WISKA
make power smile

Operating instructions

Searchlight
SW450/SW450A (2000W)

Changes

Date	Designation	Reason for change
05/2005	Operating Instructions SW450 Edition 1	Adaptation circuit diagram
07/2023	Operating Instructions SW450 Edition 2	Revision

List of abbreviations

DIN	Deutsches Institut für Normung (German Institute for standardization)
DIN EN ISO 12100	Safety of Machinery standard
EN	European Standard
FL	Remote steering
IP 23	Protection against penetration of foreign bodies > 12mm Protection against light water spray
IP 56	Protection against dust deposits, protection against contact, protection against dust deposits inside Protection against strong jet water, protection against strong jet water from any angle.
ISO	International Organization for Standardization (International Organisation for Standardisation)
RCU	Remote Control Unit (Remote Control)
Pan (H)	Turn horizontal
Tilt (V)	Turn vertical
cd	Candela, unit of measurement for light intensity in one direction
Lumen	Unit of measurement of luminous intensity in all directions
Lux	Unit for the illuminance on a surface Corridors and traffic routes: 100 lx, office: 500 lx, general workplace precision mechanics or similar > 1,000 lx

Table of contents

1 About these operating instructions

1.1 Structure and purpose of these operating instructions

Operating instructions are important when assembling, maintaining and operating. These must be observed to avoid hazards, reduce repair costs and downtime, and increase reliability and lifespan.

Read the instructions thoroughly! WISKA Hoppmann GmbH is not responsible for damage or malfunctions due to non-compliance with the operating instructions.

1.2 Users and target groups

These operating instructions apply to operators, technical personnel and operating personnel. If a chapter is designed for a specific target group, it is mentioned in the introduction.

Every person who operates and maintains the product must have read and understood the contents of these operating instructions and must follow all safety instructions and handling instructions to handle the product safely. Provide appropriate product training and instructions to each user.

You may not work on the product without these instructions.

1.3 Safety instructions

1.3.1 Standard safety instructions

WISKA safety instructions are based on the SAFE principle and derived from residual hazards in the risk assessment:

- Keyword
  The keyword reflects the gravity of the hazard (danger, warning, caution, note).
- Type and source of the hazard
  The type and source of the hazard derive from the standard DIN EN ISO 12100.
- Consequences
  Shows the possible consequences of non-compliance.
- Escaping from or avoiding the situation
  That lists how to avoid or evade the hazard.

Keyword
Nature and source of the hazard The consequences arising from this hazard Escape and avoid the hazard.

1.3.2 Structure of safety instructions

The chapter describes the setup and use of the safety instructions. Before describing a potentially dangerous situation, a warning indicates the situation to be avoided.

DANGER

Danger refers to a hazardous situation that can result in imminent death or severe injury if not avoided.

WARNING

Warning refers to a hazardous situation that may result in death or severe injury if not avoided.

CAUTION

Caution refers to a hazard with a low level of risk that, if not avoided, could result in minor or reversible injury to persons.

ATTENTION

Caution indicates the possibility of material damage to the product and its function.

1.3.3 Embedded safety instructions

Additional embedded safety notes are used for procedural activities and avoid interrupting the reading flow of descriptive activities to a higher degree. These look as follows:

1. ...take ...
2. ...remove...

   ⚠CAUTION

   Burns due to hot surfaces.

   Searchlights in operation heat up and can cause burns.

   Make sure that the searchlight has cooled down before starting work.

   Wear appropriate personal protective equipment.
3. ...take out…
4. ...detach...

✓ The assembly is ready for exchange.

1.4 Label and symbols

Symbol	Meaning	Usage
	Hazard symbols Warns of imminent danger.	Safety and warning notice
	Hazard symbols Warns of an electrical hazard.	Safety and warning notice
	Hazard symbols Warns of suspended loads when working overhead.	Safety and warning notice
	Commandment sign Disconnect the system from the power supply before working on it.	Safety and warning notice
	Commandment sign Observe the operating instructions.	Safety and warning notice
	Commandment sign Ground before work and use	Safety and warning notice
	Information Installation only by a qualified electrician.	Safety and warning notice

1.5 Personal protective equipment

Symbol	Meaning
	Safety helmet Always wear it in the work areas with suspended loads.
	Work clothes Wear at all times to protect the body from external influences.
	Safety gloves Wear at all times to protect the hands from external influences.
	Safety shoes Always wear in the work area.

2 For your safety

2.1 General safety instructions

Always follow these safety precautions:

Read these instructions for use fully before using, maintaining or repairing the product. Failure to do so may place people and the product at risk.

Observe all safety instructions in the operating manual.

Observe national and local regulations when working on the product and installing it.

Only qualified electricians may perform service or repair work.

Before starting work, disconnect the electrical system from the power supply and secure it so it will not turn on again.

Disconnect the system from the power supply when working with the pan and tilt device. Take the remote control unit off as well.

The mounting position must always be secure and accessible.

Ensure the lights are handled and installed per their operating instructions.

Make sure that the lamp matches the searchlight.

Do not tamper with unauthorized products; the resulting hazards are not predictable.

Unauthorised modifications cancel the operating license and product warranty.

Always use genuine spare parts bought from WISKA.

The use of unapproved spare parts cancels the warranty.

Turn off the appliance if smoke, intense heating, or noises occur.

Never touch during thunderstorms.

If temperatures are low or icy, use gloves only.

The product may heat up while operating. Only touch the searchlight with proper personal protective equipment.

Never look straight into the light source. You may have damage to your eyes.

Never direct a searchlight on an individual. It may be severely dazzled, and it can cause eye injuries.

Make sure nobody is in the swivel and tilt area while the searchlight is controlled using the optional remote control.

2.2 Specific safety instructions

WARNING

Halogen lamps emit harmful UV rays into the eyes.

- Never look straight into a light source.

WARNING

Hazard of burns.

- Do not touch the searchlight while in operation. The housing can reach as high as 150 °C.
- Always allow the searchlight to cool before servicing or repairs.

WARNING

Danger of glare

- Never look straight into the light source. This puts your eyes at risk.
- Switch off the device before any activity.
- For testing, point the searchlight towards the water or open terrain.

CAUTION

Crush hazard, break hazard.

Limbs may get caught between the searchlight and the base and cause serious injury.

- Ensure that there are no people in the immediate vicinity of the searchlight before turning or rotating it.

2.3 Intended use

The WISKA searchlights are designed to illuminate large and/or distant objects by hand or automatically. The crew can detect obstacles or danger areas or look for objects or people floating in the water. The searchlight supports mooring maneuvers and night navigation.

The searchlights are primarily designed for seagoing vessels and safety applications in coastal areas.

The searchlight range (1 lux on target) depends on external factors. The field is between 710 and 1140 meters.

2.4 Foreseeable misuse

Use the searchlight only for the activities specified in the intended use. Any other activities are not permitted.

It is prohibited to illuminate or dazzle persons with it. The brightness is so high that people may get hurt. It is not permitted to dazzle vessel traffic or traffic in the vicinity of the shore or to give false signals.

The searchlight is not suitable for illuminating rooms on a ship or in buildings.

2.5 Qualification of users/expertise

Knowledge of a qualified electrician is required to assemble, put into service and repair. Technical personnel shall be trained to connect mechanical and electrical connections and test the function securely. Ensure appropriate equipment for carrying and handling. Professional knowledge as a specialist in waste management and personal protective equipment is needed for dismantling and recycling.

2.6 Danger areas and danger points

Danger areas or danger points are, among others:

- The lamp may break or split unless properly replaced.
- Halogen light also gives off harmful UV rays to the eyes.
- Surface temperatures during and after use can be as high as 180°C.
- The swivel range of the pan/tilt device must be free of obstacles.
- When running by RCU, the swivel range is not visible.

3 Technical description

3.1 Function and design

Mock thrower

The searchlight is designed to light the shipping route manually or remotely. The SW450 provides a 2000W light source. A searchlight shall give as much light as possible on a long-range target. The achievable distance depends on several external factors. The light is reflected and must return to the viewer. The resulting interference effects, such as proximity lighting, restrict the possible range. The range depends on the position of the lamp in relation to the searchlight mirror and the lamp's power. Focusing adjustment with a narrow light beam or via the remote control with suitably selected lateral distance reduces the field of view interference. A lack of contrast reduces the range additionally.

The luminous intensity I in Candela cd indicates the performance of a searchlight. Fog or precipitation can reduce performance.

Housing

The searchlight housing is made of stainless steel in octagon form and provides the necessary accessibility options. The tilt angle may reach +/-45° when mounted on one column and +/-30° on the deck. A handle on the back of the searchlight serves for manual alignment.

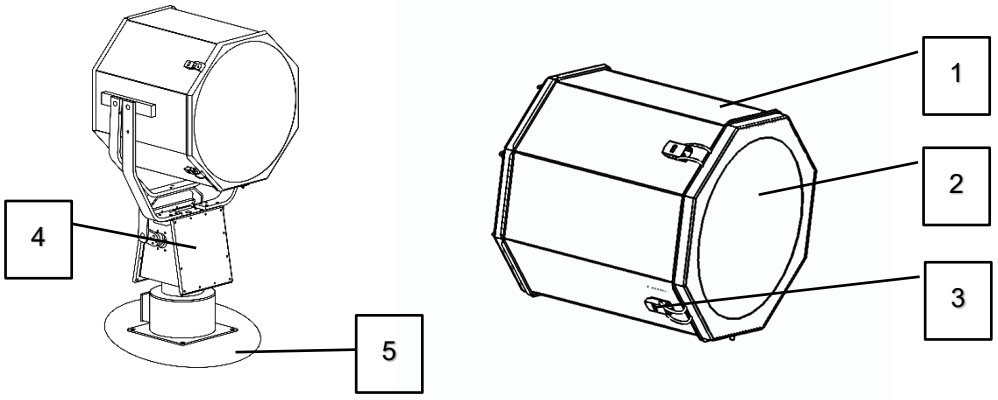
The front frame is secured to the housing via quick-release fasteners. The integrated front window includes an extra tempered safety glass. It guards the lamp.

The lamp mirror is either a silver-glass parabolic mirror (SW450) or an aluminum mirror (SW450A). The lamp is a halogen lamp.

The mounting pedestal is available in various versions:

- Deck assembly,
- Column mounting,
- Deck mounting with with steering linkage inside operation,
- Column mounting with with steering linkage inside operation,
- Electric pan-tilt unit.

3.2 Product overview



SW 450 on the pan-tilt unit

Searchlight head (mounting device required)

Figure 1 Product overview

Pos.	Designation	Pos.	Designation
1	Searchlight housing	**2**	Front glass pane
3	Quick-release fasteners	**4**	FL52 pan/tilt unit (optional)
5	Mounting plate		or other mounting device

3.3 Mounting devices

3.3.1 Deck mounting device (optional)

The deck mounting device provides a fixed connection between the vessel and the searchlight. It is mounted on a rotational mounting plate. The rotation and inclination are adjusted using a manual lever.

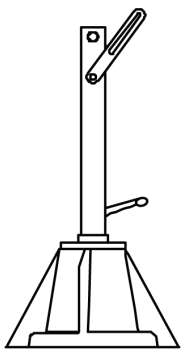


Figure 2 Deck mounting device

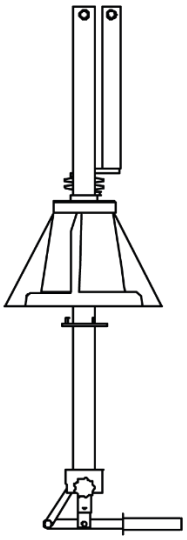


Figure 3 with steering linkage inside operation

The basic design of the deck mounting device with its inside operation is like that of the regular deck mounting device. Rotation and inclination are controlled from the cabin using a steering linkage.

3.3.2 Column mounting device (optional)

The column mounting device is different from the regular deck mounting device only in height. Rotation and inclination function the same way.

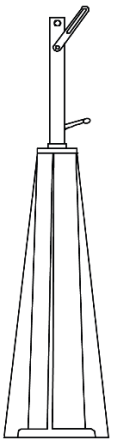


Figure 4 Column mounting device

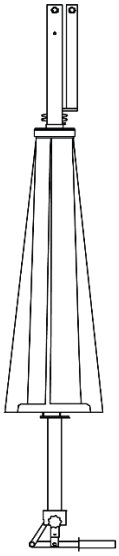


Figure 5 with steering linkage inside operation

The basic structure of the deck mounting device with internal operation is similar. Rotation and inclination are controlled from the cabin using a steering linkage.

3.3.3 Electric pan/tilt unit FL52 (optional)

The electric pan/tilt unit is controlled remotely. Electrically controlled actuators ensure rotation and tilt. Depending on the version, a preset or pan degree is selectable.

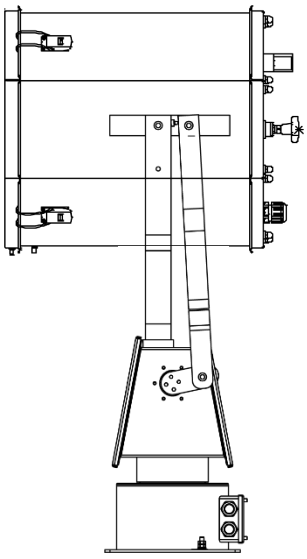


Figure 6 Electric pan/tilt unit FL52

3.4 Power supply

3.4.1 Junction Box (optional)

The searchlight is usually equipped with a 3m cable. A junction box extends the possible distance between the searchlight and the ballast.

The junction box is connected between the ballast and the searchlight.

[Front view] [Side view]

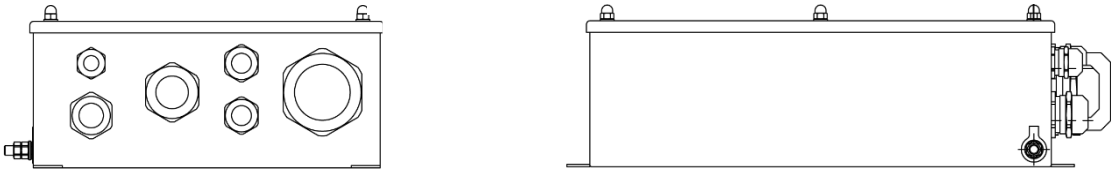


Figure 7 Junction Box

3.5 Remote control/ operating device (optional)

One of the preconditions for a remote-control operation is a searchlight mounted on an electric pan/tilt unit. The RCU's installation site is usually located on the bridge to direct the searchlight to the desired target as quickly as possible. A remote control with selector switch is optional for controlling multiple searchlights.

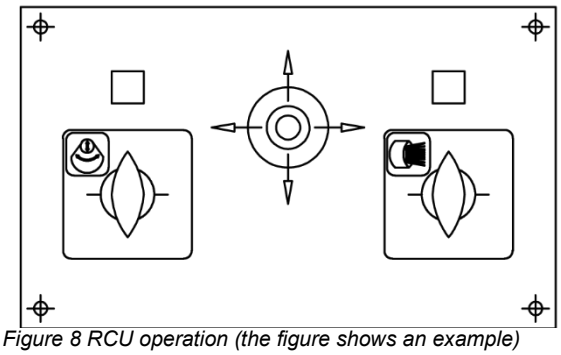


Figure 8 RCU operation (the figure shows an example)

The standard RCUs are designed as follows:

- Power on/off switch for Pan/Tilt unit,
- Power on/off switch for the searchlight,
- Optional selector switch for controlling multiple searchlights,
- Joystick for control and alignment,
- Optional push-button for focusing unit.

4 Transport, unpacking

WARNING

Risk of injury from suspended loads.

If the product or its parts detach, serious injuries are likely to occur.

- ➔ Always wear your personal protective equipment.
- ➔ Do not go into the swivel area or under the product.
- ➔ Carefully secure the load before unpacking and assembly.

4.1 Transport/ Lift/ Move

The product comes on one or several palettes, depending on the composition. It is weather resistant and stable packed.

Check the transport packaging for damage. In case of damage, contact our customer service.

If required, store it temporarily in the original packing material. The searchlight must not tip over.

Transport the product to the installation location by an appropriate means of transport suitable for its weight.

4.2 Unpacking

1. Loosen lashing straps on the packaging and remove packaging materials.
2. Remove product and documents.
3. Dispose of packing materials.

✓ The product is unpacked.

5 Mounting

CAUTION

Danger caused by high product weight (up to 65 kg)

➔ Another person is needed to mount the searchlight.

5.1 Mounting

NOTE

High weight
Before starting the installation, determine the appropriate torques for the stand.

The scope of delivery is dependent upon the selected options.

5.1.1 Mounting the pan/ tilt unit

If the searchlight has been ordered with the pan/tilt unit, it is delivered pre-assembled on the FL52 drive.

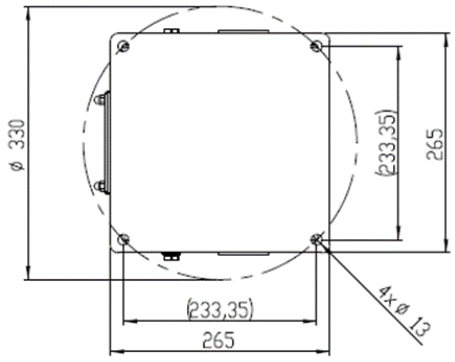


Figure 9 Mounting holes FL52

Pan/Tilt Unit Setup:

1. If there are no fastening points: Mark a circle with a diameter of 330mm.
2. If there are no fastening points: Pre-drill four holes in the circle.
3. Move the pan/tilt-unit into the desired position.

   CAUTION

   Tipping hazard.

   The searchlight head is not centered on the pan/tilt drive.

   Never place at an angle.
4. Fasten the screws (M8/ M6).

✓ The searchlight is mounted.

5.1.2 Mounting the searchlight on a column or foot

Alternatively, the searchlight can be mounted on a column or foot.

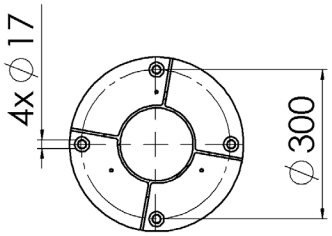


Figure 10 Mounting holes column/foot

Mount searchlight

If there are no fastening points: Mark a circle with a diameter of 300 mm.

If there are no fastening points: Pre-drill four holes in the circle.

Place the foot/ column with its holes on the drilled holes.

Fasten the screws (M16).

If necessary, screw the searchlight head onto the base/column

✓ The searchlight is mounted.

5.1.3 Mounting on a column or base with internal steering linkage

The stand or column configuration is also available with internal mechanical actuation. The mechanical steering link runs in an inner tube of the column and must therefore be installed downwards. There must be sufficient space downwards to permit use.

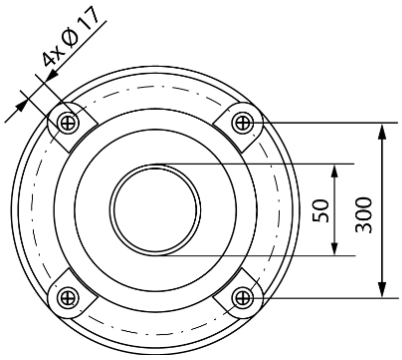


Figure 11 Mounting holes foot/ column with steering linkage for interior operation

Mount searchlight

If there are no fastening points: Mark a circle with a diameter of 300mm.

If there are no fastening points: Pre-drill four holes in the circle.

If there is no hole: Drill a hole with a 50mm diameter in the center

Place the foot/column with the holes on the drilled holes.

Fasten the screws (M16).

If necessary, screw the searchlight head onto the base/column

✓ The searchlight is mounted.

5.1.4 Mounting the RCU remote control unit

A remote-control unit is necessary if the searchlight is equipped with a pan/ tilt unit.

The remote-control is available in the form of either a built-in RCU-E unit or a wall mount unit RCU-A. Electrically and functionally, they are the same. The size varies with the range of functions.

NOTE

Cable lengths, cable cross-sections
Ensure the wires are of sufficient size (cross-section) for the cable length. Minimal 8x1,5 mm² for a standard RCU-E or 9x1.5 mm² for an RCU-E with focus. Maximal 200 m between RCU-E and PSUX a 1,5 mm² wire cross-section.

When installing remote controls, all four holes must be drilled and, if necessary, installation openings must be made. The size of the remote-control units varies with the searchlight's equipment. The dimensions of the holes are shown on the enclosed dimension sheet.

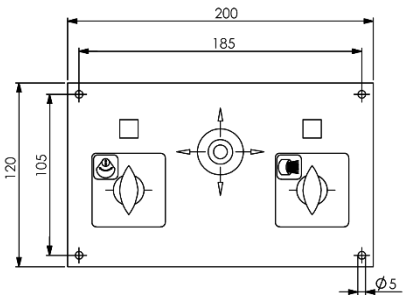


Figure 12 RCU-E (Standard)

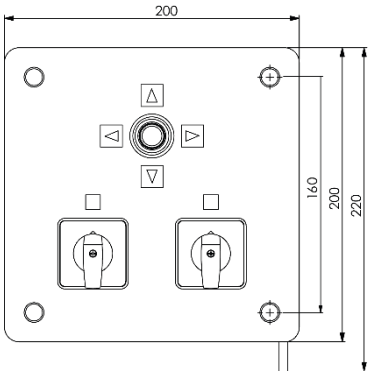


Figure 13 RCU-A (standard)

([Unit: mm] Dimensions are approximate)

Mounting

Mark and pre-drill four holes according to the dimensional sheet.

RCU-E only: Saw a cutout according to the dimensional sheet for recessing.

Position the remote control on the holes.

Fasten the screws (RCU-E: M5, RCU-KL: M3)

✓ The remote-control unit is ready for wiring.

5.2 Electrical connections

DANGER

Danger to life from electricity.
Short circuits and body short circuits may occur when working on open circuits.

- ➔ Work on electrical components only by a qualified electrician.
- ➔ Make sure the equipment is disconnected from the electrical connection.
- ➔ Secure the power supply against being switched on again.
- ➔ Cover open parts of external installations.
- ➔ If necessary, short-circuit the plant components.
- ➔ Test whether the system is de-energized.

5.2.1 Electrical connection values of the drive

Supply voltage: 230 VAC, 50/60 Hz.

Device fuses: Check the specific unit's electrical diagram for values.
Two replacement fuses included.

If applicable: The connections between the remote-control unit and the pan and tilt unit are shown in the enclosed wiring diagram or in chapter 12.5 Electrical connection diagram.

5.2.2 Notes on mains connection

- ➔ Compliance with applicable national and international regulations is required.
- ➔ The main switch and fuse must be disconnected while working.
- ➔ The connection must be correct and unambiguous.
- ➔ Proper zeroing/grounding must be verified (individual components must be connected to a common grounding point).

NOTE

A switch is required between the ballast and the searchlight to operate manually. The switch shall be placed close to the searchlight or ballast.

The switch can be up to 200 metres from the PSUX if a 1.5mm² wire section. The switch is connected to the PSUX terminal block (refer to chapter 12.5 Electrical connection diagram).

Recommended switch characteristics:

1-pole, 250VA, 50W switching capacity, IP-rating according to the installation location.

5.2.3 Connecting

The searchlight and, if present, the FL52 and the RCU must be connected to mains. The searchlight comes with a ready-made cable.

Required tools:

Wire stripper, Phillips screwdriver, slotted screwdriver, hexagonal wrench.

5.2.3.1 Connect the searchlight

1. Shut down the main switch and fuse.
2. Connect the searchlights: Strip the cable ends then strip the wire insulation 5-8mm.

   5-wire 5x4 mm² or 5x10 mm² (power supply) and 3-wire 1.5 mm² or
   5-wire 5x1.5 mm² (function).
3. If a remote-control unit is available, continue with chapter 5.2.3.2 (Connect FL52 Optional: Connect) and after this 5.2.3.3 Connect RCU-E remote control.
4. For manual operating:

   An on/off switch must be installed in the electrical line to the searchlight. The switch is installed instead of an RCU. A 2-wire cable is needed for the switch, (details see chapter 12.5 electrical connection diagram)

   Install the switch.
5. Connect cable(s) (details see chapter 12.5 electrical connection diagram)

✓ The searchlight is connected.

5.2.3.2 Optional: Connect FL52 pan/tilt unit

See separate FL52 instructions for connecting the FL52 to the ballast unit.

5.2.3.3 Optional: Connect RCU-E remote control unit

The RCU remote control unit is connected according to chapter 12.5 electrical connection diagram.

1. Prepare and lay the cable according to the wiring diagram.
2. Strip the cable ends. Strip 5 to 8 mm of insulation from the cores.
3. Connect cable.

✓ The remote-control unit is connected.

6 Commissioning

WARNING

Danger of glare

The searchlight is extremely bright

- Turn off the device before all operations.
- Never look into the spring of light. It threatens your eyesight.
- Make sure that no one is in front of the searchlight when it is lit and during operation.
- For tests, point the searchlight towards the water or open terrain.

WARNING

Danger of burns

- Never touch the searchlight while in operation. The housing can reach a temperature of up to 150 °C.
- Always allow the searchlight to cool down before maintaining or repairs.
- To align the searchlight, touch only the handle.

6.1 Before commissioning

Verify proper installation and connection.

Verify that ground and residual current are operating properly.

(Re)insert fuses or switch on.

6.2 General commissioning

1. Set the PSUX ballast main switch S1 to the ON position. The system is now on stand-by mode. Important: Supplies power to the searchlight's internal heating system.

a) Either: Switch on at the RCU.

2. Switch on the searchlights at switch S1.1 on the RCU.
3. Switch on the pan-tilt unit at switch S1.2 on the RCU.
4. Pan with the joystick.
5. Tilt with the joystick.
6. Switch off the pan-tilt unit at switch S1.2.
7. Switch off the searchlights at switch S1.1.

b) Or: Switch on mechanically.

1. Switch on the searchlight with the on/off switch S. That ignites the light source.

The on-off switch S is a separate switch located in the power line to the searchlight.

2. Rotate the searchlights to the left and right.
3. Tilt the searchlight upwards and downwards.
4. Switch off the searchlight with the on/off switch.

✓ The searchlight is ready for operation.

7 Operation

WARNING

Danger of glare

- Never look into the spring of light. It threatens your eyesight.
- Never point searchlights at people.
- Switch off the device before each check, maintenance, repair.
- For tests, point the searchlight towards the water or open terrain.

WARNING

Risk of burns

The housing can reach temperatures of up to 150 °C.

- Never touch the searchlight while in operation.
- Always allow the searchlight to cool down before maintaining or repairs.
- To align the searchlight, touch only the handle.
- In case of burns, cool immediately. Get medical help if necessary.

7.1 Operating the searchlight (with FL52 pan/tilt unit)

CAUTION Danger of glare

Before lighting the lamp, check that no one is in front of the lamp.

1. Turn on the S1.1 switch on the RCU remote control unit. This lights the lamp.

   NOTES

   If the lamp does not turn on or blinks several times, either the ignition voltage of the lamp is insufficient or the lamp is faulty.

   See chapter 8 Troubleshooting.

2. Switch on the FL52 pan/tilt unit using switch S1.2 on the RCU. The drive unit is now ready to use.
3. Control the searchlight using the joystick on the RCU.
4. Switch off the searchlight and the pan/tilt unit with the switches S1.1 and S1.2 on the RCU.

✓ The searchlight is in standby mode and ready for next use.

7.2 Manual operation

WARNING

Danger of freezing

The housing may freeze in icy conditions and rough seas.

- Only touch while wearing gloves.

CAUTION

Danger of glare

Before lighting the lamp, check that no one is in front of the lamp.

1. Switch on the switch S in the power line. This lights the lamp.

   NOTE

   S is a separate switch installed in the power line of the searchlight.
2. Use gloves while it freezes.
3. Operate the searchlight using the handles.
4. Turn the searchlight in the required direction.

7.3 Switching off the searchlight

1. Switch off the searchlights with switch S in the power line.

✓ The searchlight is off.

The following section describes the operation of the FL52 pan/tilt unit and its RCU remote control unit.

7.4 Use of RCU-E or RCU-E-F remote control unit (with remote focus)

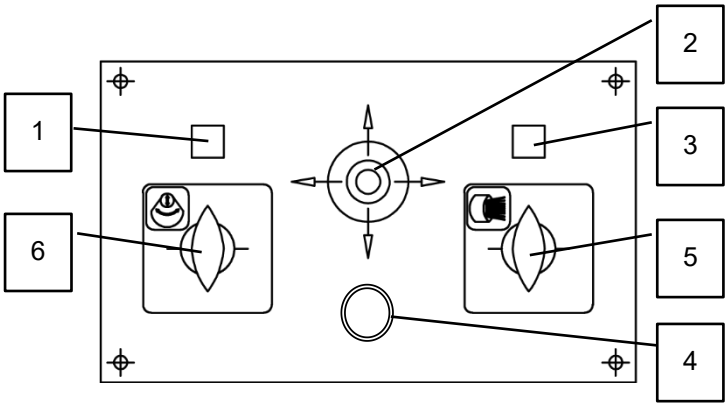


Figure 14 RCU-F with push-button for remote focus

Pos.	Designation	Pos.	Designation
1	Drive unit indicator light	**2**	Joystick for the drive unit
3	Searchlight indicator lamp	**4**	Push-button for remote focus (option)
5	Switch S1.1 Searchlight on/off switch	**6**	Switch S1.2 ON/OFF switch for the drive unit

7.5 Remote focus (option)

The searchlight optionally incorporates an external remote focusing device. It is a handwheel at the rear of the searchlight that focuses and deflects the lamp against the mirror.

1. Set the focus by turning the handwheel.

8 Troubleshooting

If malfunctions occur with the product, the necessary measures can be determined here to provide the operator with remedial measures within the scope of his possibilities.

Error	Cause	Remedy
No light	Fuse fallen	Have the circuit checked by a qualified electrician. Only then replace/ switch on the fuse.
	Switch is off	Check switch S1.1 (RCU) or the power line switch S.
	Lamp defective	Replace halogen lamp
	Switch defective	Have switches checked by a qualified electrician.
RCU cannot be switched on.	Supply voltage is not present	Establish power supply via the main switch.
		Check the power supply.
	Wiring defective	Make sure no live wires are defective.
	On/Off switch defective	Check on/off switch, replace the switch if necessary.
After switching on, the voltage collapses.	Consumer causes short circuits	Check consumer.
Voltage collapses after switching the drive on.	RCU or FL52 defective	Disconnect connection between RCU and FL52. If the voltage collapses when switching on again, check the RCU. If the voltage does not break down, check FL52.

Error	Cause	Remedy
Vertical turning of the searchlight is impossible.	Joystick defective	Check joystick and replace if necessary.
	Circuit board defective (FL52)	Visual inspection of the board. Replace the board if any traces of smoke are detected*.
	Internal control line defective (FL52)	Through measurement of the cables, in case of measured cable break (no continuity), replace the cable*.
	Tilt drive (Motor Unit Tilt) defective (FL52)	Check tilt drive (Motor Unit Tilt) replace if necessary*.
Horizontal turning of the searchlight is impossible.	Joystick defective (RCU)	Check joystick and replace if necessary.
	Circuit board defective (FL52)	Visual inspection of the board, replace the board if any traces of smoke are detected*.
	Internal control line defective (FL52)	Through measurement of the cables, in case of cable break (no continuity), replace the cable*.
	Pan drive (Motor Unit Pan) defective (FL52)	Check rotary actuator /Motor Unit Pan and replace if necessary*.
Both horizontal and vertical turning are impossible (Motor Unit).	FL52: If both drives do not work, it is unlikely that both drives are defective.	Renew FL52 entirely*.
The motor did not switch off after reaching the end position.	Limit position switch FL52 defective	Check end positions of switch, replace if necessary*.

* see separate instructions FL52

9 Maintenance

WARNING

Danger of glare

- Never look into the spring of light. It threatens your eyesight.
- Never point searchlights at people.
- Switch off the device before each check, maintenance, repair.
- For tests, point the searchlight towards the water or open terrain

9.1 Maintenance

Maintenance is a recommendation to maintain functionality throughout the service life.
The details on the intervals for individual maintenance and service points are in chapter 12.6 Service and maintenance plan.

NOTE

After each maintenance, a functional check must be carried out: Check all directions of motion with the joystick or tilt and pan in manual mode.

Before starting maintenance work

1. Switch off switch S1.
2. Wait for the searchlight to cool off.

Maintenance

Visual inspection for damage and heavy soiling on the housing and cable entries.

Visual inspection for damage or rust on foot/column/ pivot/ tilt drive support forks and the mounting bolts.

Visual inspection for damage to the cables, switches, and power plugs.

Visual inspection for damage (cracks, condensation) in lamp head or spots/condensation on mirror. Clean it with a slightly moist and clean microfiber cloth.

Verify that there are no sounds (crackling, buzzing) or hot power lines.

Function test switch S or S1.1 (on the RCU). It functions as a lamp check too.

Tilt and swivel functionality test in manual mode.

Actuate switch S1.2 on the RCU. Perform a functional test of the pan/tilt unit.

Visual inspection of the power supply unit and cable glands.

Function test of switch S1 at the PSUX.

Visual inspection to assess if a change has been made.

✓ The maintenance is finished.

9.2 Cleaning

Before starting the cleaning.

1. Switch OFF switch S1 on the PSUX.
2. Wait for the searchlight to cool off.
3. Clean the housing surfaces with a clean damp cloth. Do not use aggressive cleansers.
4. Clean the front window with a clean cloth dampened with water. Use only water or glass cleanser.

NOTE

There is normally no need to clean the interior of the searchlight.

Check if the closures are tightly closed and for rust/corrosion.

9.3 Repair

DANGER

Danger to life due to electric currents.
Short circuits and body short circuits may occur when working on open circuits.

- ➔ Work on electrical components only by a qualified electrician.
- ➔ Make sure the equipment is disconnected from the electrical connection.
- ➔ Secure the power supply against being switched on again.
- ➔ Cover open parts of foreign equipment.
- ➔ If necessary, short-circuit the plant components.
- ➔ Test whether the system is de-energized.

WARNING

Risk of burns

The housing can reach temperatures of up to 150 °C.

- Never touch the searchlight while in operation.
- Always allow the searchlight to cool down before maintaining or repairs.
- To align the searchlight, touch only the handle.
- In case of burns, cool immediately. Get medical help if necessary.

9.3.1 Handling of halogens lamps.

Halogen lamps become very hot and react sensitively when their surface comes in contact with grease. This is especially true when touching them. Wear gloves or use a cloth when handling the lamp.

Transportation

Always store and carry the halogen lamp in its protective packaging.

Handling of the lamp

1. Never touch the lamp lamp with bare hands. Use a soft, clean, lint-free cloth. Remove any fingerprints before inserting the lamp.
2. Inspect the lamp for scratches, cracks or other damage. Never use defective lamps.

Lifetime

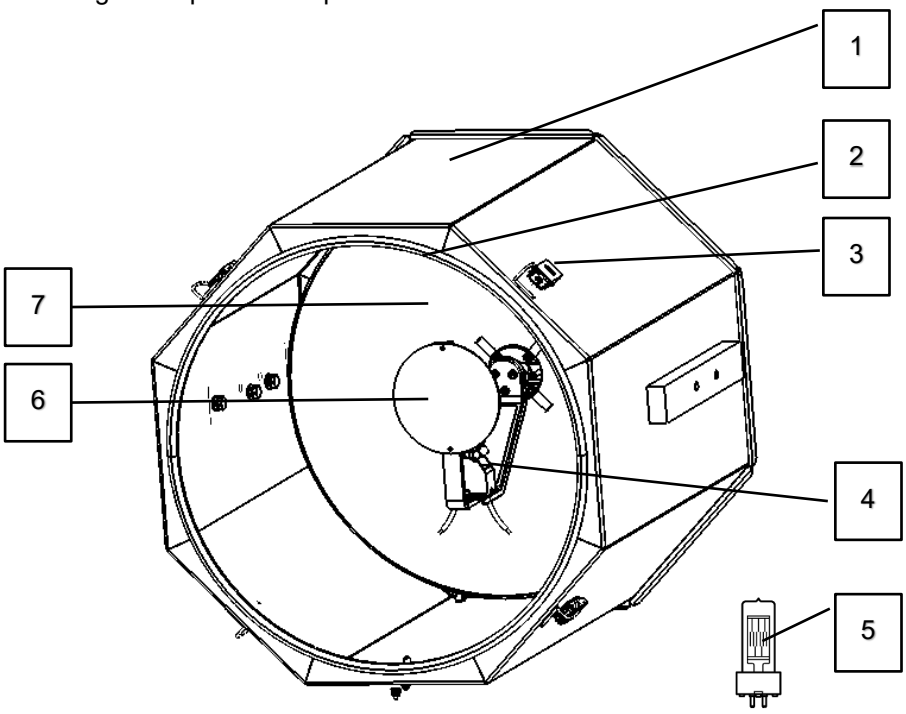
Halogen lamps have a mean lifetime of 75 to 200 hours of operation depending on the type and wattage as specified in the maker’s datasheet. Replace the lamp at the latest after reaching the lifetime.

Disposal

Halogen lamps must cool down before disposal. Return the lamp in accordance with domestic disposal regulations.

9.3.2 Replace the halogen lamp

The halogen lamp can be replaced from the front.



1. Open the four quick release fasteners (3).

Figure 15 Inside view lamp exchange

2. Remove front panel (2) and safely store it
3. Put on your gloves
4. Hint:
5. The lamp (5) is installed in the lamp holder (4) vertically and is partly hidden by the anti-dazzle screen (6). You can see the lamp in the primary reflector (7) and observe removal and installation in this mirror.
6. Pull the defective lamp (5) out of the lamp holder (4).
7. Take the new lamp (5) out of the protective packaging.
8. Check for fingerprints or cracks.
9. Do not use the lamp if there are any signs of damage. Remove any fingerprint smudges using a non-abrasive, lint-free cloth and alcohol solution.
10. Insert the new lamp in the searchlight.
11. Place the old lamp in the protective packaging to avoid breaking.
12. Close the front panel.
13. Close the quick release fastener.
14. Dispose of the old lamp according to national or local rules.

✓ The Lamp is exchanged.

9.3.3 Replace the primary reflector

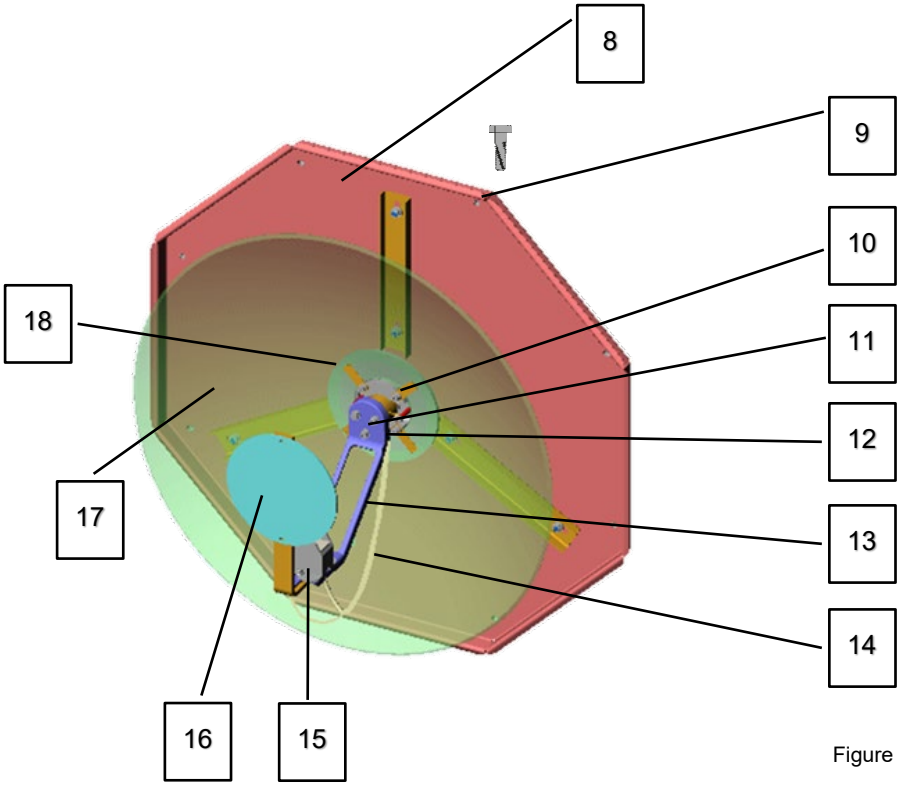


Figure 16 Reflector

Remove the old reflector

1. Loosen all 8 screws (9) on the back of the searchlight.
2. *Hint:* The rear panel (8) is firmly connected to the inner chassis.

   Pull the rear panel (8) together with the inner chassis out of the housing.
3. Place the assembly on a safe and clean workbench.
4. Put on your gloves

   Pull the lamp (5) out of the lamp holder (4) in order to avoid breaking.

   Hints:

   - For the replacement of the reflector (17), the lamp carrier (13) must be removed together with both the lamp holder (15) and the anti-dazzle screen (16).
   - Disconnect the wires behind the reflector, to get the lamp carrier free.
5. Unscrew the rear panel (8) from the inside chassis.
6. Disconnect the connector which connects the external power cable to the inside wiring. This is located between the reflector and the rear panel.
7. Two internal wires (14) are fed through the centre of the reflector (12) and connected to the lamp holder. To remove the reflector cut these wires in a way that you have enough length left on both sides to reconnect them in a proper way after you have replaced the reflector.

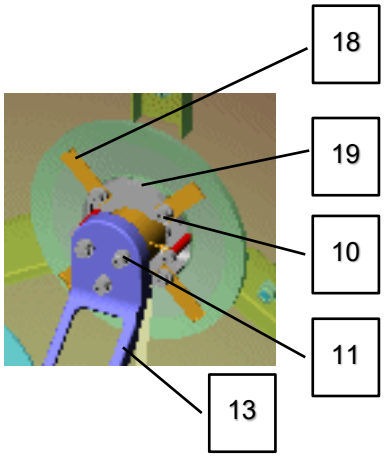


Figure 17 Mirror

Note:

The glass mirror and the aluminium mirror are slightly different mounted.

The four screws (10) hold the aluminium reflector directly while four leaf springs (18) hold the glass mirror/reflector.

8. Unscrew the three screws (11) which hold the lamp carrier (13).
9. Take off the lamp carrier (13) leading the cable carefully through the hole in the centre base (19) and put this assembly aside.
10. Continue with demounting either

    the **glass reflector**:

    a. Unscrew the four screws (10) and take off the leaf springs.

    b. Cut open silicone seam from the glass reflector with a knife and remove the mirror from its retaining ring.

    or the **aluminium reflector:**

    a. Unscrew the four screws (10) and take off the reflector from its rest.

✓ The reflector is removed.

Install the new reflector

11. Continue with mounting either

    the **glass reflector**:

    Attention!
    Only use degassed silicone gel for this step. Vapour from silicone which has not been degassed will collect on the lamp and destroy it.

    a. Glue the new mirror onto the retaining ring using silicone gel.
    Allow to dry for one day!

    b. Place the mirror onto the unit and re-fasten it with the four screws 8 and the leaf springs (18).

    or the **aluminium reflector**:

    a. Place the new reflector on the centre base (19).

    b. Screw on the reflector with the four screws (10).

Continue for both versions with glass reflector or aluminium reflector with

12. Take the lamp carrier (13) with its lamp holder (15) and anti-dazzle screen (16).
13. Push the cable (14) through the hole in the centre base. Be careful not to damage the cable or scratch the reflector.
14. Screw on the lamp carrier (13) to the centre base using the 3 screws (11).
15. Reconnect the open wires (14) and the connector which were cut apart before. Be sure that this electrical connection is done in a proper way following acknowledged rules of technology.
16. Reconnect the external power cable and the internal wiring.
17. Reassemble the rear panel (8) with the inside chassis.
18. Reinstall the halogen lamp (5).
19. Push the inner chassis with the rear panel (8) mounted into the searchlight housing.
20. Screw (9) on the rear panel (8) to the housing.

✓ The reflector is exchanged.

10 Spare parts

Searchlight head

No.	Designation	**Article no. xxx**
1	Front frame + front glass (for SW 450)	22000018
2	Quick release clamps (4)	22000050
3	Gasket for searchlight housing (1m profile gasket, searchlight silicone)	22000116
4	Glass mirror Unit (for SW450)	22000641
5	Aluminium primary reflector (for SW450A)	22000623
6	Silicone paste	22000067
7	Halogen lamp Halogen lamp 2000W 230V GY16	22000517
8	Lampholder GY16	22000624

Remote control unit RCU

No.	Designation	**Article no.**
1	Joystick (XD2-GE3) (230 VAC)	22000060
2	ON/OFF switch	22000061
3	Indicator lamp	22000062

FL52 pan/tilt unit

No.	Designation	**Article no.**
1	Cover sealing set	22001027
2	Motor Unit Pan (H) 230VAC	22001026
3	Limit Switch Unit Tilt (V)	22001028
4	Motor Unit Tilt (V) 230VAC	22001025
	Toothed wheel (H)	22001029
	Circuit board 230VAC	22001030
	Limit Switch Pan (H)	22001031
	Limit Switch Tilt (V)	22001032
	Motor Plate Tilt (V) 230VAC	22001033
	Internal control cable 7G1.0	22001034

11 Disposal and decommissioning

DANGER

Danger to life due to electric current

When working on open circuits, short circuits and body short circuits may occur

- Only authorized specialists may open the housing.
- Secure the power supply against being switched on again.
- Cover open parts of other equipment.
- If necessary, short-circuit the plant components.
- Test whether the system is de-energized.
- Always disconnect the device from the power supply before opening it.

11.1 Disposal

Electrical components contain environmentally hazardous substances. Ensure proper disposition or send faulty parts to WISKA. The address can be found on the backside of this manual.

11.2 Decommissioning

To shutdown or decomission the product, do the following:

1. Follow the product's safety and warning instructions and related documentation.
2. Switch off the product.
3. Disconnect the product from the electrical supply.
4. Dismantle the product/components of the installation to remove them from service.
5. Dismantle the system parts and submit them for later use or for the disposal cycle.

✓ Product(s) or components are out of service.

11.3 Storage

To store the product, dismantle the individual components.

Pack dismantled components and protect them from dampness and external damage.

Tag components for better assignation.

Periodically check the completeness and condition of stored components.

Guard storage from water and dust.

Store all components together as a closed package.

12 Technical data

12.1 Specifications

12.1.1 SW450 searchlight head

Type	SW450-2000	SW450A-2000
Lamp	Halogen	Halogen
Socket	GY 16	GY 16
Operating voltage	230 VAC	230 VAC
Luminous intensity	2 x10^6 cd	1.6 x10^6 cd
Range	1430 meter	1280 meter
Divergence angle	7° I/10	7° I/10
Lamp power	2000 W	2000 W
Lamp start-up time	Immediately	Immediately
Mean lamp life	75.. 200 h	75.. 200 h
Mirror / reflector	Glass 450mm	Aluminum 450mm
Dazzle protection	yes	yes
Temperature range	-25 °C to + 45 °C	-25 °C to + 45 °C
Casing:		
Material	Stainless steel 1.4301, powder coated	
Colour	RAL 9016, traffic white	RAL 9016, traffic white
Diameter (head)	522 mm	522 mm
Depth (head)	505 mm	505 mm
Protection class	IP 56	IP 56
Connecting cable	3 metres	3 metres

12.1.2 Pan & tilt unit FL52

Pan & tilt unit is made of seawater-resistant cast aluminum with an adapter plate as a holder for the searchlight. A standby heater is optional.

Type	**FL52**
Input power	180W
Horizontal rotation	185°/-185°, 2°/s
Vertical tilt	+30° /-30°, 1,2°/s
Height of drive unit with searchlight	Approx. 1077mm
Diameter base	max. 368 mm
Weight	42,6kg
Protection class	IP 56
Colour	RAL 9016
Connecting cable	3 m

12.1.3 RCU remote control unit (optional)

Type	RCU-E / RCU-E-F*	RCU-A / RCU-A-F*	RCU-E-KL/ RCU-E-KL-F*
Features	Installation/ Installation+Focus	Desk-mount/ Structure+Focus	Installation
Controls	2 switches/ Joystick, indicators	2 switches/ Joystick, indicators	2 switches Joystick, indicators
View	On/ Optional: Focus/Pan-Tilt	On/ Optional: Focus/Pan-Tilt	On/ Optional: Focus/Pan-Tilt
Power supply	230V		
Dimensions (wxhxd)	Depends on model e.g. 200x120mm 170 x 90x up to 110 mm installation depth	Depends on model e.g. 200x200x155mm	Depends on model e.g. 144x72x190mm 126x 62x up to 110 mm installation depth

12.2 Protection class

IP 56	Protection against dust (IPx6): protection against contact and protection against dust deposits inside. Protection against water (IP5x): Protection against strong jet water from any angle.

12.3 Nameplate

Line Content

1 Product name

2 Specification of the product

3 Serial number of the product

4 Manufacturer

12.4 Dimensions

[Unit: mm]

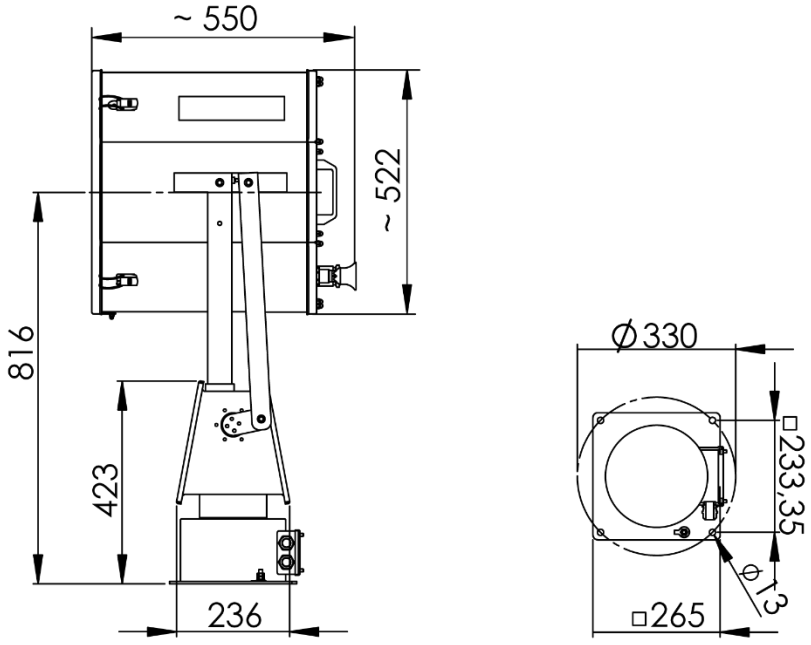


Figure 18 SW450 / SW450A on FL52

[Unit: mm]

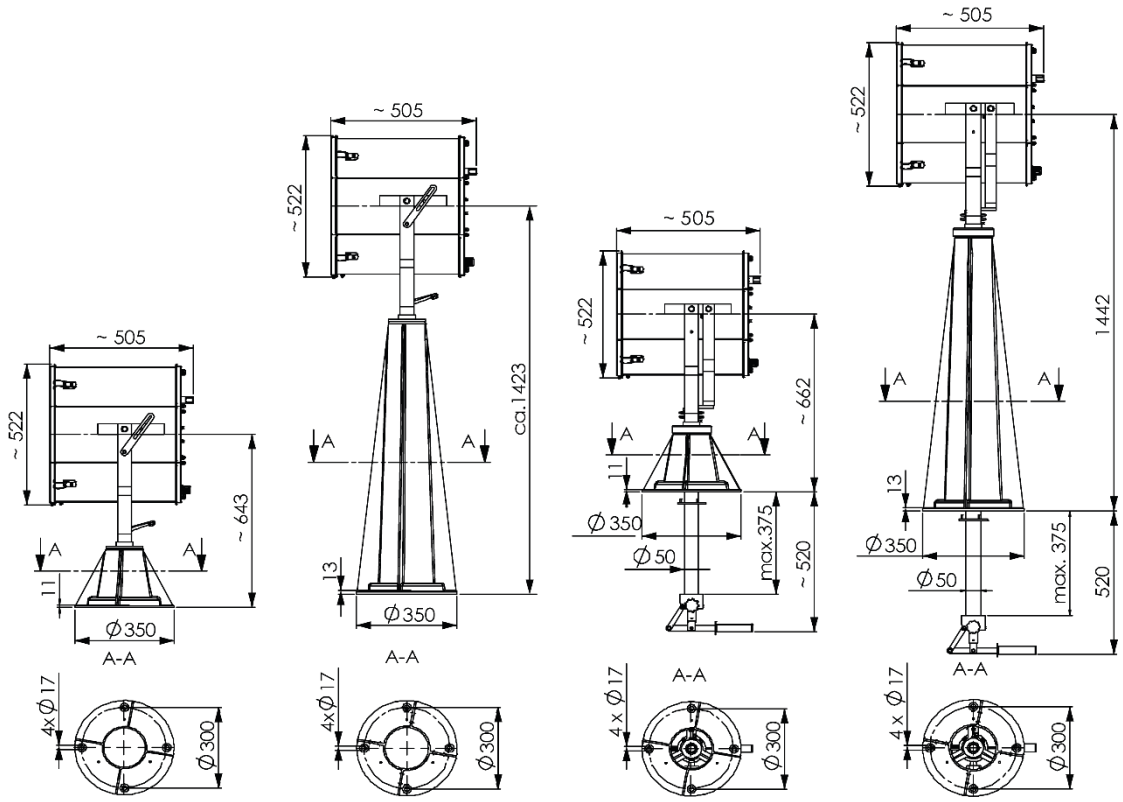
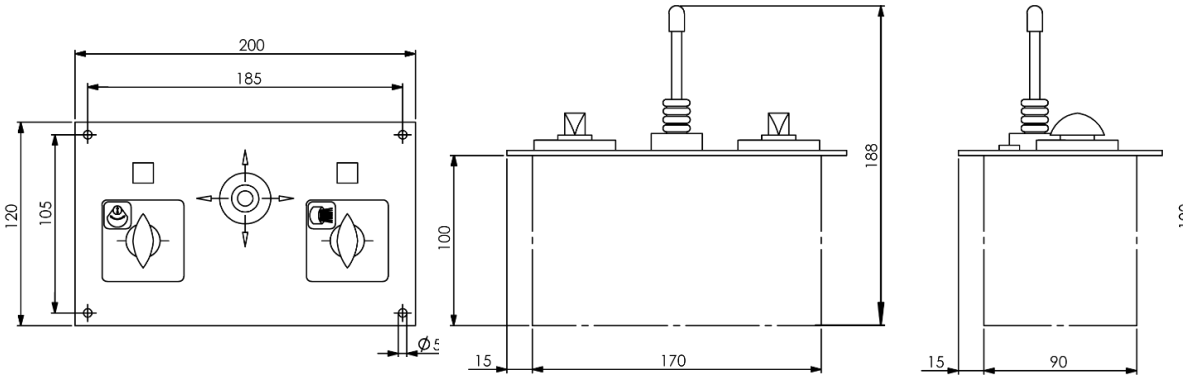


Figure 19

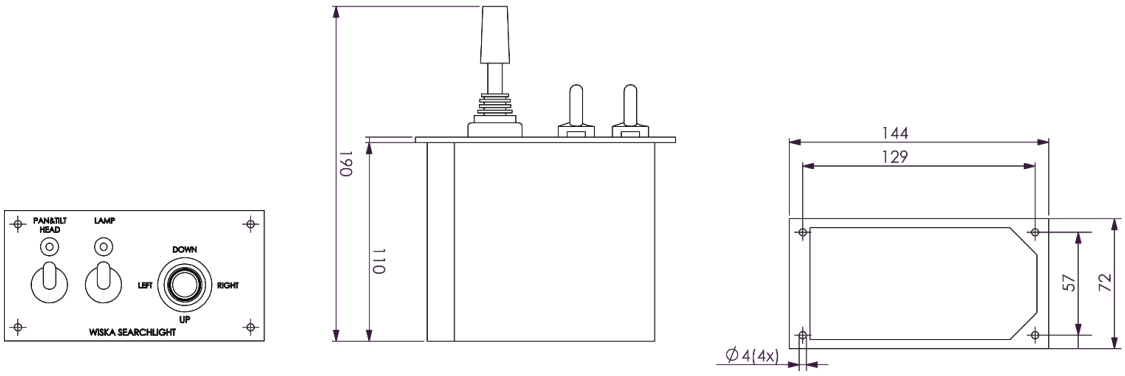
Deck mounted (D) *Deck pedestal mounted (DP)* *Cabin control(C)* *Cabin control with pedestal Colum (CP)*

[Unit: mm]



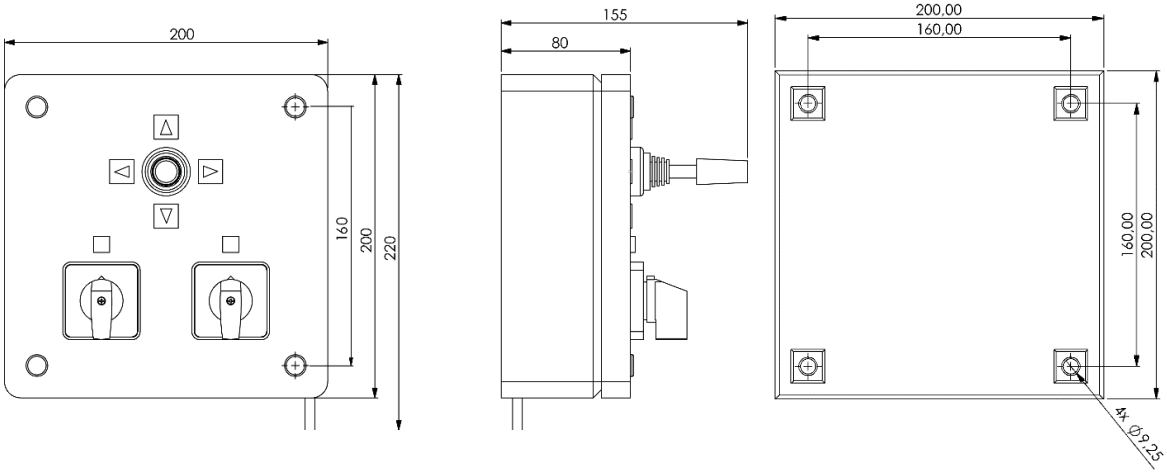
[Top view] [front view] [side view]

Figure 20 RCU-E*(the dimensions may vary depending on the ordered configuration)*



[Top view] *[Front view]* *[Bottom view]*

Figure 21 RCU-E-KL (the dimensions may vary depending on the ordered configuration)



[Top view] [side view] [Bottom view]

Figure 22 RCU-A *(the dimensions may vary depending on the ordered configuration)*

[Unit: mm]

12.5 Electrical connection diagram

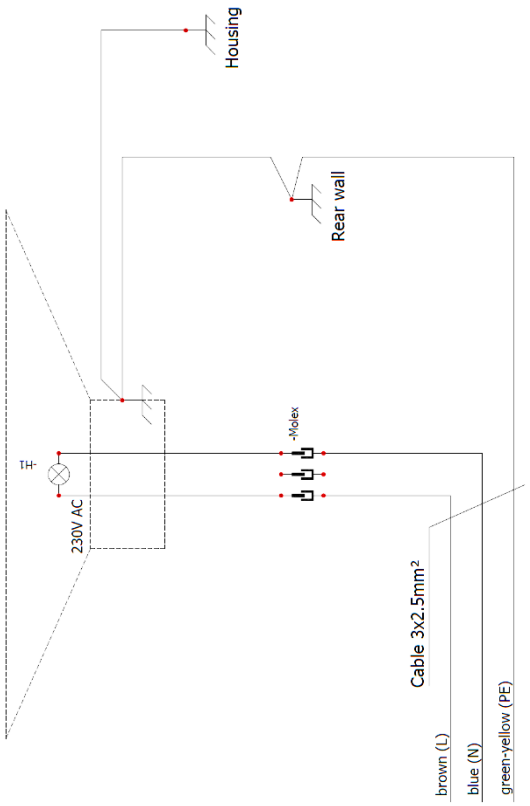


Figure 23 Electrical connection SW450 head

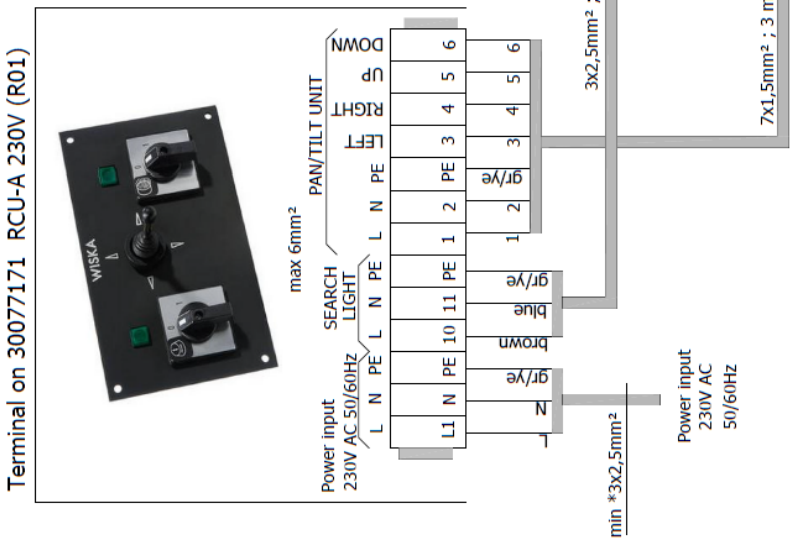


Figure 24 Electrical connection SW450 with FL 52

SERVICE AND MAINTENANCE PLAN SEARCHLIGHT SW450

WISKA make power smile

X Staff
With a qualification according to a deck crew member

♦ Specialist required.
With a qualification corresponding to a machine crew member or skilled electrician

Component	Testing	Type of test	Required knowledge	Storage	Installation	Commissioning	Recommissioning	In operation		
								Before each trip	every 3 months	min. 1x/year
Light	Function	Visual inspection	Staff		x	x	x	x		
Focus	Function	Visual inspection	Staff		x	x	x	x		x
Housing	Damages	Visual inspection	Staff	x	x	x	x		x	
	Check water ingress	Visual inspection	Staff		x	x	x			x
	Front glass/reflector	Visual inspection	Staff			x		x		
	Pan/Tilt	Function test	Staff		x	x	x	x		
	Closures	Visual inspection	Staff		x	x	x		x	
Fastening elements	Damages	Visual inspection	Staff	x	x	x	x			x
	Bolt seat	Function test	Staff		♦	x	x		x	
Column/foot	Damages	Visual inspection	Staff	x	x	x	x			x
	Tightness	Function test	Electrician		♦	♦	x			♦
	Replace seal if necessary	Function test	Electrician		♦	♦	♦			♦
RCU	Display function	Visual inspection	Staff		x	x	x	x		
	Function joystick	Function test	Staff		x	x	x	x		
	Function switch	Function test	Staff		x	x	x	x		

● = Work can be done by qualified staff ▼= Work should be done by a specialist

SERVICE AND MAINTENANCE PLAN
SEARCHLIGHT SW450

X Staff
Qualification according to cover staff

♦ Specialist required.
A qualification corresponding to machine personnel.

Component	Testing	Type of test	Required knowledge	Storage	Installation	Commissioning	Recommissioning	In operation		
								Before each trip	every 3 months	min. 1x/year
Connection lines	Damage to connection lines	Visual inspection	Electrician	x	♦	♦	x			♦
	Insulation damage	Visual inspection	Electrician	x	♦	♦	x			♦
	Proper selection/application of cables and connectors	Suitability test	Electrician		♦	♦				
	Condition of the mains plug, connection terminals and wires	Visual inspection	Electrician		♦	♦	♦			♦
	Bending radii not observed	Visual inspection	Electrician		♦	♦				
	Defects in the strain relief of the connecting cable	Visual inspection	Electrician		♦	♦				
	Condition of fasteners, line and fuse holder accessible to end users.	Visual inspection	Electrician		♦	♦	x			♦
	Signs of overloading or improper application/operation	Visual inspection	Electrician		♦	♦	x			♦
	Signs of unauthorized interventions or modifications	Visual inspection	Electrician		♦	♦	x			♦

x = Work can be done by qualified staff ♦= Work should be done by a specialist

13 Supplier documentation and certificates

13.1 CE Declaration of Conformity

CE

EU DECLARATION OF CONFORMITY

CE

WISKA Hoppmann GmbH
Kisdorfer Weg 28
24568 Kaltenkirchen
Germany

KCE3-21003-0

Declares under its sole responsibility that:

Product designation:	Searchlight
Type designation:	SW (200;300;400;450/****/****/***/***/**/**)
Description:	Searchlight for electrical installation

corresponds to all the relevant provisions of the directives listed below and valid harmonized and / or international and national standards - including all applicable changes at this time of issuing this document.

Regulation	Standard
2014/35/EU Electrical apparatus (Low voltage directive)	EN 60598-1:2021 EN 60598-2-5:2015
Other Standard	IEC 60092-306:2022

WISKA Hoppmann GmbH
Kaltenkirchen, Germany

2023-07-18

.....
Head of Engineering & Design

13.2 UKCA Declaration of Conformity

DECLARATION OF CONFORMITY

UK CA

-

WISKA Hoppmann GmbH
Kisdorfer Weg 28
24568 Kaltenkirchen
Germany

Authorised Representative:
WISKA UK Ltd.
Unit 7, Hurling Way
St. Columb Major Business Park
St. Columb Major, Cornwall
TR9 6SX
GREAT BRITAIN

KGB3-21003-0

Declares under its sole responsibility that:

Product designation:	Searchlight
Type designation:	SW (200;300;400;450/****/****/***/***/**/**)
Description:	Searchlight for electrical installation

corresponds to all the relevant provisions of the directives listed below and valid harmonized and / or international and national standards - including all applicable changes at this time of issuing this document.

Regulation	Standard
SI 2016 No. 1101 The Electrical Equipment (Safety) Regulations 2016	EN 60598-1:2021 EN 60598-2-5:2015
Other Standard	IEC 60092-306:2009

2022-03-16

WISKA Hoppmann GmbH
Kaltenkirchen, Germany

Head of Engineering & Design

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