

## Two-dimensional PSD with Amplifier



### Description

PSD100-SPB5 is 2D lateral effect position sensor that provide X and Y axis positional information.

This module contain a high precision 2D PSD and low noise Amplifier (I/V converter), to output  $V_{X1}$ ,  $V_{X2}$ ,  $V_{Y1}$  and  $V_{Y2}$  Analog signal. While, it can also output digital X, Y signal.

It allows serial connection (RS-422) to a PC. Position information Can be easily loaded into a PC to communicate.

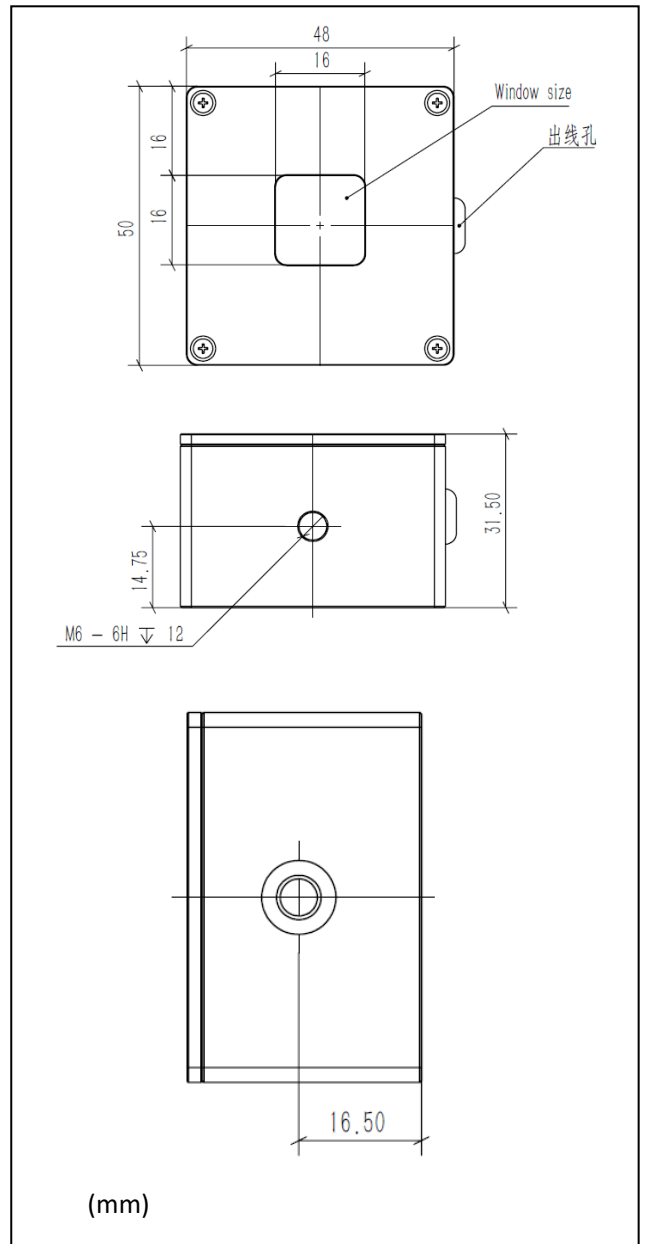
### Features

- \* Small package size
- \* Both analog and digital outputs
  - Analog output: High precision analog voltage output
  - Digital output: High resolution digital output

### Applications

- \* Optical axis alignment
- \* Distance measurement
- \* Laser beam tracking
- \* Length measurement

Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject change without notice



## Absolute Maximum Rating

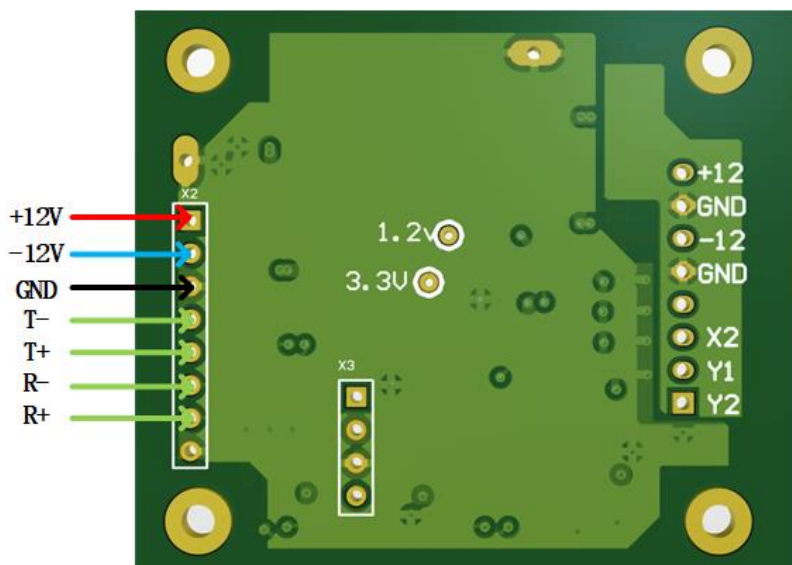
Symbol	Parameter	Min.	Max.	Typ.	Units
T <sub>STD</sub>	Storage Temp.	-40	+80	25	°C
T <sub>OP</sub>	Operating Temp	-40	+60	25	°C
V <sub>CC</sub>	Power Supply Voltage	-	-	±12	V
V <sub>R</sub>	Applied Bias Voltage	0	12	5	V
I <sub>o</sub>	Current Consumption	-	-	200	mA



## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active area	A			10*10		mm <sup>2</sup>
Position detection error			1		20	um
Position resolution	ΔR			0.8	2	um
Wavelength range	λ		320	940	1100	nm
Responsivity	Re	@960nm		63		V/mW
Transimpedance	Rf			1*10 <sup>4</sup>		KV/A
Output Voltage	Vout				±10	V
Output noise	Vnoise			2	10	mVp-p
3dB bandwidth	f-3db			250		kHz
Spot size	Φ		0.2		9	mm
Response time	T				70	us
Photocurrent (max)	Po			40		uA

### ■ PIN LEGS:





Communication protocol

Buad rate		921600			
Stop bit		1			
Parity bit		None			
Complete data frame	N byte	Data type	Data information	Illustration 1	Illustration 2
48 byte in all	0-1	Uint16	Frame Head;	Frame Head;	AA 55
	2-3	int16	X_DIS	$\Delta X=(X2-X1)/(X2+X1)*L$	5000:1
	4-5	int16	Y_DIS	$\Delta Y=(Y2-Y1)/(Y2+Y1)*L$	5000:1
	6-7	int16	V <sub>X1</sub>	Output voltage of X1	10000:1
	8-9	int16	V <sub>Y1</sub>	Output voltage of Y1	10000:1
	10-11	Int16	V <sub>X2</sub>	Output voltage of X2	10000:1
	12-13	int16	V <sub>Y2</sub>	Output voltage of Y2	10000:1
	14-15	int16	V <sub>X</sub> DIFF	Voltage difference of $X=V_{X2}-V_{X1}$	10000:1
	16-17	int16	V <sub>Y</sub> DIFF	Voltage difference of $Y=V_{Y2}-V_{Y1}$	10000:1
	18-19	int16	V <sub>X</sub> SUM	Voltage SUM of $X=V_{X2}+V_{X1}$	10000:1
	20-21	int16	V <sub>Y</sub> SUM	Voltage SUM of $Y=V_{Y2}+V_{Y1}$	10000:1

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