

PIN photodetector module

-- -- HC-PRM Series

Product introduction

HC-PRM series low-noise PIN optical detection module integrates a high-linearity analog PIN detector and a low-noise broadband transimpedance amplifier, featuring high gain, high sensitivity, ac-coupled output, and flat gain. The power supply of the module is positive 12 V, and the input optical interface can be optical fiber interface or space incidence. The optical fiber interface is a universal interface for single-mode and multimode optical fibers; multiple photosensitive surfaces are available for spatial incidence, and the external thread adapter for external optical antenna is provided as standard; the electrical signal is output from the SMA port, and is mainly used in the fields of optical detection, picosecond optical pulse detection, laser radar, optical fiber sensing system, etc.

Product features

- Spectral range covers 200-1700 nm
- 3dB bandwidth up to 1.5 G
- Response Time Min. <200ps
- Integrated Amplifier Circuit
- Low noise, high gain
- φ20mm optical antenna with external thread
- Equipped with M4 female fixing holes
- DC 12V single power supply
- Compact 47x42x20mm (fiber interface)
- 47 x42x26 mm (space interface)
- SMA output
- Can be customized



Scope of application

- Picosecond optical pulse detection
- Laser radar
- Optical fiber sensing system
- photodetection



Optional

- Bandwidth
- Gain
- Coupling mode
- Optical interface

Technical parameters

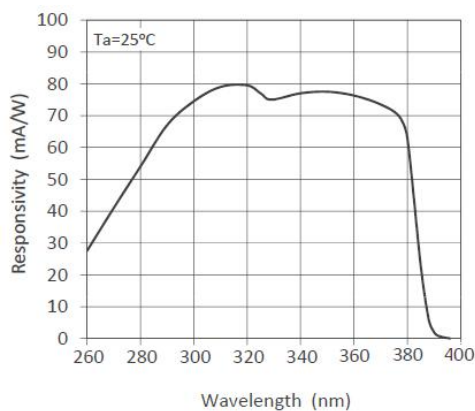
Product type	Ultraviolet light detection module	Si PIN optical detection module			
Parameter	PRM-10M-UV	PRM-1G-S	PRM-200M-S	PRM-75M-S	PRM-1M-S
Detector type	GaN / PIN	Si / PIN			
Optical input	Free Space	Free Space or Fiber			
Wavelength range	230~390nm	400~1100nm			
Peak responsivity	0.13A/W@350nm	0.55A/W@850nm	0.6A/W@905nm		
Photosensitive	1 mm	200um	800um		
Bandwidth (3dB)	10MHz	30K~1.5GHz	200MHz	75MHz	1MHz
Conversion Gain *	20 x 103 V/W@254nm	1x103@850nm	20x103	30x 103 V/W	2x 106V/W
Rise time	35ns	0.4ns	1.8ns	3.5ns	0.35us
Saturated optical current *	180uW	2.5mW	3.9mW	120uW	1.9uW
Coupling mode	DC coupling	AC coupling	DC coupling		
Output impedance	50Ω				
Equivalent noise	21.1 pW/√Hz	25.8pW/√Hz	22pW/√Hz	16pw/√Hz	1.8pw/√Hz
Total Output Noise	8mV	6mV	38mV	25mV	15mV

* When the load is high resistance, if the load is 50 ohms, the corresponding value is reduced by half.

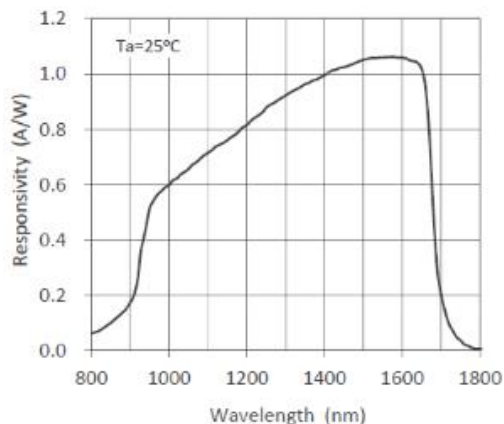
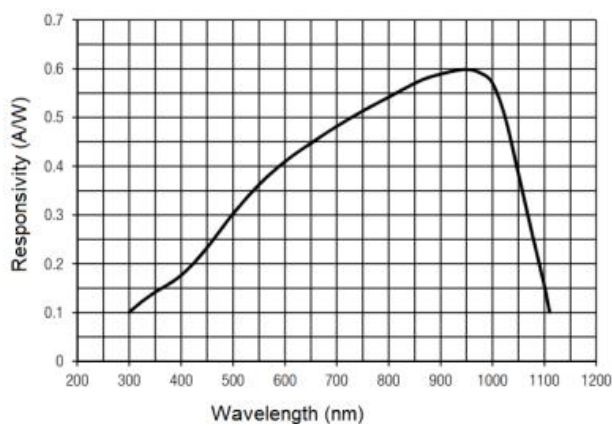
Product type	InGaAs PIN Optical Detector Module (800 ~ 1700 nm) Fiber Optic Interface					
Parameter	PRM-BW-I-FA					
Detector type	InGaAs / PIN					
Optical input	Optical fiber					
Wavelength range	800~1700nm					
Peak responsivity	0.9A/W@1550nm					
Photosensitive surface	75um					
Bandwidth (3dB)	10KHz	10MHz	100MHz	200MHz	500MHz	30K~1.5GHz
Conversion Gain * @ 1550nm	2.5x106 V/W	2X105 V/W	1X105 V/W	4X104 V/W	2X103 V/W	2X103 V/W
Rise time	30us	35ns	3.5ns	1.8ns	0.7ns	0.2ns
Saturated optical	2uW	18uW	72uW	90uW	1.8mW	1mW
Coupling mode	DC coupling					AC coupling
Resistance	50Ω					
Equivalent noise	4.2pw/√Hz	2.4pw/√Hz	6.7 pw/√Hz	10.6 pw/√Hz	15pW/√Hz	12.9pW/√Hz
Total Output Noise	2mV	9mV	20mV	36mV	4mV	6mV

Product type	InGaAs PIN Optical Detector Module (800 ~ 1700 nm) Space Light			
Model	PRM-BW-I-FS			
Detector type	InGaAs / PIN			
Optical input	Free space			
Wavelength range	800~1700nm			
Peak Responsivity	0.9A/W@1550nm			
Photosensitive	100um	1mm	200um	500um
Bandwidth (3dB)	200MHz	75MHz	200MHz	150MHz
Conversion Gain * @	1x10 ⁴ V/W	2x10 ⁴ V/W	20K V/W	20K V/W
Rise time	2.4ns	4.7ns	2.4ns	3.5ns
Saturated optical	360uW	180uW	180uW	180uW
Coupling mode	DC coupling			
Resistance	50Ω			
Equivalent noise	14.1 pw/√Hz	14.3 pw/√Hz	11.8 pw/√Hz	10.9 pw/√Hz
Total Output Noise	12 mV	15 mV	20mV	16mV

Typical spectrogram

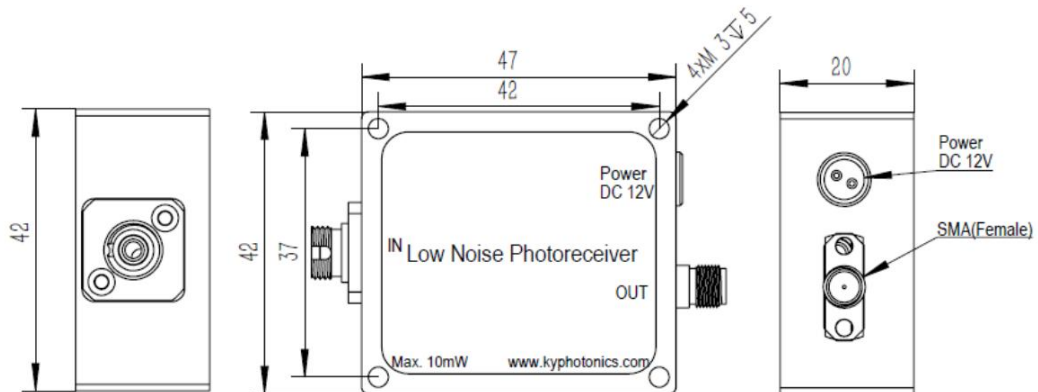


(GaN UV Detector Module)

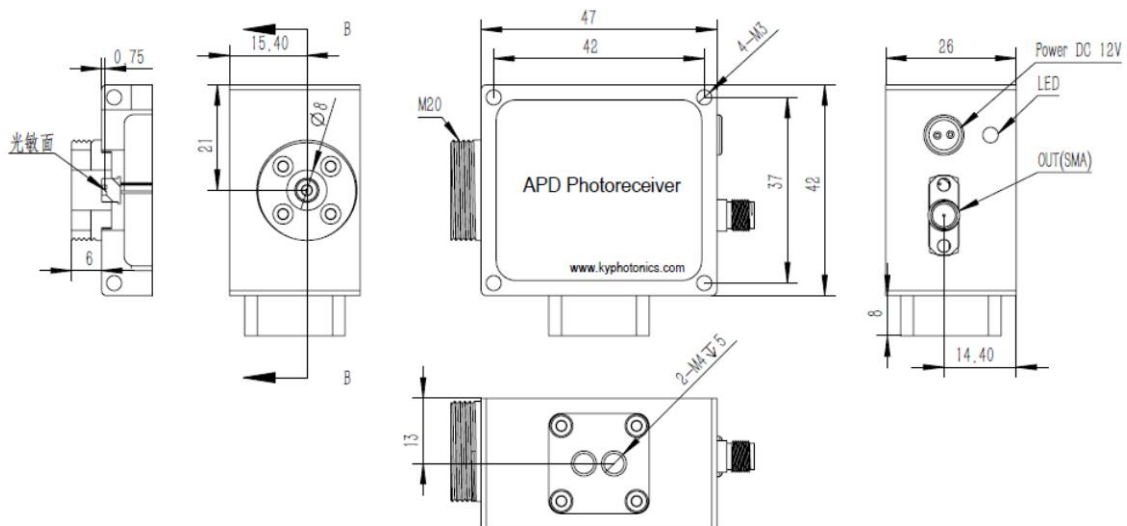


(400-1100nm Si & 800-1700nm InGaAs Photo Detector Module)

Mechanical Dimensions (in mm)



Type of fiber input



Spatial light input type

Ordering Information HC-PRM-BW-WL-FA/FS-XX

BW -- Operating Bandwidth: 10K, 10M, 200M, 500M, 1.5 G

WL -- Operating wavelength: UV -- 230 ~ 390nm; S -- 400-1100nm; I ---800-1700nm;

FA/FS --- FA: FC/APC , FS: Free Space

XX--Other requirements: diameter of photosensitive surface, etc.