

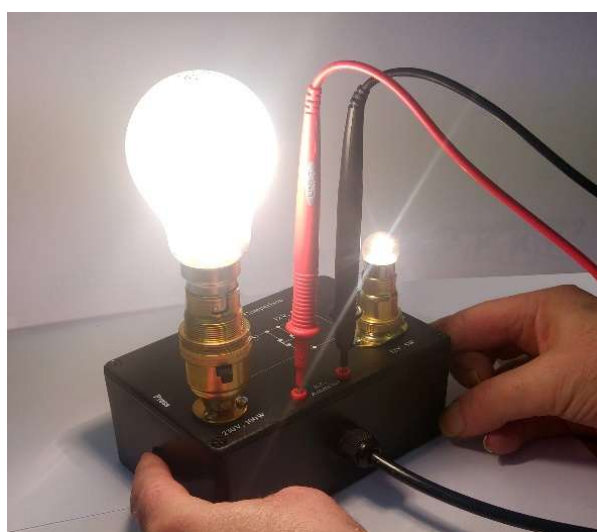


Providing Excellence in Science Education

IPC Irwin Lamp Brightness Comparison Unit

Part Number ELB8000

User Instructions



INTRODUCTION.

Thank you for purchasing the IPC Irwin Lamp Brightness Comparison unit. This will lead to the understanding of much more than the relationship between current, voltage and the brightness of incandescent lamps. But also, like all practical experiments, create an understanding of how to conduct such scientific experiments considering experimental techniques, such as evaluating the dangers of using mains electricity, heat and the dangers of high illumination to the eyes, as well as observation techniques and recording results.

DESCRIPTION.

The unit itself is housed in a robust ABS plastic case, and incorporates two lamp fittings, one for the larger 240VAC lamp (B22) and one for the smaller 12VAC lamp (SBC). The lid of the case shows the operating circuit diagram, along with the lamp details etc.. Two push-switches are fitted to the opposite sides of the case to operate the unit, this is a safety feature requiring the operator to use both hands, therefore reducing the possibility of the operator touching the lamps (these will get hot during operation). Finally, the unit provides two 2mm socket located in the lid for the connection of an AC Ammeter in order to measure the different currents during the operation/experiments, please note: the unit will not function without the ammeter being connected.

IPC Irwin

Holker School, Cark in Cartmel, Grange over Sands, Cumbria LA11 7PQ, United Kingdom

Call: 015395 58555 **Email:** sales@ipcirwin.com



Providing Excellence in Science Education

INSTRUCTIONS.

To operate the Lamp Brightness Comparison unit first insert a 230V, 100W, tungsten filament, GLS bayonet cap (B22) lamp into the larger socket and move the black slide switch on the socket to the ON position, then insert a 12V, 5W, tungsten filament, SBC lamp into the smaller socket.

Then connect either an Ammeter or Multimeter capable of measuring up to 1 Amps AC to the two red sockets on the unit using 2mm test probes. **Note: the use of an ammeter is required in order for the unit to operate correctly and to perform experiments and calculations.**

Caution: Remember the ammeter probes are “live”, DO NOT TOUCH, strict supervision must be provided when in use with students.

Now plug the unit into a suitable mains socket and the 230V, 100W lamp will illuminate, to operate the 12V, 5W lamp press the two black buttons on the sides of the unit simultaneously, this will connect the two lamps in series. **Note:** when performing this the 230V, 100W lamp will fractionally dim and the current reduce slightly.

A suitable ammeter to use in conjunction with the Lamp Brightness Comparison unit is the IPC Irwin 10 Amp AC, Digital Ammeter, IPC-1269-M.

SPECIFICATIONS.

Electrical Supply	= 220-240VAC, 50-60Hz
Fuse Ratings	= UK Mains Plug: 3A
Dimensions	= 150 x 100 x 120mm (without Lamps fitted) overall.
Mass	= 0.35kg (without Lamps fitted).
Lamp (GLS)	= 230V, 100W, Tungsten Filament (bayonet cap, type: B22).
Lamp (SBC)	= 12V, 5W, Tungsten Filament (small bayonet cap, type: SBC).

REPLACEMENT LAMPS.

Both the 230V, 100W lamp (pearl type) and the 12V, 5W lamp (clear type) are supplied with the Lamp Brightness Comparison unit. However, should replacement lamps be required please contact IPC Irwin.

Please Note: This Equipment is for Education, Training, or research Purposes Only.

IMPORTANT - ELECTRICAL SAFETY NOTICE

Only connect the product to single phase mains electrical supply (with neutral nominally at each potential), also check that the supply voltage and frequency are within the products stated range. Before connecting to the mains electrical supply, examine the information on the products rating label (the value of the fuse fitted to the product is also stated), ensure that the mains plug, or outlet circuit is fitted with an appropriate fuse of higher value.

IPC Irwin

Holker School, Cark in Cartmel, Grange over Sands, Cumbria LA11 7PQ, United Kingdom

Call: 015395 58555 **Email:** sales@ipcirwin.com



Providing Excellence in Science Education

WARNING: THIS PRODUCT MUST BE EARTHED

This product is designed for Electrical Safety Class 1.

If a mains plug is not fitted, connect the wires to a Standard UK, 3-pin plug as follows:-

Green/Yellow wire to the terminal marked: E (Earth) or coloured Green or Green/Yellow.

Brown wire to terminal marked: L (Live) or coloured Brown.

Blue wire to terminal marked: N (Neutral) or coloured Blue.

LIVE PARTS SHOULD NEVER BE EXPOSED UNLESS THE PRODUCT HAS BEEN SWITCHED OFF AND ISOLATED FROM THE MAINS ELECTRICITY SUPPLY.

Declaration of Conformity (In Accordance with EN ISO 17050-1:2010).

Manufacturer: IPC Irwin, Holker School, Cark-in-Cartmel, Grange-over-Sands,
Cumbria, LA11 7PQ, United Kingdom.

Product/Part No: **Lamp Brightness Comparison Unit (230V AC, 50Hz main voltage)/ELB8000**

This conformity certificate approves the compliance of the product with the essential safety requirements of the following UK Standards and Regulations:

SI 2005 No.1803	General Product Safety Regulation (implements Directive 2001/95/EC).
SI 2016/1101	Electrical Equipment (Safety) Regulation (implements Directive 2014 /35/EU.
EN 61010-1: 2010	Electrical Requirements for Laboratory Test & Measurement Equipment.
EN 61000-6-1: 2019	EMC, Generic Standards, Immunity for Residential, Commercial and Light Industrial Environments.
EN 61000-6-3: 2019	EMC, Generic Standards, Emission for Residential, Commercial and Light Industrial Environments.
SI 2012 No. 3032	Restriction on Hazardous Substances (RoHS) in Electrical and Electronic Equipment Regulation, (implements Directive 2011/65/EU).



Mark can be used only in the case of conformity assessment according to all relevant UK Standards and Regulations.

EU Declaration of Conformity (In accordance with European Parliament and Council Decision No: 768/2008/EC Annex III).

This conformity certificate approves the compliance of the product with the essential safety requirements of the following EC/EU Directives (Manufacturer, Product/Part No: as above).

2001/95/EU	General Product Safety Directive.
2014/35/EU	Low Voltage Directive (LVD).
2014/30/EU	Electromagnetic Compatibility (EMC) Directive.
2011/65/EU	Restriction on Hazardous Substances Directive (RoHS).

European harmonised Standards used for conformity assessment and declaration:

IPC Irwin

Holker School, Cark in Cartmel, Grange over Sands, Cumbria LA11 7PQ, United Kingdom

Call: 015395 58555 **Email:** sales@ipcirwin.com



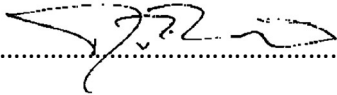
Providing Excellence in Science Education

EN 61010-1: 2010

Electrical Requirements for Laboratory Test & Measurement Equipment.



Mark can be used only in the case of conformity assessment according to all relevant EC/EU Directives.

Dickon Knight (Director):  Date of Issue: 24th May 2023.

In the event of any correspondence concerning this product, please contact your supplying agent quoting the catalogue number and serial number shown on the apparatus rating label, together with the voltage and frequency of the mains electrical supply. This will help us to process your enquiry quickly. Any spare parts which may be required are supplied on the understanding that the replacement of those requiring the exposure of live electrical connections **will** be undertaken by an electrically qualified person.

Thank you for choosing this IPC Irwin product, which has specifically been designed for education and we know it will bring you good service long into the future. This is just one product of a wide range of UK designed and manufactured products to enhance a STEM education, please see www.ipcirwin.com website for more details on the products and service we provide to support teaching and learning in science and technology.

IPC Irwin also provide Portable Appliance Testers and a Calibration service, for more details please go to www.ipcirwin.com or call our sales and technical support line on 015395 58555.



IPC Irwin

Holker School, Cark in Cartmel, Grange over Sands, Cumbria LA11 7PQ, United Kingdom

Call: 015395 58555 **Email:** sales@ipcirwin.com