

# **Installation and operating instructions**

## **Illumination RGB and Monochrome**

[www.bootled.de](http://www.bootled.de)

Please read this manual carefully before installation and keep it for future changes and questions. Please hand over the manual to the end customer if necessary

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## **1. Safety Instructions**

Please note that the Illumination Monochrome and Illumination RGB (100W and 200W) aluminum models are suitable for freshwater use only and no protection against corrosion in salt water is provided by the product and therefore no liability can be accepted for any damage or loss of function. For the use of our underwater lamps in salt water, please use the stainless steel version.

Please have the installation carried out by a qualified specialist company or installer.

Please ensure that an external fuse is provided as close as possible to the power supply. The dimensioning of the fuse has to be chosen according to the cable cross-section and the illuminants, but max. 10 Ampere (2x50W), 15 Ampere (3x50W) or 20 Ampere (2x100W). If the driver is retrofitted on a yacht and you are using an already installed cable, please check the existing fuse protection.

Install the device only in protected rooms and avoid contact with dust, moisture, heat and sunlight. The electronics of the device have been preserved with protective lacquer, but this does not provide absolute security against moisture.

Ensure that the connected cables are strain relieved.

Cleaning/Care: The UW lamps must not be cleaned with a high-pressure cleaner, otherwise the seals may be damaged and become leaky.

## **2. Product Description**

The supplied driver is used for luminosity regulation for illumination monochrome and RGB, in a 12 volt system. This product was tailored to the needs of yacht owners and is only to be used there if you don't consult the manufacturer.

If you have purchased the Illumination RGB Bluetooth (Bluetooth module included), you have the possibility via app to control the lamps.

### 3. Installation

#### 3.1 Installing the Lamps

Before you start drilling the holes for the Illumination Monochrome/RGB, make sure you can install the lamps where you want them. That is, that you have enough space inside the boat to install the lamp. The space you need for this, please refer to the attached data sheet, the technical figure in the appendix you can also cut out and take as a template for mounting.

##### Mounting the lamps

Now drill a Ø 10mm hole in the mirror. After you have cleaned the hole from the drilling dust, you can seal this, if you want, with different methods.

Next, coat the back of the Illumination Monochrome/RGB with Sika-Flex or another suitable sealant. The most suitable way is to draw two complete rings to prevent water from seeping through the back into the interior of the boat.

Afterwards lead the cable of the lamp into your previously drilled hole. Now fasten the lamp with three screws.

#### 3.2 Installing the Driver

##### Preparations

Please disconnect the power supply to the affected circuit before installation. Find a dry and cool place to install the driver. Fasten the driver to the outer tabs with suitable screws.

Connect all connections as shown in the figure 1-1.

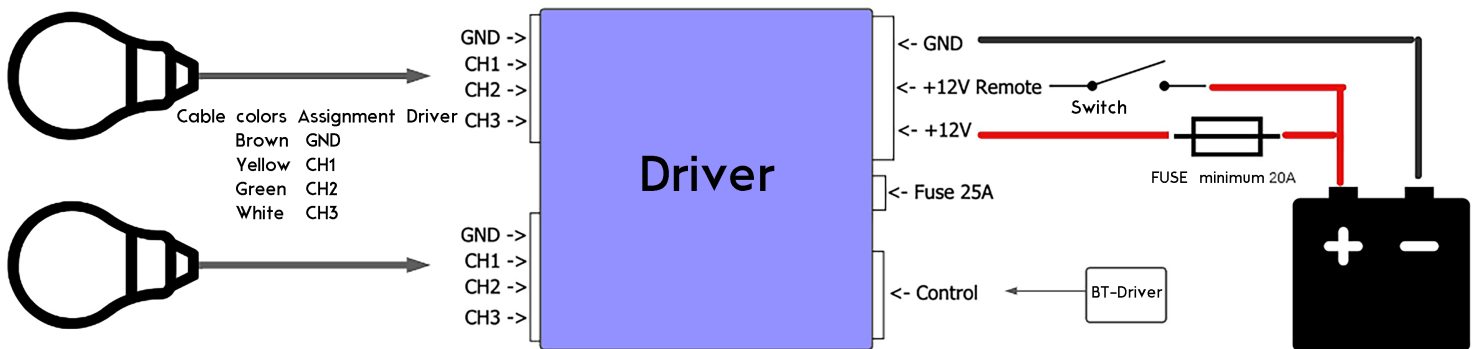


Figure 1-1 (Schematic connection diagram)

**Power supply connection**

Only use cables with a cross-section of at least 2.5mm<sup>2</sup> for the connection. For long cable runs, 4.5mm<sup>2</sup> or higher is recommended due to voltage drop. (see figure 1.2) Connect your voltage supply line to the drivers. 12V+ and GND (Figure 1-1)

Cable Thicknesses Power Supply Illumination LED Drivers			
Total Cable Length in Meters	100W Driver	150W Driver	200W Driver
until 1	1 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
2	1 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
3	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	4 mm <sup>2</sup>
4	2,5 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
5	2,5 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>
6	4 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>
7	4 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>
8	4 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>
9	4 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>
10	6 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>

Figure 1.2 (Cable thicknesses)

A fuse is installed in the driver housing, but this only protects the driver, so an additional fuse near the battery is mandatory.

The driver has a relay, which completely disconnects the current. An external relay is therefore not necessary.

The relay is controlled by an extra control line, no high current runs over this line, therefore a small line cross-section is possible.

Also connect the control plus to the terminal provided for this purpose. (+12V remote)

**Connection to the supply lines of the LED**

Connect the cables of the LED to the terminals on the driver. Shorten the cable to the correct length and use wire end ferrules.

Pay attention to the correct color assignment between driver and cable colors. (Brown to GND, yellow to CH1, etc.)

**Strain relief**

Once all connections are plugged in, please provide strain relief and ensure that the cables cannot be accidentally disconnected.

## 4. Operation and function

### ...via Bluetooth App

- Make sure the lamps are turned on. (Power received)
- Make sure Bluetooth is turned on on your phone.
- Now follow the individual steps in the app.



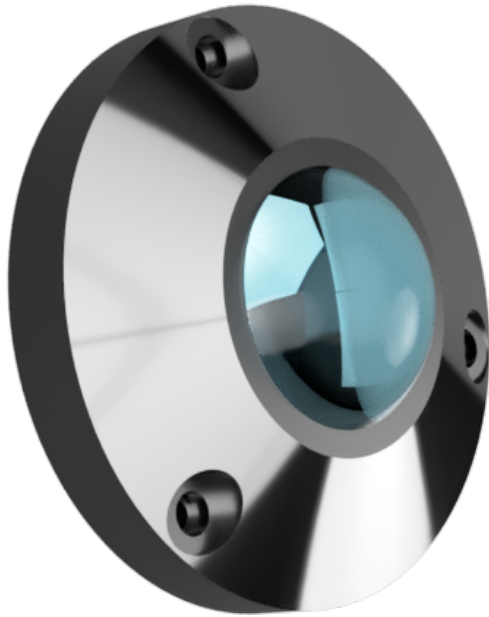
### ...via Switch

- The switch has two positions. On/Off.
- In the On position, the lamps are switched on by soft start.
- In the OFF position, the lamps are switched off by means of soft start.

## 5. Notes on Disposal

Electronic devices must not be disposed of with household waste. Please take the device to your local collection point in accordance with the guidelines for electrical waste. Thank you very much!





**Illumination Monochrom/RGB**  
High Quality Solution Underwater Light

- RGB (Color Changing LED)
- Controllable via App
- Operating voltage 12 Volt DC
- 40'000h LED lifetime
- Plug & Play Installation
- Most powerful version on the market
- Screwed housing
- Aluminum - or stainless steel housing
- LED, dimmable (power regulation)
- 1 driver for up to 4 lamps

Mounting recommendations	Illumination
Boat size	until 20m
Transom width	0,6-3m
Installation depth	50 mm
Technical data	
Total power per LED	ca. 50-100 W
Typical LED lifetime	40'000+ hours
Voltage/Ampere	12 DC / 10-20 A
Light cone (normal water quality)	until 5m
Light cone (perfect water quality)	until 10m
Driver type	external
Driver size (L x W x H)	173x77x49 mm
Dimensions	
Lamp diameter	84 mm
Profile (height) of the lamp	19mm (30mm with lens)
Total weight lamp, driver	250g lamp, 500g driver
Connection cable length (standard)	400cm
Hole size for lamp mounting	10 mm
Material*	Aluminium/ Stainless steel
Lens	High temperature glass

**Illumination Technology**

Alle Illumination Lampen sind „Made in Germany“ und speziell für den Unterwassereinsatz entwickelt.

Der Lampenkörper wurde unter höchsten Ansprüchen hergestellt und so, konstruiert dass er den hohen Ansprüchen im Yacht Bereich gerecht wird.

Der Treiber wurde speziell für das Ansteuern der LEDs im Bootsbereich entwickelt und wird in Deutschland produziert.

\*Material: Aluminium :Aluminium 6060. AlMgSi;  
Stainless Steel: CuAl10FeNi5-C „CC333G“

Figure 1-3 (Lamp)

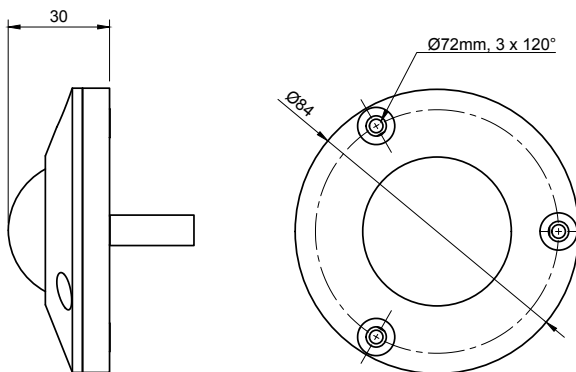
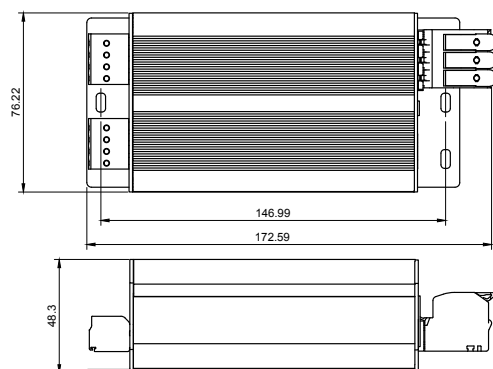


Figure 1-4 (driver)





# EG Konformitätserklärung

Der Hersteller,

**bw electronics GmbH**  
Eichbergstr. 70  
D-72525 Münsingen

Erklärt in alleiniger Verantwortung, dass die LED-Leuchten der Typen:  
Illumination und Illumination RGB

die in den folgenden Direktiven und Regierungsverordnungen festgelegene  
Grundforderungen:

- **Nr. 73/23/EEC** über technische Forderungen an elektrische Niederspannungsanlagen;
- **Nr. 2004/108/EG** über technische Forderungen an Erzeugnisse vom Gesichtspunkt der elektromagnetischen Kompatibilität;

**erfüllen**

und den Bestimmungen der folgenden harmonisierten Normen:

- EN55022:1998 + A1:2000 + A2:2003 + Cor.:2005-3 + Cor.: 2005-9, Klasse B
- EN55024:1998 + A1:2001 + A2:2003
- EN 60950-1: 2001
- EN 61000-3-2 ed. 2:2000, A2:2004
- EN 61000-3-3: 1995, Cor. 1:1997, Z1:2002

**entsprechen**

Münsingen, den 30.11.2022



(Geschäftsführer: Mario Walter)



(Geschäftsführer: Alexander Bottlang)

# Figures:

Figure 1-1 (Wiring diagram Schematic)

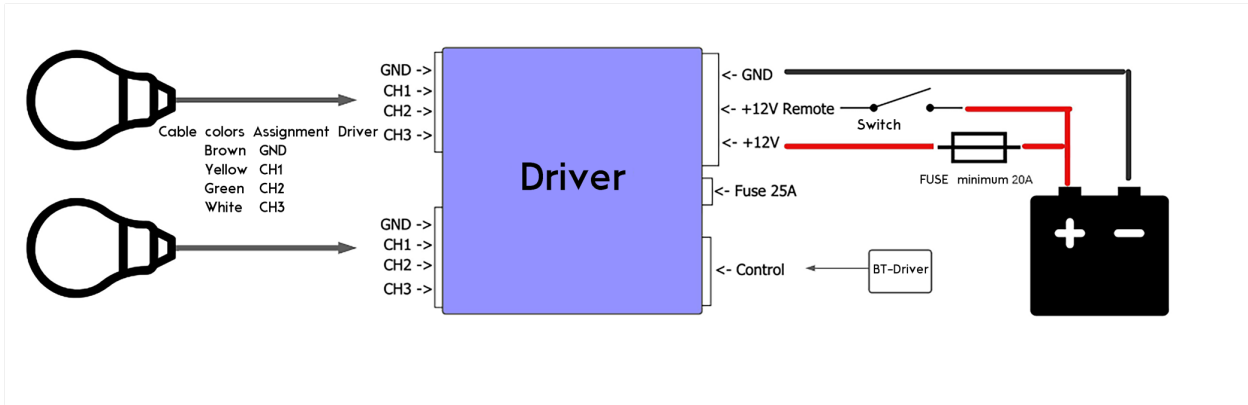


Figure 1-4 (Driver)

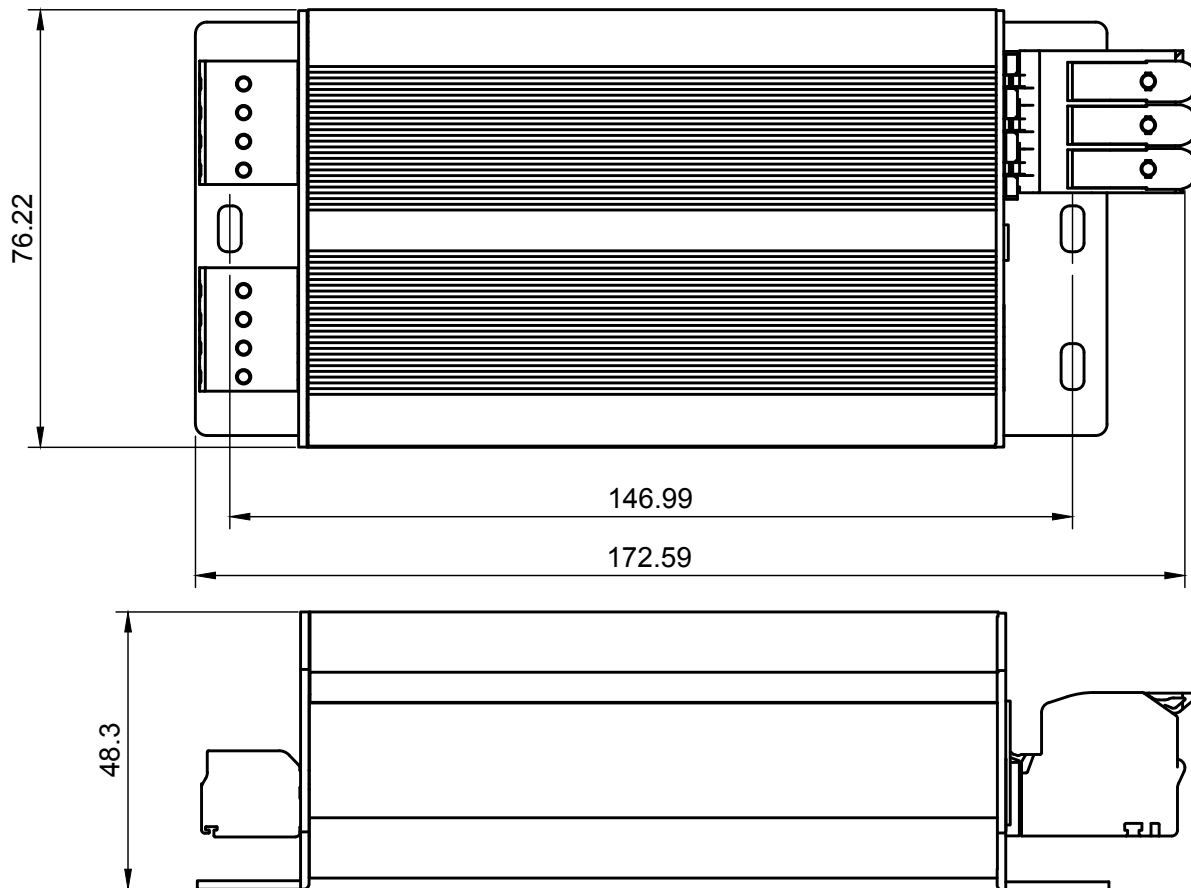
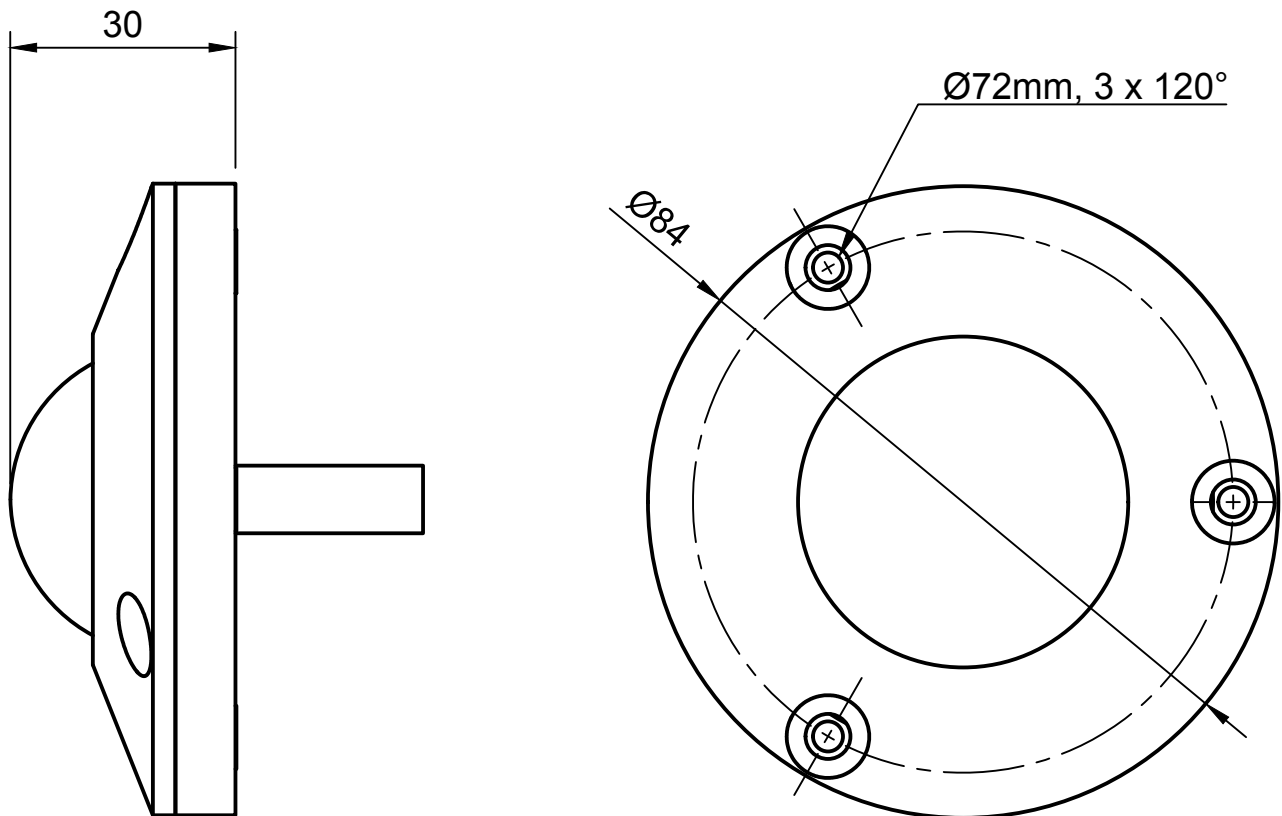


Figure 1-2 (Cable Thicknesses)

Cable Thicknesses Power Supply Illumination LED Drivers			
Total Cable Length in Meters	100W Driver	150W Driver	200W Driver
until 1	1 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
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10	6 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>

Figure 1-4 (Lamp) Scaling 100%



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