

C10854

Near infrared line camera (Line rate: 31.25 kHz)

The C10854 is a multichannel detector head suitable for applications where high-speed response is required, such as SD-OCT (spectral domain-optical coherence tomography) and sorting machines. The HAMAMATSU G10768 series InGaAs near-infrared linear image sensor (sold separately) can be easily installed in the C10854.

The C10854 comes with application software (DCam-CL) that runs on Microsoft® Windows® 7 (32-bit, 64-bit)/10 (32-bit, 64-bit) and controls the C10854 from a PC. The application software also includes a function library (SSDic.dll) for the C10854, allowing you to develop your own software by using Microsoft® Visual Studio® 2008 or later, or National Instruments IMAQ developmental environment.

Features

- High-speed operation: 5 MHz
- Line rate: 31.25 kHz
- 1024 pixels (128 pixels × 8 ports)
- Supports CameraLink

Applications

- Foreign object screening
- OCT (optical coherence tomography)
- Near infrared spectroscopy

Note: Microsoft, Windows and Visual Studio are either registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.

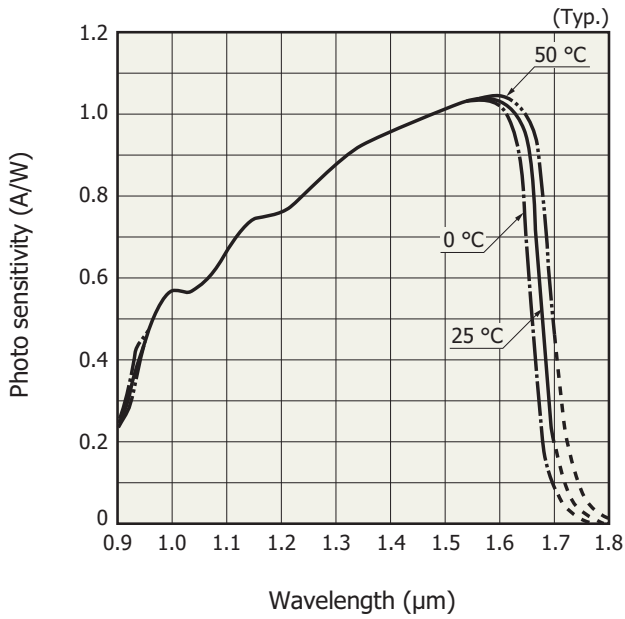
The table below shows InGaAs linear image sensors applicable for the C10854 (sold separately).

Type no.	InGaAs linear image sensor			
	Spectral response range (μm)	Number of pixels	Pixel size (μm)	Effective photosensitive area length (mm)
G10768-1024D	0.9 to 1.7	1024	25 × 100	25.6
G10768-1024DB			25 × 25	

Specifications (Unless otherwise noted, Typ. Ta=25 °C)

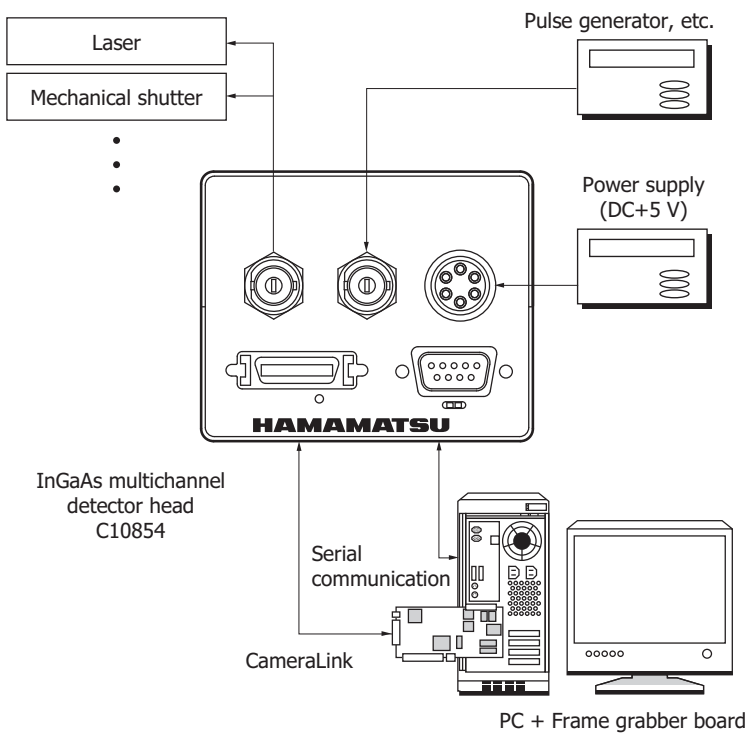
Parameter	Condition	Specification	Unit
Clock frequency		5	MHz
Line scan rate		31.25	kHz
Line readout time		32	μs
Data transfer time		17.07	μs
Total transfer time		49.07	μs
A/D conversion resolution		16	bit
Video output		16-bit, CameraLink (Base configuration)	-
Interface		RS-232C	-
Supply voltage	±5%, 1 A max.	+5	Vdc
Operating temperature	No condensation	0 to +50	°C
Storage temperature		-20 to +70	°C
Dimension	Excluding projecting parts	80 (W) × 69.5 (D) × 65 (H)	mm
Weight		330	g

Spectral response (G10768 series)



KMIR80042EB

Connection example



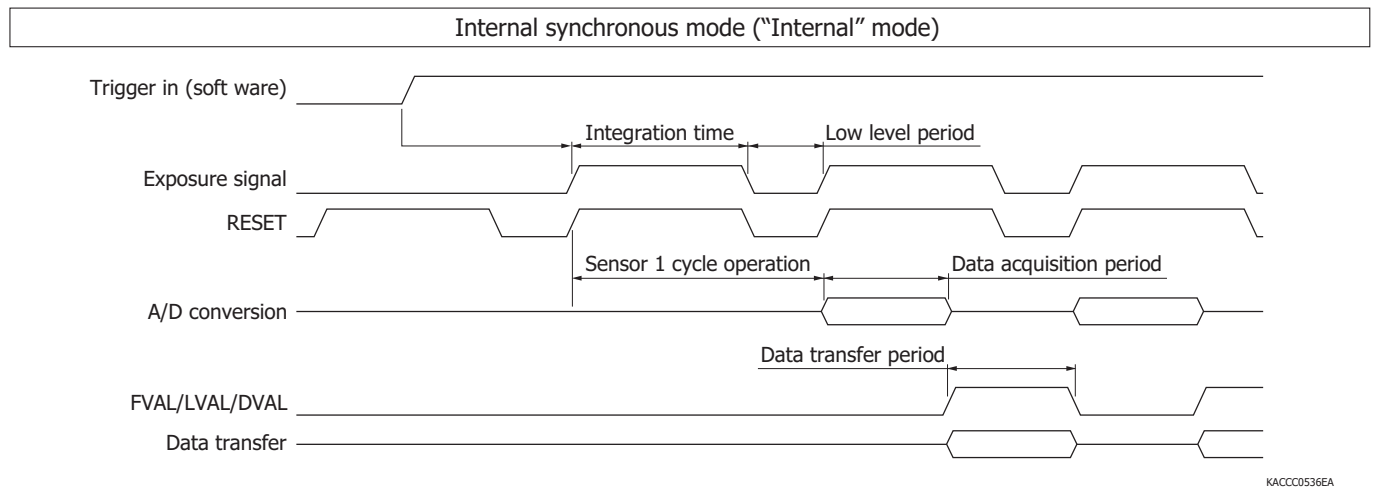
KACCC0469EA

Functions

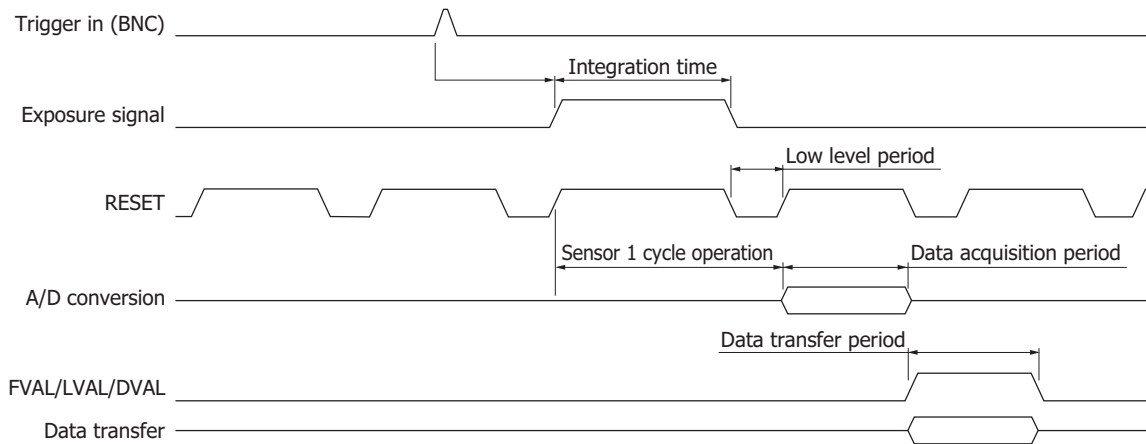
Parameter	Specifications
Operation mode	<p>"Standby" mode (white LED lighting) It is standby state. At this moment, the InGaAs linear image sensor is sweeping out dark current, by performing so called dummy scan operation.</p> <p>"Date transfer" mode (LED-green, aqua, blue, purple) The multichannel detector head transfers data to PC. Color of LED changes depending upon the data acquisition mode.</p>
Data acquisition mode	<p>Internal synchronous mode ("Internal" mode) Data is acquired on the basis of the trigger timing generated by application software.</p> <p>External synchronous edge mode 1 ("External edge 1" mode) Data is acquired in synchronization with the external trigger signal input from the built-in BNC connector. Signal integration starts after an external trigger signal is input and any dummy operation ends.</p> <p>External synchronous level mode 1 ("External level 1" mode)</p> <p>External synchronous edge mode 2 ("External edge 2" mode) Data is acquired in synchronization with the external trigger signal input from the built-in BNC connector. Signal integration starts after an external trigger signal is input.</p> <p>External synchronous level mode 2 ("External level 2" mode)</p> <p>External synchronous mode 2 ("External gating" mode) Data is acquired in synchronization with the trigger timing from the application software and the external trigger signal input from the built-in BNC connector.</p>
Offset adjustment	The offset value can be varied in the range of [0 to 511] with the step of 1. Default value is "10".
Pulse output setting	It is possible to perform the timing setup of the "pulse output signal (PULSE OUT)" outputted from the BNC connector used as PULSE_OUT of the multichannel detector head.
Selection of conversion efficiency*	Conversion efficiency can be selected from 4 different levels.

* Refer to the datasheet "InGaAs linear image sensors G10768 series".

Timing chart

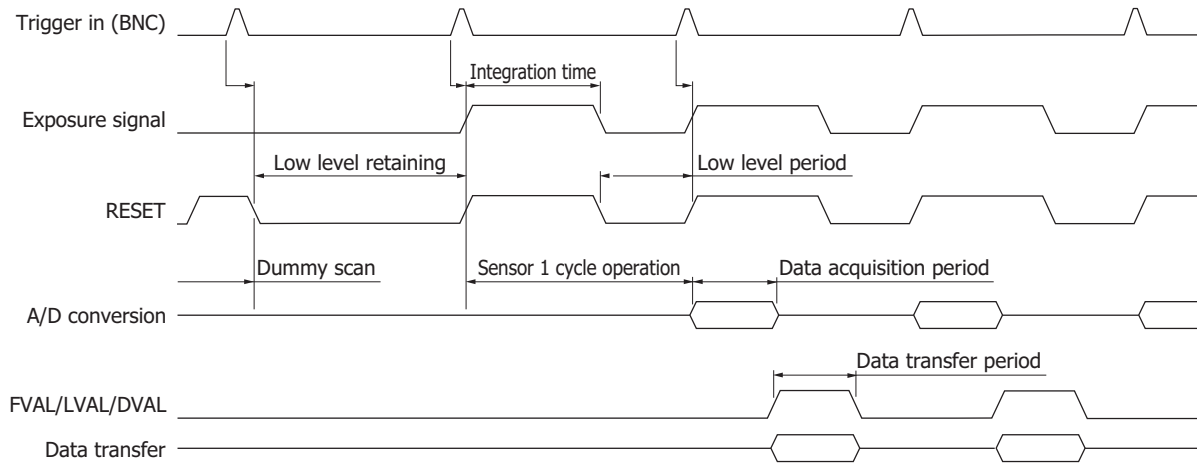


External synchronous edge mode 1 ("External edge 1" mode)



KACCC0537EA

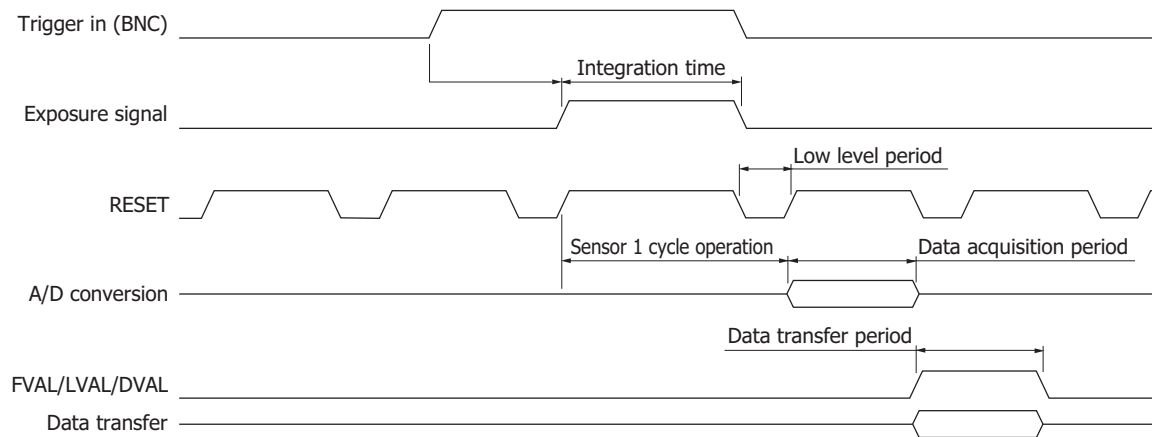
External synchronous edge mode 2 ("External edge 2" mode)



Note: The input interval of external triggers must be longer than the integration time + low level period.

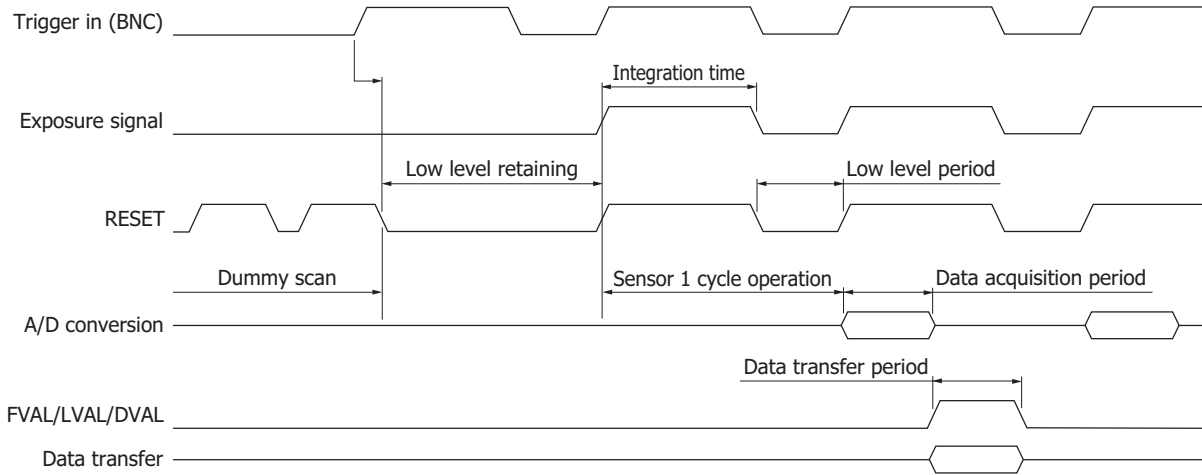
KACCC0538EA

External synchronous level mode 1 ("External level 1" mode)



KACCC0539EA

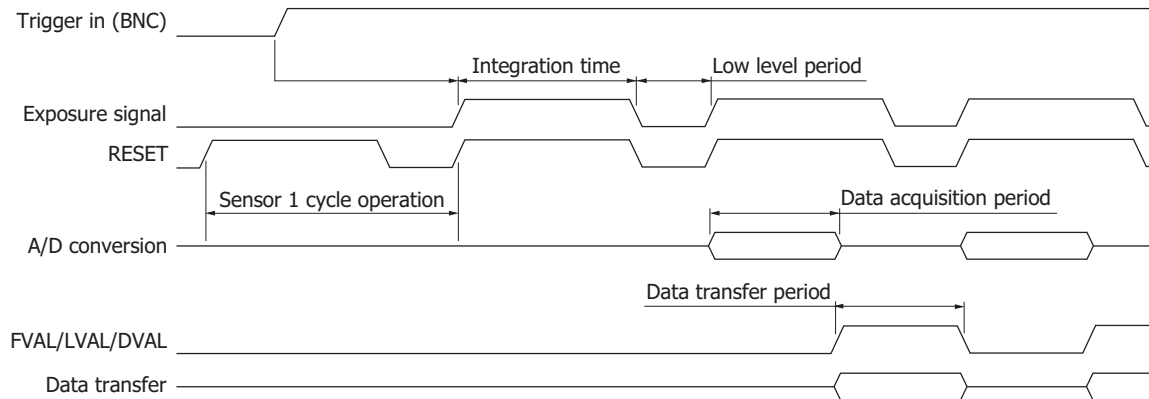
External synchronous level mode 2 ("External level 2" mode)



Note: The input interval of external triggers must be longer than the integration time + low level period.
The pulse width of external triggers must be longer than the low level period.

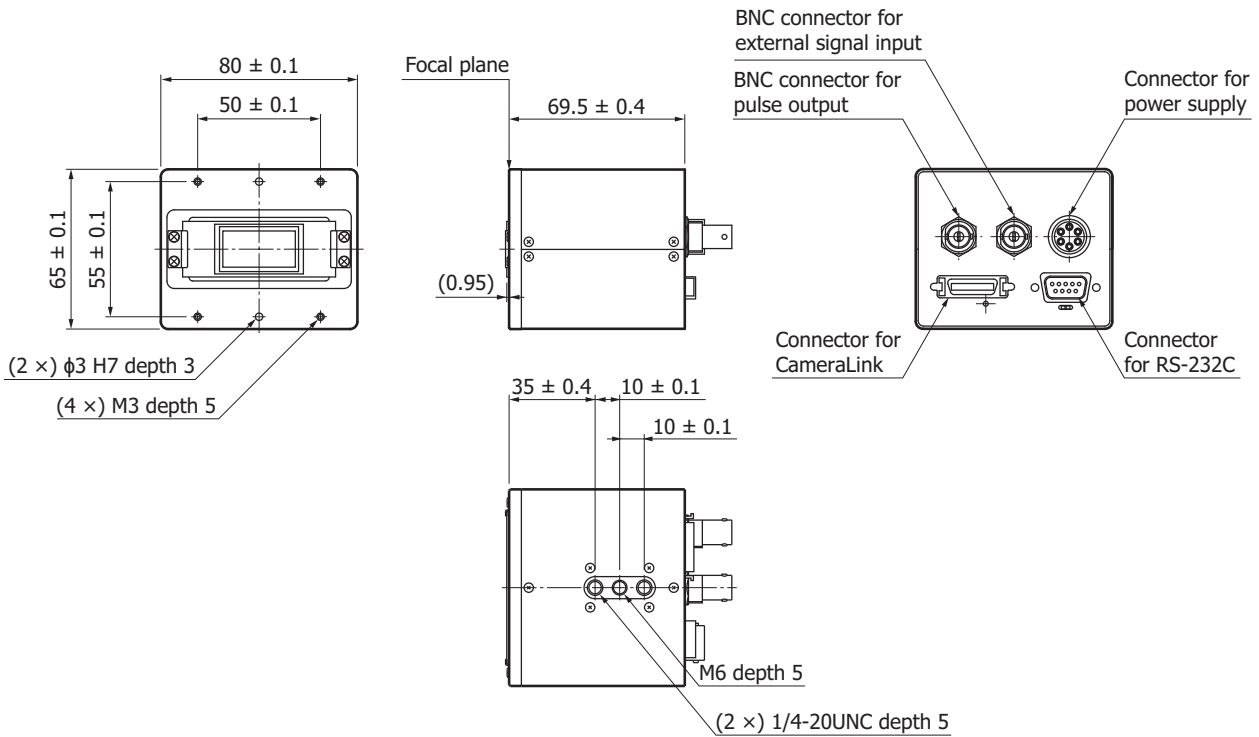
KACCC0540EA

External synchronous gate mode ("External gating" mode)



KACCC0541EA

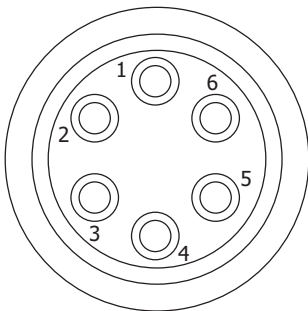
Dimensional outline (unit: mm)



KACCA0238EC

Pin connections

Connector for "POWER" [HIROSE RM12BRD-6PH (71)]



KACCC0470EA

Pin no.	Signal
1	+5 V
2	+5 V
3	+5 V
4	GND
5	GND
6	GND

Accessories

- Power cable (1.5 m)
- Application software (DCam-CL)
- Function library (SSDic.dll)

NOTE: A National Instruments frame grabber board and NI-IMAQ are required to use the supplied application software (DCam-CL) and function library (SSDic.dll). Operation of the following frame grabber boards has been verified.

Manufacturer	Model No.	Supported OS	Driver
National Instruments	PCIE-1427	Windows® 7 (32-bit, 64-bit), Windows® 10 (32-bit, 64-bit)	National Instruments tool (supplied with NI-IMAQ)
	PCIE-1429		
	PCIE-1430		
	PCIE-1433		

Option (sold separately)

- F-mount adapter A11544

**Related information**

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

Precautions

- Notice

Information described in this material is current as of January 2021.

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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