

29 mm (1.13") photomultiplier 9131/100B series data sheet

1 description

The 9131/100B is a 29 mm (1.13") diameter end window photomultiplier with blue-green sensitive bialkali photocathode, electrostatically reduced to 2.5 mm diameter, and 11 BeCu dynodes of linear focused design for extended linearity.

2 applications

- low light level detection
- particle counting
- particle sizing

3 features

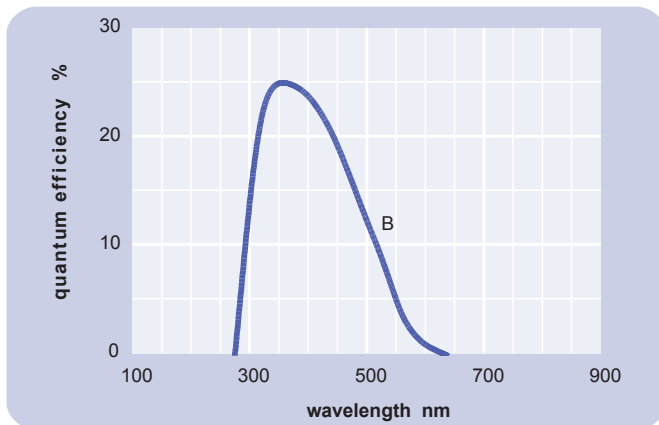
- electrostatically reduced photocathode area (2.5 mm active diameter)
- low counts

4 window characteristics

9131/100B borosilicate	
spectral range (nm)*	280 - 360
refractive index (n_d)	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

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

5 typical spectral response curves

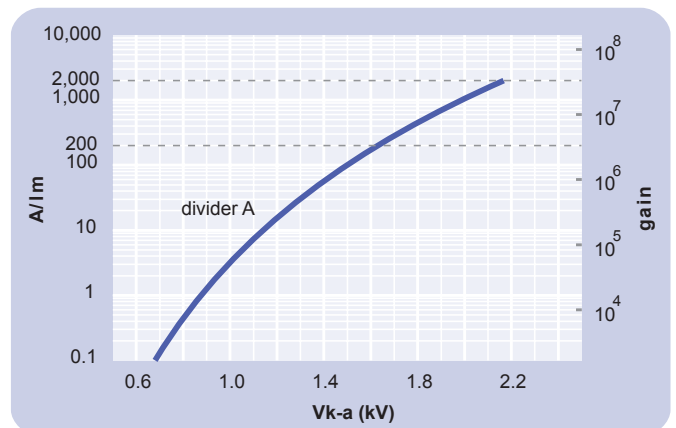


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		2.5	
quantum efficiency at peak	%		25	
luminous sensitivity	$\mu\text{A}/\text{lm}$		60	
with CB filter		6	10	
with CR filter			2	
dynodes: 11LFBcCu				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		200	
max. rated anode sensitivity	A/lm		2000	
overall V for nominal A/lm	V		1600	1800
overall V for max. rated A/lm	V		2200	
gain at nominal A/lm	$\times 10^6$		3	
dark current at 20 °C:				
dc at nominal A/lm	nA		0.03	0.5
dc at max. rated A/lm	nA		0.3	
dark count rate	s^{-1}		10	
after pulse rate:				
afterpulse time window	μs	0.05	0.5	1
pulsed linearity (-5 % deviation):				
divider A	mA		50	
rate effect (I_a for $\Delta g/g=1\%$):	μA		1	
temperature coefficient:				
timing:	$\% \text{ } ^\circ\text{C}^{-1}$	± 0.5		
single electron rise time	ns		3.5	
single electron fwhm	ns		5	
transit time	ns		30	
weight:				
	g		50	
maximum ratings:				
anode current	μA			100
cathode current	nA			0.1
gain	$\times 10^6$			33
sensitivity	A/lm			2000
temperature	$^\circ\text{C}$	-30		60
V (k-a) ⁽¹⁾	V			2000
V (k-d1)	V			300
V (d-d) ⁽²⁾	V			300
ambient pressure (absolute)				202

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

7 typical voltage gain characteristics

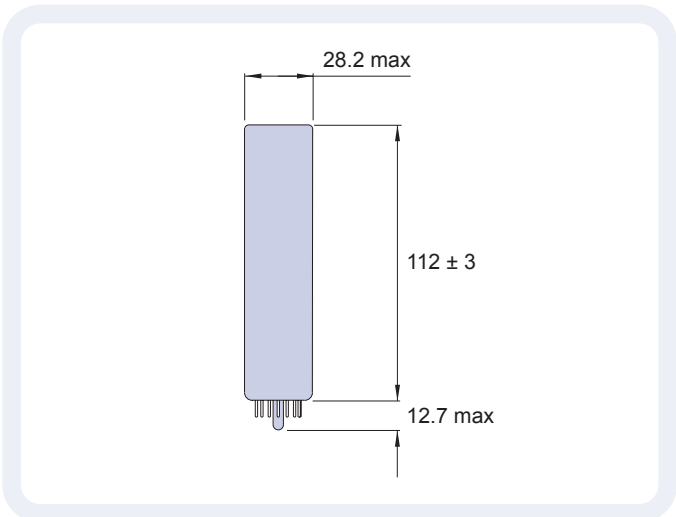


8 voltage divider distribution

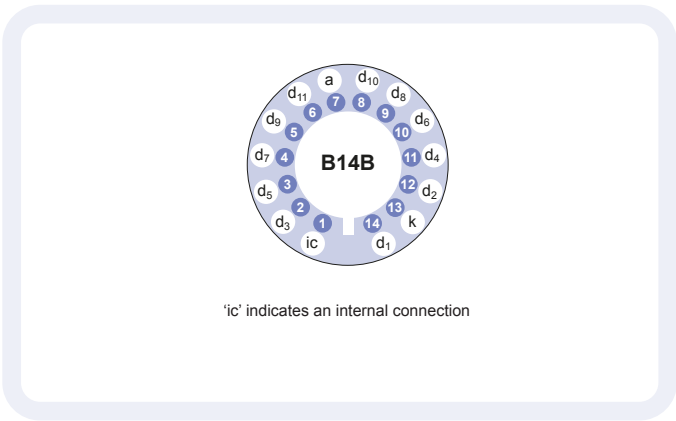
k	d ₁	d ₂	d ₁₁	a
A	2R	R	R	R R Standard

Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection

Our range of B14B sockets is available to suit the B14B hardpin base. The socket range includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 magnetic sensitivity

The location of the active area will move if a magnetic field is applied. Even when operating in the earth's field it is recommended that the S option is chosen for this type (see section 12).

12 ordering information

The 9131/100B 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 a one-off order, then the product will be referred to as 9131/100A. For a repeat order, Electron Tubes will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

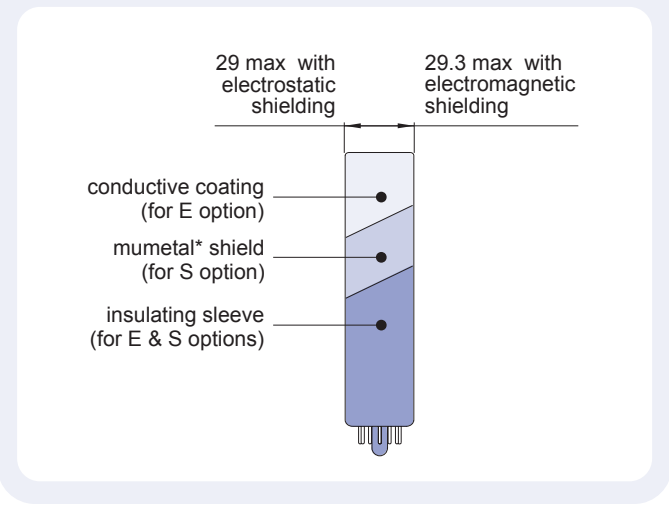
9131/100

options

- E** electrostatic shielding
see drawing below
- S** electromagnetic shielding
see drawing below
- M** supplied with spectral response calibration

specification options

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



13 voltage dividers

The standard voltage dividers available for this pmt are tabulated below:

	k	d ₁	d ₂	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	a
C637A	2R	R		R	R	R	R	R	R
C637B	2R	R		R	2R	3R	4R	3R	
C637C	150 V	R		R	R	R	R	R	

R = 330k Ω

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