

29 mm (1.13") photomultiplier

9403B series data sheet

1 description

The 9403B is a 29 mm (1.13 ") diameter, end window photomultiplier with magnesium fluoride window, caesium iodide photocathode and 11 BeCu dynodes of linear focused design for extended linearity.

It is supplied with spectral response data at specific wavelengths in the vacuum ultra-violet and with photon counting plateau curves showing the recommended voltage for photon counting applications.

2 applications

- fluorescence studies down to 110 nm
- measurement of synchrotron radiation down to 110 nm
- measurement of uv light in the presence of visible light

3 features

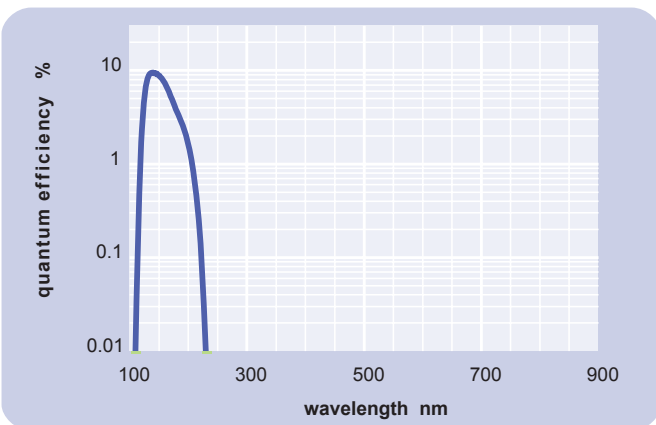
- sensitive to vacuum ultra-violet
- does not respond to visible light (solar blind)

4 window characteristics

	9403B magnesium fluoride
spectral range (nm)*	110 - 230
refractive index (n ^d)	1.38

* wavelength range over which quantum efficiency exceeds 1 % of peak

5 typical spectral response curves

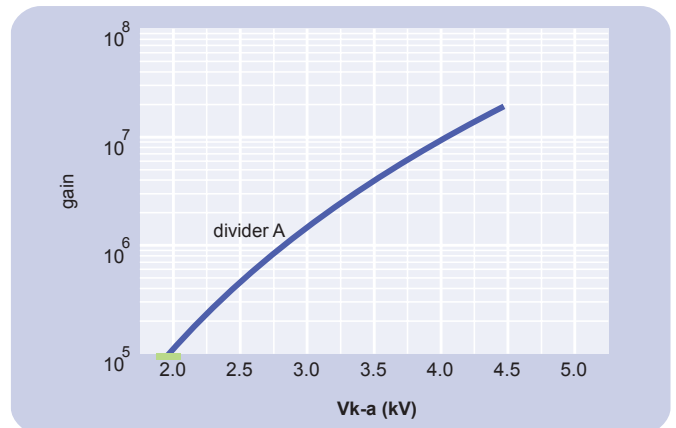


6 characteristics

	unit	min	typ	max
photocathode: CsI				
active diameter	mm		25	
quantum efficiency at peak	%	7	10	
dynodes: 11LFBcCu				
anode sensitivity in divider A:				
volts for 10 ⁶ gain	V		2800	
volts for 10 ⁷ gain	V		4000	5000
dark current at 20 °C:				
dc at 10 ⁷ gain	nA		0.05	5
dark count rate	s ⁻¹		10	50
pulsed linearity (-5% deviation):	mA		50	
rate effect (I_a for Δg/g=1%):	μA		1	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 ⁻⁴		1.6	
temperature coefficient:	% °C ⁻¹		± 0.5	
timing:				
single electron rise time	ns		4.5	
single electron (fwhm)	ns		7.5	
transit time	ns		33	
weight:	g		50	
maximum ratings:				
anode current	μA			100
cathode current	nA			10
gain	x 10 ⁶			20
temperature	°C	-180		60
V (k-a) ⁽¹⁾	V			5000
V (k-d1)	V			800
V (d-d) ⁽²⁾	V			400
ambient pressure (absolute)	kPa			202

⁽¹⁾ subject to not exceeding max. rated sensitivity ⁽²⁾ subject to not exceeding max rated V(k-a)

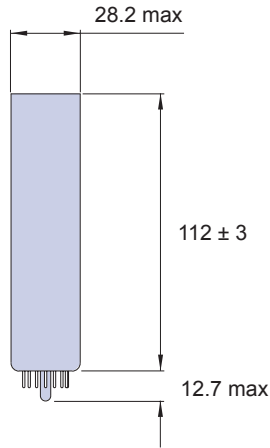
7 typical voltage gain characteristics



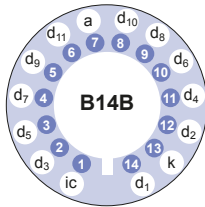
8 voltage divider distribution

k	d ₁	d ₂	d ₈	d ₉	d ₁₀	d ₁₁	a	
A	2R	R	R	R	R	R	R	Standard

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection

Our range of B14B sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 high voltage caution

To avoid arc discharges between the photocathode and nearby grounded surfaces apply the HV only after hard vacuum has been attained, that is when the pressure is less than 10^{-3} torr. Failure to observe this precaution will destroy the pmt and invalidate the warranty.

12 handling instructions

The window of this pmt has been specially cleaned to give maximum efficiency. It should not be touched with fingers or allowed to come into contact with oil or grease. The window can be cleaned with isopropyl alcohol to remove oil deposits.

13 ordering information

The 9403B meets the specification given in this data sheet. You may order **variants** by adding a suffix to the type number. You may also order **options** by adding a suffix to the type number. You may order product with **specification options** by discussing your requirements with us. If your selection option is for one-off order, then the product will be referred to as 9403A. For a repeat order, ET Enterprises will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

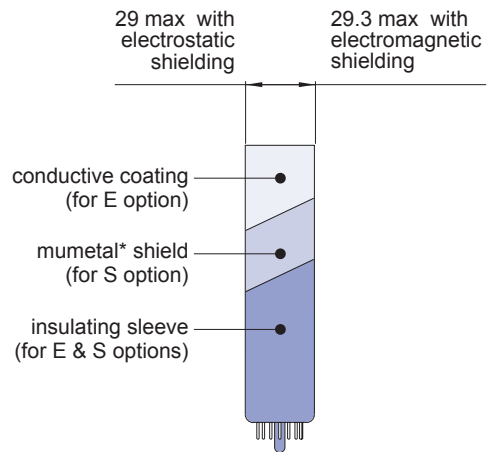
9403

options

- E** electrostatic shielding
see drawing below
- S** electromagnetic shielding
see drawing below

specification options

- B** as given in data sheet
- A** single order to selected specification
- Bnn** repeat order to selected specification



14 voltage dividers

The standard voltage dividers available for these pmts are tabulated below:

	k	d ₁	d ₂	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	a
C670G	2R	R		R	R	R	R	R	
C670H	2R	R		R	R	R	2R	4R	

R = 330k Ω

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choose accessories for this pmt on our website

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