TECHNICAL DOCUMENT

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

Den Haan Rotterdam

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- Turn power off before inspection, installation or removal
- Keep combustible materials away from lamp
- Do not exceed 105% of rated voltage
- Allow lamp/fixture to cool before handling
- Do not use the searchlight if outer glass is scratched or broken

Version 0.91 October 2020

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
- Remote Control
- Excellent Optics
- Maintenance Friendly
- Light Weight Construction
- IP66 Water Ingress Protection
- Large Vertical Angle

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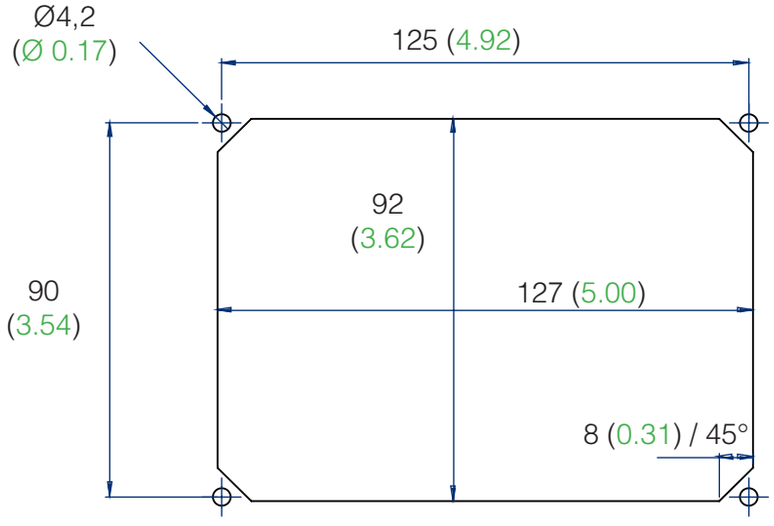
1. MOUNTING INSTRUCTIONS

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.

1.AMounting the panel

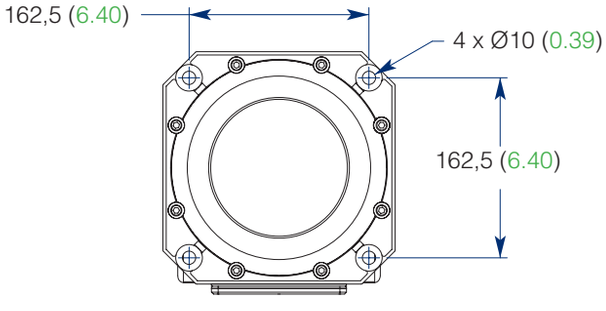
Place the control panel inside the wheelhouse, where it is protected against weather influences. The panel has been designed in order to be flush-mounted in an instrument cabinet, as shown in the illustration below.

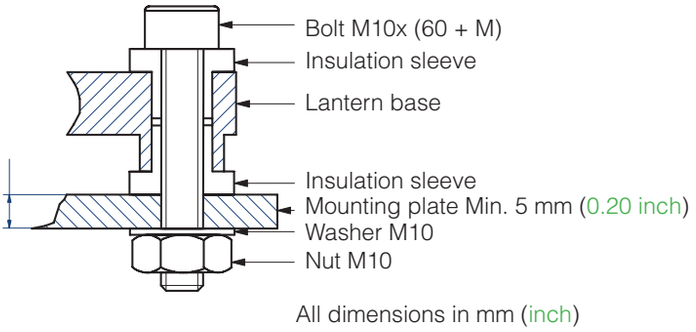
The minimum required space for the panel inside the console 50 mm (4.33 inch).



1.ASearchlight installation

Install the searchlight in a horizontal upright position with sufficient space around the head 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

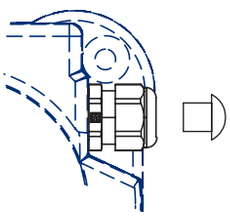
Caution!
Even though the housing is made of corrosion resistant materials, galvanic corrosion may still occur. To prevent galvanic corrosion use the supplied insulation sleeves to isolate the aluminium housing from other metal parts.

All sizes are in mm (inch)

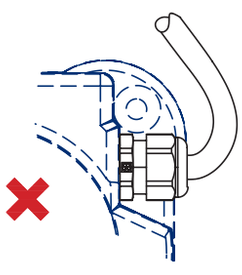
1.AElectrical installation

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 near the halogen lamp, which affects the light output.

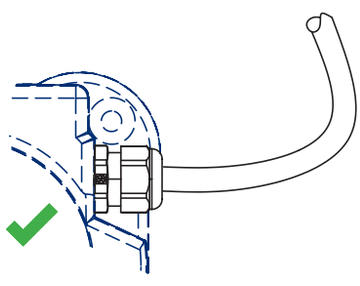
1.ACable glands



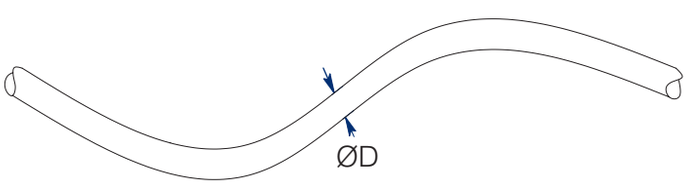
Remove the plug before placing the cable.
If no cable is connected, leave the plug in place!



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

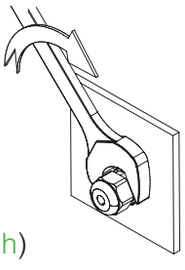


Include cable slack at the entering point of the cable gland



Cable

- Prefered 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

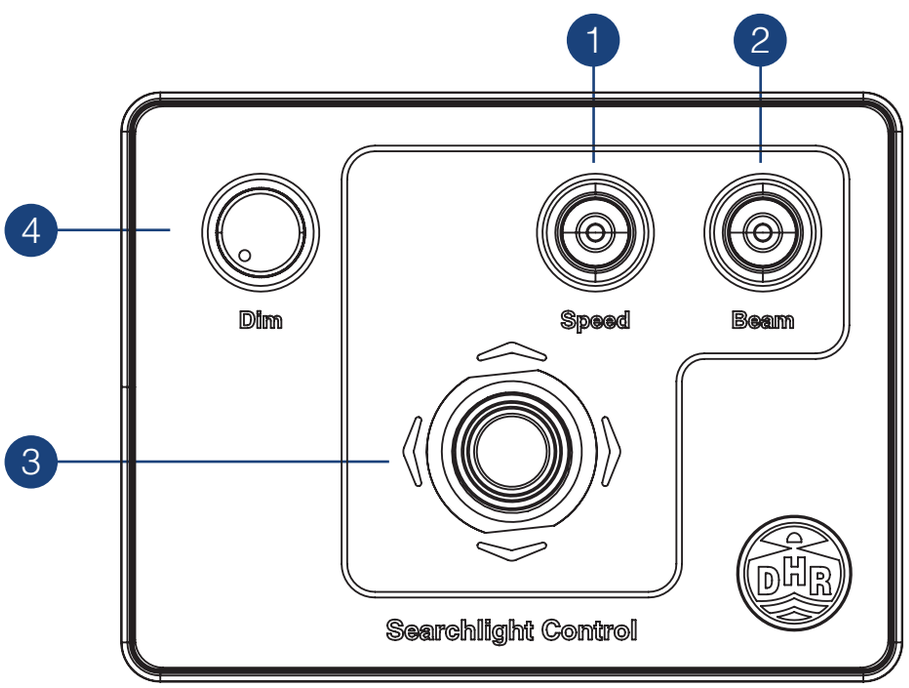
Note

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
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	IP65
Back	Aluminium, painted black
Operating temperature	0 - 45 °C (32 - 104 °F)



Switches

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

Potentiometer

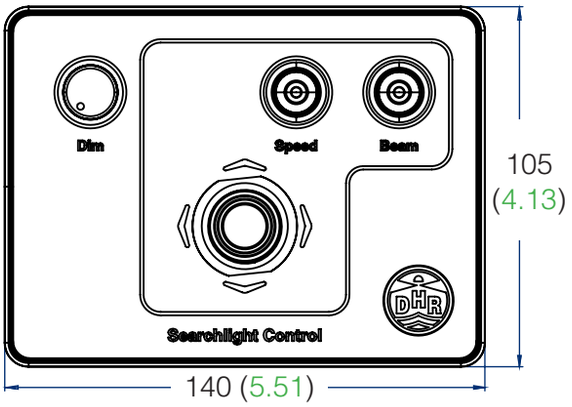
4. “Dim” > for adjusting LED intensity of illuminated buttons

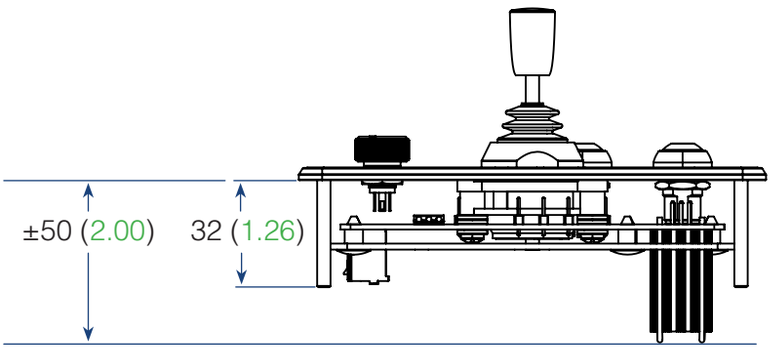
Searchlight

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 / 75W
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
[2]	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

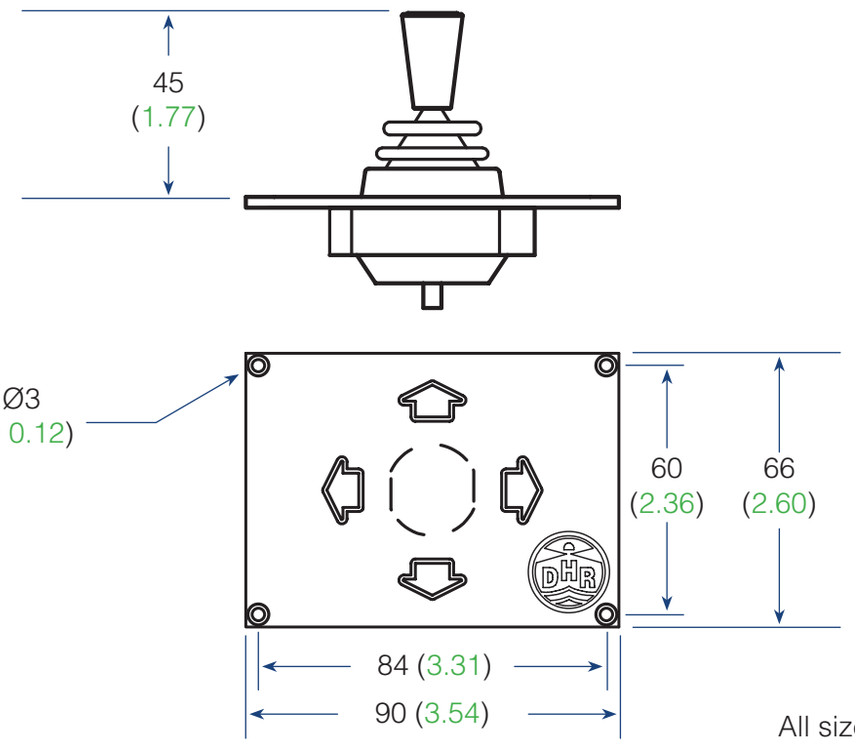
3. DIMENSIONS

Control Panel PAN2019



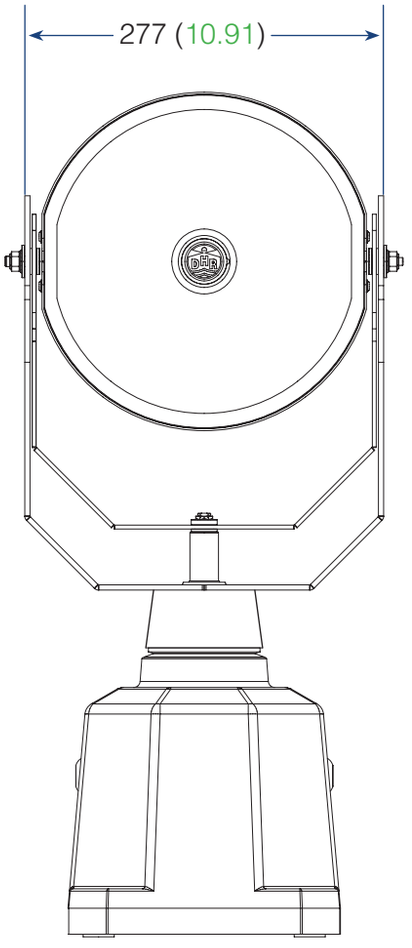


Joystick JOY2011

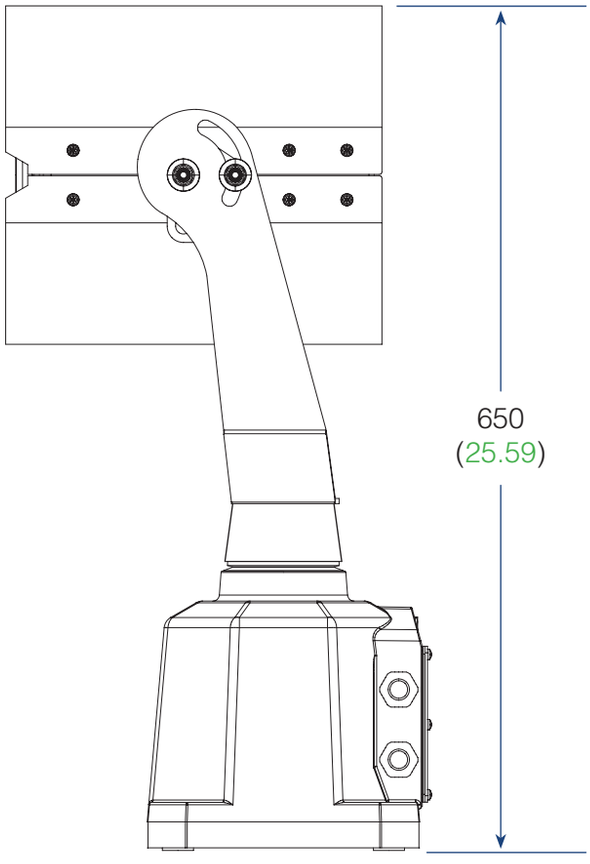


All sizes are in mm (inch)

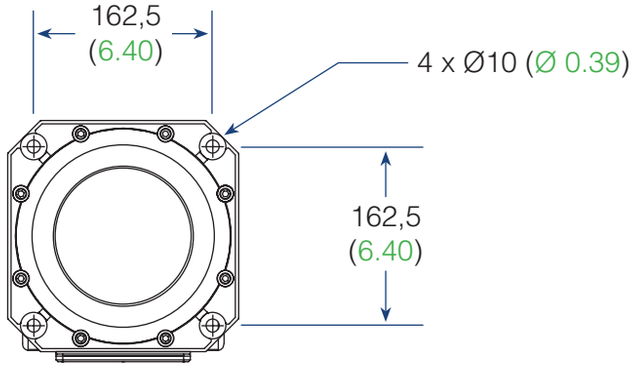
Searchlight



Front View



Side View



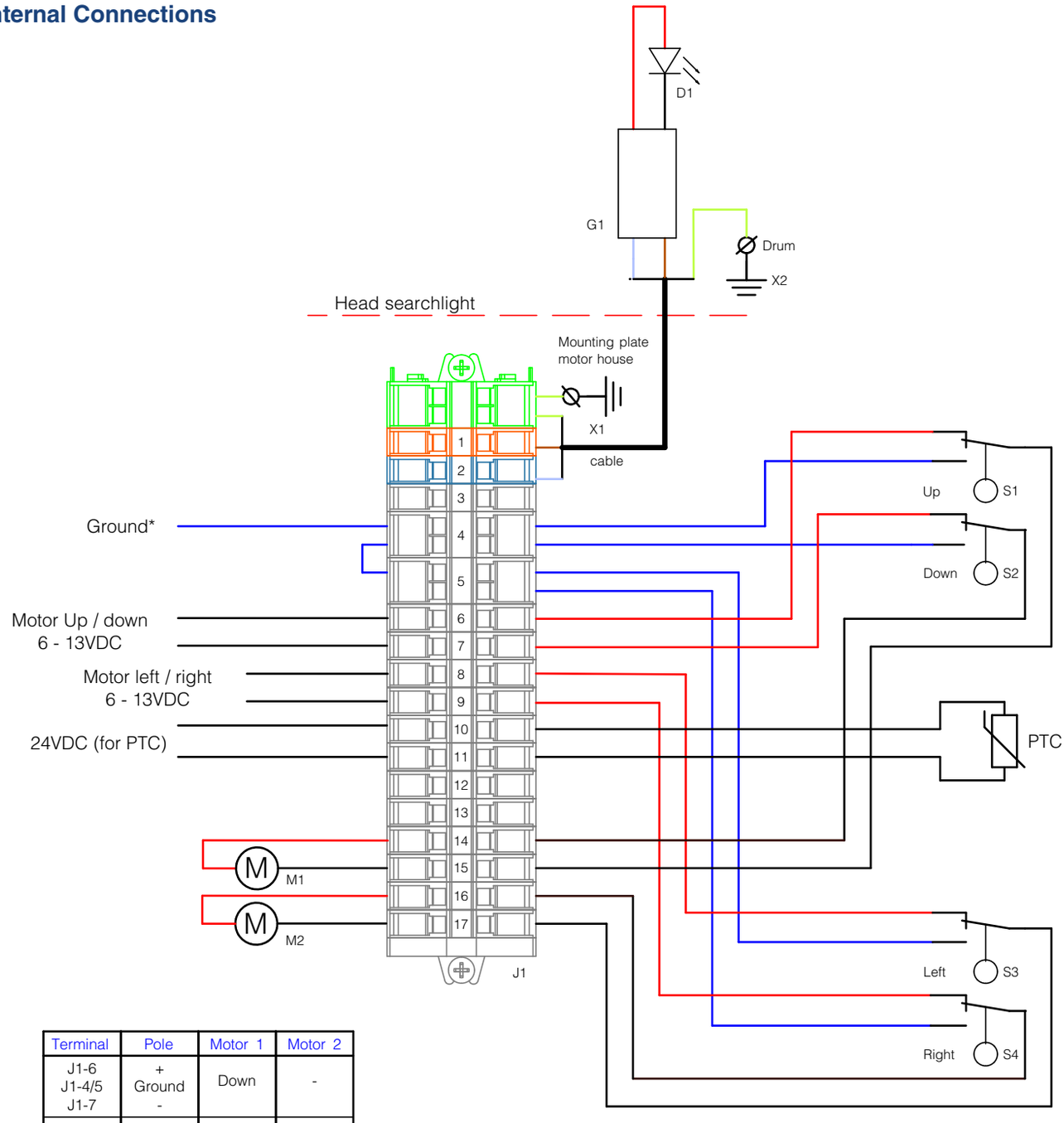
Bottom View

All sizes are in mm (inch)

4. PHOTOS

5. WIRING DIAGRAMS

Internal Connections

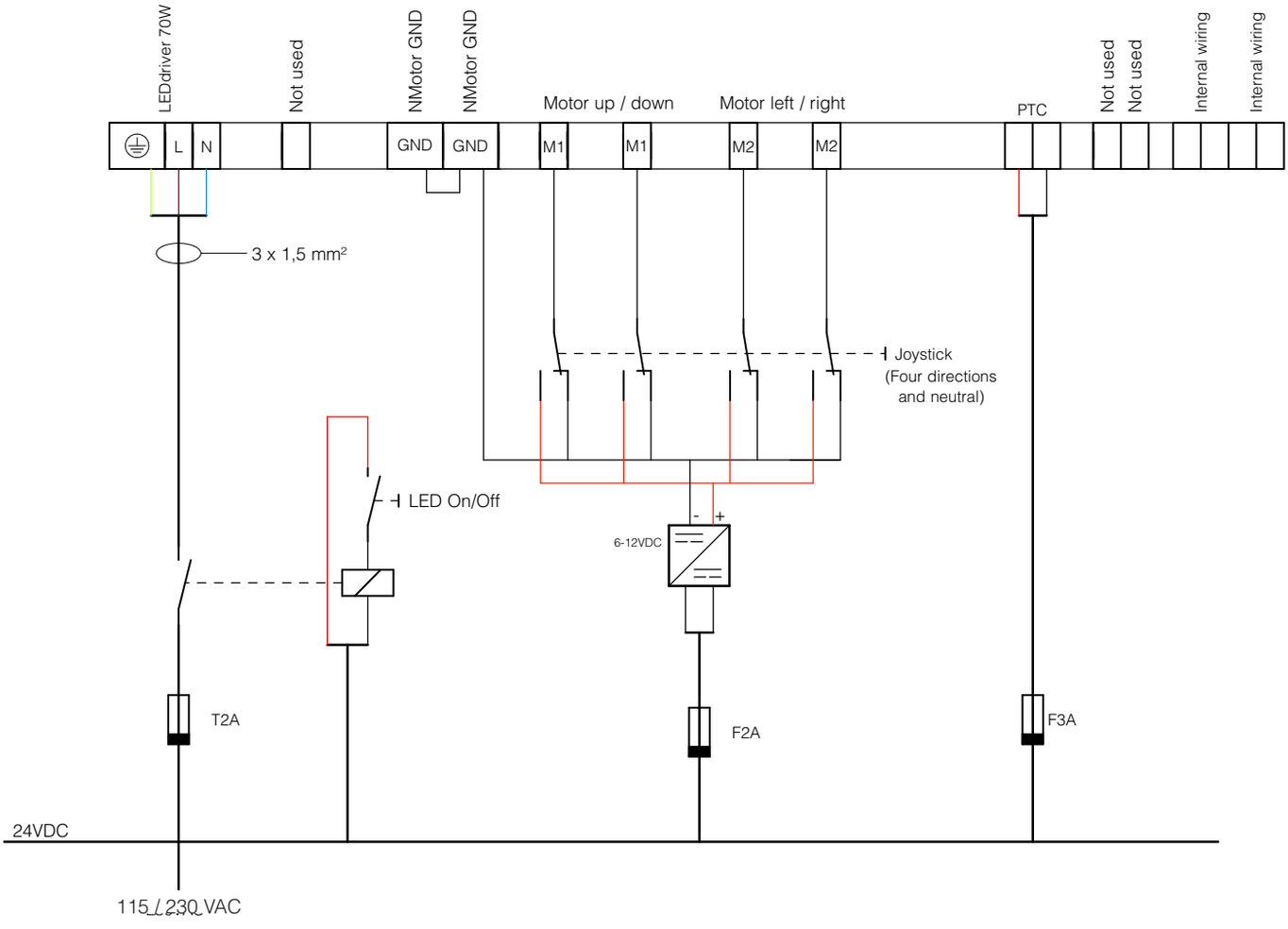


Terminal	Pole	Motor 1	Motor 2
J1-6 J1-4/5 J1-7	+ Ground -	Down	-
J1-6 J1-4/5 J1-7	- Ground +	Up	-
J1-8 J1-4/5 J1-9	+ Ground -	-	Left
J1-8 J1-4/5 J1-9	- Ground +	-	Right

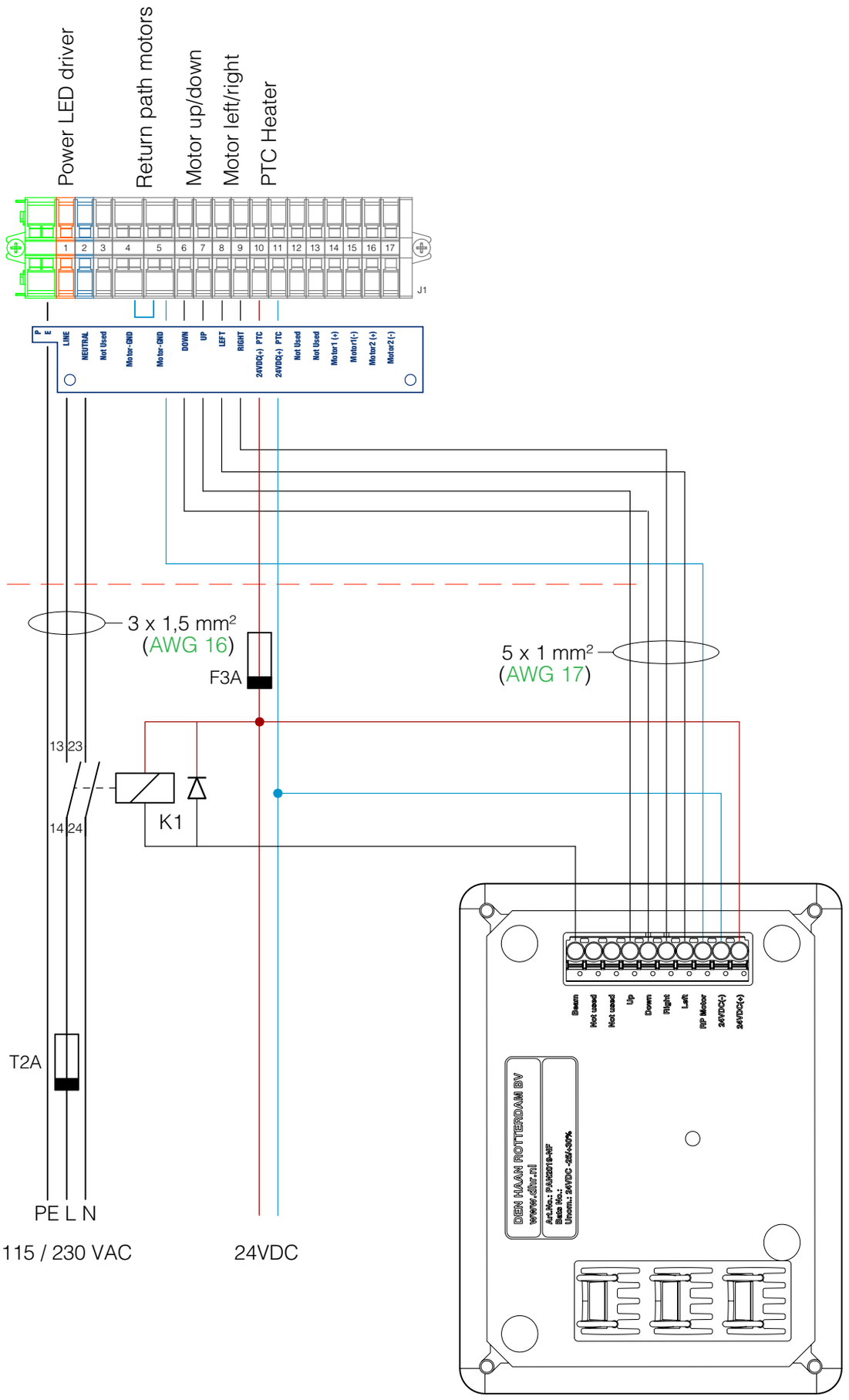
Component	Description
S1, S2, S3, S4	Microswitch V3 with roller lever, IP67 sealed
D1	COB-LED 70W
G1	LED driver
J1	Terminal block 18 way
PTC	PTC heater 12-24V 30W (self-regulating)
M2	Motor 12VDC/6W, gearhead 1:3700 (right / left)
M1	Motor 12VDC/6W, gearhead 1:370 (up / down)
Cable	Head resisting cable 3 x1,5 - 1,25 m
X1, X2	Earth point

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

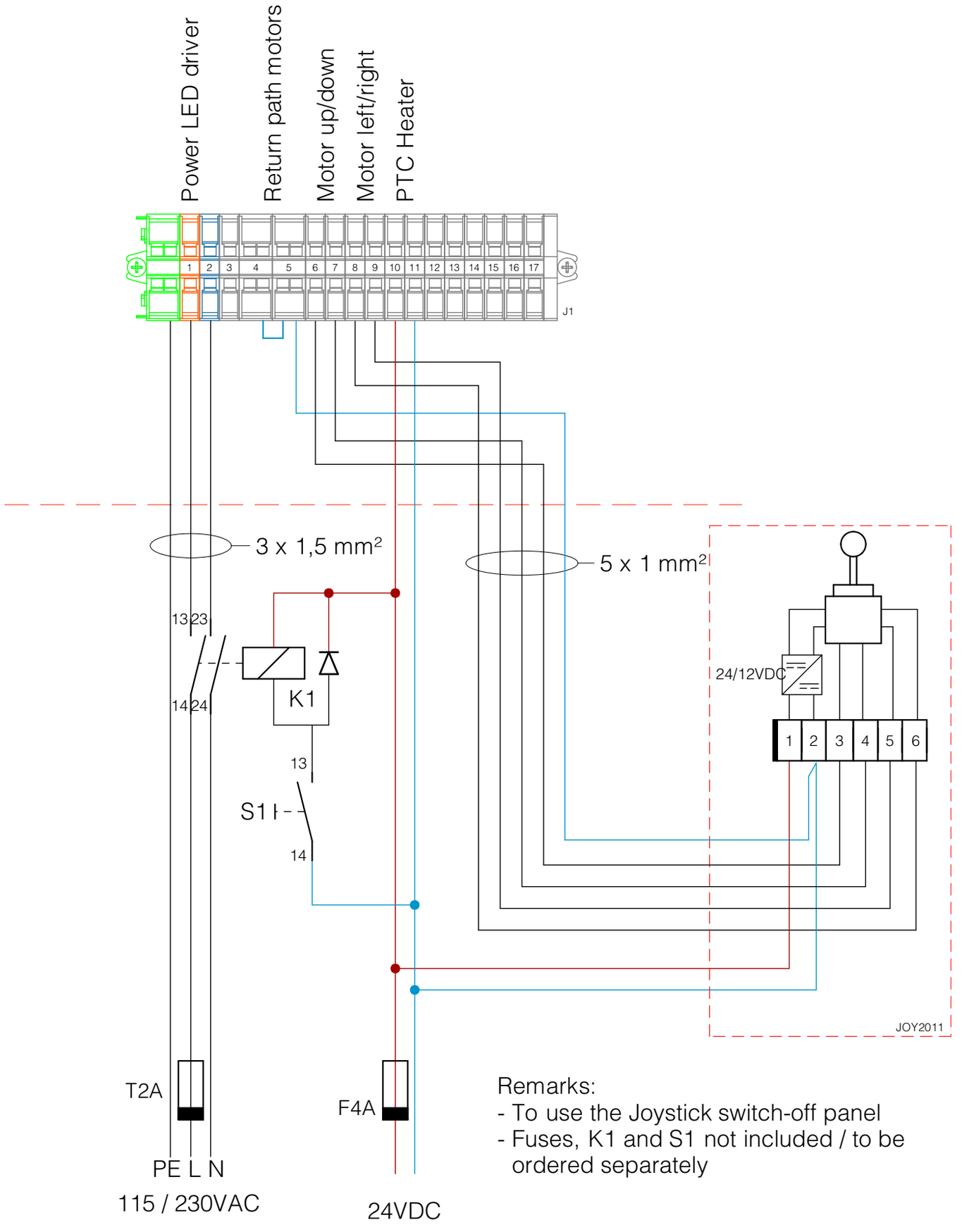
External Connections



Control Panel PAN2019



Joystick JOY2011



Remarks:
- To use the Joystick switch-off panel
- Fuses, K1 and S1 not included / to be ordered separately

6. MAINTENANCE AND CORRECT USE

Safety notes

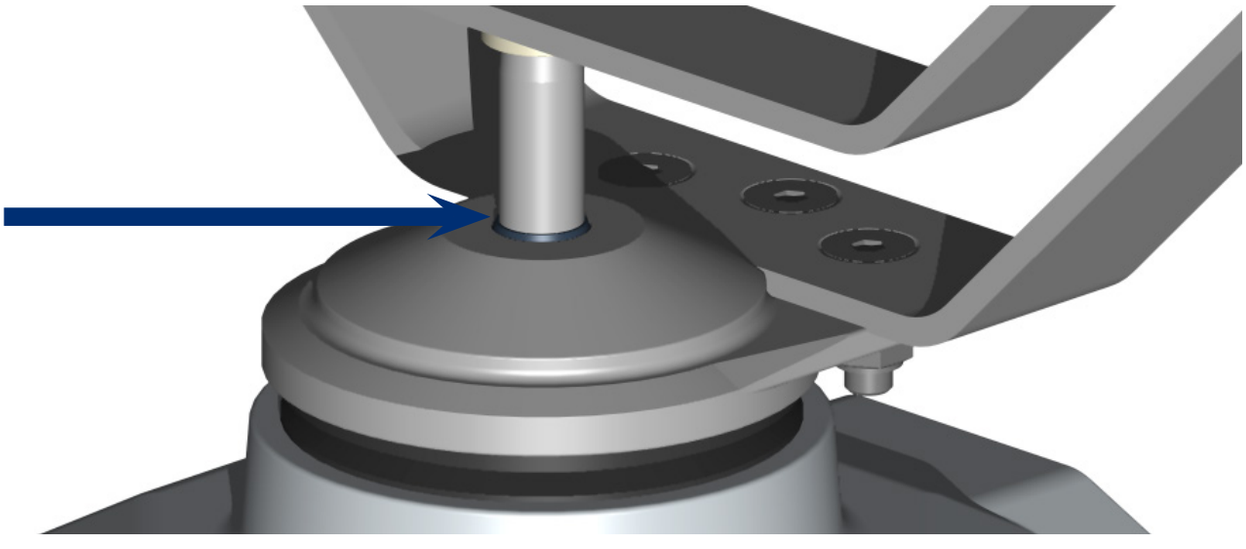
- Handle with care
- Turn off main power
- Warning, lamp is hot
- Do not touch the lamp with bare hands

Tips for correct use

- Do not overheat the searchlight - max. burning time 20 min.
- Switch off the searchlight immediately after use, this increases the life expectancy of the bulb
- Do not light-up objects closer than 2 metres
- Clean the searchlight regularly with water
- Do not point the light beam at the eyes of humans or animals

Preventive maintenance

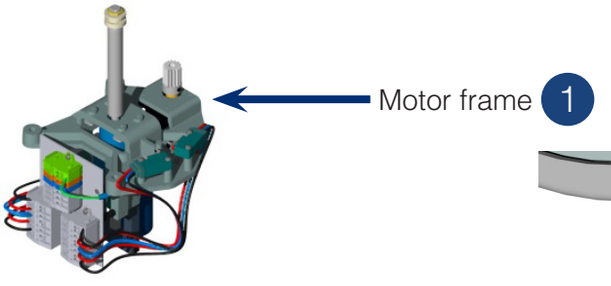
Clean the searchlight with clean water regularly. Do not use any aggressive cleaning agents. At least twice a year rub the dirt wiper, on top of the motor housing (see drawing below), in with silicone grease.

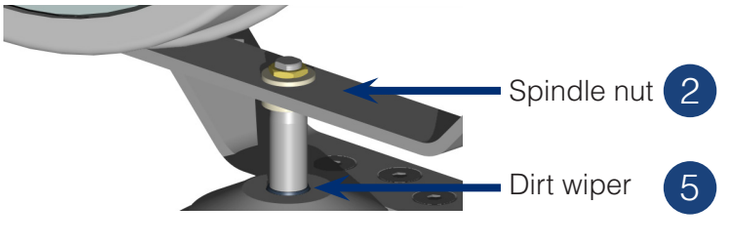


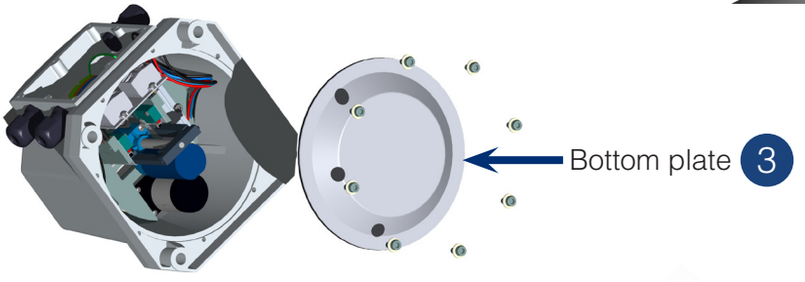
7. REPLACING OF MOTOR FRAME

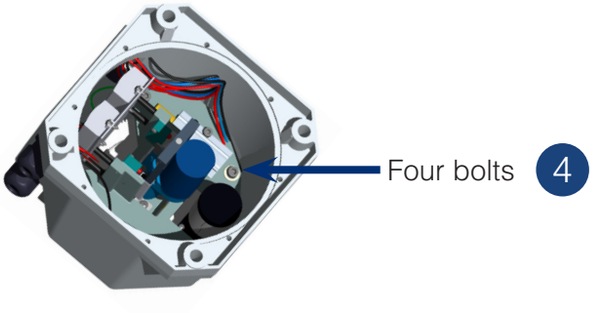
Motor frame replacement

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



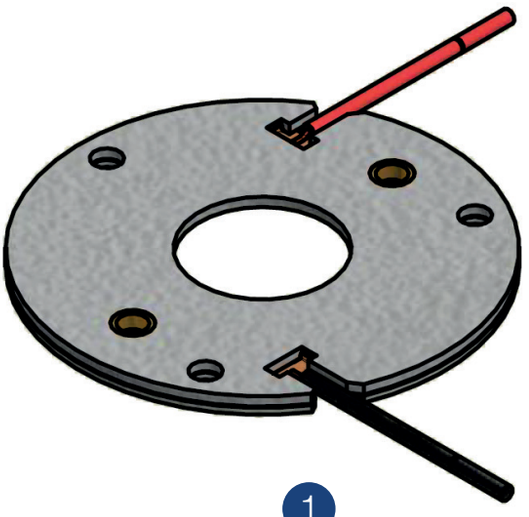






8. RECOMMENDED SPARE PARTS

Spare Part		
No	**Description**	**Order code**
1	Lampholder COB led	23990010
2	COB led	23990020
3	LED-driver 230V/70W	TBA
4	Mirror reflector 230	23990040
5	Front glass 230	23990050
6	Motor frame	TBA
7	Control Panel	PAN2011
8	Control Panel	PAN2019
9	Joystick	JOY2011



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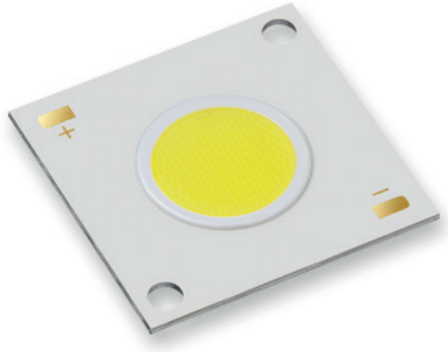

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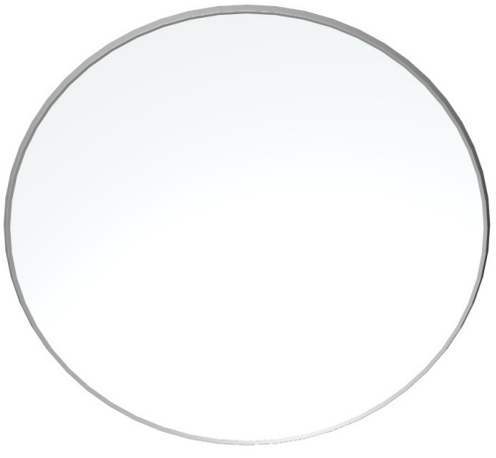

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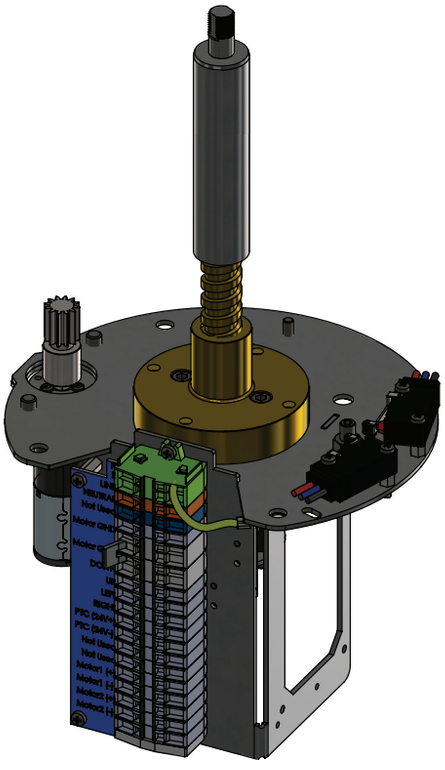

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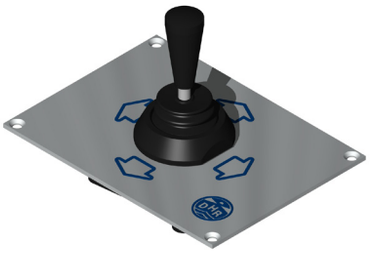

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NOTES

ADVANCED MARITIME SIGNALLING SOLUTIONS

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