

# 706

DEUTERIUM LAMP POWER SUPPLY



## User Manual

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## 1 INTRODUCTION

Thank you for your purchase of the Bentham 706 Deuterium lamp power. The documentation for this product consists of this User's Manual with reference made to specific component manuals where further information is sought. To get the most from this instrument, please be sure to read all instructions thoroughly and keep them where they will be read by all who use the product.

## 2 GUARANTEE

Bentham Instruments warrants each instrument to be free of defects in material and workmanship for a period of one year after shipment to the original purchaser. Liability under this warranty is limited to repairing or adjusting any instrument returned to the factory for that purpose. The warranty of this instrument is void if the instrument has been modified other than in accordance with written instructions from Bentham, or if defect or failure is judged by Bentham to be caused by abnormal conditions of operation, storage or transportation.

This warranty is subject to verification by Bentham, that a defect or failure exists, and to compliance by the original purchaser with the following instructions.

Before returning the instrument, notify Bentham with full details of the problem, including model number and serial number of the instrument involved. After receiving the above information, Bentham will issue an RMA reference number and provide shipping instructions.

After receipt of Shipping instructions, ship the instrument "carriage paid" to Bentham. Full liability for damage during shipment is borne by the purchaser. It is recommended that instruments shipped to us be fully insured and packed surrounded by at least two inches of shock-absorbing material. Specific transit packaging as used in Monochromators etc. must be installed.

Bentham reserves the right to make changes in design at any time without incurring any obligation to install same on units previously purchased.

This warranty is expressly in lieu of all other obligations or liabilities on the part of Bentham, and Bentham neither assumes, nor authorises any other person to assume for it, any liability in connection with the sales of Bentham's products.

**NOTHING IN THIS GUARANTEE AFFECTS YOUR STATUTORY RIGHTS.**

### 3 NOTICE FOR CLIENTS IN EUROPEAN UNION



This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.

Bentham are fully WEEE compliant, our registration number is WEE/CB0003ZR.

Should you need to dispose of our equipment please telephone +44 (0) 113 385 4352/4356, quoting account number 135419

### 4 CONTACT BENTHAM

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### 5 COMPONENTS

1 x 706 Deuterium lamp power supply

1x Mains cable

1x Lamp cable (red, black blue)

## 6 OVERVIEW



Figure 1: 706 Deuterium lamp power supply

The Bentham 706 houses a high performance deuterium lamp power supply. Designed to possess excellent electrical stability and ignition properties, to ensure reliable starting and to improve operating lifetime, the 706 is used to operate the following Bentham light sources:

- IL6-Deut General purpose UV illuminator
- CL3 UV spectral irradiance calibration standard
- CL7 enclosed UV spectral irradiance calibration standard

Use of the 706 power supply, having very low noise and drift characteristics, ensures excellent stability of radiation for reliable measurements in the UV. The supply has, and uses a novel ignition circuit to ensure a soft and reliable arc initiation even when the lamp

## 7 SPECIFICATIONS

### Electrical Performance

Anode Voltage	60-110 V DC
Anode Current	300 mA DC $\pm$ 2.5%
Anode Current Stability	$\leq$ 0.05% peak-peak
Anode Current Drift	$\leq$ 0.1%/ h (after 30 minute warm-up)
Heater Voltage	2.5V DC (warm-up) 1.0V DC (in operation)
Heater Current	4.0A DC (warm-up) 1.8A DC (in operation)
Warm-up Time	10 s
Strike Voltage	600V

### Input/ Mechanical

Indications	Power on LED, lamp strike LED
Overall dimensions	205W x 141D x 79H
Weight	~2 kg
Power supply	Mains input 110/220V 50/60Hz

## 8 USING THE 706

The 706 should be connected to the corresponding lamp, matching coloured connectors (on the rear panel of the 706) using the red, black, blue cable provided. Connect the 706 to mains and power on. The “power “ indication LED will ignite as will that for the “starter”.

The heater current warms up the cathode of the lamp for approximately ten seconds. After the warm-up period the lamp is ignited. The preheating voltage of the cathode (2.5 V) is reduced to the operating voltage (1.0 V). The anode current is regulated to 300 mA. The anode voltage decreases from 135 V to about 80 V.

If the arc fails to establish, the start sequence will repeat., the “starter” LED will re-ignite. Failure to strike may indicate poor electrical connections or lamp failure. Power off the 706 and check connections before proceeding.

The 706 is fitted with a switched mode power supply and a line fuse in the IEC connector depending on intended mains voltage of operation (220V AC- 630mA, slow blow; 110V AC- 1A slow blow).

## 9 VERIFYING CURRENT APPLIED TO LAMP

The heater is provided between the blue and black cables, the lamp supply between the red and black. To measure the current supplied to the lamp, put a current sense resistor (typically  $\leq 0.1\Omega$ ) in line with the red wire, let the lamp strike then measure the voltage across the resistor. It is recommended not to connect a voltmeter across the resistor during lamp strike lest the latter be damaged.