

IL75E Ellipsoidal-Reflector Based Xenon Lamp User Notes



Overview

The Bentham IL75E Xenon source consists of a 75W Xenon short arc lamp and ellipsoidal reflector to couple a maximum of light into the f/4 input of Bentham monochromators, providing typically as much output as traditional lens-based sources of up to 500W.



The lamp starter is housed inside the IL75E, requiring therefore only a constant current source input, such as the Bentham 605.

Attention: this source emits significant UV radiation which has the potential to damage. Do not look into the source without suitable eye protection, and do not work with an exposed lamp without suitable skin protection.

Mechanical

The IL75E can be either mounted to the entrance slit of any Bentham monochromator via M3 screws, or can be used in the stand-alone configuration.

Should the device be mounted to a monochromator, two load bearing feet are positioned to the rear of the device to reduce the mechanical force on the monochromator entrance slit.

Electrical

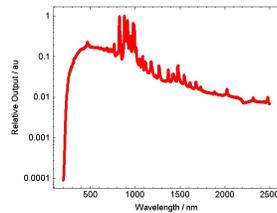
The IL75E should be operated at 5.4A from a constant current supply. The compliance voltage is around 15V.

On power on, the igniter circuit charges for around one minute prior to establishing the arc. The compliance voltage will then be seen to stabilise.

The Xenon lamp

The Xenon short arc lamp comprises two electrodes sealed in a quartz envelope, in which is present xenon gas. The cathode is designed to be physically narrow to ensure that it runs at a high temperature, and is doped to ensure that it emits as many electrons as possible.

The anode is much larger to withstand being inundated with electrons. The distance between the cathode and may be up to several mm.



Typical source relative output

A starter is employed to initially drop a high voltage across the electrodes to establish the arc.

In general the Xenon lamp provides a higher UV output and less IR than the quartz halogen lamp, however the continuous spectrum is superimposed by unstable line emission which may not be desirable in some uses.

This source is typically fitted with an ozone friendly lamp, for which light is output above 250nm; to obtain light down to 200nm, an ozone generating lamp may be fitted, in which case precautions should be taken to correctly ventilate the area of use.

Lamp lifetime is estimated to be around one thousand hours.

Lamp Replacement

For those sources using the Bentham 605, lamp failure is indicated either by the illumination of the red lamp fail LED or by the start sequence being followed by the starter repeatedly attempting to establish the arc, with no light output evident.

Lamp	Bentham Part No.	Manufacturer	Model
IL75E	19117	OSRAM	XBO 75W/2 OFR

The lamp should be replaced by the following procedure:-

- Ensure the supply is disconnected from the lamp
- Wear face and body protection- this gas in this lamp is under pressure, mechanical force can cause the lamp to explode. Ensure all other people in the room are suitably protected
- Ensure that gloves are worn for safety and to avoid contaminating the quartz envelope with grease
- Remove the lid of the source



- Note that the lamp is held on one side in a brass block behind ellipsoidal reflector by a grub screw, at the other, electrical connection is made by fly lead
- Note the polarity of the lamp; anode (+) connected to the brass block, cathode (-) to the fly lead
- Carefully loosen the grub screw in the brass block
- Gently pull out the lamp from the brass block, and undo the collar connecting the fly lead to the lamp- doing so prevent twisting the lamp whilst removing the collar
- Fit the collar to the new lamp cathode and ensure the grub screws are sufficiently tight
- Position the anode side into the brass block and tighten the grub screw

The lid can be now replaced. It is suggested that lamp re-alignment, having been performed in factory, should not need to be repeated.

WEEE statement:

Bentham are fully WEEE compliant, registration number is WEE/CB0003ZR. Should you need to dispose of our equipment please telephone 0113 385 4352 or 4356, quoting account number 135419.



Bentham Instruments Limited
2 Boulton Road, Reading, Berkshire, RG2 0NH, UK
Tel: +44 (0)118 975 1355 Fax: +44 (0)118 931 2971
Email: sales@bentham.co.uk Internet: www.bentham.co.uk