

G-7 Spot



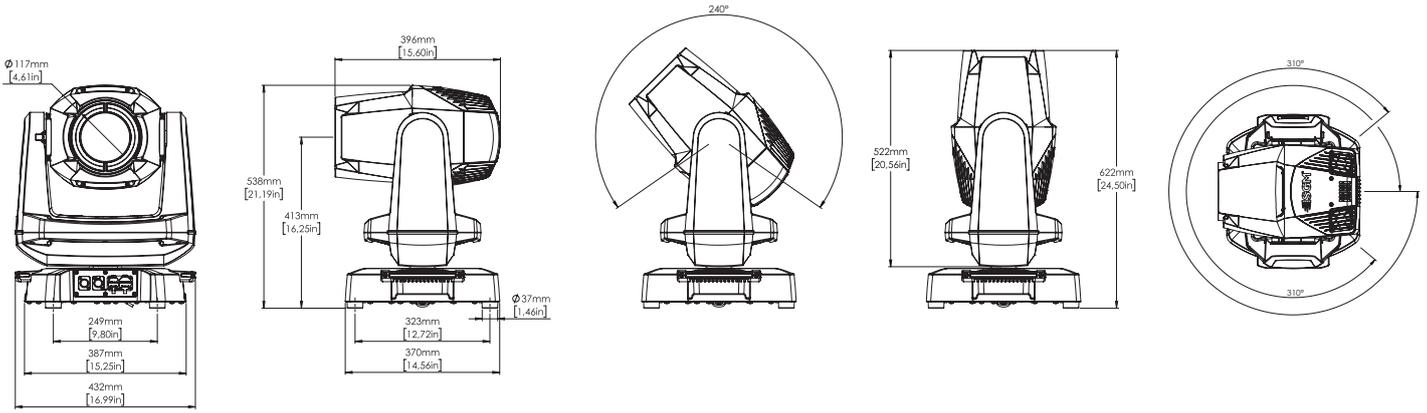
USER MANUAL

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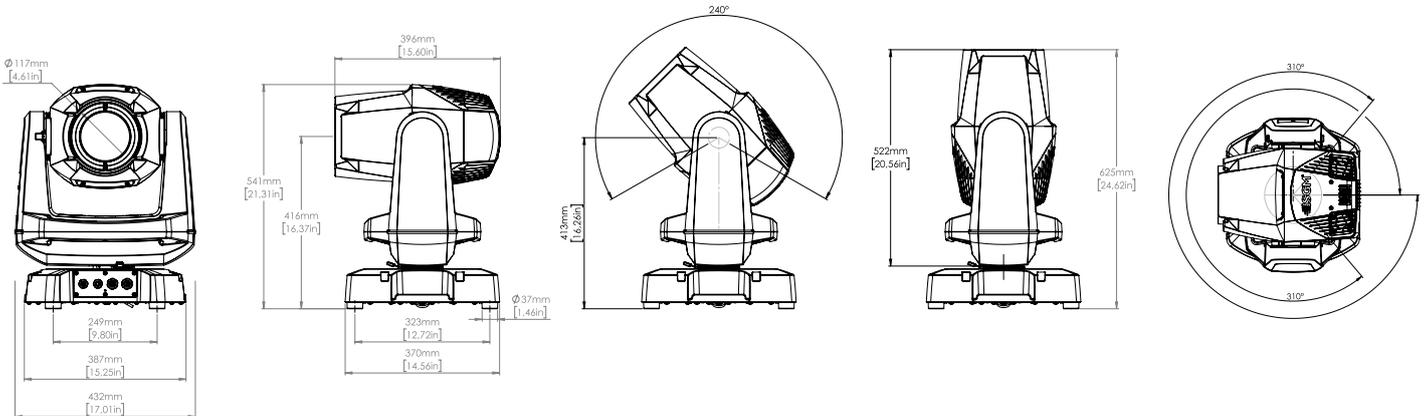


G-7 Spot dimensions

G-7 Spot



G-7 Spot POI



All dimensions in millimeters and inches. Drawing not to scale.

This manual covers installation, use, and maintenance of the SGM G-7 Spot Series. A digital version is available at www.sgmlight.com, or upon request via support@sgmlight.com.

G-7 SPOT USER MANUAL REV. D

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English edition.

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Safety information



WARNING!

Read the following safety precautions carefully before unpacking, installing, powering, or operating the device.



SGM fixtures are intended for professional use only. They are not suitable for household use.

Les fixtures SGM sont impropre à l'usage domestique. Uniquement à usage professionnel.

This product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product and the hazards involved.

Ce produit doit être installé selon le code d'installation pertinent, par une personne qui connaît bien le produit et son fonctionnement ainsi que les risques inhérent.



DANGER! *Risk of electric shock. Do not open the device.*

- Do not open the device; there are no user-serviceable parts inside.
- Ensure that power is cut off when wiring the device to the AC mains supply.
- Ensure that the device is electrically connected to earth (ground).
- Do not apply power if the device or mains cable is in any way damaged.
- Do not immerse the fixture in water or liquid.
- Mount at least 102 mm (4 inches) above ground level.



WARNING! *Take measures to prevent burns and fire.*

- Install in a location that prevents accidental contact with the device.
- Install only in a well-ventilated space.
- Install at least 300 mm (12 in.) away from objects to be illuminated.
- Install only in accordance with applicable building codes.
- Ensure a minimum clearance of 100 mm (4 in.) around the cooling fans.
- Do not paint, cover, or modify the device, and do not filter or mask the light.
- Keep all flammable materials well away from the device.
- Allow the device to cool for 15 minutes after operation before touching it.

CAUTION: Exterior surface temperature after 5 min. operation = 55°C (131°F). Steady state = 65°C (149°F).



WARNING! *Take measures to prevent personal injury.*

- Do not look directly at the light source from close range.
- Take precautions when working at height to prevent injury due to falls.
- For Permanent Outdoor Installations (POI), ensure that the fixture is securely fastened to a load-bearing surface with suitable corrosion-resistant hardware.
- For a temporary installation with clamps, ensure that the quarter-turn fasteners are turned fully and secured with a suitable safety cable.
- For elevated installations, secure the fixture with suitable safety cables, and always comply with relevant load dimensioning, safety standards, and requirements.
- The standard safety wire cable must be approved for a safe working load (SWL) of 10 times the weight of the fixture, and it must have a minimum gauge of 5 mm.

Before installing this product

Please visit the SGM official website at www.sgmlight.com for the latest version of this user manual / safety information leaflet. Due to continuous improvements, the instructions may change without notice. SGM always recommends the latest available firmware version from www.sgmlight.com.



Avoiding damage from direct sunlight.

CAUTION - As it happens with any other moving head fixtures with magnifying lenses, high performance reflectors, or complex optical systems, sunlight can cause permanent damage in the internal parts of the fixture, even when the front lens or reflector is facing the sun for short periods of time. Never let the front lenses or the primary reflectors of the fixture directly exposed to sunlight, even if the fixture is not working. You can prevent potential exposure to sunlight by tilting down the moving head when not in use.



External cleaning and visual inspection of the fixture

All users of SGM fixtures should regularly clean those parts of the fixture directly exposed to the elements, such as the external housing and front lenses. Additionally, all owners of SGM fixtures must periodically check the external housing of the fixture for structural breaks, components in bad shape, cracked lenses, or loose screws. To ensure proper operation, but also to prevent the risk of potential accidents, do not use the fixture if the lens, housing, or power cables are damaged. If parts of the fixture appear to be missing, cease use immediately and contact SGM support.



Wiring and conduit / containment

SGM fixtures supplied with power and data cable leads are not intended for installation in permanently installed conduit or containment. When installing fixtures in a permanent installation, ensure cable leads are installed as a service loop to an appropriately rated junction box, using suitable cable strain reliefs / glands. All installed fixtures must be securely mounted, and service loop appropriately protected for installation location. All electrical wiring and connections should be completed by a qualified electrician.



Safety Precautions

When using electrical equipment, basic safety precautions should always be followed, including the following:

1. Do not mount near gas or electric heaters.
2. Permanently installed equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
3. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
4. Do not use this equipment for other use than intended.
5. Refer service to qualified personnel or authorized service centres.
6. Do not look directly into the beam for long periods of time when the fixture is on.
7. The fixture shall, under no circumstance, be covered with insulating material of any kind.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.

Overview

The G-7 Spot / G-7 Spot POI is a fast, compact, and lightweight mid-sized moving head spot with high output and low power consumption, designed for multiple applications, including when wireless operation is essential.

The G-7 Spot features:

- IP66 rating
- 6500K white LED engine, 20,000 hours LM-70 / TM-21
- CMY color mixing with dichroic RGB macros, linear CTO and a CTB filter
- Built-in wireless DMX
- RDM ANSI E1.20
- One fixed gobo wheel with 9 static gobos + open
- One exchangeable, rotatable, and indexable gobo wheel with 6 gobos + open
- Variable and exchangeable 0-100% frost effect with a soft diffusion
- Low power consumption
- Superior thermal management for high reliability

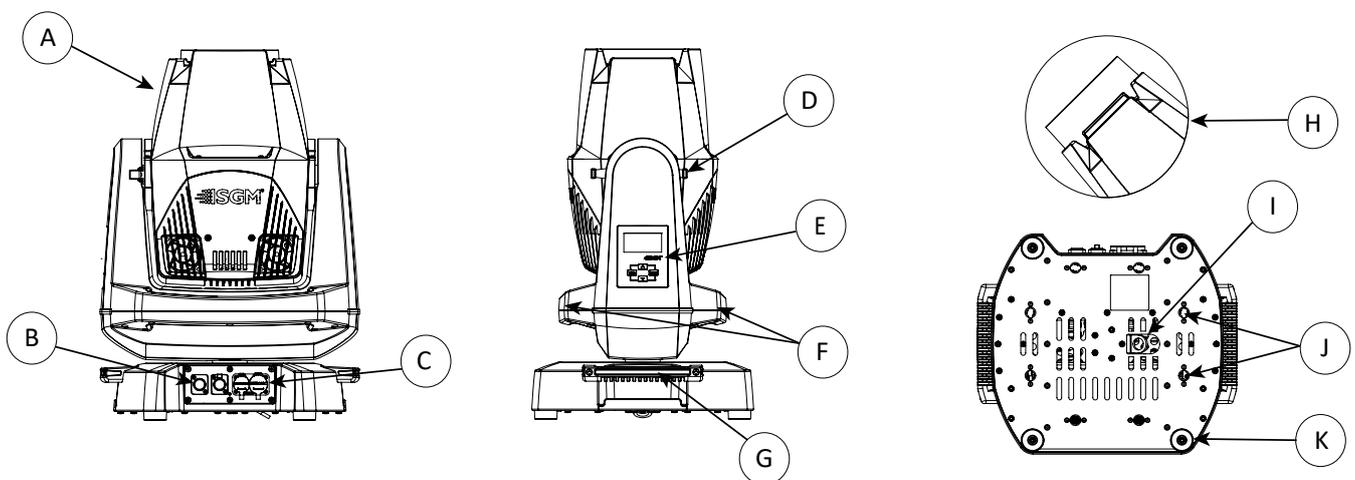
Standard and POI Permanent Outdoor Installation Versions

The G-7 Spot / G-7 Spot POI are two different versions of the same fixture. Please refer to the POI section of this manual for specific instructions when using the POI version.

PLEASE NOTE!

POI versions of the fixture should be pre-set with any custom gobos before installation. Although most functions are possible to be set via RDM once mounted in position, it is easier to do configuration and any troubleshooting before mounting is complete.

Parts identification and terminology



A: Front lens
B: DMX in and out
C: Power in and out
D: Tilt lock/unlock

E: Display and control panel (POI n/a)
F: Yoke handles
G: Base handle (x2) (POI n/a)
H: G-7 with Tophat (accessory)

I: Safety wire attachment point
J: Holes for omega bracket (x8)
K: Rubber feet (x4)

Figure 1: G-7 Spot parts and terminology

Preparing for installation

Unpacking

Unpack the device and inspect it to ensure that it has not been damaged during transport.

The G-7 Spot is shipped with:

- Power cable with power input connector, 2 m (78 in.).
- Two omega brackets with 1/4-turn fasteners.
- Safety information leaflet.

Location / application

The fixture is IP66-rated and designed for both indoor and outdoor events. This means that it is protected from:

- Dust, to the degree that dust cannot enter the device in sufficient quantities as to interfere with its operation.
- Pressure water jets from any direction.

When selecting a location for the device, ensure that:

- It is situated away from public thoroughfares and protected from contact with people.
- It is not immersed in water.
- It has adequate ventilation.
- Will not be focused with the glass lenses towards the sun for extended periods of time.

When using the fixture with a DMX controller, ensure that:

- The DMX out of the last fixture is terminated with a 120 ohm resistor between pin 2 and 3, according to the RS485 standard.
- The DMX out is properly sealed by mounting the protection cap in accordance with the ingress protection (IP) requirements.
- A maximum of 32 fixtures can be connected to the same DMX link.

Transportation

Always use the supplied packaging or suitable flight case for transportation and storage.

Release the tilt lock when transporting the fixture. Leaving the tilt lock blocked may cause damage to the fixture.

Never carry the fixture by connected cables or wires; use the handles.

Installing / Rigging the G-7 Spot

All SGM fixtures have locking points in the base for installation and rigging. The distance between the points from center to center is always 106 mm. While the base of the standard G-7 Spot include 1/4-turn fastener camlocks to mount the omega brackets, the POI products come with M-10 nuts for M-10 screws.

The G-7 Spot may be installed in any orientation on a ceiling or on a wall surface.

Always use the supplied omega brackets to rig the G-7 Spot. Lock the bracket with the 1/4-turn fasteners.

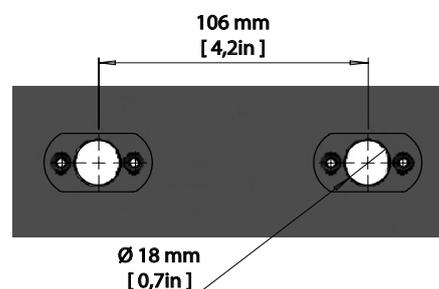
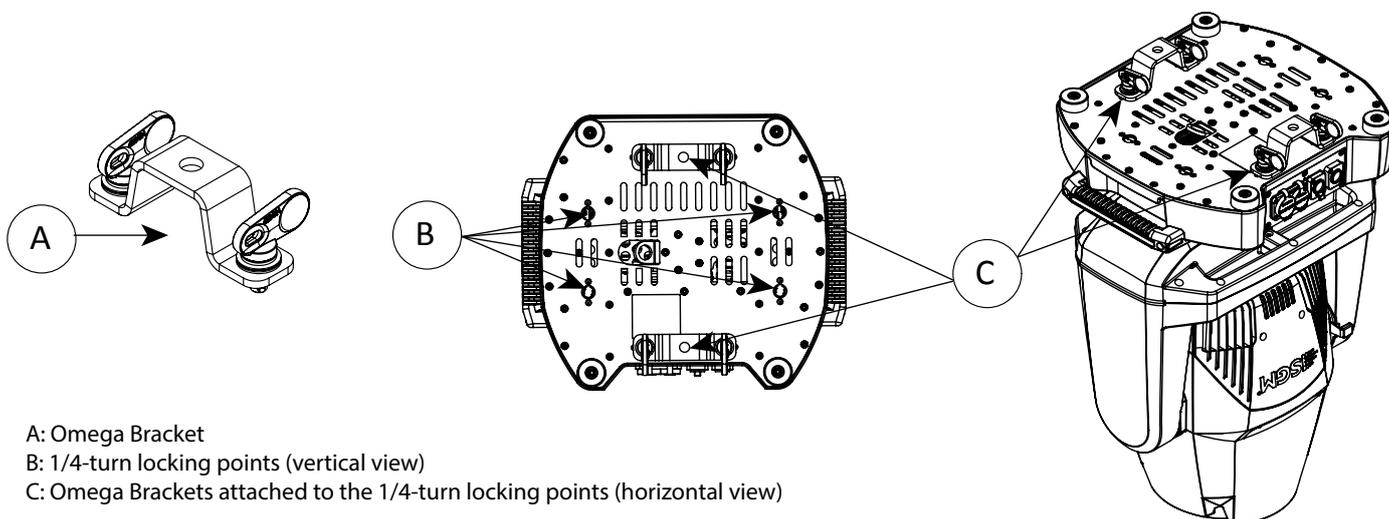


Figure 2: SGM locking points

PLEASE NOTE!

The 1/4-turn fasteners are only locked when turned fully clockwise.

Depending on the structure, please use appropriate and secure methods for mounting the Omega bracket.



A: Omega Bracket

B: 1/4-turn locking points (vertical view)

C: Omega Brackets attached to the 1/4-turn locking points (horizontal view)

Figure 3: G-7 Spot base with Omega brackets

Rigging process using the SGM Omega bracket

Start the rigging process by blocking the lower working area, and make sure the work is performed from a stable platform.

1. Check that the clamp / bracket is undamaged and can bear at least 10 times the weight of the fixture. Check that the structure can bear at least 10 times the weight of all installed fixtures, lamps, cables etc.
2. Bolt the clamp / bracket securely to the omega bracket with a M12 / ½" bolt (min. grade 8.8 C5M) and a lock nut.
3. Align an Omega bracket with two 1/4-turns in the G-7 Spot base. Insert the fasteners into the G-7 Spot base and turn both levers a full 1/4-turn clockwise to lock. Install the second Omega bracket.
4. Working from a stable platform, hang the fixture on a truss, or other structure. **Note the position of the base.** Tighten the clamps.
5. Install a safety wire that can bear at least 10 times the weight of the fixture. The safety wire attachment point is designed to fit a carabiner.
6. Check if the tilt lock is released. If not, push the slide button shown in the figure 4 to the right to release the tilt lock.
7. Verify that there are no combustible materials or surfaces to be illuminated within 300 mm (12 in.) of the fixture.
8. Check that there is no possibility of head or yoke colliding with other fixtures.

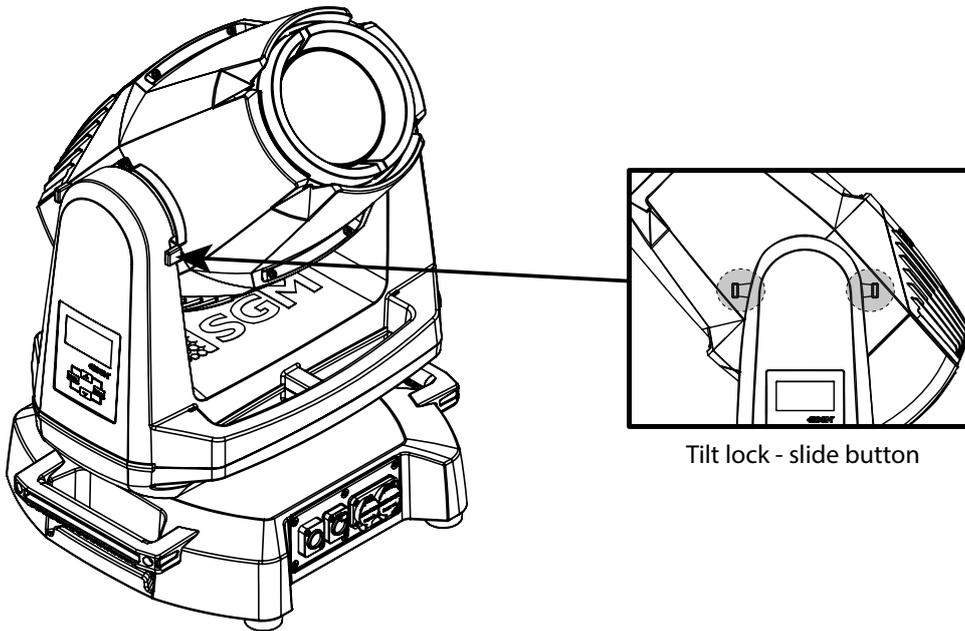


Figure 4: G-7 Spot tilt lock



WARNING! Always secure an elevated G-7 Spot with a safety wire

Fasten a safety wire (not shown) between the load-bearing support structure and the safety wire attachment point on the device.

The safety cable (not included in the package) must:

Bear at least 10 times the weight of the device (SWL).

Have a minimum gauge of 4 mm.

Have a maximum length (free fall) = 300 mm (12 in.).

CAUTION!

- Always use a safety wire of a grade AISI 316 steel.
- Make sure the slack of the safety wire is at a minimum.
- Never use the yoke or the carrying handles for secondary attachment.

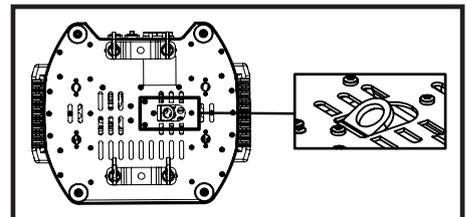


Figure 5: Safety Wire attachment point

Connecting AC power

Operating range is 100–240 V, 50/60 Hz AC mains power supply. The maximum power consumption is 480W.

Connect to AC power by using the supplied cable and power connector, or similar connector with a maximum current rating of 20A and IP66 rating.

The fixture must be grounded / earthed and isolated from AC power. The AC power supply must incorporate a fuse or circuit breaker for fault protection.

The power cable color coding is given in figure 7:

- Connect the black wire to live.
- Connect the white wire to neutral.
- Connect the green / yellow wire to ground (earth).

Wire	Color	Symbol	Conductor
	Black	L	live
	White	N	neutral
	green/yellow	⏏ or ⏚	ground (earth)

Figure 7: Connecting AC Power

For an outdoor installation, the mains cable must be fitted with a grounded connector intended for exterior use.

For permanent outdoor installations, a qualified electrician must wire the mains cable directly to a suitable branch circuit. The junction's ingress protection (IP) rating must be suitable for the location. Always use a junction box with a proper IP class suitable for the environment.

When installing standard type C circuit breakers, there will be no limitations due to the fixture in-rush current. For assistance with alternative configurations, contact your SGM representative.

After connecting the G-7 Spot to power, run the on-board test by selecting TEST → AUTOMATED TEST in the menu to ensure that the fixture is functioning correctly.

PLEASE NOTE!

The protective caps must be securely mounted on any unused DMX connectors in order to maintain the IP rating.

CAUTION!

Do not connect the fixture to an electrical dimmer system as doing so may cause damage.

Configuring the device

The G-7 Spot can be set up by using the control panel located in the yoke of the fixture or through RDM. After powering on, the G-7 Spot boots and resets. The current DMX start address and any status messages will be displayed thereafter. Navigate the menus and options using the arrows, and select items using the ENTER button.

Display panel (A)

The display shows the current status and menu of the fixture, and can be used to configure individual fixture settings, check the fixture's wireless status, check the firmware version, and see error messages. In settings, the display can be set to automatically turn off.

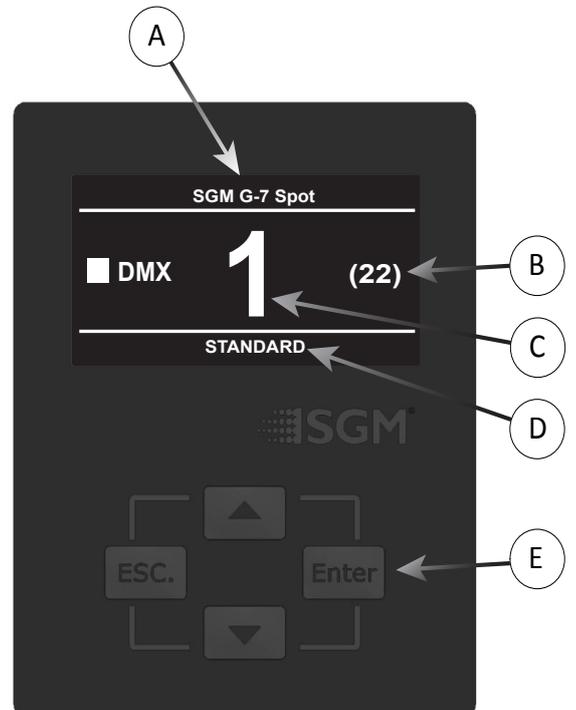
Next DMX Address (B)

Shows the next available DMX address depending on the fixture's DMX footprint.

DMX Start Address (C)

Displays the current DMX address. The DMX address will flash if an address has not been set. Select DMX address using the arrow buttons.

The DMX start address is the first channel used to receive instructions from the controller. For independent control, each fixture must be assigned its own control channels. If you give two fixtures the same address, they will behave identically. Address sharing can be useful for diagnostic purposes and identical control.



- A: Display
- B: Next fixture address
- C: DMX Address
- D: DMX Mode
- E: Keyboard

Figure 8: Control panel view

DMX Mode (D)

Displays the current DMX mode.

Using the keyboard (E)

- Press the 'ENTER' button to access the menu or make a selection.
- Press the arrow buttons to scroll up and down in the menus.
- Press the 'ESC' button to take a step back in the menu.

Connecting to a DMX control device

The G-7 Spot is controllable by a DMX control device, and can be connected by either a DMX cable or via the fixture's built-in CRMX wireless receiver system. This system is compatible with Lumenradio 2.4GHz systems.

If using a cabled DMX system, connect the DMX in cable to the input connector (male 5-pin XLR plug), and the DMX out to the output connector (female 5-pin XLR plug), all connectors are on the rear of the fixture's base. For outdoor events, use at least IP65-rated XLR connectors.

NOTE!

If using a wireless DMX system, remember to use the protective caps in any unused DMX connector in order to maintain the fixture's IP rating.

Connecting a wireless transmitter

Before attempting to connect, make sure to turn on the wireless transmitter and set it to the connect state.

To connect the G-7 Spot to a wireless transmitter:

- Log off the currently paired wireless transmitter (by default, the fixture is linked to the SGM factory transmitter). See "Disconnecting a wireless transmitter" below.
- Press the connect button on the wireless transmitter.
- Confirm that the fixture is paired with the wireless transmitter.

Disconnecting a wireless transmitter

To disconnect the fixture from the currently paired wireless transmitter, go to:

MENU → SETTINGS → WIRELESS DMX → LOG OFF.

Signal priority

The G-7 Spot can be paired with an active wireless transmitter simultaneously as being connected to cabled DMX. The fixture will prioritize cabled DMX over wireless DMX. The active input type is displayed under the wireless signal strength indicator or can be checked via RDM data by using an external RDM device.

Configuring the device for DMX control

About DMX

The G-7 Spot can be controlled using signals sent by a DMX controller to a number of DMX channels, which varies depending on the DMX mode that has been set. Visit www.sgmlight.com to see all DMX charts under the respective product, or upon request via support@sgmlight.com.

DMX is the USITT DMX512-A standard, based on the RS-485 standard. The signal is sent to the fixture as DMX data from a console or a controller via a shielded twisted pair cable designed for RS-485 devices.

The cables can be daisy chained between the fixtures with a possibility of connecting up to 32 fixtures to the same DMX link. Up to 300 meters (1000 ft.) of cable is achievable with high quality DMX cables. All DMX links must be terminated in the last fixture by connecting a DMX termination plug to the last fixture's 5 pin DMX out connector.

PLEASE NOTE!

- **Microphone cable is not suitable for transmitting DMX.**
- **Up to 32 fixtures can be linked to the same DMX link. Additional fixtures will overload the link.**
- **The last fixture must always be fitted with a DMX termination plug to the fixture's DMX out.**

DMX Start address

The G-7 Spot can be operated in different DMX modes. In each mode, the first channel used to receive data from a DMX control device is known as the DMX start address.

For independent control, each G-7 Spot must be assigned a unique DMX start address. For example, if the first G-7 Spot is set to 22 ch DMX mode with a start DMX address of 10, the following G-7 Spot in the DMX chain should then be set to a DMX address of 32. As the first fixture uses all the first 22 DMX channels, including channel 32, the next available channel is 32 ($10+22=32 \gg 32$).

If two or more G-7 Spot have the same DMX start address, they will behave identically. Incorrect settings will result in unpredictable responses from the lighting controller. Address sharing can be useful for diagnostic purposes and symmetrical control.

Setting the DMX address

The DMX address is shown in the display of the control panel. To change the address setting, press the up and down arrows. When the desired address is displayed, press 'OK' to save the setting. For your convenience, the next available DMX address is displayed to the right. Note that channel spacing is determined by number of channels of the DMX mode.

See "**Configuring the device**" on page 10 for instructions on using the display panel.

The G-7 Spot also offers the option to set the DMX address through RDM.

DMX modes

All DMX charts are available at www.sgmlight.com under the respective product, or upon request via support@sgmlight.com.

G-7 Spot Connection diagram.

Connection diagram

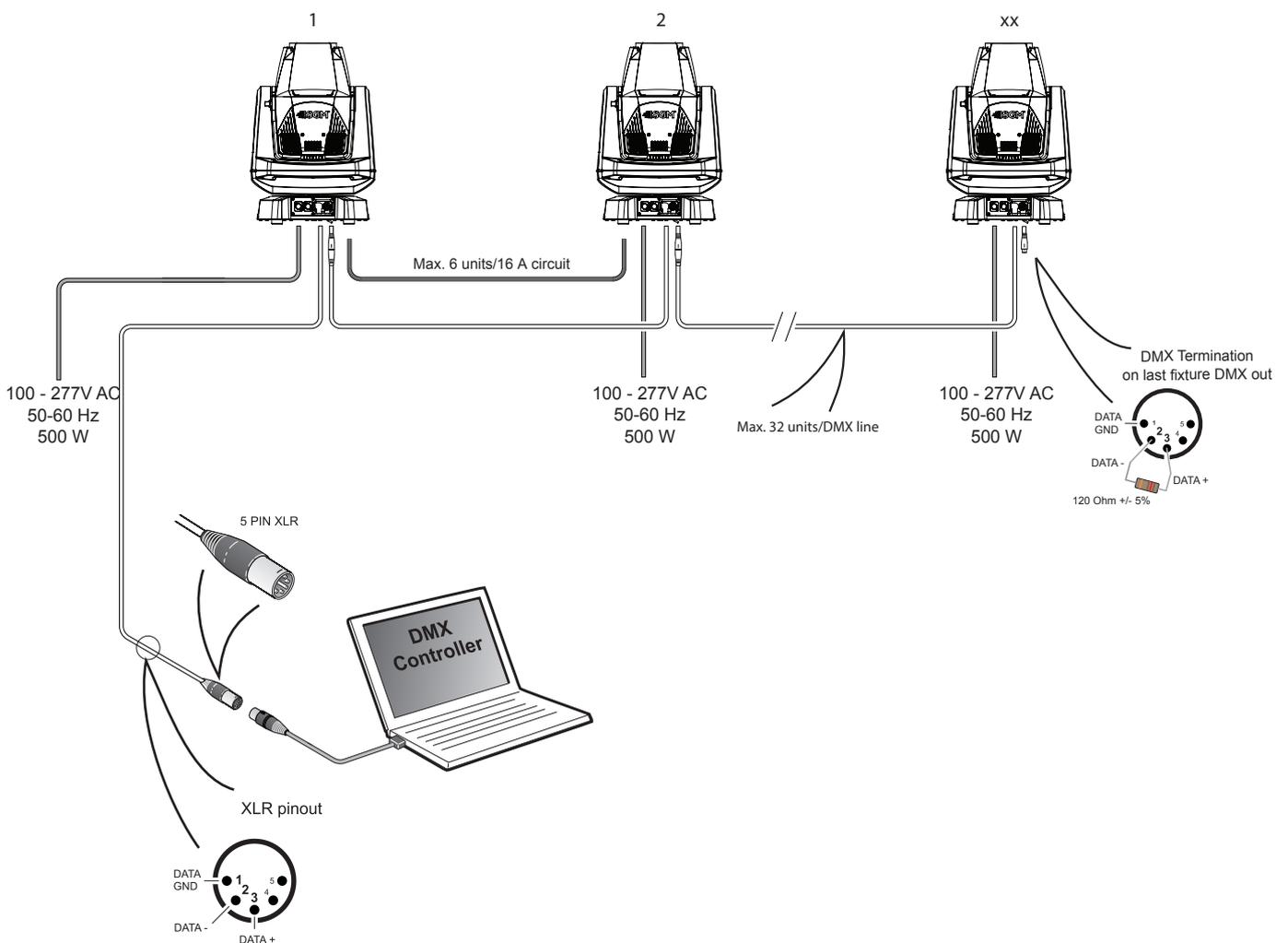


Figure 9: Connecting DMX in G-7 Spot

Mechanical Tolerances and Recommended Use in Low Ambient Temperatures

Ambient temperature range for storage, start-up, and operation of G-7 Spot and G-7 Spot POI moving heads is described at www.sgmlight.com.

All lighting fixtures have mechanical tolerances which can introduce unexpected results when in extreme temperatures. To minimize these undesirable effects in extreme cold from firmware 1.31 on, the G-7 Spot (both in POI and non-POI versions) includes a "Heat Up mode" feature accessible via the "Function" DMX channel (DMX chart available at www.sgmlight.com). This functionality pre-conditions the mechanical systems of the unit during low ambient temperature periods, without creating a visual impact in the illuminated area. When the user activates the "Heat Up mode" the fixture warms up by operating the light source at 30% output as well as adjusting other settings. The CMY flags, CTO and iris functions are also used to block as much light as possible. Pan / tilt movement or gobo wheels are not affected and will still respond to DMX parameters.

In temperatures below -20° C (-4° F) degrees, main features such as pan and tilt function correctly, while the precision mechanical features such as gobo indexing may not perform at their maximum accuracy even when using the "Heat Up mode". To use the precision mechanical features at their best, when in ambient temperatures below -20° C (-4° F), a full-output warm-up procedure is advised. See below for more details.

POI Recommended Operation

The "Heat Up mode" is recommended for permanent activation when in ambient temperatures below 0° C (32° F) degrees. Heat Up mode is automatic when enabled. Once internal operating temperature is reached, normal operation resumes. Heat Up mode is functional to around -20°C in typical use.

When in permanent outdoor installations, the start-up temperature equals stand-by mode, since SGM's **DryTech™** system requires constant power. Features based on precision mechanical systems such as gobo selection, gobo indexing / rotating, CMY flags, prism rotation, and iris may work slightly different at lower temperatures than usual. Very low ambient temperatures or freezing winds can eventually cause the features to not respond to the same level of accuracy as under normal circumstances. This behavior will not cause damage to the fixture or affect the long-term performance of the product at higher temperatures.

Proper function of the features based on precision mechanical systems below -20°C is possible, but this requires additional programming. When specified for installations reaching ambient temperatures below -20°C, SGM recommends all programming operators to prepare the scenes following the Non-POI warming up method explained below.

Non-POI / IP66 Recommended Operation

The reliability of the main features in the G-7 Spot will not be compromised by the presence of low temperatures as long as the values indicated in the specifications are respected. To achieve the best performance of the precision mechanical systems, SGM recommends warming up the internal parts by using the light source at 100% output before operating the programmed scenes when the fixture is to be used in ambient temperatures below 0° C (32° F). The required time to warm up the mechanical systems of the unit and for them to function accurately depends entirely on the ambient conditions. A test on location is advised.

SGM recommends avoiding tight mapping in multiple fixtures such as vertical or horizontal alignment of gobo projection in extreme conditions. Continued use of these moving parts can sporadically cause deviations from expected performance. Before attempting repair, it is recommended to remotely reset the fixture via the "Function" DMX channel (see DMX charts at www.sgmlight.com) and / or power-cycle the fixture. In non-POI devices, it is also possible to calibrate these functionalities manually via the integrated OLED display.

Control menu

Level 1	Level 2	Level 3	Function
DMX MODE	Select Mode	-	Select DMX mode
INFO	GENERAL INFO	Product	Displays product type.
		SN	Displays SGM serial #.
		RDM Label	Displays RDM Label.
		RDM ID	Displays RDM ID (Unique RDM ID for identification).
	SOFTWARE VERSION	MAIN	Displays installed firmware version.
		DATE	
		TIME	
		STEP 8	Software version of the step 8 board.
	TIMERS	LED D	Displays LED total power on time.
		LED RES	
		ON D	Displays fixture's total power on time.
		ON RES	
		Current Time	Displays current time.
	DMX VIEW	Up to 507 DMX addresses	Displays received DMX levels.
	SENSORS	Main PCB Temp	Displays fixture's temperatures.
		LED CMY PCB Temp	
		Zoom PCB Temp	
		LED Temp	
		Pan Angle	Displays pan and tilt angles.
		Tilt Angle	
		Wireless Signal	Displays wireless status.
		Wireless Paired	
		Humidity Yoke	Displays humidity status.
		Humidity Head	
		Light PWM	Displays light source PWM.
		Voltage 50V	Displays internal voltage.
		Voltage 12V	
		EFFECT SENSORS	Gobo 1
	Cyan		
	Magenta		
	Yellow		
	CTO		
	Zoom		
	Focus		
	Frost		
	Prism		
	Gobo 2		
	Iris		
	Color		
	COMPENSATION CNT		Pan
		Tilt	
		Gobo Rot	
		Cyan	
		Magenta	
		Yellow	
		CTO	
		Frost	
Prism			
Zoom			
Focus			
Color Wheel			
Gobo Fix			
Iris			
ERRORS	-	Displays error codes.	

Control menu - continued

Level 1	Level 2	Level 3	Function	
SETTINGS	WIRELESS DMX	ENABLE	Enables / disables wireless DMX.	
		BRIDGE DMX	Enables / disables CRMX bridge.	
		LOG OFF	Sends Log off command to the CRMX System.	
		STATUS	Displays strength of the wireless connection.	
	FLIP DISPLAY	-	Flips the display.	
	DISPLAY OFF	-	Turns on / off the display.	
	FAN MODE	STANDARD	Adjusts fan speed relative to internal fixture temperature.	
		SILENT		
		MAX POWER		
		ALWAYS 100%	Sets fans to be at 100%, regardless of internal fixture temperature.	
	SERVICE PIN	-		
SERVICE MENU	-			
FACTORY DEFAULT	-	Resets the fixture to factory default settings.		
TEST	AUTOMATED TEST	-	Runs the automated test sequence.	
	LED TEST	-	Runs the LED test.	
	DISPLAY TEST	-	Runs the display test.	
RESET	PAN TILT	-	Resets internal modules.	
	EFFECT MODULE	-		
	ZOOM FOCUS MODULE	-		
	ALL	-		
MANUAL	EDITOR	Scene	Currently selected scene (1-24).	
		Wait Time	Wait (static) time in current scene in sec.	
		Fade Time	Fade-in (transition) time to current scene in sec.	
		Copy Scene	Copies the currently selected scene.	
		Paste Scene	Pastes the copied scene.	
		Clear Scene	Clears the currently selected scene.	
		Capture P/T	Captures current pan and tilt position.	
		SHUTTER	Shutter value in currently selected scene (0-255).	
		DIMMER	Dimmer value in currently selected scene (0-255).	
		CYAN	Cyan value in currently selected scene (0-255).	
		MAGENTA	Magenta value in currently selected scene (0-255).	
		YELLOW	Yellow value in currently selected scene (0-255).	
		CTO CTB	CTO CTB value in currently selected scene (0-255).	
		PAN	Pan value in currently selected scene (0-255).	
		TILT	Tilt value in currently selected scene (0-255).	
		GOBO 1 ROT	Gobo 1 rotation value in currently selected scene (0-255).	
		GOBO 1	Gobo 1 value in currently selected scene (0-255).	
		GOBO FIXED	Gobo fixed value in currently selected scene (0-255).	
		IRIS	Iris value in currently selected scene (0-255).	
		PRISM	Prism value in currently selected scene (0-255).	
		PRISM ROT	Prism rotation value in currently selected scene (0-255).	
		FROST	Front value in currently selected scene (0-255).	
		ZOOM	Zoom value in currently selected scene (0-255).	
		FOCUS	Focus value in currently selected scene (0-255).	
		COLOR WHEEL	Color wheel value in currently selected scene (0-255).	
		RUN PROGRAM	-	Runs internal sequence.
		STOP PROGRAM	-	Stops running internal sequence.
		RUN ON POWER ON	-	Runs the internal sequence when the fixture is powered on.

RDM (Remote Device Management)

Supported RDM functions

The G-7 Spot features support for various RDM functions.

RDM (Remote Device Management) is a protocol enhancement to USITT DMX512 that allows bi-directional communication between the fixtures and the controller over a standard DMX line. This protocol will allow configuration, status monitoring and management. See the table below for supported RDM functions.

The controller communicates with the fixtures to show only the available options for each RDM function.

The G-7 Spot supports RDM, Remote Device Management, as per the ANSI E1.20 standard.

PID	Actions Allowed	Name
0x0082	GET/SET	Device Label
0x0081	GET	Manufacturer Label
0x00E0	GET/SET	DMX Personality
0x00E1	GET	Dmx Personality Description
0x0200	GET	Sensor Definition
0x0201	GET/SET	Sensor Value
0x0080	GET	Device Model Description
0x1001	SET	Reset Device
0x0051	GET	Parameter Description
0x0090	SET	Factory Defaults

PID	Actions Allowed	Name
0x0501	GET/SET	Display Level
0x0500	GET/SET	Display Invert
0x0400	GET/SET	Device Hours
0x0401	GET	Lamp Hours
0x0121	GET	Slot Description
0x0120	GET	Slot Info
0x0122	GET	Default Slot Value
0x8626	SET	CRMX Log Off
0x8633	GET/SET	Enable Wireless DMX
0x8625	GET/SET	FAN 0=AUTO 1=LOW 2=HIGH 3=FULL

Sensors

RDM enables various sensor readouts for remote device monitoring. See the table below for sensors and sensor types.

Name	Sensor Type
Main PCB Temp	Temperature
LED CMY PCB Temp	Temperature
Zoom PCB Temp	Temperature
LED Temp	Temperature
Pan Angle	Angle
Tilt Angle	Angle
Wireless Signal	Other

Name	Sensor Type
Wireless Paired	Other
Humidity Yoke	Humidity
Humidity Head	Humidity
Light PWM	Other
Voltage 50v	Voltage
Voltage 12v	Voltage

Please note: The RDM controller communicates with the fixtures to show only the available options for each RDM function. The table is subject to change without notice.

Factory default

Factory default can be activated from the control panel display on the yoke of the fixture. Located in MAIN / SETTINGS / FACTORY DEFAULT and has the following effect:

- Log off wireless.
- Stored in static memory.
- Set DMX address to 1.
- Set Standard DMX mode.
- Hide errors set to false.
- Device label set to "SGM".
- Flip screen set to normal orientation.
- Fan mode set to standard.
- Wireless enabled.
- Manual programs:
 - a) All values set to 0;
 - b) Except from Pan / Tilt that is set to 32767.

Fixture properties

CMY color mixing

The G-7 Spot is a CMY color-mixing fixture designed to match the SGM RGB color palette, with linear CMY dichroic flags and a linear CTO. There are also dichroic RGB macros (deep red, green and blue) and a CTB filter.

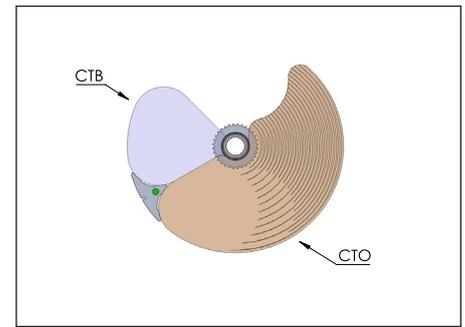


Figure 10: G-7 Spot color temperature wheel

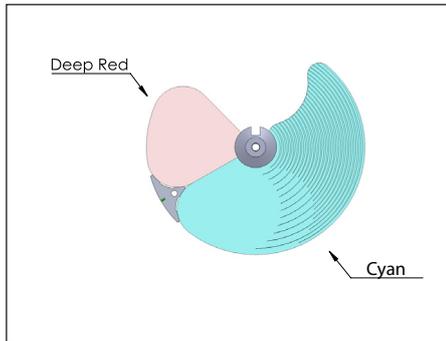


Figure 11: G-7 Spot CMY cyan wheel

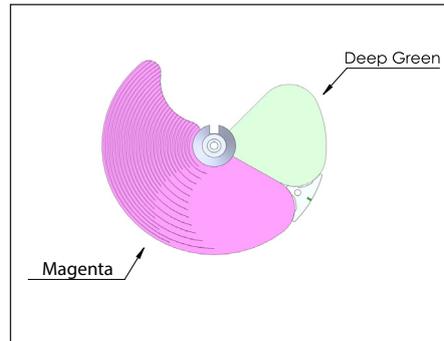


Figure 12: G-7 Spot CMY Magenta wheel

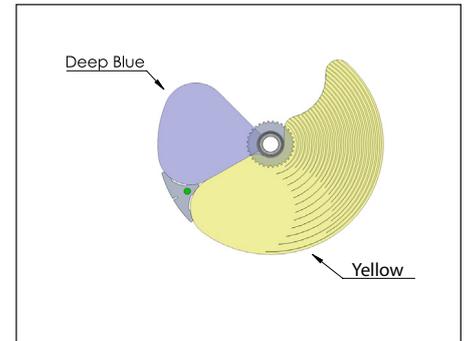


Figure 13: G-7 Spot CMY Yellow wheel

Effect wheel

The G-7 Spot also includes an extra effect-color wheel with an integrated FX area, 5 color filters and an open slot.

The color filters included in the effect-color wheel are the following:

- congo blue
- amber
- light green
- lavender
- high CRI
- Quarter minus green

The G-7 Spot includes a quarter minus green filter, accessible via the effect-color wheel. This filter allows the user to modify the amount of green in the white LED source, making the G-7 Spot able to match different camera settings, emulating other light sources, or / and increasing the CRI. The quarter minus green filter can be combined with the linear CTO or the CTB filter.

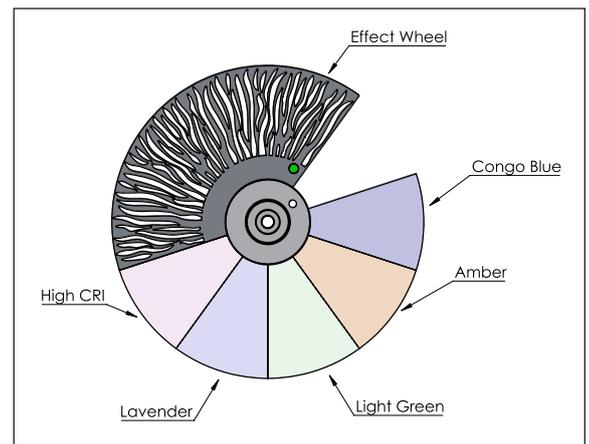


Figure 14: Effect-color wheel

Two independent gobo wheels

The G-7 Spot comes with two independent gobo wheels:

- Gobo wheel with nine static gobos + one open slot.
- Gobo wheel with six gobos + one open slot. Each gobo is indexable, interchangeable and with bi-directional rotation.

High-precision pan and tilt

The G-7 Spot has a fast pan and tilt movement, with a 620° pan and 240° tilt movement.

Strobe effect

The ultra high-speed strobe effect introduces instant white color control. Random strobe and pulse effects can be generated with variable speed.

Prism

3-facet rotatable and indexable prism.

Internal frost

The soft frost filter is variable from 0% to 100%.

Fixture properties

Flipping the OLED display

If the fixture is installed hanging upside down, it might be useful to flip the display so that it is easier to read. To flip the display, go to SETTINGS → DISPLAY FLIP, or press the up and down buttons on the control panel at the same time.

Setting the display saver:

By default, the OLED display dims down after a short period when the control panel is not in use, but it can also be set to turn off completely. Pressing any key will always turn on the display or restore it to normal brightness. To change the display saver, go to OK → SETTINGS → DISPLAY OFF.

NOTE: to avoid the risk of display deterioration caused by long term use in permanent installations, it is recommended to use the DISPLAY OFF setting.

Gobo wheels

Identification of gobo wheel

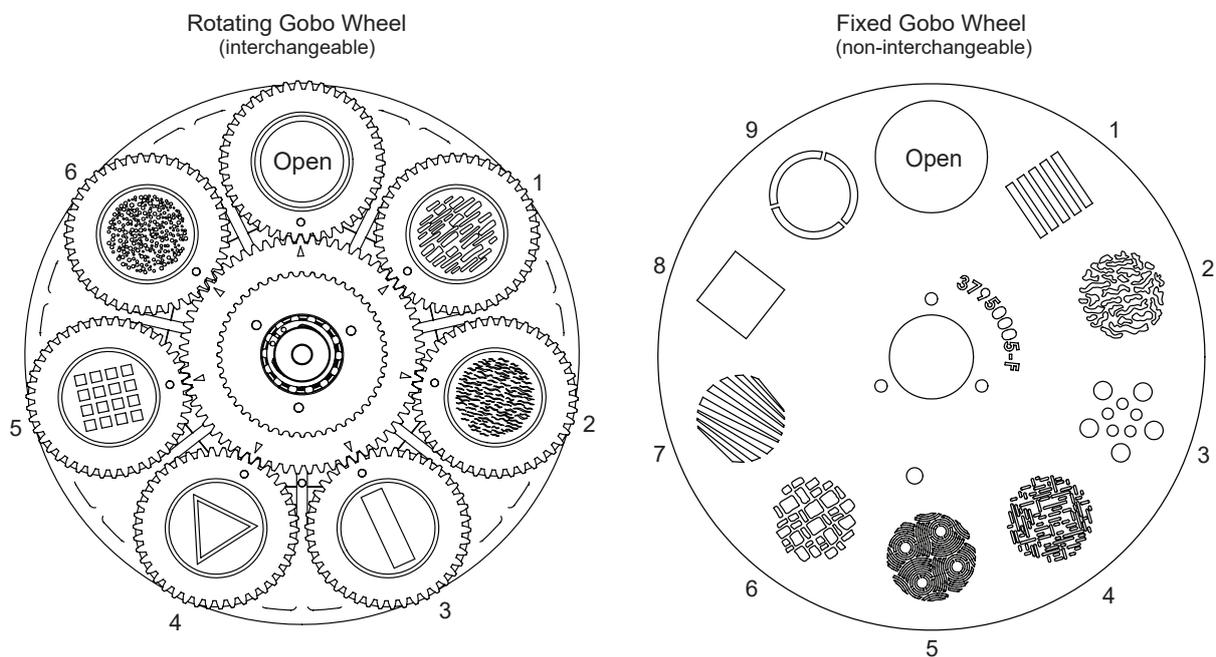


Figure 15: Identification of gobo wheels

Rotating Glass Gobo Wheel		
No.	Description	Part No.
Open	Open gobo	37950012
1	Breakup lines	37005012
2	Breakup waves	37005013
3	Bar	37005014
4	Triangle	37005015
5	Window 4x4	37005016
6	Dots	37005017

Fixed Gobo Wheel	
No.	Description
No gobo	Empty
1	Vertical bars
2	Ripples
3	Dots breakup
4	Matrix
5	Viking
6	Brick wall
7	Asymmetric horizontal
8	Square
9	Ring

Gobo replacement

Extracting a gobo holder from the gobo wheel

To replace one or more gobos:

1. Disconnect the fixture from power and allow it to cool.
2. Position the head upwards and apply the tilt lock.
3. Before removing one of the rear head covers, identify where the rotating gobo wheel is located (same side as the power and DMX connectors). Then, loosen the 2 screws to remove the rear of the head cover.

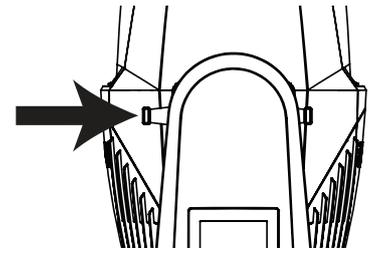


Figure 16: Tilt lock

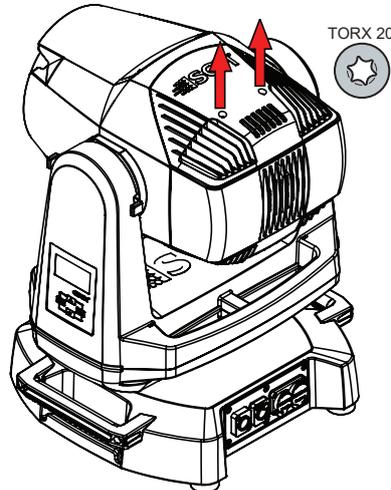


Figure 17: Removing the head cover

4. Remove the gobo wheel hatch by loosening the six screws for accessing the gobo wheel.

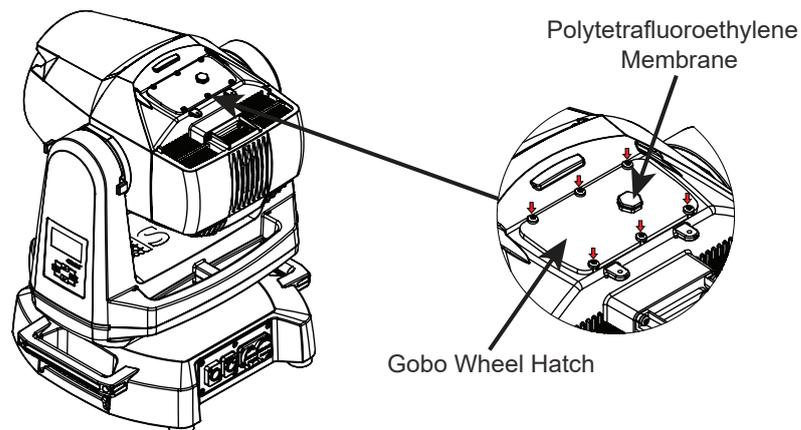


Figure 18: Removing gobo wheel hatch

5. Turn the gobo wheel until the gobo you want to replace is accessible.
6. Pull the gobo holder out of the gobo wheel.

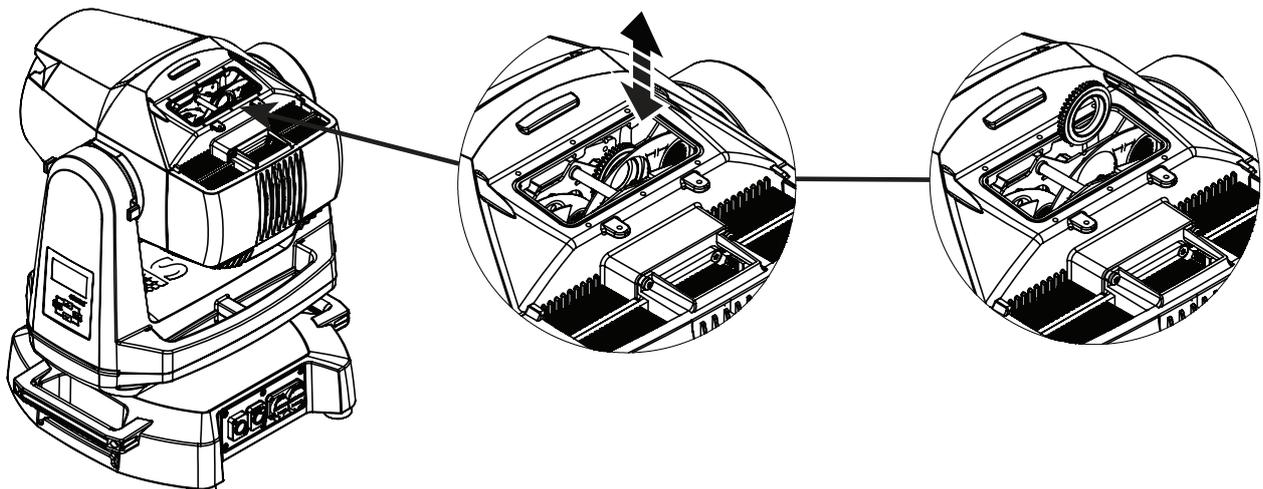


Figure 19: Removing gobo holder

Replacing a gobo in a gobo holder

1. Remove the defective / old gobo from the gobo holder.
 2. Place the new gobo with silver side towards the light source.
 3. Align both index marks of the gobo and the gobo holder as shown below.
 4. Insert the gobo holder and align it with the index mark in the gobo wheel as shown below.
- If necessary, continue replacing gobos one by one as described.

If no further service is necessary, reinstall the gobo wheel hatch (the screws are to be tightened with 1 Nm of torque) and the rear head covers.

For more information on how to replace G-7 Spot gobos, please contact support@sgmlight.com

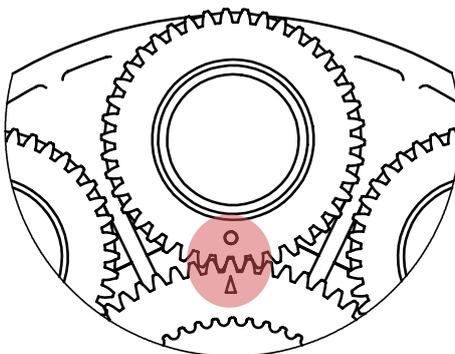


Figure 20: Replacing gobos in a gobo holder

Polytetrafluoroethylene (PTFE) Membrane

The gobo hatch includes a Polytetrafluoroethylene Membrane, which allows the fixture to breathe.

In order to vacuum test the fixture, the PTFE Membrane must be removed.

For more information on how to vacuum test the G-7 Spot, please contact support@sgmlight.com

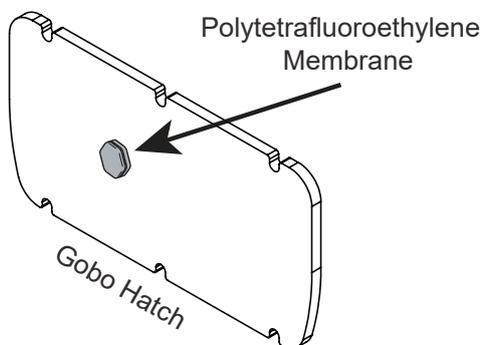


Figure 21: Polytetrafluoroethylene Membrane

Accessories

The G-7 Spot can be used with different types of accessories, such as the Top Hat. To know more about all the available G-7 Spot accessories, please see www.sgmlight.com, or contact your local SGM dealer.

G-7 Spot Top Hat

The G-7 Spot is extendible using the Top Hat, which main function is to create discrete lighting designs, reducing flare coming from the direct light source.

The Top Hat can be easily mounted through magnetic fastening. When correctly aligned to the front lens, the Top Hat will snap into place due to the four powerful magnets.

- A: Top Hat (front view)
- B: Safety wire
- C: Magnets (back view)

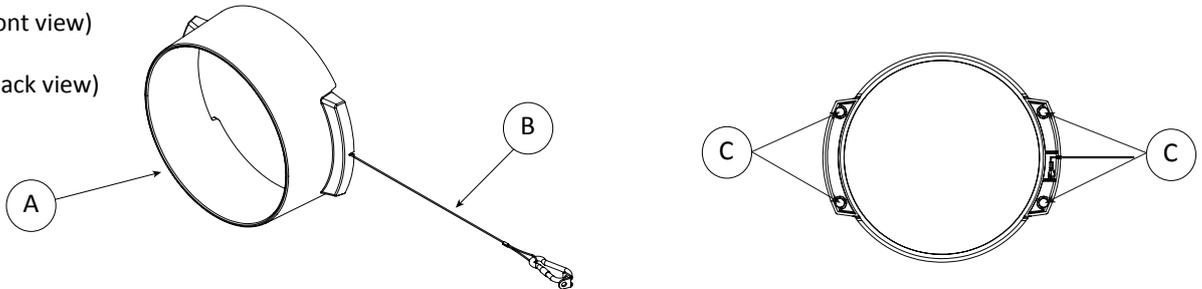


Figure 22: G-7 Spot Top Hat overview

Attaching the Top Hat

Align the Top Hat correctly to the front lens.

Allow the powerful magnets (2 on each side) to snap into place.

To detach the Top Hat, simply remove it in a straight upwards line with a firm grip. Ensure there are no metal dust or any other particles where the magnets are located.

POI Permanent Outdoor Installation

POI versions are designed for permanent outdoor installation and are IP66 rated with CX class corrosion protection.

PLEASE NOTE!

POI versions of the fixture should be pre-set with any custom programming or gobos before installation. Although most functions are possible to be set via RDM once mounted in position, it is easier to do configuration and any troubleshooting before mounting is complete.

Physical differences

The POI version differs from the standard version by having permanently wired power and DMX cables with heavy-duty cable glands. The display and control panel are removed for increased ingress and corrosion resistance. The base handles are removed for a clean look.

Temporarily Connecting Power

Connect to AC power using the supplied 8mm cable (the larger of the two permanently wired cables). The fixture must be grounded/earthed. The AC power supply must incorporate a fuse or circuit breaker for fault protection. For temporary programming, a plug or terminals can be used.

The power cable color coding is shown to the right:

- Connect the black wire to live
- Connect the white wire to neutral
- Connect the green/yellow wire to ground (earth)

Wire	Color	Symbol	Conductor
	Black	L	live
	White	N	neutral
	green/yellow	\perp or \oplus	ground (earth)

Figure 23: Connecting AC power wiring description

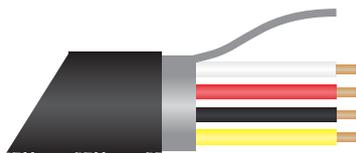
Temporarily Connecting Data

SGM fixtures use the DMX 512 standard for communication.

STEP 1: Download and install the SGM RDM Addressing tool. < <https://sgmlight.com/products/rdm-addressing-tool> >

STEP 2: Connect the bare end data cable to the USB up-loader cable for POI fixtures as shown below

SGM POI DMX Cable



Wire	Color	Conductor
	Shield	Ground
	White	DMX IN: Data -
	Red	DMX IN: Data +
	Black	DMX OUT: Data -
	Yellow	DMX OUT: Data +

Figure 24: Data wiring guide for setup

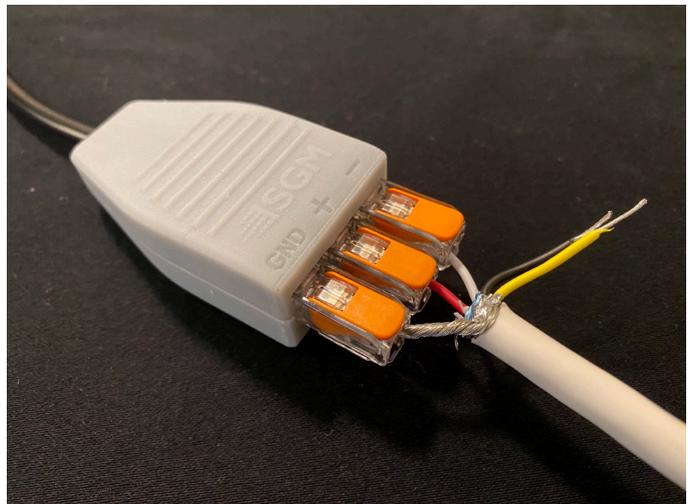


Figure 25: Connecting data to USB up-loader cable for POI fixtures

STEP 3: Connect the USB up-loader cable for POI fixtures to a computer with a USB Type-A port. When addressing through USB powered DMX/ RDM devices, ensure the DMX link is terminated, and keep all cables as short as possible.

STEP 4: Launch the SGM RDM Addressing Tool.

SGM Addressing Tool

The Addressing Tool is a windows based program designed to allow the user to configure the fixture through the RDM protocol. All settings on a standard fixture are available on a POI fixture. But on POI, these settings are changed through the Addressing Tool.

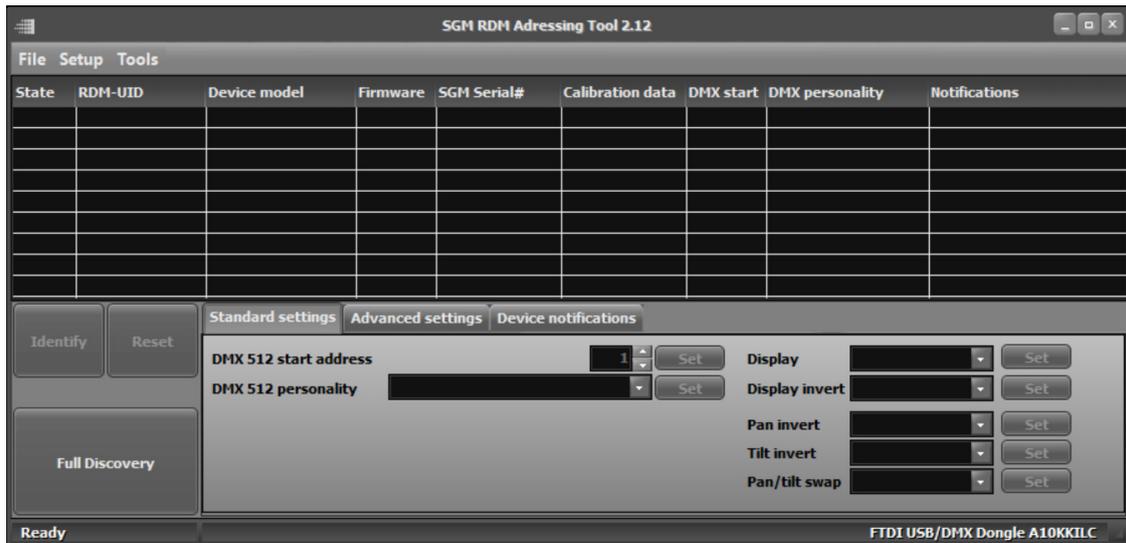


Figure 26: SGM Addressing tool

Configuration

STEP 1: Click Full Discovery and look for the green light to illuminate on the fixture. If the green light does not appear, cycle power or refer to troubleshooting.

STEP 2: Select the standard settings tab and enter a DMX address and a personality/mode of operation. Look for the LED indicator to blink to confirm setting change. DMX modes for POI are the same as the G-7 Spot standard. Visit www.sgmlight.com to see all DMX charts available under the respective product, or upon request via support@sgmlight.com.

STEP 3: If necessary for the application, click advanced settings to set the fan mode, dimming curve, calibration or to reset to factory defaults.

STEP 4: Disconnect POI Uploader cable.

Repeat as required for multiple fixtures.

PLEASE NOTE!

Remote Device Management (RDM) requires a correctly installed and terminated DMX cable.

When setting addresses through RDM and using USB dongles, it may be necessary to disable "USB selective suspend" to ensure a proper voltage to the DMX link. If any lag or trouble occurs when addressing, decrease the cable length range to <12 m. and only address one fixture at a time.

LED Indicator Behaviour

The LED indicator can have different colors and three possible stages: static, flashing, or off.

- **Solid Orange:** Fixture is starting up.
- **Blinking Orange - Green:** Fixture is resetting its functions.
- **Blinking Green:** Reset has completed, no errors and no wireless or wired DMX connection.
- **Solid Green:** Wireless and / or wired DMX connected.
- **Blinking Green - Orange - Red:** Fixture is resetting and error(s) has occurred during reset.
- **Blinking Green - Red:** Reset has completed but error(s) occurred during reset.
- **Solid Red (3 seconds):** Hall sensor is activated. When activated for longer than 3 seconds, wireless DMX connection is logged off.
- **Off:** fixture is off or LED indicator is set to auto-dimming (set via RDM).

Once configuration is complete, temporary power and data can be disconnected.

Installing and rigging the G-7 Spot POI

The base of POI versions come with M-10 nuts for M-10 bolts or screws. The G-7 Spot POI base has six M-10 nuts that can be used for installation and rigging. The SGM Omega bracket (not included) or a customized bracket is needed to install the fixture. The dimensions of the G-7 Spot POI base is shown below for customized mounting bracket purposes.

A POI Omega bracket suited for M-10 holes can be ordered as an accessory. Contact your local SGM dealer for further information on POI-rated mounting options.

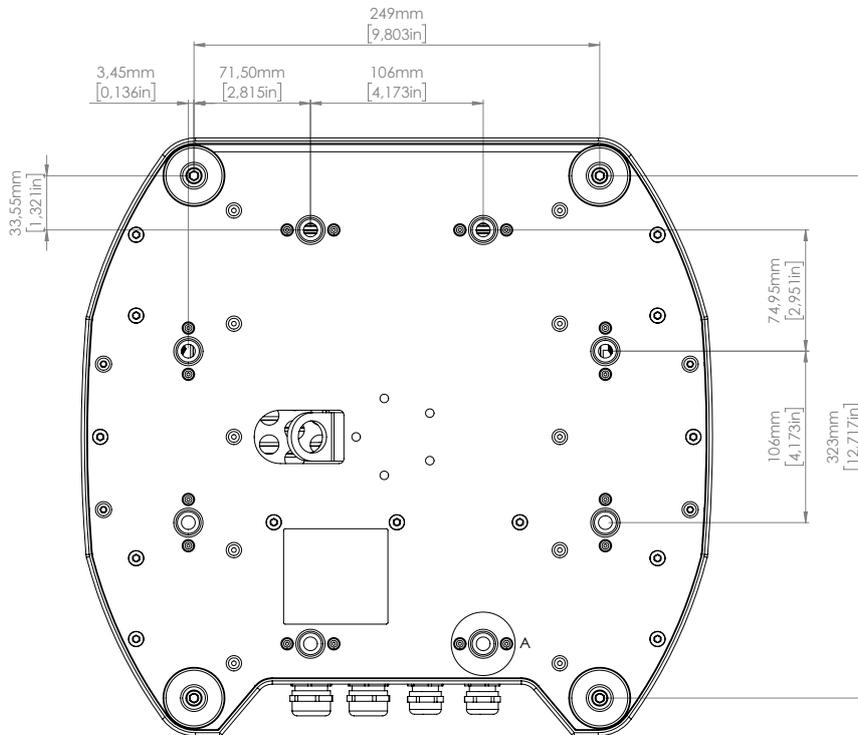


Figure 27: G-7 Spot base with dimensions



Figure 28: POI Omega Bracket

PLEASE NOTE!

Ensure hardware and brackets used for mounting is a compatible material with all components. Galvanic reactions can happen in highly corrosive environments. Improper hardware and selection of mounting materials could void warranty.

Connecting DMX and AC power in POI Versions

DMX-in and DMX-out are in the same cable. See more in figure 22 about the SGM POI DMX cable.

For permanent installations, have a qualified electrician to wire the mains cable directly to a suitable branch circuit. The junction's ingress protection (IP) rating must be suitable for the location.

For a temporary installation, the mains cable may be fitted with a grounded connector intended for exterior use.

PLEASE NOTE!

- **Cat5e compliant cable is suitable for the transmission of DMX 512.**
- **Up to 32 fixtures can be connected to the same DMX link. Additional fixtures will overload the link.**
- **The last fixture must always be fitted with a DMX termination plug to the fixture's DMX out.**
- **SGM fixtures provides a passive DMX Thru signal as DMX out, instead of an active output signal.**

SGM POI DMX Cable

Wire	Color	Conductor
Shield	Grey	Ground
White	White	DMX IN: Data -
Red	Red	DMX IN: Data +
Black	Black	DMX OUT: Data -
Yellow	Yellow	DMX OUT: Data +

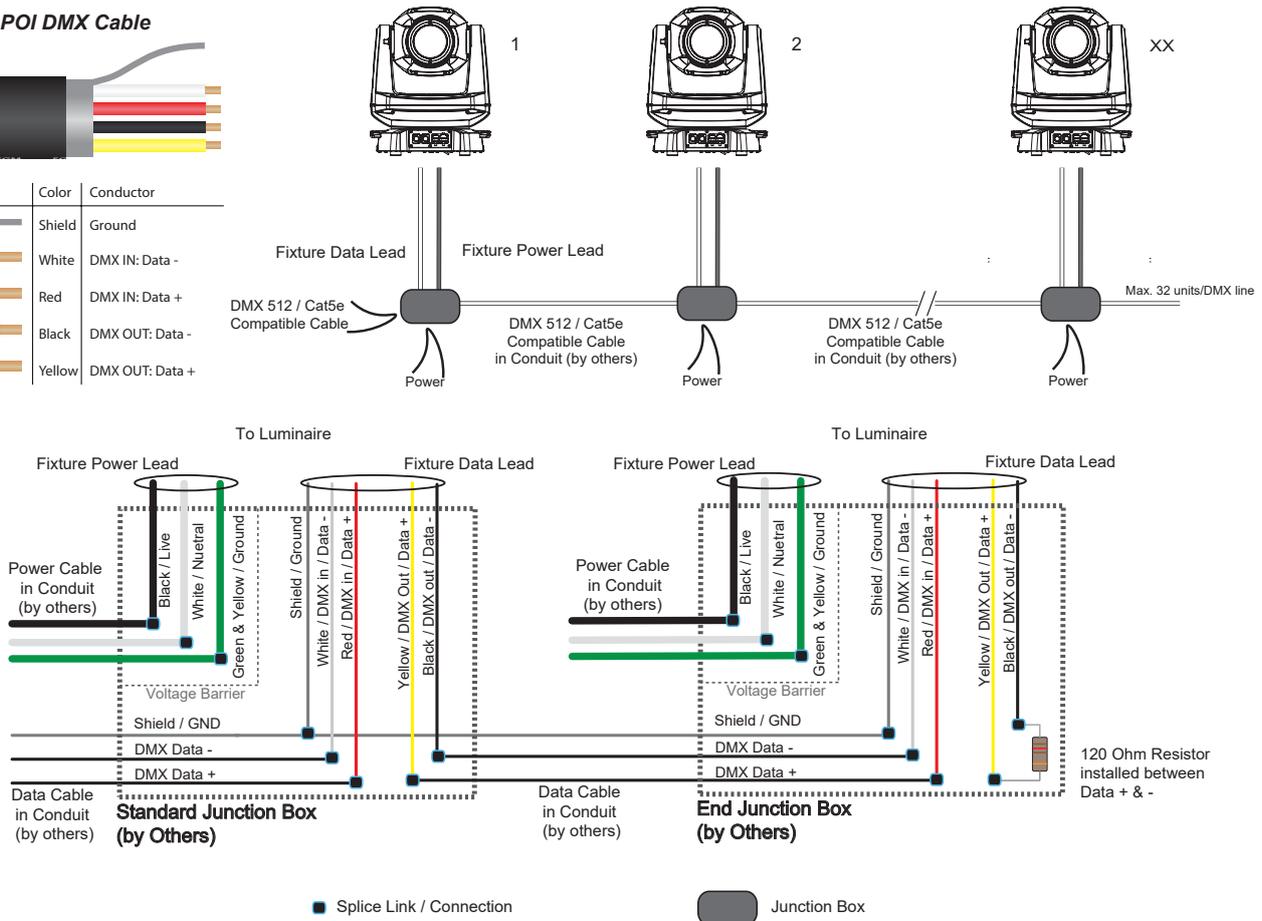


Figure 29: Connecting DMX and AC Power in G-7 Spot POI

Connecting a wireless transmitter in POI

In POI versions with wireless, it is necessary to pair the fixture with a new transmitter (by default, the fixture is linked to the SGM factory transmitter).

In order to do so, make sure the fixture is powered on before taking the following steps:

1. Using a SGM magnetic spanner tool, place the magnet close to the LED indicator, and wait for 3 seconds. The LED indicator will blink orange for 1-2 seconds, before switching to static green again. The fixture can now be paired to a new transmitter.
2. Select "connect" or "link" on a wireless transmitter. The transmitter and the internal SGM receiver should now be linked together.

Repeat the process to link the fixture to another transmitter.

Disconnecting a wireless transmitter in POI

To disconnect the G-7 Spot POI from the currently paired wireless transmitter, hold the magnet for 3 seconds over the LED indicator. The LED indicator will blink orange for 1-2 seconds, switching later to green again. The fixture is now logged off.

Troubleshooting

Problem	Potential cause(s)	Remedies
Fixture does not respond or appears to be off.	No power to the fixture.	Confirm that the power is switched on, the cables are plugged in, and the power connector is inserted and turned to its locked position.
Fixture suddenly turned off.	Power was turned off.	Check the switches and breakers.
Fixture suddenly stopped responding.	The wireless transmitter or connections was disconnected / tampered with.	Inspect the wireless transmitter and connections.
	DMX cables was disconnected.	Inspect DMX cables.
Fixture operates irregularly / abnormally.	DMX address is incorrect.	Inspect and enter the correct DMX address.
	DMX cable polarization is inverted (pin 2 + 3).	Install a phase-inverter or replace cables.
	DMX cable is corrupted.	Replace or repair defective cables and / or connectors.
	DMX link is not terminated.	Install a XLR 120 ohm DMX termination at the end of the DMX link.
	Corrupted DMX cable.	Replace or repair defective cables and / or connectors.
	The fixture operates an internal program.	Go to MENU → MANUAL → STOP PROGRAM.
	A corrupted fixture generates noise / disruptions on the DMX link.	Track and isolate the corrupted fixture.
Pan / tilt is skipping / shuddering	Obstacles are within the required pan / tilt clearance.	Inspect and remove any obstacles constraining free operation of the pan / tilt.
Pan / tilt does not reset correctly.	Calibration values are missing.	Contact SGM support or certified SGM service partner.
Display is turned on, but the fixture doesn't respond.	Several causes.	Contact your local SGM dealer or support@sgmlight.com

Maintenance

SGM Vacuum Test kit

The Vacuum Test Kit is an accessory suitable for all SGM IP-rated fixtures, made for testing the IP validity after having reassembled the fixture.

In order to ensure the IP rating of the G-7 Spot (POI), it's highly recommended that the fixture is always vacuum-tested after installing or swapping any part that might compromise the IP rating.

SGM disclaims liability for any damage occasioned by the non-use or inability to use the vacuum test kit after reassembling the fixture.



Figure 30: SGM Vacuum Test Kit

SGM Uploader cable

The SGM USB to DMX cable is an accessory used mainly to update the fixture with the latest SGM firmware. See below how to update the fixture with the latest firmware.

Both the SGM Uploader cable and the SGM Uploader cable POI are also used for controlling the DMX values channel by channel through the Firmware Uploader Tool software (available for download at www.sgmlight.com).



Figure 31: SGM Uploader cable

SGM Uploader cable, POI

This cable is an accessory to upload firmware in fixtures not using XLR connectors such as POI series. See below how to update the fixture with the latest firmware.

Upgrading the firmware

The firmware installed in the fixture can be identified in different ways:

When powering on the fixture, the display shows the currently installed firmware version (only standard).



Figure 32: SGM Uploader cable POI

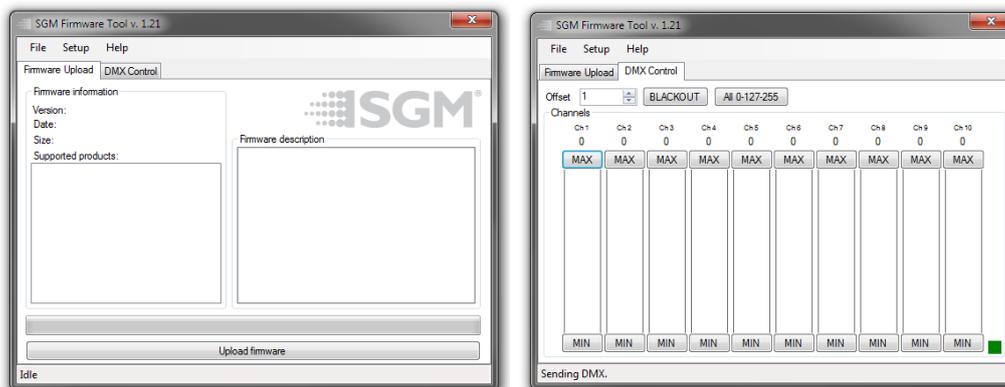


Figure 33: SGM Firmware tool

Go to MENU → INFO → FIRMWARE VERSION (only standard).

We recommend that the fixture's firmware is always up-to-date. The latest firmware version is available for download under the respective product at www.sgmlight.com.

To update your G-7 Spot with the latest firmware, use an SGM USB 5-Pin-XLR uploader cable, and a Windows-based computer with the SGM Firmware Tool software installed (available for download at www.sgmlight.com).

Additionally, the Firmware Tool software offers a simple DMX controller featuring 512 DMX channels for test purposes.

Cleaning

SGM fixtures with IP66 rating do not need any cleaning procedures inside the fixture. However, cleaning the front lens may be needed to achieve the maximum light output after exposure to dust, sand, or dirt. Exterior housing can also be cleaned to obtain a better look. To maintain adequate cooling, fans must be cleaned periodically.

Whenever necessary, clean the G-7 Spot using a soft cloth dampened in a solution of water and mild detergent. Do not use products that contain solvents, abrasives, or caustic agents for cleaning, as they can cause damage to both hardware, cables, and connectors.

Cleaning will vary greatly depending on the operating environment and installation. It should therefore be checked at frequent intervals within the first few weeks of operation to see how often cleaning is necessary.

Maintenance Schedule G-7

Item	Maintenance
Outer fan cover screws ¹	Inspect every other year starting at year two.
Internal sun damage behind lens ²	Inspect each year.
LED engine fans and screws ³	Inspect and clean each year.
DMX and power connections	Inspect every other year starting at year two.
Outer surfaces, hardware, gaskets ⁴	Inspect each year.
Outer lens	Clean as needed.

Maintenance Notes

1 - Thread-locker must be used if replacing or re-installing hardware. Consult SGM authorized service centre for instructions and further information.

2 - Internal parts can sometimes be subjected to overheating due to magnification of sunlight. Look for discoloured or deformed components.

3 - In rough service environments such as with dust or fog/haze media in the air, inspect fans every 6 months at minimum.

4 - If any part is cracked, no matter the size, contact SGM Support

Ordering Information

The G-7 Spot has different variants and can be used with a variety of accessories.

Contact your local SGM dealer to get the latest pricing and news about available fixtures and accessories.

Please note: the products listed below are subject to change without notice.

G-7 Spot fixtures

G-7 Spot, Std, BL.....	P/N: 80102505
G-7 Spot, Std, WH.....	P/N: 80102506
G-7 Spot, Std, CU.....	P/N: 80102507
G-7 Spot, POI, BL.....	P/N: 80200605
G-7 Spot, POI, WH.....	P/N: 80200606
G-7 Spot, POI, CU.....	P/N: 80200607

The G-7 Spot can be ordered in any RAL color. Contact your local SGM dealer for ordering customized color housings or for more information.

G-7 Spot accessories

2 m (78 in.) power cable with IP connector.....	P/N: 07860275
Omega bracket with 1/4-turn fasteners, BL / WH.....	P/N: 83060602 / 83061206
Omega bracket POI, BL / WH.....	P/N: 83060623 / 83060624
SGM USB uploader cable.....	P/N: 83062011
SGM USB uploader cable POI.....	P/N: 83062067
G-7 Top Hat.....	P/N: 83061184
Flightcase for 2 pcs G-7 Spot.....	P/N: 82051017

Support hotline

SGM offers 24/7 technical support hotline.

Worldwide: +45 3840 3840

US: +1 407-242-6217

support@sgmlight.com

Approvals and certifications

Certified to

Conforms to

Conforms to

Conforms to

Conforms to

CS

2014/35/EU: Low Voltage Directive

2014/30/EU: EMC Directive

2011/65/EU: RoHS2 Directive

UL 1573



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