enables materials to be recycled and helps prevent possible negative effects on the environment and human health.

Follow the regulations applicable in your country; in the Czech Republic, take-back is governed by Act No. 542/2020 Coll., on End-of-Life Products.

SOH Sound & Lights s.r.o. provides take-back through the collective compliance scheme ASEKOL a.s. (Československého exilu 2062/8, 143 00 Praha 4 – Modřany, www.asekol.cz).

Recycle the packaging materials according to their type.

11 Warranty and service

For products purchased from SOH, a buyer who is a consumer may, under the Czech Civil Code, notify the seller of a defect that becomes apparent within 24 months of taking delivery; this statutory right is not affected by any warranty. Defect claims for these products and out-of-warranty repairs are handled by sending the goods to SOH's premises or bringing them in person: SOH, Antala Staška 242/14, 140 00 Praha 4, Czech Republic. Further information (in Czech) is available at eshop.soh.cz/casto-kladene-otazky.

Statutory rights in respect of defects and the warranty are governed by applicable law and the seller's terms and conditions.

Submit any claim to the seller from whom you purchased the product. Enclose proof of purchase and as precise a description of the fault as possible.

Neither the statutory rights nor the warranty cover defects caused by the buyer, for example by installation or operation contrary to this manual, mechanical damage or unskilled tampering. Wear caused by normal use is not a defect either.

Service and technical support are provided by SOH Sound & Lights s.r.o., Antala Staška 242/14, 140 00 Praha 4.

Company ID: 07894791

Web: www.soh.cz

Email: servis@soh.cz

Phone: +420 272 272 500