

DARAY[®]

Medical



BH230

LED Patient Reading Light

Operating & Installation Manual

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1. Introduction

DARAY's BH230 is a state-of-the-art, low-cost patient reading light designed specifically for panel mounting. The light uses the latest next-generation LED technology to give the best intensity at the correct colour temperature with no heat in the light beam.

The BH230 LED head swivels on a 800mm flexible arm to allow accurate and stable positioning of the light-patch. The flexible arm projects from an angled neck which swivels in its mounting. The head, handles and mounting are coated with DARAY's BioProtect[®], an antimicrobial protection against bacteria such as MRSA.

The light comprises 4 parts: light-head, flexible arm/angled neck, power-supply unit, and mounting. The flexible arm allows the light patch to be placed accurately and stably where it is needed. The arm is covered with a PVC sleeve to prevent contamination and to allow easy cleaning.

The power-supply module contains an electronic transformer to provide a low voltage to power the light from the electrical mains.

The mounting bracket provides a simple method of fixing the light, allowing the base of the arm to swivel in front of the wall; a screw prevents the arm from accidentally being pulled out of the bracket.

This product is delivered in special-to-type packaging which, on the ends of the box, identifies the type and serial number of the light within.

For further information on our product range and find out more about our company please visit 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**

1.1 Supported Lights

The Following Models are supported in this Manual	
BH230LED	BH230 LED panel mounted light with flush fitting kit

2. Technical Specifications

Light Source	LED
Light Intensity (Lux) @ 0.5m	5,800 Lux \pm 5%
Light Intensity Adjustment Range	10% - 100%
Colour Temperature (Kelvin)	4,300K \pm 500
Colour Rendering Index (CRI)	95
Colour Rendering (R9)	88
Light Field Diameter (D50)	@ 0.5m: 120mm
Light Field Diameter (D10)	@ 0.5m: 230mm
Number of LED's	3
Power Consumption	12W 0.1A
Average Working Life	>50,000 Hours
Input Voltage	100 - 240V AC 50/60 Hz
Output Voltage	12V DC
Temperature Rise on Patient/User	\leq 2 °C
Warranty Period	5 Years
NHS E-Class Code	FBU, FKR
Commodity Code	9018 908400
GMDN Code	12276

3. Installation

3.1 Pre-Installation Responsibilities and component packing list

Daray Ltd make every effort to ensure that the information in this document is correct and accurate, however we cannot be held responsible for errors and omissions. DARAY Ltd reserves the right to alter specifications and to add and withdraw products without notice.

This document is a guide to the steps that need to be performed to correctly install the BH230 patient light. However, the work required to be performed is the responsibility of the owner or designated contractor/s.

All fixings between Daray lights and building super-structure must be approved by either the chief project engineer or an appropriate and competent structural assessor.

The components supplied by Daray for fitting / installation should be the following items in the specified quantities.

BH230 Panel Mounted	Qty.
Light head with flexible gooseneck	1
Panel Mounting bracket with back plate and screws + Nylon Washer	1
Power supply unit (low voltage electronic transformer)	1
User Manual	1
Microfibre cloth	1

3.2 Considerations



The procedures below are detailed to a high level however ***If in doubt please consult a qualified electrician.***

Room Requirements	<p>We recommend the bracket be installed approximately 1300mm from the floor to the top of the bracket.</p> <p>It may be necessary to adjust this height, if there are specific medical procedures the light will be used for.</p> <p>If in doubt consult the end user or DARAY. When installing the bracket take consideration of where you want the lighthouse to sit when in its lowest position.</p>
Live Electric Circuitry	All personnel working around live circuitry should be qualified and following proper procedures
Existing Environmental Factors	When fitting, considerations have to be taken for existing services such as; fire alarms, vents, lights, etc. along with interior ceiling construction and any surrounding hazard.
Environmental Responsibility	Once our products are installed all packaging should be disposed of appropriately and recycled where appropriate and in accordance with local governing regulations.

These instructions are based on the assumption of a fresh fit into a room with no previous lighting structures. With installations onto sites with equipment already in place, we recommend that the previous lights' mounting plate be removed and the new one fitted as if into a fresh fitting.

3.2.1 Wiring and transformer layout



Before working on electrical connections please make sure that the power to the light is switched off at the source and secured so that it will not be turned on during your work.

Ideally the cable used to power the light should be of a 1.5mm twin and earth type. Daray recommends that the power supplied uses an earthed switched fused spur, protected with a 3amp fuse.

The wiring should be as follows:		
Live terminal	→	brown wire.
Neutral terminal	→	blue wire.
Earth terminal	→	green/yellow wire.

The above wiring is for modern wiring applications (post 2000). The electronic transformer should be connected to the building mains in accordance to this and placed in a suitable location.

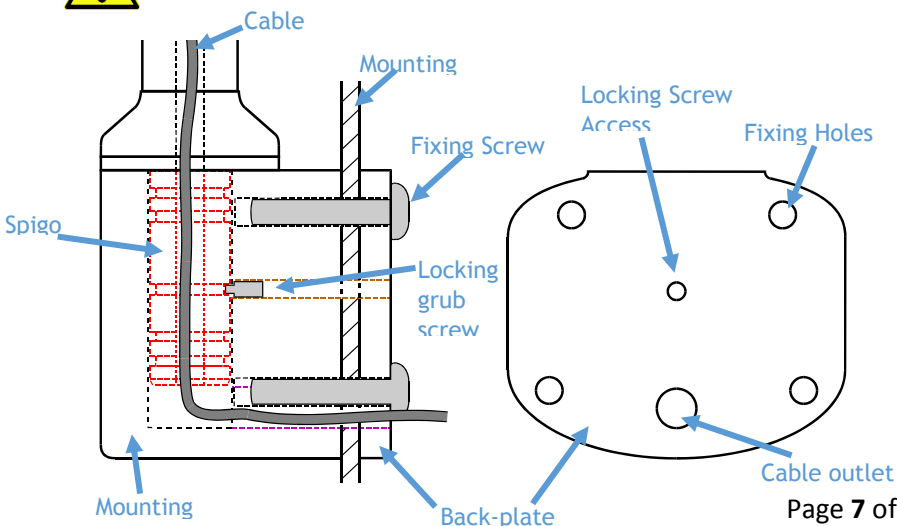


Warning, under no circumstances should this product be connected directly to the Mains electrical supply, this product requires a Low Voltage Connection only and must only be used with a Daray Certified Power Adapter.

3.3 Panel Mounted Bracket Assembly



The bracket needs to be true on the vertical plane.



3.3.1 Placement and Installation

Using the back-plate as a template, mark all the holes onto your mounting surface:

The four fixing holes (6.5mm)

The central locking screw hole (6.5mm)

The cable access hole (9mm)

(Temporarily inserting the spigot of the light to assess whether it is vertical may help to achieve a level mounting)

Drill the 6 holes.

Feed the cable from the light through the mounting bracket. Then, offer up the mounting bracket to the drilled holes and feed the cable through the mounting surface.

Using the appropriate screws with 4 x non-slip washers, fit the mounting bracket by sandwiching the mounting surface between the bracket and the back-plate.

With the mounting bracket securely locked, grease and insert the spigot. With the spigot inserted now tighten the locking grub screw to fix the light within the bracket.



Do not over tighten the locking grub screw as this could cause severe damage to the light.

Connect the Power supply unit (PSU) to the cable protruding from the back-plate. Connect the PSU to a fused 230V AC supply.

Check arm and head for smooth and correct movement before reattaching the panel surface, if the side movement is stiff you may need to slightly loosen the locking grub screw.

The light can now be tested by applying power and pressing the rocker switch on the head. With the light correctly installed and working, re-fit the panel to your wall; your new Daray light is now ready for use.

To gain full support of our warranty please fill in our warranty web form or contact Daray by phone or email.



Daray also provide service plans to help you maintain your light. Contact Daray on **0800 878 9864** for more details.

4. Operation

4.1 Pre-Start Checks



Please make sure the light head itself is not directed at people's eyes as the light will illuminate when powering on

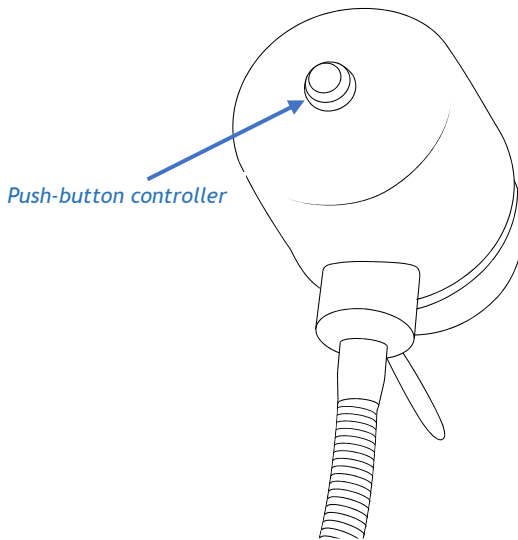
4.2 Powering On & Variable Intensity

The BH230 uses a single button (on the back of the head) to power the light on and off.

This switch also controls the lights variable intensity; hold the button in, to change the light intensity up or down.

Please Note, The variable intensity control has a memory function; whereby, if the light is turned off at a dimmed level, it will remember that level the next time it is turned on.

If the light is disconnected from the mains and reconnected the light's intensity is reset to its brightest setting.



5. Maintenance

The proposed maintenance is only a suggestion. Depending on the use of the product and the operating environment, this may need to be revised more often. Daray would strongly recommend against “quick fixes” with tape, etc. If you cannot resolve a problem then please contact our helpline on **0800 878 9864** or email **support@daray.co.uk**

5.1 Maintenance schedule

Weekly checks should include:-	Range of movement testing, it should be light and easy to move throughout the range
	No visible signs of excessive wear.
Monthly checks to include:-	Check the gooseneck for cuts, damage or wear and report as necessary.
Six monthly checks to include:-	Remove head and clean the interior of the hinge
	Remove arm, clean spigot and re-grease as necessary.
	Check all electrical connections are sound and that there is no visible cable wear.
	All fixings to be checked and be of sound construction.

5.2 Safety Precautions

- For all cleaning work, power off the equipment and where possible unplug the mains socket, only minimal cleaning fluids should be used.
- Please do not look directly into the light source when illuminated.
- If the equipment is dented or scratched this should not impact the usability of our lights however we advise that if the BioProtect® coating is damaged and the metal casing underneath is visible, please do not attempt to ‘paint’ over it as this will impact upon the effectiveness of the coating, simply use an alcohol based cleaning spray when cleaning and pay special attention to the cut.



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

5.3 Product cleaning & care guidelines

The X200 Range features BioProtect® antimicrobial coating on all painted surfaces and has a fully-enclosed head with an Ingress Protection (IP) rating of 54.

These guidelines are provided to help you maintain your equipment properly and prevent any damage. Use of incompatible cleaning chemicals can adversely affect the finish and physically damage the metal and plastic parts of the DARAY product, invalidating its warranty.

Please ensure these instructions are passed to the persons responsible for cleaning and they are followed before each use.

Manufacturers recommended cleaning method:


1. Turn off the power to the light, and where possible, unplug the mains socket.
2. Remove noticeable contamination. Pay special attention to the light head and handle.
3. Ensure the equipment is surface-cleaned and disinfected using an appropriate, non-abrasive cleaning agent (see recommended list below).
4. Dry all surfaces thoroughly with a clean cloth and check for damaged surfaces, discolouration and/or contamination.

NOTE: Some DARAY products feature our BioProtect® antimicrobial coating on painted finishes. This is designed to assist with infection control and is not a replacement for cleaning.


CAUTION: Our products are NOT waterproof. The equipment and accessories (included chargers and battery packs) MUST NOT at any point be saturated, to prevent water ingress. Use a damp cloth or saturated wipe if necessary. All electrical safety guidelines should be followed.

Any damage caused as a result of not following these guidelines will void any product warranty.

Below is a partial list of recommended surface agents:

- 
- Cavicide™ products
 - Isopropyl alcohol-based cleaners (<40% alcohol)
 - Ethyl alcohol-based cleaners (<40% alcohol)
 - Lysol® disinfectant
 - Other non-bleach and non-abrasive disinfectants or cleaners

DO NOT USE agents containing the following:

- 
- Organic, mineral and oxidizing acids (min. pH value 8.5)
 - Bases (max. acceptable pH value 8.5)
 - Oxidation agents (e.g. Hydrogen Peroxide)
 - Halogens (chlorine, iodine, bromide)
 - Aromatic/halogenized hydrocarbons
 - Bleach-based cleaners (e.g. Clorox™, Sterilox™)
 - Abrasive cleaners (e.g. Comet Cleaner™)
 - Acetone-based cleaners (e.g. nail polish remover, Goo-off™)
 - MEK (Methyl Ethyl Ketone)

If you are unsure whether you are using the correct cleaning fluids on your DARAY equipment, please feel free to get in touch with us for advice.

5.4 Fuses and their replacement

The BH230 does not have any user replaceable fuses, the power for this light comes from an electronic transformer. For any internal or transformer burnouts please contact your supplier or Daray.

5.5 Adjustments

The head has a total turning capability of approximately 300 degrees, attempting to push further may cause damage to the movement and internal wiring of the light.

The gooseneck arm shouldn't need adjustment in the life cycle of the light however if you start to experience difficulties please contact Daray customer services to discuss this.

5.5.1 Detaching Parts

De-construction of the lights should be done following a reverse order of the instructions in the installation section.



The BH230 is a completely enclosed light and arm it should not be opened and is not serviceable outside of a Daray Authorised service centre.

For any issues requiring service work on the BH230 please contact daray, as unauthorised work will **invalidate the warranty.**

6. Troubleshooting Guide

Problem	Possible Cause	Corrective Actions
No light output	Power Supply	Check that power is being supplied to the light via its mains connection point, PSU and the buildings circuit breaker.
	On/Off/Intensity Button	Press the button on the back of the light to check if the light will power on (if dimmed refer to poor light output actions).
	Fuses	Visually check fuses then check continuity with meter
	Cables	Check the visible wiring and make sure the DC connection between the light and the PSU are fully connected
Poor Light output	Power Button	Please check the variable intensity is not just set to its minimum. To do this hold in the power button on the back of the head. This is the control used to adjust the intensity. If the light reduces more, simply remove your hand and then depress the button again
	Voltage in	Verify that the correct mains voltage and correct transformer is being used
	Voltage out	Verify correct secondary voltage (For nominal voltage under load please contact Daray)
Light patch not focused	Light head	The BH series are designed to have a more diffuse patch than examination lights, In the unlikely event that the BH series patch is different to what is expected, please contact Daray
Arm drift sideways	Panel Mount	On installation the arm has most likely not been vertically aligned and levelled. Please contact the original fitter or a qualified electrician

7. Spare Parts

CAUTION: Use only genuine 'DARAY' replacement parts as anything else may seriously impair the performance or compromise the safety of the product

For any SPARE PARTS or TECHNICAL ISSUES phone DARAY'S 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.



8. Warranty Information

8.1 Returns Policy

IMPORTANT!
Please fill out your warranty registration online at
www.daray.co.uk/warranty or contact Daray by phone (0800 878 9864)
or email support@daray.co.uk

DARAY's standard warranty is 12 months. However, this period may be extended for this product to 5 years* free of charge, simply by completing and submitting the warranty registration online.

Year 1:	Warranty includes parts and labour (Return to Base)	*UK only
Years 2-5:	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

TYPE OF RETURN	REMEDY
DAMAGED GOODS Goods which are physically damaged on delivery	We must be notified within 24 hours of receipt.
Dead On Arrival (DOA) 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.
GOODS DEVELOPING A FAULT 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.
NON WARRANTY 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.
OTHER 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.

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.

8.2 Warranty Details

TERMS AND CONDITIONS OF WARRANTY

1. To qualify for this warranty you must register on 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
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:

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Medical

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