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Falcon2 12M, 8M and 4M

CMOS Color and Monochrome Area Scan Cameras



The Falcon2 CMOS area scan cameras deliver up to 12 megapixels of resolution at 58 fps with global shutter.

Teledyne DALSA's Falcon2 12M, 8M and 4M color and monochrome area scan cameras incorporate large resolutions (12 megapixel, 4k resolution) and fast frame rates, enabling high speed image capture with superb spatial resolution and improved image quality. Global shuttering is used to remove unwanted image smear and time displacement artifacts related to rolling shutter CMOS devices. These features make the Falcon2 camera the best choice for applications where throughput, resolution and high pixel capacity matter most.

Inside the Falcon2 camera is our leading-edge CMOS sensor with reduced dark noise levels and improved dark offset, fixed pattern noise (FPN) and pixel response non-uniformity (PRNU) levels. Additionally, advanced embedded flat-field calibration and pixel replacement algorithms ensure the highest image quality at a wide range of exposure times.

The Falcon2 cameras are compliant with GenICam™ and full Camera Link™ specifications—delivering 8 or 10 bits of data on 8 taps (frame rates are specified at 8 bits). The M42x1 thread opening allows for your choice of lens to use.

Key Features

- 12, 8 and 4 mega pixels
- Selectable 4:3 or 1:1 aspect ratios
- Global Shutter
- Exposure control
- Faster frame rates through windowing
- Good NIR response
- Built-in FPN and PRNU correction
- GenICam compliant
- Color and monochrome models available

Programmability

- Adjustable digital gain and offset
- 8 or 10 bit selectable output
- Factory defined plus user defined flat field calibration sets
- Test patterns and camera diagnostics

Typical Applications

- Semiconductor wafer inspection
  - Surface and bump inspection
- Electronics manufacturing
  - 3D solder paste inspection
  - Package and bump inspection
  - Automated Optical Inspection (AOI)
- 3D imaging—Laser profiling
- Solar panel inspection
- General machine vision

Specifications

Resolution	4:3 aspect ratio:	12M—4096 (H) x 3072 (V)
		8M—3328 (H) x 2502 (V)
		4M—2432 (H) x 1728 (V)
	1:1 aspect ratio:	8M—2816 (H) x 2816 (V)
		4M—2048 (H) x 2048 (V)
Pixel Rate	8 x 76 MHz or 10 x 76 MHz	
Max. Frame Rate	12M—58 fps / 8M—90 fps / 4M—168 fps, all at 8-bits *	
Pixel Size	6 μm x 6 μm	
Bit Depth	8 bits or 10 bits	
Lens Mount	M42x1	
Dynamic Range	58 dB (monochrome) and 50 dB (color)	
Exposure Time	20 μs minimum	
Size	60 mm (H) x 60 mm (W) x 80.5 mm (D) (75 mm deep excluding the back fins)	
Mass	< 300 g	
Operating Temp	0 °C to 50 °C, front plate temperature	
Power Supply	12 V to 24 V DC	
Power Dissipation	9.5 W	
Regulatory Compliance	CE and RoHS	
Data Interface	2 x Full Camera Link—SDR26	
Power Connector	Hirose 12-pin circular	
Example Part Number	FA-80-12M1H-xx-R (monochrome), FA-81-12M1H-xx-R (color)	

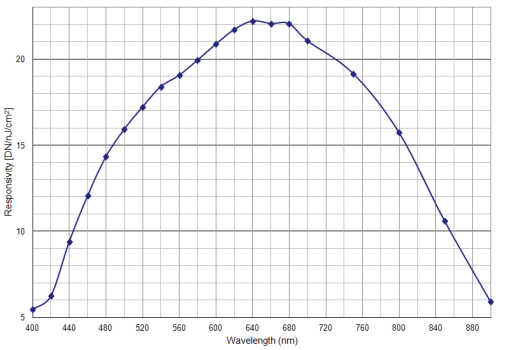
* Maximum frame rates are dependent on the aspect ratio used.

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Everywhereyoulook™

Falcon2 12M, 8M and 4M

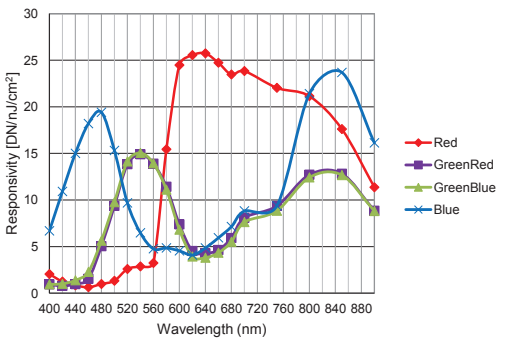
CMOS Color and Monochrome Area Scan Cameras

Falcon2 Monochrome 8M Spectral Responsivity

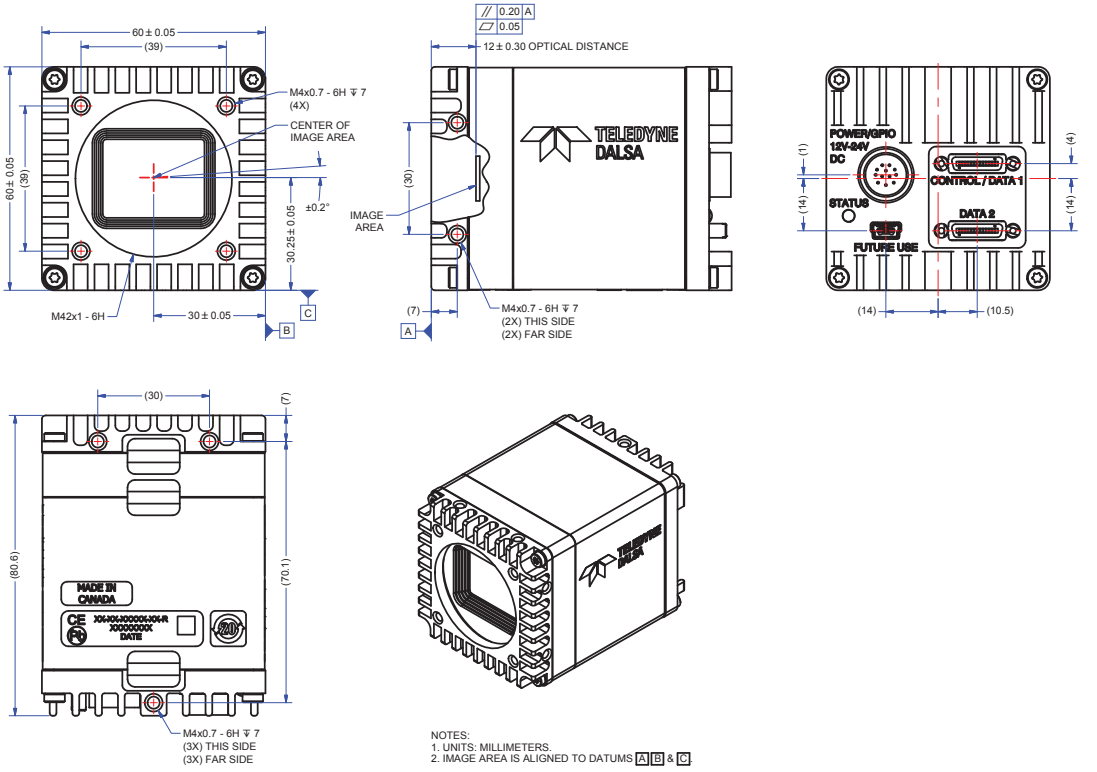


Note: 8 Taps, 10 bits Camera Link, FFC on, 24 fps (except 400 nm, measured at 10 fps), ND 0.3 filtered light

Falcon2 Color 12M (4096x3072) Spectral Responsivity



Note: 8 taps 10 bits Camera link, 9 Bit sensor digitization, FFC on, color corrected, 4 fps (except for color red, which used different frame rate at wavelength 560nm and below: 400~480nm was done at 1.8fps, 500nm was done at 4fps and 520~560), BG 38 filtered light



NOTES:
1. UNITS: MILLIMETERS.
2. IMAGE AREA IS ALIGNED TO DATUMS A B & C.

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