

Image sensor module

C8061-01/C8062-01 series

Modules with a built-in InGaAs linear image sensor

C8061-01/C8062-01 series are image sensor modules with a built-in InGaAs linear image sensor. Two types are available, the C8061-01 series with a built-in one-stage TE-cooled type InGaAs image sensor and the C8062-01 series with a built-in two-stage TE-cooled type sensor. A low-noise driver circuit is built-in, allowing operation by applying simple external signals. The built-in highly stable temperature control circuit cools the sensors to the predetermined temperature (C8061-01 series: $T_{chip} = -10\text{ }^{\circ}\text{C}$, C8062-01 series: $T_{chip} = -20\text{ }^{\circ}\text{C}$) as soon as the power is supplied. They are designed with a safety feature that automatically turns off the power via a protective circuit in the event of overheating caused by a cooler failure. The main unit has a highly effective heat dissipation structure despite its compact exterior, and is equipped with mounting holes on its front surface for attaching a spectrometer or other devices. A controller (C7557-01) for operating these image sensor modules is also available separately. The dedicated software allows you to control the image sensor module and collect data from it via the PC.

Features

- ➔ **Built-in InGaAs linear image sensor**
C8061-01 series: One-stage TE-cooled type InGaAs
C8062-01 series: Two-stage TE-cooled type InGaAs
- ➔ **Built-in dedicated driver circuit**
- ➔ **Highly stable temperature control method adopted**
Temperature control C8061-01 series: $T_{chip} = -10 \pm 0.1\text{ }^{\circ}\text{C}$ fixed
($T_a = 10\text{ to }30\text{ }^{\circ}\text{C}$)
C8062-01 series: $T_{chip} = -20 \pm 0.1\text{ }^{\circ}\text{C}$ fixed
($T_a = 10\text{ to }30\text{ }^{\circ}\text{C}$)
- ➔ **Operation via simple signal inputs**
- ➔ **Compact exterior**

Applications

- ➔ **Near infrared multichannel spectrophotometry**
- ➔ **Radiation thermometers**
- ➔ **Non-destructive inspection equipment**
- ➔ **Optical fiber transmittance measuring instruments**

Selection guide

The following InGaAs linear image sensors are built-in.
The circuit is also available for purchase separately. Contact us for detailed information.

Type no.	Built-in InGaAs linear image sensors					
	Type no.	Cooling	Total number of pixels	Number of effective pixels*1	Pixel size [μm (H) $\times$ μm (V)]	Image size [mm (H) $\times$ mm (V)]
C8061-01A	G9211-256SB	One-stage TE-cooled	256	256	50 $\times$ 250	12.8 $\times$ 0.25
C8061-01B	G9212-512SB		512	512	25 $\times$ 250	12.8 $\times$ 0.25
C8061-01C	G9213-256SA		256	256	50 $\times$ 500	12.8 $\times$ 0.50
C8061-01D	G9214-512SA		512	512	25 $\times$ 500	12.8 $\times$ 0.50
C8062-01B	G9205-512WB	Two-stage TE-cooled	512	512	25 $\times$ 250	12.8 $\times$ 0.25
C8062-01C	G9206-02B		256	256	50 $\times$ 250	
C8062-01D	G9206-256WB		256	256	50 $\times$ 250	
C8062-01E	G9206-512WB		512	512	25 $\times$ 250	
C8062-01F	G9207-256WB		256	256	50 $\times$ 250	
C8062-01G	G9208-256WB		256	256	50 $\times$ 250	
C8062-01H	G9208-512WB		512	512	25 $\times$ 250	

*1: Total number of pixels that does not exceed the maximum dark current and sensitivity uniformity values.

■ Absolute maximum ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage (digital)	VD1, VD2	-0.5	-	+7	V
Supply voltage (analog)	VA+	-	-	+18	
	VA-	-	-	-18	
Supply voltage	Vp	-	-	+7	
	VF	-	-	+14	
Digital input voltage	-	-	-	VD1, VD2	
Operating temperature*2	Topr	+10 to +30			°C
Storage temperature*2	Tstg	0 to +50			

*2: No dew condensation

When there is a temperature difference between a product and the surrounding area in high-humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

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 specifications

(Unless otherwise noted, Ta=25 °C, Cf=Low gain)

C8061-01 series: Tchip=-10 °C, VD1=+5 V, VA+=+15 V, VA-=-15 V, VD2=+5 V, Vp=+5 V, Vf=+12 V
C8062-01 series: Tchip=-20 °C, VD1=+5 V, VA+=+15 V, VA-=-15 V, VD2=+6 V, Vp=+6 V, Vf=+12 V)

Parameter		Symbol	Min.	Typ.	Max.	Unit	
Digital input	High level	V _{IH}	+2.0	-	V _{D1} , V _{D2}	V	
	Low level	V _{IL}	-0.5	-	+0.8	V	
Clock pulse frequency		f _{CLK}	-	-	4	MHz	
Video signal readout frequency		f _v	-	-	f _{CLK} /8	Hz	
Start pulse width		t _{st}	1/f _{CLK}	-	-	s	
Digital output	High level (I _o =-6 mA)	V _{oH}	+2.0	-	-	V	
	Low level (I _o =+6 mA)	V _{oL}	-	-	+0.8	V	
Operating power supply conditions							
Voltage	Digital		V _{D1}	+4.75	+5.0	+5.25	V
	Analog		VA1+	+14.75	+15.0	+15.25	V
			VA1-	-14.75	-15.0	-15.25	V
	Others	C8061-01 series	V _{D2}	+4.75	+5.0	+5.25	V
		C8062-01 series		+5.75	+6.0	+6.25	V
		C8061-01 series	V _p	+4.75	+5.0	+5.25	V
		C8062-01 series		+5.75	+6.0	+6.25	V
				V _F	+11.75	+12.0	+12.25
Current	V _{D1} (+5 VDC)		-	-	-	+100	mA
	VA+ (+15 VDC)		-	-	-	+200	mA
	VA- (-15 VDC)		-	-	-	-50	mA
	V _{D2} * ³		-	-	-	+50	mA
	V _p * ³		-	-	+1.2	+1.7	A
			-	-	+2.0	+3.0	A
	V _F (+12 VDC)		-	-	-	+150	mA

*3: C8061-01 series: +5 VDC

C8062-01 series: +6 VDC

Electrical and optical characteristics

(Unless otherwise noted, Ta=25 °C, Cf=Low gain)

C8061-01 series: Tchip=-10 °C, Vb1=+5 V, VA+=+15 V, VA=-15 V, VD2=+5 V, Vp=+5 V, VF=+12 V

C8062-01 series: Tchip=-20 °C, Vb1=+5 V, VA+=+15 V, VA=-15 V, VD2=+6 V, Vp=+6 V, VF=+12 V)

Parameter	Symbol	C8061-01 series				C8062-01 series				Unit
		Type no.	Min.	Typ.	Max.	Type no.	Min.	Typ.	Max.	
Spectral response range	λ		-	0.9 to 1.7	-	C8062-01A/B	-	0.9 to 1.85	-	μm
						C8062-01C/E	-	0.9 to 2.15	-	
						C8062-01D	-	0.9 to 2.05	-	
						C8062-01F	-	0.9 to 2.25	-	
						C8062-01G/H	-	0.9 to 2.55	-	
Photoresponse nonuniformity*4	PRNU		-	±3	±5		-	±5	±10	%
Conversion gain*5	G		-	0.3	-		-	0.3	-	V/pC
Saturation output voltage	Vsat		10	-	-		10	-	-	V
Readout noise	Nread		-	-	300		-	-	300	$\mu\text{V rms}$
Dark current	ID	C8061-01A	-	2	10	C8062-01A/B	-	15	60	pA
		C8061-01B/D	-	1	5	C8062-01C	-	30	70	
		C8061-01C	-	4	20	C8062-01D/E	-	30	120	
						C8062-01F	-	200	800	
						C8062-01G/H	-	500	2000	

*4: Measured at 50 % saturation after subtracting the dark output, excluding the first and last pixels

*5: Including circuit gain

Temperature controller specifications

(Unless otherwise noted, Ta=25 °C, Cf=Low gain)

C8061-01 series: Tchip=-10 °C, Vb1=+5 V, VA+=+15 V, VA=-15 V, VD2=+5 V, Vp=+5 V, VF=+12 V

C8062-01 series: Tchip=-20 °C, Vb1=+5 V, VA+=+15 V, VA=-15 V, VD2=+6 V, Vp=+6 V, VF=+12 V)

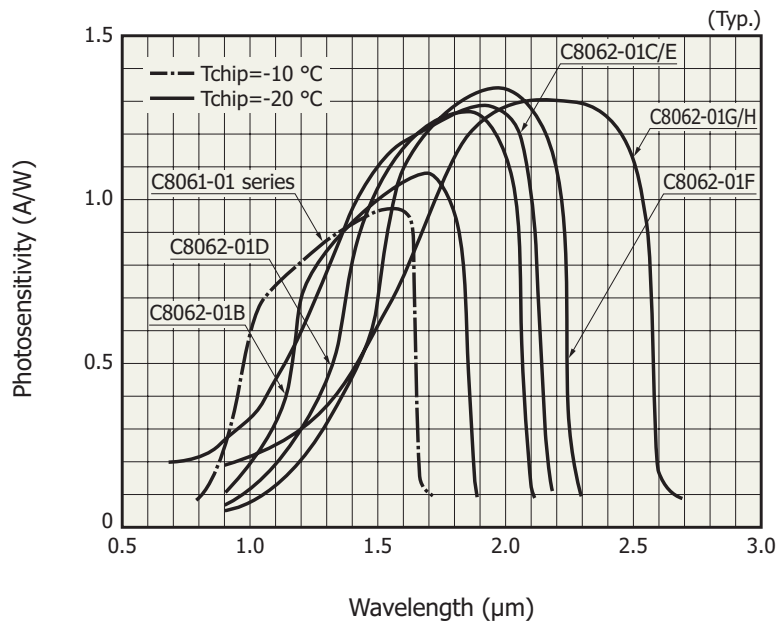
Parameter	Symbol	Min.	Typ.	Max.	Unit
Cooling temperature	C8061-01 series	-11	-10	-9	°C
	C8062-01 series	-21	-20	-19	°C
Control temperature range	ΔTchip	-0.1	-	+0.1	°C
Peltier power consumption	C8061-01 series	-	-	7	W
	C8062-01 series	-	-	11	W
Set temperature achievement time	to	-	-	5	minutes
Set temperature for sensor overheat protection*6	To	-	+45	-	°C

*6: Temperature at the back of the case (fan mounted area)

Note: The following features are included.

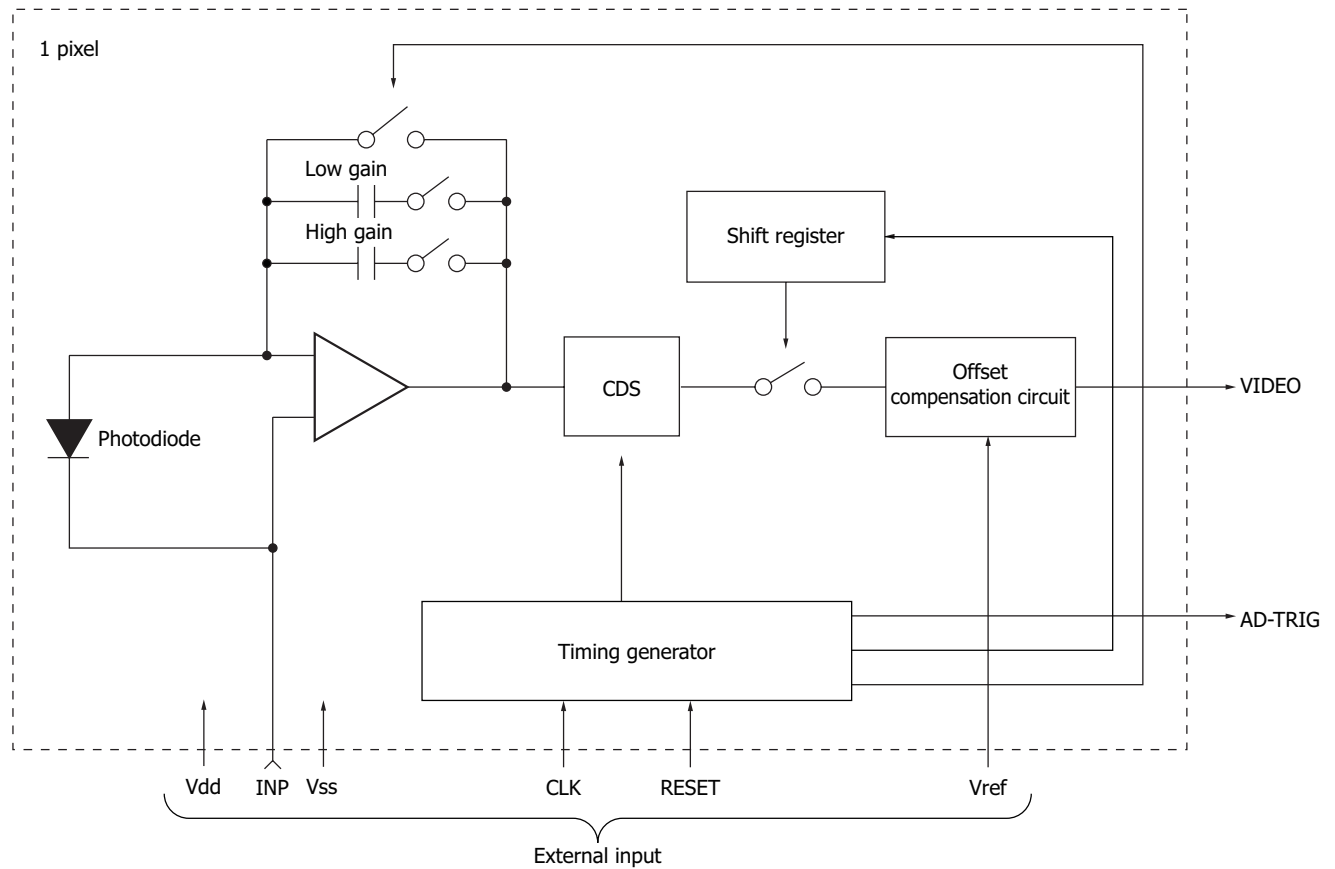
Error display, automatic power-off function, temperature sensor open and short detection

Spectral response



KACC80789EA

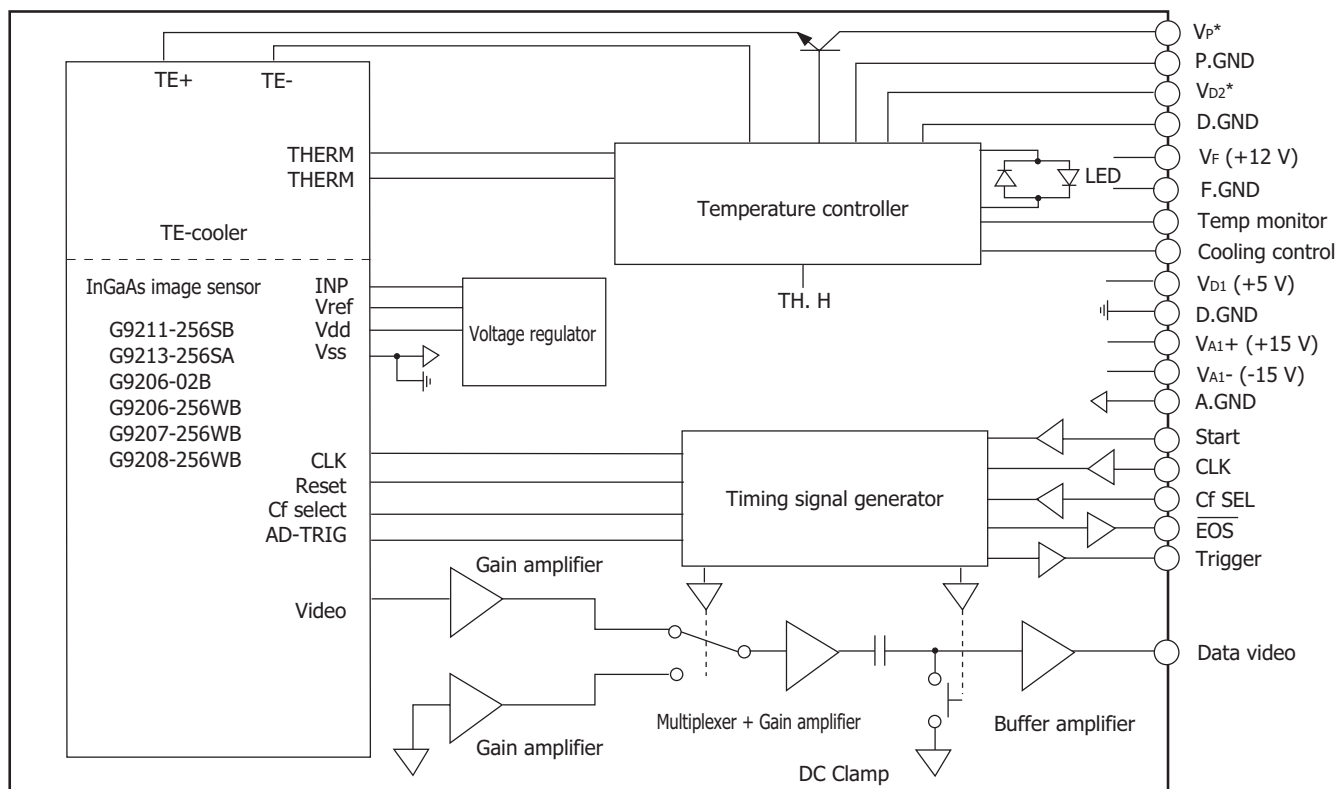
Equivalent circuit (built-in InGaAs image sensor)



KMIRC0010EC

Block diagram

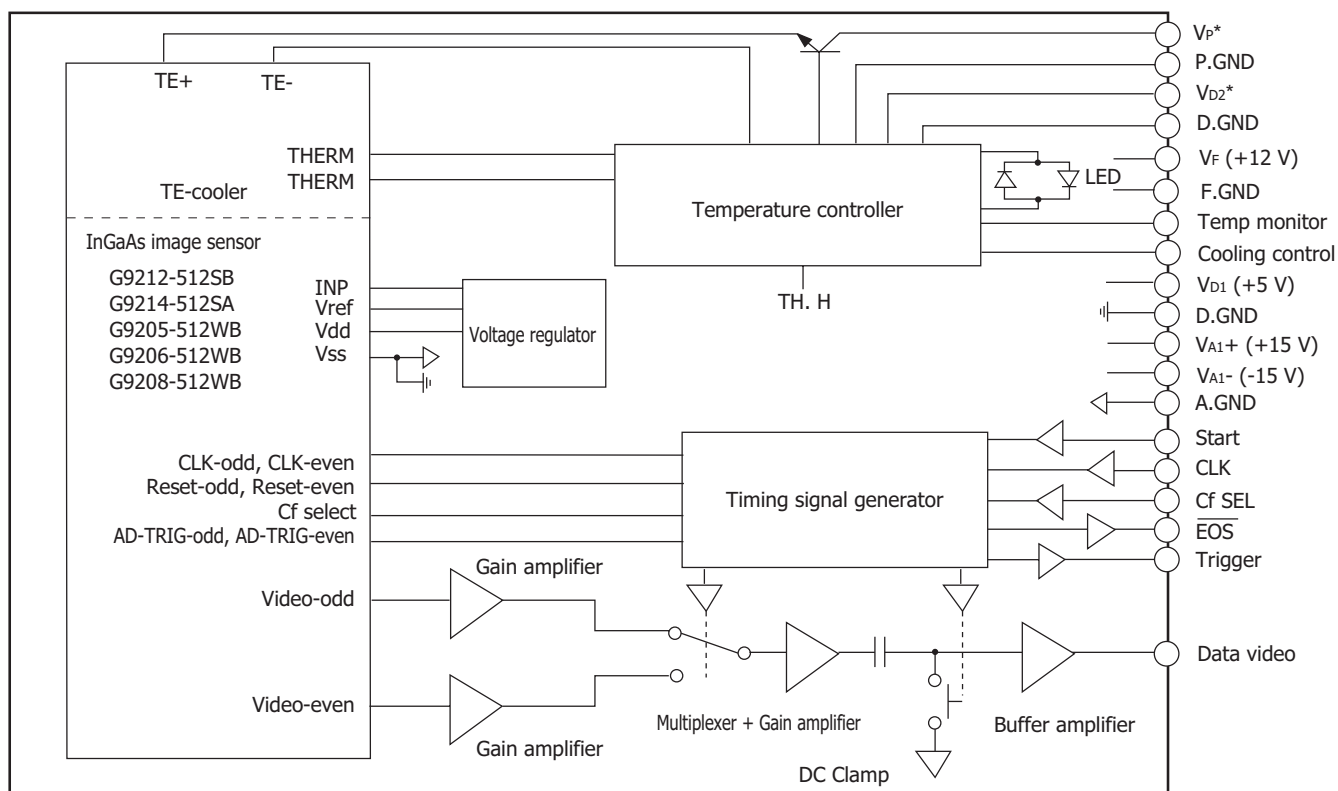
C8061-01A/C, C8062-01C/D/F/G



* +5 V (C8061-01 series), +6 V (C8062-01 series)

KACCC1261EA

C8061-01B/D, C8062-01B/E/H

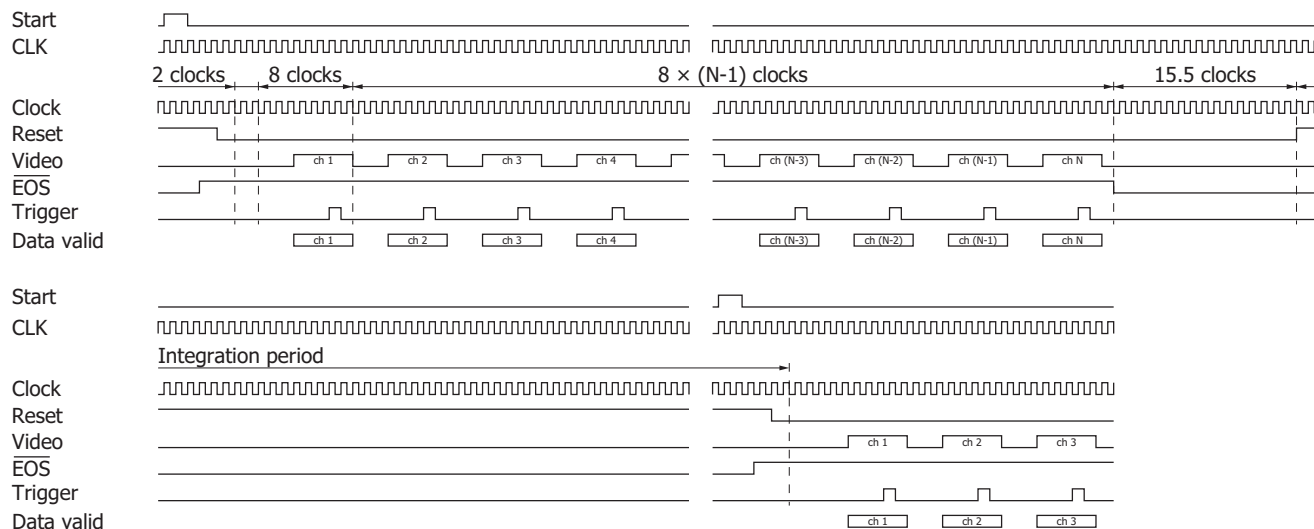


* +5 V (C8061-01 series), +6 V (C8062-01 series)

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Timing chart

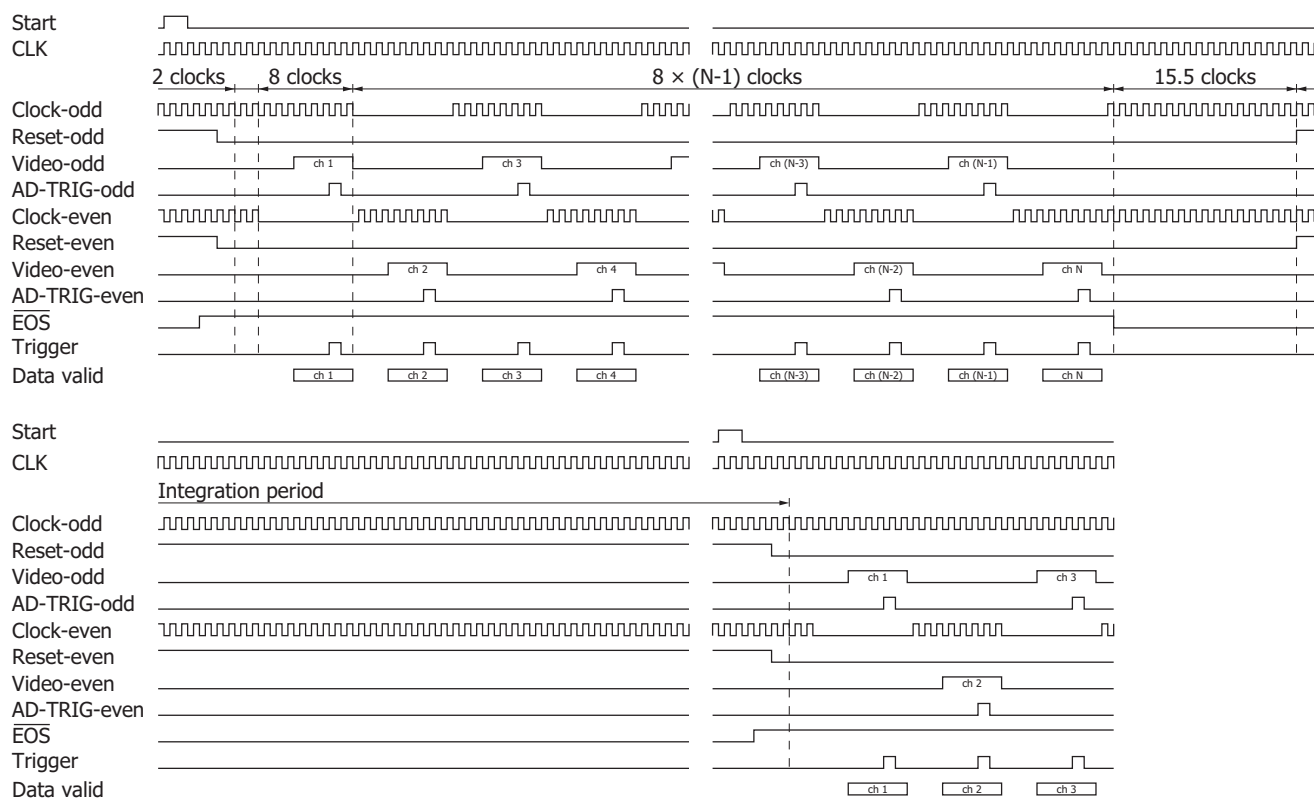
C8061-01A/C, C8062-01C/D/F/G



Note: N indicates the number of pixels (N=256)

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C8061-01B/D, C8062-01B/E/H

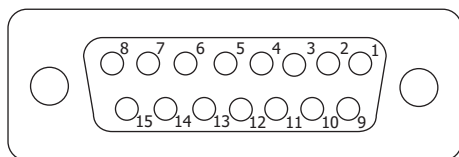


Note: N indicates the number of pixels (N=512)

KACCC1274EA

Signal I/O connector pin layout

15-pin D-sub connector



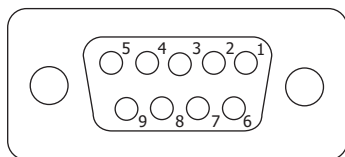
KACCC0069EA

Pin no.	Terminal name	Description
1	Cf SEL	Digital input signal for selecting the gain of the sensor's integration amplifier HCMOS compatible High level or open: Low gain (0.3 V/pC) Low level: High gain (6 V/pC)
2	Data video*7	Analog video output signal, positive polarity (approx. 10 V)
3	VA1+ (+15 V)	Analog power supply
4	VA1- (-15 V)	Analog power supply
5	VD1 (+5 V)	Digital power supply
6	Start	Digital input signal for circuit initialization HCMOS compatible, positive logic
7	CLK	Digital input signal for circuit operation HCMOS compatible Operates on rising edge
8	EOS	Digital output signal indicating the end of sensor sweep HCMOS compatible Negative logic
9	A.GND	Analog ground
10	A.GND	Analog ground
11	NC	No connection
12	D.GND	Digital ground
13	D.GND	Digital ground
14	D.GND	Digital ground
15	Trigger	Digital output signal for A/D conversion HCMOS compatible Positive polarity

*7: Due to individual differences in the installed sensor, some pixels may be below ground level in the dark state.
For this reason, use a bipolar A/D converter.

TE-cooling controller I/O connector pin layout

9-pin D-sub connector



KACCC0075EA

Pin no.	Terminal name	Description
1	V _{D2} * ⁸	Cooling control circuit power supply
2	Temp monitor	Analog output signal for the InGaAs sensor cooling temperature
3	Cooling control	Digital input signal for cooling start HCMOS compatible High level or open: Cooling state Low level: Standby mode
4	V _p * ⁸	Power supply for the cooling element in the InGaAs sensors
5	V _F (+12 V)	Power supply for cooling fan
6	D.GND	Ground for cooling control circuit
7	D.GND	Ground for cooling control circuit
8	P.GND	Power return for the cooling element in the InGaAs sensors
9	F.GND	Power return for the cooling fan

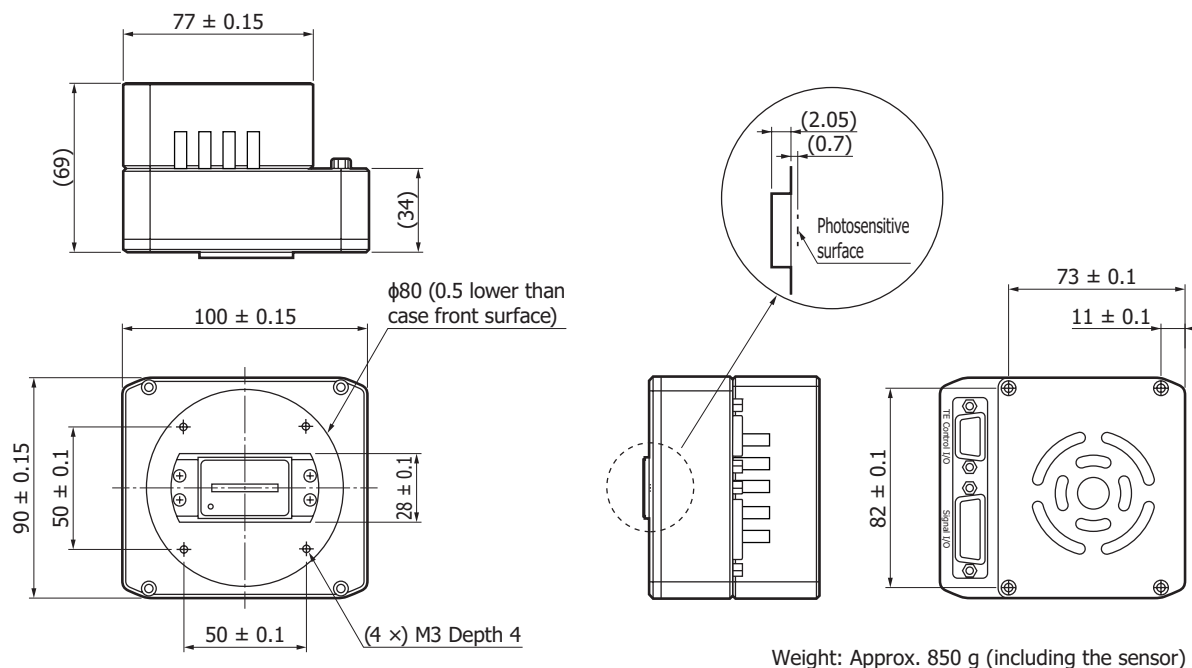
*8: C8061-01 series: +5 V, C8062-01 series: +6 V

Note: "V_{D2}" and "V_p" can share the same power supply.

Warning: Do not connect "V_{D2}" and "V_p" on the back of the 9-pin D-sub connector. Shorting them on the power supply is acceptable.

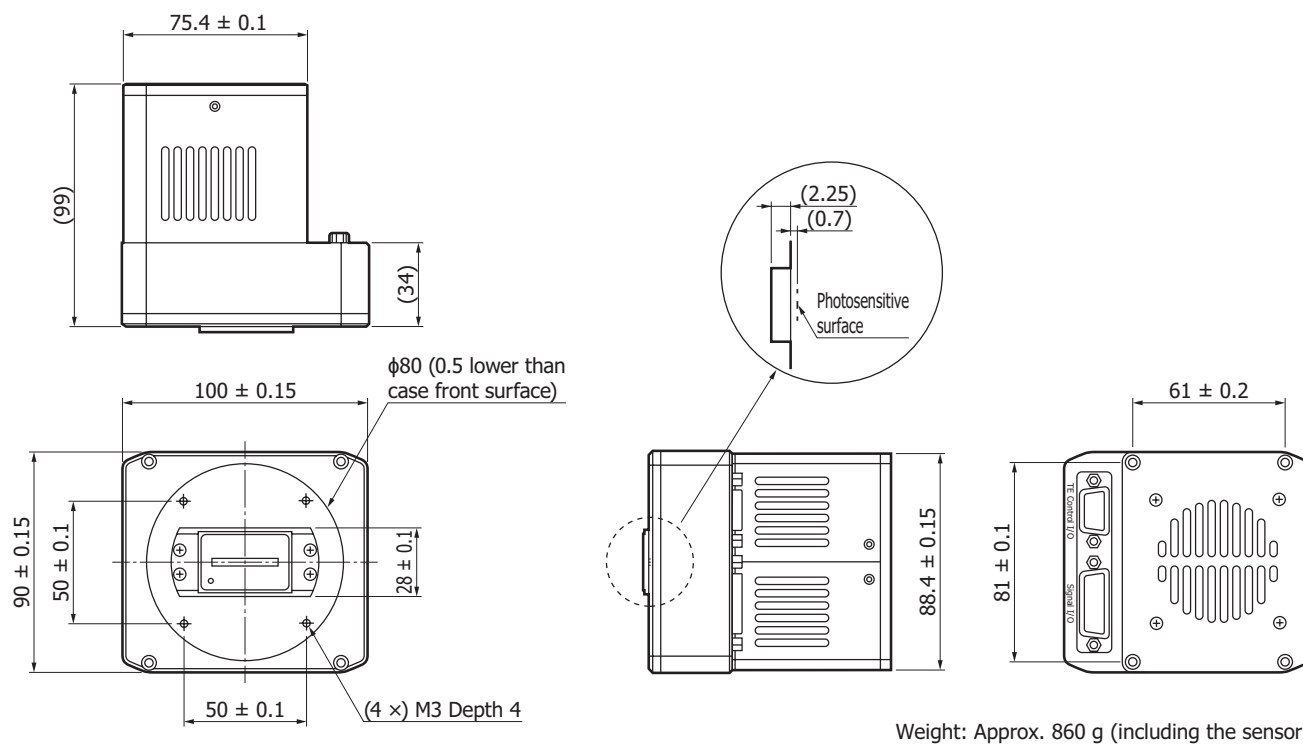
Dimensional outline (unit: mm)

C8061-01 series



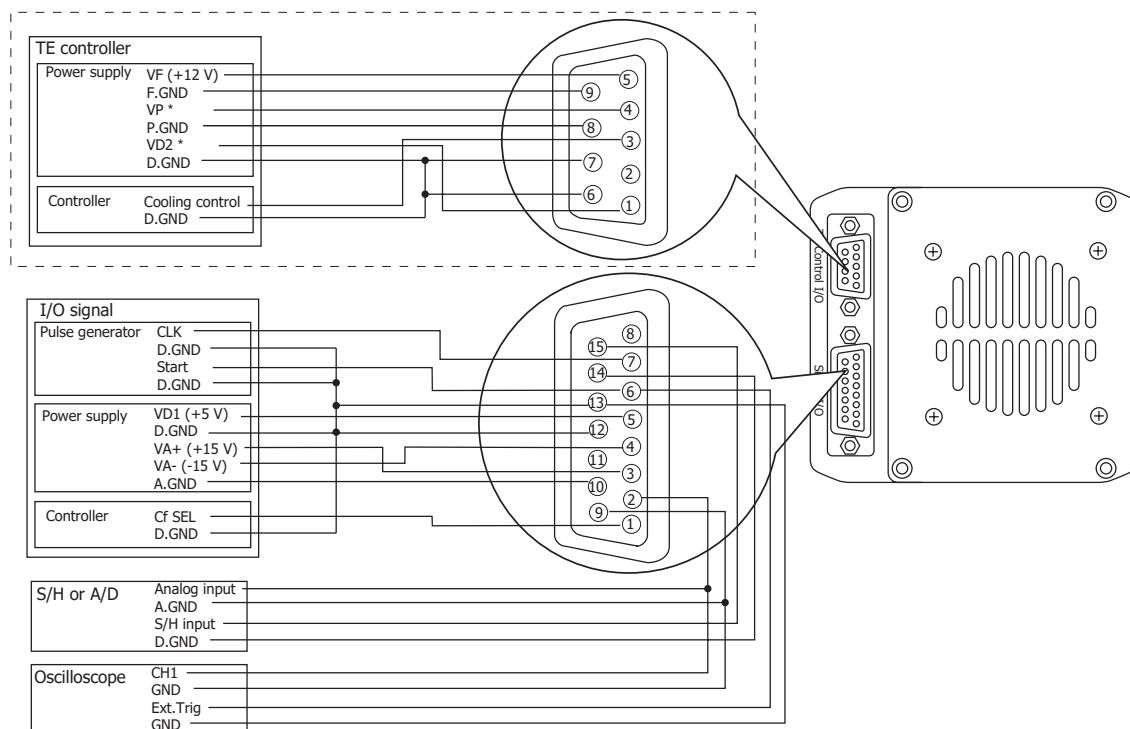
KACCA0520EA

C8062-01 series



KACCA0521EA

Connection example



* C8061-01 series: +5 V, C8062-01 series: +6 V

KACCC1264EA

Related information

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

- Precautions
- Disclaimer

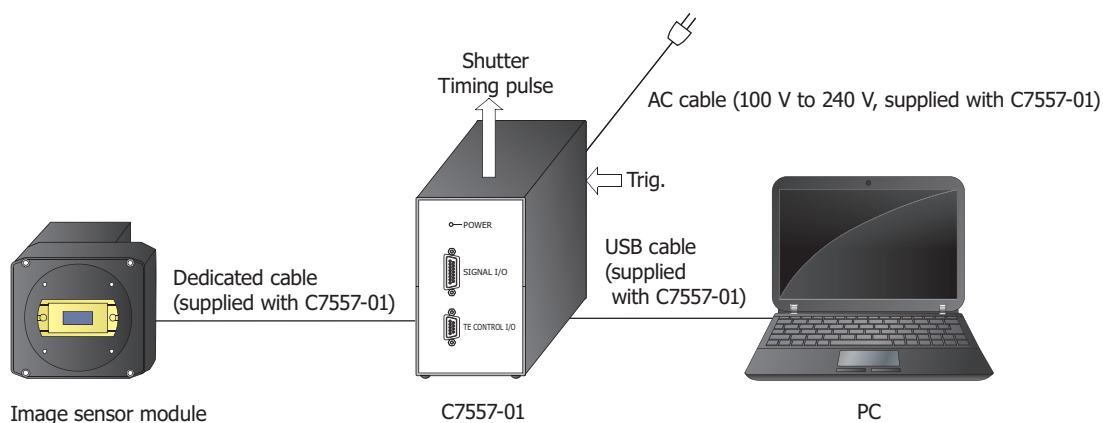
Image sensor module controller C7557-01

By connecting it to a Hamamatsu image sensor module and a PC, you can easily control the module and acquire data via the USB interface using the included software.

C7557-01 accessories

- Spare fuse (2.5 A)*⁹
- AC cable
- 2-to-3 pin conversion adapter
- USB cable
- Dedicated connection cable
(for the "SIGNAL I/O" and "TE CONTROL I/O" terminals of the image sensor module)
- CD-ROM (MCD USB driver, software, instruction manual)

*9: It is built in above the AC cable inlet of the C7557-01 main unit.

**Connection diagram**

Note: Shutters are not available.

KACCCD402EG

Information described in this material is current as of March 2026.

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.

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