PHOTODETECTOR MODULE DM0088C DATA SHEET

SENS - TECH

DESCRIPTION

The DM0088C 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 red sensitive S20 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 S20	**OUTPUT RISE AND FALL TIME** 15 ns
PHOTOCATHODE ACTIVE DIAMETER 22 mm	**OUTPUT IMPENDANCE** 50 Ω
SPECTRAL RESPONSE RANGE 280 - 850 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 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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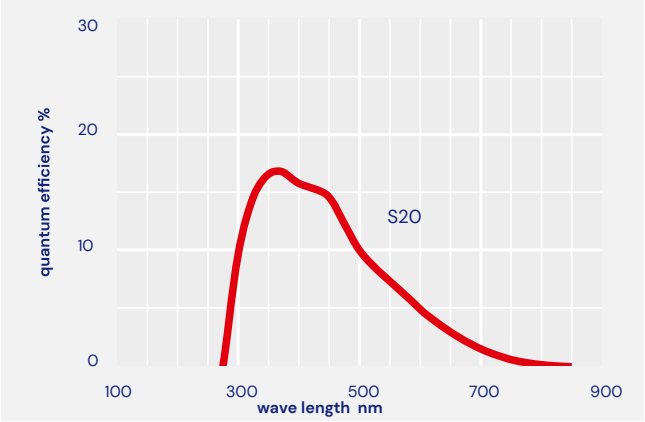
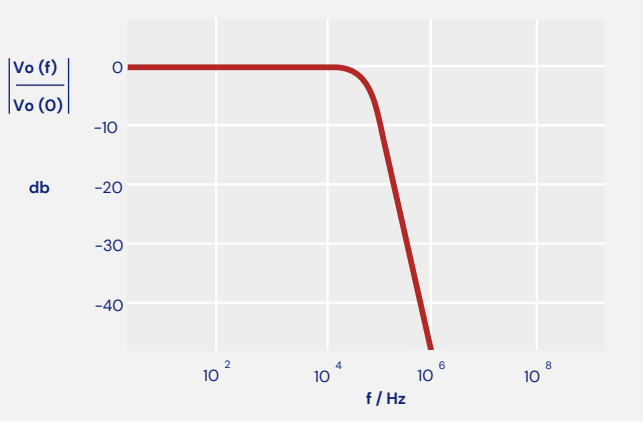
PHOTOCATHODE SPECTRAL RESPONSE



FREQUENCY RESPONSE



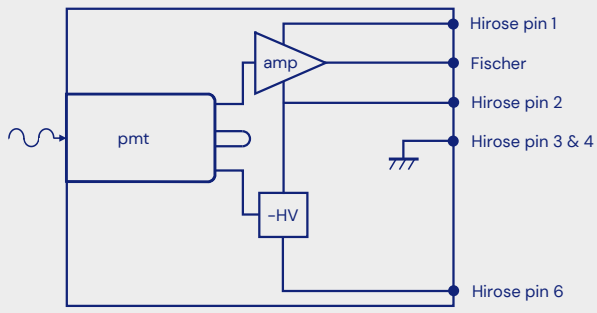
INSTALLATION AND OPERATION

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	+4.75V to +5.25V
2	-4.75V to -5.25V
3	0V
4	0V
5	NC
6	Control input

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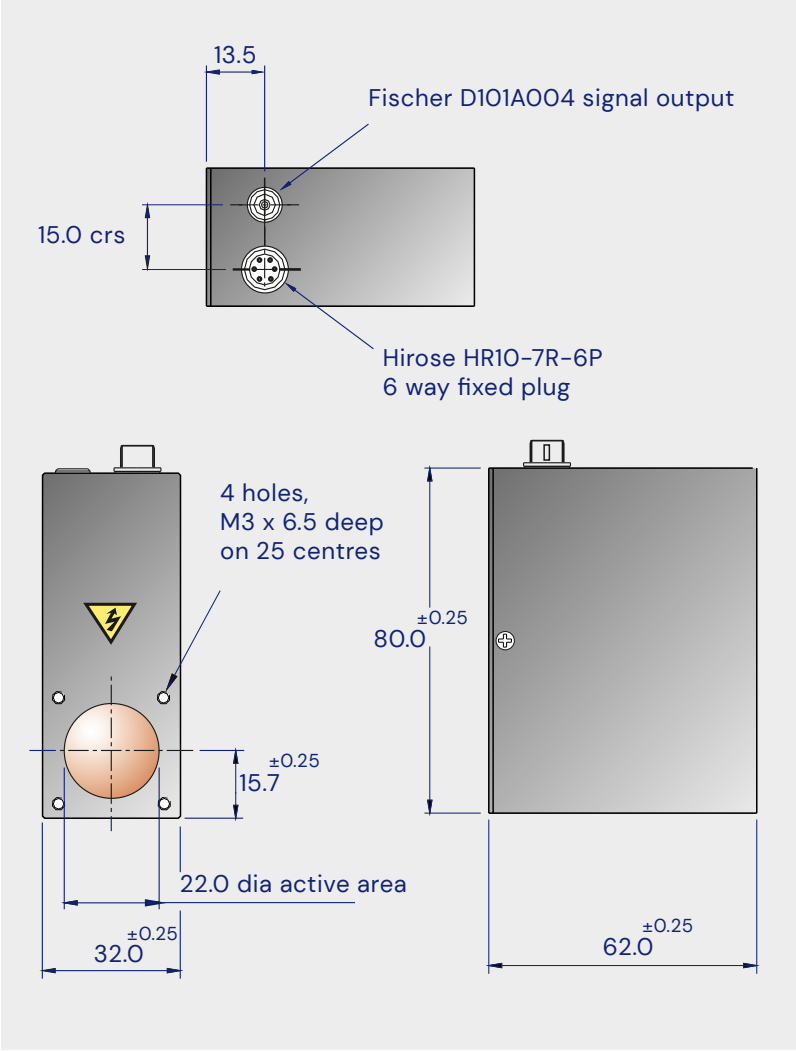
OUTLINE DRAWING MM



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 DM0088C. Do not exceed the ratings of the photomultiplier as this may damage the photomultiplier and the power supply.