

PHOTODETECTOR MODULE DM0090C DATA SHEET

DESCRIPTION

The DM0090C photodetector module comprises a 25 mm diameter end-window photomultiplier tube with red sensitive S20 photocathode with low dark counts, a positive high voltage power supply and a high speed amplifier discriminator. The model includes a counter and micro-controller with USB interface. All are encapsulated within a rectangular metal case with connectors for power input and USB signal output.



FEATURES

- Easy to operate
- Compact rectangular assembly
- Electrostatic shielding
- Operates from low voltage supply
- Preset discriminator level and HV
- Fully enclosed high voltages
- Only 500 mW total power dissipation (typical)
- 70 MHz count rate capability
- Wide dynamic range

APPLICATIONS

Intended for ultra-low light measurement applications requiring single photon detection. Utilises a USB interface to a host computer.

ACCESSORIES

- Adaptor for SMA terminated optical fibre, type DMSMA
- Universal ac power adaptor, type PSU5V-3A
- USB cable with type A male plug

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CHARACTERISTICS

PHOTOCATHODE TYPE S20	OUTPUT USB
PHOTOCATHODE ACTIVE DIAMETER 22 mm	CONTROL see user manual
SPECTRAL RESPONSE RANGE 280 to 850 nm, see curve	INPUT VOLTAGE +4.75 V to +5.25 V
PEAK QE AT 400 NM 18%	WEIGHT 200g
DISCRIMINATOR LEVEL -2 mV	OPERATING POSITION Any
DARK COUNTS AT 20 °C (TYP.) 1000 s ⁻¹	POWER INPUT AT 10⁷ s⁻¹ +5 V, 100 mA
DARK COUNTS AT 20 °C (MAX.) 5000 s ⁻¹	WARM UP TIME < 10s
FINISH Case, black powder coat, front plate, black anodised	TEMPERATURE Operating +5 °C to +55 °C Storage -40 °C to +55 °C

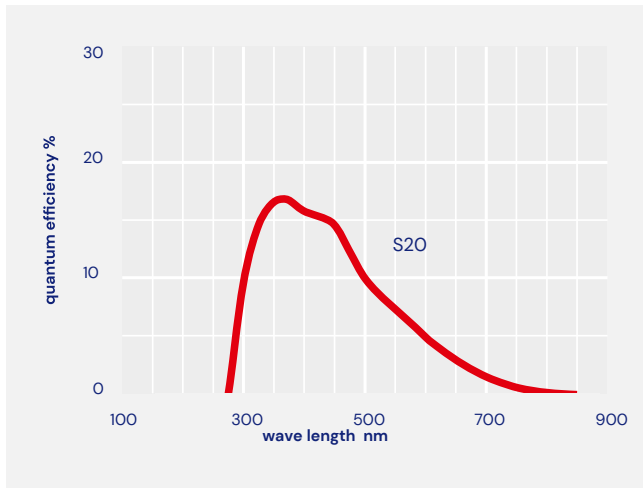
USER I/O CONNECTIONS

TTL input and output lines are available for control of the module and to command peripheral operations.

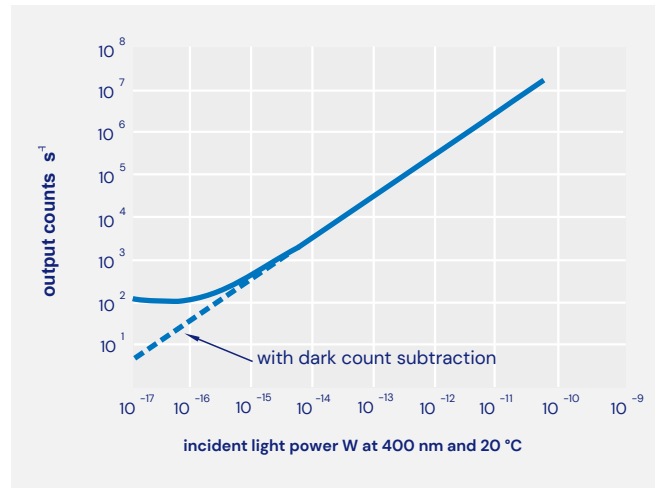
TRIGGER INPUT Start command for cycle defined by software	USER OUTPUT 5V logic output for user applications. For example: activate shutter; busy indicator
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PHOTOCATHODE SPECTRAL RESPONSE



DYNAMIC RANGE



USER MANUAL AND SOFTWARE LINK

A manual giving detailed installation, start-up, software link and programming procedures is supplied by e-mail after receipt of purchase order.

TEST DATA

Module test data is supplied on request.

Typical counting sensitivity for DM0090C at 400 nm. Note that automatic dead time correction has been applied at high count rates. The dynamic range can be further extended at low count rates by dark count subtraction in the software.

INSTALLATION AND OPERATION

Each module is supplied with test data. Wherever possible carry out installation in subdued light.

Remove the protective cap from the window of the module. If necessary, clean the photomultiplier window using a lens tissue moistened with alcohol. Do not use any other solvent.

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INSTALLATION AND OPERATION CONTINUED...

Mount the module and make power input and signal connections.

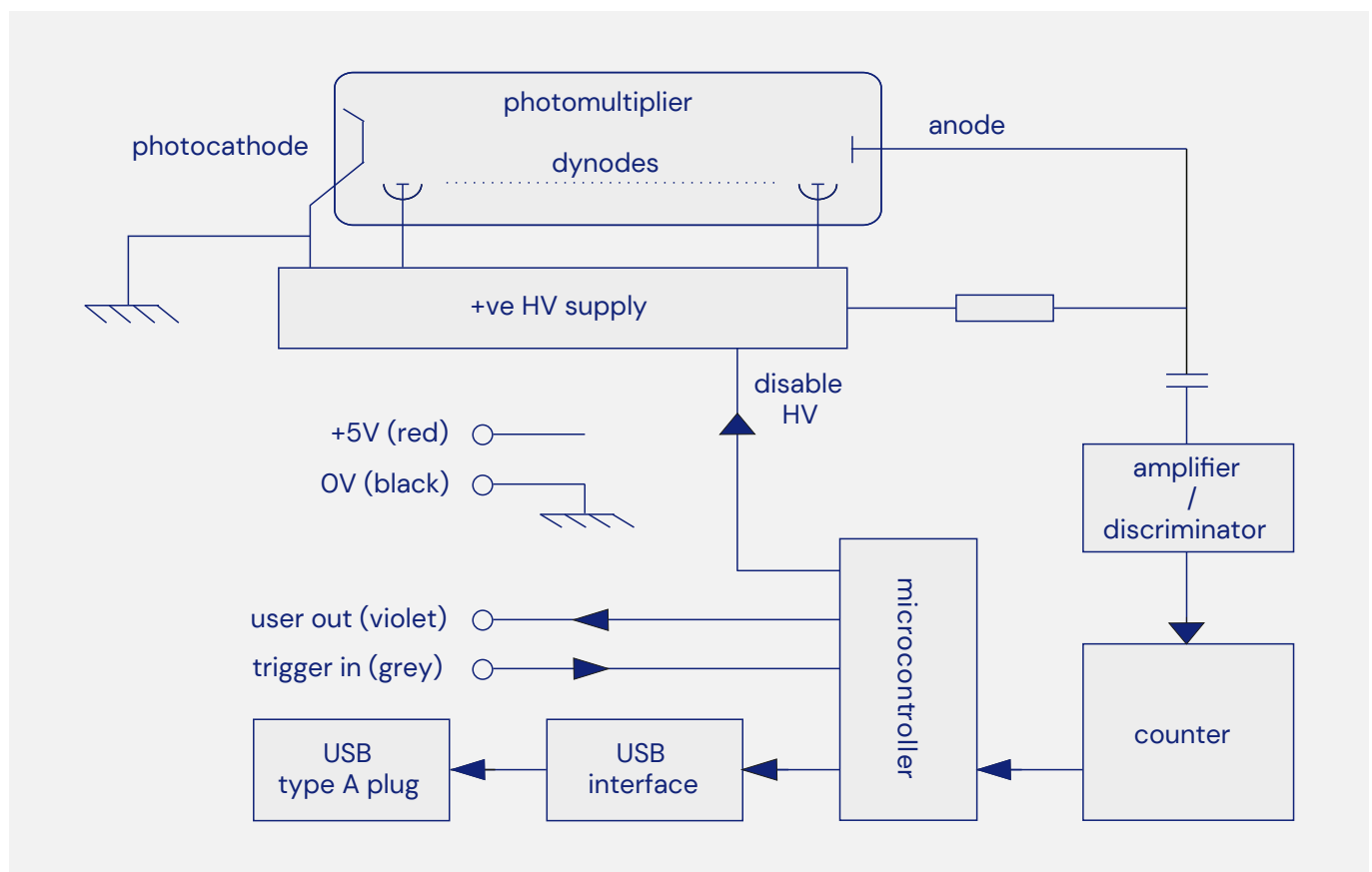
Do not expose the photomultiplier tube photocathode to strong lights while the module is energised.

WARNING

Do not attempt to repair or dismantle this product. High voltage used within the module presents an electric shock hazard.

Do not operation beyond the maximum ratings, or reverse the input voltage; this may result in loss of performance or permanent damage to the product.

FUNCTIONAL DIAGRAM



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OUTLINE DRAWING MM

