

# Infrared detector module with preamp Thermoelectrically cooled type

Easy-to-use detector module with built-in preamp



Infrared detector modules operate just by connecting to a DC power supply. The detector element is selectable from among InGaAs, PbS, PbSe, MCT, InAs and InSb, which are all combined with a thermoelectric cooler. P4631-10 using an MCT detector is especially suited for CO<sub>2</sub> laser detection. We welcome requests for custom devices that suit your application.

### Features

- High S/N
- Compact size
- Easy to use  
Operates just by connecting to DC power supply
- Circuit design optimized for detector element characteristics
- Built-in thermoelectric cooling control circuit (fixed control temperature)

### Applications

- Infrared detection
- CO<sub>2</sub> laser detection

### Accessories (Supplied)

- DC power cable (2 m): A4372-03  
When using a power supply other than Hamamatsu C3871-03/-04 power supplies designed for IR detector modules, use a mating connector (Hirose Electric RM12BRD-6S).
- Instruction manual

### DC power supply (Optional)

- Power supply for module (±15 V, +2.5 V) C3871-03
- Power supply for module (±15 V, +4.5 V) C3871-04 (designed for P4631-03/-04)

### Specifications / Absolute maximum ratings

Type No.	Detector element	Active area (mm)	Rated input voltage (V)		Absolute maximum ratings							
					Input voltage (V)	Operating temperature T <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°C)					
G6122	InGaAs	φ1	±15 ± 0.5	+2.5 <sup>+1</sup> <sub>-0.05</sub>	V <sub>p1</sub> =+5	0 to +40	-20 to +50					
G6122-03		φ1										
G6126		φ5										
P4638		4 × 5										
P4639	3 × 3											
P4631	MCT	1 × 1						±4.5 ± 0.25	V <sub>c</sub> =±18	V <sub>p2</sub> =+7	0 to +40	-20 to +50
P4631-01	InAs	φ1										
P4631-03	InSb	1 × 1										
P4631-04	MCT	1 × 1						±4.5 ± 0.25	+2.5 <sup>+1</sup> <sub>-0.05</sub>	V <sub>p1</sub> =+5	0 to +40	-20 to +50
P4631-10												

### Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C)

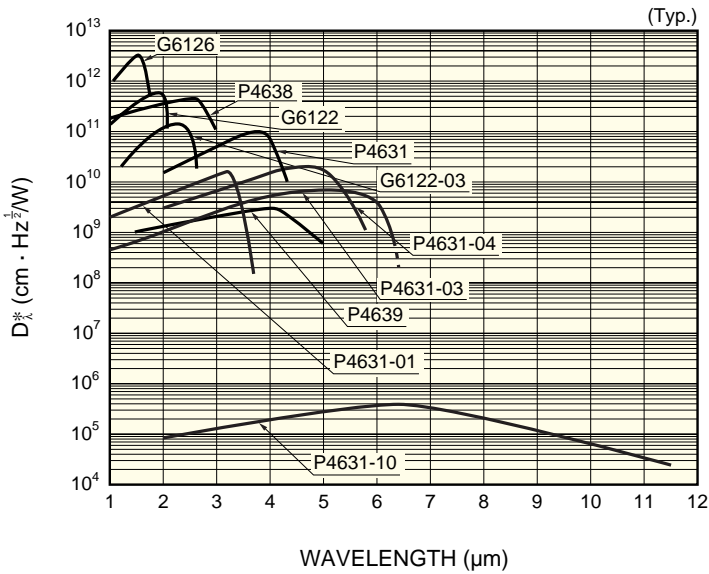
Type No.	Detector element temperature at rated input T (°C)	Peak sensitivity wavelength λ <sub>p</sub> (μm)	Cut-off wavelength λ <sub>c</sub> (μm)	Photo sensitivity S λ=λ <sub>p</sub> (V/W)	NEP λ=λ <sub>p</sub> (W/Hz <sup>1/2</sup> )	Frequency response -3 dB (Hz)	Output impedance (Ω)	Maximum output voltage V <sub>RL</sub> =1 kΩ (V)	Maximum current consumption *2 (mA)		
									+V <sub>c</sub> , -V <sub>c</sub>	V <sub>p1</sub> or V <sub>p2</sub>	
G6122	-15	1.95	2.05	1.7 × 10 <sup>8</sup>	1 × 10 <sup>-13</sup>	DC to 2.2 k	50	+10	+60, -30	+1100	
G6122-03		2.3	2.56	1.5 × 10 <sup>8</sup>	6 × 10 <sup>-13</sup>	DC to 3 k		+10	+60, -30	+1100	
G6126		1.55	1.66	5 × 10 <sup>7</sup>	7 × 10 <sup>-14</sup>	DC to 1.2 k		+10	+50, -30	+1100	
P4638		2.5	3.2	3 × 10 <sup>7</sup>	8 × 10 <sup>-13</sup>	0.2 to 300		±10	+50, -20	+1100	
P4639	-25	4.2	5.2	2 × 10 <sup>5</sup>	1 × 10 <sup>-10</sup>	0.2 to 10 k	50	±10	+50, -20	+1100	
P4631		3.6	4.3	2 × 10 <sup>7</sup>	1 × 10 <sup>-12</sup>	5 to 20 k		±2.5	+60, -10	+1100	
P4631-01	-28	3.25	3.5	1 × 10 <sup>7</sup>	6 × 10 <sup>-12</sup>	5 to 300 k	50	±8	+60, -10	+1100	
P4631-03	-58	5.5	6.3	1.5 × 10 <sup>5</sup>	1.5 × 10 <sup>-11</sup>	DC to 100 k		+10	+90, -30	+1100	
P4631-04		4.8	5.5	1 × 10 <sup>7</sup>	5 × 10 <sup>-12</sup>	5 to 35 k		±5	+80, -10	+1100	
P4631-10		-3	6.5	11.5	2 *1	2.5 × 10 <sup>-6</sup> *1		DC to 500 k	+10	+150, -30	+1400

\*1: λ=10.6 μm

\*2: V<sub>c</sub>=15 V, V<sub>p1</sub>=2.5 V or V<sub>p2</sub>=4.5 V

# Infrared detector module with preamp Thermoelectrically cooled type

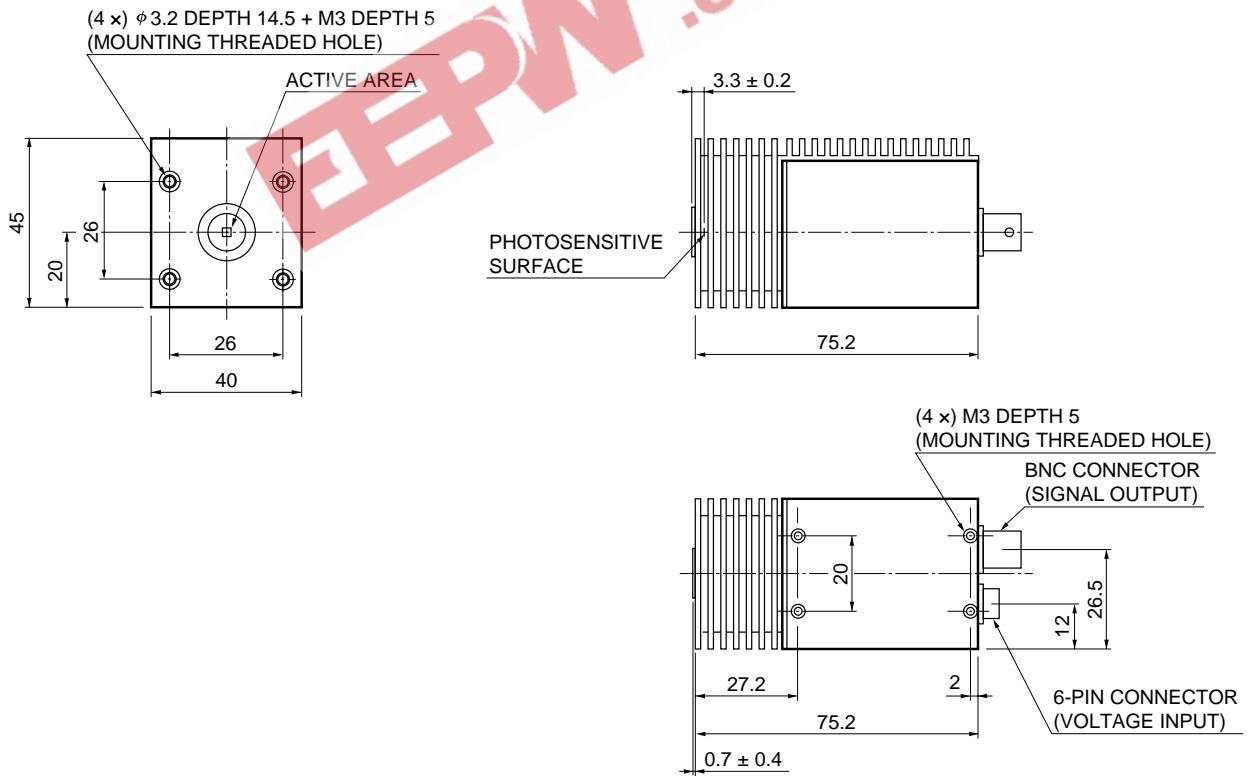
## ■ Spectral response



KIRDB0188EB

## ■ Dimensional outlines (unit: mm)

G6122/-03, G6126, P4638, P4639, P4631/-01

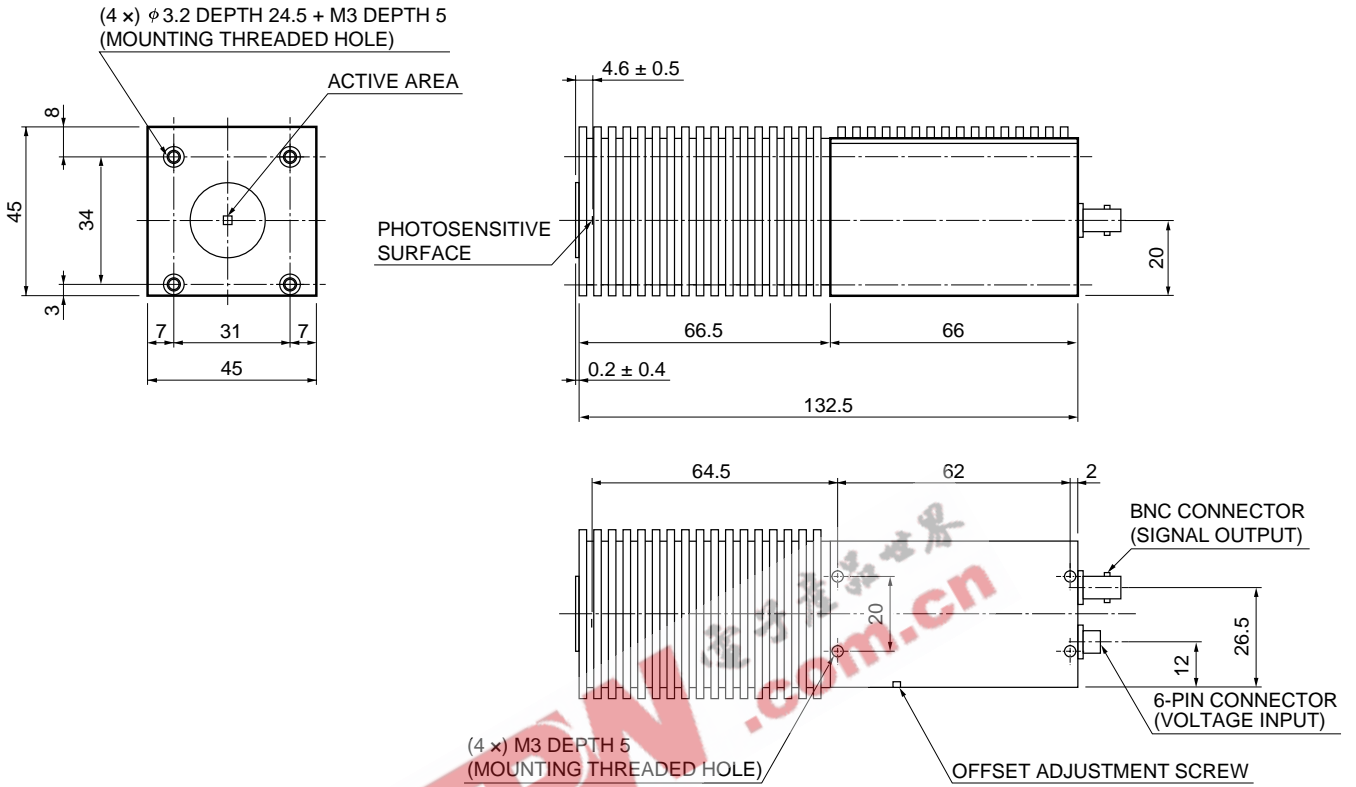


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# Infrared detector module with preamp Thermoelectrically cooled type

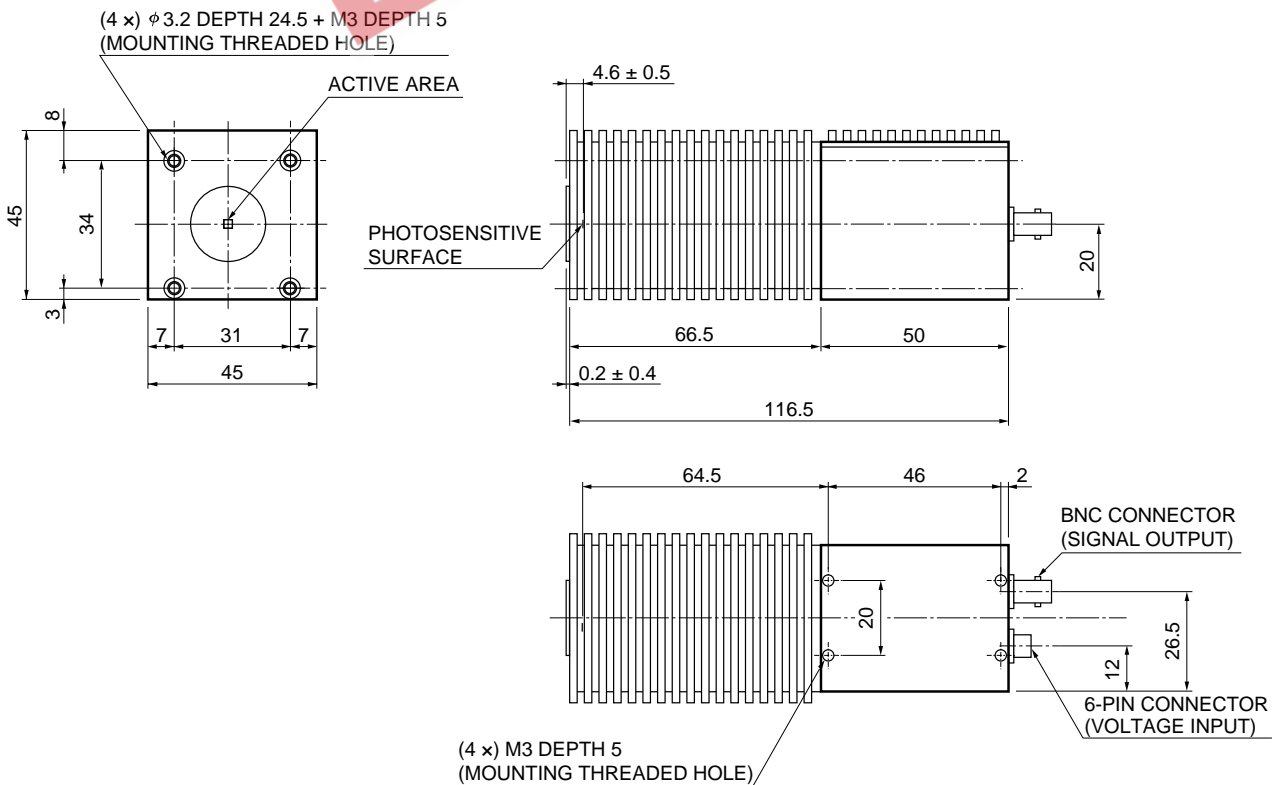
(unit: mm)

P4631-03



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P4631-04

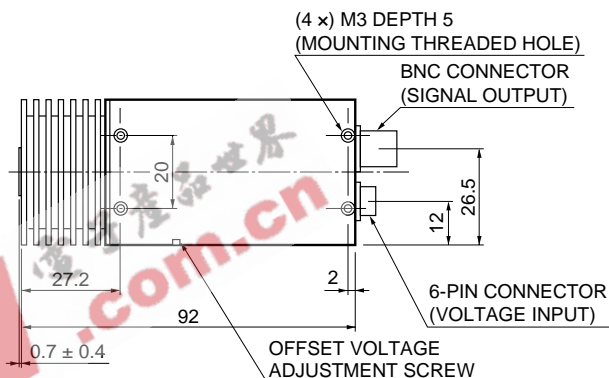
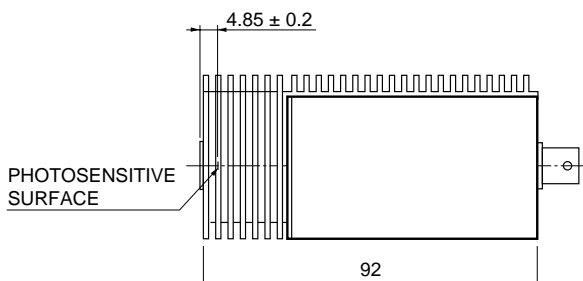
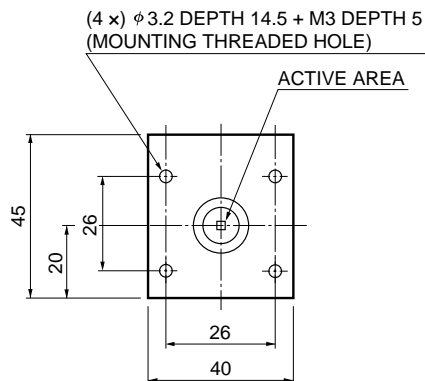


KIRDA0138EC

# Infrared detector module with preamp Thermoelectrically cooled type

(unit: mm)

P4631-10



KIRDA0139EC

## Handling precaution

The infrared detector modules (TE-cooled type) do not operate if not cooled. Always supply +2.5 V or +4.5 V to cool the detector element.

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