

DH-10 Multi-alkali Photomultiplier Tube User Notes



Overview

The Bentham DH-10 houses a side-window bi-alkali photomultiplier tube (PMT).

The housing is designed for optimal device performance, having:-

- PCB-based dynode chain
- mu-metal shield to obviate the effects of extraneous magnetic fields
- fused quartz output window

This device, as standard, is fitted with a multi-alkali PMT, responsive over the spectral range 185-650nm.

Electrical

There are two labelled BNC ports on this device- signal and HV (high voltage). For the former is provided a standard BNC cable; for the latter, a thicker BNC cable with PTFE insert to avoid connecting a high voltage to the signal channel.

The anode current can be measured via a transimpedance amplifier, such as the Bentham 487.

This device requires a high voltage for operation, typically derived from the Bentham 215 module. It is suggested to operate this device at 750V.

It is of prime importance to ensure that the current amplifier is not exposed to this high voltage; Bentham recommend operating the device with the photocathode at negative HV, and the anode at ground.

Pin out of the HV port is:- inner pin negative HV, outer ground; pin out of the signal port is:- inner pin cathode, outer anode.

Mechanical

The DH-30 may be mounted to the exit slit of any Bentham monochromator by M3 screw.

The fitting of a rubber O-ring between the detector and the monochromator should be ensured to prevent light leakage.

PMT Specifications

The PMT specifications are as follow:-

Spectral response:	185-650nm
Minimum effective area:	8x 24mm
Peak sensitivity wavelength (typ.):	350 nm
Dark current I_D (typ.)	10pA at 750V
Photosensitivity vs. temperature	up to 1%/ °C at band edge
Max operating temperature:	-40 to +70 °C *
Envelope material:	UV glass
Maximum anode current	0.1mA
Dynode chain resistance	Linear: 750kΩ Pulse Counting: 3.92MΩ
Window material:	Fused silica

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.

