APELO

Hella marine HELLA

INSTRUCTION SHEET
for: **5XA 285 814-001**

Before you begin

Please read all instruction in the guide as improper installation may void the warranty.
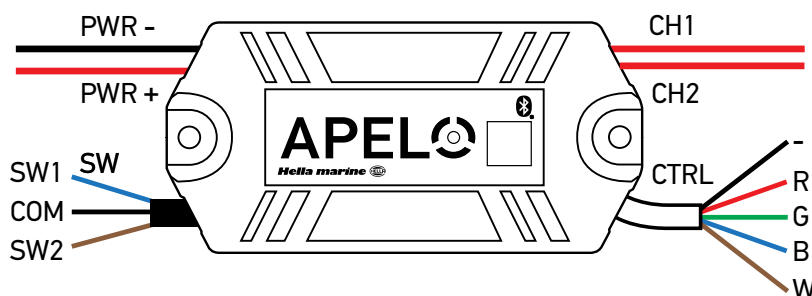
!!!Warning!!!

This product is for recreational DC PWM lights only and not to be used for safety related operation.

Do not mount product onto or near (<50cm) metallic surfaces as it may decrease the radio signal transmission range of the product.

Do not use this product to control inductive and capacitive loads such as motors, pumps, cranes, etc. as these types of loads could damage the product.

Do not clean this product with any cleaning chemical that contains Acetone.

Quick Wiring Guide

Please review the full wiring instructions before use.

Function		Max Current	Terminal on Backplate	Wire Color	
1	Power Supply +VE	13A	PWR +	Red	(+)
	Power Supply -VE	N/A	PWR -	Black	(−)

Function		Max Current	Terminal on Backplate	Wire Color	
2	Switch Function 1	N/A	SW	Blue	(+)
	Switch Common	N/A	SW	Black	(−)
	Switch Function 2	N/A	SW	Brown	(+)

Function		Max Current	Terminal on Backplate	Wire Color	
3	Light Supply 1	13A*	CH1	Red	(+)
	Light Supply 2		CH2	Red	(+)

* Momentary 13A, sustained 12A, @25°C ambient. CH1 and CH2 combined.
 Use CH1 to connect HELLA Dual Color lamps. Use CH2 to connect HELLA RGBW lamps.

Function		Max Current	Terminal on Backplate	Wire Color	
4	Lamp Return	N/A	CTRL	Black	(−)
	Red Color Control	3A	CTRL	Red	(−)
	Green Color Control	3A	CTRL	Green	(−)
	Blue Color Control	3A	CTRL	Blue	(−)
	White Color Control	3A	CTRL	Brown	(−)

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!!!Warning!!!

Failure to install this product to the following instructions could result in personal injury, damage to the vessel or product, or poor product performance.

To avoid possible injury always take measures to protect yourself including, but not limited to, disconnecting the power while wiring lights to the controller and wearing safety goggles, ear protection or masks while drilling mounting holes.

Caution

The wiring from the power source to the controller must have an inline fuse installed on the positive line as close to the power sources as possible.

Any recommendation listed in this installation instructions are a guide only.

If you have any concerns, please speak to a marine electrician and follow any local or regional standards for the required fuse or break rating.

To Start

This product is made from a corrosion proof material and is suitable for all nonmetallic construction materials.

Depending on the wiring configuration chosen, detailed in the 'Configurations' section further in this guide this product shall control single color high side, dual color high side, RGB or RGBW variable color lamps.

This product uses Bluetooth Low Energy (BLE) compliant radio signals to perform functions when controlled from the Hella marine companion app.

Electrical Installation – Please consult a professional for electrical termination.

Drilling and Installation

It is not recommended to install this product on the hull of the vessel or near electric motors. More suitable installation points include brackets, mounts, plastic cable ducts and other concealed or purpose-built areas where the wall material is nonmetallic. Nearby (< 50cm) metallic surfaces decrease the radio signal transmission ability of the product.

The product must be mounted on a flat nonmetallic surface without curvature. When drilling pilot holes in any type of material, in most instances, you will require a drill bit sized larger than the minimum diameter of the screw, but smaller than the maximum thread diameter. It is recommended to err on the side of caution and to begin smaller, then go larger if required. Always try the screw without the product in place first. If the torque required feels excessive, back out and make slightly larger.

!!!Warning!!!

Do not install the device near fuel tanks or bilge areas where flammable fumes may gather.

The device should not be mounted in a location that is or could be submerged.

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Important

Always use an inline fuse with a maximum rating of 15 Amps unless the lamps the product controls enable the use of a smaller fuse. Inductance between the power source and the product, the two-function momentary switch, as well as between the product and the lamps it controls should be kept to a minimum or none at all. Additional filtering inductors will have a detrimental effect on product and lamp performance and might cause the product or the lamps to operate outside of the intended operational modes.

Cable resistance should be kept to a minimum to ensure voltage drop is minimal between the power source and the product and the product and the lamps it controls.

Ensure the power source provides sufficient current as an insufficient current source will limit the performance of the lamps the product controls and will likely cause permanent damage to the power source, the product or the lamps controlled.

Wiring Guide

Depending on the functions of the lamps to be connected, different wiring scenarios need to be considered.
The following table describes the electrical interfaces of the product and their intended use.

Terminal marking on backplate	Cable harness sheathing color	Wire core color and polarity	Function	Maximum rated current limit (A)
PWR +	N/A	Red (+)	Positive supply	15A
PWR –	N/A	Black (–)	Negative supply	N/A
SW	Black	Blue (+)	First function	N/A
		Brown (+)	Second function	N/A
		Black (–)	Function common	N/A
CH1	N/A	Red (+)	First function supply	13A (with CH2)
CH2	N/A	Red (+)	Second function supply	13A (with CH1)
CTRL	White	Black (–)	Lamp return	N/A
		Red (–)	Red color function	3A
		Green (–)	Green color function	3A
		Blue (–)	Blue color function	3A
		Brown (–)	White color function	3A

The device can be factory reset by holding the 3 switch cores (blue, brown, and black cores, on the black cable) for 30 seconds. The device will shut off and reset to the original factory settings and firmware version as of time of purchase.

The configurations detailed hereafter consider the use of Hella marine lamps with the product, however it can operate with lamps that use compatible electrical control scenarios.

Important

We recommend that any unused cable cores are correctly sealed to avoid any water ingress or corrosion.

An important aspect is the ability to dim the lamps via Pulse Width Modulation (PWM). Some lamps may not allow PWM dimming and therefore the product should only be utilized in an On/Off scenario.

Note: Using certain LED colors may conflict with local laws and regulations. It's the user's responsibility to be aware of, and adhere to, any applicable laws regarding the use of colored lights.

Hella is not responsible for any fines or damages that may occur.

Hereby, Hella marine declares that the radio equipment type 285 814-XX (Apelo Light Controller) is in compliance with Directive 2014/53/EU.

The full text of the Supplier's Declaration of Conformity and EU declaration of conformity is available at the following internet address: www.hellamarine.com/blog/apelo-ecosystem/apelo-lighting-controller-technical-information/#apelo_light_controller_DoC_Documents
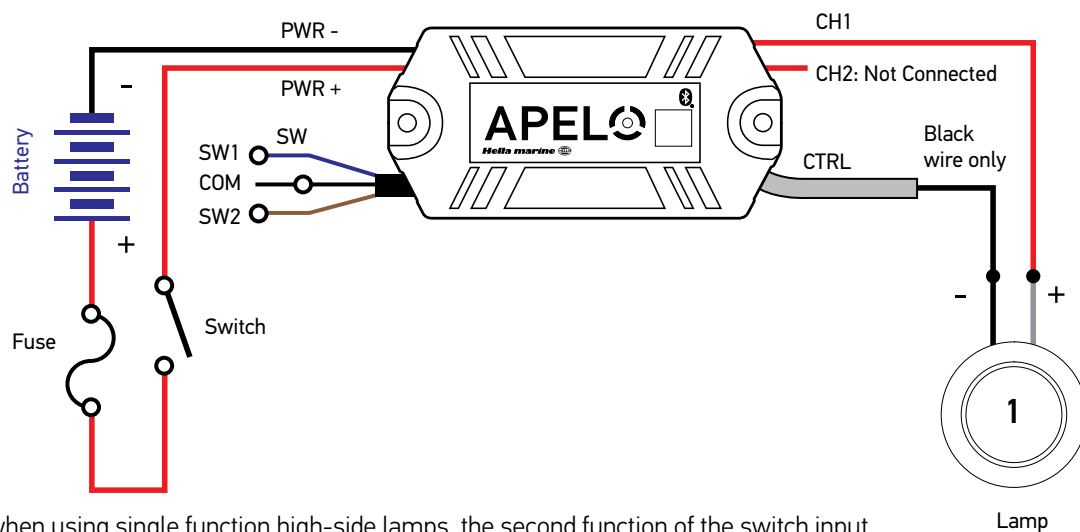
Configurations

Configuration 1 – using *dimmable*, single function high-side lamps:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2JA 958 110-xxx	EuroLED 75 White Light
2XT 980 503-xxx	Courtesy Lamp
2JA 958 126-xxx	EasyFit Step Lamp
2JA 958 340-xxx	EuroLED 95 Interior Light

Wiring schematic – only product terminals used are marked:

Note: when using single function high-side lamps, the second function of the switch input SW using the brown wire core, is unused. Always refer to the lamp instruction sheet for wiring details.

Configuration 2 – using **non-dimmable**, single function high-side lamps:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2LT 980 573-0xx	Sea Hawk Deck Light
2JA 980 269-xxx	DuraLED 50 LP
2LT 016 147-101	Apelo A2 Dual Color Underwater Lamp
2LT 016 830-001	Apelo A3 Dual Color Underwater Lamp*
2JA 959 700-1x1	White DuraLED 12 Lamp

Wiring schematic is identical to that shown for Configuration 1, except for Apelo A3 which has an extra Bonding Cable (Ref 5B).
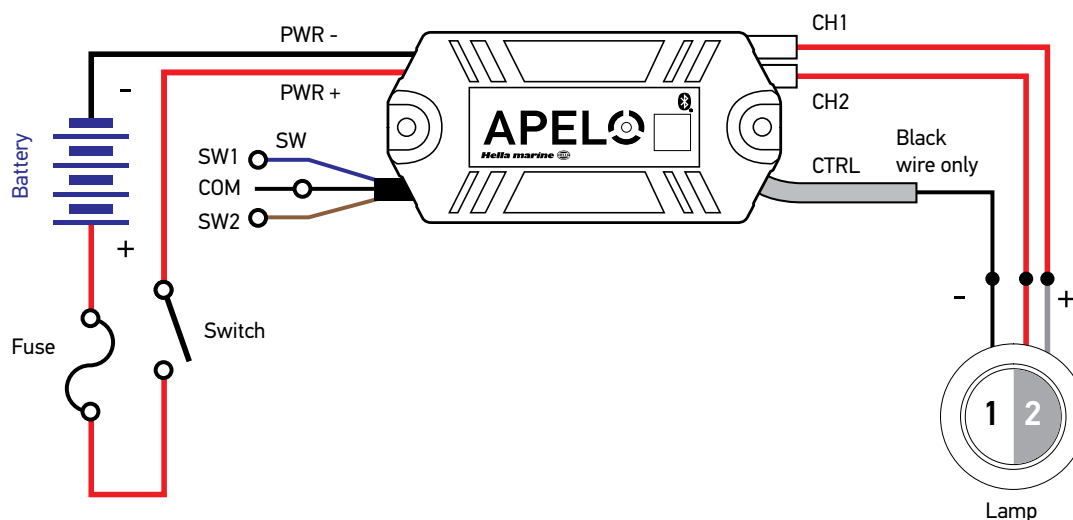
Note: when using single function high-side lamps, the second function of the switch input SW using the brown wire core, is unused. Always refer to the lamp instruction sheet for wiring details.

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Configuration 3 – using *dimmable*, dual function high-side lamps:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2JA 958 015-xxx	EuroLED 75 White / Red Light
2JA 958 340-191	EuroLED 95 Round Warm White / Blue Light
2JA 958 340-661	EuroLED 95 Square White / Red Light
2JA 958 340-671	EuroLED 95 Square Warm White / Blue Light

Wiring schematic – only product terminals used are marked:

Note: Always refer to the lamp instruction sheet for wiring details.

Configuration 4 – using **non-dimmable**, dual function high-side lamps:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2LT 980 950-0x1	Dual Color Sea Hawk Deck Light
2JA 980 604-061	DuraLED 50 LP White/Red
2LT 958 140-xxx	Sea Hawk 470 Light Bar with Edge Light
2LT 958-130-4x1	Sea Hawk Combi Light Bar

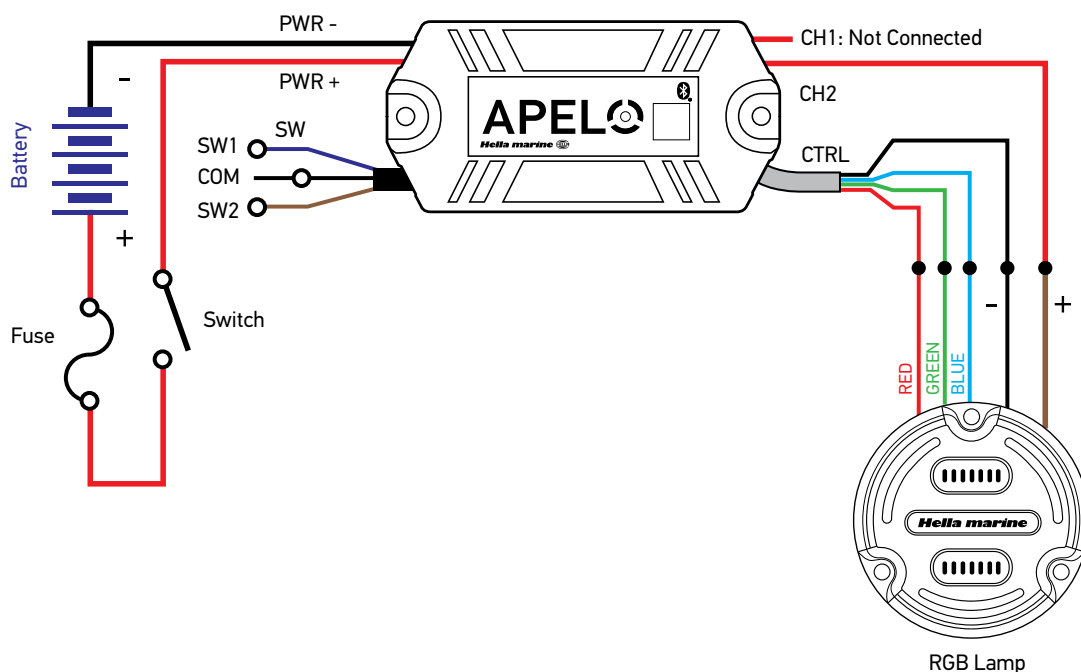Wiring schematic is identical to that shown for Configuration 3.

Note: Always refer to the lamp instruction sheet for wiring details.

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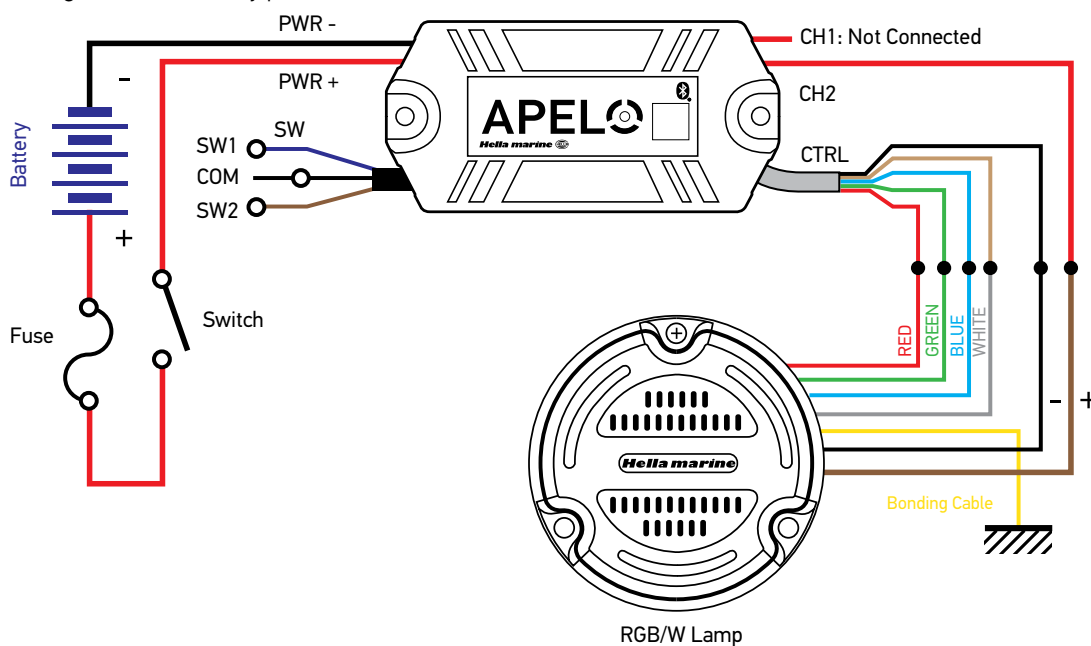**Configuration 5** – using *dimmable*, RGBW color lamps with permanent positive and negative terminals:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description	Wiring Diagram Ref
2LT 016 146-001	Apelo A1 RGB Underwater Lamp	5A
2LT 016 148-x01	Apelo A2 RGB Underwater Lamp	5A
2LT 016 831-001	Apelo A3 RGBW Underwater Lamp	5B

5A: RGB Wiring schematic – only product terminals used are marked:

RGB Lamp

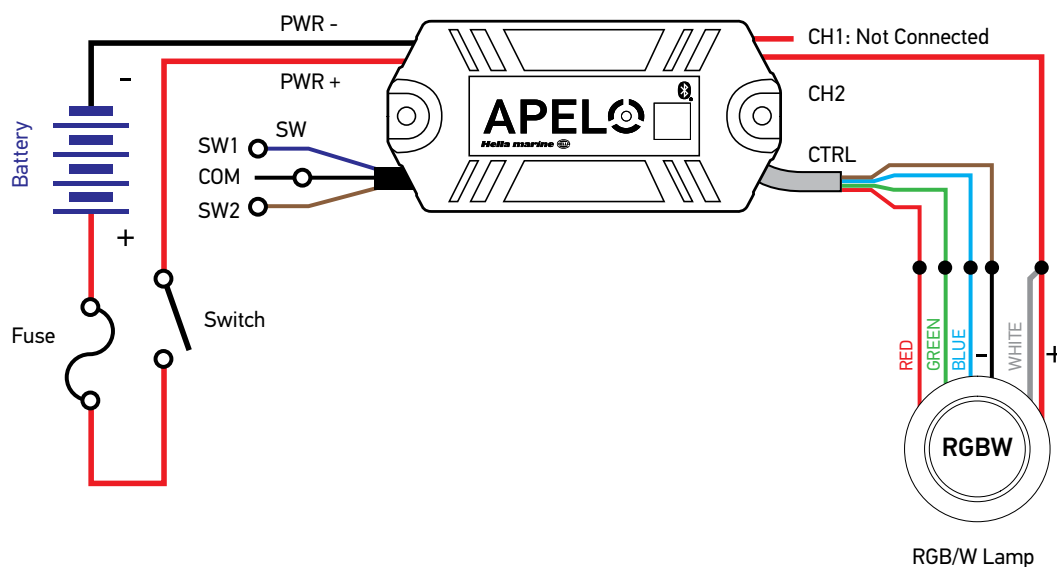**5B:** RGBW Wiring schematic – only product terminals used are marked:

RGB/W Lamp

Note: Always refer to the lamp instruction sheet for wiring details.

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Configuration 6 – using *dimmable*, RGBW lamps with positive supply and negative color functions:
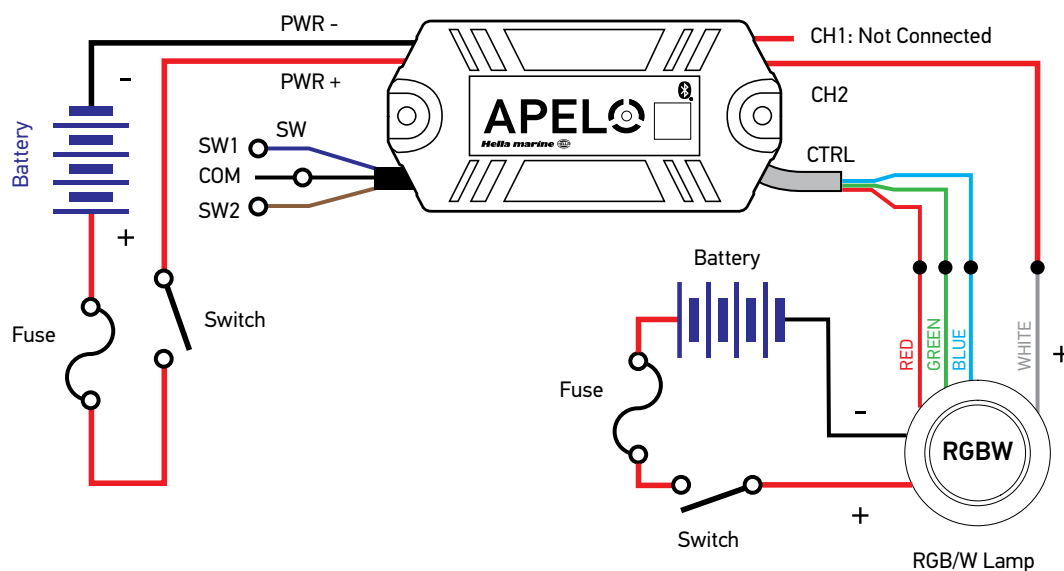
Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2LT 017 884-0xx	EuroLED 75 RGBW Round

Controller managed Wiring schematic – only product terminals used are marked:

Controller managed with White Light override Wiring schematic – only product terminals used are marked:

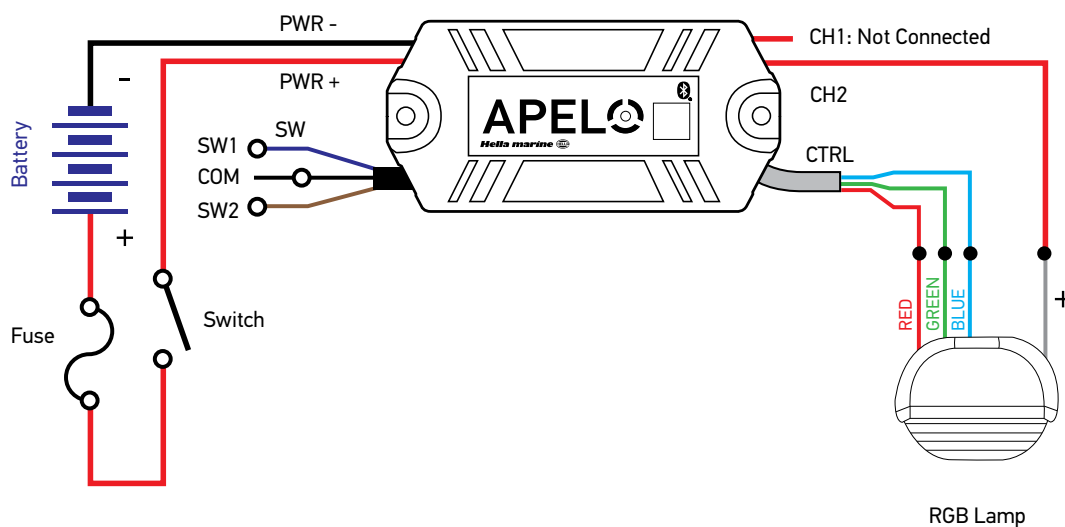**Note:** Always refer to the lamp instruction sheet for wiring details.

For these specific Hella lamps, consult with a professional on the exact wiring required.

Configuration 7 – using *dimmable*, RGB lamps with positive supply and negative color functions:

Recommended Hella marine lamps (more may apply, check with supplier)

Sales part number	Description
2LT 958 126-5xx	RGB Step Lamp

Wiring schematic – only product terminals used are marked:

RGB Lamp

Switching the product via the two-function momentary switch

The electrical terminal SW accommodates a two-function momentary switch. When the product is used with its default configuration, this switch can be used to control the products connected. Depending on the configuration used, the switch will either

- Latch: cycle between the operational modes
  - On or off for single function lights
  - On or off of the first function only for dual function lights
  - 12 color functions and off for RGB(W) color lights

- Hold: dim or brighten the active color function

Note: repeat action will alternate between dimming and brightening

Modes for RGB/W lights are as follows:

Sequence	Output
1	Red, White & Blue – Preloaded Custom Mode
2	The Apelo Blitz – Preloaded Custom Mode
3	Custom Slot 3 – If no entry will skip
4	Custom Slot 4 – If no entry will skip
5	Red
6	Green
7	Blue
8	White
9	Yellow
10	Magenta
11	Cyan
12	Cycle Mode
13	Fade Mode
14	Strobe Mode
15	Off
16	Back to Sequence 1

!!!Warning!!!

Do not use the dimming / brightening function when using non-dimmable lamps as this can lead to permanent damage of the product or the lamps.

Using the product with the Hella marine companion app

Hella marine provides a free companion App for use with the product, called Apelo Light Controller, available from the Android / iOS App Store.

Download and install the App before powering the product. After powering up, the product, if not provisioned into a Bluetooth Low Energy mesh network, will allow provisioning for 120 seconds. During this time, the product shall appear as a new product on your phone via the App.

The companion app allows the creation of custom animations or light displays, which are then stored on the product and accessed via a simple switch or the App itself. 4 custom modes can be programed onto the controller and will be positioned at the beginning of the sequence above.

The device comes preloaded with two unique animations that can be easily overwritten via the App. These animations are always accessible when you factory reset the device.

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Important

The device can be factory reset by holding the 3 switch cores (blue, brown, and black cores, on the black cable) for 30 seconds.

The device will shut off and reset to the original factory settings and firmware version as of time of purchase.

Connecting the two-function switch terminal SW

When not using the Hella marine companion app to control the product, a two-function (i.e. three pole) momentary switch can be connected to add functionality. This is configured via the controller set up in the companion App.

A suggested HELLA P/N is 6GM 007 832-251.

Apelo Light Controller Specifications

Operating Voltage	Multivolt™ 12 / 24V DC Nominal
Power Handling	150W / 13A @ 12V DC (6.5A @ 24V DC) (3A Per channel)
Power Consumption	1W
Connectivity	iOS / Android App over Bluetooth 13A Max High Side 3A Max Low Side Direct Switch Control to toggle functions (1 switch can control multiple devices)
Communication	Bluetooth Low Energy (BLE) Mesh
Protection	IP67 (Completely sealed)
Cable	140mm tinned marine cable
Base Material	V0 Rated Plastic
Compliance	FC CE UK CA Ⓑ ⚠