

# PDM Series

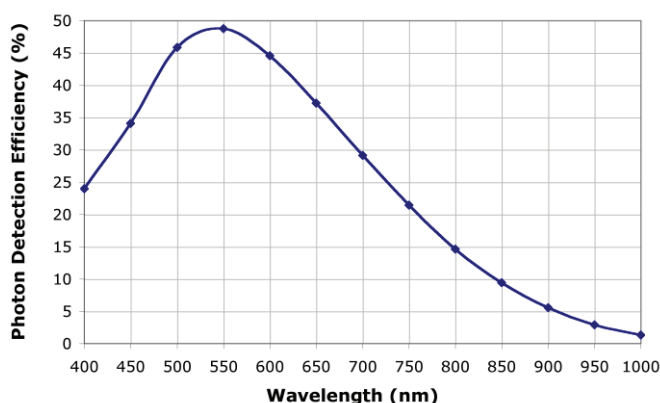
## Applications

- Fluorescence detection
- Single molecule detection
- Adaptive Optics
- Quantum Cryptography
- LIDAR and LADAR
- Educational detector for photon counting application



## Features

- Available sizes: 20 $\mu$ m, 50 $\mu$ m, 100 $\mu$ m
- Timing resolution < 50ps FWHM (optional)
- Detection efficiency 49% @ 550nm
- Robust and low cost
- Low power consumption
- Easy to use



## Product Information

The PDM series photon counting detector modules are all solid-state instruments. They have a photon detection efficiency of 49% at 550nm and generate a TTL output pulse per detected photon. With fast-timing option (additional circuit board installed) they provide better than 50ps FWHM photon timing resolution.

The excellent photon detection efficiency and superior timing resolution is obtained through the use of epitaxial silicon Single Photon Avalanche Diodes (SPAD) and patented integrated Active Quenching Circuits (iAQC), specifically designed and optimized for photon counting applications. Low-noise SPADs and low-power iAQCs make these modules ideal for portable equipment and all applications requiring low power consumption.

## Specifications @ 25°C and 5V overvoltage

	Min	Typ	Max	Units
<b>Photon Detection Efficiency</b>				
@ 400nm	21	24		%
@ 550nm	45	49		
@ 650nm	34	37		
<b>Single Photon Timing Resolution</b>				ps (FWHM)
TTL Counting Output			250	
NIM Timing Output (additional internal circuit board required)		35	50	
<b>After-pulsing probability</b>	0.1		3	%
<b>Dead Time</b>		77		ns
<b>Supply Voltage</b>	unregulated DC, any value 5V ~ 12V			
<b>TTL Output pulse rise and fall times</b>	< 2ns on 10pF load			
<b>Output pulse duration</b>	20ns typical			
<b>Gating input</b>	5V CMOS control (0V gates detector off)			
<b>Supply input connector</b>	Standard 3.5mm supply socket			

PDM Modules are available in different grades depending on dark counts specifications. Not cooled module with high dark counts can be supplied to meet special OEM requirements

Grade	Dark Counts (cps)					
	A	B	C	8	9	F
Active Area Diameter	< 500	< 250	< 100	< 50	< 25	< 5
20 m					✓	✓
50 m		✓	✓	✓	✓	
100 m	✓	✓	✓	✓	✓	

**Ordering Guide:**

SPD - 100 - CTC

Active Area  
 100 100µm  
 050 50µm  
 020 20µm

C cooled  
 0 not cooled

Grade  
 T with timing board  
 0 no timing board

### Package Outline: (dimensions in mm)

