

InGaAs Camera C10633-13, -23

InGaAs Camera



* Lens is optional.

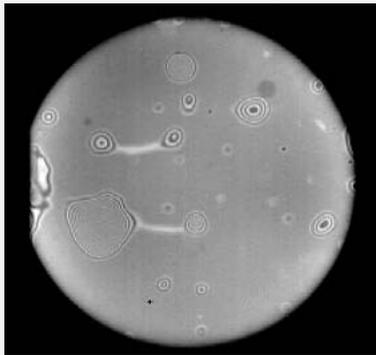
The C10633-13 and -23 are InGaAs cameras with high sensitivity in the infrared region, especially in wavelength range from 950 nm to 1700 nm. The C10633-13 and -23 support the standard video output (either EIA 60 Hz or CCIR 50 Hz) and the standard USB 2.0 to interface to PC for 14 bit image acquisition with exposure time control. It can be used for many IR applications, such as IR reflectography (art inspection), Si wafer inspection, Laser beam measurement, PV evaluation and so on. Furthermore, using with a camera controller the C2741-62, the C10633-13 and -23 have exceptional functions such as contrast enhancement, etc.

FEATURES

- Good sensitivity in 950 nm to 1700 nm range
- 320 × 256 pixels with EIA(60 Hz) or CCIR(50 Hz)
- The standard USB 2.0 I/F for 14 bit Image acquisition with exposure control
- Small size, light weight and simple operation

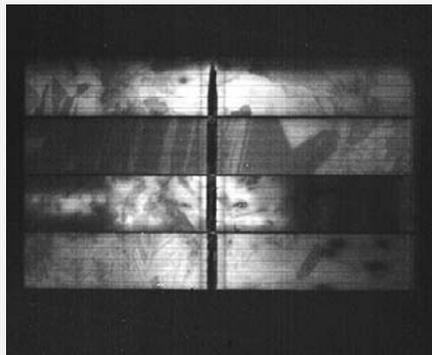
APPLICATIONS

● Si wafer internal inspection



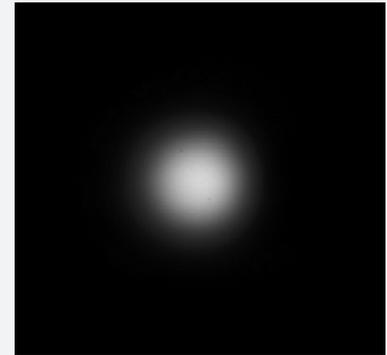
▲ Void detection of bonded wafers

● PV evaluation



▲ EL(electroluminescence) image of polycrystalline Si PV module

● Laser beam measurement



▲ 1.55 μm semiconductor laser beam image
Interference fringe pattern may appear depending on laser beam wavelength and coherency.

● IR reflectography

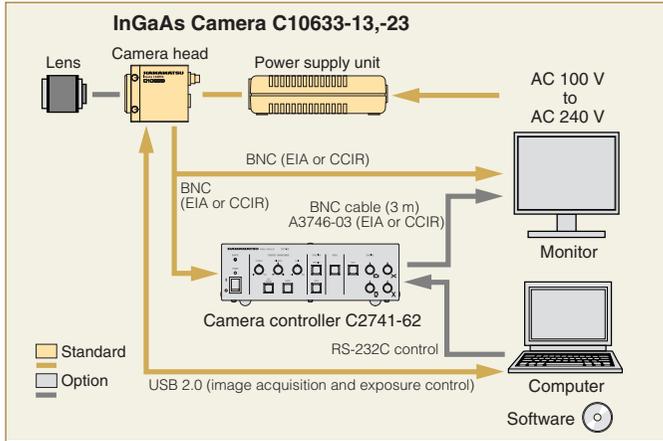


▲ Observation by visible light (Normal camera)
The letter under lacquer is invisible.



▲ Observation by IR light (C10633-13)
The letter under lacquer is clearly visible.

SYSTEM CONFIGURATION



Please contact your local Hamamatsu Sales Office or distributor regarding actual configuration.

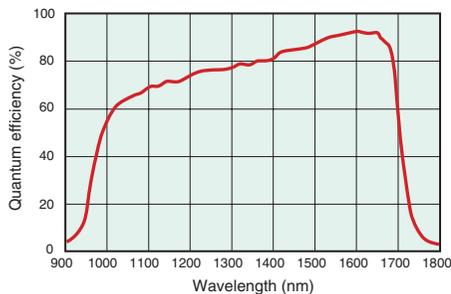
SPECIFICATIONS

Type number	C10633-13	C10633-23
Imaging device	InGaAs sensor	
Spectral band	950 nm to 1700 nm ^{*1}	
Pixels	320 (H) × 256 (V)	
Cell size	30 μm × 30 μm	
Effective area	9.60 mm (H) × 7.68 mm (V)	
Optical fill factor	> 99.9 %	
Cooling method	Non-cooled	
Pixel operability	> 99 %	
Lens mount	C-mount	
Analog interface (Factory setting)	EIA	CCIR
Digital interface	USB 2.0	
A/D inverter	14 bit	
Readout speed (full frame)	60 frame/s	50 frame/s
Exposure time	100 μs up to 15 ms (controlled via USB 2.0)	
Image correction	Real-time dark current correction ^{*2}	
Power requirements	AC 100 V to AC 240 V, 50 Hz/60 Hz	
Power consumption	4 VA or less	
Recommended ambient operating temperature	+25 °C ±3	
Ambient operating temperature	0 °C to +30 °C	
Ambient storage temperature	-10 °C to +60 °C	
Ambient operating humidity	70 % max. (with no condensation)	

*1: The value is typical.

*2: Correction data for dark current is acquired at +25 °C

● Spectral response^{*1}



OPTIONS

● Camera controller C2741-62

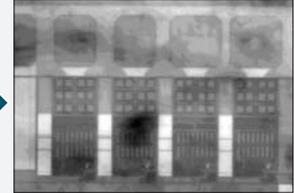


- Contrast enhancement
- Automatic contrast enhancement
- Shading correction
- Averaging
- Edge extraction
- Y correction

The C2741-62 is a stand alone video image processor used with the C10633 InGaAs camera. It provides exceptional functions such as contrast enhancement, detail enhancement, averaging and shading corrections.



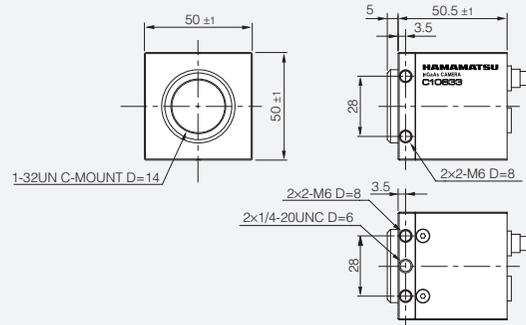
▲ Before contrast enhancement



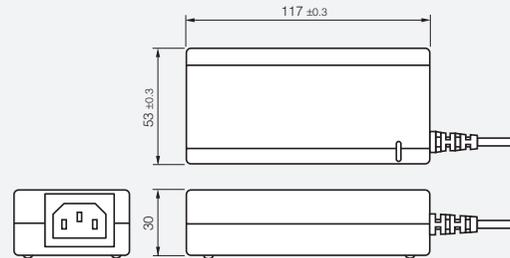
▲ After contrast enhancement

DIMENSIONAL OUTLINES (Unit : mm)

● Camera head (Approx. 225 g)



● Power supply (Approx. 280 g)



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