

1100 Series Board Level Monochrome CCD Camera

COHU

High Resolution - for better definition error-free results

1/2" or 1/3" On-chip microlens Interline Transfer Imager virtually eliminates overload streaking, improves dynamic range and sensitivity

Wide Dynamic Range permits operation over a broad range of light levels

High Signal-to-Noise Ratio for clear, noise-free video

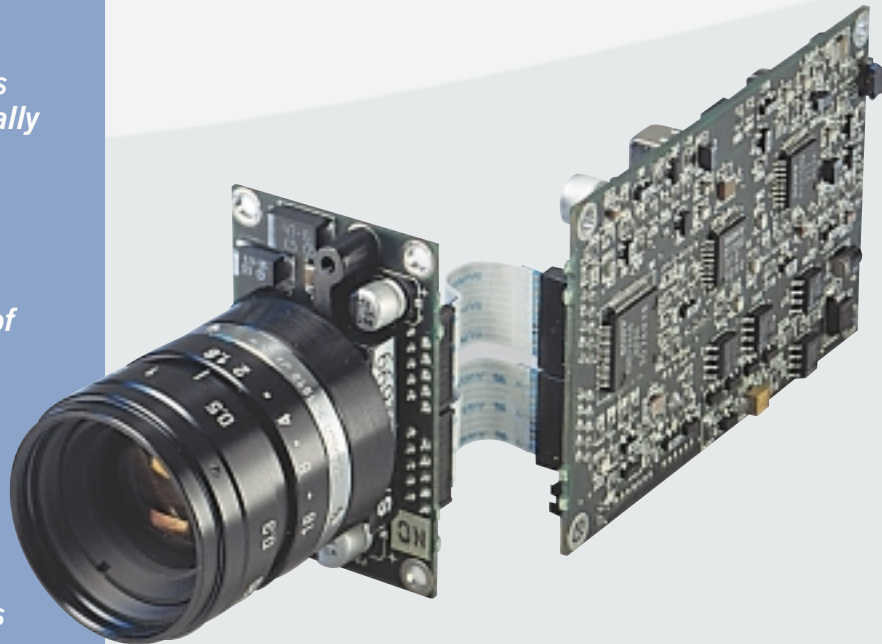
Shutter 1/60 to 1/10,000 (8 steps)

Integration from 2 to 16 fields

Field or Frame Modes

1000:1 Overload Capability permits incidental light overloads up to ten times that of other CCD cameras

Custom Mechanical Configurations to support your design



Asynchronous reset accepts an external trigger input to reset the camera to the beginning of the vertical interval (field 1, line 1). The first field of video information reads out 9.5 horizontal lines after triggering.

Four modes of operation can be selected: field (interlace and noninterlace), and frame (interlace and noninterlace). The integration time in the field mode is 16.6 mS for each field.

Interlace mode sums two rows of pixels from each line, thus increasing the sensitivity. The non-interlace mode uses only field one, or one-half (242) the number of vertical pixels. The advantage of non-interlaced is using the same field of pixels every 1/60 second for repeatability. The integration time of each field in the frame (interlace) mode is 33.3 mS, for a vertical resolution of 485 pixels. Operating in the frame interlace mode and strobing will achieve full frame resolution of fast moving objects.

Cohu offers option boards that greatly expand the capabilities of the 1100 Series. These boards easily plug into the control board. Options include:

- **Line Lock Sync** - accepts 12 VAC reference input and synchronizes the camera to the phase of the line frequency.
- **External Sync** - accepts genlock input (composite horizontal/ vertical sync) to synchronize the camera to the externally-supplied reference.
- **Electronic Iris** - automatically controls the integration of the sensor from 1/60 sec. to 1/15,000 sec. to compensate for changing scene illumination. This control smoothly steps through the entire range.
- **Special Reset** - allows resetting the camera and determining integration time with an external pulse. Integration time ranges from a minimum of 650 μ S to a maximum limited only to the operator's subjective analysis of video information versus the rise in dark current.
- **DC Iris** - control auto iris lenses that do not have circuitry integral to the lens (aspherical).

The Cohu board-level CCD camera has been designed to fit the needs of OEM customers who require high performance video in a compact package. The 1100 Series features a resolution of 580 HTVL (RS-170) or 560 HTVL (CCIR) with a matrix of 768 (H) x 494 (V) active pixels, internal crystal or external synchronization, and 2 to 16 field/8 step integration or shuttering to 1/10,000 sec.

Configuring the 1100 Series for custom purposes is quite easy. A flexible cable allows for virtually any orientation of the sensor with respect to the control board. Measuring less than 2" x 4", this feature/size combination is ideal for machine vision and image processing applications.

The 1100 Series cameras feature a 1/2" or 1/3"-format on-chip microlens sensor, which improves sensitivity and provides increased dynamic range while reducing lag, blooming and dark current. For video applications prone to streaking problems, a 1000:1 overload capability allows transmission of clear video signals even when bright incidental light is present in the scene.

Both RS-170 and CCIR cameras have 20 dB of AGC for high sensitivity in low light-level applications.

This single board camera synchronizes from an internal crystal, or external horizontal/vertical source.

SPECIFICATIONS

ELECTRICAL

Sensor

1/2 inch or 1/3 inch interline transfer, microlens sensor

Active Picture Elements

RS-170: 768 (H) x 494 (V)
CCIR: 752 (H) x 582 (V)

Pixel Cell Size

RS-170: 1/2 inch: 8.4 μm (H) x 9.8 μm (V)
RS-170: 1/3 inch: 6.35 μm (H) x 7.4 μm (V)
CCIR: 1/2 inch: 8.6 μm (H) x 8.3 μm (V)
CCIR: 1/3 inch: 6.5 μm (H) x 6.25 μm (V)

Total Pixel Elements

RS-170: 811 (H) x 508 (V)
CCIR: 795 (H) x 596 (H)

Resolution

RS-170: 580 (H) x 350 (V) TVL
CCIR: 560 (H) x 450 (V) TVL

Synchronization

H&V, Crystal RS-170, Async

Shutter

1/60 to 1/10,000

Partial Scan/Region of Interest

Position adjustable in X and Y

AGC

20 dB range, auto or manual control

Signal To Noise

>55 dB (Gain 0, Gamma 1)
38 dB (Gain 20 dB, Gamma 1)

Gamma

.45 to 1.0, continually variable

Integration

2-16 fields

Lens Mount

C or CS (not included)

Auto Lens Output

Reference video provided to control auto iris lens

Sensitivity - 1/2 inch

Full video, No AGC: .04 fc, .43 lux
80% video, AGC on: .003 fc, .032 lux
30% video, AGC on: .001 fc, .010 lux

Sensitivity - 1/3 inch

Full video, No AGC: .05 fc, .53 lux
80% video, AGC on: .003 fc, .032 lux
30% video, AGC on: .002 fc, .021 lux

Power consumption

12 VDC, 3.6 W max. standard;
115/230 VAC adapter, optional

MECHANICAL

Dimensions

See illustration

Weight

1.50 oz (44 g) without lens

Ambient Temperature Limits

-20 to 60°C (4 - 140°F)

Relative Humidity

To 95% non condensing

Shock

15 g any axis, non operating condition, per MIL-E-5400T

ORDERING INFORMATION

11 X 2 X X X / XXXX

Format

2 - 1/2" RS-170

5 - 1/2" CCIR

3 - 1/3" RS-170

6 - 1/3" CCIR

Power

2 - 12 Vdc, Standard

Sync Options

1 - Crystal/H&V Derive/Async Reset (Standard)

2 - Genlock (revert to crystal)

4 - Special Reset

Optical Filters

0 - None

Lens Mounts

0 - None

1 - CS

2 - C/CS

Options

0 - None

3 - Electronic Iris - RS-170*

4 - DC Lens Drive

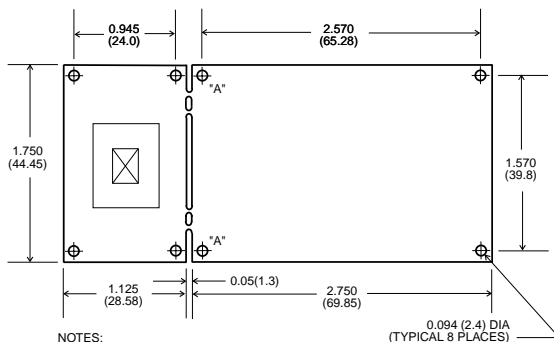
5 - Electronic Iris - CCIR*

Lens Options

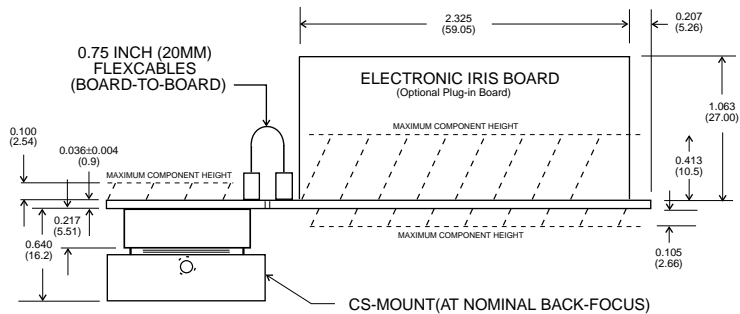
/XXXX - Please consult factory for lens selections.

* For manual lens only. Do not use with fluorescent lighting.

DIMENSIONS



- NOTES:
- All dimensions in inches and (mm)
 - PC board is 0.036±0.004 (0.9) thick
 - A 1/2 or 1/3 inch sensor is centered on its board area
 - Mounting holes are 0.094 (2.4) diameter with 0.175 (4.44) diameter pads. Pads are grounded except for holes "A" (2places).



- NOTES:
- All dimensions in inches and (mm)