

# photodetector module

## PDM CN CP series data sheet

### 1 description

Our new range of photodetector modules incorporating 25mm and 30mm diameter PMT's and low noise, low power consumption high voltage power supply is available in both cylindrical and rectangular formats. The module operates from a low voltage power supply which can be in the range 5V to 15V and the HV is set by choosing one of the three HV control options shown in section 5.

These modules have the facility to attach a light fibre guide (not supplied).

### 2 features

- Easy to use and operate
- Compact light tight assembly
- Operation from a single low voltage supply
- Lower cost options (rectangular types)
- Spectral range options

### 3 photomultiplier options

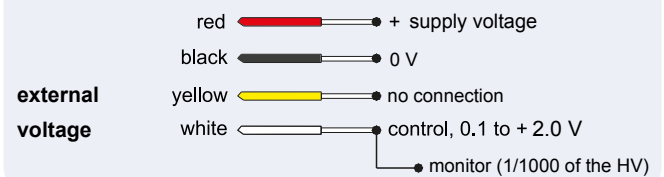
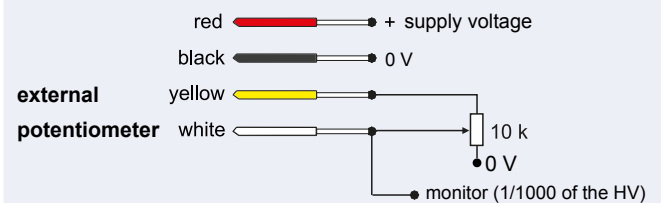
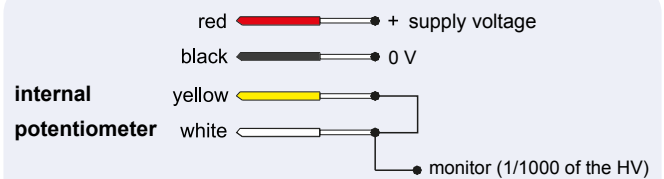
Part number	spectral range nm	active dia mm	dark counts typ	rise time ns	fwhm ns
PDM02-9111-CN	280-630	22	100	1.8	3.1
PDM02-9111-CP	280-630	22	100	1.8	3.1
PDM02-9113-CN	280-850	22	3000	1.8	3.1
PDM9107-CN	280-630	25	100	4.5	7.5
PDM9111-CN	280-630	22	100	1.8	3.1
PDM9112-CN	280-680	22	200	1.8	3.1
PDM9113-CN	280-850	22	3000	1.8	3.1

### 4 characteristics

	unit	min	typ	max
output impedance (unterminated)	$\Omega$		10M	
supply voltage	V	4.5		15
control voltage (1:1000)	V	0.1		2
supply current @ 5V:				
for anode current = 0 $\mu$ A	mA		1.5	
for anode current = 100 $\mu$ A	mA		6.5	
supply current @ 12V:				
for anode current = 0 $\mu$ A	mA		1	
for anode current = 100 $\mu$ A	mA		5	
switch-on time	s		0.2	
switch-off time	s			<60
warm-up time	s			1
temperature (operating)	$^{\circ}$ C	5		55
temperature (storage)	$^{\circ}$ C	-40		60
humidity (non-condensing)	%			93

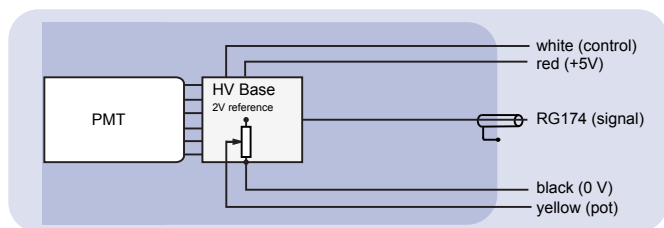


### 5 HV control options



As supplied, the internal potentiometer is set to zero and should be rotated clockwise to increase the voltage when using this control option. When using an external potentiometer to control the HV, the internal potentiometer should be set to maximum (fully clockwise) to provide the correct 2V reference output on the yellow wire. The HV can be monitored by connecting a voltmeter between the white (control) and black (0 V) wires. The HV will be 1000 X the voltage on the white wire.

## 6 functional diagram



## 7 dimensions

Part number	length mm a	dia mm b	height mm c	width mm d	depth mm e	weight g
PDM02-9111-CN			60	32	48	142
PDM02-9111-CP			60	32	48	142
PDM02-9113-CN			60	32	48	142
PDM9107-CN	135	33				200
PDM9111-CN	95	33				200
PDM9112-CN	95	33				200
PDM9113-CN	95	33				200

## 8 installation and operation

Each module is supplied with the photomultiplier test data. Wherever possible, installation should be carried out in subdued light to avoid a temporary increase in dark current during subsequent operation.

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

Mount the module and provide power input and signal connections. The signal lead should be terminated in 50Ω when operating with fast transients (<50 ns). Then choose one of the HV control options in section 5.

## 9 warning

The pmt cathode is operated at -HV. To guarantee stable performance and for safety reasons, the entire window should be isolated by a distance of at least 3mm from any ground plane or components. The use of PTFE for insulation is recommended.

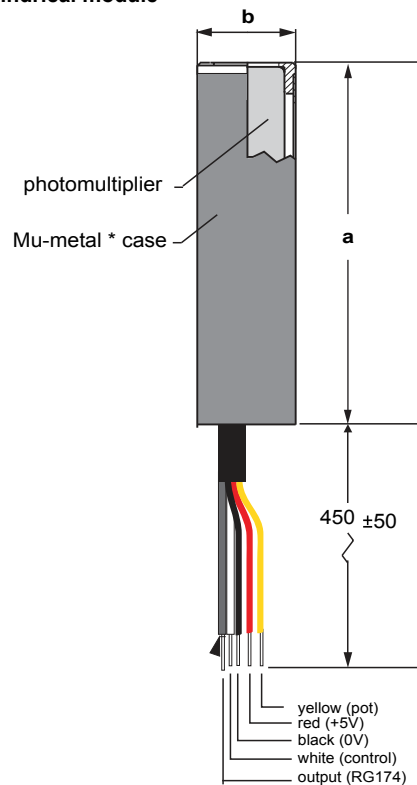
Do not expose the photocathode to strong light while the module is energised.

Operation beyond the maximum ratings, or reversal of the input voltage may result in loss of performance or permanent damage to the product.

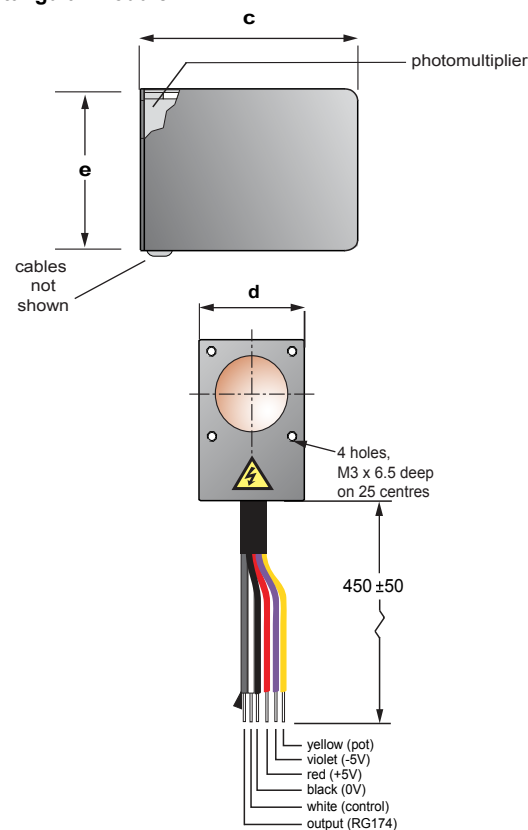
Care should be taken not to exceed the maximum rated gain and/or operating voltage of the photomultiplier as specified on the accompanying test ticket and the PMT data sheet.

## 10 outline drawing (mm)

### cylindrical module



### rectangular module



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