

SMX 22, SMX52 & SMX 102 Installation and Operating Guide

Congratulations! You have purchased a LUMISHORE advanced LED technology underwater lighting system. Every care has been taken to ensure your SMX22, SMX52 or SMX102 SUPRA system arrives in perfect condition, so please enjoy the ultimate experience in underwater lighting.

Please read the following pages before attempting installation to ensure complete understanding of the LUMISHORE LED lights.

BEFORE YOU START

- High Intensity LED light – Do not stare into the LED module at close proximity.
- The lights are high power and should be installed below the water line.
- These lights are intended to be installed on vessels no larger than 50ft (15m).
- For best underwater illumination, LUMISHORE recommends installation 4" to 12" (100-300mm) below the min load water line.
- Choose a location - The light must be mounted on a flat (not curved) surface. Mount on transom or side of the hull only.
- A hole will be drilled to allow the cable to be inserted; care must be taken to ensure there is unrestricted access inside the hull.
- When installing three or more lights, equal spacing 2.5'- 3' is recommended to give a consistent light pool.
- The light is temperature sensitive and must not be located close to the exhaust outlet or other heat source.
- The lights have a voltage rating of 10.5 - 31volts. Never connect to a voltage out of this range or direct to AC voltage.
- Each light must be individually Fused, To choose the correct fuse value for your light and voltage supply refer to the provided fuse table in this manual.
- No chemical cleaners/chemical spray, sandblasting/pressure washing should be applied or used on lights. This will negate warranty

PLANNING THE INSTALLATION

The lights are very easy to install and operate. Follow the wiring diagram inside this guide

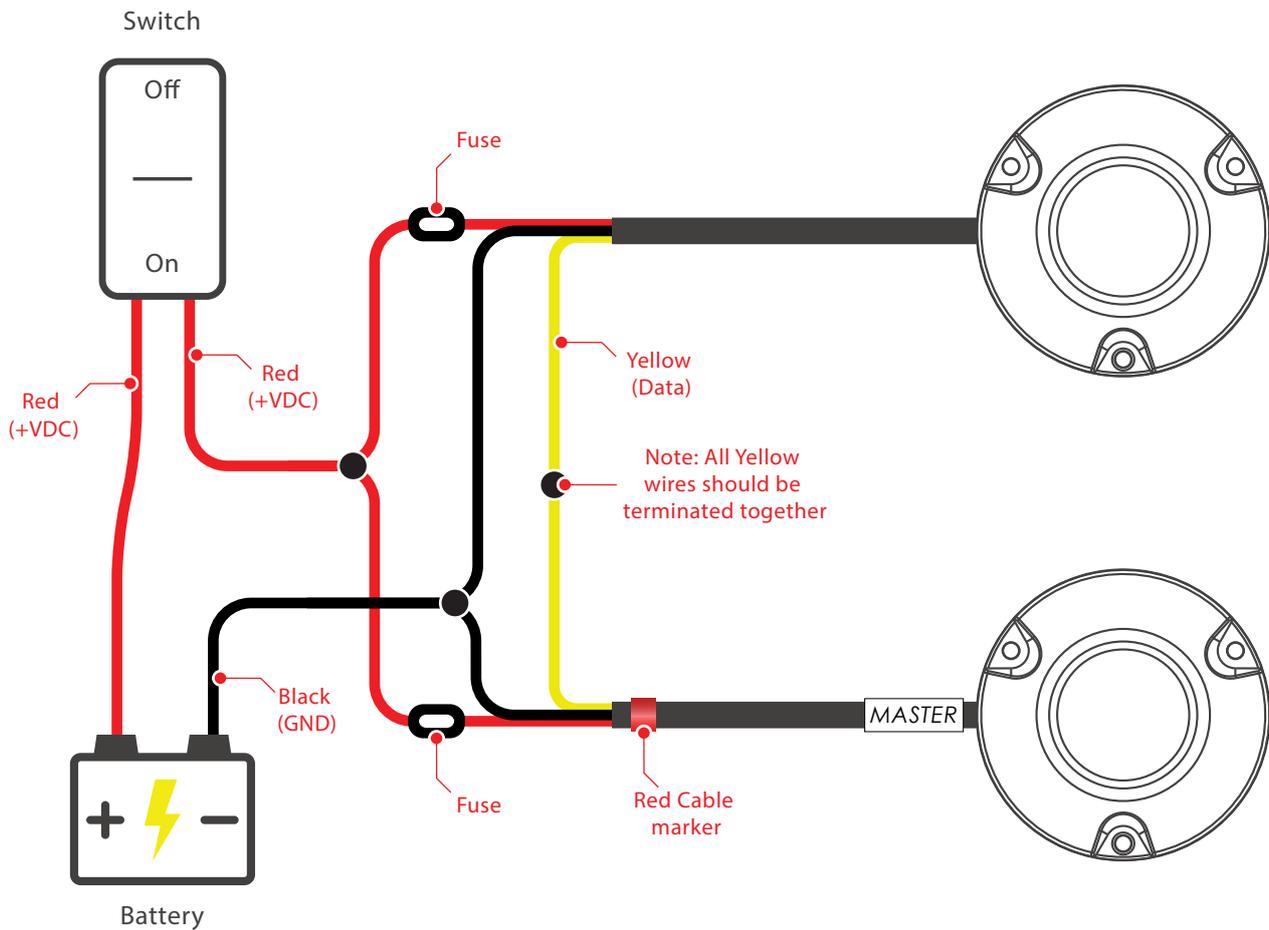
The following components should be used;

- Fuse (1 per light)
- Waterproof junction box
- Power Relay
- Switch or Lumi-Switch
- Power cable - See cable gauge guide for more information
- Switch cable - 2 -Core (Min 24AWG) - 4-Core for Lumi-Switch

The following tools will be required;

- Hand Drill
- Screwdriver (Cross head)
- Appropriate Sealant (e.g. 3M 4200)
- Cleaning rags

Note : Below is a basic diagram of the installation. For a more detailed and in-depth diagram please refer to pages 8 to 11.
 For Lumi-Switch installation see page 10



When installing 2 or more lights or if the switch cable is more than 4m in length. Use a relay to switch the power - See connection examples on pages 9 & 11

- Plan the cable routing and work out the cable lengths. Check the cable awg required in the tables on Pages 3 & 4
- All connections need to be made waterproof or use a suitable junction box or waterproof connectors.
- Each light must be individually fused.

It is important to use the correct cable gauge for the installation. This can be split into two sections.

First work out the gauge required from the power source to the junction box, second work out the minimum gauge needed from the junction box to the lights – these tables are given on page 4.

First, calculate the cable gauge required from the power source to the junction box. The method for doing this is:

1. Calculate the TOTAL CURRENT IN AMPS of the circuit. i.e. number of lights x max current at chosen voltage
2. Find circuit LENGTH IN FEET (or metres) along the left side of the chart. Note that the total length of the circuit is the ROUNDTRIP distance from power source (usually the battery) to the junction box **and back**.
3. Read off the cable gauge required for the TOTAL CURRENT for the circuit length.

3% VOLTAGE DROP		Critical		CURRENT FLOW IN AMPS														
				5A	10A	15A	20A	25A	30A	40A	50A	60A	70A	80A	90A	100A	120A	150A
0 to 6 ft	16 AWG	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG					
10 ft	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG						
15 ft	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG							
20 ft	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG								
25 ft	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG									
30 ft	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG										
40 ft	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG											
50 ft	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG												
60 ft	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG													
70 ft	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG														
80 ft	2/0 AWG	3/0 AWG	4/0 AWG															
90 ft	3/0 AWG	4/0 AWG																
100 ft	4/0 AWG																	
110 ft																		
120 ft																		
130 ft																		

The light cable can be extended, however the correct cable gauge should be used. See the tables below

The tables below give the **minimum** cable gauge required depending on the supply voltage, and distance from the power source to the lights. Please ensure that the correct cable gauge is used in the installation.

Note : The cable distance there and back has been taken into consideration in these calculations.

Model	Gauge	Length of Cable	
		12V	24V
SMX22	16AWG	20ft	50ft
SMX52	16AWG	12ft	50ft
SMX102	16AWG	12ft	40ft

Fuse Table		
Model	Fuse Rating	
	12V	24V
SMX22	3.0A	3.0A
SMX52	4.0A	3.0A
SMX102	7.5A	4.0A

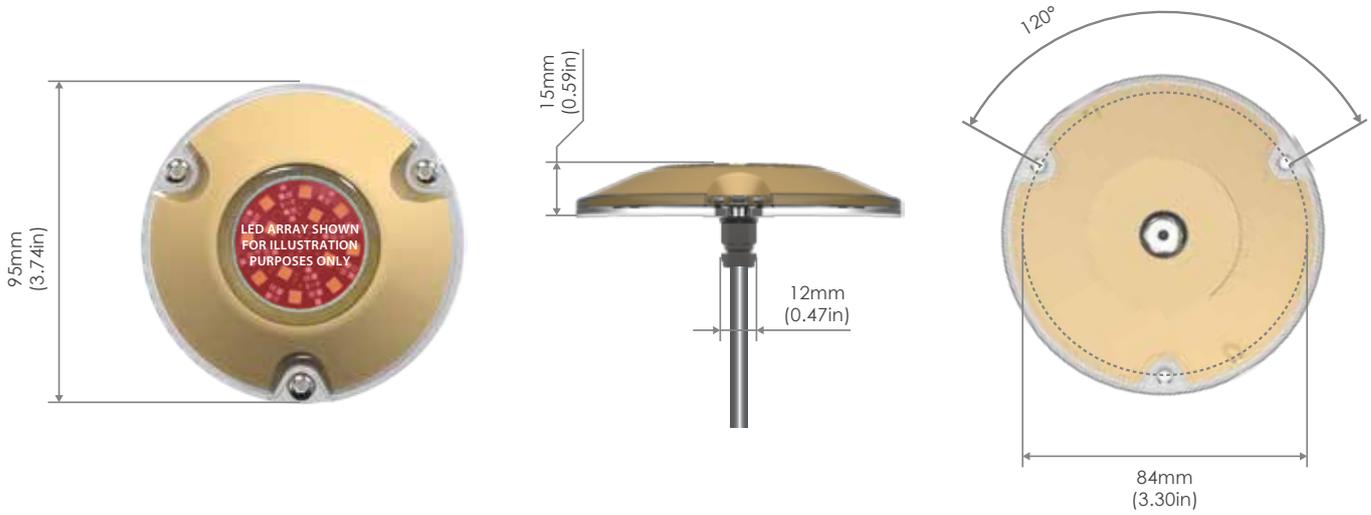
AWG to Metric conversion table

AWG Size	Cross sectional Area	Cable diameter
18	1mm ²	0.8mm
16	1.3mm ²	1.3mm
14	2.0mm ²	1.6mm
12	3.3mm ²	2.0mm
10	5.2mm ²	2.5mm
8	8.3mm ²	3.2mm
6	13mm ²	4.1mm
4	20mm ²	5.1mm
2	33mm ²	6.5mm



Each light must be individually fused

SMX22 & 52



SMX102



Note : The system uses a master light to synchronise the system. Install only ONE master light per system. The cable will be labelled 'Master' (just behind the light) and marked with a (Red) colour marker at the end of the cable.

Tools Required



Phillips Screwdriver



Drill/Driver



Drill Bits
(3.5mm & 13.5mm)



Marine Sealant
(Use only 3M 4200)

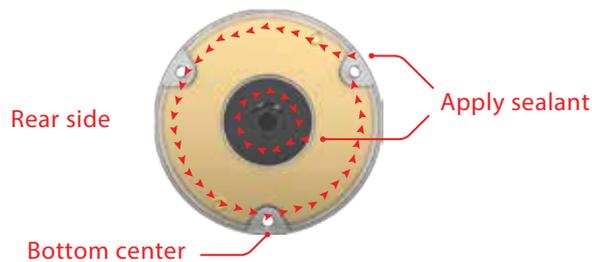


Rags for clean-up

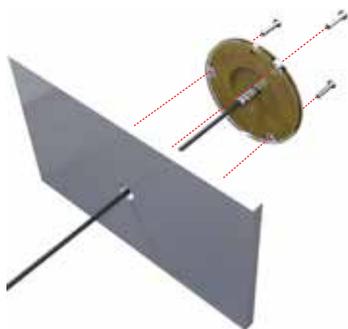
Pilot Hole for Screws	Hole for cable and cable gland
9/64" (3.5mm)	17/32" (13.5mm)

1. Select a suitable flat surface that is accessible from inside the vessel and ensure the light cable can be run without a problem.
2. Check inside the hull to ensure there is clearance prior to drilling.
3. With one hole at the bottom centre (**see image below**), mark and drill the pilot holes for the screws. Drill the power cable hole. The cable hole must be large enough to accept the cable gland on the back of the light, so that the light sits flush.

Note : Cored hulls must be sealed prior to fitting the lights. Consult boat manufacturer for further information.



4. Apply a continuous thick bead of sealant approximately 0.6" (15mm) from the edge of the light and around the cable. Refer to the image above.
5. Push the power cable through the hole and align the light with the pilot hole screws.
6. Attach the light using the 3 stainless steel screws by hand tightening with a screwdriver.



**IMPORTANT: DO NOT OVER TIGHTEN.
DO NOT USE POWER TOOLS TO TIGHTEN SCREWS.**

7. Use a damp cloth to wipe off excess sealant. **DO NOT USE CHEMICAL CLEANERS OR SOLVENTS!**
8. Wire up lights - Refer to wiring diagrams on pages 9 to 12 for more information. Note that each light must be individually fused.

IMPORTANT: REFER TO THE DIRECTIONS ON THE SEALANT TO MAKE SURE IT HAS FULLY CURED BEFORE LAUNCHING THE BOAT INTO THE WATER.

Installation with standard On/Off Switch

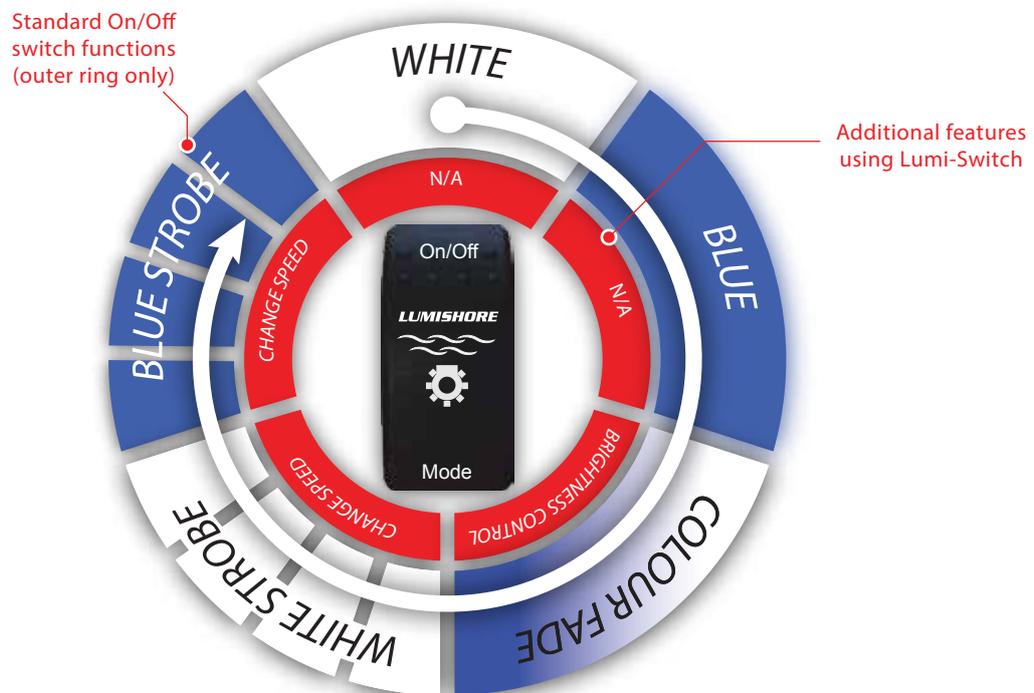


1. On/Off Switch (customer supplied)
2. If using a standard On/Off switch, to cycle through each mode simply and quickly switch the system Off and then On again to switch to the next mode (refer to sequence diagram below).

Installation with Lumi-Switch

1. The Lumi-Switch has two operations – on/off and momentary. The momentary function has a spring action, and is operated by pressing the Bottom of the switch.

The function cycle advances in the following sequence, along with their momentary functions (in red):



Note: The SMX SUPRA lights have built in memory. When they are switched on for more than 30 seconds, the setting will be saved. The lights will have the same setting next time they are switched On.



The underwater lighting system should always be tested before the boat goes back in the water. Check that each light comes on and all lights change in sequence as per the system operation section above. See the problem solving guide for advice on resolving any issues you may have. Once the boat is back in the water check for any water ingress around the installed lights. Check again after several hours. Water ingress should be dealt with immediately. The lights should be checked several times over the first 24hrs and periodically after that to ensure installation is satisfactory.

Maintenance and Cleaning

LUMISHORE lights require simple cleaning. Lights should be checked often to ensure the light body and lens area are free from sea growth. In the event that your light requires cleaning, we recommend the use of a soft cloth or soft bristled brush.

DO NOT use any abrasive cleaning materials as these may damage the body of the light.

DO NOT use any cleaning fluids that contain solvents, acids or alkalis.

DO NOT clean using pressure washing or sandblasting equipment.

Slight discolouration of body may occur over life. This does not affect performance, and is not subject to warranty.

Due to nature and high build quality it may on rare occasions be possible to see small levels of condensation, this is normal for high power LEDs and will disappear after cooling and does not harm operation in any way.

No chemicals, cleaners, chemical sprays or sandblasting should ever be applied / used on lights — this will negate warranty

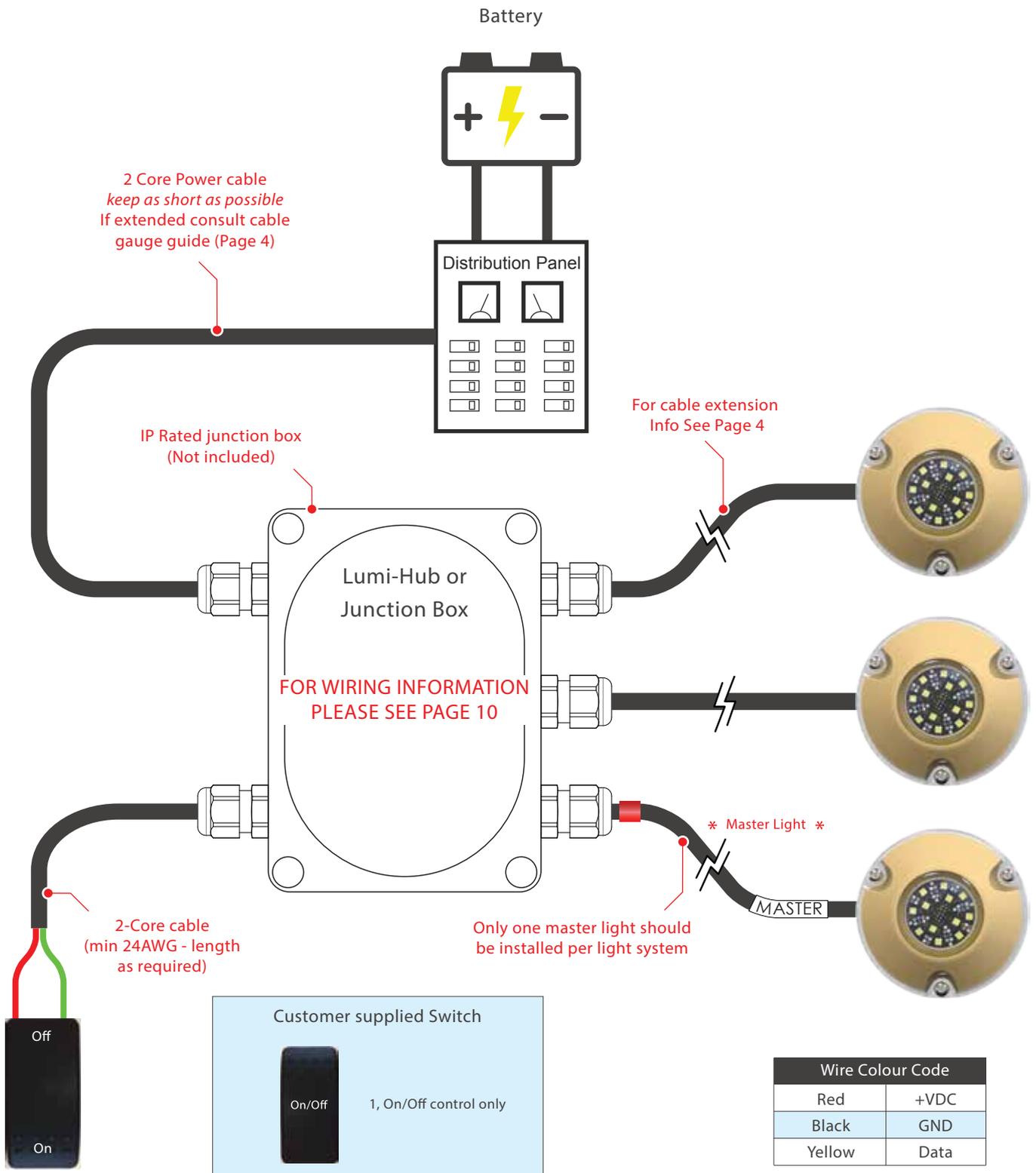
Product Support / Warranty

If you have questions or comments, please e-mail info@lumishore.com or call USA (941) 405-3302, United Kingdom +44(0)208 144 1694, or France +33(0)493 582 537.

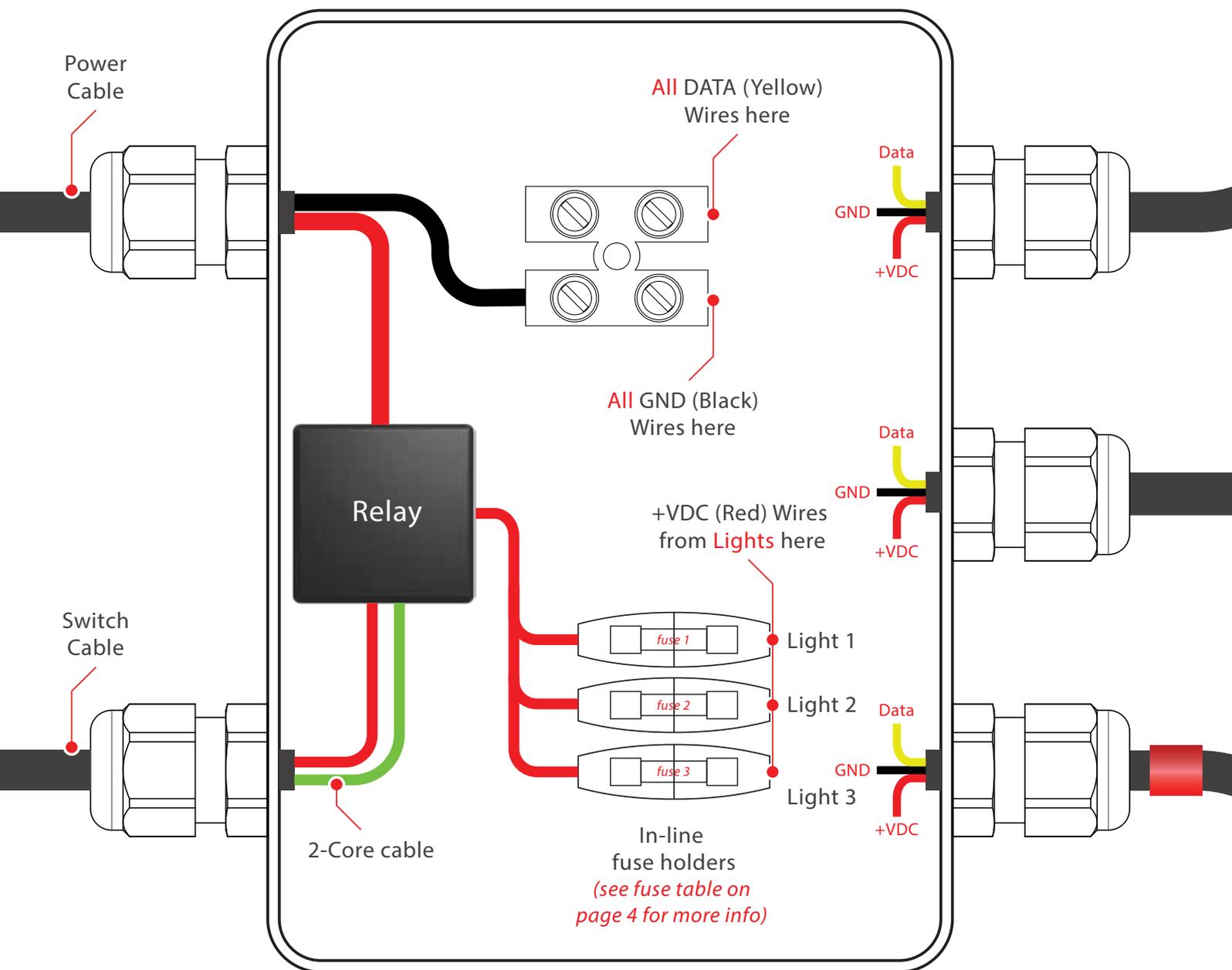
LUMISHORE Ltd warrants the SMX22, 52 & 102 to be free from defects in workmanship and materials for a period of two years, starting from the date of original purchase. Misuse, abuse, improper installation, neglect, improper shipping, damage caused by disasters such as fire, flood, and lightning, installation by unqualified personnel, unauthorized repair or modification will void this warranty. For the avoidance of confusion and doubt, non-compliance with all installation, maintenance and operating instructions in this document constitute non-conformance with warranty terms.

Full warranty details are available at www.lumishore.com

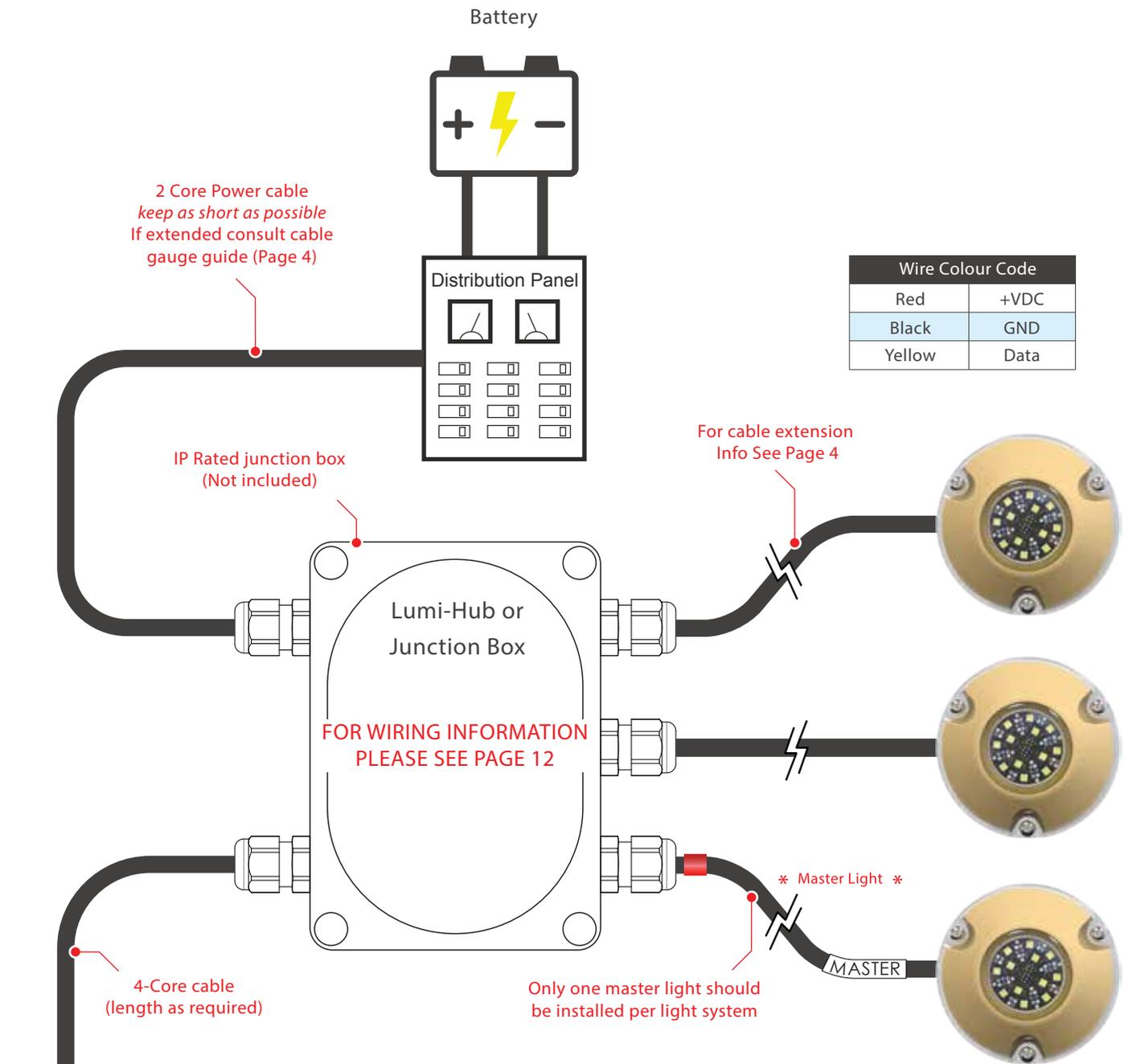




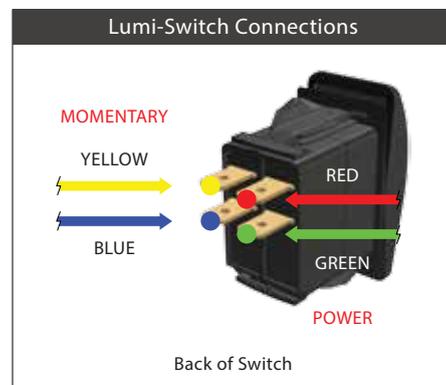
The Lumi-Hub comes with all connections, fuses and relay installed. Simplify your installation and reduce cost & time with a LUMISHORE Lumi-Hub



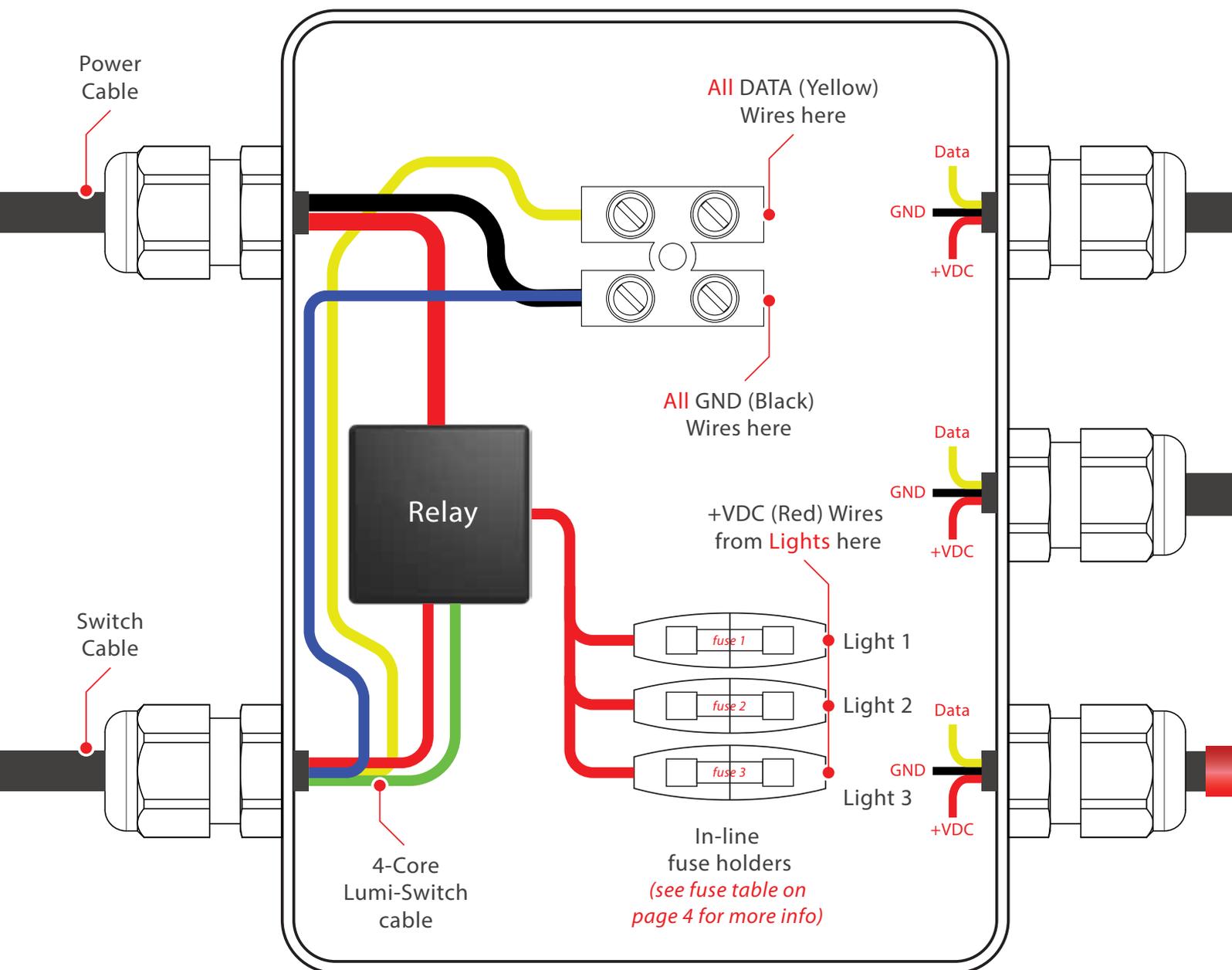
Note: For a system with more than 2 lights, or for cable runs over 4m. A marine grade Relay should be installed. Check the voltage rating is suitable for your Vessel (12/24V). The power requirement will depend on model and number of lights installed per relay. Consult table on page 4 for Amp rating of each light



Wire Colour Code	
Red	+VDC
Black	GND
Yellow	Data



Note: Only one master light should be installed per light system



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