

Amplifier for infrared detector
C4159/C5185 series, C3757-02

Low noise amplifier for InGaAs, PbS, PbSe and MCT detector

Accessories

- Instruction manual
- 4-conductor cable (with a connector; 2 m) A4372-02

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Value	Unit
Operating temperature	0 to +40	°C
Storage temperature	-20 to +70	°C

■ Amplifiers for photovoltaic detectors (Typ.)

Parameter	C4159-01	C4159-04	C4159-05	C4159-02	C4159-03	Unit
Applicable detector	InSb (dewer type) *1 (φ0.6 mm, 1 mm)	InSb (dewer type) *1 (φ2 mm)	InAs (P7163)	InGaAs	InGaAs	-
Conversion impedance	10^8, 10^7, 10^6 (3 ranges switchable)	2×10^7, 2×10^6, 2×10^5 (3 ranges switchable)	10^8, 10^7, 10^6 (3 ranges switchable)	250 to 5×10^3 continuous	10^7, 10^6, 10^5 (3 ranges switchable)	V/A
Frequency response (amp. only, -3 dB)	DC to 100 k	DC to 45 k	DC to 15 k	20 to 120 M	DC to 15 k	Hz
Output impedance	50	50	50	50	50	Ω
Maximum output voltage (1 kΩ load)	+10	+10	+10	±1.3	+10	V
Output offset voltage	±5	±5	±10	±30	±5	mV
Equivalent input noise current (f=1 kHz)	0.15 *2	0.55	0.15 (10^8, 10^7 range) 0.65 (10^6 range)	30	2.5	pA/Hz$^{1/2}$
Reverse voltage	Impossible			Internally generated	Can be applied from external unit	-
External power supply	±15			±15	±15	V
Current consumption *3	+30, -10 Max.			+90, -60 Max.	±15 Max.	mA

Note) Output nose voltage = Equivalent input noise current × Conversion impedance

■ Amplifiers for photoconductive detectors (Typ.)

Parameter	C5185	C5185-01	C3757-02	Unit
Applicable detector	MCT (dewar type), InSb (P6606 series)	MCT (P3981/P2750 series) *4	PbS, PbSe	-
Input impedance	5	5	10000	kΩ
Voltage gain	66 (× 2000)	66 (× 2000)	40 (× 100)	dB
Frequency response (amp. only, -3 dB)	5 to 250 k	5 to 250 k	0.2 to 10 k	Hz
Detector bias current	5 mA, 10 mA, 15 mA (3 ranges switchable)	0.1 mA, 0.5 mA, 1 mA (3 ranges switchable)	Internal bias	-
Output impedance	50	50	50	Ω
Maximum output voltage (1 kΩ load)	±2.5	±2.5	±10	V
Equivalent input noise voltage (f=1 kHz)	2.6	1.2	40	nV/Hz$^{1/2}$
External power supply	±15	±15	±15	V
Current consumption *3	+60, -10 Max.	+60, -10 Max.	+15, -15 Max.	mA

Note) Output noise voltage = Equivalent input noise voltage × Voltage gain

*1: Amplifiers for multi-element detectors are separately provided.

*2: 0.65 pA/Hz$^{1/2}$ when conversion impedance is set to 10^6 V/A

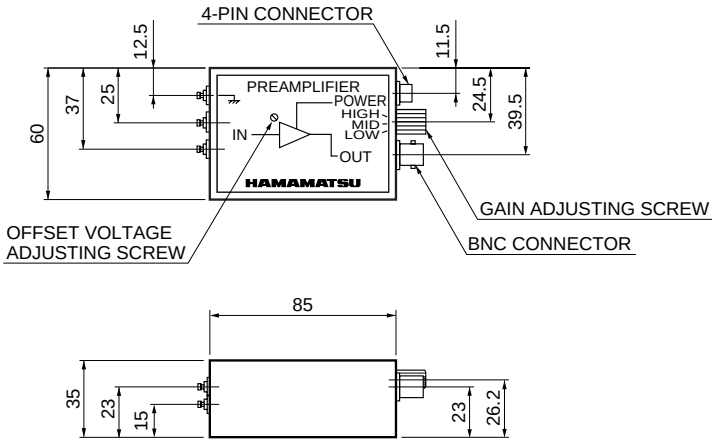
*3: Recommended DC power supply (analog power supply): ±15 V
Current capacity: More than 1.5 times the maximum current consumption
Ripple noise: 6 mVp-p or less

*4: Preamp for P3257-30/-31 available upon request

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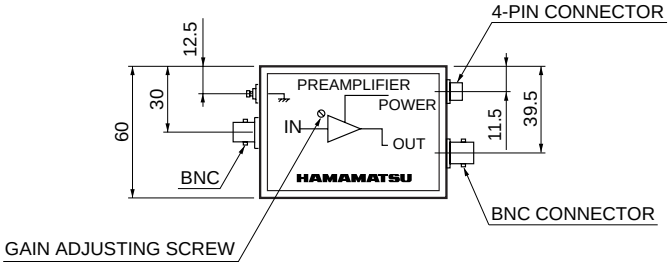
■ Dimensional outlines (unit: mm)

C4159-01/-03/-04/-05



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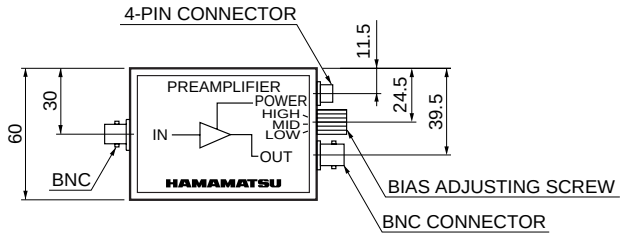
C4159-02





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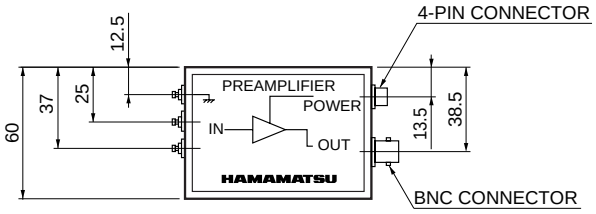
C5185/-01

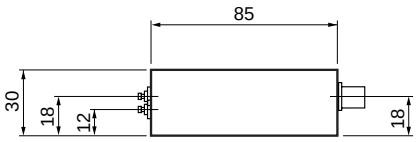




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