
ARCUS

MRM01

INTERIOR & EXTERIOR
LIGHT



Operating Instructions

ASTEL
MARINE

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PREFACE

The ARCUS MRM01 series of very innovative multi-color RGB LED interior & exterior light is built-in waterproof stainless steel casing with different front shapes and lighting angles. It is suitable for using as interior and exterior downlight and step or staircase light. The most advanced electronic design with built-in microprocessor enables network connection and simple control of complete group of the lights.

The ARCUS MRM01 series is designed to light to the floor under the angle of 45 degrees or straight. The main feature is that ARCUS MRM01 series allows changing of the color of lighting manually or automatically through the complete rainbow spectrum.

All the models are available in polished stainless steel casings with multi-color RGB lighting with 1 high-brightness LED.

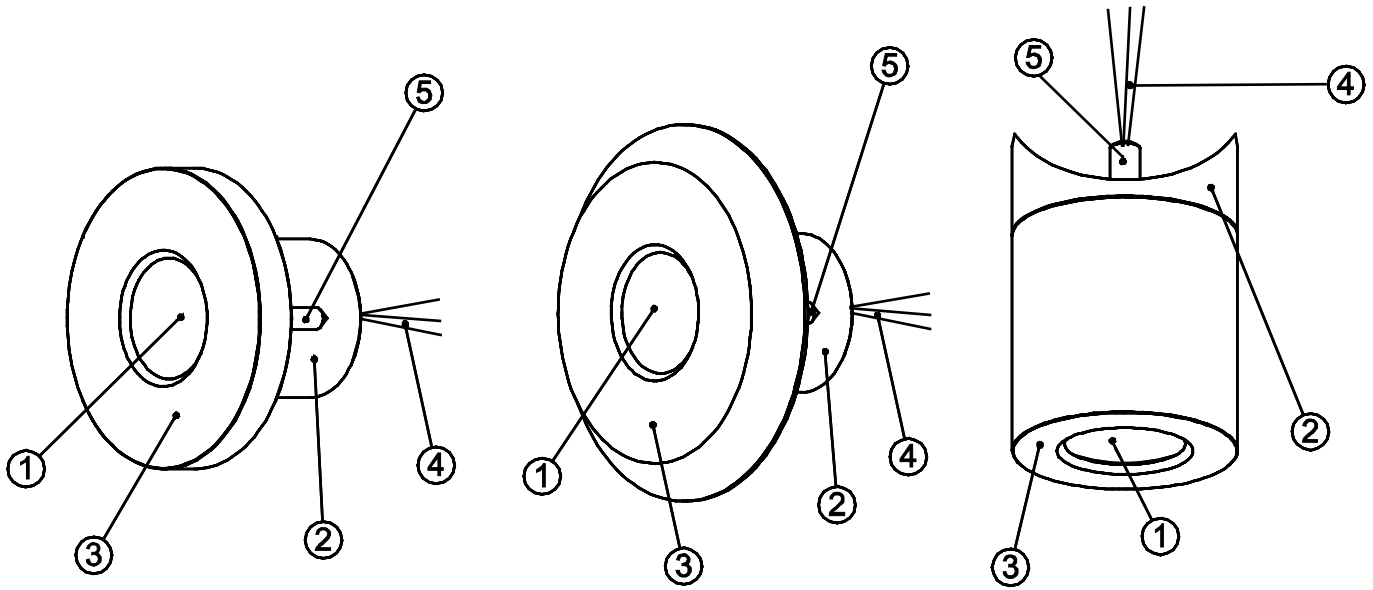
FEATURES

- Innovative Design
- Stainless Steel Casings
- Different Face Shapes
- Multi-Color RGB Lighting
- Reflector with Holographic Diffuser
- Microprocessor Control (network)
- Built-in ASTEL Protocol for DMX512 Control of Multi-Color RGB version
- Polarity Protection
- Transient Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation

PRECAUTIONS

- The interior & exterior light has to be installed and used in accordance with the instructions of this manual only.
- The power supply has to be disconnected before installation.
- Avoid using this unit near appliances generating strong magnetic fields.
- The optical window has to be cleaned with a mild soap or detergent and lukewarm water by using a soft cloth or sponge. Do not use abrasive or highly alkaline cleaners. Never scrape with razor blades or other sharp instruments. Benzene, leaded gasoline, acetone or carbon tetrachloride should never be used.
- Do turn power off immediately and refer servicing to qualified service personnel if the interior & exterior light does not operate normally following the operating instructions.

COMPONENTS AND CONNECTORS



(1) Optical window

High-Grade Polycarbonate Glass Optical Window.

(2) Interior & exterior light casing

Stainless steel casing with fixing holes for surface-mount models or basic mounting plate for rail-mount model.

(3) Face shape

Different stainless steel face shapes.

(4) Wires

Red, black and green wires to connect the 12-24Vdc power supply and control.

(5) Fixing screw

Two fixing screws to fix the interior & exterior light on the flat surface or to fix the basic mounting plate to the rail for rail-mount model.

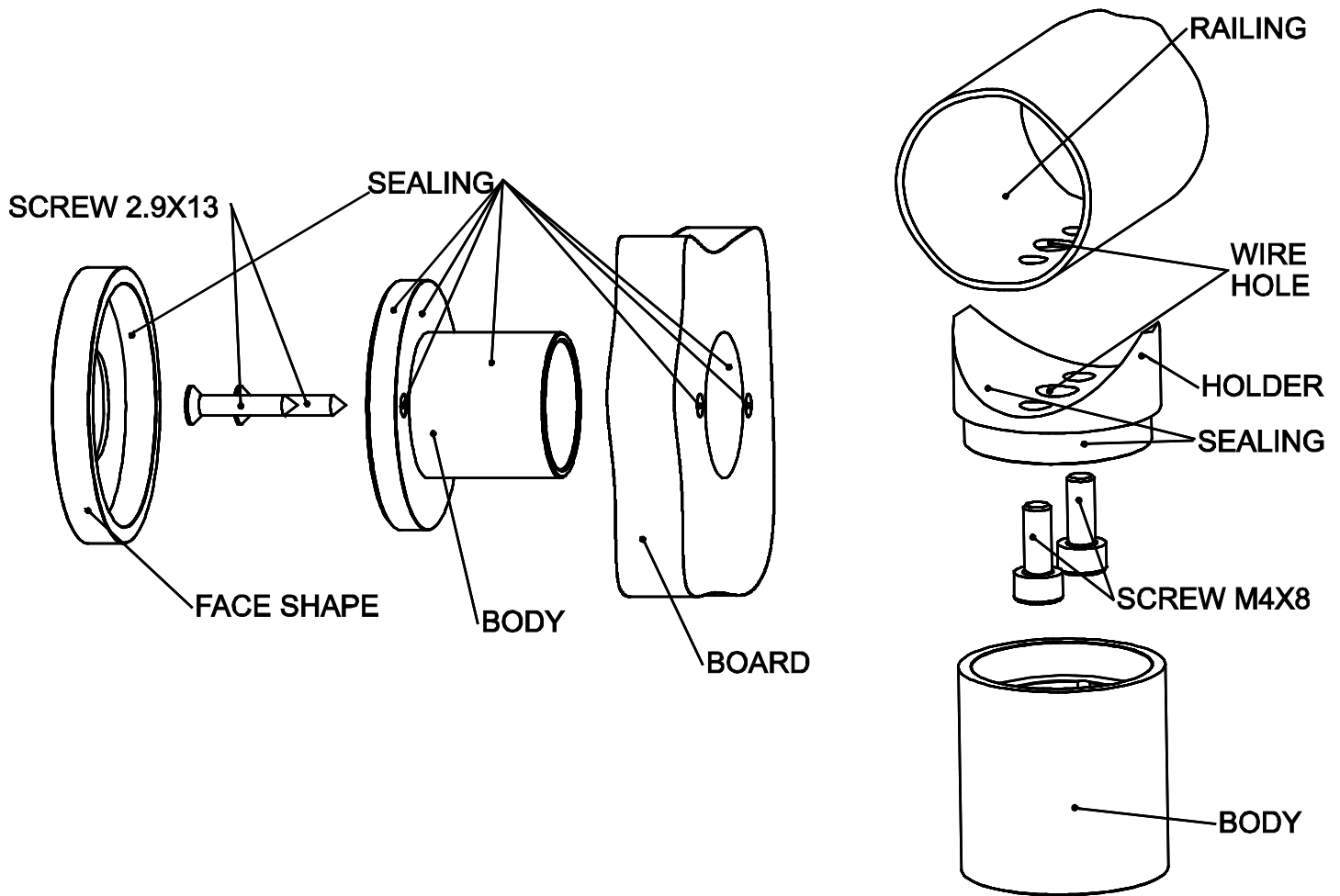
INSTALLATION

The interior & exterior light kit consists of the following components:

- Interior & Exterior Light ARCUS MRM01
- 2 x fixing screw 2.9x13 or M4x8 for rail-mount model
- Operating Instructions with Declaration of Conformity and Warranty conditions

The ARCUS MRM01 has to be installed on a flat surface of the vessel's staircase, ceiling or floor or on the vessel's rail with diameter of 30mm.

The installation has to be realized by a qualified personnel.



Surface preparation

The interior & exterior light is recommended to be installed on the location to allow the best illumination and lighting effects.

The diameter of the hole drilled through the board to insert the interior & exterior light has to be 21mm. To fix the interior & exterior light with screws 2.9x13 the diameter of holes drilled into the board has to be around 2.5mm.

For rail-mount model:

To fix the interior & exterior light with screws M4x8 to the rail the two holes into the rail have to be prepared with inner thread M4 and one hole with diameter of 6 mm for wires.

Sealing

Before inserting the interior & exterior light into the hole of the board the sealant has to be used around the fixing holes and around the casing on the rear surface of the interior & exterior light.

For rail-mount model:

Before fixing the basic mounting holder to the rail the sealant has to be used around all the three holes and on the rear surface of the basic mounting holder.

The sealant can be on silicon basis but the best solution is two-component polymer sealant.

Fixing

The interior & exterior light has to be inserted through the hole from outside of the board and fixed with two screws 2.9x8. After cleaning the redundant amount of the sealant the front shape has to be fixed.

For rail-mount model:

The basic mounting holder has to be fixed with two screws M4x8. After cleaning the redundant amount of the sealant the wires have to be inserted through the holes in the rail and basic mounting holder and interior & exterior light has to be fixed with the front shape.

Note:

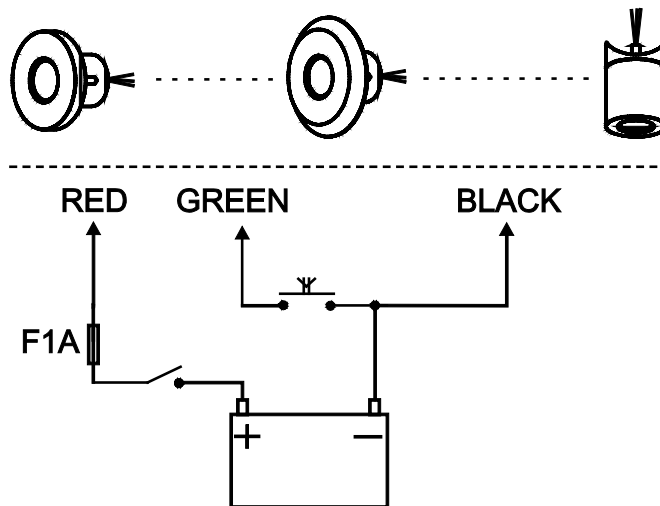
- **Do not overtighten the screws as this can result in hull or interior & exterior light damage.**

Note:

- **It is highly recommended to seal the front shape thread to avoid unscrewing.**

Connection

The interior & exterior light has to be connected as described in the table below:



ARCUS MRM01 wire color	FUNCTION
Red	+ DC Power Supply
Black	GND Power Supply
Green	Control

The power supply has to be connected through the switch (not included) with correct polarity and protected by a fuse (not included). The power supply voltage range has to be from 10 - 30Vdc.

The control of the unit has to be connected through the key-switch (not included) to the GND by using a 2-pole signal cable extension (not included) to turn-on and turn-off the interior & exterior light and to select the color and mode of lighting.

Optional MXU01 or MXU03 interfaces can be connected to the CONTROL and GND wires by using a 2-pole signal cable (not included).

When two or more interior & exterior lights are connected in a network all the control wires (green) can be connected in parallel.

CONTROLS

The interior & exterior light can be basically controlled by using the momentary-switch.

When the light is turned-off the color or mode of lighting can be changed sequentially by pressing the momentary switch for 2 seconds:

ARCUS MRM01 Sequence of lighting
Custom Color
Full RGB
Cool White
Bluish White
Red
Green
Blue
Rainbow Color Spectrum

Turning on /off

Press the momentary-switch shortly.

Changing the color or mode of lighting

When the light is turned-off press the momentary-switch for 2 seconds.

Setting the Custom Color

At the selected Rainbow Color Spectrum mode press the momentary-switch shortly to turn the light off. After that press the momentary-switch for 5 seconds or until the light is switched to the selected color and then the Custom Color is set and selected.

Dimming

When the light is turned-on press the momentary-switch until the desired illumination is achieved. By another pressing of the momentary-switch the luminosity will increase to the maximum illumination.

Set default

Press the momentary switch for min. 40 seconds or until the light is turned off.

Synchronization

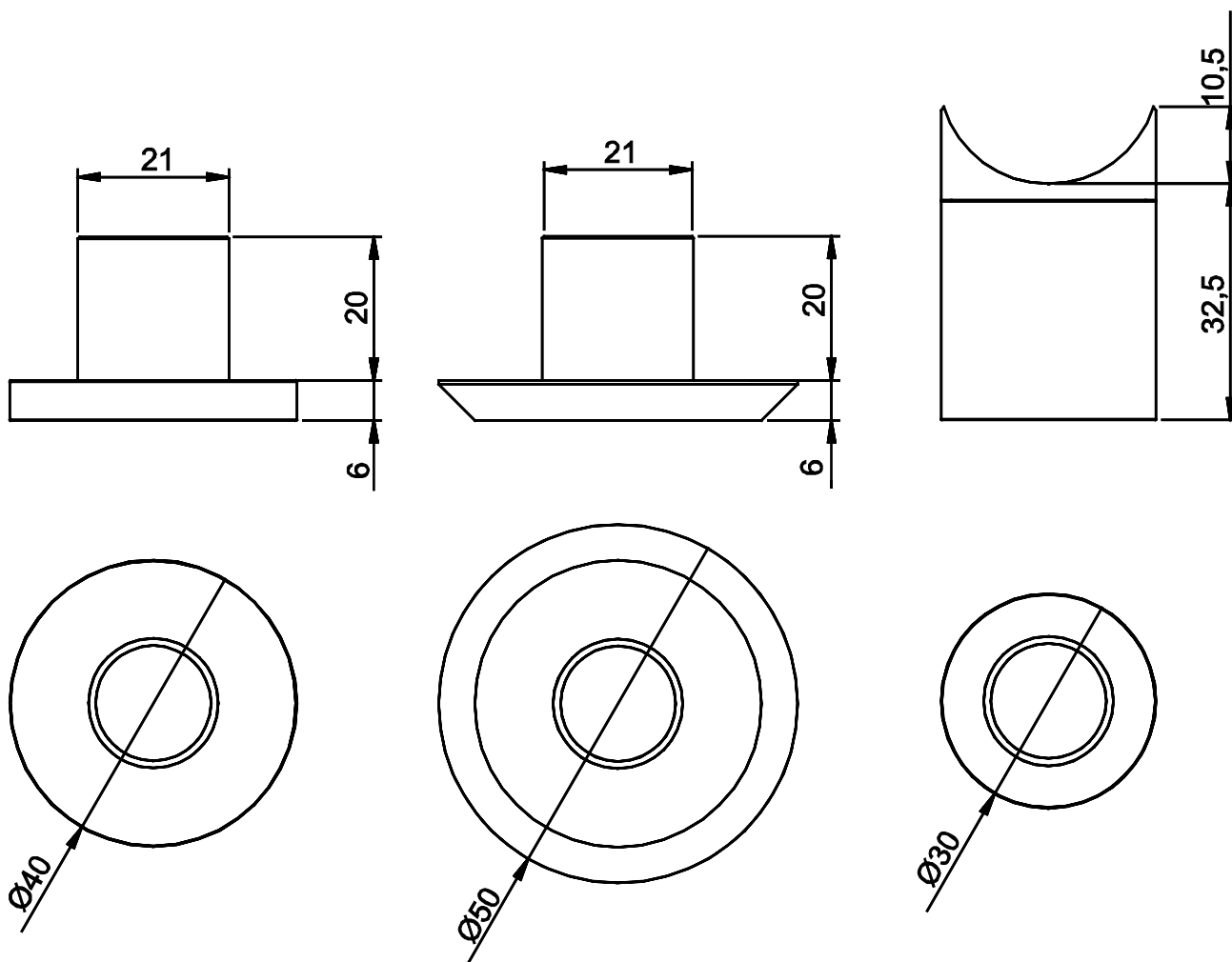
When more than one interior & exterior light is connected to the system the optional Synchronization Unit MSU08 is recommended to synchronize the colors of lighting at the Rainbow Color Spectrum mode of lighting. On the other case the colors of all installed lights would not be the same after few minutes or hours of operation in the Rainbow Color Spectrum mode.

If the multi-color light is used only with one of the fixed color of lighting the synchronization is not necessary.

DMX512 control

The built-in ASTEL protocol enables the network connection to control the lights with the standard DMX512 protocol by using optional MXU01 or MXU03 interfaces.

APPEARANCE



TECHNICAL SPECIFICATIONS

Power supply	12 – 24 Vdc, max. 32 mA/12 Vdc or 18 mA/24 Vdc
Lens angle	60° (angular) or 90° (straight)
Optical window	High-grade polycarbonate glass
Luminous flux	9 lm
Lighting color	RGB spectrum
ASTEL protocol default address	1
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L)
Protection	IP 68
Dimensions	Ø40 mm x 26mm (slope front shape) Ø50 mm x 26mm (gentle front shape) Ø30 mm x 43mm (rail-mount model)
Weight	75g (slope front shape) 95g (gentle front shape) 150g (rail-mount model)

Design and specifications subject to change without notice.

WARRANTY

1. The equipment manufactured by ASTEL d.o.o. is warranted to be free from defects in workmanship and materials under normal use and service.
2. This Warranty is in effect for of two years from the date of purchase by the user. Proof of purchase must be included, to establish that it is inside the warranty period.
3. This Warranty is transferrable and covers the product for the specified time period.
4. In case any part of the equipment proves to be defective, other than those parts excluded in paragraph 5 below, the owner should do the following:
 - (a) prepare a detailed written statement of the nature and circumstances of the defect, to the best of the Owner's knowledge, including the date of purchase, the place of purchase, the name and address of the installer, and the Purchaser's name, address and telephone number;
 - (b) the Owner should return the defective part or unit along with the statement referenced in the preceding paragraph to the warrantor, ASTEL d.o.o., or an authorized distributor, postage/shipping prepaid and at the expense of the Purchaser;
 - (c) if upon the Warrantor's or authorized distributor's examination, the defect is determined to result from defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense;
 - (d) no refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. Prior to refund of the purchase price, Purchaser must submit a statement in writing from a professional boating equipment supplier that the installation instructions of the Operating Instructions manual have been complied with and that the defect remains;
 - (e) warranty service shall be performed only by the Warrantor, or an authorized distributor, and any attempt to remedy the defect by anyone else shall render this warranty void.
5. There shall be no warranty for defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specially designed as waterproof.
6. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, loss of income or profit, or any other consequential or resulting damage or cost which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment, or part thereof.
7. The Warrantor assumes no liability for incidental or consequential damages of any kind including damages arising from collision with other vessels or objects.

DECLARATION OF CONFORMITY

according to IEC Guide 22 and EN 45014

Manufacturer's Name: ASTEL, Podjetje za projektiranje, proizvodnjo in trgovino, d.o.o.

Manufacturer's Address: Dutovlje 138
6221 Dutovlje
Slovenija

declares that the products

Item, Product Name and Model Number: 1. Interior & Exterior light ARCUS MRM01

conform to the following Product Specifications:

EMC: EN 55015:2006 + A1:2007
EN 61547:1995 + A1:2000 + A2:2009
EN 61547:2009

Safety: EN 60598-2-18:1995/A1:2012
EN 60529:1992+A2:2013

Supplementary Information:

The products herewith comply with the requirements of the following Directives and carry the CE-marking accordingly:

- the Low Voltage Directive 2014/35/EU
- the EMC Directive 2014/30/EU
- the RoHS Directive (EU) 2015/863

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18th January, 2017

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