

PHOTODETECTOR MODULE DM0036C DATA SHEET

DESCRIPTION

The DM0036C photodetector module has been designed for analogue measurements over a bandwidth of 0 to 20 MHz. It comprises a 25 mm diameter, end window photomultiplier with blue-green sensitive bialkali photocathode, a -HV power supply and a high gain, dc coupled, transimpedance amplifier.

The effective photocathode diameter is 22 mm and the pmt HV is set by applying an external voltage, one-thousandth of the required voltage, to the control input (pin 6).



APPLICATIONS

- Laser scanning
- Spectrometry
- Radiometry
- Particle counting
- Particle sizing
- Electron microscopy

FEATURES

- Simplicity of operation
- Active divider provides stable performance
- Electrostatic and magnetic shielding
- Bandwidth of 20 MHz
- Works into a 50Ω matched coaxial cable
- Conversion gain of 1 V per μA of anode current

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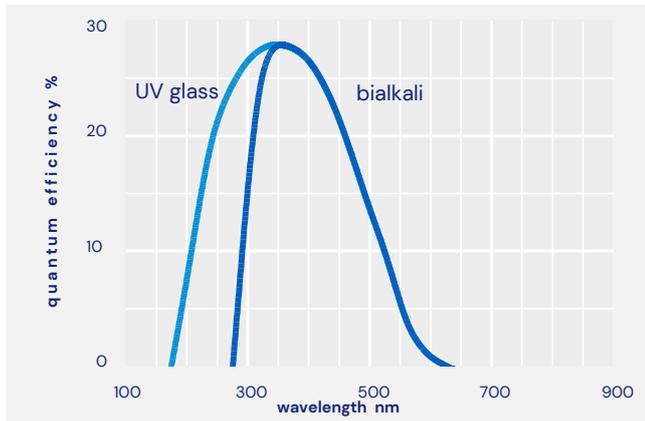
CHARACTERISTICS

PHOTOCATHODE TYPE bialkali	OUTPUT RISE AND FALL TIME 15 ns
PHOTOCATHODE ACTIVE DIAMETER 22 mm	OUTPUT IMPEDANCE 50 Ω
SPECTRAL RESPONSE RANGE 280 – 8630 nm	OUTPUT SIGNAL (UNTERMINATED) 0 to +3 V
PEAK RESPONSIVITY AT 400 NM (TYP) 80 mA / W	OUTPUT SIGNAL (TERMINATED INTO 50Ω) 0 to +1.5 V
AMPLIFIER CONVERSION GAIN 10 V / 100 μA	HV CONTROL SENSITIVITY -1000 V / V
SENSITIVITY AT 400 NM, PMT G = 10⁻⁵ 8 V / nW	HV CONTROL VOLTS (MAX*) +1.8 V
BANDWIDTH (6DB) 0 – 20 MHz	WARM UP TIME < 10s
AMPLIFIER NOISE (TYP) 2 mV rms	OPERATING POSITION any
AMPLIFIER OFFSET (TYP) 1 mV	FINISH Matt black
WEIGHT 200g	
POWER INPUT +5 V (+4.75 to +5.25) 80 mA -5 V (-4.75 to -5.25) 20 mA	TEMPERATURE Operating +5 °C to +55 °C Storage -40 °C to +55 °C

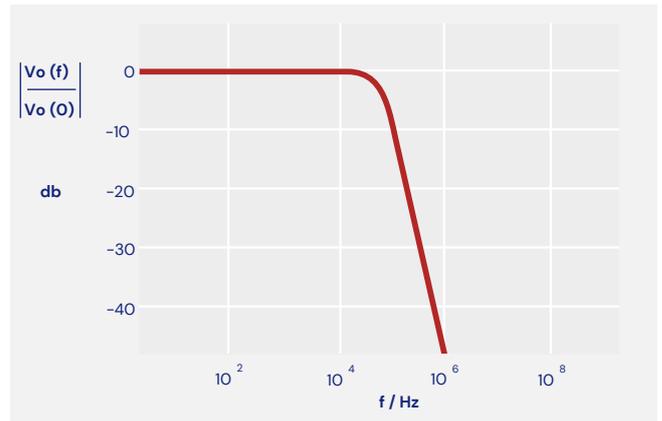
* subject to not exceeding the rated gain of the pmt

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PHOTOCATHODE SPECTRAL RESPONSE



FREQUENCY RESPONSE



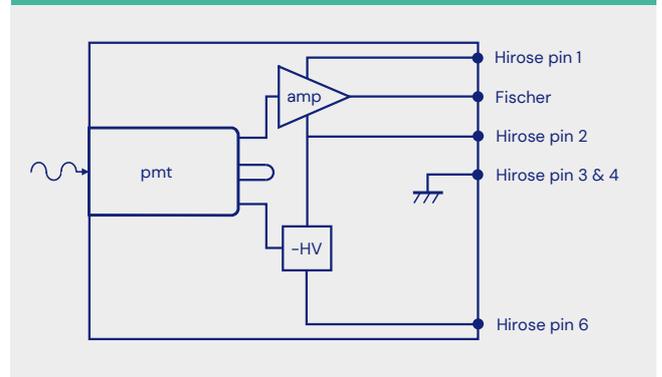
INSTALLATION AND OPERATION

Each module is supplied with test data. Wherever possible installation should be carried out in subdued light. Exposure to strong lights, particularly those containing a high uv content, can result in a temporary increase in dark counts during subsequent operation.

If necessary, the photomultiplier window can be cleaned using a lens tissue moistened with alcohol. Do not use any other solvent.

Mount the package and make power input and signal connections. The photomultiplier HV is 1000 x the voltage applied to the control input (pin 6). Do not exceed the maximum rated voltage as specified in the module test data supplied.

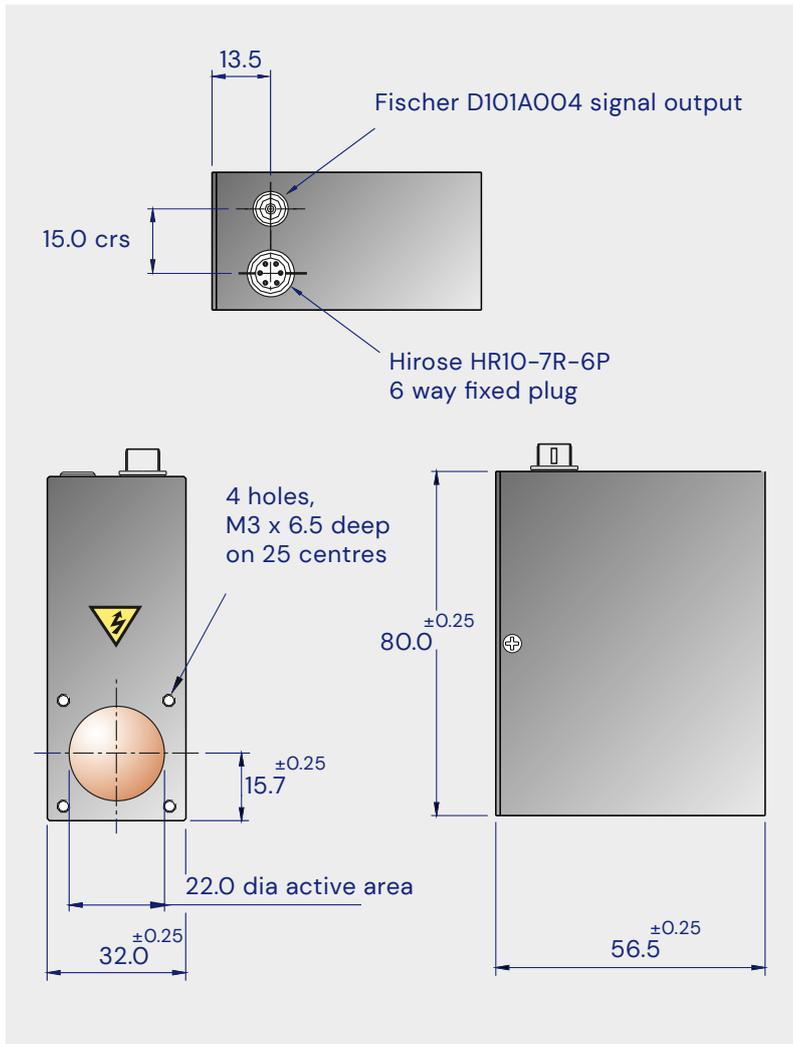
FUNCTIONAL DIAGRAM



HIROSE PIN	CONNECTION
1	+5V
2	-5V
3	0V
4	0V
5	NC
6	Control input

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OUTLINE DRAWING MM



WARNING

The photocathode is operated at -HV. To guarantee stable performance and for safety reasons, isolate the entire window by a distance of at least 3 mm from any grounded components. The use of PTFE (Teflon) insulation is recommended.

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

Do not operate outside the ratings limit; this may result in loss of performance or permanent damage to the DM0036C. Do not exceed the ratings of the photomultiplier as this may damage the photomultiplier and the power supply.