

# Asynt

## Lighthouse

### Instruction Manual



**Asynt Ltd**

[www.asynt.com](http://www.asynt.com)

*Thank you for purchasing this Asynt product*

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PLEASE READ THESE INSTRUCTIONS PRIOR TO OPERATING YOUR UNIT.

IF THERE IS AN ISSUE WITH YOUR PRODUCT, PLEASE CONTACT YOUR SUPPLIER.

PLEASE DO NOT RETURN ANY GOODS WITHOUT PRIOR AGREEMENT.

## INTRODUCTION

The Lighthouse is a benchtop photochemistry reactor that enables safe and efficient photochemistry. By channelling light through a quartz rod directly into the sample, greater photon flux is maintained. The 10 W LEDs are available across a range of wavelengths and are interchangeable, with robust safety features that prevent accidental exposure to radiation. Featuring gas ports and tubing connectability, the Lighthouse supports fittings for additions or sampling during reactions.

Compatible with any hotplate stirrer, the Lighthouse can run at temperatures up to 80 °C, and with the optional heating/cooling base, it can also be used at temperatures as low as -30 °C (depending on the temperature control unit). Stirring of volumes up to 20 mL can be achieved with a magnetic stirrer bar.



## COMPONENTS



## TECHNICAL SPECIFICATIONS

<b>Dimensions (cm):</b>	Height	Width	Depth
	20.7	16.0	16.0
<b>Working Temperature (°C):</b>	Lowest	Highest	
	Ambient	80	
<b>LED Power (W):</b>	10		
<b>Rod Material:</b>	Quartz		

## SAFETY

### GENERAL WARNINGS

Only trained personnel should be allowed to use the Lighthouse, and they must have full knowledge of the equipment, its capabilities, and of the process likely to be carried out with the equipment.

Any specific warnings and methods of operation are to be drawn up and made available to all users.

The appropriate PPE must always be used when handling the Lighthouse.

It is the user's responsibility to ensure that they follow in house regulations regarding training and PPE.

### HOT/COLD WARNINGS

Do not touch whilst hot/cold. The Lighthouse will retain high/low temperatures for some time after use.

Ensure that the wiring does not touch any part of the Lighthouse that will reach high/low temperatures.

### ELECTRICAL WARNINGS

Keep the Lighthouse away from water sources. Do not use if wet. Isolate at the socket, switch it off, and only use once an authorised person has inspected it.

Keep away from flammable substances. Avoid hazardous reactants and products.

### NON-IONISING RADIATION WARNINGS

Do not use if the base is not fully assembled or unstable. Doing so could lead to exposure to non-ionising radiation.

### FOR UV-A WAVELENGTHS OF LED (315 – 400 NM) THE FOLLOWING ALSO APPLIES:

UV resistant eye protection must be worn around this device.

Hands and arms must be protected by wearing gloves and sleeves made from low UV transmission materials, with no gap between the cuff and the glove.

Warning signs should be used around this equipment to indicate the presence of a UV source and the need for PPE.

The Exposure Limit Value for eye exposure to UV-A is 10,000 J/m<sup>2</sup> for an 8-hour day and must not be exceeded.

Those who are extremely photosensitive or are potentially exposed to photosensitising agents should take additional protective measures.

Use UV resistant barriers around the device and avoid reflective surfaces. If the device is kept in the vicinity of untrained personnel, warning signs may be needed nearby.

## KEY CONSIDERATIONS

1. Depending on the size of your hotplate, screw the feet into the appropriate holes on the underside of the Lighthouse base.
  - For circular hotplates with a diameter of 145 mm, attach 3 feet to the outer holes.
  - For circular hotplates with a diameter of 135 mm, attach 3 feet to the inner holes.
  - If using an irregularly sized hotplate, do not attach any feet.
2. Do not fill the glass tube above half-full.
3. For users requiring a sub-ambient operating temperature, the specialist temperature control base should be used in combination with a suitable temperature control unit. Lighthouse bases must not be submerged in a solvent bath as this may cause damage to the metalwork and fittings.
4. If carrying out additions or sampling mid reaction, attach a syringe/syringe pump/peristaltic pump via a Luer fitting.
5. To form an inert atmosphere, connect the gas inlet to a valve. Alternate between pulling a vacuum and then adding nitrogen 2-3 times.

## ASSEMBLY

1. Screw the feet (11) into the correct holes on the bottom of the base (12) for your hotplate. Ensure that the hex screws on the bottom of the base are fully tightened.
2. Loosen but do not remove the rod support (13) and insert the quartz rod (8) flat end first into the bottom of the hub. Then tighten the rod support.
3. Screw the glass tube (9) into the bottom of the hub (6) around the quartz rod.
4. Place the lamp (2) of the Lighthouse onto the hub (6), taking care to line up the microswitch (14) with the smallest hole in the lamp, and lock in place using the locking nut (3).
5. Place the hub (6) into the casing (11) so that the pin under the gas inlet (4) goes into the recess on the top of the base and plug the wire into the power socket (1).
6. If sampling, crimp a ferrule onto 1/16" tubing at the length you wish the tubing to go into the sample tube. Then thread the tubing through a tube fitting so that the threaded end forms a seal with the ferrule.
7. Screw the tube fitting into the inlets and connect your tubing via Luer fittings to your chosen pump or syringe.



## USAGE GUIDE

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### ADDING YOUR REACTANTS TO THE TUBE:

1. Lift the hub (6) and lamp (2) assembly out of the casing (11).
  2. Remove the glass tube (9), add your mixture and stirrer bar, then screw the hub (6) back onto the glass tube (9).
  3. Place the assembly back into the casing (11), taking care to align the pin with the recess on top of the casing (11).
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### SAMPLING & ADDITIONS MID-REACTION:

1. If sampling, crimp a ferrule onto 1/16" tubing at the length you wish the tubing to go into the sample tube. Then thread the tubing through a tube fitting so that the threaded end forms a seal with the ferrule.
2. Screw the tube fitting into the inlets and connect your tubing via Luer fittings to your chosen pump or syringe.

If you feel that you require further guidance, please contact [enquiries@asynt.com](mailto:enquiries@asynt.com).



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