

photodetector module DM0088C data sheet

1 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).

2 applications

laser scanning
spectrometry
radiometry
particle counting
particle sizing
electron microscopy

3 features

simplicity of operation
active divider provides stable performance
electrostatic and magnetic shielding
bandwidth of 20 MHz
works into a 50 Ω matched coaxial cable
conversion gain of 1 V per μ A of anode current

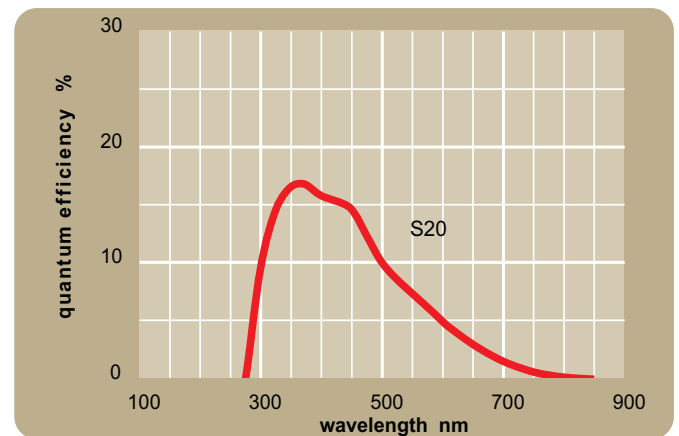
4 characteristics

photocathode type	S20
photocathode active diameter	22 mm
spectral response range	280 - 850 nm
peak responsivity at 400 nm (typ)	80 mA / W
amplifier conversion gain	10 V / 100 μ A
sensitivity at 400 nm, pmt g = 10^5	8 V / nW
bandwidth (6 db)	0 - 20 MHz
amplifier noise (typ)	2 mV rms
amplifier offset (typ)	1 mV
output rise and fall time	15 ns
output impedance	50
output signal (unterminated)	0 to +3 V
output signal (terminated into 50 Ω)	0 to +1.5 V
power input	
+5 V (+4.75 to +5.25)	80 mA
-5 V (-4.75 to -5.25)	20 mA
HV control sensitivity	-1000 V / V
HV control volts (max*)	+1.8 V
warm up time	< 10 s
temperature (operating)	+5 $^{\circ}$ C to +55 $^{\circ}$ C
(storage)	-40 $^{\circ}$ C to +55 $^{\circ}$ C
weight	200 g
operating position	any
finish	matt black

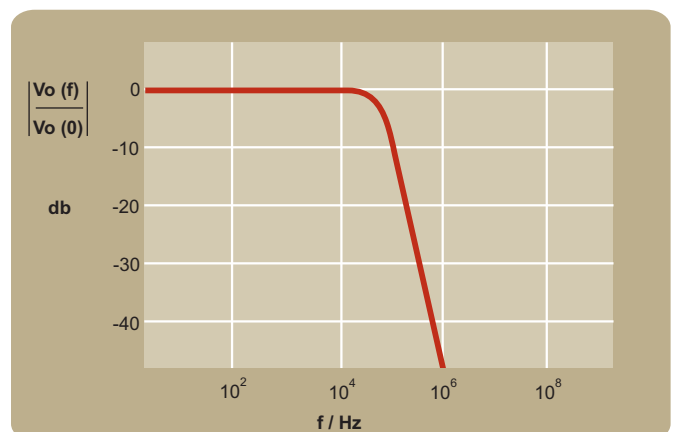
* subject to not exceeding the rated gain of the pmt



5 photocathode spectral response



6 frequency response

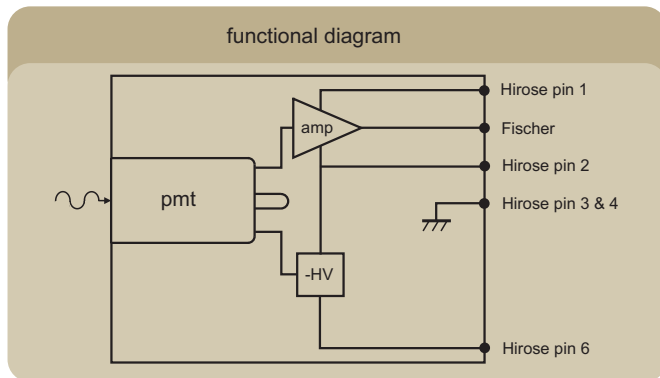


7 installation and operation

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.

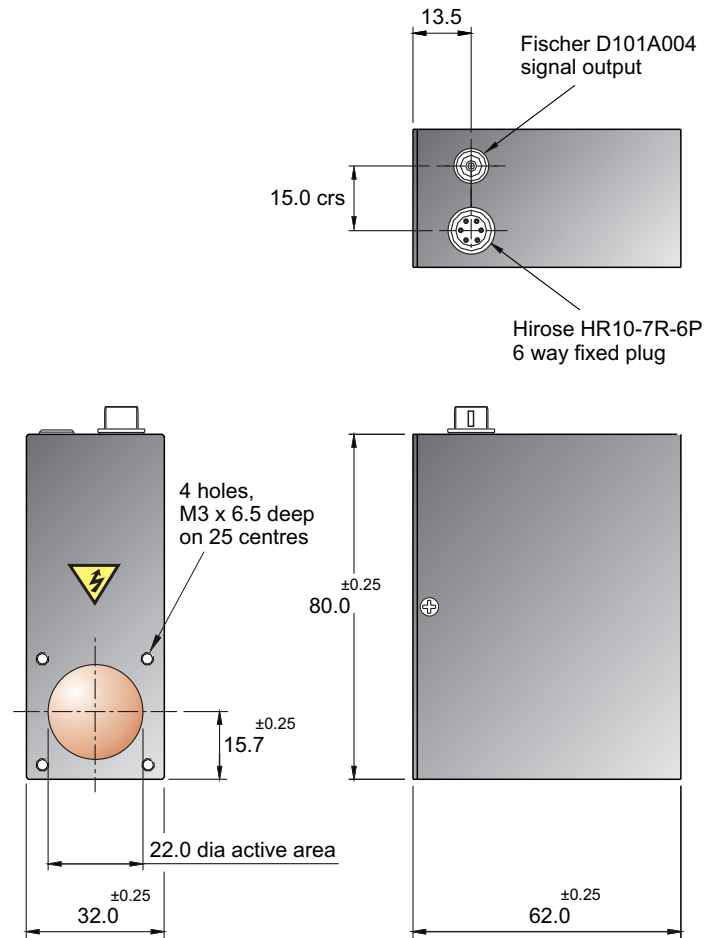
Mount the package and make power input and signal connections.



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.

hirose pin	connection
1	+4.75V to +5.25V
2	-4.75V to -5.25V
3	0V
4	0V
5	NC
6	control input

8 outline drawing mm



9 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.