

Accessories for infrared detectors



Temperature controllers

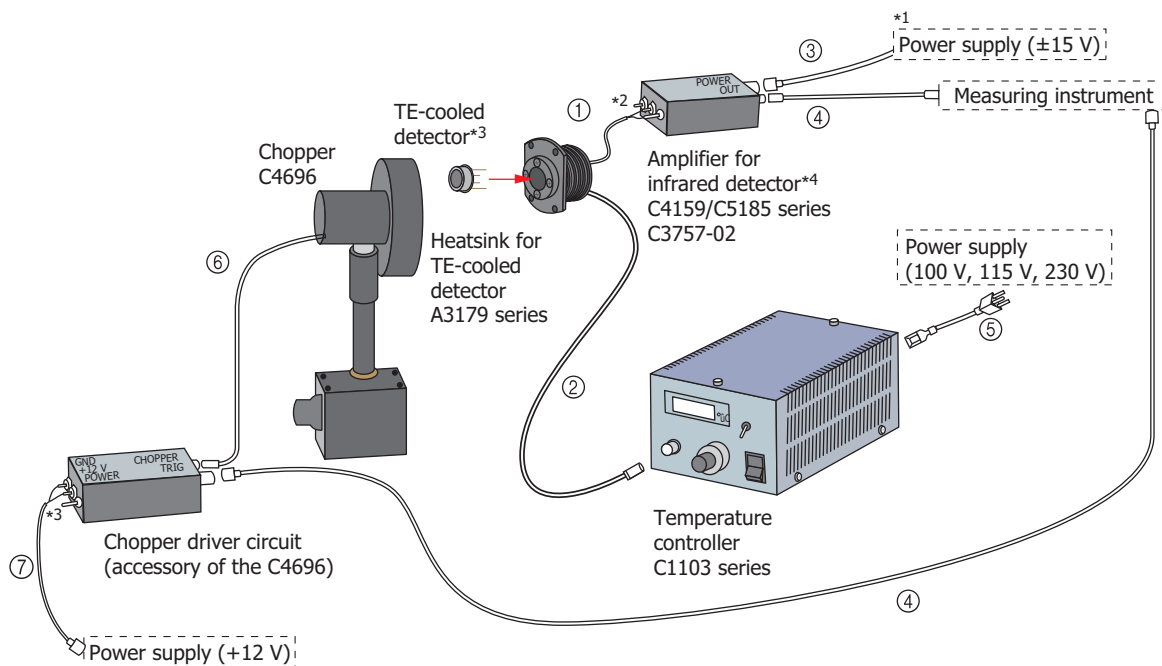
Heatsinks for TE-cooled detector

Chopper, etc.

Wide lineups of accessories for infrared detector

HAMAMATSU provides temperature controllers, heatsinks for TE-cooled detector, chopper and cables, etc as accessories for infrared detectors.

Connection example of accessories for infrared detectors



KACCC0321EC

*1: Attach the bare wire ends to a 3-pin or 4-pin connector or to a banana jack, and then connect them to the power supply.

*2: Soldering is needed. When using the C5185 series amplifier, a BNC connector (prepared by the user, example: one end of the E2573) is required.

*3: No socket is available. Soldering is needed.

*4: Refer to the datasheet "Amplifiers for infrared detectors" for detailed information.

Note: Refer to page 6 for details on cables.

Temperature controllers C1103 series

The C1103 series is a temperature controller designed for thermoelectrically cooled infrared detectors. The C1103 series allows easy but accurate temperature setting for the thermoelectric cooler mounted in an infrared detector.

Specifications

Parameter	C1103-04	C1103-05	C1103-07
Applicable detector*5	One-stage/two-stage TE-cooled type PbS, PbSe photoconductive detector, InAs photovoltaic detector, InGaAs, Si photodiode	Two-stage/three-stage TE-cooled type MCT, InSb photoconductive detector	One-stage TE-cooled type MCT, InSb photoconductive detector
Setting element temperature	-30 to +20 °C	-75 to -25 °C	-30 to +20 °C
Temperature stability	Within ±0.1 °C		
Output current for temperature control	1.1 A min., 1.2 A typ., 1.3 A max.		
Power supply	100 V ± 10 % · 50/60 Hz*6		
Power consumption	30 W		
Dimensions	107 (W) × 84 (H) × 190 (D) mm		
Weight	1.9 kg approx.		
Accessories	Instruction manual 4-conductor cable (with a connector, 3 m) A4372-05*7, power supply cable		

*5: It doesn't correspond to TE-cooled type infrared detector module with preamp.

*6: Please specify power supply requirement (AC line voltage) from among 100 V, 115 V and 230 V when ordering.

*7: When used in combination with an A3179 series heatsink, do not use the 4-conductor cable supplied with the A3179 series, but use the A4372-05 instead.

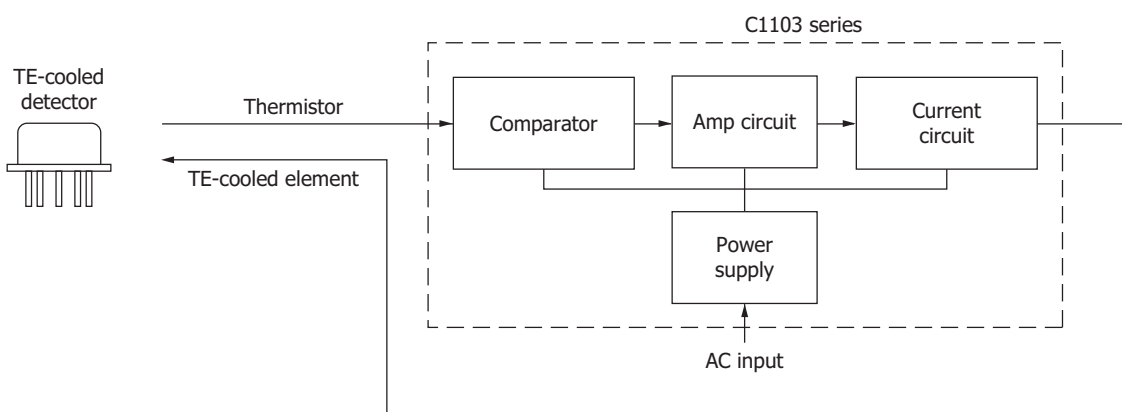
Absolute maximum ratings

Parameter	Value
Operating temperature	+10 to +40 °C
Operating humidity	90% Max.*8
Storage temperature	-20 to +40 °C

*8: No condensation

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.

Block diagram



K1RDC0008EB

Heatsinks for TE-cooled detector (TO-8, TO-3 package) A3179 series

These heatsinks are designed for use with thermoelectrically cooled detector sealed in a 6-pin TO-8, TO-3 package. The cooling (heat dissipation) capacity of the A3179 and A3179-03 is about 35 °C relative to the ambient temperature 25 °C, the A3179-01 is about 40 °C, and that of the A3179-04 is about 85 °C. The A3179-03 is designed only for two-color detector K3413 series, the A3179, A3179-01 for TO-8, the A3179-04 for TO-3 (heatsink for TO-66 is available as a custom product.) .

Accessories

Instruction manual

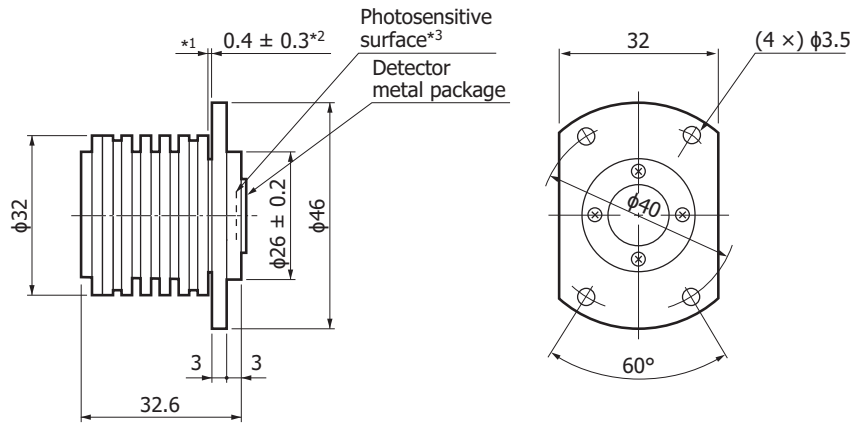
- 4-conductor cable (2 m): for TE-cooler and thermistor*9, *10
- Coaxial cable (2 m): for signal*10

*9: When used in combination with a C1103 series temperature controller, do not use the 4-conductor cable supplied with the A3179 series, but use the 4-conductor cable A4372-05 (sold separately, with a connector).

*10: No socket is supplied for connection to infrared detectors. Connect infrared detectors by soldering. Cover the soldered joints and detector pins with vinyl insulating tubes.

Dimensional outlines (unit: mm, tolerance unless otherwise noted: ±0.3)

A3179

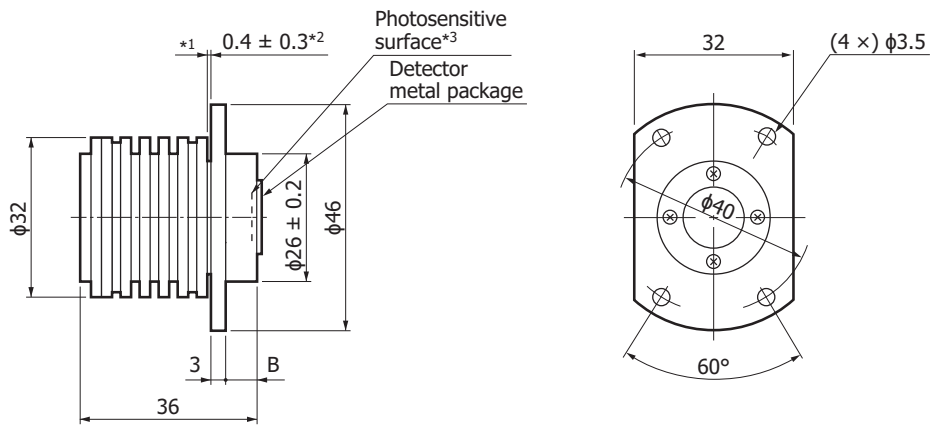


Weight: 50 g approx.

- *1: Bottom surface (reference surface) of detector metal package
- *2: When the detector is installed
- *3: The position of the photosensitive surface differs according to the detector used. Refer to the dimensional outline for the detector.

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A3179-01, A3179-03

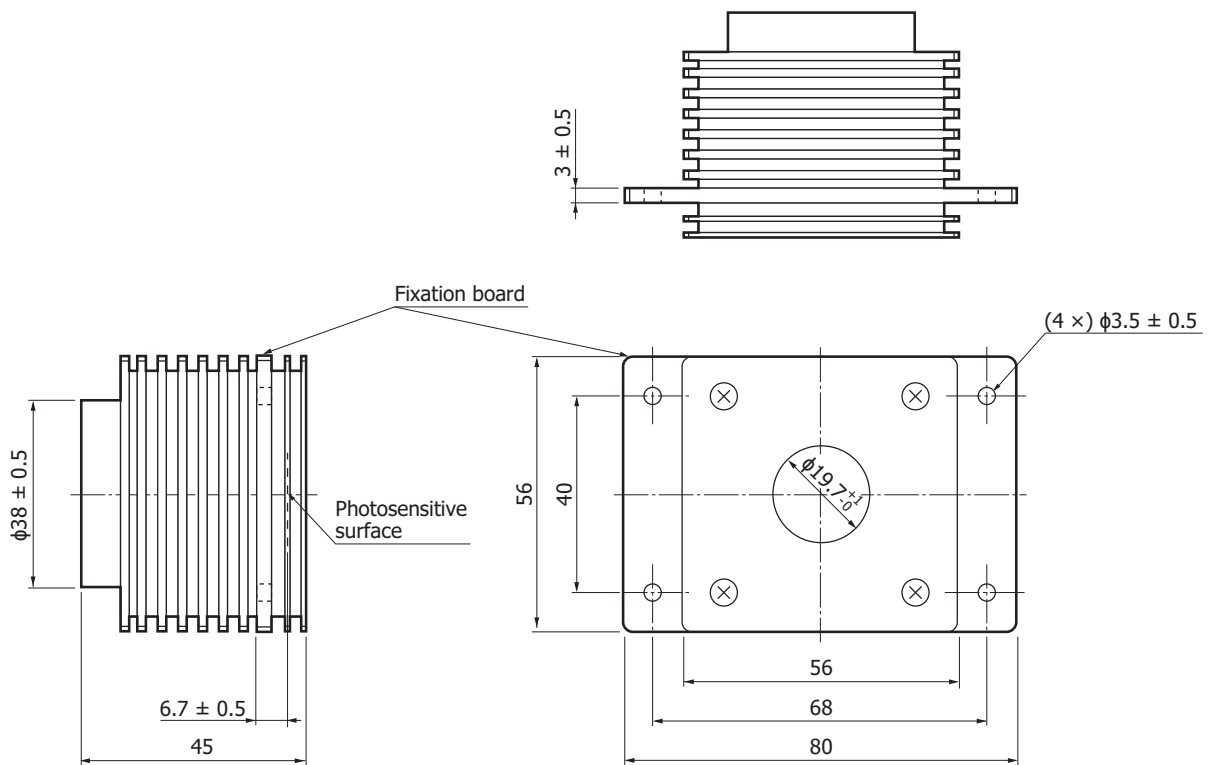


A3179-01: B=6
A3179-03: B=6.4
Weight: 53 g approx.

- *1: Bottom surface (reference surface) of detector metal package
- *2: When detector is installed
- *3: The position of the photosensitive surface differs according to the detector used.
Refer to the dimensional outline for the detector.

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A3179-04



Weight: 320 g approx.

KIRDA0149EB

Chopper C4696

Specifications

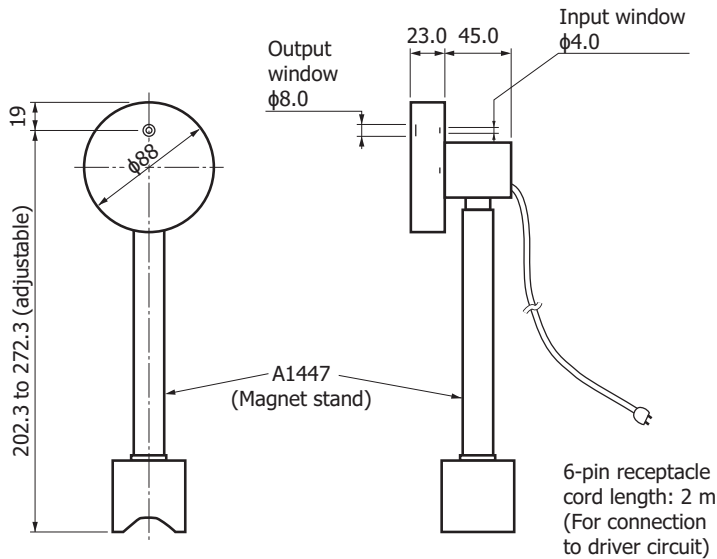
Parameter		Specification
Chopping frequency ^{*11}		115 to 380 Hz, 345 Hz typ. ^{*12}
Power supply (V _D)		DC 5 to 13 V, 12 V typ.
Duty ratio		1 : 1
Rotational stability		0.06 %/°C
Synchronous signal (high level)	Min.	V _D - 0.5 V
	Max.	V _D - 0.2 V
Operating temperature		0 to 50 °C
Maximum current consumption ^{*12}		90 mA
Accessory		Magnet stand A1447

*11: Chopping frequency will be 230 to 760 Hz when an optional disc is used.

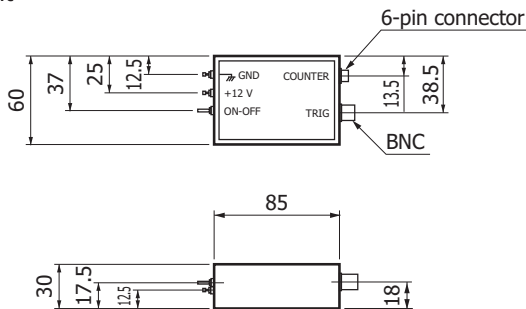
*12: V_D=12 V

Dimensional outline (unit: mm, tolerance unless otherwise noted: ±1)

<Chopper>

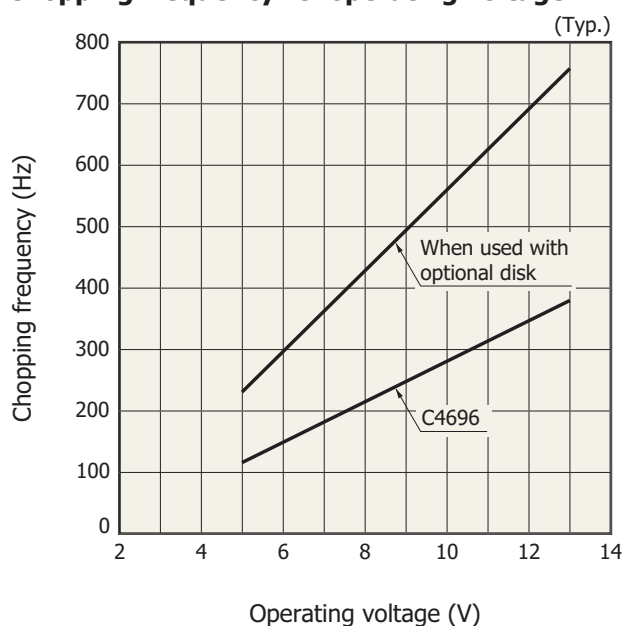


<Driver circuit>



KIRDA0022EA

❏ Chopping frequency vs. operating voltage



KIRD80376EA

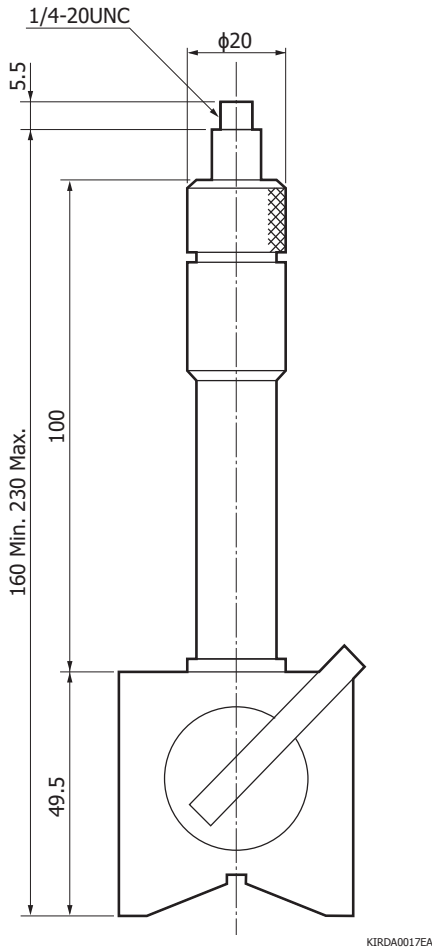
Cables A4372 series

Cable No.	Cable	Length approx.	Note
①	Coaxial cable (for signal)	2 m	Supplied with heatsink A3179 series. When using this cable, make it as short as possible (preferably about 10 cm).
②	4-conductor cable (with a connector) A4372-05	3 m	Supplied with temperature controller C1103 series. This cable is also sold separately.
③	4-conductor cable (with a connector) A4372-02	2 m	This cable is supplied with the C4159/C5185 series amplifiers for infrared detectors, C3757-02, and infrared detector modules with preamp (room temperature operation type). This cable is also sold separately. Besides this cable, the A4372-03, which is a 6-conductor cable (with connector) supplied with "infrared detector module with preamp", is also sold separately.
④	BNC connector cable E2573	1 m	Option
⑤	Power supply cable (for temperature controller)	1.9 m	Supplied with temperature controller C1103 series
⑥	Chopper driver cable (connected to chopper)	2 m	Connected to chopper
⑦	2-conductor cable or coaxial cable (for chopper power supply)	2 m or less	Prepared by user

Magnet stand A1447

This is a magnet stand (sold separately) designed for the B749 photon drag detector.

❑ Dimensional outline (unit: mm, tolerance unless otherwise noted: ±1)

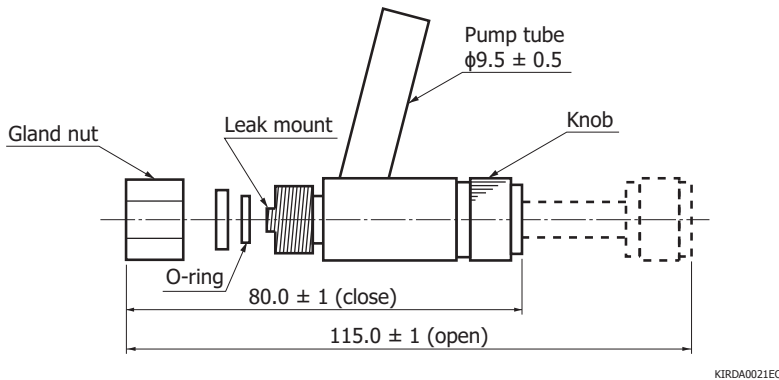


Valve operator for metal dewar A3515

With this valve operator, metal dewars can be re-evacuated to maintain the desired vacuum level. Refer to the instruction manual for details. Please be aware that the detector performance is not guaranteed after re-evacuation is performed with the valve operator.



Dimensional outline (unit: mm)



Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Notice

Technical information

- Infrared detector

Information described in this material is current as of November, 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.

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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