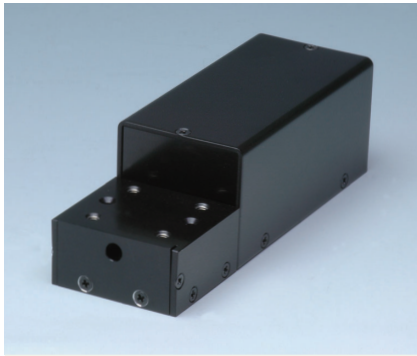


# Infrared detector module with preamp



C12496-046

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

The C12496-046 is a detector module with integrated amplifier which can detect infrared light simply by connecting a DC power supply. It is suitable for detecting CO<sub>2</sub> lasers. We can also customise this module to suit your application.

### Features

- **Compact size**
- **Easy to use**  
Operates just by connecting to DC power supply
- **Circuit design optimized for detector characteristics**

### Applications

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

### Accessories

- **4-conductor cable for room-temperature types (for DC power supply) A4372-02: 2 m (connector installed at one end)**
- **Instruction manual**

### Structure

Parameter	Symbol	Specification	Unit
Detector	-	Photon drag detector (B749)	-
Photosensitive area	-	φ4.6	mm

### Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Supply voltage	Vcc		±18	V
Incident light level	-	CW light	1	W/cm <sup>2</sup>
		Pulsed light*	10	MW/cm <sup>2</sup>
Operating temperature	Topr		0 to +40	°C
Storage temperature	Tstg		-20 to +50	°C

\* Not to exceed 1J/cm<sup>2</sup>

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

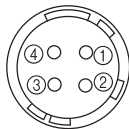
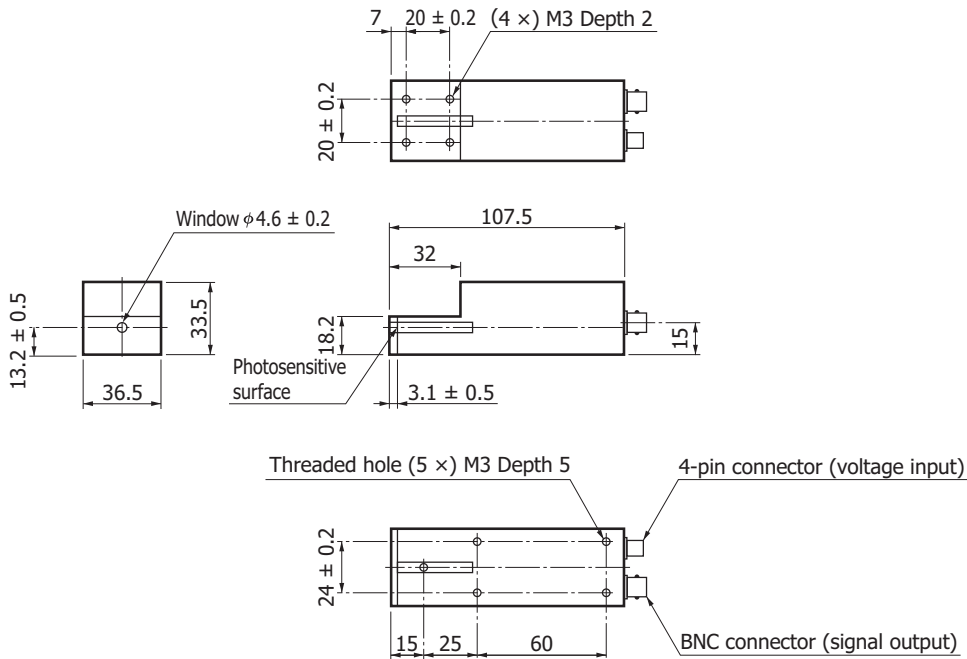
**Electrical and optical characteristics (Ta=25 °C, Vcc=±15 V)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Element temperature	Td		-	25	-	°C
Peak sensitivity wavelength	$\lambda_p$		-	10.6	-	$\mu\text{m}$
Photosensitivity	S	$\lambda = \lambda_p$	$1.0 \times 10^{-2}$	$1.3 \times 10^{-2}$	-	V/W
Noise equivalent power	NEP	$\lambda = \lambda_p$	-	$3.0 \times 10^{-12}$	$7.5 \times 10^{-2}$	W/Hz <sup>1/2</sup>
Frequency response*1	fcL	-3 dB	-	50	-	Hz
	fcH		450	500	-	kHz
Output impedance	Zo		-	50	-	$\Omega$
Maximum output voltage	-	RL=1 k $\Omega$	±12	±13	-	V
Supply voltage*2	Vcc		±14.5	±15.0	±15.5	V
Current consumption	-	Vcc= ±15 V	-	±15	±30	mA

\*1: Amplifier only

\*2: Recommended DC power supply (analog power supply): ±15 V  
 Current capacity: More than 1.5 times the maximum current consumption  
 Ripple noise: 5 mVp-p or less

**Dimensional outline (unit: mm)**



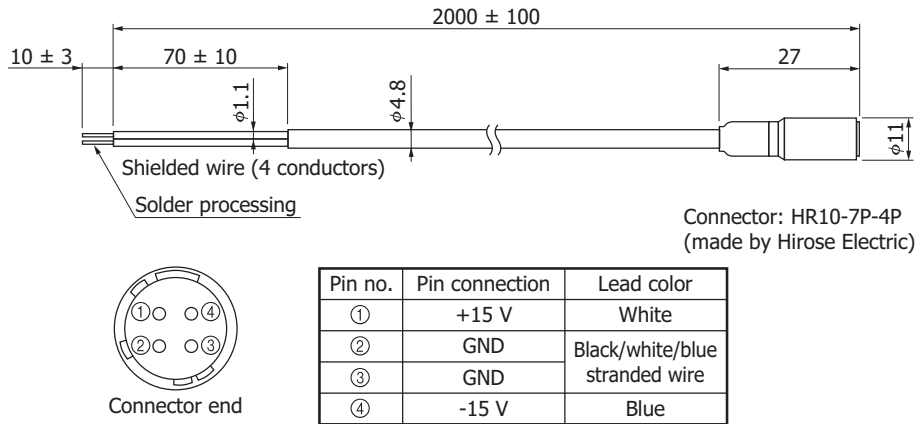
Plug

Pin no.	Pin connection	Lead color
①	Vcc=+15 V	White
②	GND	Black/white/blue stranded wire
③	GND	
④	Vcc=-15 V	Blue

Tolerance unless otherwise noted: ±1

KIRDA2031EA

Cable A4372-02



Tolerance unless otherwise noted: ±1

KIRDA0196EE

**Precautions**

- Always use a dual-polarity (±15 V) power supply to operate this detector. Never use a single-polarity (+15 V or -15 V only) power supply. Using a single-polarity power supply may cause the amplifier in the detector module to break down.
- Be careful not to apply excessive force to the detector surface. Applying excessive force may damage the light input window. Do not directly touch the light input window with bare hands. If dust or dirt gets on the window, wipe it gently using ethyl alcohol.
- Do not drop this product or do not apply excessive shock to it.

**Related information**

[http://www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

■ Precautions

- Notice

■ Technical information

- Infrared detectors/technical information

Information described in this material is current as of February, 2014.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

Type numbers of products listed in the delivery specification sheets or supplied as samples may have a suffix "(X)" which means preliminary specifications or a suffix "(Z)" which means developmental specifications.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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**HAMAMATSU**

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