



Navigation Lights



Signalling Lights



Searchlights



Whistles

TECHNICAL DOCUMENT

DHR **230RC**-series Remote Controlled Searchlight



Den Haan Rotterdam



Safety notes

- Turn power off before inspection, installation or removal
- Don't stare directly into the LEDs, Always use eye protection when handling LEDs
- This product can be damaged by electrostatic discharge, ESD. When handling take close care before opening the drum to avoid damaging the LEDs.
- Allow lamp/fixture to cool before handling
- Do not use the searchlight if outer glass is scratched or broken

**Damage due to inappropriate handling is
not covered under warranty.**

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PREFACE

Den Haan Rotterdam is a family-owned company established in 1922. Started as a small tinsmith, it has evolved into a globally respected producer of navigation lights, searchlights, air horns and a wide range of nautical lamps made from copper and brass. By introducing products with advanced LED-technology, DHR has safeguarded a visibly safe future for marine vessels in all weather conditions.

With the 230RC-series searchlight, DHR introduces an entry level remote controlled LED searchlight. The 75W LED engine produces a color output of 5.000K and an intensity close to the same performance levels of 1.000W halogen searchlights. Using the best available parabolic mirror reflectors on the market, a crisp & clear spot with no visible stray light has been ensured. The 230RC is equipped with an unique bracket design to realize an extreme downward vertical angle. This is specifically useful for close range targets. Positions on high structures or foremasts of inland navigation vessels, where high angles up to 60° are desired, the 230RC is the answer.

DEN HAAN ROTTERDAM B.V.



D.M. Den Haan
Managing Director

QUALITY STANDARDS



LED Technology



Light Weight Construction



Remote Control



IP66 Water Ingress Protection



Excellent Optics



Large Vertical Angle



Maintenance Friendly



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1. MOUNTING INSTRUCTIONS



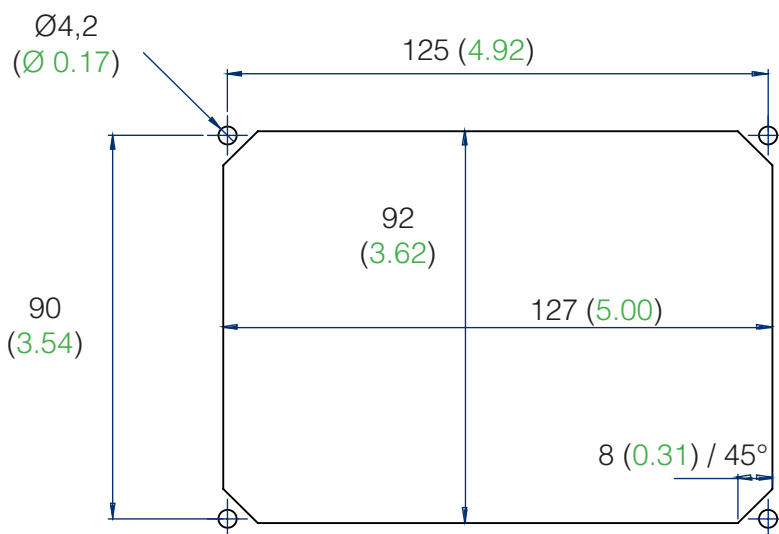
Warning!

Den Haan Rotterdam does not accept responsibility for any damage if the searchlight is installed incorrectly and/or used improperly. When in doubt consult a qualified electrical technician.

Mounting the panel

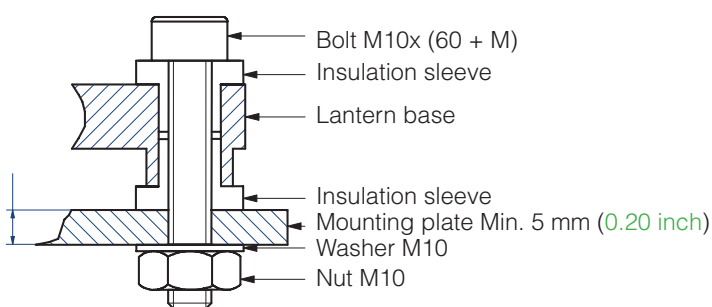
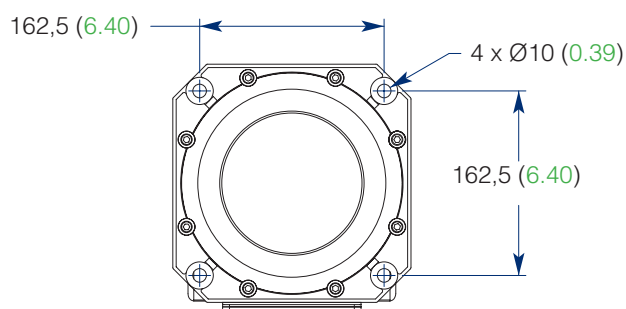
Place the control panel inside the wheelhouse, where it is protected against weather influences. The panel has been designed in order to be flush-mounted in an instrument cabinet, as shown in the illustration below.

The minimum required space for the panel inside the console 50 mm (4.33 inch).



Searchlight installation

Install the searchlight in a horizontal upright position with sufficient space around the drum of the searchlight to ensure it can move freely. The dimensions can be found on page 9.



All dimensions in mm (inch)

Fasteners

- The permissible torque should be 8 Nm (5.9 lbf·ft)
- Use only A4-grade stainless steel

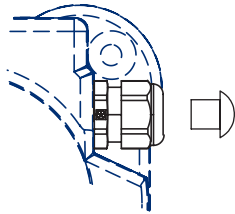
Caution!

Even though the housing is made of corrosion resistant materials, galvanic corrosion may still occur. To prevent galvanic corrosion use the supplied insulation sleeves to isolate the aluminium housing from other metal parts.

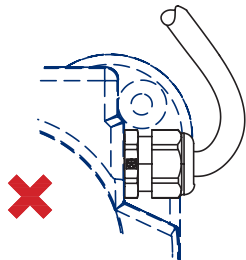
Electrical installation

Install the electrical wiring according to the wiring diagrams showed on pages 11 - 14. Keep the distance between the power supply and halogen lamp as short as possible. Long wires will increase a voltage drop

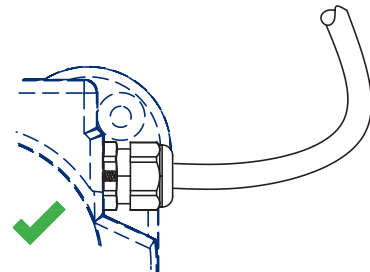
Cable glands



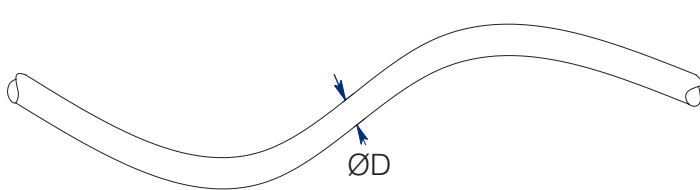
Remove the plug before placing the cable.
If no cable is connected, leave the plug in place!



Cable too tight!
This gives unwanted stress at the sealing of the cable gland and water ingress will occur.

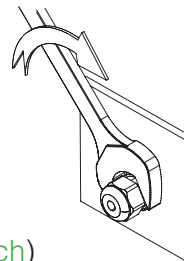


Include cable slack at the entering point of the cable gland



Cable

- Preferred diameter D is 7 - 12 mm (0.28 - 0.47 inch)
- Material: Neoprene H07RN-F



Replacing cable gland

- Use gasket between housing and cable gland
- Tighten firmly (6Nm / 4.4 lbf·ft) with wrench

near the halogen lamp, which affects the light output.

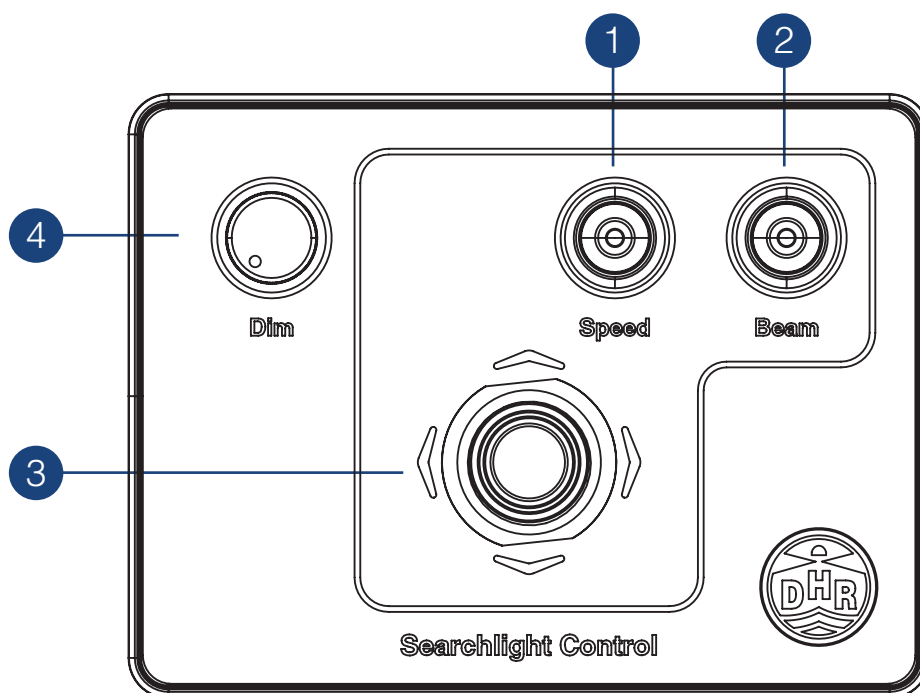
Note

The cable glands on the searchlight prevent water ingress. Do not use (electrical) tape to cover the cable where it enters the cable gland as this will cause water ingress. Do not use a rubber or shrinkable cover on the cable gland to improve water tightness.

2. SPECIFICATIONS

Control panel

Model	PAN2019-NF
Dimensions	
Height	105 mm (4.33 inch)
Width	140 mm (4.33 inch)
Weight	0,6 kg (1.32 lb)
Electrical	
Voltage	24 VDC -20 /+30%
Maximum wattage	20 W
Fuse	Resettable - 3A
Electrical insulation class	III
Housing	
Front	Aluminium / Acrylic black - IP65
Back	Acrylic blue
Operating temperature	0 - 45 °C (32 - 104 °F)



Switches

1. "Speed" > to select two speed settings: slow / fast
2. "Beam" > switching the light source on/off
3. "Joystick" > to control the direction of movement

Potentiometer

4. "Dim" > to adjust the light intensity of the illuminated buttons

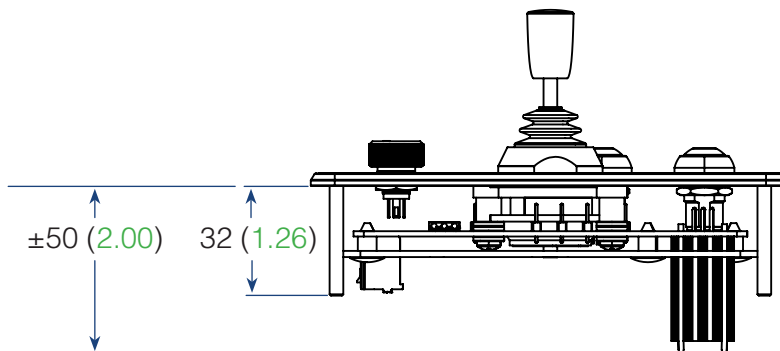
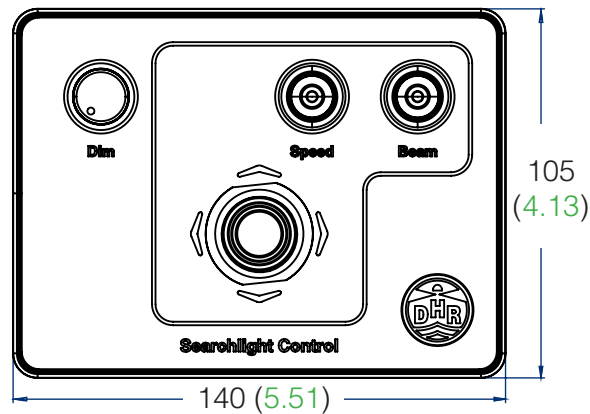


Searchlight

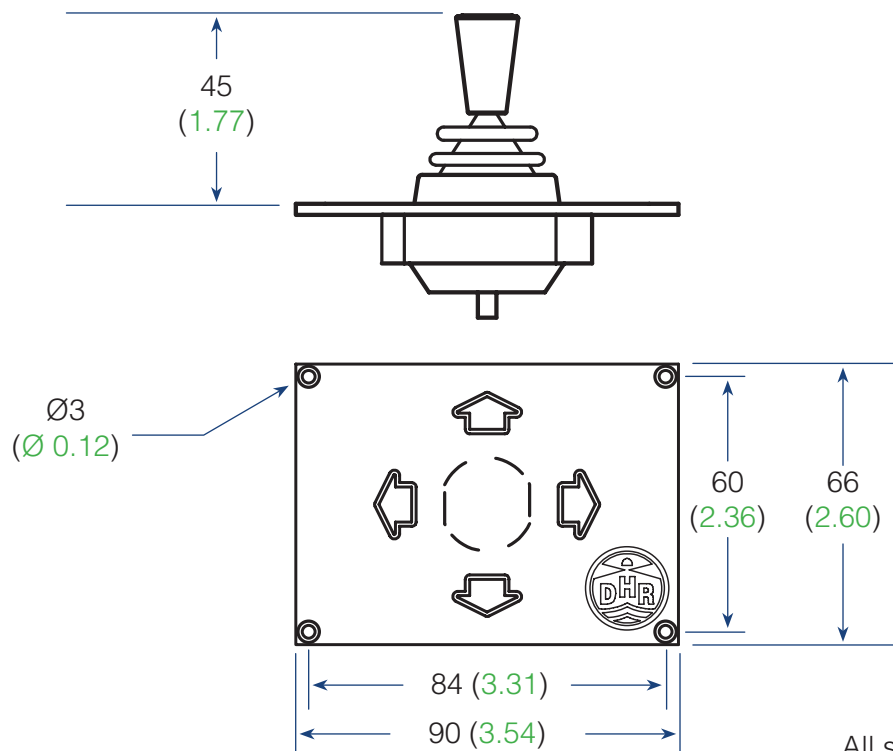
Model	230RCL21
Dimensions	
Height	617 mm (24.29 inch)
Width	331 mm (13.03 inch)
Weight	16 kg (35.27 lb)
Electrical	
LED-driver	115-230 VAC / 100W
Motor voltage	6-13 VDC
Preferred cable type	H07RN-F
Cable diameter	Ø 6-12 mm (0.24 - 0.47 inch)
Optics	
Mirror	Parabolic mirror reflector Ø 230 mm (9.06 inch)
Range	775m (2542 ft)
Adjustable Focus	No
Beam angle	6° x 6°
Luminous intensity	640.000 cd
LED	
Model	CLU731
Luminous flux	8.767 lm
Rated LED voltage	-
Rated LED wattage	-
Average life-time	50.000 h
Color temperature	5000 K
Base	-
Heater	
Type	PTC-heater
Voltage	24VDC
Maximum wattage	70 W
Motor Unit	
Tilt	+ 30° / - 60°
PAN	340°
Max. speed left / right approx.	34°/ sec
Max. speed up / down approx.	3,2° / sec
Housing	
Material	Chromated seawater resistant aluminium
Finish	UV resistant powder coating - White RAL9016
Front glass	Hardened front glass
Seals	Silicone / Neoprene, black
Cable gland	M25x1.5
Operating temperature	- 25° / + 40° C
Ingress protection class	IP66 c/w Membrane vent

3. DIMENSIONS

Control Panel PAN2019-NF

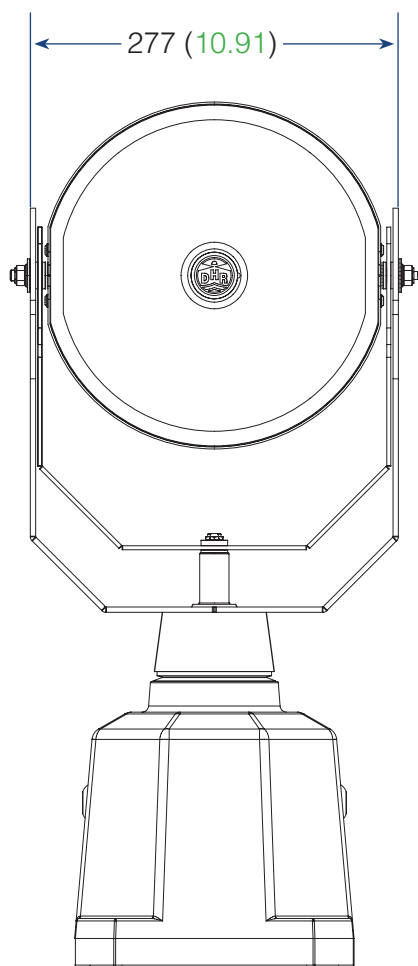


Joystick JOY2011

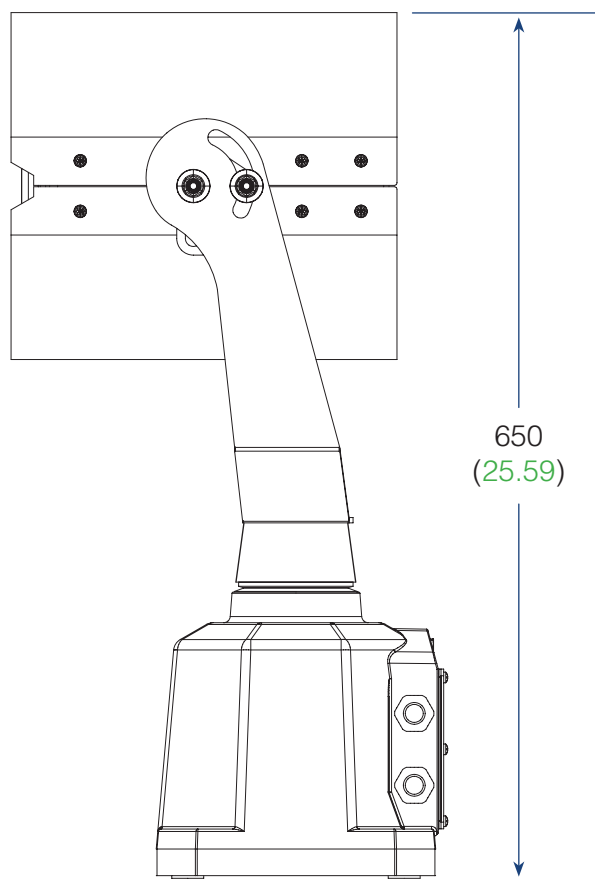


All sizes are in mm (inch)

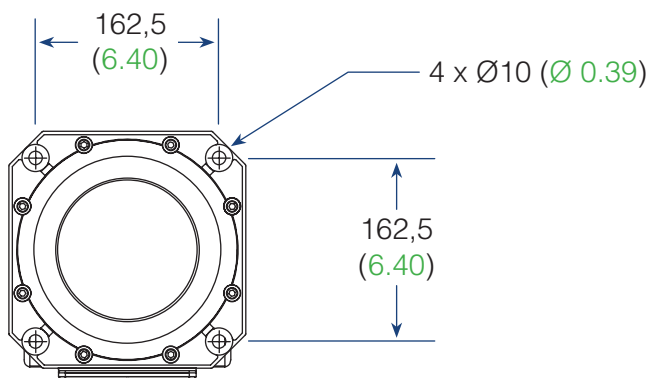
Searchlight



Front View



Side View



Bottom View

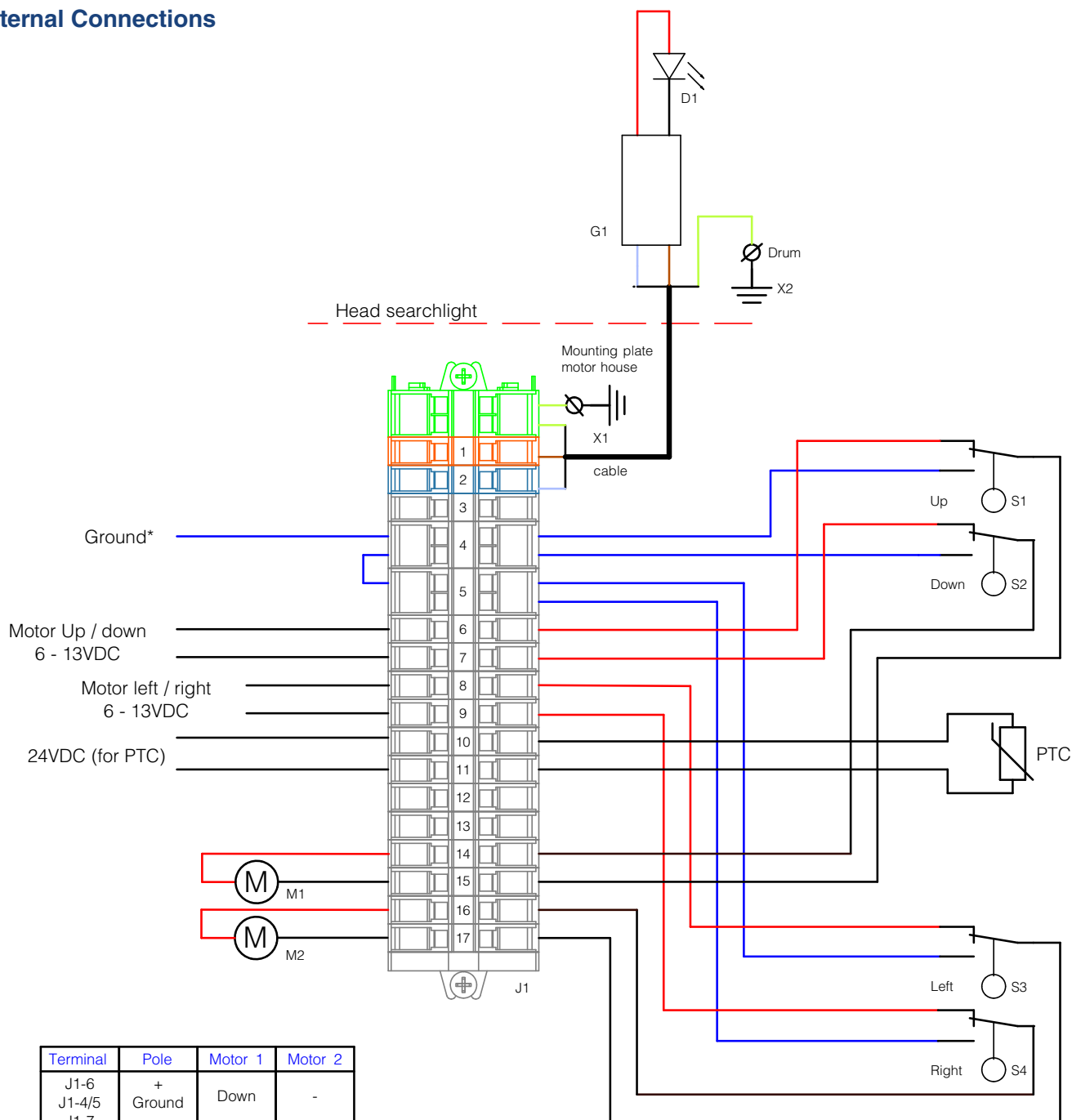
All sizes are in mm (inch)

4. PHOTOS



5. WIRING DIAGRAMS

Internal Connections



Terminal	Pole	Motor 1	Motor 2
J1-6 J1-4/5 J1-7	+ Ground -	Down	-
J1-6 J1-4/5 J1-7	- Ground +	Up	-
J1-8 J1-4/5 J1-9	+ Ground -	-	Left
J1-8 J1-4/5 J1-9	- Ground +	-	Right

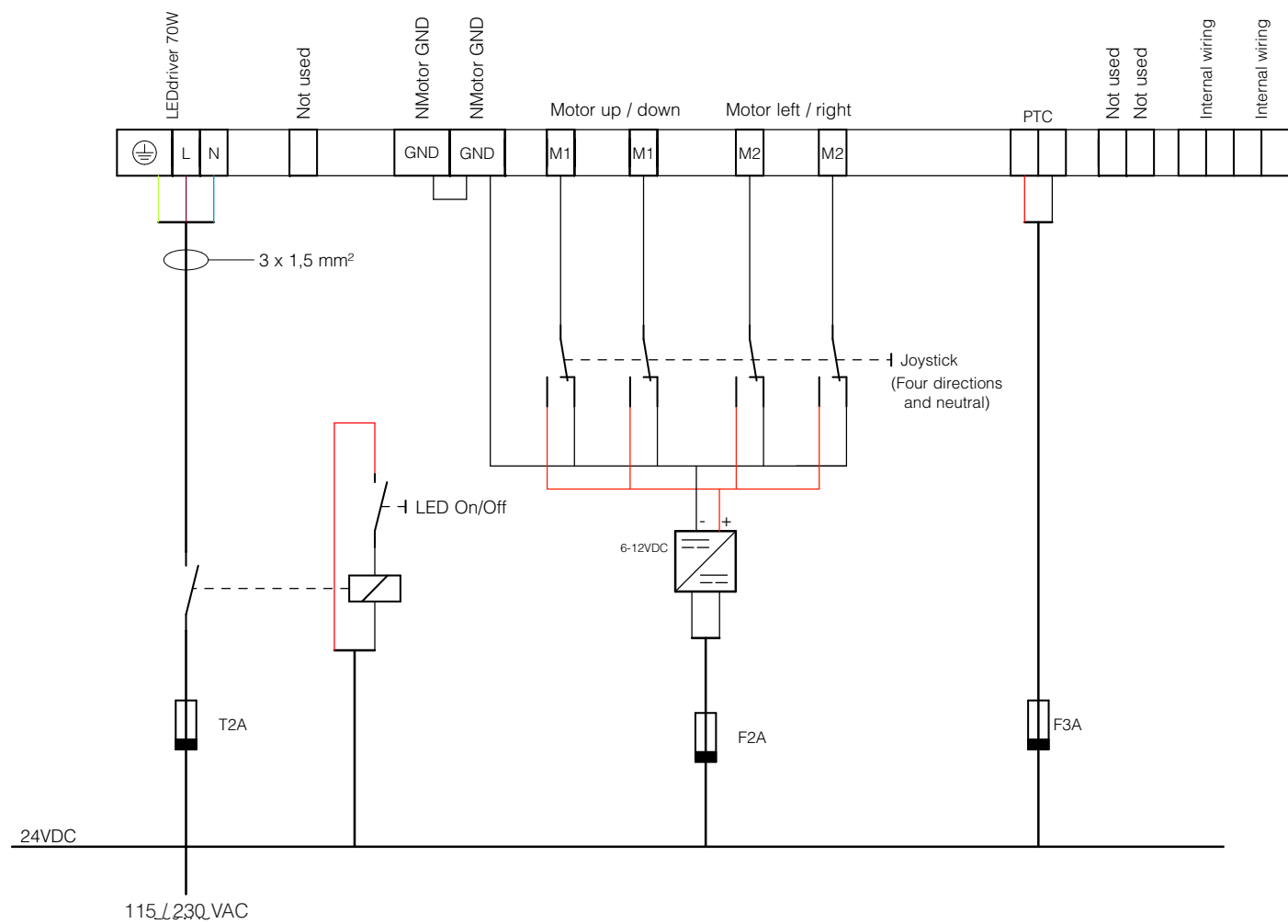
S1, S2, S3, S4	Microswitch V3 with roller lever, IP67 sealed
D1	COB-LED 70W
G1	LED driver
J1	Terminal block 18 way
PTC	PTC heater 12-24V 30W (self-regulating)
M2	Motor 12VDC/6W, gearhead 1:3700 (right / left)
M1	Motor 12VDC/6W, gearhead 1:370 (up / down)
Cable	Head resisting cable 3 x 1,5 - 1,25 m
X1, X2	Earth point
Component	Description



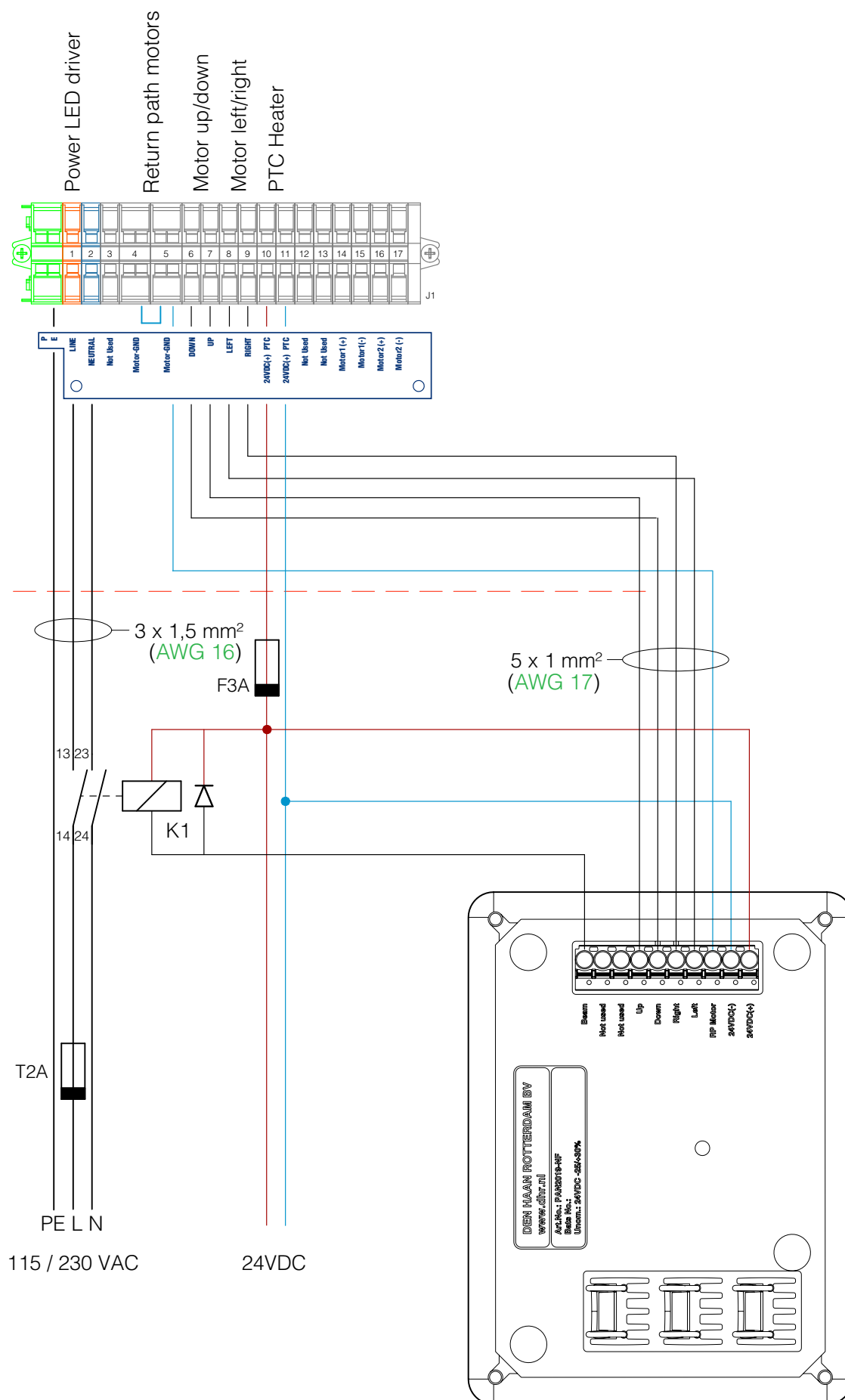
* CAUTION:

Ground is used as return pad when on the end-position switch. Always use the ground coming from the control panel to avoid unwanted potential differences.

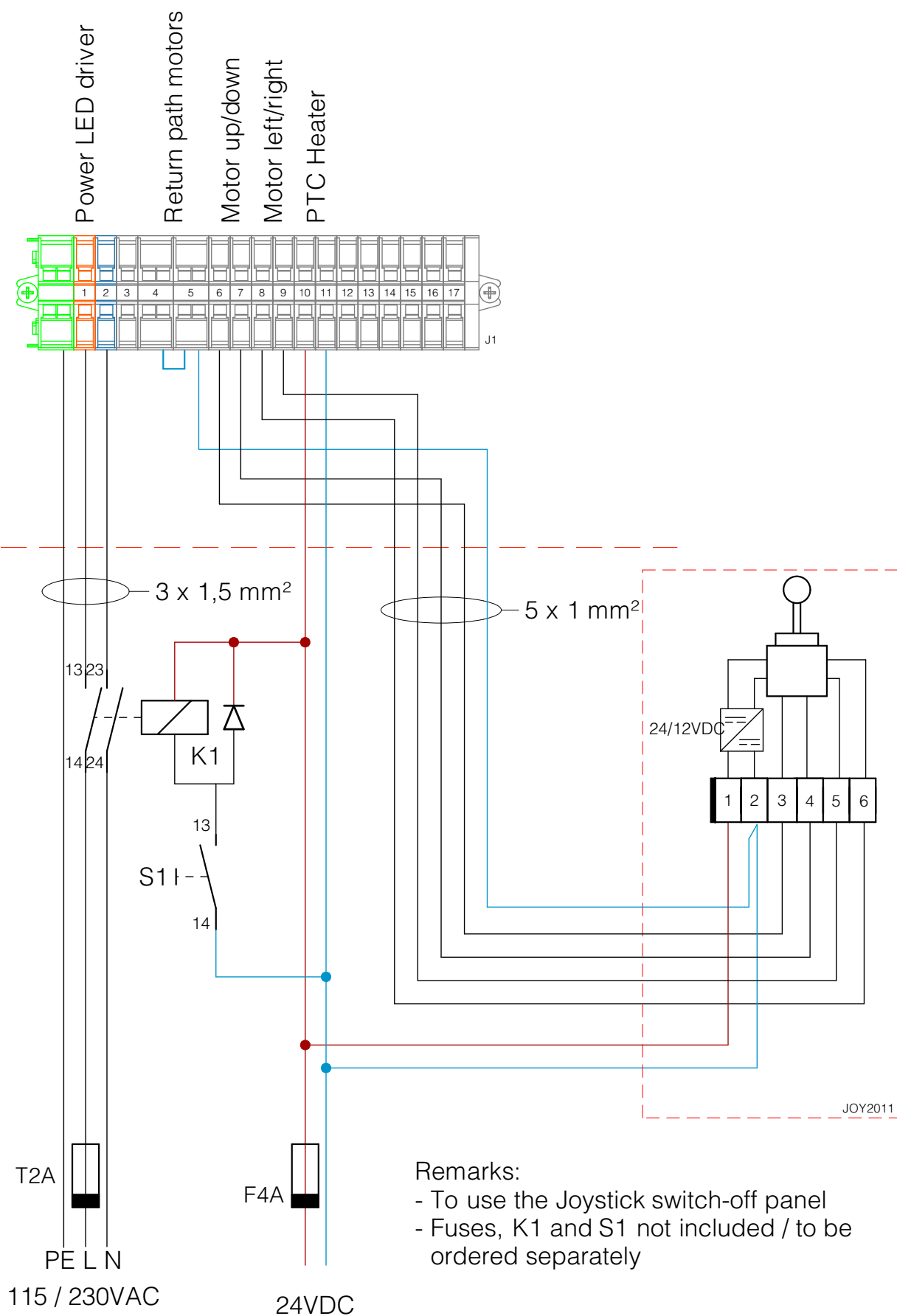
External Connections



Control Panel PAN2019-NF



Joystick JOY2011



6. SAFETY, MAINTENANCE AND CORRECT USE



ESD

This product, like all LED searchlights, uses semi-conductors that can be damaged by electrostatic discharge (ESD). When handling, take close care before opening the drum to avoid damaging the LEDs.

The following precautions must be taken:

- Always disconnect the power from the light before any maintenance.
- Use a conductive wrist strap attached to a good earth ground.
- Always discharge yourself by touching grounded bare metal.
- Use an approved anti-static mat to cover your work surface.
- When in doubt always consult a qualified electrician.

Don't stare directly into the LEDs.

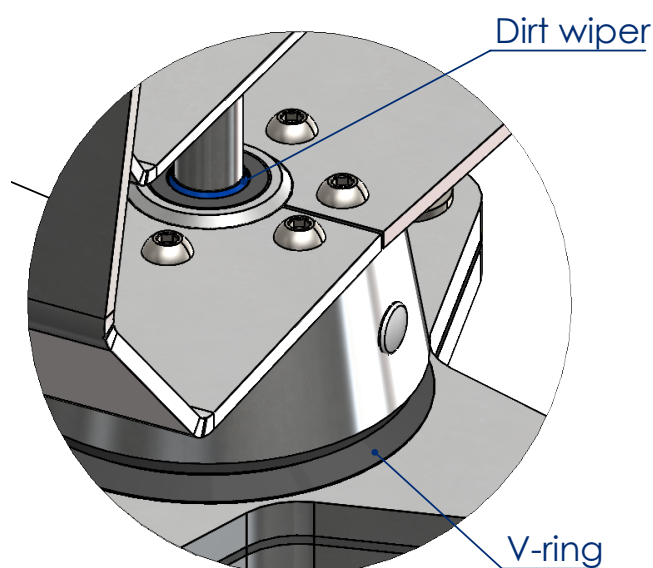
All cool white LEDs (5000 Kelvin and higher) contain a lot of blue and can be harmful to our eyes. Always use eye protection when handling LEDs

Tips for correct use

- Switch off the searchlight immediately after use, this increases the life expectancy of the COB - LED
- Do not light-up objects closer than 2 metres
- Do not point the light beam at the eyes of humans or animals

Preventive maintenance

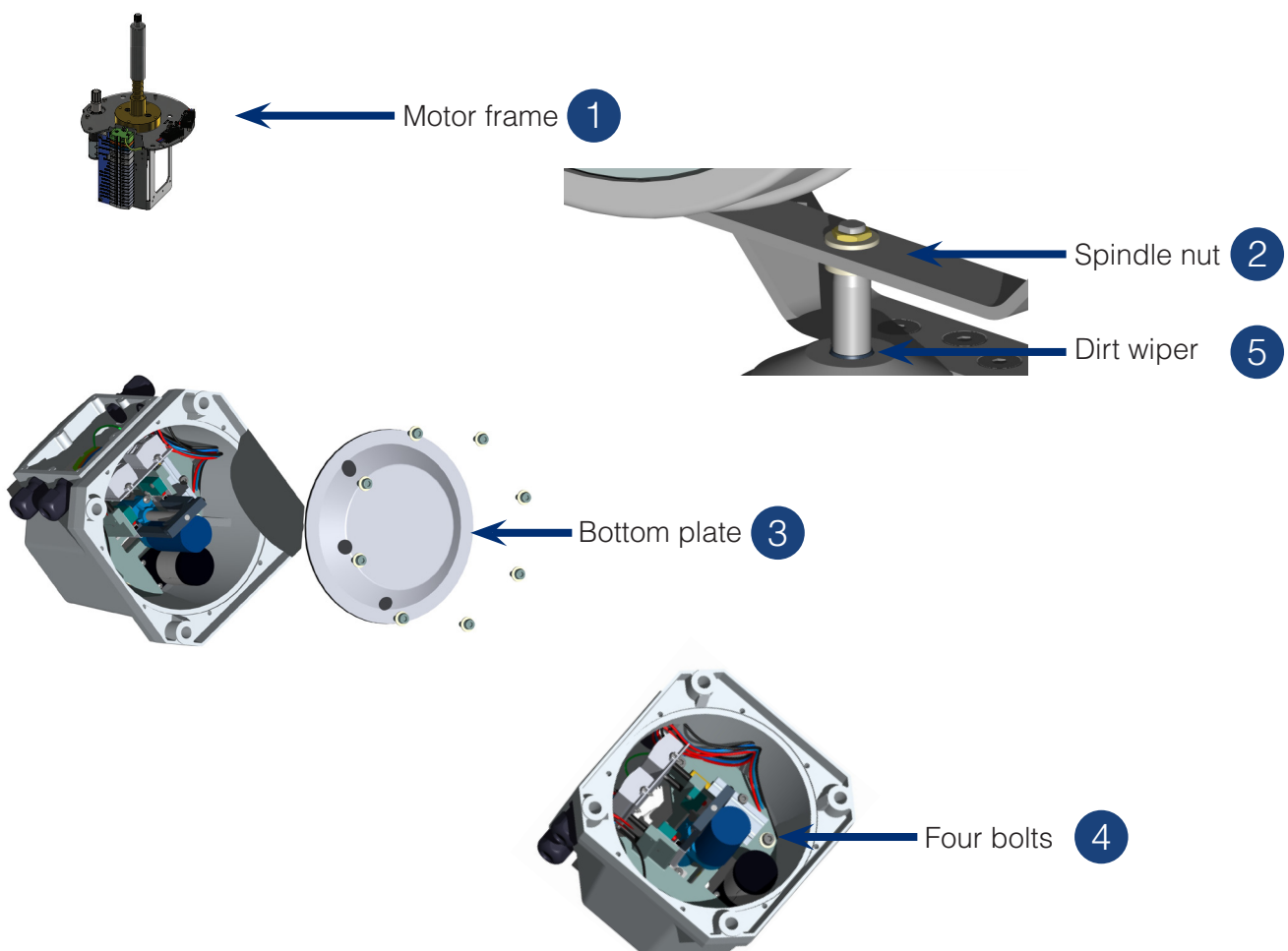
Clean the searchlight with fresh water regularly. Do not use any aggressive cleaning agents. At least twice a year rub the V-ring and dirt wiper in with silicone grease.



7. REPLACEMENT OF THE MOTOR FRAME

Motor frame replacement

1. Switch off the main power
2. Open the backplate of the motor housing
3. Disconnect the power cables connected to the motor frame ①
4. Unscrew the four (4) bolts to dismount the searchlight from the base structure
5. Unscrew the spindle nut ②
6. Tilt the searchlight vertically
7. Disassemble the bottom plate ③
8. Unscrew the (4) bolts and carefully remove the defective motor frame ④
9. Slowly insert the new motor frame in the motor housing.  **Be careful** not to damage the dirt wiper located on top of the motor housing ⑤
10. Before fixing the (4) bolts of motor frame, the following steps should be taken:
 - A. Reconnect the power cables
 - B. Turn the motors left/right and up/down using the controls. This is necessary to settle the motor frame inside the motor housing
11. Close the motor housing by mounting the bottom plate
12. Reposition the searchlight and mount it on the base structure
13. Fasten the spindle nut.  **Do not overtighten it!**
14. Test the searchlight both in vertical and horizontal directions to ensure that the searchlight is functioning properly
15. Searchlight is ready for use



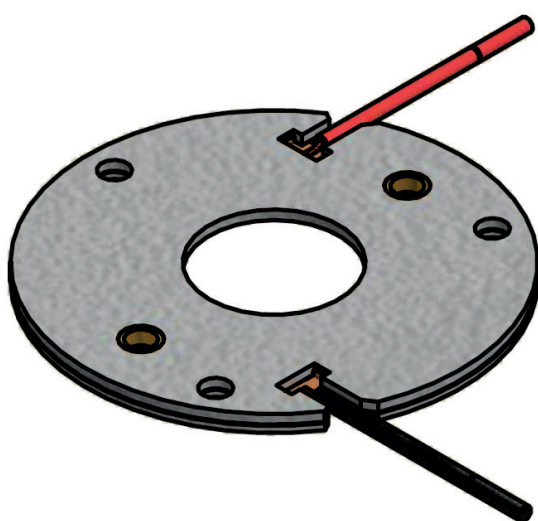
8. RECOMMENDED SPARE PARTS

Spare Part

No	Description	Order code
1	COB led	23990010
2	LED-holder COB led	23990020
3	LED-driver100W	23980030
4	Mirror reflector 230	23990040
5	Front glass 230	23990050
6	Motor frame	23990060
7	Joystick	JOY2011
8	Control Panel	PAN2019-NF



1



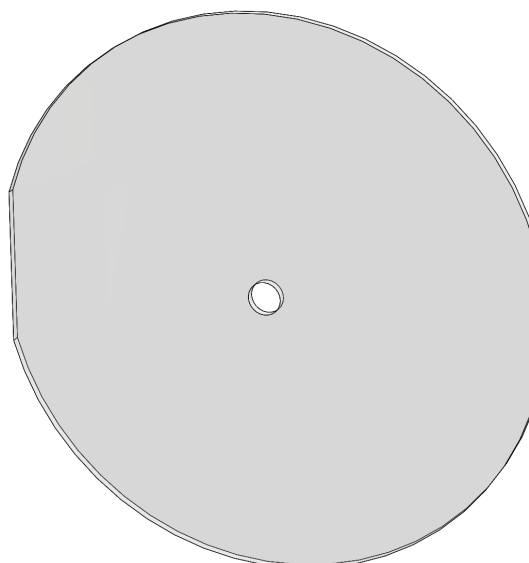
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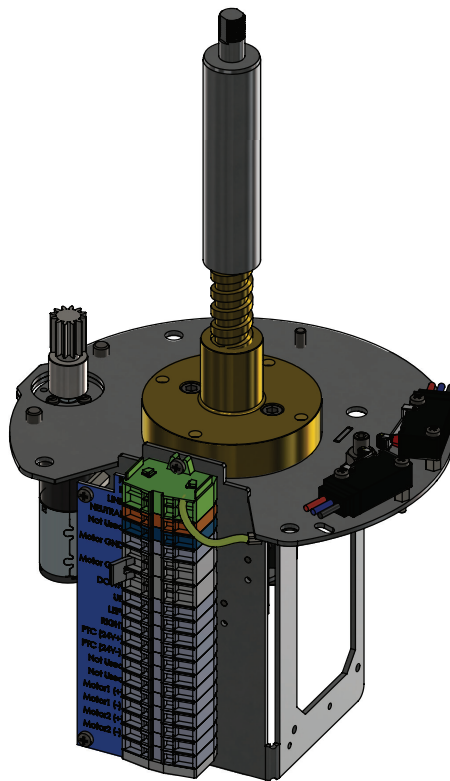
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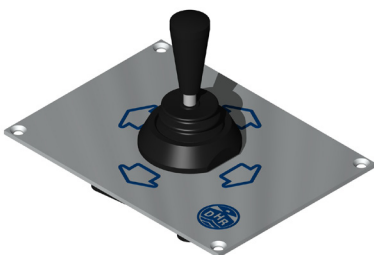
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6



7



9

ADVANCED MARITIME SIGNALLING SOLUTIONS



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