

FCi4-14000 CMOS Camera

FCi4-14000 CMOS Camera

- **14 Megapixel sensor**
- **4560 (H) x 3048 (V) array**
- **Monochrome or Colour**
- **12-bit or 8-bit digital output**
- **Compact design**
- **3.25 full frames per second**
- **Base Camera Link interface**
- **USB 2.0 interface**
- **Opto-isolated trigger input/output**



The FCi4-14000 camera is a very compact high resolution CMOS camera. The camera is equipped with the IBIS4-14000 rolling shutter image sensor. The user can define a Window Of Interest within the sensor area. Several sub-sampling modes are also available.

The sensor measures 36 x 24 mm and can be used to replace 35mm photographic film cameras. The absence of micro-lenses reduces the effect of shadowing found on other sensors with a large active area.

The digital camera can operate in single-shot and in continuous mode, which makes it ideal for machine vision applications. In the single-shot mode, the user has the freedom to decide when the camera has to capture an image, not the other way around as is the case with most analogue camera systems.

A line-scan mode (3048 pixels) is also available.

The camera has 12-bit resolution, a dynamic range of 65 dB. In-camera logic performs pixel noise correction, image rotation and mirroring.

Each camera has both a Base Camera Link interface (2 taps of 12-bit) and a USB 2.0 interface. All camera control functions, maintenance and image acquisition can be made via either interface using the utility software provided.

A camera management micro-processor, retains pre-defined operating parameters and makes the camera self-starting after power-up.

The camera can be triggered locally or via the flexible Camera Link interface cable that can be up to 10 metres long. Both trigger methods can also be used to determine the integration time.

The FCi4-14000 camera provides a complete solution for system designers who require a rapid solution with little or no involvement at chip level.

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Sensor Specifications

Imager type	CMOS integrating Active Pixel Sensor with in-camera non-uniformity and gain correction
Sensor types	Monochrome or RGB Bayer color pattern
Total pixels	13,898,880 4560 (H) x 3048 (V)
Window-of-Interest (WOI)	Rectangular area or line format specified by user
Active image area	36 x 24mm. (H x V)
Optical format	35 mm.
Pixel pitch	8 x 8 μm
Spectral Response	40% (QE * FF)
Spectral response range	400 – 1000 nm.
Sensitivity	1250 V.m ² /W.s
Temporal noise	35e ⁻ (Dark @ 21°C)
Well capacity	64,865 electrons (1.2 V)
Dark current	223 e ⁻ / sec (4.13mV/s.)
Fixed Pattern Noise	0.15% Vsat RMS (global)
Standard dynamic range	65.4 dB
Signal / Noise	1871:1
Grey level resolution	8 bits or 256 grey levels 12 bits, 4096 grey levels
MTF	0.55 in X 0.57 in Y (at 600nm.)
PRNU	<1% RMS of signal

Image Specifications

Pixel rate	60 MHz (typical)
Frame speed	3.25 full frames/second
Frame speed WOI	1024 x 1024 : 28.25 fps 512 x 640 : 60 fps
Maximal Exposure time	depends on reqd. S/N
Minimal exposure time	68us (= 1 line)
Shutter	Horizontal rolling shutter (column-based)
Shutter synchronisation	Via software and/or via external inputs

Interface Specifications

Interface type	Base Camera Link 2 x 12 bits and USB 2.0
Remote control Trigger	Via CL serial interface or local Input and Output (opto-isolated)
Interface connector	CL - 26p Camera Link type with latches and screw fastening USB – Binder 712 (4-pole)
Cable lengths	1, 3, 5, 7 or 10 meters from camera to PC interface

Mechanical Specifications

Dimensions	70 x 70 x 90 mm. (not incl. lens)
Weight	400 grams (not incl. lens)
Housing	Aluminium, black anodised
Lens adapter	F-mount
Tripod mount	1/4 inch mount (1 off)
Machine mount	M6 (4 off)

Environmental Requirements

Operating temperature	0°C to +50°C
Storage temperature	-30°C to +80°C in non-condensing conditions

Power Requirements

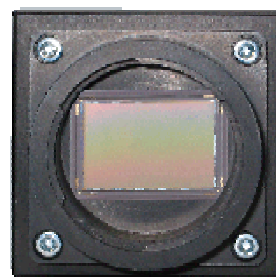
Power supply voltage	separate connector 8 - 12 Volts
Power consumption	< 10 Watt

Ordering Information

Monochrome	FCi4-14000-CL-M
Bayer Colour	FCi4-14000-CL-B

Also available without housing for OEM and in tethered-head version (sensor on a flex-cable)

FRONT VIEW



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