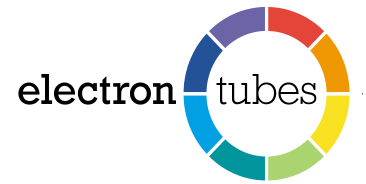


photodetector packages P25232 series



1 description

The P25232 series is a **family** of plug-and-play photodetector packages configured for photon counting. Each comprises a selected 25 mm diameter end window photomultiplier tube, a positive high voltage power supply, high speed amplifier-discriminator, counter and micro-controller. All are encapsulated within a cylindrical mumetal case, providing a high level of immunity from the effects of external magnetic fields. Low voltage and signal output connections to these packages are by axial flying leads.

Three options from Electron Tubes range of 25 mm end window photomultipliers are offered to cover the spectral range from UV to IR as indicated in the photocathode spectral response curves. Individual data sheets are available for the following options:

- P25232:** selected bialkali photomultiplier with high blue sensitivity and ultra-low dark counts
- P25232-05:** selected S20 photomultiplier with high infra-red response
- P25232-07:** selected RbCs photomultiplier with enhanced green response and low dark counts



2 application

- provides a fast, accurate light measurement via an RS232 interface to a host PC

3 features

- simplicity of operation
- minimal set up time
- compact cylindrical assembly
- electrostatic and magnetic shielding
- RS232 interface
- UV window option
- 100 MHz count rate capability
- automatic dead time correction
- operates from +5 V supply
- preset discriminator level and HV
- fully enclosed high voltages
- only 600 mW total power dissipation (typical)
- discriminator threshold preset to -2 mV
- HV factory set for optimum operating voltage
- will operate with any PC running Windows® 95/98, with a free RS232 serial port

4 user manual

A manual giving detailed installation, start-up software and programming procedures is supplied with every package.

5 test data

Each package is supplied with test data including photocathode parameters and dark counts.

6 characteristics

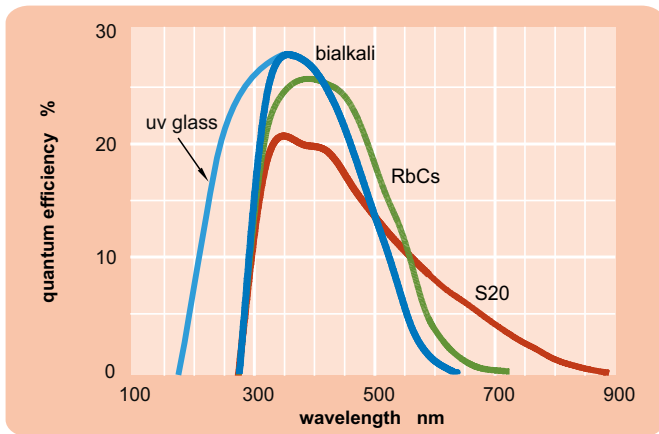
photocathode types	bialkali, RbCs or S20		
photocathode active diameter	22 mm		
spectral response range	see curves		
output	RS232		
baud rate	9600		
parity	None		
data bits	8		
stop bits	1		
control	see user manual		
discriminator level	-2 mV		
dark counts at 20 °C	bialkali	RbCs	S20
typical s⁻¹	100	200	6000
maximum s⁻¹	200	400	4000
power input at 10⁶ s⁻¹	+5 V, 120 mA		
warm up time	less than 2 s		
ratings			
input voltage	+4.75 V to +5.25 V		
temperature (operating)	+5 °C to +55 °C		
(storage)	-40 °C to +55 °C		
humidity (non-condensing)	93 % RH maximum at 30 °C		
weight	230 g		
operating position	any		
finish	matt black		

7 user I/O connections

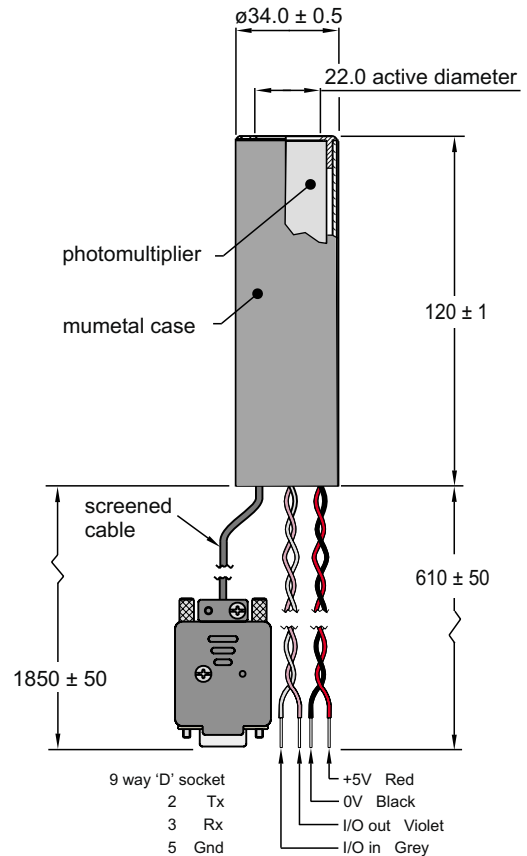
TTL input and output lines are available for control of the package and to command peripheral operations.

trigger input (grey)	start command for cycle defined by software
user output (violet)	start command for user applications. For example: activate shutter; busy indicator

8 photocathode spectral response options

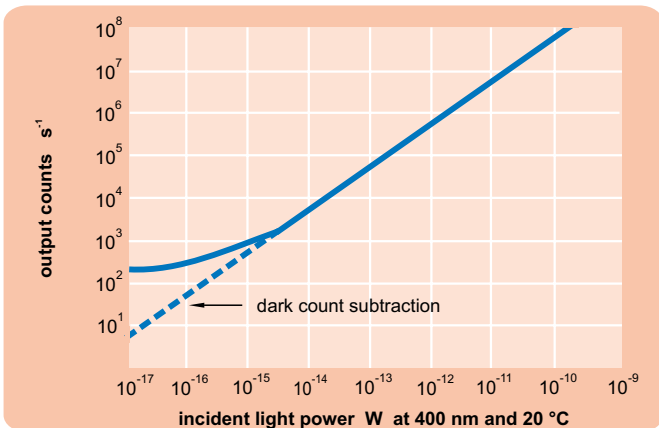


11 outline drawing mm



9 dynamic range

Typical counting sensitivity for P25232 at 400 nm. Note that automatic dead time correction has been applied at high count rates. The dynamic range can be further extended at low count rates by dark count subtraction by the user.



12 installation and operation

Each package is supplied with test data. Wherever possible installation should be carried out in subdued light.

Remove the protective cap from the package. Mount the package and make power input and signal connections.

Do not expose the photomultiplier tube photocathode to strong lights while the package is energised.

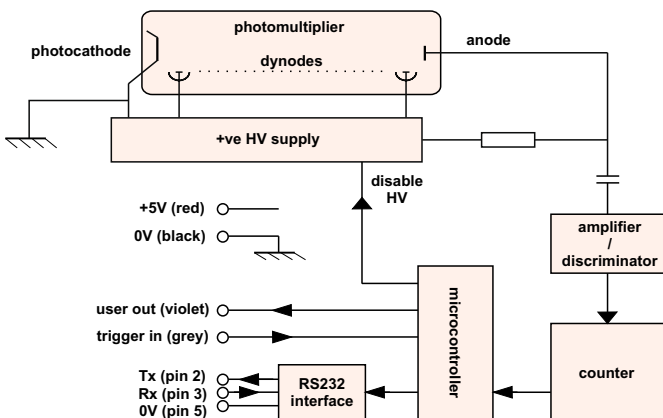
Extended dynamic range can be obtained by cooling the P25232-05 photodetector package to reduce dark counts.

13 warning

No attempt must be made to repair or dismantle this product. High voltage used within the package may present an electric shock hazard.

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

10 functional diagram



Electron Tubes Limited
 Bury Street, Ruislip
 Middx HA4 7TA, UK
 tel: +44 (0) 1895 630771
 fax: +44 (0) 1895 635953
 e-mail:
 info@electron-tubes.co.uk

Electron Tubes Inc.
 100 Forge Way, Unit F
 Rockaway, NJ 07866, USA
 tel: (973) 586 9594
 toll Free: (800) 521 8382
 fax: (973) 586 9771
 e-mail: sales@electrontubes.com

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 DS_P25232 Series Issue 3
 24 September 2001