

# DARAY<sup>®</sup>

Medical



# SP1000 Range

LED Surgical Headlight  
Operating Manual



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## 1. About this manual

This manual provides the instructions necessary to operate the **DARAY SP1000 Range** in accordance with its function and intended use. Observance of this manual is a prerequisite for proper performance and correct operation, and ensures patient and operator safety.

This manual is an integral part of and should always be kept close to the device, so that it can be obtained conveniently when necessary. Content of this manual is subject to change without prior notice.

This manual covers the following models within the **SP1000 Range**:

Model Name	Description
SP1000	DARAY SP1000 5W LED Headlight
SP1100	DARAY SP1100 10W LED Headlight



## 2. Introduction

The DARAY SP1000 Range LED headlight range uses LED technology alongside high-quality optics, transforming normal light into a clear, even, and symmetrical lighting projection.

When worn on the head and the light-beam adjusted; the light follows exactly where your head is positioned.

This device is suitable for occasions where higher demand for lighting and frequent mobility is required.

The device has the following functions:

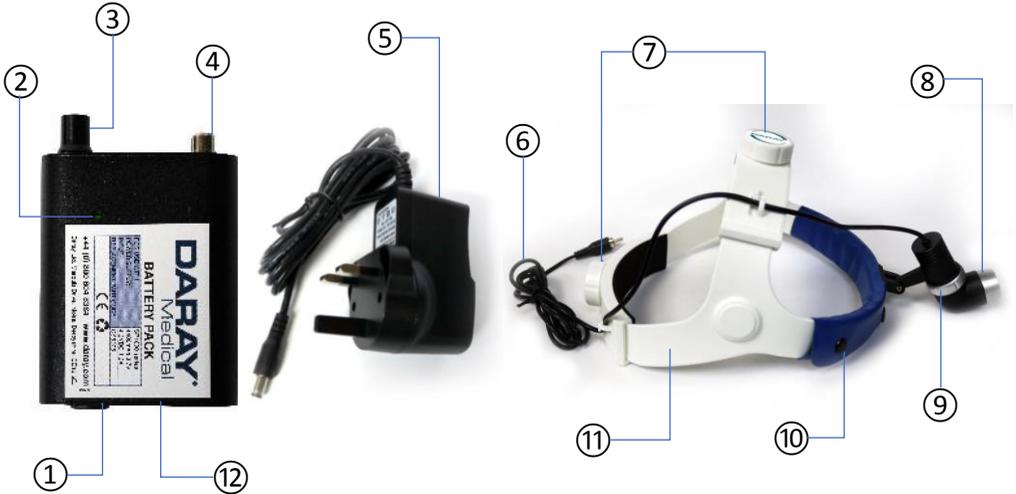
- High-quality LED light source
- Symmetrical lighting effect
- Adjustable light focus
- Low-voltage
- Lightweight
- Energy-saving
- Can be used with or without external power supply
- Long service life
- Comfortable
- Smart design, convenient for mobile diagnosis
- Can be used whilst charging
- Flight case included
- Spare headband included

For further information on our product range and find out more about our company please visit [www.daray.co.uk](http://www.daray.co.uk) or call 0333 321 0971 or 0800 804 8384.

**This product was designed & manufactured in Great Britain by:**

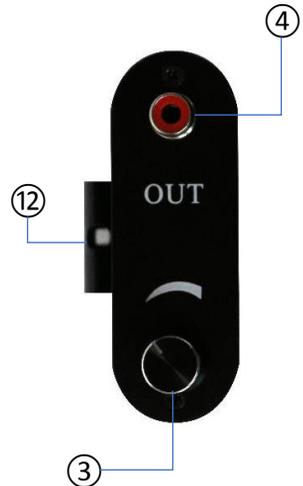
**Daray Ltd.  
Edison House, Robian Way  
Swadlincote  
Derbyshire  
DE11 9DH**

### 3. Appearance and parts list



**Key:**

1. DC Power socket
2. Power indicator light (green LED)
3. Intensity control switch/power switch
4. Power cable socket
5. Power supply 100-240V (UK 3-pin plug)
6. Power cable
7. Headband adjustment knobs (top and rear adjustment)
8. Lamp base
9. Focus adjustment ring
10. Sweatband (2 supplied)
11. Headband
12. Battery pack (with belt clip on rear)



**NOTE:** All of the above components should be included within the flight case. If you are missing any items or components, please contact DARAY immediately.

## 4. Serial numbers and labelling

The product serial number can be found on the side of the headlight band, and in the back of the warranty section within this manual.

The battery pack carries its own label.

## 5. Technical Specifications

<b>Light Source</b>	LED
<b>Input Power (battery charger unit)</b>	110-240V 50/60Hz
<b>Power Consumption</b>	4.2V DC / 1.2A
<b>Nominal Capacity</b>	4400mAh
<b>Power Rating</b>	SP1000: 5W
	SP1100: 10W
<b>Light Intensity (Lux) @ 300mm</b>	SP1000: 35,000 Lux
	SP1100: 50,000 Lux
<b>Light Field Diameter</b>	Focused: 10mm
	Unfocused: 110mm
<b>Battery run-time (from full charge)</b>	SP1000: 7-40 hours
	SP1100: 5-40 hours
<b>Colour Temperature (Kelvin)</b>	5,000K (±500K)
<b>Average Working Life</b>	>25,000 hours
<b>Temperature Rise on Patient/User</b>	≤2° C
<b>Warranty Period</b>	1 Year
<b>NHS E-Class Code</b>	FBU, FKR, IBB
<b>Commodity Code</b>	9018 908400
<b>GMDN Code</b>	11963

## 6. Operation

1. Connect the headlights power cable to the battery pack.
2. Switch the battery pack on; the green LED 'ON' indicator should illuminate on the front of the battery pack, signifying that there is sufficient charge in the battery.
3. Place the headlight on the head and adjust the fit to suit, using the top and rear adjustment knobs.
4. Adjust the focus control ring to a suitable size for the task to be carried out.
5. Make sure the direction of the projected light is in line with the eyes, and tighten the locking knob.
6. Place the battery pack in a suitable position or clip to your clothing/belt.

## 7. Recharging

Connect the charging cable to the battery pack - the green LED charge indicator on the front of the battery pack should illuminate. When fully charged, the LED light will go out - the charging cable can then be removed.

From a full charge the battery should last about 5-40 hours dependent on the level of intensity used. The headlight can also be used whilst charging.

## 8. Maintenance

### 8.1 System Check

Before using the headlight, perform the following steps:

- Check if there is any mechanical damage.
- Check if all the functions of the device can work normally so as to make sure that the device is in proper working condition.
- Check if the battery power is sufficient. If not, charge the device. If the device does not power on once the battery is charged and the battery pack connected to the headlight, see the Troubleshooting section within this manual (section 11).

In case of any damage, abnormal function, hidden safety danger or exception, do not use the device on patient. Contact the technician in your hospital or the manufacturer immediately.

THIS DEVICE should require little to no maintenance. There are no user-replaceable parts, except for the battery pack itself and the power cable.

### 8.2 General Cleaning

The device should be cleaned on a regular basis. When it is polluted by dust, oil, sweat or blood etc., it should be cleaned at once. If there is heavy pollution or lots of dust and sand in your place, the device should be cleaned more frequently. Before cleaning the device, consult your hospital's regulations for cleaning, disinfecting and sterilizing equipment. The exterior surfaces

of the device may be cleaned gently with a clean and soft cloth, sponge or cotton swap, dampened with a non-erosive cleaning solution. Drying off excess cleaning solution before cleaning the device is recommended.

**WARNING**

- Power off the device before cleaning and disconnect the headlight from the battery pack.

Examples of suitable cleaning solutions are as follows:

- Diluted soap water
- Isopropanol (70%)
- Diluted ammonia water
- Hydrogen peroxide (3%)
- Alcohol
- Ethanol (70%)
- Diluted formaldehyde (35%-37%)
- Diluted sodium hypochlorite solution (bleaching agent)

**NOTE**

Sodium hypochlorite solution with a concentration of 500ppm (1:100 diluted bleach solution used in family) - 5000ppm (1:10 diluted bleach solution used in family) is very effective. How much ppm depends on how much organic matter (blood, propagation grime etc.) existing on the surface.

**CAUTION**

- **REMEMBER** you are dealing with an electrical device. Any cleaning with fluid/chemicals should be absolutely minimal. **THIS DEVICE IS NOT WATERPROOF.** Cleaning in the first instance should involve dusting with a dry cloth and/or wiping with a damp cloth/wipe.
- Never use strong solvent, such as acetone.
- **ALWAYS** dilute the solutions according to the manufacturer's suggestions.
- **NEVER** use abrasive, erosive cleaners, or cleaners containing acetone.
- **NEVER** permit fluids run into the casing, switches, or openings between two cushions in the device.
- **NEVER** submerge the device into water or any cleaning solution, or pour or spray water or any cleaning solution on the device.
- **ALWAYS** wipe off all the cleaning solution with a dry cloth after cleaning and dry the device in the air. Never dry the device in the violent sunshine or toast it under high temperature.
- If the device is polluted by chemical substance, the users should handle it effectively according to the properties of the chemical substance.

**WARNING**

The cleaning solutions above can only be used for general cleaning. If you use them to control infections, the manufacturer shall assume no responsible for the effectiveness. Please consult your hospital's infection controllers or professionals.

### 8.3 Disinfection

Disinfection may cause damage to the device. We recommend the disinfection is contained in the hospital's servicing schedule only when necessary. The device should be cleaned prior to disinfection.

Recommended disinfection material: Alcohol based (Ethanol 70%, Isopropanol 70%), and aldehyde based.

**CAUTION**

- ALWAYS dilute the solutions according to the manufacturer's suggestions and adopt lower concentration if possible.
- NEVER submerge the device into water or any solution, or pour water or any solution on the device.
- ALWAYS wipe off all the excess liquids on the device surface with a dry cloth.
- Never use EEO and formaldehyde to disinfect.
- Never permit high-pressure and high-temperature disinfection of the device.

**WARNING**

Disinfection may cause damage to the device; therefore, when preparing to disinfect the device, consult your hospital's infection controllers or professionals.

## 9. Disposal

To avoid contaminating or infecting personnel, the environment or other equipment, make sure you disinfect or decontaminate the device appropriately before disposing of it in accordance with your country's law for equipment containing electrical and electronic parts.

### 9.1 Transport and Storage Conditions

Environment Humidity: -40°C-55°C

Relative Humidity: ≤80%

Atmospheric Pressure Range: 50 Kpa-106 Kpa

## 10. Safety Precautions

- Handle the light with care.
- Do not use too much force adjusting the headband.
- Do not expose your headlight to liquids, moisture or humidity.
- Avoid touching optical surfaces with your hands or anything that could cause abrasions, as this may permanently obstruct the lens.
- Keep clean and dust-free
- **DO NOT shine the light directly into the eyes of any person/animal. This could potentially cause serious damage to the retina.**



If there is damage to the power cable or if exposed wire is visible  
**DO NOT USE**

## 11. Troubleshooting

Problem	Possible reason	Solution
Turn on the power switch, the battery indicator light does not power on. The headlight does not power on at all.	<ol style="list-style-type: none"> <li>1. Power shortage</li> <li>2. Battery damage</li> <li>3. Power circuit board issue</li> </ol>	<ol style="list-style-type: none"> <li>1. Charge immediately</li> <li>2. Contact the manufacturer to replace the battery or to supply replacement parts</li> </ol>
Turn on the power switch, the battery light indicator is on, but the headlight does not power on at all.	<ol style="list-style-type: none"> <li>1. The power cable from the headlight is not properly inserted into the battery pack</li> <li>2. The intensity/power switch is not turned on, or the light is set to its lowest intensity.</li> <li>3. The LED has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-insert the power cable from the headlight into the battery pack</li> <li>2. Use the power switch to turn on and adjust the intensity to the highest level</li> <li>3. The LED module is designed to last around 25,000 hours of use, and bulb damage rarely, however if you have tried all other troubleshooting methods, please contact the manufacturer</li> </ol>

Please contact DARAY if any other problems are found.

## 12. Spare Parts/Technical Support

**CAUTION:** Use only genuine 'DARAY' replacement parts as other types may seriously impair the optical performance of the product.

ITEM NO	PART NAME	TYPE	PART NO
1	Replacement battery pack	4.2V DC / 1.2A	CS6206
2	Replacement Power Supply	100-240V	CS6207

For further information on our product range and find out more about our company please visit [www.daray.co.uk](http://www.daray.co.uk) or call 0333 321 0971 or 0800 804 8384.

This product was designed & manufactured in Great Britain by:

**Daray Ltd.  
Edison House, Robian Way  
Swadlincote  
Derbyshire  
DE11 9DH**

For any PRODUCT HELP or TECHNICAL ISSUES phone the DARAY Service Delivery Team on:

**+44 (0) 800 878 9864**

Opening times 9am-5pm Monday to Thursday (excluding bank holidays)  
9am-2:30pm on Friday

Or email:

**support@daray.co.uk**

**IF THE LIGHT WAS ORIGINALLY PURCHASED THROUGH A DISTRIBUTOR CONTACT THEM IN THE FIRST INSTANCE FOR A RESOLUTION**

Please contact DARAY for help with any problems that the distributor cannot solve.



## 13. Warranty Information

### 13.1 Returns Policy

**IMPORTANT!**  
 Please fill out your warranty registration online at  
[www.daray.co.uk/warranty](http://www.daray.co.uk/warranty) or contact DARAY by phone (0800 878 9864)  
 or email [support@daray.co.uk](mailto:support@daray.co.uk)

DARAY's standard warranty for the SP1000 Range is 2 years\* from the date of delivery.

Year 1:	Warranty includes parts and labour (Return to Base)	*UK only
Year 2:	Parts only	

We want you to be completely satisfied with your purchase. If you need to return goods purchased from DARAY Ltd, please read the following information carefully. The DARAY Ltd returns policy provides guidance on when you can return goods we have supplied, and what you can expect from us once you do. To see our detailed returns policy and procedure visit [www.daray.co.uk/returns](http://www.daray.co.uk/returns)

TYPE OF RETURN	REMEDY
<b>DAMAGED GOODS</b> Goods which are physically damaged on delivery	We must be notified within 24 hours of receipt.
<b>Dead On Arrival (DOA)</b> Goods which do not work	Goods which do not work on arrival or develop a fault within 28 days, we will advance replace the item.
<b>GOODS DEVELOPING A FAULT</b> Goods which have developed a fault within the warranty period.	If the fault develops after 28 days, but within the warranty period, we will initiate the returns procedure.
<b>NON WARRANTY</b> Goods which have developed a fault outside the warranty period.	If a fault develops outside the warranty period, we will initiate the returns procedure charges may be applicable.
<b>OTHER</b> Any situation which is not covered by any of the above.	We will always try to help, but we cannot normally offer a refund.

For additional clarification, please refer to our terms and conditions at [www.daray.co.uk/terms](http://www.daray.co.uk/terms). In a small number of cases, we may determine that a replacement would not work any better than the original product we supplied. In such cases we will only offer a refund rather than a replacement for qualifying returns.

Replacement bulbs and spare parts ordered on our website or from supplied part codes are not eligible for credit. We will accept returns and exchange for the correct item.

If your purchase an item incorrectly you can return it within 14 days and it can be exchanged for another product of equal or higher value, excluding transportation charges incurred. Goods and packaging must be returned in their original condition. Under no circumstances will goods be accepted for return if they are damaged, have been subjected to improper handling or abuse or have been used.

If you send us goods that do not qualify for return, you will invalidate your claim to any refund, and you will be obliged to compensate DARAY Ltd for the cost of return postage and any other reasonable costs incurred processing the goods.

Your statutory rights are not affected.

## 13.2 Warranty Details

### TERMS AND CONDITIONS OF WARRANTY

1. To qualify for this warranty you must register on [www.daray.co.uk](http://www.daray.co.uk) or return to Daray Ltd (Daray) the duly completed warranty-registration form accompanying the product.
2. Daray warrants this product (excluding lamp) against faulty material and workmanship during the period of the warranty. The period of warranty is the period stated on your warranty card and commences on the date of purchase of the product. In the event that the product is not in good working order Daray will provide, during the warranty period, a free repair service within the United Kingdom. The warranty is subject to proof of purchase being provided; therefore, you should retain your original receipt.
  - 2.1 The repair service consists of the provision of spare parts and/or replacement products (at Daray's discretion) which will be provided on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced spare parts and products shall become the property of Daray.
  - 2.2 Daray's only obligation under this warranty is the provision of the service as set out above.
  - 2.3 All products are returned to Daray at the customer's cost and risk. Products to be returned should be adequately packed. For the address to send returns to please visit [www.daray.co.uk](http://www.daray.co.uk)
3. Daray's arrangements for providing service provided under this warranty may include the use of sub-contractors.
4. This warranty does not cover damage or defects in the Product caused by or resulting from:
  - Wilful neglect or negligence by anyone other than Daray;
  - Improper use, storage or handling of the product;
  - Use of non-Daray approved parts (such as replacement lamps) not compatible with the Product;
  - Fire, accident or disaster;
  - Use of non-Daray modifications other than in accordance with Daray's instructions;Attachment of fittings and accessories not approved by Daray;  
Repairs, modifications carried out by service personnel not approved by Daray;
  - Damage caused by chemical corrosion from cleaning agents not approved by Daray.
  - Failure to use or install the product in accordance with the manufacturer's instructions.
5. Nothing in this warranty shall have the effect of restricting or excluding the liability of Daray in respect of:
  - a) Death and personal injury caused by the negligence of Daray, or for fraud;
  - b) Under the *Consumer Protection Act 1987* to a person who has suffered damage caused by a defective product or to a dependant or relative of such a person;
  - c) Direct damage to your property caused by the proven negligence of Daray.
6. This agreement does not give any rights other than those expressly set out above and in particular, Daray will not be responsible for any loss of income, profits or contracts or any direct or indirect consequential loss, damage caused to or suffered by the purchaser as a direct result of this agreement.
7. This warranty is offered (subject to these terms and conditions) in addition to, and does not affect your statutory rights.
8. Daray may disclose your details and other personal information to companies within the Daray group including any subsidiary company or sub-contractor of Daray for the purposes of performing our obligations hereunder.
9. You must not resell outside the UK any products supplied by Daray and covered by the *Export of Goods (Control) Order 1992* (or any law that replaces it) without obtaining all necessary licences. You also agree not to sell the product in the UK if you know or think that the person buying the product intends to export it without getting the necessary licences. You agree to impose similar conditions to these on anyone you sell the product to.
10. These conditions shall in all respect be governed and construed in accordance with English law and the exclusive jurisdiction of the English courts.

Product:

Serial No:



**DARAY**<sup>®</sup>  
Medical

**DARAY Ltd.**  
Edison House, Robian Way  
Swadlincote  
Derbyshire  
United Kingdom  
DE11 9DH

 +44 (0)800 878 9864

 +44 (0)333 321 0973

sales@daray.co.uk • www.daray.co.uk

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