

DARAY[®]

Medical



X100

LED Examination Light

Operating & Installation Manual

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1. Introduction

DARAY's X100 is a cost-effective, general-purpose examination light for use during medical or veterinary consultation and diagnosis, where the output intensity of higher-powered lights is unnecessary.

The X100 uses an LED module to give adequate light intensity with virtually no heat. The light head is small and robust and carries a push-button on/off switch.

The light comprises 3 parts: light-head and flexible arm system, power-supply module, and the mount of choice. The flexible arm allows the light patch to be placed accurately and stably where it is needed.

All versions are delivered in special-to-type packaging which identifies on the ends of the box the model type and serial number of the light within.

This user & installation guide contains all the information you need for installation, operation and maintenance.

Restrictions and Liabilities

Information in this document is subject to change and does not represent a commitment by DARAY. Changes made to the information in this document will be incorporated in new editions of the publication. No responsibility is assumed by DARAY for the use or reliability of software or equipment that is not supplied by DARAY.

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.

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	
X100LW	X100 LED Wall Mounted Light
X100LR	X100 LED Rail Mounted Light
X100LD	X100 LED Desk Mounted Light
X100LDS	X100 LED Weighted Desk Stand Light
X100LFDM	X100 LED Fixed Desk Mount Light
X100LM	X100 LED Mobile Light

2. Technical Specifications

Light Source	LED
Light Intensity (Lux) @ 0.5m	12,000 Lux $\pm$ 5%
Beam angle	10°
Colour Temperature (Kelvin)	4,200K $\pm$ 500
Colour Rendering Index (CRI)	93
Light Field Diameter (D50)	@ 0.5m: 180mm
Light Field Diameter (D10)	@ 0.5m: 240mm
Number of LED's	4
Power Consumption	8.5W 0.07A
Average Working Life	>40,000 Hours
Input Voltage	100 - 240V AC 50/60 Hz
Output Voltage	12V DC 2A
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
IP Rating	IP 44

2.1 Pre-Installation Responsibilities and component packing list

This document is a guide to the steps that need to be performed to correctly install the X100 Examination light. However, the work required to be performed is the responsibility of the owner or designated contractor/s.

All fixings between DARAY lights and the 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.

X100LD/FDM/S	Qty.	X100LW	Qty.
12V Plug top transformer (1.8m)	1	12V Plug top transformer (1.8m)	1
Desk Clamp/Fixed Desk Mount/Desk Stand	1	Wall bracket + fixings	1
Light head and flexible arm	1	Light head and flexible arm	1
User Manual	1	User Manual	1
Microfibre Cleaning Cloth	1	Microfibre Cleaning Cloth	1

X100LM	Qty.	X100LR	Qty.
IEC Cable (3m)	1	12V Plug top transformer (1.8m)	1
12V PSU + bracket kit	1	Rail Clamp	1
Mobile base (2 pieces)	1	Thumb Screw for Rail Clamp	1
Light head and flexible arm	1	Light head and flexible arm	1
User Manual	1	User Manual	1
Microfibre Cleaning Cloth	1	Microfibre Cleaning Cloth	1
Thumb screw	1		

2.2 Pre-Start Checks



Please check that the power cable is without visible damage, harsh folds, knots or cuts in the rubberised coating.



When applicable, please check that the cable is fully inserted into the power socket, before switching the power on.



Please check that the head and all parts of the base are without visible damage.

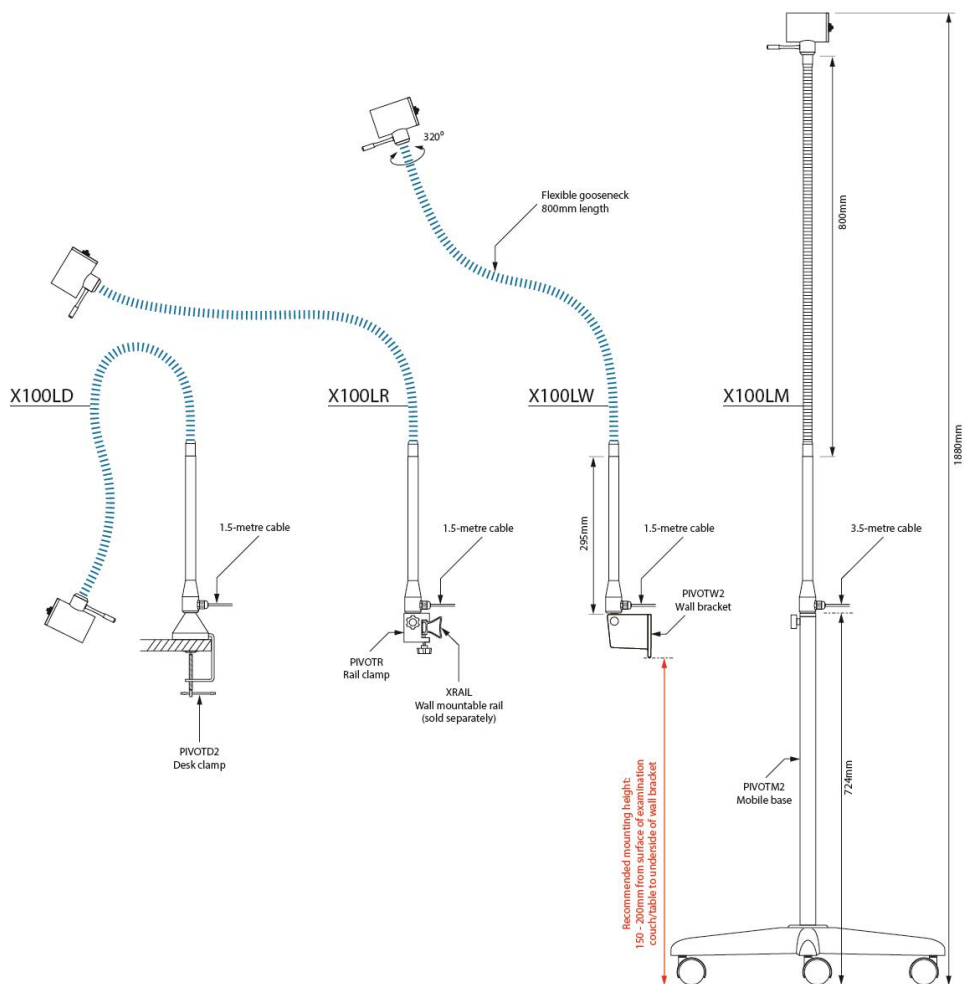
2.3 Technical Drawing

Product Dimensions:

X100 LED Examination Light

All versions: X100LD / X100LR / X100LW / X100LM

If you require any assistance determining the optimum fixing position for your light, please call our Service Delivery Team on 0800 878 9864 for advice and support.



*All dimensions shown in red are based on a suggested mounting height (see underside of wall mounting bracket). For specific applications and environments, the mounting bracket should be installed at a height so that, when fitted, the lighthead is as near to the required position as possible. Actual location should be dependent on intended use and desired reach. Common sense should always prevail.

3. Operation

3.1 Powering On

The X100 uses a single button on the back of the head to power the light on and off.

- **Press once to power ON.**
- **Press once to power OFF.**



3.2 Adjusting the light head

The head of the X100 light has a total turning capability of 320 degrees, attempting to push further may cause damage to the movement and internal wiring of the light.

4. Installation

4.1 Wall mounted version (X100LW)



The wall bracket needs to be true on the vertical plane.



PIVOTW2 Wall bracket

4.1.1 Considerations

Wall Construction	Before fixing it is important to consider the strength of the wall and the depth of the fixings used. Use of a building engineer or structural drawings may be required to decide on suitability.
Examinations to be undertaken	We recommend the bracket be installed approximately 850-1100mm from the floor to the underside of the bracket - dependent on couch height. It may be necessary to adjust this height, if there are specific medical procedures the light will be used for. If in doubt consult the end user or DARAY. When installing the bracket take consideration of where you want the light head to sit when in its lowest position.
Locations of nearest mains sockets	The X100 wall mounted light uses a plug top transformer with a DC jack connection. Only the supplied certified power adapter should be used with the light. The length of this cable is approximately 1.8m so the wall mounted light should be within 1.5m of a mains power point

4.1.2 Placement and Installation

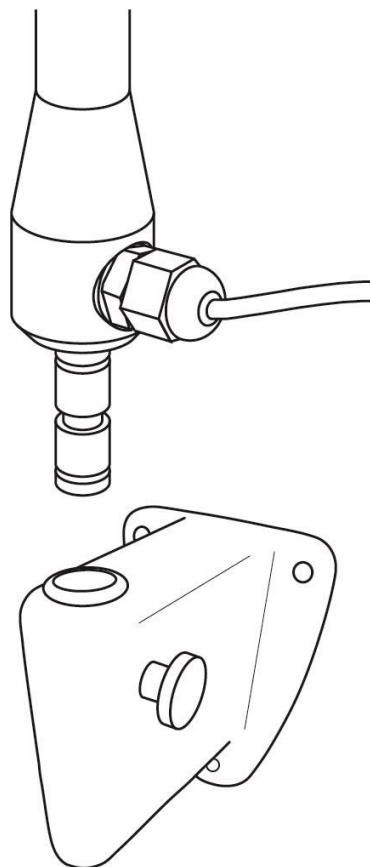
- Remove the light from its packaging.
- Mark on the wall the selected location for the wall-mounting bracket, bearing in mind the final position of the light head required to project its light-patch where it will be needed.

We recommend 850-1100mm from the floor to the underside of the bracket - dependent on couch height. Ideally, the underside of the bracket should be 150-200mm above the couch.

- Taking note of the considerations in *section 4.1.1*, mount the PIVOTW2 wall bracket directly to the wall. Use a spirit level to ensure the bracket is on a true vertical plane.

- Once the bracket is installed, turn the thumbscrew anti-clockwise to allow a clear path through the hole, and then slide the light spigot directly into the hole in the bracket. Make sure the light is fully pushed in.

- Tighten the thumbscrew to secure the light in position.

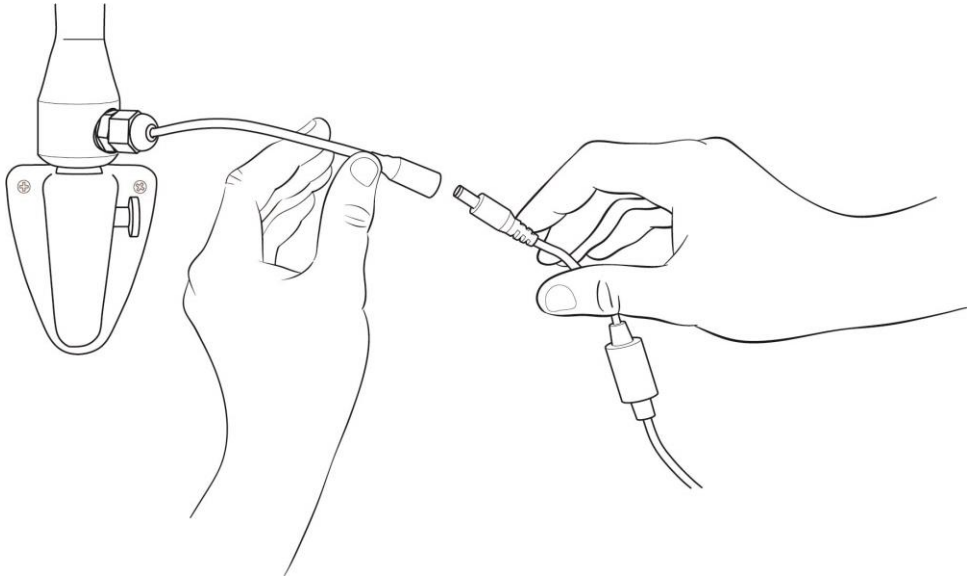


The power supply for the X100 is a plug top transformer with a DC jack connection, these can be inserted into any standard UK wall socket.



Please note, 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.

The light can now be tested by connecting the DC jacks and applying power. Press the switch on the head to power your light on. *See page 8*



Check arm and head for smooth and correct movement. 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.



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

4.2 Rail mounted version (X100LR)

- Remove the light from its packaging.
- *If you have also purchased our XRAIL accessory*, hold the rail against the selected location on the wall, bearing in mind the final position and range of travel of the light-head required to project its light patch where it will be needed.
- Ensuring the rail is horizontal; mark the positions for the 2 screw holes.
- Fix the rail to the wall, using appropriate plugs as necessary and the 2 screws provided.

NOTE: Slide the screw-head cap retainers the correct way up onto the screws before fitting the screws!

- Fit the screw-head caps.
- Ensure the rail end caps are properly fitted.
- Slacken sufficiently the light clamp to allow the clamp to pass over the rail and fit the light to the rail.
- The light can be moved along the rail by slackening the clamp slightly and not sufficiently to allow the light to become detached from the rail.

4.3 Desk mounted versions (X100LD / X100LDS / X100LFDM)

X100LD (includes PIVOTD2 desk clamp)

- Remove the light from its packaging.
- Slacken the desk clamp so that its jaws just clear the desk edge.
- Tighten the clamp sufficiently to provide a rigid mounting for the light.
- Fit the spigot on the end of the light arm into the top of the clamp, make sure it is fully secured in place.
- Apply the power cable, and power the light on. *See page 8.*

X100LDS (includes PIVOTS weighted base)

- Remove the light from its packaging.
- Fit the spigot on the end of the light arm into the top of the weighed base, make sure it is fully secured in place.
- Apply the power cable, and power the light on. *See page 8.*

X100LFDM (includes PIVOTFDM fixed desk mount)

- Remove the light from its packaging.
- Mark the position on the desk for mounting. Use screws to fix the bracket securely.

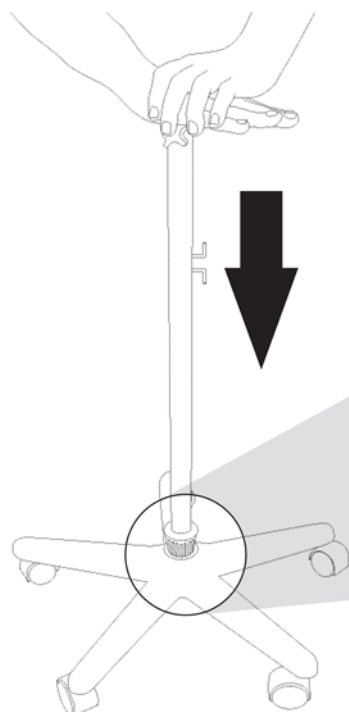
- Fit the spigot on the end of the light arm into the top of the clamp, make sure it is fully secured in place.
- Apply the power cable, and power the light on. *See page 8.*

4.4 Mobile version (X100LM)

- Remove the light from its packaging.
- If not already fitted, fit the castors to the base by knocking them sharply into their fixing sockets.
- Insert the up-stand into the castor base as shown below.
Do not use a metal hammer.
Once fitted, the up-stand will not be able to be removed from the castor base.
- Insert the light-arm's spigot into the top of the upstand and tighten the knob to secure it in place.

WARNING: DO NOT LIFT THE LIGHT BY THE FLEXIBLE ARM AS THIS CAN CAUSE DAMAGE

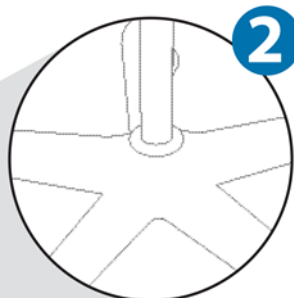
1 Connecting upstand with castor base



Place castor base on firm ground and insert upstand into hole located in the centre of it.

Placing hands on the top of the upstand as illustrated, push down with a firm pressure until upstand is fully inserted.

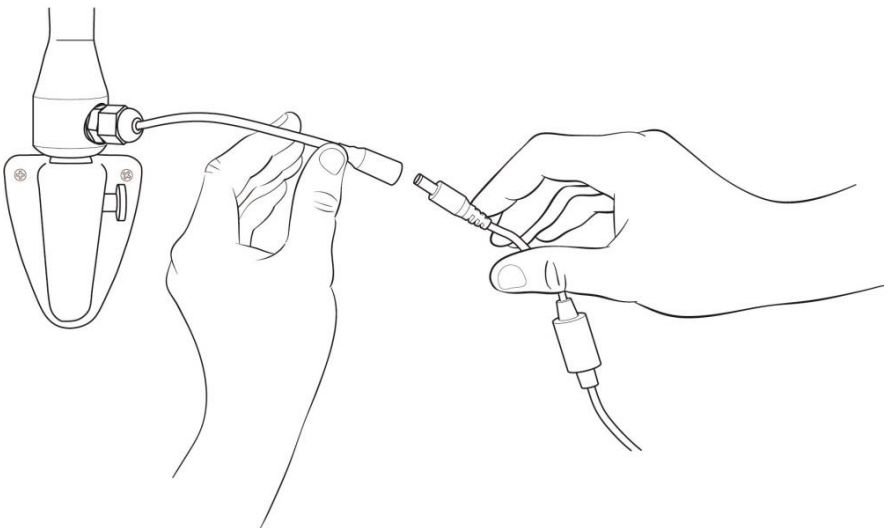
Insertion of upstand may be very tight, and may require the use of a wooden or rubber mallet to tap the upstand downward



- Insert the orange IEC cable into the black power supply attached to the base upstand.



- The light can now be tested by connecting the DC jacks between the power supply and the light, and applying power. Press the switch on the head to power your light on. *See section 2.4.*



4.5 Optional battery back-up

4.5.1 Packing List

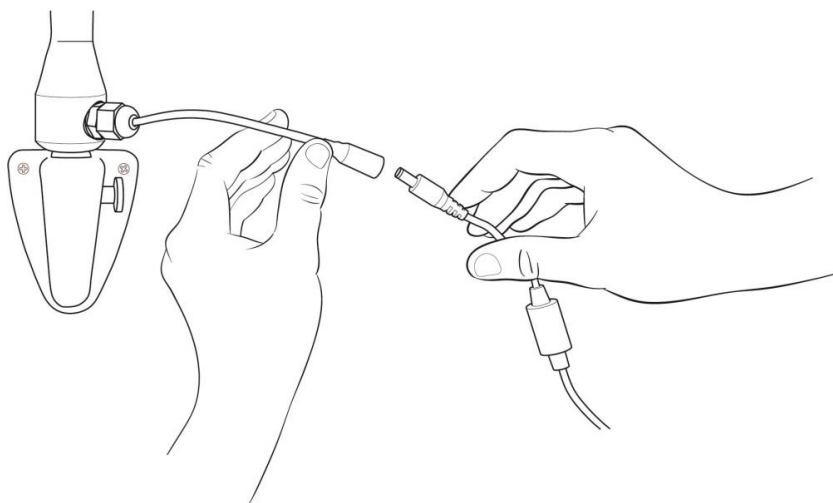
- Battery back-up unit
- Double-ended bridge cable
- 12V PSU + extension cable

4.5.2 Install

1. Plug the power adapter into the wall and insert the DC connector into the battery. Switch the battery to the ON position and the red light on the top of the battery pack will illuminate. If you are using the mobile version of this light, please use the extension cable provided.

NOTE: Charging time can take up to 8 hours depending on how depleted the battery is.

2. If you need to use the light on battery power, disconnect the power cable from the battery pack. Insert one end of the double-ended bridge cable into the battery back-up unit and the other end into the cable trailing from the light. Power the light on as per section 3.2



3. When the battery is depleted, disconnect the bridge cable from the battery pack and plug the power adapter in and repeat from step 1.

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.

DO NOT ATTEMPT ANY FIXES BEFORE CONSULTING DARAY.

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 joints and thumb screws for wear and report as necessary
Six monthly checks to include:-	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 X100 features a fully-enclosed head with an Ingress Protection (IP) rating of 44. 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 Detaching Parts

De-construction of the lights should be done following a reverse order of the instructions in section 4.

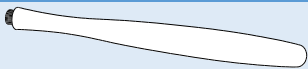
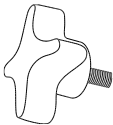


The X100 is a completely enclosed light and arm it should not be opened and is not serviceable outside of a DARAY Authorised service centre.

For any issues requiring service work on the X100 please contact DARAY, as unauthorised work will **invalidate the warranty**.

6. Troubleshooting Guide & Spare Parts

Problem	Possible Cause	Corrective Actions
No light output	Power Supply	Wall Version - Check the plug top adapter is plugged in and switched on at the power socket.
	On/Off	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 connectors between the light and the PSU are fully connected. For the mobile version, ensure that the IEC is firmly pushed into the PSU.
	Bulb	Ensure that the bulb is firmly pushed in, as it may have come loose during transit.
Poor Light output	Power Button	Contact DARAY Service Delivery
	Voltage in	Verify that the correct mains voltage and correct transformer is being used
	Voltage out	Verify correct secondary voltage
Arm drift sideways	Wall mount	On installation the arm has most likely not been vertically aligned and levelled. Please contact the original fitter or a qualified electrician

Picture	Description	Order Code
	Light-head handle	D16253
	Wall bracket thumb screw	D16247
	12V Plug-top transformer (non-mobile)	DRK4148
	12V PSU and 3m IEC Cable Kit (mobile)	DRK4176

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.



6. Warranty Information

6.1 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 to 5 years* free of charge by completing and submitting the warranty registration.

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

6.2 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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Service Notes

[illegible]

