

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 CO₂ 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
- CO₂ 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 _{opr} (°C)	Storage temperature T _{stg} (°C)		
G6122	InGaAs	φ1	±15 ± 0.5	V _c =±18	V _{p1} =+5	0 to +40	-20 to +50		
G6122-03		φ1							
G6126		φ5							
P4638	PbS	4 × 5						+2.5 ⁺¹ _{-0.05}	V _{p2} =+7
P4639	PbSe	3 × 3							
P4631	MCT	1 × 1							
P4631-01	InAs	φ1						±4.5 ± 0.25	V _{p1} =+5
P4631-03	InSb	1 × 1							
P4631-04	MCT	1 × 1							
P4631-10									

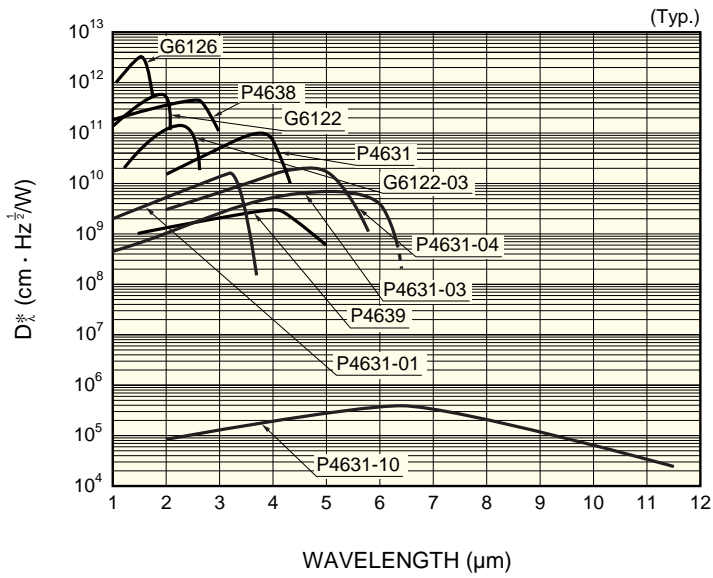
Electrical and optical characteristics (Typ. T_a=25 °C)

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

*1: λ=10.6 μm

*2: V_c=15 V, V_{p1}=2.5 V or V_{p2}=4.5 V

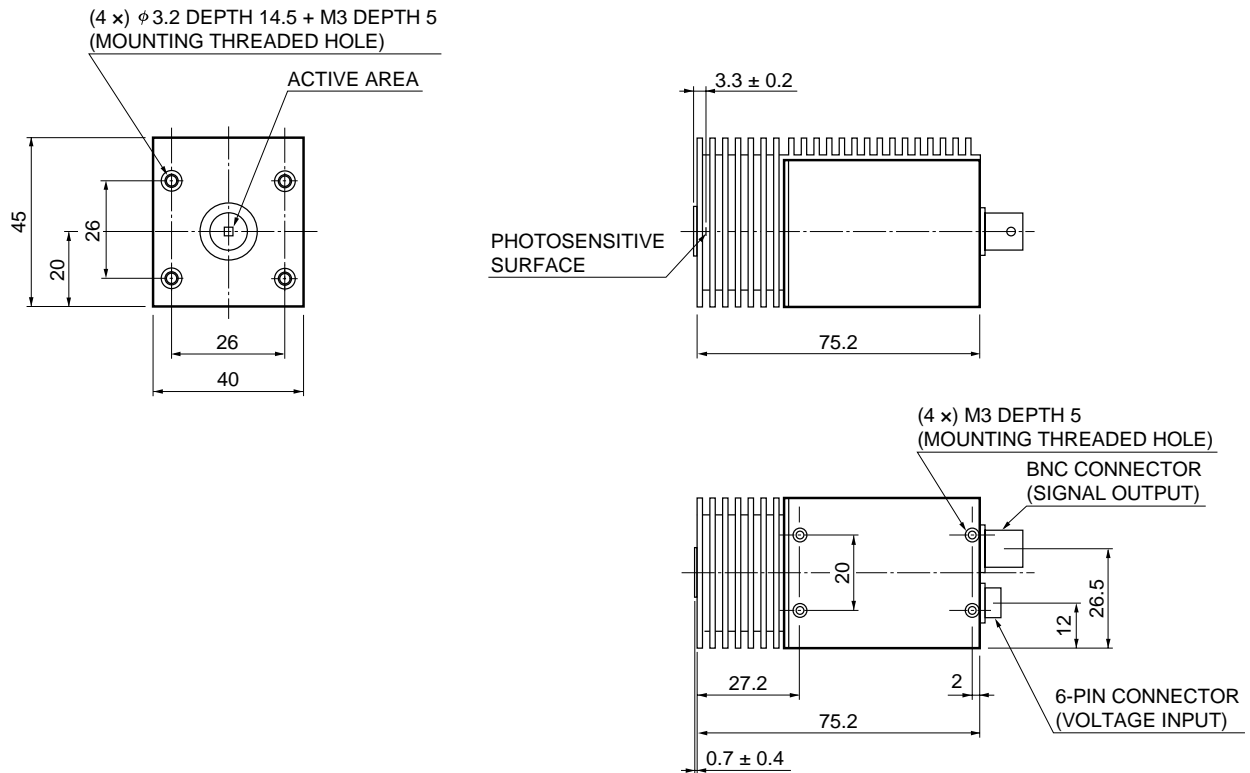
■ Spectral response



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■ Dimensional outlines (unit: mm)

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

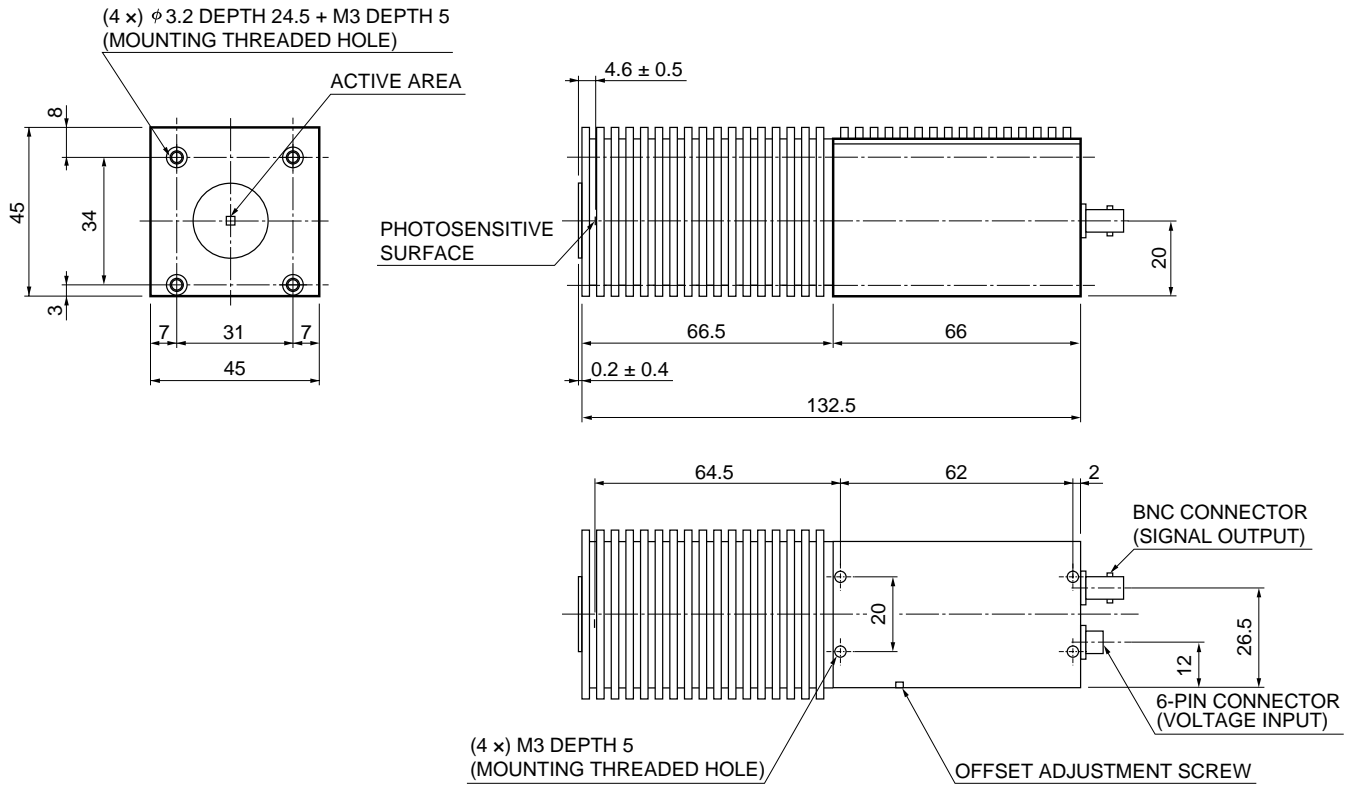


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Infrared detector module with preamp **Thermoelectrically cooled type**

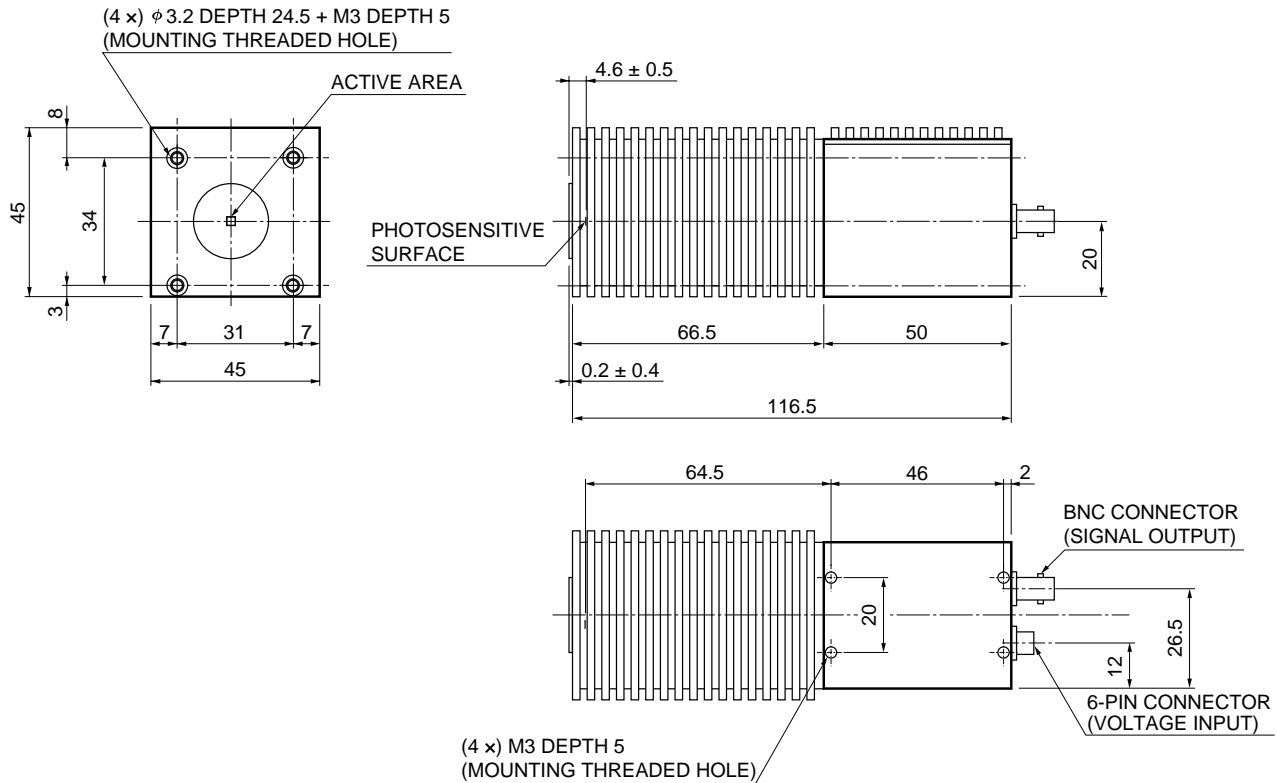
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P4631-03



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P4631-04

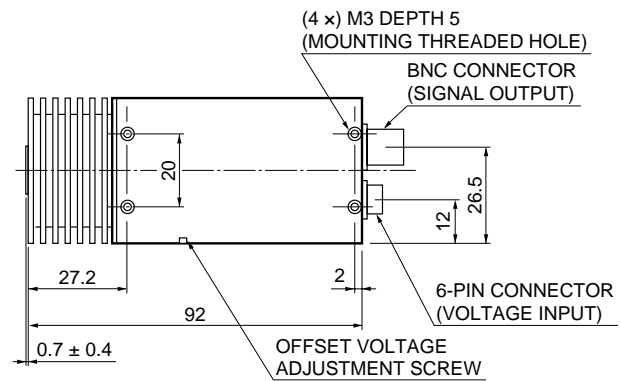
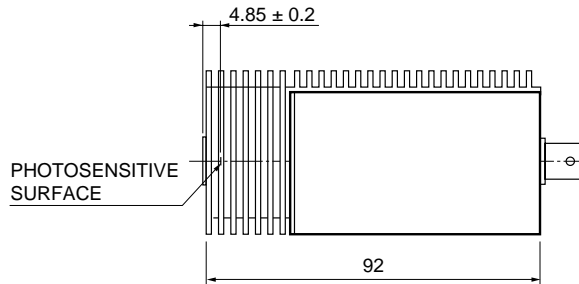
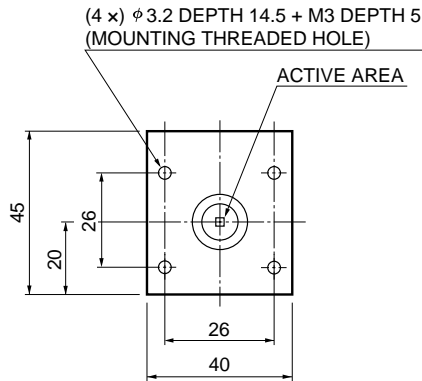


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Infrared detector module with preamp **Thermoelectrically cooled type**

(unit: mm)

P4631-10



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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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