SEARCHLIGHT SYSTEM BY Luminell

INSTALLATION MANUAL



ENG

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Safety reminder

Remember to break all electrical power to system before starting any work in the electrical box or the searchlight unit.

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1. WARNINGS AND INFORMATION



High voltage!
Before opening any part of the searchlight system, make sure all power is switched off!



Bulbs
HID (High-intensity discharge) bulbs operate at a high internal pressure and high temperature and should be handled with care.
Never bump, drop, apply excessive stress, or scratch the bulb. This could cause the bulb to burst! Do not operate any bulbs with any traces of scratches, cracks, or physical damage
Always transport the bulb in the provided protective case or cover until installation!
Save the protective case or cover and packaging materials (box) for bulbs that have been used to their rated service life. Use the protective case when disposing of the bulbs.



Always use safety glasses and body protection when installing or removing the bulbs.
When changing bulbs be sure to not touch the surface of the bulbs with bare fingers. If inadvertently touched with bare fingers it should be degreased immediately with alcohol and a soft lint free cloth. Be sure to wipe dry the bulb surface afterwards.

Never touch the bulb when it is on, or soon after it has been turned off, as it is hot and will cause serious burns. Bulbs should be allowed to cool for a minimum of ten (10) minutes after the light is turned off.

The light should never under any circumstances be turned on without front glass.



UV-light! (models -12, -21, -22)
The UV-light used by Luminell is chosen for most efficient result in marine applications. The wavelengths are below 400 nanometers, thus not visible for the human eye. An intensive radiation is generated from the high luminance of the arch inside the bulb and should not be glared into from close distance. Intentionally Luminell is allowing a small leakage of white light making the beam vaguely detectable in fog. Avoid quick switch on and switch off as it may shorten the lifetime of the bulb. Allow a couple of minutes cool down period, if possible.

UV-light overheat
CL25, CL35 searchlights are available with UV light combination. They are designed and built primarily for the marine environment.
UV light generates a lot of heat, and we use ambient air as a coolant for our lamp body. For uses other than marine this must be considered so that sufficient cooling is available or to adapt the operating time to prevent overheating damage such as cracked UV glass.

Eye safe exposure time for UV

CL25-12/21, CL35-12/21: Max 2 minutes at 1 m. Max 4 minutes at 2 m. Max 9 minutes at 4 m. Max 65 minutes at 9 m.

CL25-22, CL35-22: Max 1 minute at 1 m. Max 2 minutes at 2 m. Max 4 minutes at 4 m.
Max 30 minutes at 9 m.

Welding eyeglasses are recommended if you for some reasons have to expose your eyes longer periods at those close distances.
We see no reason for such exposure even at service activities. Sunglasses are also good protection.

Reflectors
The parabolic reflectors developed by Luminell have an extremely smooth surface to focus the light in wide or narrow beam. Bare fingers should never touch the reflector surface. If inadvertently touched, the reflector surface should immediately be degreased with alcohol and a soft lint free cloth.



Light beam heat damage and Ethernet communications guard OP WDT

This searchlight is built for use on long distances and the high-intensity light from the searchlight can, if set at a narrow beam, cause severe damage to surfaces closer than 1 meter. To avoid that the searchlight is forgotten with the light on, always use the feature “off and park” when not using the searchlight.
If however a hardware failure occurs that breaks the Ethernet communication between the box and operator panel, a safety function will step in and automatically turn off the light within 3 seconds, the OP WDT will also interrupt an ongoing sweep or surveillance activity.
OP WDT is disabled by default, to enable see 16.5.1 (4.1) OP WDT.

If protection hoods are used over searchlight body the system main power switch in the electric box should be off; this is a precaution to reduce the risk of fire if the hoods are not removed before turning the lights on.

Cleaning
Never wash the searchlight with water under high pressure because this can penetrate through the seals and cause damage to mechanical and electrical components.
Do not use strong solvents such as thinner or acetone to clean the searchlight body or the operator panel.

Deicing
Removal of ice should be done with caution. Physical violence can damage the front glass or the searchlight driving mechanics. Instead turn on the lights and let the heat melt the ice.



Recycling and disposal
HMI bulbs used for model CL25, CL35 and CL38 contains mercury and must be recycled or disposed according to applicable local and national regulations.

2. WARRANTY CONDITIONS

A correctly installed searchlight system from Luminell requires no planned regular maintenance or service during the first 10 years in operation (except changing the bulbs after they are used up).

The “Maintenance and Service plan” describes how to keep the product in good condition.

The warranty is conditioned by below mentioned key points.

Before powering up the unit, make sure that:

- ☐ Vibration dampers are mounted correctly according to user’s manual.
- ☐ The mechanical fundament where the searchlight is placed is robust.
- ☐ Warranty seal on the service hatch is unbroken.
- ☐ Outgoing cable radius from the searchlight is smooth and not stressed.
- ☐ All cables used for the installations are as per Luminell specifications or as per separate made agreement.
- ☐ Signal cables are not placed together with high power cables.
- ☐ Electrical connections are made according to electrical scheme and wiring diagram.
- ☐ Length of cables are not exceeding the recommended maximum lengths as stated below:
  - Power cables between searchlight and E-box for 230 VAC-system: Max 30 meter
  - Power cables between searchlight and E-box for 24 VDC-system: Max 5 meter
  - Remote cable / Ethernet cable between E-box and remote control: Max 100 meter (longer distance requires an amplifier or fibre optic version).
- ☐ E-box (EB) is placed in an non-condense environment with a minimum temperature of +5 C (indoor) if not customised for other installation.
- ☐ The remote panel (OP) is bridge mounted in an IP54 environment. If placed outside, it must be under a protection hood when not in use.
- ☐ Remote panel is screwed in bridge panel, properly grounded and correct installed.

After above checkpoints are verified, the system should be started up as per User’s Manual to verify the functionalities.

In case of any questions related to the warranty, please contact us at service.sweden@glamox.com for additional support.

3. MAINTENANCE AND SERVICE PLAN

Although the system does not require regular maintenance to function, we recommend, however, that this preventive maintenance plan is followed to keep the searchlight in good condition and in time detect if something is wrong and needs to be corrected.

Recommended inspection on a weekly basis.

1. Make visual inspection of the searchlight housing and cabling. Look for any potential mechanical damage caused by external force. A damage can lead to reduced or non-functionality.

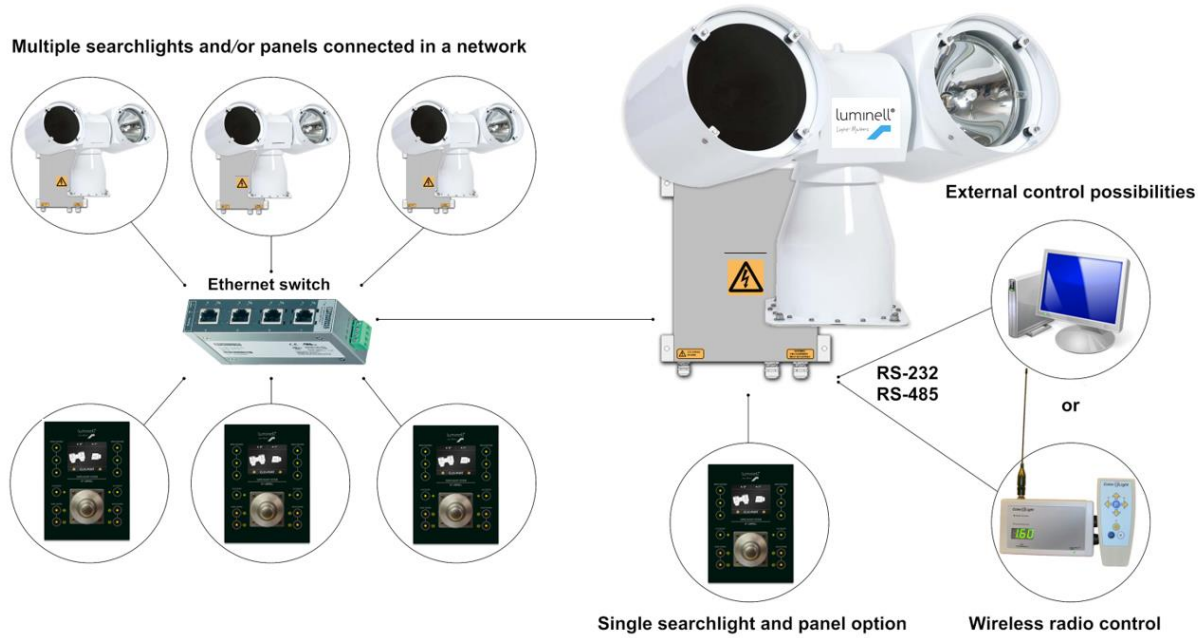
2. Make a visual inspection of the searchlight glasses. Verify that they are without any crack or broken in any way. A crack can lead to water penetration inside the housing followed by potential electrical and mechanical problem.

3. Perform a function test. Start up the searchlight system, rotate the searchlight in horizontal and vertical direction. Check the “lamp life” statistics in order to plan any potential replacement of bulb. The system is programmed to give a warning when there is less than 130h of lamp bulb lifetime remaining.

4. Clean the searchlight. Rinse with fresh water to wash away the salt deposits. If dirtier, use a very soft sponge and soap that is not caustic, contains strong solvents such as acetone or thinner base. The house can be both polished and waxed for a shiny and durable surface, but the glass should under no circumstances be waxed. Under no circumstances can the searchlights be washed with high pressure water as this can lead to penetration inside the housing followed by potential electrical and mechanical problem.

5. Deicing. Wintertime the system should be deiced with caution. First turn the lights on to let the heat melt the ice before operating the system horizontally and vertically.

4. LUMINELL SEARCHLIGHT SYSTEM



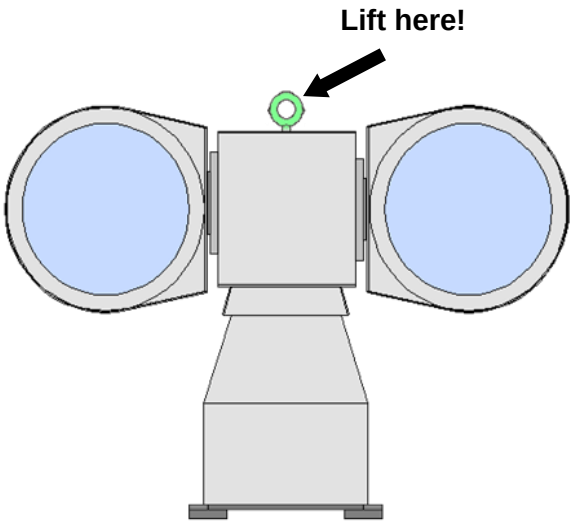
Luminell has with its newly developed control system for searchlights opened for a flexible and future-proof system in which several searchlight assemblies (CL25, CL35 and CL38) and operator panels can be connected to a dedicated network and communicate via the Ethernet protocol.
Control-computers and navigation equipment are other examples of devices that can be part of this network.
For external communication between the electrical box and its various controllers we use the TCP / IP protocol through the Ethernet infrastructure, but for internal communication between the box and searchlight we have chosen to work with CAN bus technology.
CAN (Controller Area Network) is a network standard originally developed for the automotive industry and with only two wires it's possible to transmit a variety of control data and information.

The searchlights drive motors (horizontal and vertical) are of the type brushless servo motors, with excellent performance, long lifetime and high reliability.
The motor drivers are located inside the searchlight and are of an "intelligent" type, which constantly analyzes the motor condition, and if problems arise, such as tripped over current protection; this will be presented as an alarm in the operator panel.

5. INSTALLATION

5.1 Physical handling of the searchlight

Lift only the searchlight by the temporary lift loop on top of the center house. Lifting at the lamp houses may damage the construction. After safely fixed the searchlight, remove the lift loop.



6. CLI-30001, ANTI VIBRATION KIT

Service instruction no: **CLI-30001**
Revision date: **2012-12-19**
Applicable models: **CL25-CL35-CL38**

Spareparts needed (refer to CL spareparts list)

1	LNCLS-25130 Anti vibration-kit × 1 (included in delivery)
2	LNCLS-25130-H Anti vibration-kit Hard for CL3 × 1 (included in delivery)

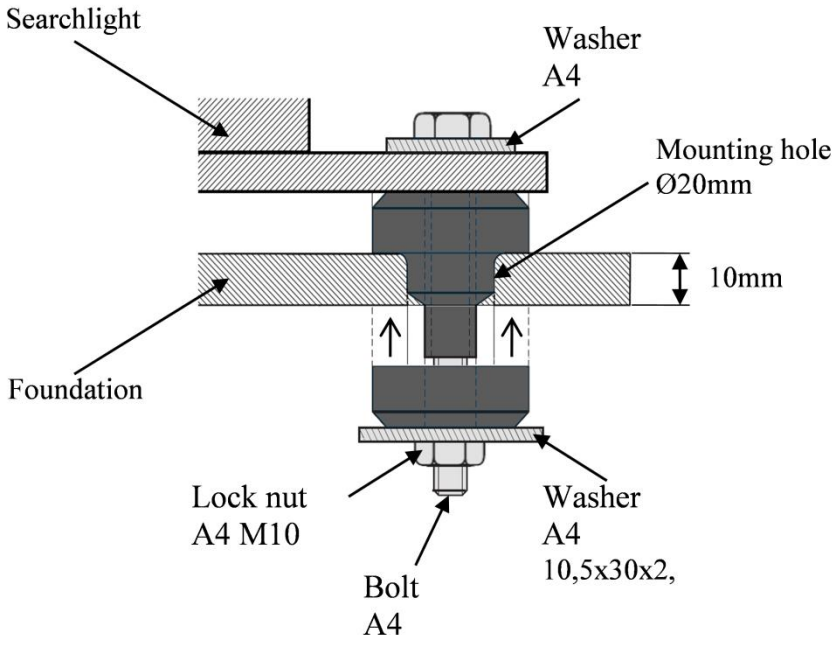
Tools and supplies required:

1	17mm ratchet wrench × 1
2	17mm wrench × 1
3	
4	

Important information

This instruction shows how to install the anti-vibration kit which consists of four dampers with integrated stainless-steel tubes.
The dampers' main function is to absorb the harmful vibrations that can damage the mechanics and shorten the life of the bulbs. Searchlight installations without dampers will uncompromisingly, void the warranty.

Figure 1



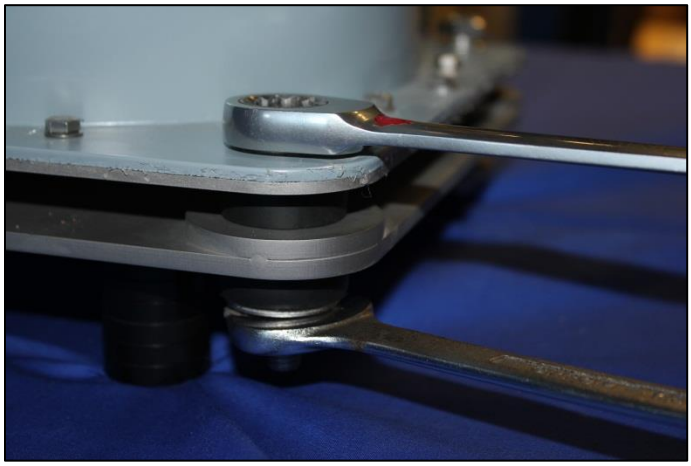
1. Overview of the damper assembly and its parts.



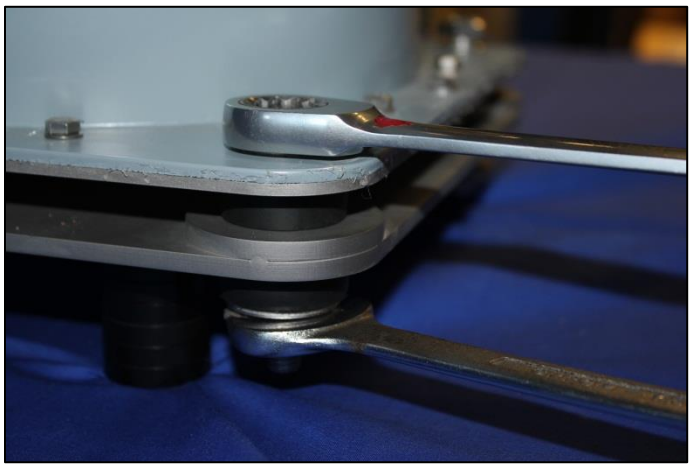
2. Push the dampers tube part thru the mounting holes in the foundation.



3. Mount the dampers rubber part from other side of the foundation.



4. Lower the searchlight on top of dampers and mount bolt washers and nuts as shown in figure 1.



5. The lock nut is tightened with two wrenches size 17mm, tighten nut firmly.
   The dampers rubber part will be compressed slightly, after assembly the searchlight will be rigidly secured but still resistant to vibrations.

7. CLI-30005, REPLACING THE BULB

Service instruction no: **CLI-30005**
Revision date: **2013-09-09**
Applicable models: **CL25-CL35-CL38**

Spareparts needed (refer to CL spareparts list)

CL25-CL35-CL38	
1	LNCLS-25701 HMI bulb 400W incl front glass sealing For CL25
2	LNCLS-35701 HMI bulb 575W incl front glass sealing For CL35
3	LNCLS-38701 HMI bulb 800W incl front glass sealing For CL38

Tools and supplies required:

1	8mm Ratchet Wrench × 1
2	Suction cup tool × 1
3	Lint-free cloth
4	Isopropyl (rubbing) alcohol

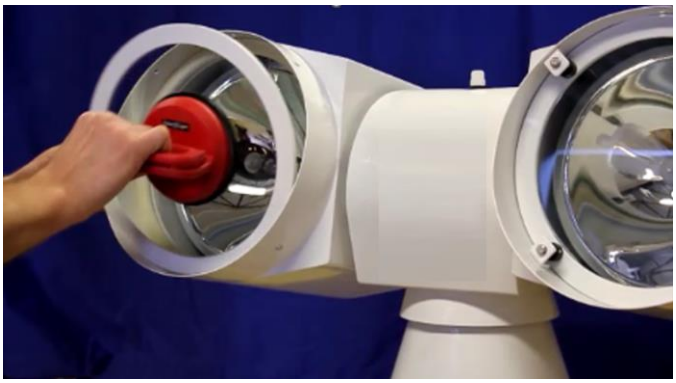
Important information

This instruction shows how to replace the bulb and front glass sealing on the CL25 model equipped with white or UV light but the procedure is the same for the CL35 and CL38.
It's recommended to replace the front glass sealing when replacing the bulb, reflector or front glass to reduce the risk of water ingress between front glass and lamp housing.

Regarding safe handling of bulbs please read: **Warnings and Information, page 5**



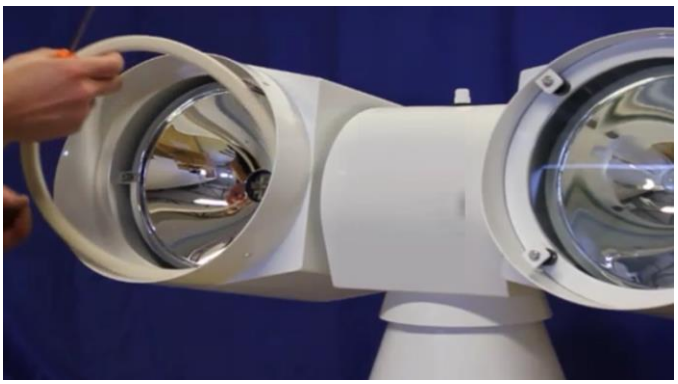
1. Turn off system power before servicing.
2. Start by removing all the four glass holder brackets that keeps the glass in place. Use a ratchet wrench size 8mm.



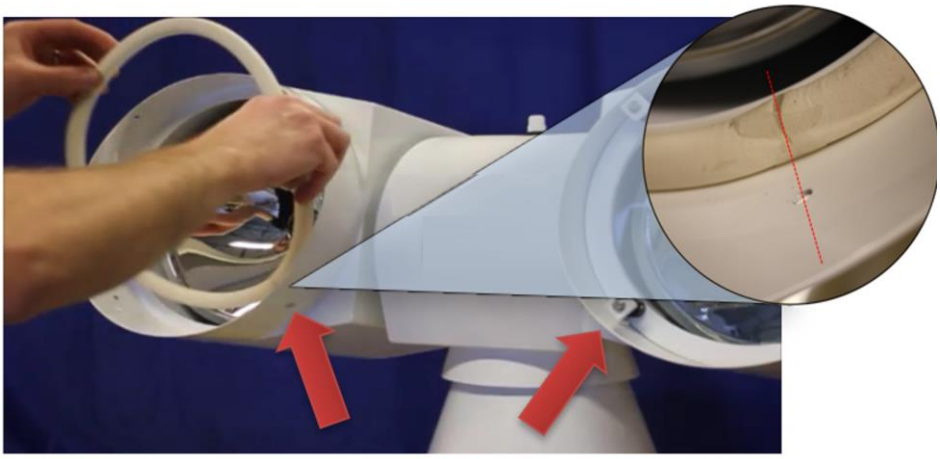
3. Remove the front glass; this is best done with a suction cup tool.



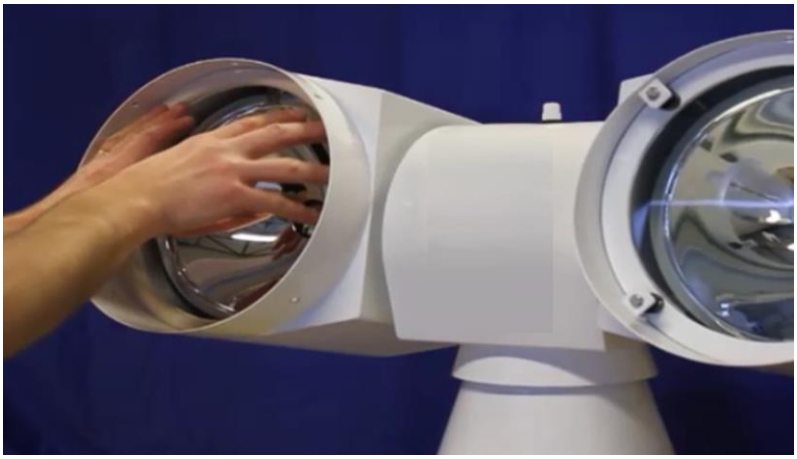
4. Remove the defective bulb from the socket.



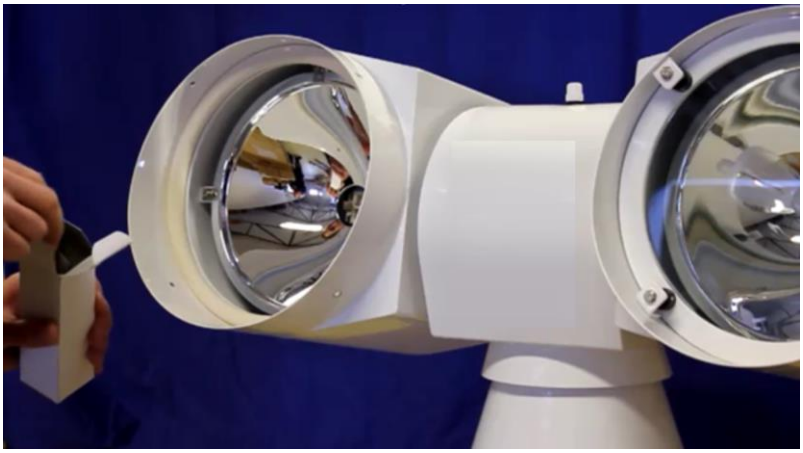
5. Remove the old sealing.
   Make sure that the flange surface is clean.



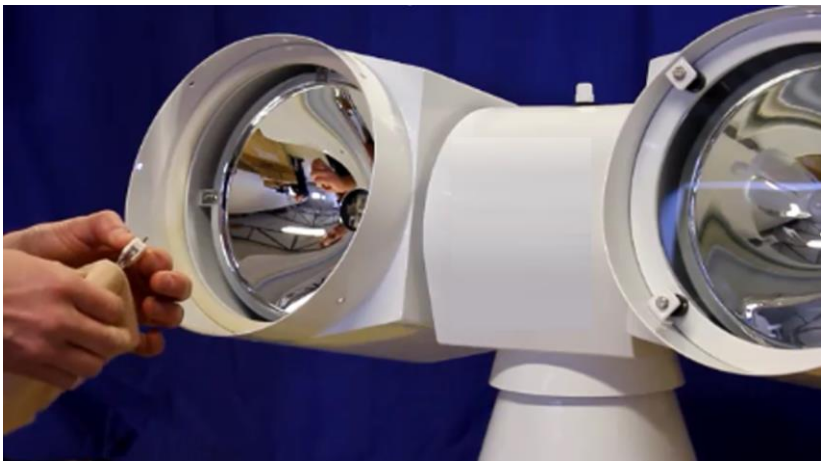
6. Fit the new sealing against the flange.
   Make sure to place the sealing joint in line with the lower inner hole of the glass holder bracket.



7. Press the new sealing against the flange with your hands.



8. Open a package with a new bulb.
   Avoid touching the bulb glass with your fingers.



9. Wipe the bulb with a dry, lint-free cloth dipped in isopropyl (rubbing) alcohol.



10. Make sure the bulb is dry before installing it in the socket.



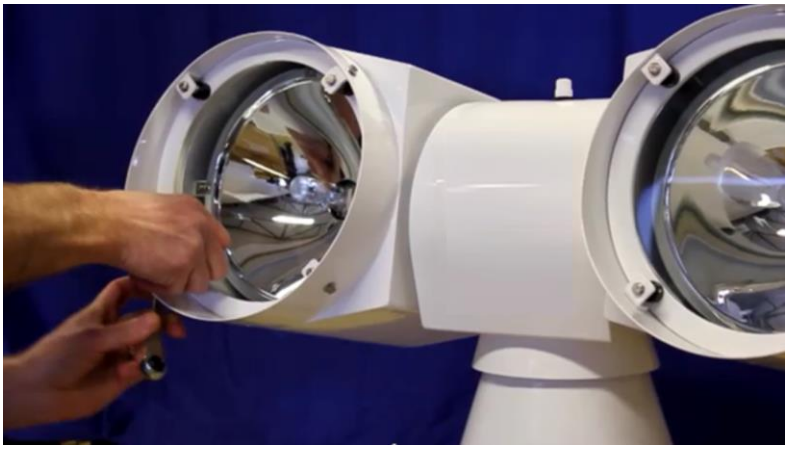
11. Put back the glass again.



12. Fit brackets again by loosely attaching all the screws a few turns.



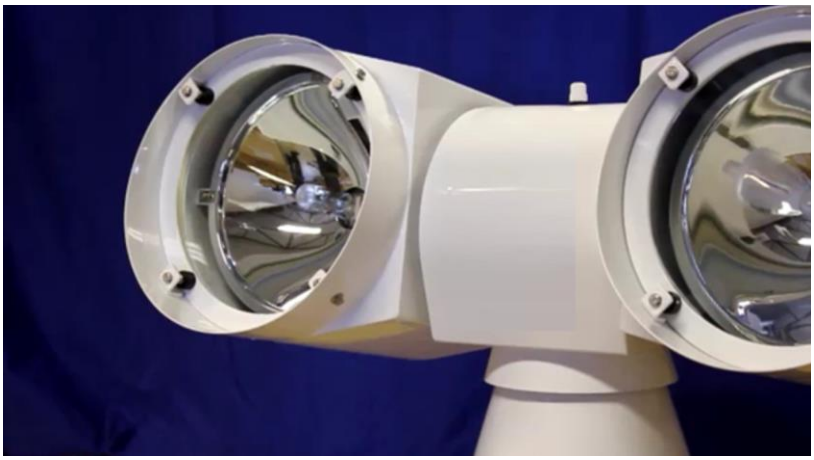
13. Turn the brackets in the correct position.



14. Tighten all screws crosswise with ratchet wrench size 8mm.



15. Tighten all screws crosswise.



16. Done, turn on power and test the bulb, also remember to perform searchlight synchronization, please see: 11. Actions after installation or power failure.

8. ELECTRICAL SYSTEM

IMPORTANT!



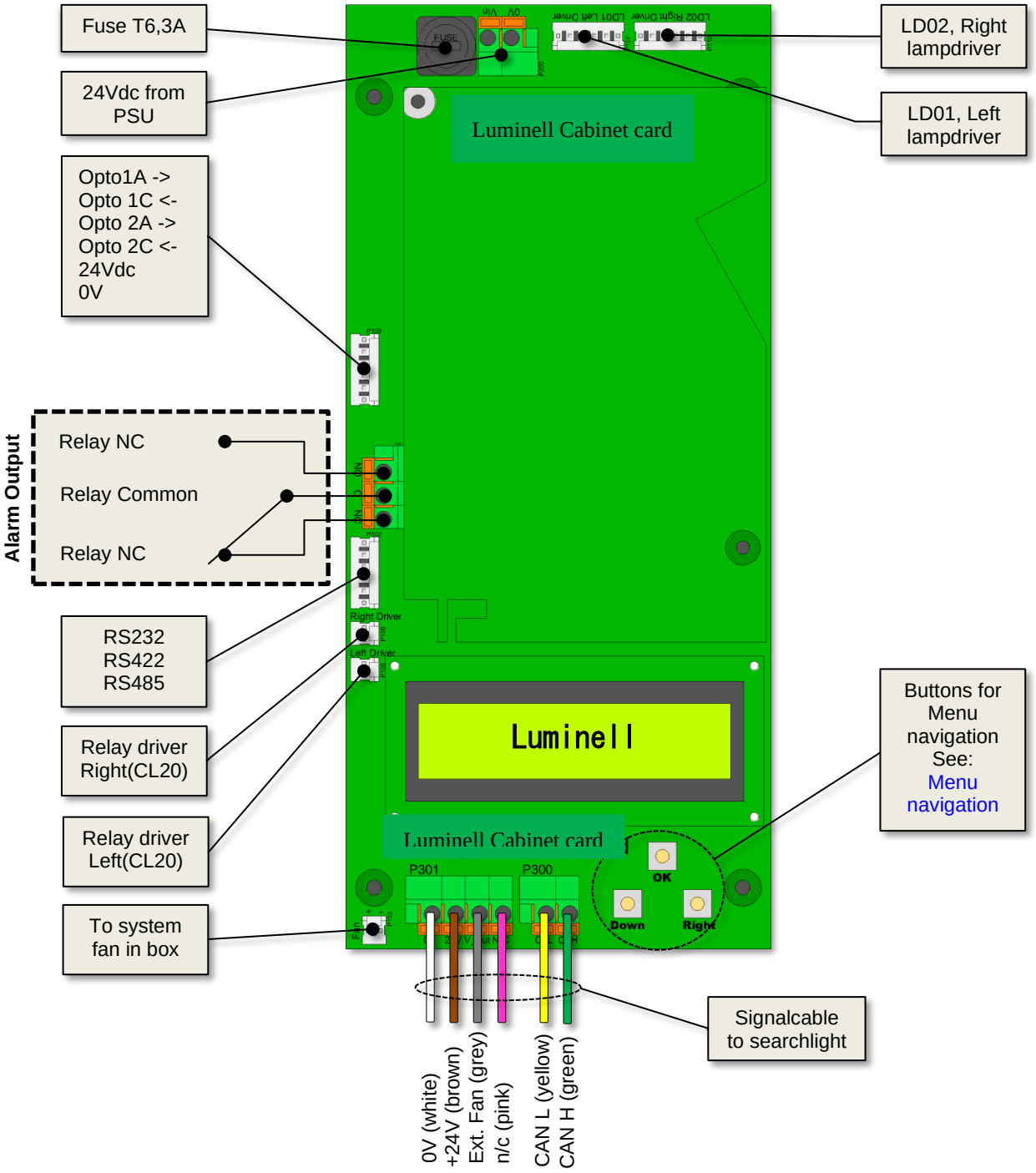
The electric supply to the e-box must be disconnected before beginning any work inside the box; it's not enough to turn off the internal main switch.

8.1 Electrical box

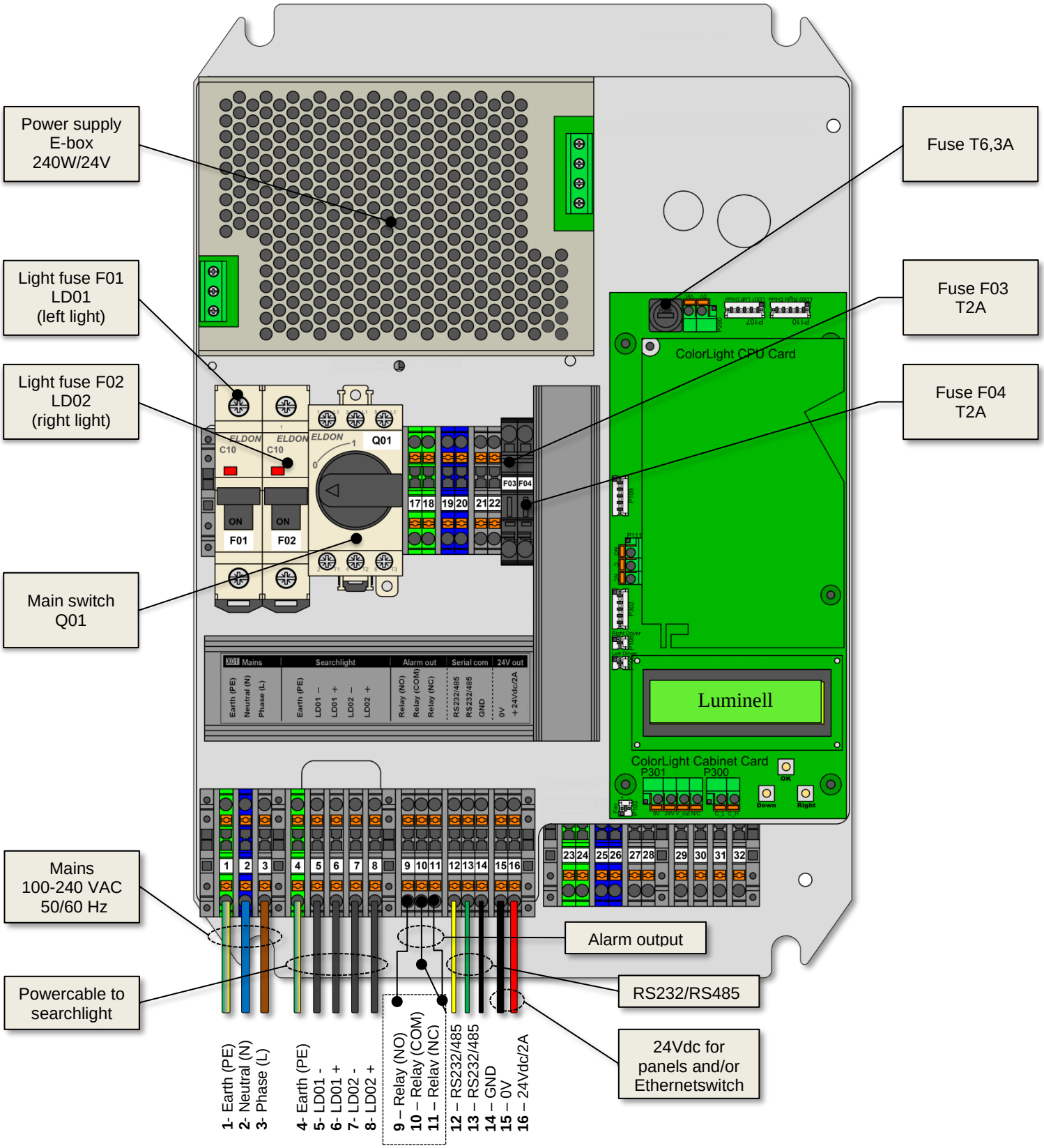
The e-box is designed to be as compact as possible but still allow service personnel to easily replace any broken component.
The design consists of a sandwich construction where the upper section plate is the searchlight connection part and the bottom section plate is the electronic lamp driver part.
By removing the entire assembly plate from the cabinet, you can lift and slide out the bottom section plate and if needed replace individual driver or replace the entire plate.
The cabinet is fan cooled and the fan starts only when the lights are on.

8.2 Cabinet card

The Luminell control system is stable and future-proof, and the cabinet card is equipped with several inputs and outputs as to allow the communication with the searchlight but also communicate with computers, radio receivers, limit switches etc. (via optocoupler).
On the output side, we have relay controlled alarm output (NO, NC) for external alarm handling and outputs for controlling relays (via optocoupler).



8.3 Electrical-box overview



8.4 Electrical box installation

Tools and supplies required:

1	Screwdriver 0,6×3,5 mm
2	Adjustable wrench type Bacho 8071
3	Wrench 13 mm
4	

Important information

The complete system is undergoing final testing before delivery and therefore has the searchlight cables installed in box.

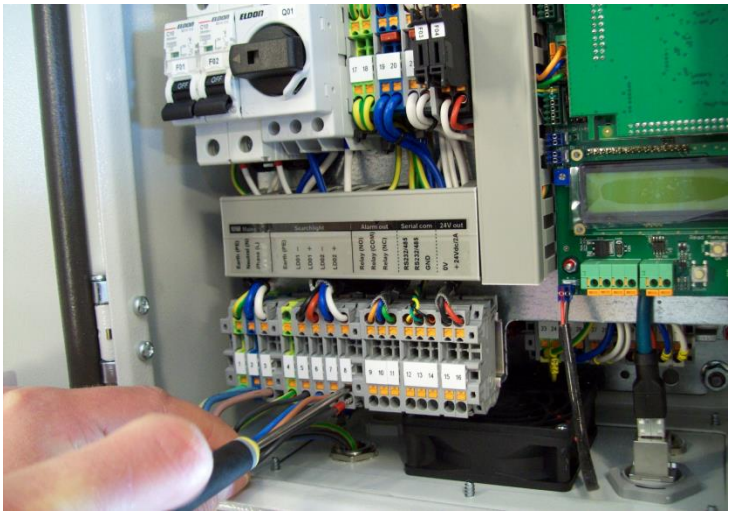
1. Ensure that the switch Q01in box is set to off.

2. Remove all the cables in the terminals, the terminals are push-in type and the wire is released easily by pressing the orange button with a screwdriver while pulling lightly in the wire.

3. Loosen the cable glands with an adjustable wrench and pull out the cables.

4. Mount the electric box on a firm foundation with the help of the wall brackets.

5. Install in reverse order and pay special attention so that the cables shields are mounted correct in the cable glands, see figure 2 below for guidance.
   Cables are connected according to the wiring diagram and double-checked before the power is turned on using the main switch Q01 in the electric box.



1 Electrical box



1 Shield Connection

8.5 Operator panel connections

The operator panel is designed to be immersed into the bridge panel, for dimensions, see drawing in section 17.2.1 Operator Panel.

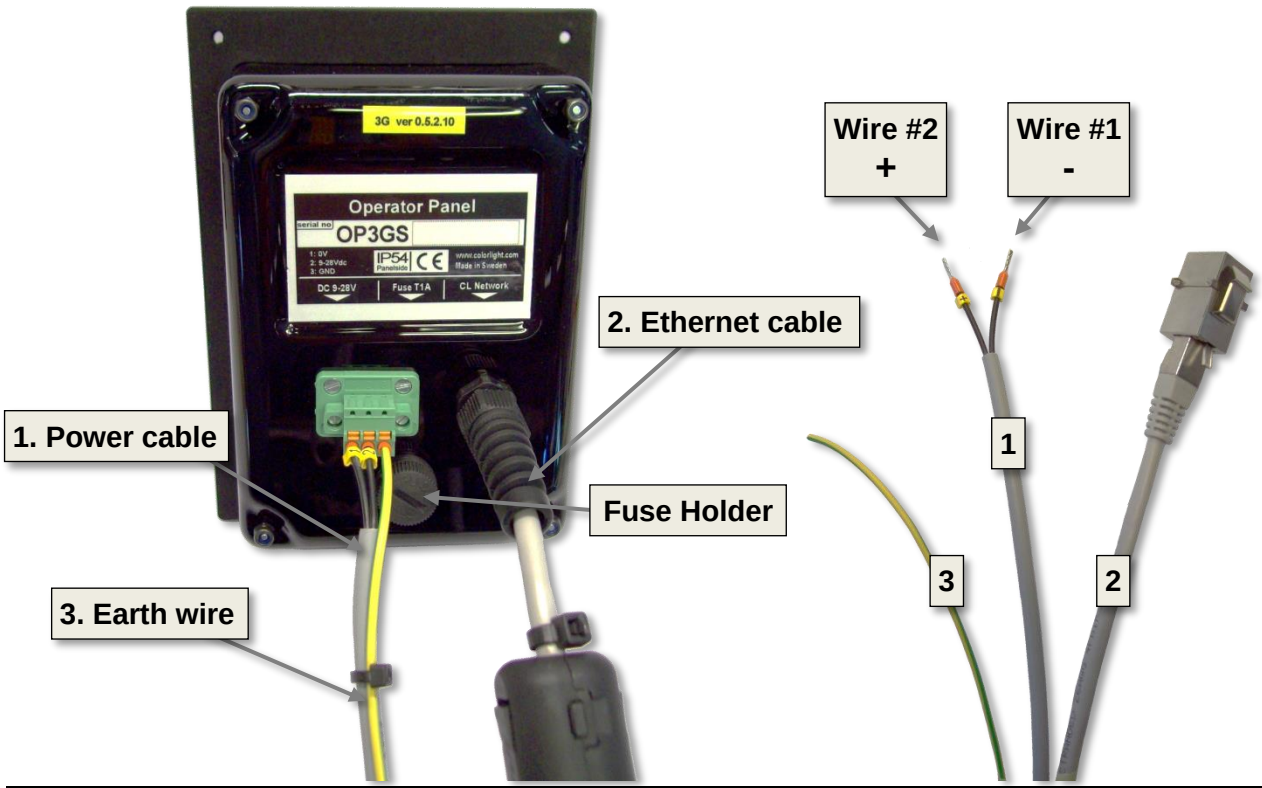
The following connections are available on the back of the panel:

1. Power supply 9-28 VDC via local power supply on the boat or 24VDC via terminals in the E-box. One of the benefits of supplying power to the panel from the box is that the panel will be de-energized together with the e-box via the main switch.

2. Ethernet connection directly to the electrical cabinet or Ethernet switch via RJ45 connector. Shielded Keystone Modular Feed through Coupler, RJ45-RJ45 included.

3. Earth connection to the panel, this is needed to suppress electrical disturbances and prevent ESD discharge damaging.

Electrical protection:
The panel is protected against wrong polarity and over-current protected by a fuse on the back, type: T1A (Slow-Blow glass fuse 5x20mm).

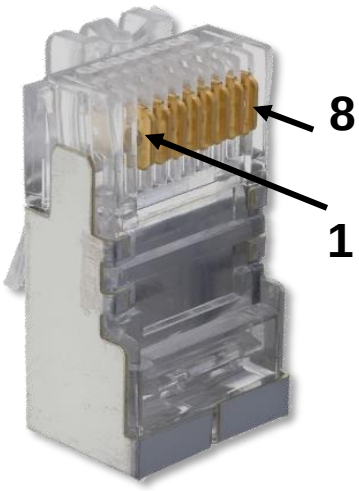


8.6 Ethernet wiring

Luminell searchlight systems should be connected to their own dedicated network; they should never be connected into the vessels existing computer network.

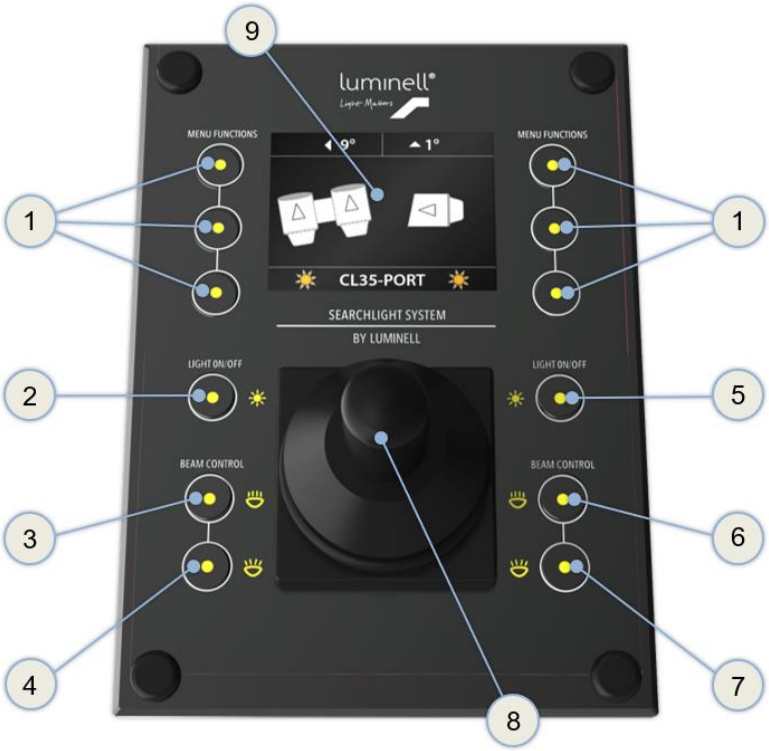
An Ethernet cable supplied by Luminell complies with the standard **TIA/EIA-568-B** and is always tested together with the complete searchlight system to ensure full functionality.

If customers choose to assemble their own Ethernet cables they must be of type FPT Cat5 or better and the connections should be done according to the following information.

Pin	T568A Pair	T568B Pair	T568A Color	T568B Color	Pins on plug face
1	3	2	white/green stripe	white/orange stripe	
2	3	2	green solid	orange solid	
3	2	3	white/orange stripe	white/green stripe	
4	1	1	blue solid	blue solid	
5	1	1	white/blue stripe	white/blue stripe	
6	2	3	orange solid	green solid	
7	4	4	white/brown stripe	white/brown stripe	
8	4	4	brown solid	brown solid	

Note that the only difference between T568A and T568B is that pairs 2 and 3 (orange and green) are swapped. Both configurations wire the pins "straight through", i.e., pins 1 through 8 on one end are connected to pins 1 through 8 on the other end. Also, the same sets of pins connect to the opposite ends that are paired in both configurations: pins 1 and 2 form a pair, as do 3 and 6, 4 and 5, and 7 and 8.
One can use cables wired according to either configuration in the same installation without significant problem. The primary thing one has to be careful of, is not to accidentally wire the ends of the **same cable** according to **different configurations**

9. OPERATOR PANEL, OVERVIEW

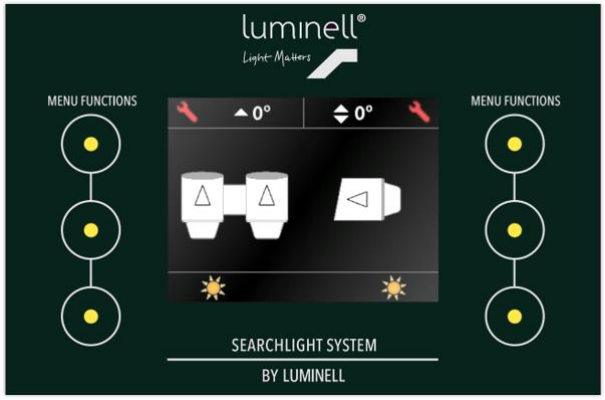


1. **"Soft button":** the function appears in the display window next to the button.
2. **Left lamp on/off**, standard for -12, -21 (optional for -11, -22 if “Single lamp mode” = **On *[1]**).
3. **Left focus** (same function as No.4 ***[2]**), (move left to spot ***[3]**).
4. **Left focus** (same function as No.3 ***[2]**), (move left to flood ***[3]**).
5. **Right lamp on/off**, standard for -12, -21 (optional for -11, -22 if “Single lamp mode” = **On *[1]**).
6. **Right focus** (same function as No.7 ***[2]**), (move right to spot ***[3]**).
7. **Right focus** (same function as No.6 ***[2]**), (move right to flood ***[3]**).
8. **Joystick**.
9. **Display**.

***[1]** See User’s Manual 11.8.6.5 Single lamp mode (standard function available from ver. 0.5.3.11).
***[2]** Continuous focus (standard), see 15.1 Type 1, continuous focus.
***[3]** Absolute focus (optional for CL25) see 15.2 Type 2, absolute focus.

Note: Several sections of the manual refer to the above figures.

10. DISPLAY SYMBOLS AND MESSAGES





Symbol for switched off white light.



Symbol for switched on white light.



Error symbol for white light indicates a problem during switch on or if the bulb breaks down during operation. The operator has three switch-on attempts in a two minute interval without setting the sum alarm output.



Symbol for switched off UV light (black light).



Symbol for switched on UV light (black light).



Error symbol for UV light indicates a problem during switch on or if the bulb breaks down during operation. The operator has three switch-on attempts in a two minute interval without setting the sum alarm output.



Symbol for any electro-mechanic error. Might be referred as an over voltage or over current for motor drivers. Communication error with motor drivers will result in the same symbol. This error symbol can be reset by simply enter the main menu and select status. Then press “**dismiss**”. If over current have occurred the problem might be referred as a stucked lamp housing – check for any icing issues. Each axis has its own symbol showing in upper left or right corner of the display.



This symbol indicates that the bulb has less than 200 hours left of expected lifetime. This warning can be chosen by the operator to be shown or not. please see User's Manual, *11.8.4 Lamp life* for more detailed instruction.
Each bulb has its own symbol showing in the lower left or right corner of the display.



This symbol indicates that the expected lifetime of the bulb now has expired. The only way to reset this symbol is by entering the "**Usage Stats**" menu at the diagnostic display inside the electrical box. See *16.4 Category 3: Usage Stats*. Certainly this reset should only be done together with a bulb replacement!



This symbol and a similar symbol indicate the direction of the lamp housing both for the vertical axis and for the horizontal axis. The arrows in the shown symbol indicate the elevation angle for the vertical axis according to the horizontal-plane.

For the horizontal symbol and axis these small arrows indicate if the housing is directed to the left, front, right or back of the centerline.



If the arrows are replaced by question marks then the system needs to be internally calibrated. This is the normal state after power up after a total power loss to the system. The easiest way to do the internal calibration is by simply choose the "**Park**" in the quick start menu, please see User's Manual *10.6 Off and park*.

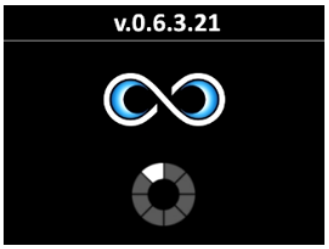
10.1 Ebox alarm relay

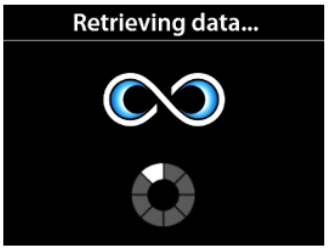
The searchlights electrical and mechanical condition are constantly monitored and if there is a malfunction in the system this is indicated by icons in the panel display with clarifying warning messages found in the panels status menu.
The control box also has a relay output that can be connected to the boat monitoring system; see the wiring diagram for connection details.

The following errors trigger the alarm output.

Message	Fault
Communication error	Transmission issues on the CAN bus
Over current	Overcurrent protection triggered, movement blocked
Over voltage	Overvoltage protection triggered, voltage to searchlight motordriver/s have exceeded 30Vdc.
Under voltage	Undervoltage protection triggered, voltage to searchlight motordriver/s has fallen below 10Vdc
OPWDT (message in box only)	Ethernet communication broken to all panels, see *(4.1) OP WDT*. Fault auto-resets if contact is restored with at least one panel

11. ACTIONS AFTER INSTALLATION OR POWER FAILURE



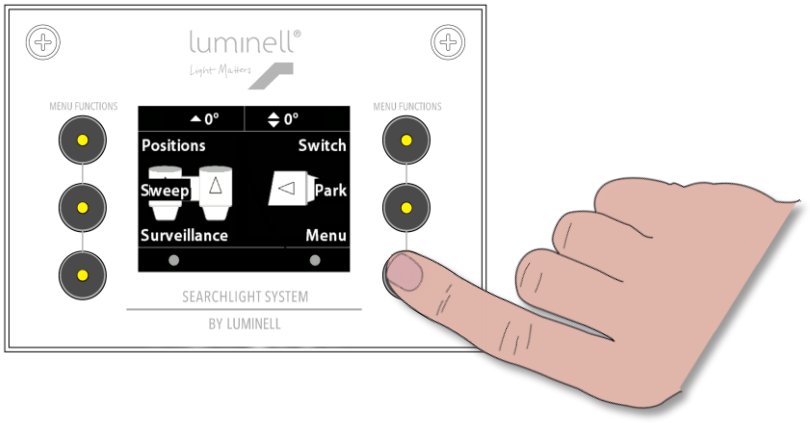


At system startup, the panels will start to scan the network to find connected electrical boxes, during this time, the panel software version will be displayed.
If not the panel made contact by displaying home screen within 30 seconds, it may be due to the following:

- Electrical box is not turned on, applies only if the panel has a separate power supply.
- There are problems in the network cabling between the electrical box and the operator panel.

At the first boot after installation or power failure, the searchlight must be synchronized with the control system.

After installation or power failure of the electric box you can still use the searchlights main functions like joystick control, light on/off and focus but in order to be able to use positioning functions such as display indicator*, parking position, sweep*, fixed positions* or surveillance*, the searchlight must be synchronized with the control system.



The easiest way to synchronize the system after reboot is to enter the quick start menu and select the "**Park**" function. Now the searchlight will synchronize and then park if a parking position has been set.
If necessary the origin can be set after the steps above to give an accurate readout of the indicator*. To set the origin, please see User´s Manual, section *11.8.6.1 Store origin.*

*Standard function for CL25, CL35, CL38

12. STARTING SYSTEM

When the system is in sleep the buttons and symbols glows with orange light and the display is totally shut down to save power. Buttons and symbols are always active but dimmed to a lower intensity during sleep.

Pressing any button on the operator panel will activate the system and the display will now show the position indicator* image or just the Luminell logotype. Buttons and symbols are now brighter and both buttons, symbols and display intensity can be adjusted, please see User's Manual, section *11.8.1 Backlight brightness.*

*Standard function for CL25, CL35 and CL38,

13. JOYSTICK FUNCTIONS

The joystick (**8**) moves the searchlight horizontally and vertically. There are no limitations to the movement of the searchlight thanks to the slip ring technology developed by Luminell.
The more the joystick is moved to its end position the faster the searchlight rotates.
Searchlight rotation speed can be set, please see User's Manual, section *11.8.5 Maximum rotation speed.*

The vertical axis reaction according to the joystick movement can be reversed if decided by operator. To change this reaction please see User's Manual, section *11.8.3 Joystick direction.*

The joystick can also be used to navigate in menus containing more than one choice.
Move the joystick up or down to navigate in the menu. In most menus joystick moved to the right will act as "**OK**" button and moved to the left will go back one step as the "**Back**" button.

14. SWITCH ON LIGHT

The searchlight is equipped with two bulbs with either double white (CLXX-11) or double UV (CLXX-22) or a combination of white and UV light.
As default the double white or double UV will be turned on by pressing button(**2**) or (**5**), both lights will then be lit with a slight delay in between, no matter which button is used.
To turn off the light, press button (**2**) or (**5**) again.

There are however occasions when it may be useful to give each bulb a dedicated light button, this setting is done in the "Single lamp mode" menu, please see User's Manual, section *11.8.6.5 Single lamp mode.*

If the light is a combination of white/UV, light will always be lit separately. Button (**2**) will lit left light and button (**5**) the right light. To turn off light, press the same button again.
In the bottom part of the display there are two sun-symbols that indicates the status of each bulb.

CL25, CL35 and CL38

If the system is unable to switch on the bulbs there will be a red exclamation mark over the sun-symbol for the no working bulb. This error might occur if the operator decides to switch on a bulb that recently has been shut off without any time to cool down before the next switch on. Normally wait a few seconds (the longer the better) and try again. The system accepts three turn on attempts (initiated by the operator) in a two minute time interval before the sum-alarm is activated.

If the bulb breaks during operation the sum-alarm will be activated directly. The error symbol with the exclamation mark over the sun-symbol will show again in the display over the corresponding bulb.

There is a bulb warning feature in the system. This warning can be chosen by the operator to be shown or not by switch on or off the function in the settings menu, please see User's Manual, section *11.8.4 Lamp life.*



This warning feature will show a white triangle symbol when the estimated bulb life left is less than 200 hours. The symbol will be shown at the displays bottom left or right corner according to left or right bulb.



When the expected lifetime is expired the white triangle will change to a red triangle. The only way to reset this symbol is by entering the "**lamp life**" menu at the diagnostic display inside the electrical box. To get to the correct menu use the three buttons below the display. Under the lamp life menu there are two choices: "**usage statistics**" and "**reset counters**". Select "**reset counters**" and select the corresponding lamp housing for which the counter should be reset. Certainly this reset should only be done together with a bulb replacement!

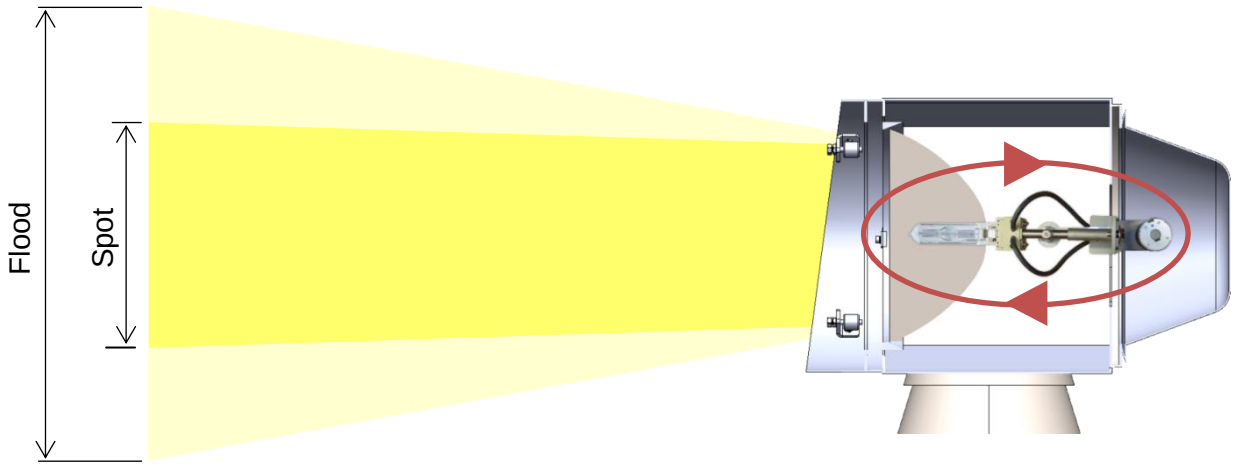
15. FOCUS

15.1 Type 1, continuous focus (standard)

Note: Button numbers below refers to *OPERATOR PANEL, OVERVIEW.*



Pressing the focus buttons (**3**) or (**4**) changes the focus for the left lamp house and buttons (**6**) or (**7**) changes focus for the right lamp house.
Release the button when the required focus is found.



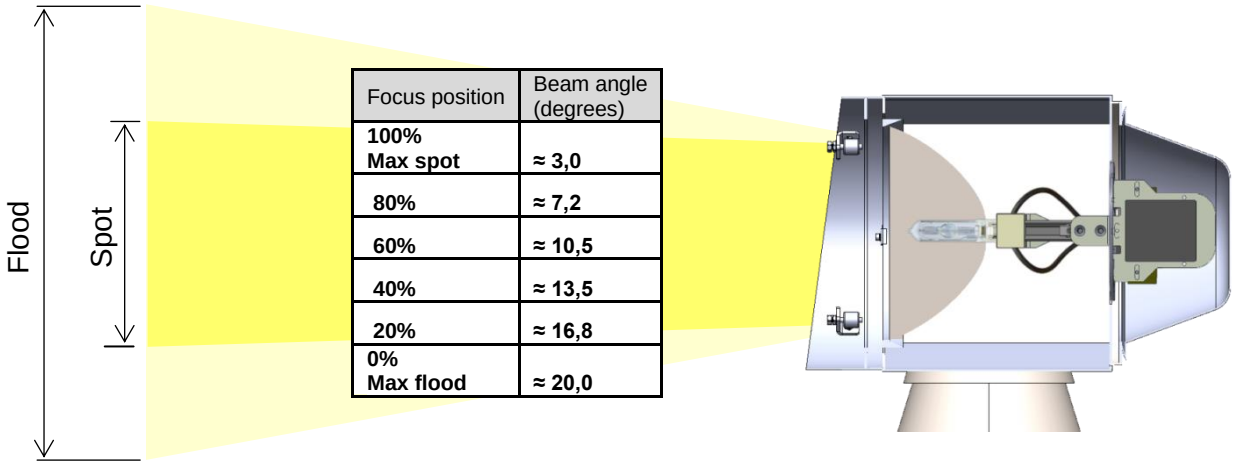
As long as a focus button is pressed the bulb moves in and out which changes the focus of the light between 4-20 degrees for model CL25 and 3-20 degrees for model CL35 and CL38.

Note: Pressing button (**3**) and (**6**) or (**4**) and (**7**) at the same time will cause an electric collision which stops the focus from changing. Releasing one of the buttons will continue the focusing of the pressed button. To focus with both lights simultaneously hold (**3**) and (**7**) or (**4**) and (**6**).

15.2 Type 2, absolute focus

Note: Button numbers below refers to *OPERATOR PANEL, OVERVIEW.*

This feature enables adjusting a defined beam width (focus) of the lamps by means of a step motor. Focusing from control panel is made in 20%-steps by pressing the focus button for spot or flood repeatedly, or, if the buttons is held longer than 0,6 second, the focus moves directly to desired end position.
This focus unit is also controllable via the serial interface RS232 or RS485 and can then be commanded to any focus position within the range 3-20 degrees (stepless control). (For L25 between 4-20 degrees.)



Focus position	Beam angle (degrees)
100% Max spot	**≈ 3,0**
80%	**≈ 7,2**
60%	**≈ 10,5**
40%	**≈ 13,5**
20%	**≈ 16,8**
0% Max flood	**≈ 20,0**



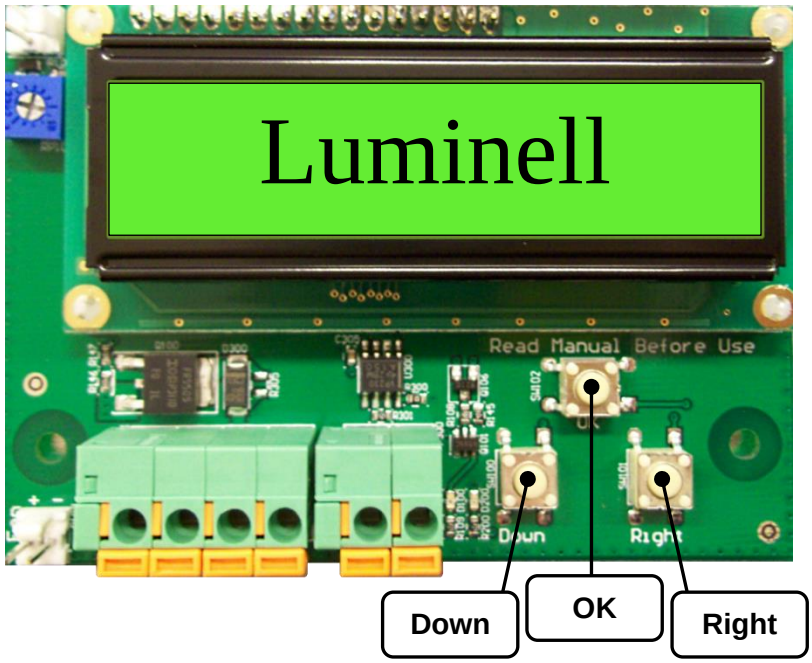
Pressing the spot buttons changes the focus towards spot on corresponding lamp house in predefined steps according to table above.

Pressing the flood buttons changes the focus towards flood.
Release the button when the required focus is found.

Note: If the system is manually rebooted or starts up after a power failure, the focus unit will always automatically move back to 0% in order to avoid the risk of burning surfaces on the boat with the intense light beam.

16. CABINET CARD MENU SYSTEM

This chapter describes the menu system of the Luminell Cabinet Card displayed on the on-board LCD.



16.1 Menu navigation

The user interacts with the menu system using the three buttons, the "**Down**" button, the "**Right**" button and the "**OK**" button.

16.1.1 Down Button

The main function of the "**Down**" button is to shift between the menu categories. It also has two alternate generic functions.
1. While in submenus listing items of various types the "**Down**" button scrolls down in the list.
2. While entering a value of some sort, the "**Down**" button decrements that value.

16.1.2 Right Button

The main function of the "**Right**" button is to shift between the submenus of the selected menu category. It also has two alternate generic functions.
1. While in submenus listing items of various types the "**Right**" button scrolls up in the list.
2. While entering a value of some sort, the "**Right**" button increments that value.

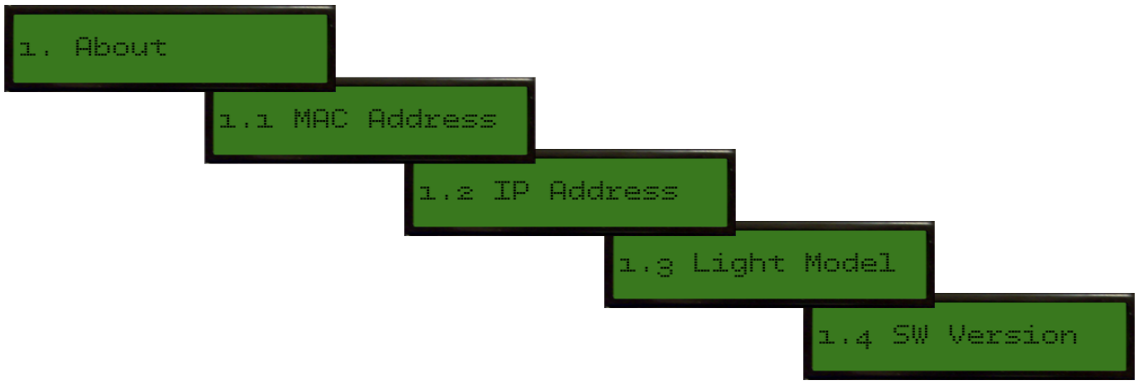
16.1.3 OK Button

The "**OK**" button enters and exits submenus.

1. About	1.1 MAC Address	1.2 IP Address	1.3 Light Model	1.4 SW Version
2. Diagnostics	2.1 Start	2.2 View Results		
3. Usage Stats	3.1 Left Light	3.2 Right Light	3.3 Reset Left	3. 4 Reset Right
4. Settings	4.1 OP WDT	4.2 OP WDT Stats	4.3 OP WDT Reset	

16.2 Category 1: About

In this chapter all of Category 1 menu items will be explained.



16.2.1 (1.1) MAC Address

Displays the MAC address of the Cabinet Card, according to the standard (IEEE 802) in six groups of two hexadecimal digits, separated by colons (':'), in transmission order, e.g. "01:23:45:67:89:ab". One exception from the standard is made, the leftmost colon is missing, due to the 16 character limit of the LCD.

16.2.2 (1.2) IP Address

Displays the IPv4 address of the Cabinet Card, in four groups of one to three decimal digits, separated by dots ('.'), e.g. "169.254.17.5".

16.2.3 (1.3) Light Model

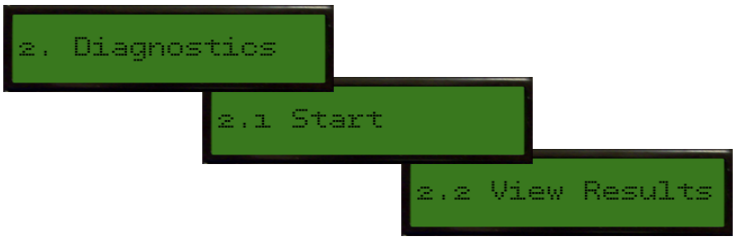
Displays the searchlight model that the Cabinet Card is configured to use, e.g. "Model: CL25-12".

16.2.4 (1.4) SW Version

Displays the firmware version of the Cabinet Card, e.g. "0.1.2.3".

16.3 Category 2: Diagnostics (support tool)

In this chapter all of Category 2 menu items will be explained.



16.3.1 (2.1) Start

Press the OK button to run the on-board diagnostic test suite to sense the electrical and mechanical condition of the searchlight. (contact Luminell for help with this feature).

T1. Measurement of voltage and current when the searchlight is in “non operating mode”

T2 (HCW). Measurement of current drawn by the horizontal motor; motor rotates clockwise for 30 seconds.

T3 (HCCW). Measurement of current drawn by the horizontal motor; motor rotates counterclockwise for 30 seconds.

T4 (VCW). Measurement of current drawn by the vertical motor; motor rotates clockwise for 30 seconds.

T5 (VCCW). Measurement of current drawn by the vertical motor; motor rotates counterclockwise for 30 seconds and the value is temporary stored.

T6 (Rfoc). Measurement of current drawn by the right focus motor; runs for 30 seconds.

T7 (Lfoc). Measurement of current drawn by the left focus motor; runs for 30 seconds.

T8 (H MAG). Test of horizontal magnetic sensor; the horizontal motor is running at full speed for a predetermined time and number of triggers is recorded.

T9 (V MAG). Test of vertical magnetic sensor; the vertical motor is running at full speed for a predetermined time and number of triggers is recorded.

T10 (Lights). Lamp test; both lights should ignite and be lit for 30 seconds.
To avoid burning anything with the bright light the test is performed with both axis rotating in half speed. The result is temporary stored.

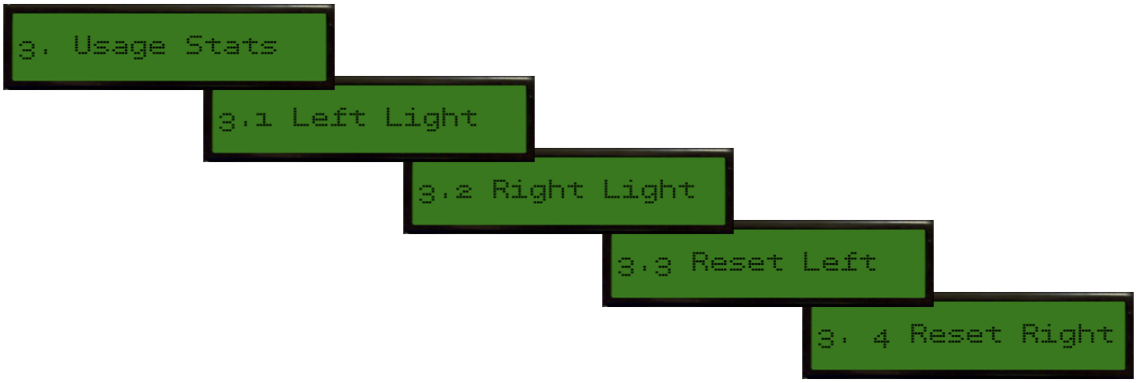
T11 (OP count). Counting the number of connected operator terminals in the network.

16.3.2 (2.2) View Results

Displays the result of the last run diagnostics test suite.
Use the “**Down**” button to cycle through the tests results.
Use the “**Right**” button to cycle through different test result information for the selected test.
Only applicable for test “T1” and test “T10”.

16.4 Category 3: Usage Stats

In this chapter all of Category 3 menu items will be explained.



16.4.1 (3.1) Left Light

Displays the usage of the left light source in hours:minutes:seconds, e.g. “Left: 1:23:45”.

16.4.2 (3.2) Right Light

Displays the usage of the right light source in hours:minutes:seconds, e.g. “Right: 1:23:45”.

16.4.3 (3.3) Reset Left

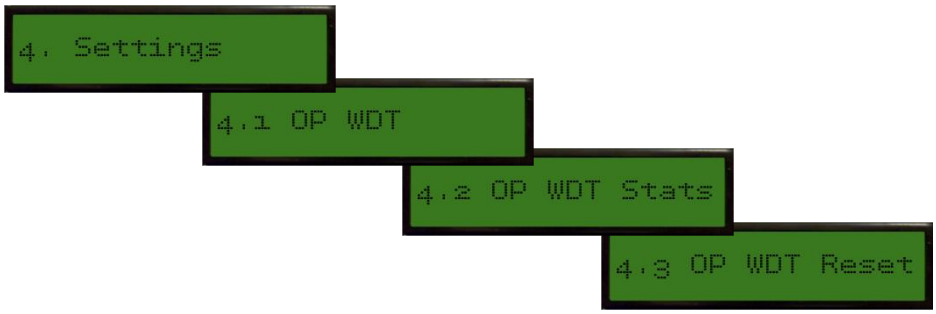
Resets the usage counter of the left light source.
A confirmation message, “**If sure press OK**”, is displayed upon entering the menu. Press the “**OK**” button at this point to reset the counter and exit the menu. Press the “**Down**” or “**Right**” button to exit the menu without resetting the counter.

16.4.4 (3.4) Reset Right

Resets the usage counter of the right light source.
A confirmation message, “**If sure press OK**”, is displayed upon entering the menu. Press the “**OK**” button at this point to reset the counter and exit the menu. Press the “**Down**” or “**Right**” button to exit the menu without resetting the counter.

16.5 Category 4: Settings

In this chapter all of Category 4 menu items will be explained.



16.5.1 (4.1) OP WDT

Ethernet communications guard OP WDT (Operator Panel Watchdog Timer)

This searchlight is built for use on long distances and the high-intensity light from the searchlight can, if set at a narrow beam, cause severe damage to surfaces closer than 1 meter. To avoid that the searchlight is forgotten with the light on, always use the feature “off and park” when not using the searchlight.
If however a hardware failure occurs that breaks the Ethernet communication between the box and operator panel, a safety function will step in and automatically turn off the light within 3 seconds, the OP WDT will also interrupt an ongoing sweep or surveillance activity.



If an OP WDT event has occurred an error message will be displayed in the electrical box and the alarm relay (CL25/35/38) will trigger. When communication returns the message will disappear and the alarm will be reset.

<u>For multiple panel systems: OP WDT will step in only when communication is lost to all panels.</u>

Possible reasons why OP WDT turn off the lights:

- The power supply to the operator panel is broken.
- The power supply to the Ethernet switch (if any) is broken.
- Broken Ethernet cable between electrical box/ Ethernet switch (if any) and operator panel.

<u>OP WDT is disabled by default</u>, to enable press “**OK**” button in menu “4.1 OP WDT” screen and press the “**Down**” or “**Right**” button to toggle the function on/off.



16.5.1 (4.2) OP WDT Stats

Displays a counter that keeps track of the number of times the Ethernet communication has recovered from an OP WDT event.
In case of suspected cable problems with connected operator panels, this counter can be helpful when troubleshooting.



16.5.2 (4.3) OP WDT Reset

Resets the OP WDT counter.
A confirmation message, “**If sure press OK**”, is displayed upon entering the menu. Press the “**OK**” button at this point to reset the counter and exit the menu. Press the “**Down**” or “**Right**” button to exit the menu without resetting the counter

17. TECHNICAL DATA CL25

17.1 Specifications CL25

MODEL RANGE

TYPE	MODEL		SOURCE	RANGE
Dual White	CL25-11	○○	HMI/HMI	3000 m
Combination White/UV	CL25-12 (CL25-21)	○● (●○)	HMI/UV	2000 m/1000 m
Dual UV	CL25-22	●●	UV/UV	1500 m
Daytime camera module	Suffix -1 on above		Optional	Optional
IR-camera module	Suffix -2 on above		Optional	Optional

PERFORMANCE

LIGHT	
Technology	Metal Halide
Light source	2 x 400W HMI
Color Temp (white light)	6000 K
CRI (white light)	> 90 Ra
Luminus flux (CL25-11)	66 000 lm
Light intensity (CL25-11)	10,7 M candela
Range (CL25-11)	3000 m (1 lux @ 50 m diameter)
Beam width	4-20 deg
Firefighting (CL25-11)	250 m (50-170 lux @ 14 m diameter

MECHANICAL	
Technology	Slipring. Brushless digital controlled servo
Horizontal movement	Unlimited movement
Vertical movement	Unlimited movement
Speed both axis	Stepless 0-33 deg/sec

FUNCTIONS

STANDARD DIRECT CONTROLLED	STANDARD FUNCTIONS	STANDARD PACK 1	OPTIONAL PACK 2	OPTIONAL PACK 3
Light on/off	System activation	Position indicator	Auto sweeping	Synchronized control
Focus (adjustable)	Parking mode		Fixed positions	
Rotation speed, stepless	Language version		Surveillance	
	User settings			
	System information			
	Single lamp mode (11/22)			

OPTIONAL HARDWARE		
Wireless radio control	Absolute focus (not for retrofitting)	
Thermal camera unit (not for retrofitting)	Fiber optic control cable	
Daylight camera unit (not for retrofitting)	Customized color	
Extra remote panel (s)	Wet paint (AWL grip or similar)	
External power supply for panel (s)	Polished stainless	
Ethernet switch, 5 port and 8 port		
Upside-down installation	Customization upon request	

TECHNICAL DATA

Power consumption	1070 W *(max load)* 4,7 A @ 230 VAC *(max load)*
Heat load	15 W / 85 W *(standby/max load)*
Refector size	2 x dia 210 mm
Bulb life	650 hours

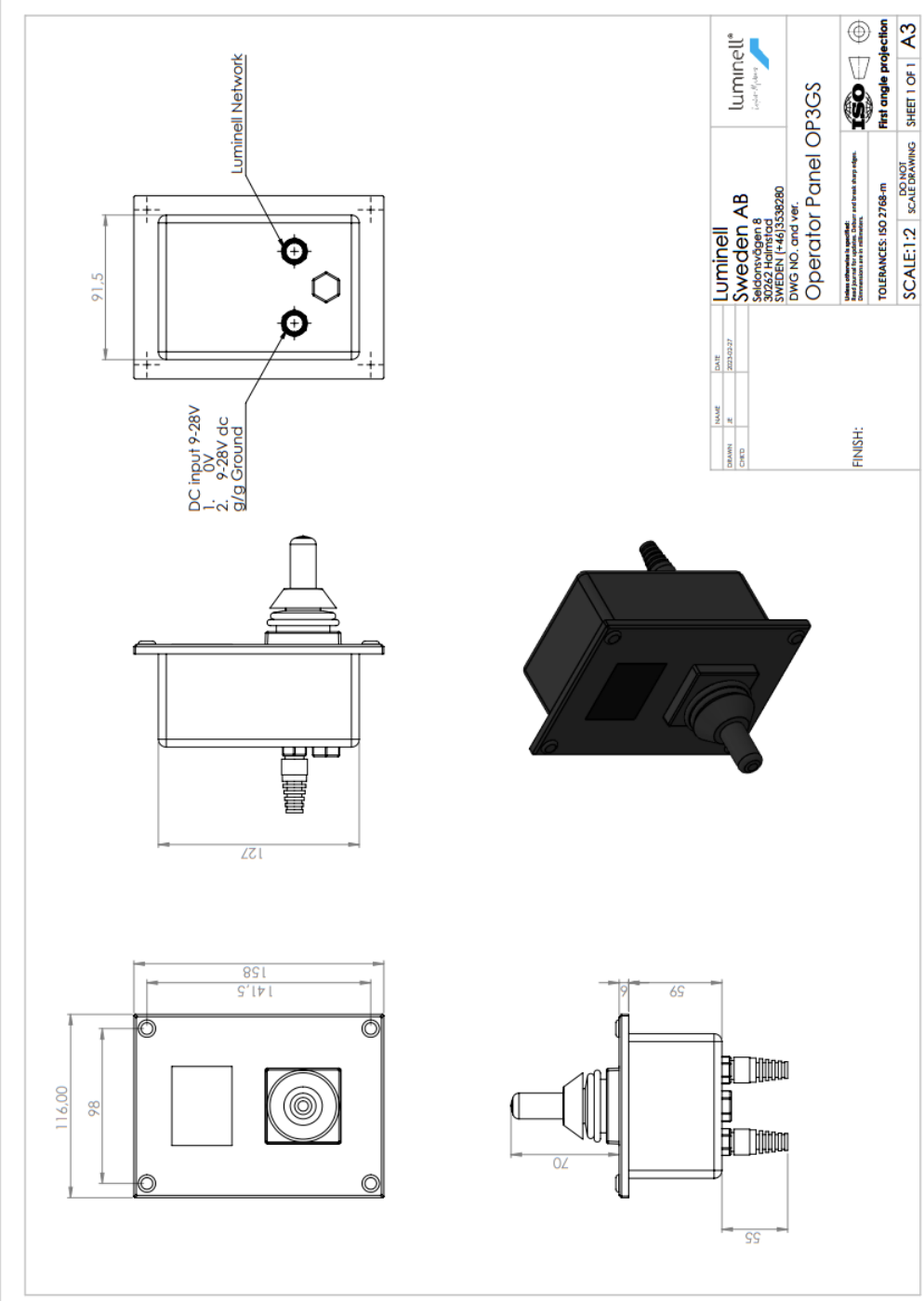
Ballast	No external ballast
Signal cable	3x2x0,75 shielded, twisted pair
Power cable	5G1,5 shielded
OP3G cable	Ethernet CAT5-FTP *Fiber available for long distance*
Serial cable	RS485/RS232 *Optional. ICD for external control*

	SEARCHLIGHT BODY	EBOX	OPERATOR PANEL
Weight (kg)	30	17	0,5
Static size (cm)	42x75x53 cm *	40x30x21 cm *	13x9x6 cm *
Material	Acid proof stainless steel 1.4401	Coated steel	Anodized aluminum / ABS
Paint	Powder coat white RAL 9016	Powder coat grey RAL 7035	Anodized black
IP-Class	IP66	IP22	IP54
Operating temp range	-40º / +70º Celsius	+5º / +60º Celsius	-20º / +70º Celsius
Input power	Powered from ebox	100-240 VAC 50/60 Hz	9-28 VDC (max 200 mA @ 24V)

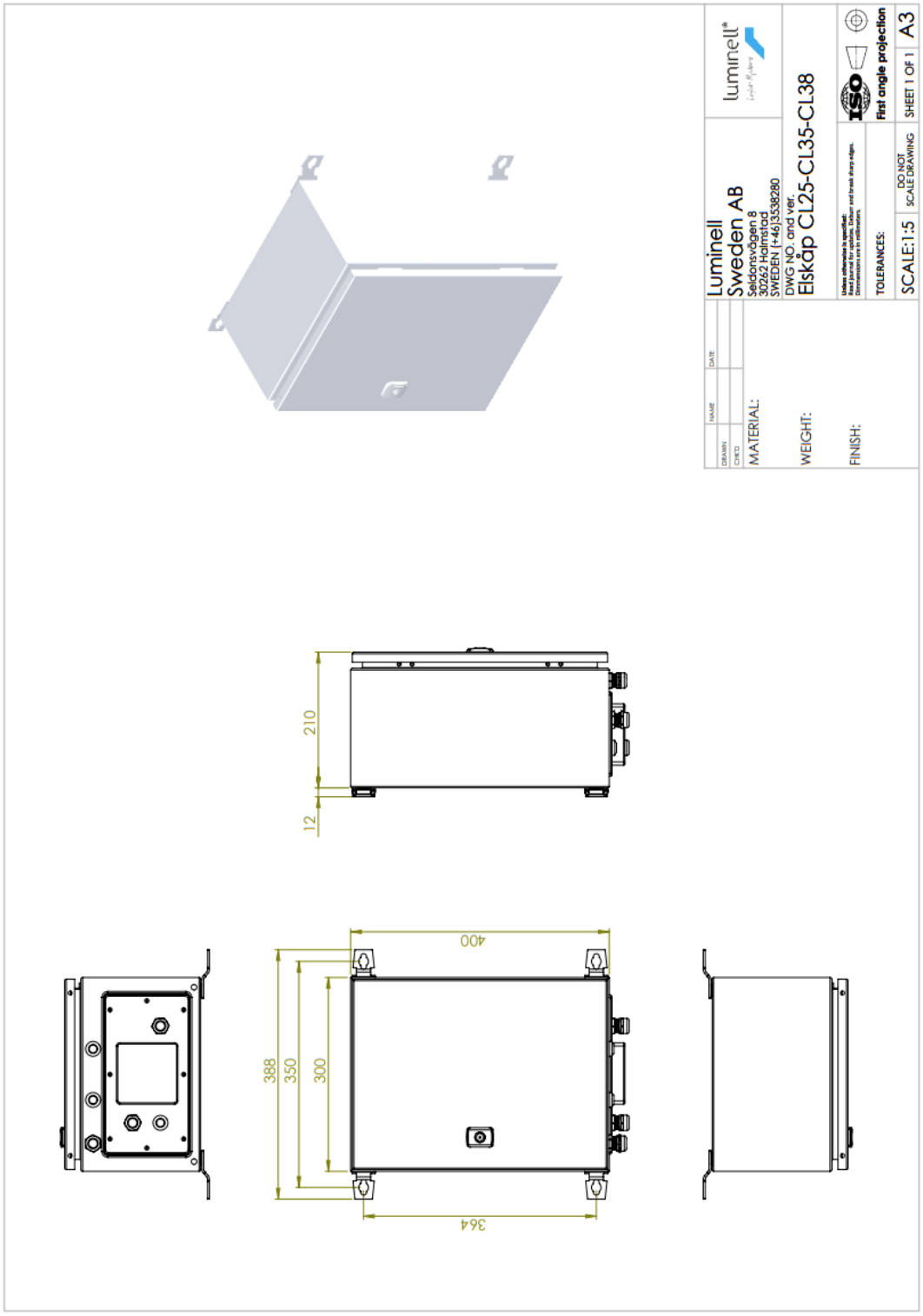
*** see drawing CL25 for detailed info**

17.2 Mechanical drawings

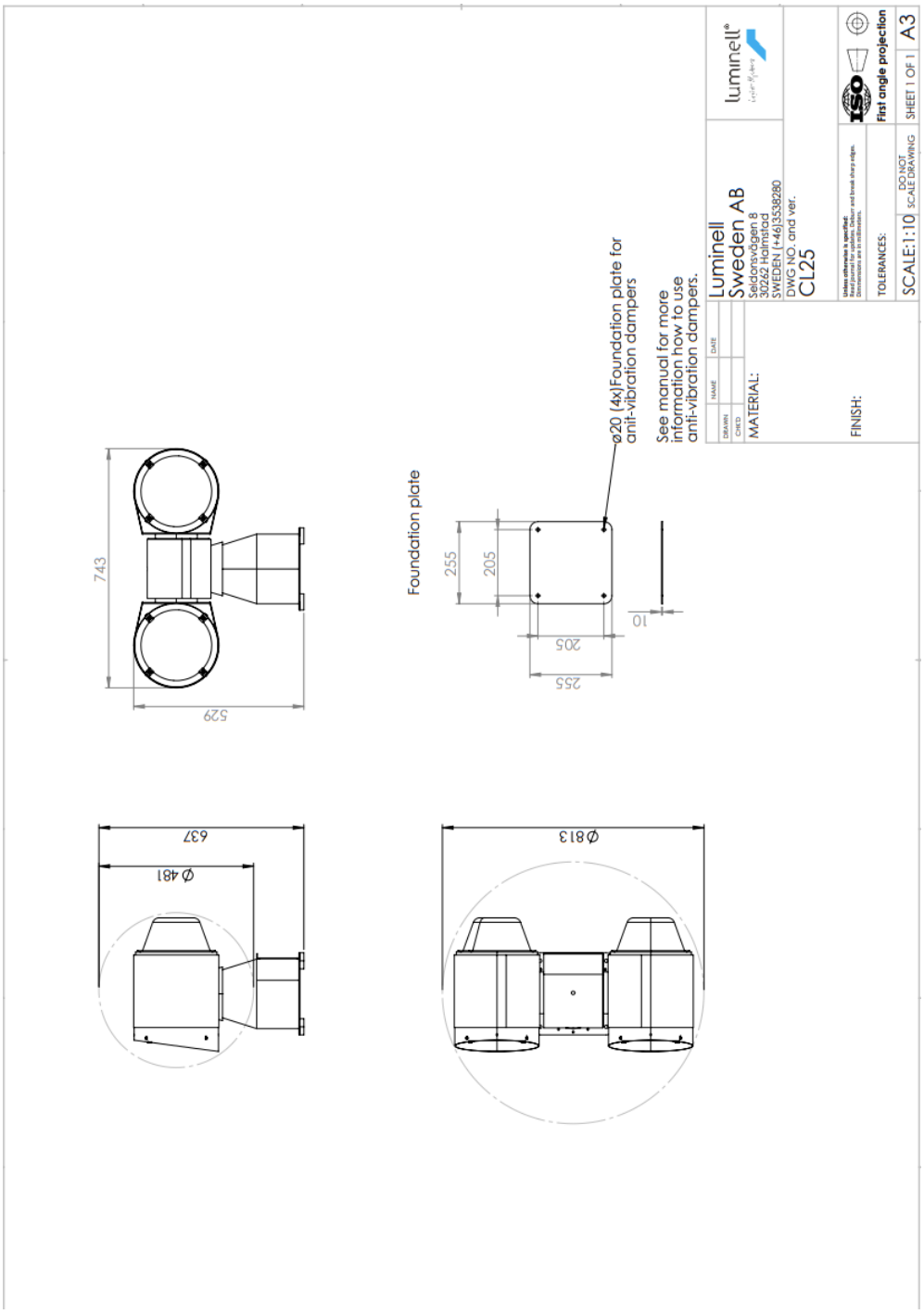
17.2.1 Operator Panel



Electrical box



17.2.2 Searchlight CL25



The searchlights cable glands are rated IP68 but for extra protection during heavy weather situations it's still recommendable to install the searchlight so the cable exits are facing the stern.

18. TECHNICAL DATA CL35/38

18.1 Specifications CL35

MODEL RANGE

TYPE	MODEL		SOURCE	RANGE
Dual White	CL35-11	○○	HMI/HMI	5300 m
Combination White/UV	CL35-12 (CL35-21)	○● (●○)	HMI/UV	3500 m/1200 m
Dual UV	CL35-22	●●	UV/UV	1700 m
Daytime camera module	Suffix -1 on above		Optional	Optional
IR-camera module	Suffix -2 on above		Optional	Optional

PERFORMANCE

LIGHT	
Technology	Metal Halide
Light source	2 x 575W HMI
Color Temp (white light)	6000 K
CRI (white light)	> 90 Ra
Luminus flux (CL35-11)	98 000 lm
Light intensity (CL35-11)	28,7 M candela
Range (CL35-11)	5300 m (1 lux)
Beam width	3-20 deg
Firefighting (CL35-11)	250 m (50-230 lux @ 12 m diameter

MECHANICAL	
Technology	Slipring. Brushless digital controlled servo
Horizontal movement	Unlimited movement
Vertical movement	Unlimited movement
Speed both axis	Stepless 0-20 deg/sec

FUNCTIONS

STANDARD DIRECT CONTROLLED	STANDARD FUNCTIONS	STANDARD PACK 1	OPTIONAL PACK 2	OPTIONAL PACK 3
Light on/off	System activation	Position indicator	Auto sweeping	Synchronized control
Focus (adjustable)	Parking mode		Fixed positions	
Rotation speed, stepless	Language version		Surveillance	
	User settings			
	System information			
	Single lamp mode (11/22)			

OPTIONAL HARDWARE		
Wireless radio control	Absolute focus (not for retrofitting)	
Thermal camera unit (not for retrofitting)	Fiber optic control cable	
Daylight camera unit (not for retrofitting)	Customized color	
Extra remote panel (s)	Wet paint (AWL grip or similar)	
External power supply for panel (s)	Polished stainless	
Ethernet switch, 5 port and 8 port		
Upside-down installation	Customization upon request	

TECHNICAL DATA

Power consumption	1460 W *(max load)* 6,5 A @ 230 VAC *(max load)*
Heat load	19 W / 120 W *(standby/max load)*
Refector size	2 x dia 410 mm
Bulb life	1 000 hours

Ballast	No external ballast
Signal cable	3x2x0,75 shielded, twisted pair
Power cable	5G1,5 shielded
OP3G cable	Ethernet CAT5-FTP *Fiber available for long distance*
Serial cable	RS485/RS232 *Optional. ICD for external control*

	SEARCHLIGHT BODY	EBOX	OPERATOR PANEL
Weight (kg)	80	17	0,5
Static size (cm)	67x113x75 cm *	40x30x21 cm *	13x9x6 cm *
Material	Acid proof stainless steel 1.4401	Coated steel	Anodized aluminum / ABS
Paint	Powder coat white RAL 9016	Powder coat grey RAL 7035	Anodized black
IP-Class	IP66	IP22	IP54
Operating temp range	-40º / +70º Celsius	+5º / +60º Celsius	-20º / +70º Celsius
Input power	Powered from ebox	100-240 VAC 50/60 Hz	9-28 VDC (max 200 mA @ 24V)

*** see drawing CL35 for detailed info**

18.2 Specifications CL38

MODEL RANGE

TYPE	MODEL		SOURCE	RANGE
Dual White	CL38-11	○○	HMI/HMI	6000 m
Daytime camera module	Suffix -1 on above		Optional	Optional
IR-camera module	Suffix -2 on above		Optional	Optional

PERFORMANCE

LIGHT	
Technology	Metal Halide
Light source	2 x 800W HMI
Color Temp (white light)	6000 K
CRI (white light)	> 90 Ra
Luminus flux (CL35-11)	130 000 lm
Light intensity (CL35-11)	38,1 M candela
Range (CL35-11)	6000 m (1 lux)
Beam width	3-20 deg
Firefighting (CL35-11)	250 m (50-230 lux @ 12 m diameter

MECHANICAL	
Technology	Slipring. Brushless digital controlled servo
Horizontal movement	Unlimited movement
Vertical movement	Unlimited movement
Speed both axis	Stepless 0-20 deg/sec

FUNCTIONS

STANDARD DIRECT CONTROLLED	STANDARD FUNCTIONS	STANDARD PACK 1	OPTIONAL PACK 2	OPTIONAL PACK 3
Light on/off	System activation	Position indicator	Auto sweeping	Synchronized control
Focus (adjustable)	Parking mode	Language version	Fixed positions	
Rotation speed, stepless	Language version		Surveillance	
	User settings			
	System information			
	Single lamp mode (11/22)			

OPTIONAL HARDWARE		
Wireless radio control	Absolute focus (not for retrofitting)	
Thermal camera unit (not for retrofitting)	Fiber optic control cable	
Daylight camera unit (not for retrofitting)	Customized color	
Extra remote panel (s)	Wet paint (AWL grip or similar)	
External power supply for panel (s)	Polished stainless	
Ethernet switch, 5 port and 8 port		
Upside-down installation	Customization upon request	

TECHNICAL DATA

Power consumption	2000 W *(max load)* 8,7 A @ 230 VAC *(max load)*
Heat load	19 W / 160 W *(standby/max load)*
Refector size	2 x dia 410 mm
Bulb life	1 000 hours

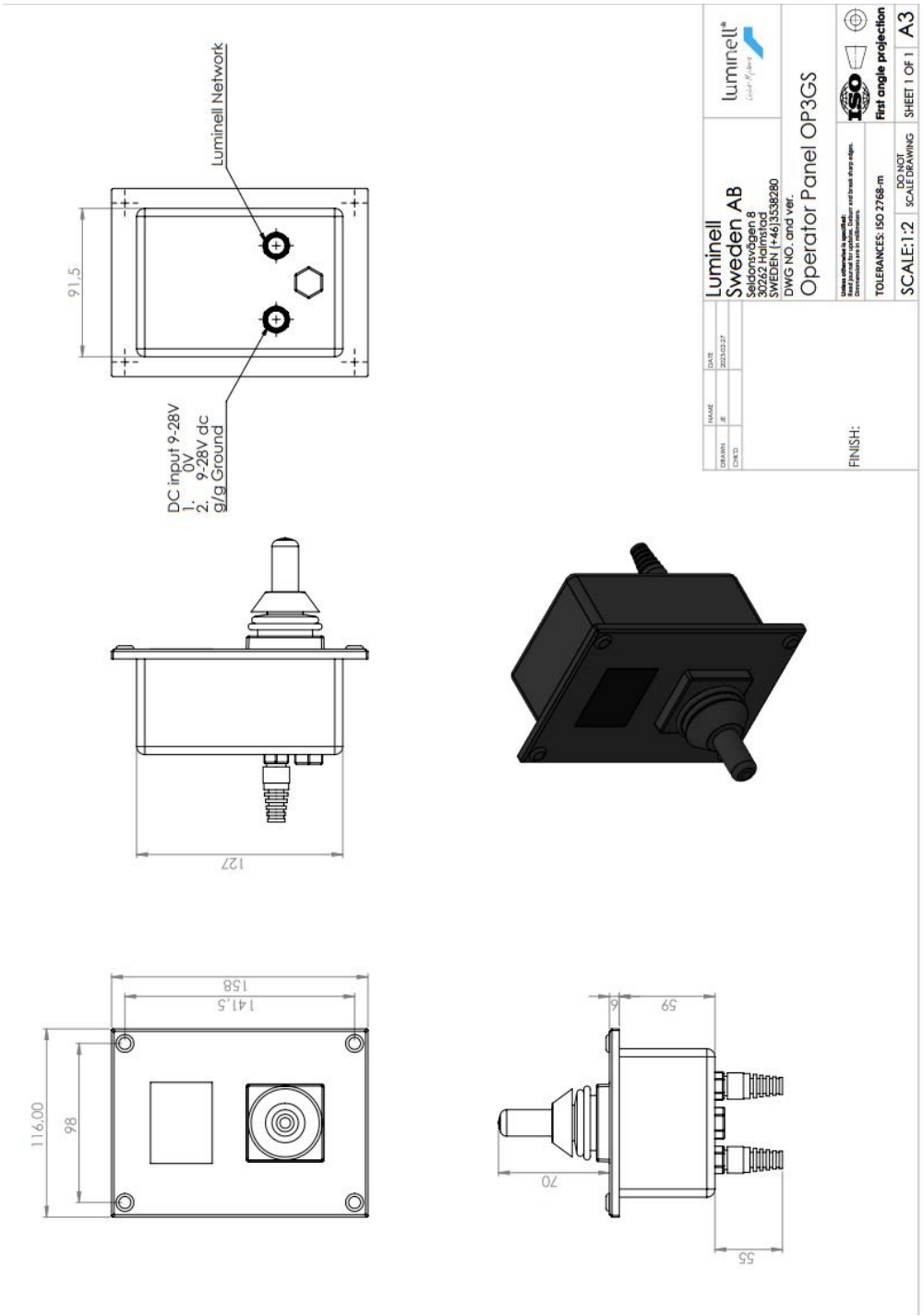
Ballast	No external ballast
Signal cable	3x2x1 shielded, twisted pair
Power cable	5G2,5 shielded
OP3G cable	Ethernet CAT5-FTP *Fiber available for long distance*
Serial cable	RS485/RS232 *Optional. ICD for external control*

	SEARCHLIGHT BODY	EBOX	OPERATOR PANEL
Weight (kg)	80	17	0,5
Static size (cm)	67x113x75 cm *	40x30x21 cm *	13x9x6 cm *
Material	Acid proof stainless steel 1.4401	Coated steel	Anodized aluminum / ABS
Paint	Powder coat white RAL 9016	Powder coat grey RAL 7035	Anodized black
IP-Class	IP66	IP22	IP56
Operating temp range	-40º / +70º Celsius	+5º / +60º Celsius	-20º / +70º Celsius
Input power	Powered from ebox	100-240 VAC 50/60 Hz	9-28 VDC (max 200 mA @ 24V)

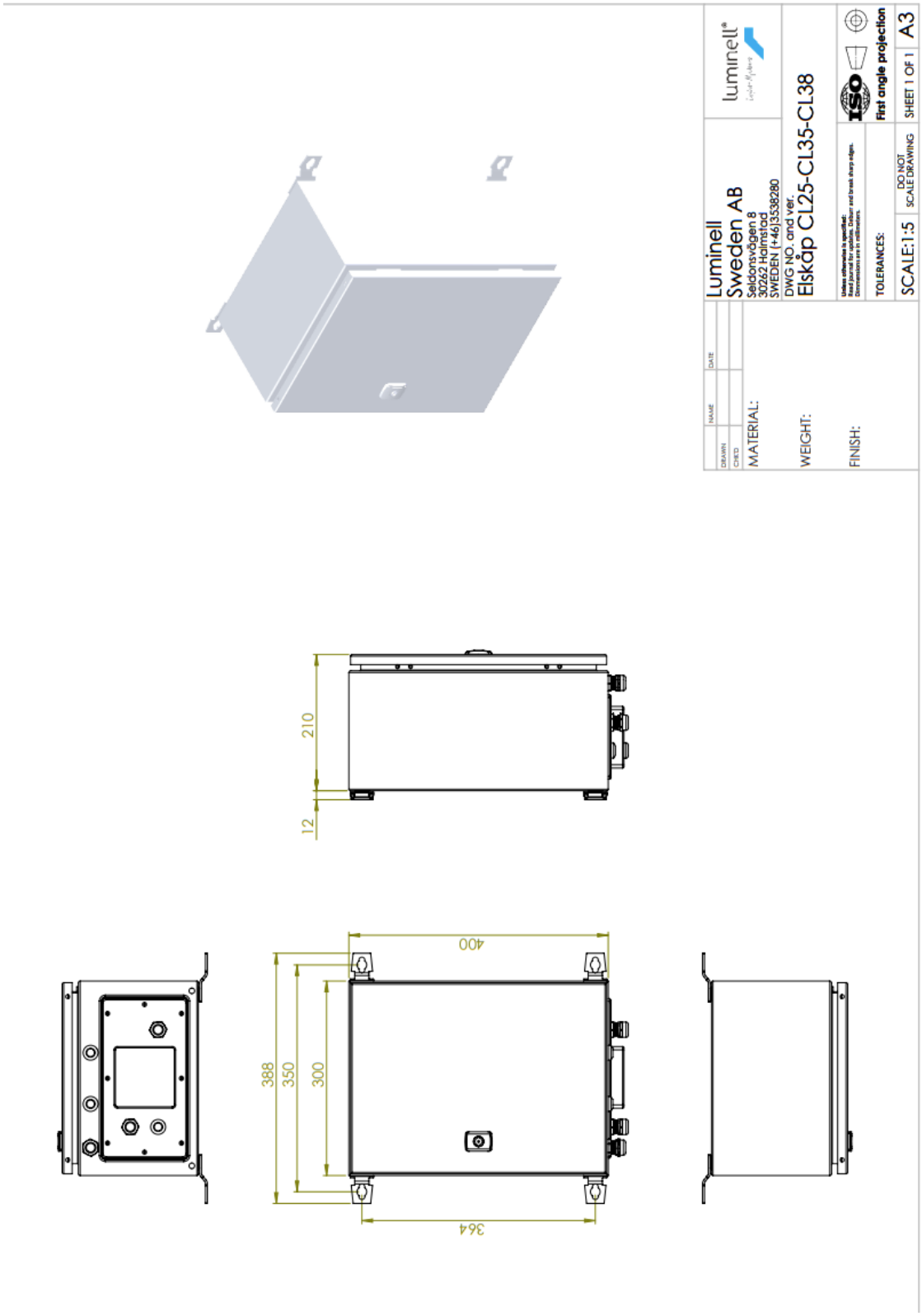
*** see drawing CL35 for detailed info**

18.3 Mechanical drawings

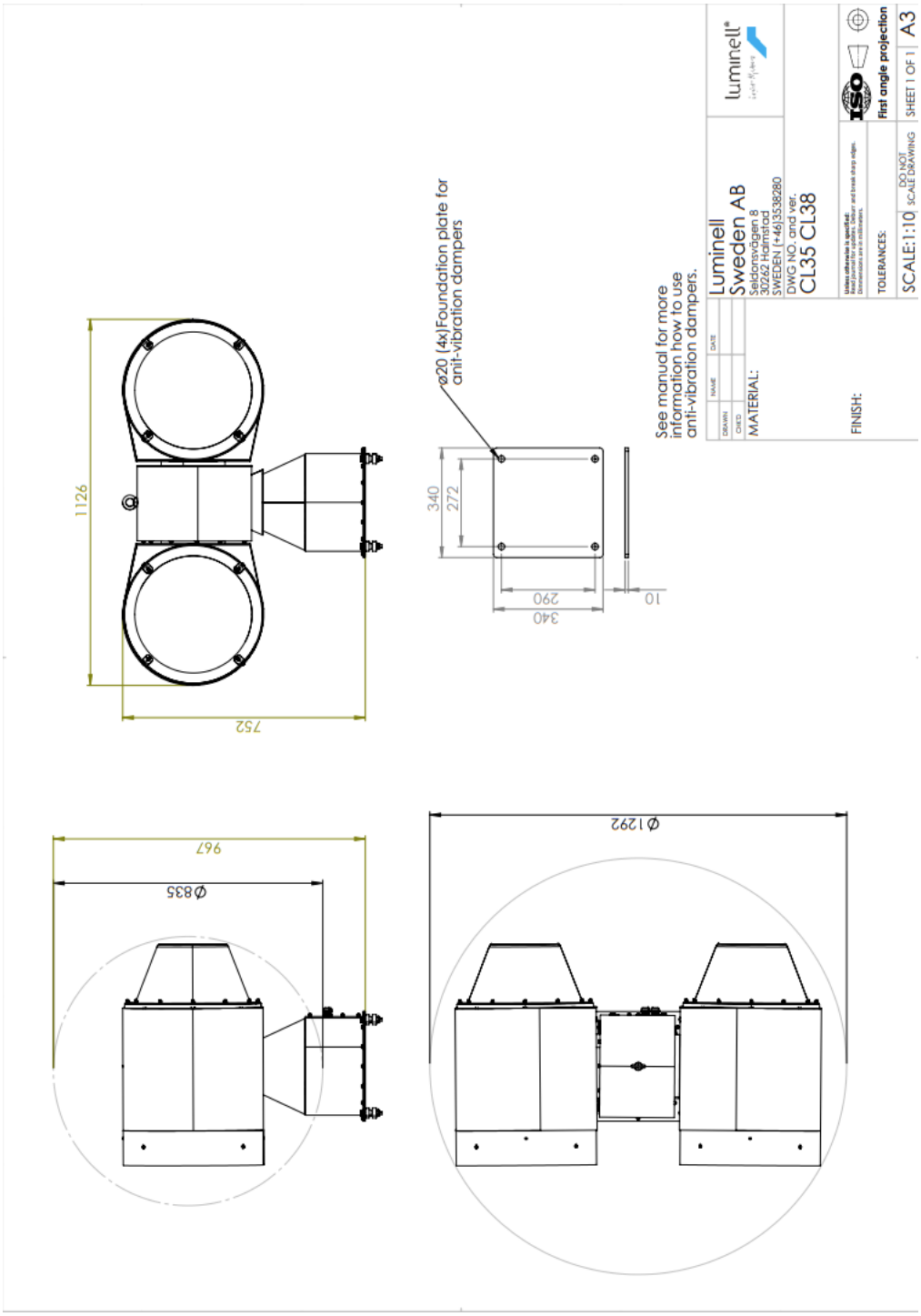
18.3.1 Operator Panel



18.3.2 Electrical box



18.3.3 Searchlight CL35/38



The searchlights cable glands are rated IP68 but for extra protection during heavy weather situations it's still recommendable to install the searchlight so the cable exits are facing the stern.

19. SUPPORT

If you have questions about the searchlight and its features, please contact Luminell technical support worldwide, see www.glamox.com/global-marine/contact/ for contact details.

Or contact Luminell head office:

Luminell Sweden AB
Service & Technical Support
service.sweden@glamox.com
Phone: +46 35 38280

If you want to upgrade your system with additional options as described in User's Manual, section (11.8.6.7), please contact:

Luminell Sweden AB
Phone: +46 35 38280
www.glamox.com
www.glamox.com/global-marine/contact/

Delivery address:

Luminell Sweden AB
Seldonsvägen 8
SE-302 62 Halmstad
Sweden

Notes: