XC-HR70

Non-TV Output | Progressive Scan | 1/3 Type CCD | Square Pixels | C Lens Mount | VS Output | XGA Output | Partial Scan

HD VD External Sync | 1/30 Sec 1lit: Non-interlace | Restart Reset | Long Exposure | Normal Shutter | Mode 1 (Non-Reset Mode) External Trigger Shutter | Mode 2 (Non-Reset Mode) External Trigger Shutter

Switch setting P72

Connection Diagram P74

Outline

The XC-HR70 is an ultra-compact monochrome camera module ideal for high-resolution image capturing applications. A 1/3 type progressive scan CCD incorporated in the XC-HR70 allows the output of XGA resolution (1024 × 768) images at a rate of 30 frames/sec. In addition, the XC-HR70 has a “high rate scanning” function to enable the output of up to 120 frames/sec. for high-speed image capturing. The compact and light-weight body of the XC-HR70 makes it easy to install in space-restricted areas. With high-speed capturing capability offered in a compact body, the XC-HR70 is the ideal camera module for demanding applications such as the inspection of semiconductor production lines and high-speed assembly lines.

Features

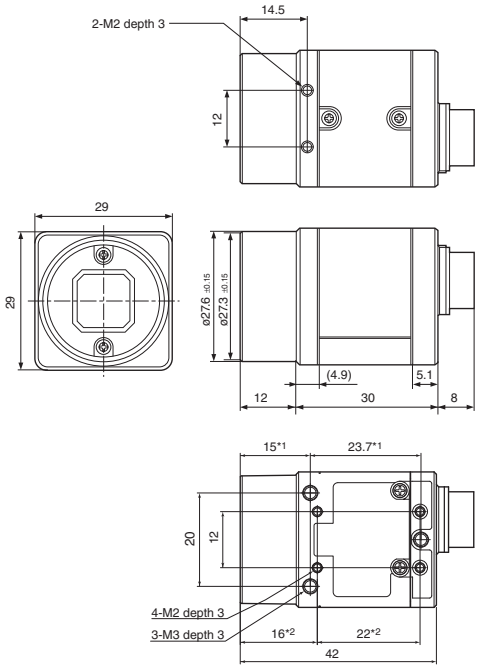
- 1/3-type PS IT CCD with square pixels
  - XGA resolution (1,024 (H) × 768 (V) pixels) image capturing at a speed of 30 fps.
  - Square pixel/Full pixel read-out
- Compact and light weight
  29 (W) x 29 (H) x 30 (D) mm, Approx. 50 g
- Partial scan (at restart/reset ON, Binning OFF)
  Up to 120 fps (Effective line: 152 lines)
- Various mode settings are selectable by changing the setting of a rear panel
- External trigger shutter
  - Restart/Reset
  - Mode 1 (non-reset mode)
  - Mode 2 (Reset mode)
- High Shock and Vibration Resistance
- C-mount

Accessories

- Compact camera adaptor
  - DC-700/700CE
- 12-pin camera cable (CE standard)
  - CCXC-12P02N (2 m)
  - CCXC-12P05N (5 m)
  - CCXC-12P10N (10 m)
  - CCXC-12P25N (25 m)
- Tripod adaptor
  - VCT-333I

Dimensions

Camera body of all XC-HR models

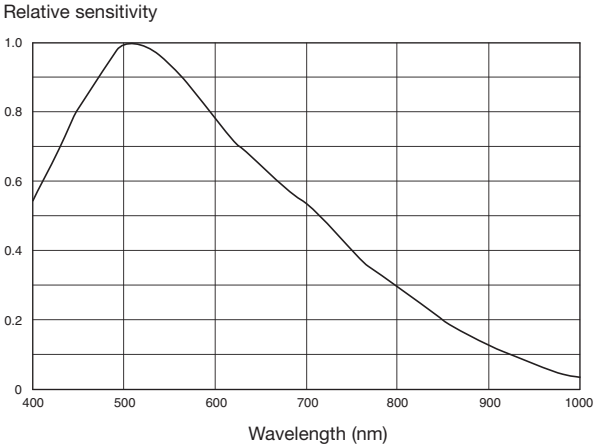


Unit: mm

*1: for 3-M3 screw
*2: for 4-M2 screw

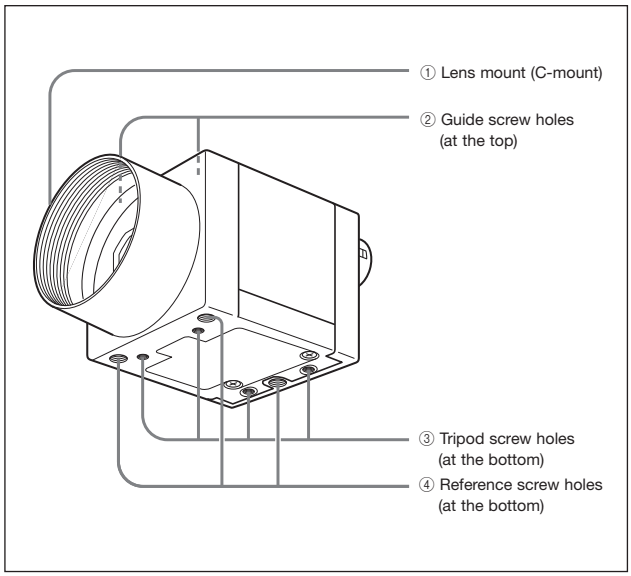
Spectral Sensitivity Characteristics

- **XC-HR70**
  (Typical Values)



(Lens characteristics and light source characteristics excluded.)

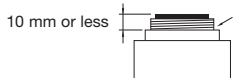
Location and Function of Parts and Controls



① **Lens mount (C-mount)**
Attach any C-mount lens, suitable for XGA-compatible resolution or other optical equipment.

Note

Be sure that the lens does not project more than 10 mm from the lens mount.



② **Guide screw holes (at the top)**
These screw holes help to lock the camera module.

③ **Tripod screw holes (at the bottom)**
These four screw holes on the bottom are for installing the camera module on a tripod. To install on a tripod, you will need to install the VCT-333I tripod adaptor using these holes on the bottom of the camera.

④ **Reference screw holes (at the bottom)**
These precision screw holes are for locking the camera module. Locking the camera module using these holes secures the optical axis alignment.

Specifications

	XC-HR70
Image size	XGA
Image device	1/3-type PS IT CCD
Effective picture elements (H × V)	1,034 × 779
Effective lines (H × V)	1,024 × 768
Cell size (H × V)	4.65 μm × 4.65 μm
Lens mount	C-mount
Sync system	Internal/External (Automatically switched according to input signal)
External sync signal input	HD/VD (HD/VD level: 2 V to 5 Vp-p, 75 Ω)
Allwable frequency deviation of external synchronization	±1% (in horizontal synchronous frequency)
H Jitter	Less than 20 nsec
Scanning system	Non-interlace Progressive scan
Video output mode	Binning: 2-line combined output 58.4 fps/Normal: 1-line sequential output 29.2 fps
Video output	1.0 Vp-p, sync negative, 75 Ω, unbalanced
Horizontal frequency	23.23 kHz
Vertical frequency	29.2 Hz (normal mode), 58.4 Hz (binning mode)
Horizontal resolution	800 TV lines
Sensitivity	400 lx F5.6 (γ=1, FIX GAIN (0 dB))
Minimum illumination	1 lx (F1.8, γ=1, GAIN 18 dB)
SNR	56 dB (0 dB GAIN)
Gain	Manual (0 dB to 18 dB)/Fix (0 dB) (adjustable on the rear panel)
Gamma	1 (fixed)
White clip	820 mV ±70 mV (F1.8, FIX GAIN (0 dB))
Shutter	Normal shutter, Restart/Reset, External trigger shutter (Mode 1/Mode 2)
Normal shutter speed (s)	1/100, 1/125, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/20,000
External trigger shutter speed (s)	DIP switch settings: 1/100, 1/125, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/25,000, 1/50,000, 1/100,000 Trigger pulse width settings: 1/4 to 1/100,000
External trigger	Polarity: +, Width: 2 μs to 250 ms, Input impedance: 10 kΩ or more (H: 2 V to 5.0 V, L: 0 V to 0.6 V)
Partial scan	R/R mode Binning off: max 120 fps (effective line: 152 lines) Binning on: max 180 fps (effective line: 89 lines)
	External trigger shutter mode (MODE 1) Binning off: max 120 fps (effective line: 153 lines) Binning on: max 180 fps (effective line: 90 lines)
Power requirements	DC 12 V (10.5 V to 15.0 V)
Power consumption	2.0 W
Dimensions (W × H × D)	29 × 29 × 30 mm (excluding protrusions)
Mass	Approx. 50 g
Operating temperature	–5°C to +45°C
Storage temperature	–30°C to +60°C
Performance guarantee temperature	0°C to 40°C
Operating humidity	20% to 80% (no condensation)
Storage humidity	20% to 95% (no condensation)
Vibration resistance	10 G (20 Hz to 200 Hz 20 minutes for each direction–x, y, z)
Shock resistance	70 G
MTBF	88,044 hours (Approx. 10.1 years)
Regulatory compliance	UL6500, FCC/ICES-003: Class A, CE: EN61326, AS/NZ: EN61326, KC: KN22/KN24: Class A
Supplied accessories	Lens mount cap (1), Operating instructions (1)