

CHEETAH

INTELLIGENT CAMERA SERIES

C4181 CMOS 16 MP Camera Link®



Imperx: C4181

The C4181 incorporates the On Semiconductor Python NOIP1XX016KA CMOS image sensor with a native resolution of 4096 x 4096 in a APS-H optical format delivering up to 50 frames per second in global shutter mode with a Camera Link® Deca, PoCL output. CMOS technology eliminates smear columns from areas of ultra-bright intensity and specular reflections in uncontrolled lighting applications. The Imperx Cheetah line provides excellent image quality with Imperx proprietary processing. However, Imperx puts you in control and gives you full access to raw data without corrections. By using the simple intuitive Graphical User Interface, you can quickly apply or remove image corrections. The C4181's flexibility and image quality make it suitable for a broad range of diverse and demanding applications, but "one size doesn't fit all," and Imperx can help optimize the camera to your exacting requirements.

Specifications

Feature	Description	Feature	Description
Interfaces available	Camera Link® Base, Full/Deca (CLF) w/PoCL	Strobe Output	2 strobes, programmable position and duration
Resolution	4096 x 4096	Pulse Generator	Yes, programmable
Sensor	Python NOIP1XX016KA, CMOS Color/Mono/ENIR	Image Enhancement	Two LUTs: 1 LUT pre-programmed with Gamma 0.45
Sensor Format	18.4 mm (H) x 18.4 mm (V) 26.0 mm diagonal 35mm optical format	Data Corrections	Defective/hot pixel correction (static, dynamic), flat field correction, fixed pattern noise
Pixel Size	4.5 µm	Lens Mount	F-Mount (Default), M42, EF Canon (passive or active)
NIR Sensitivity	Mono: 850nm: 18%, 950nm: 6% ENIR: 850nm: 30%, 950nm: 11%	Supply Voltage Range	12VDC (5V – 30V), 1.5 A inrush
Shutter	Global shutter (GS)	Camera Current	Typical: 0.52A, Maximum: 0.66A
Fixed Pattern Noise	<0.9 LSB	PoCL	PoCL capable in medium/full mode
Digitization	10 bit	Size - Width/Height/Length	72.0mm (W) x 72.0mm (H) x 33.8mm (L) – Applies to all interfaces
Frame Rate	40 fps (10 bit), 50 fps (8 bit)	Weight	385g
Camera Link Clock Rate	85MHz	Vibration, Shock	TBD
Pixel Clock Rate	32MHz to 360MHz	Environmental	-40°C to +85°C Operating, -50°C to +90°C Storage
Dynamic Range	59 dB	Humidity	10% to 90% non-condensing
Row Overhead Time (ROT)	Zero	MTBF	>323,000 hours @ 40°C (Telcordia SR-332 Method 1)
Bit Depth	8, 10 bit	Military Standard	MIL-STD-810F
Analog Gain Control	1x, 1.26x, 1.87x, 3.17x	Regulatory	FCC Part 15 Class A, CE, RoHs
Digital Gain	1x (0dB) to 15.9 (24 dB) with a precision of 0.001x. (AGC available)		
White Balance	Manual, auto, off		
Shutter Speed	1 µs/step, 40 µs to 1.0 sec		
Exposure Control	Off, internal, external		
Regions of Interest (ROI)	1 ROI		
Averaging Decimation	1 x 2, 2 x 1, 2 x 2		
Sub-sampling Decimation	1 x 2, 2 x 1, 2 x 2		
Trigger Inputs	External, pulse generator, software, computer		
Trigger Options	Edge, debounce		
Trigger Modes	Internal, External, Computer		
External Inputs/Outputs	2 IN (OPTO, LVTTTL) / 2 OUT (OPTO, TTL)		

Imperx: C4181 Applications

The C4181 incorporates a number of unique features tailored to reduce system complexity, maximize interface bandwidth, and expand the usable operational range.

Aerospace • Satellites • Surveillance • Military and Non-Military Ground Vehicles • Ball Grid Array • Printed Circuit Board Inspection • Motion Analysis • Broadcast Television • Telepresence • Unmanned Aerial Vehicles • Machine Vision • Reconnaissance • Aerospace • Intelligent Traffic Systems • Aerial Imaging • Open Road Tolling Systems • Situational Awareness

Absolute Quantum Efficiency

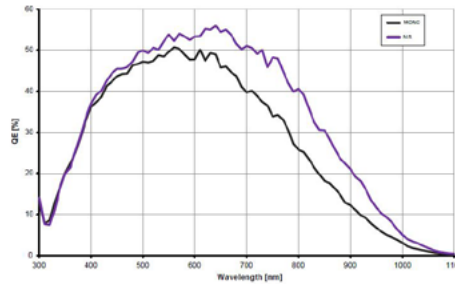
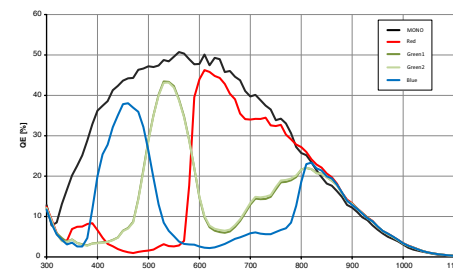
Mono & Color Spectral Response

NOIP1xx16KA

Mono & ENIR Spectral Response

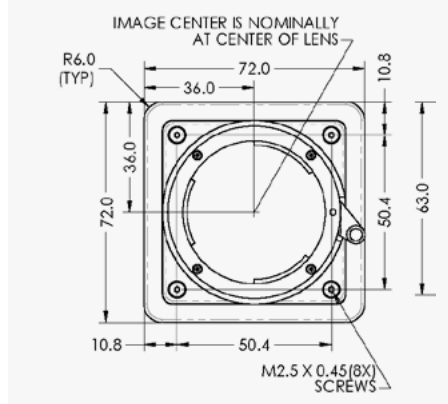
NOIP1xx16KA

Quantum Efficiency

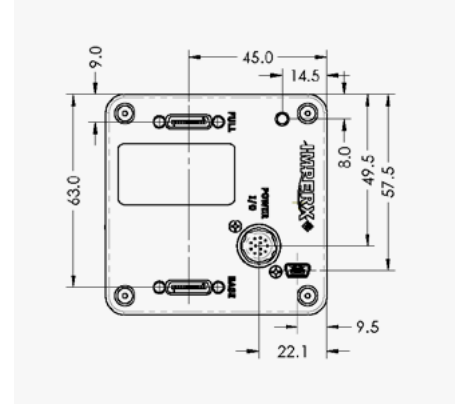


Dimensions

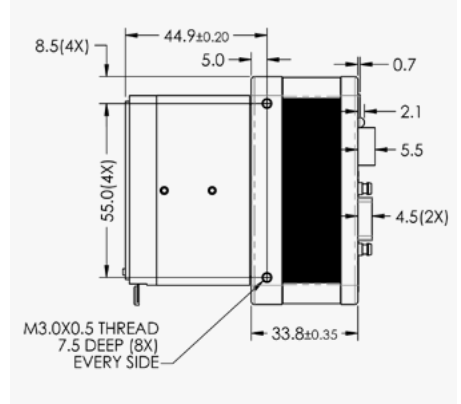
FRONT



BACK



SIDE



Ordering Information

Interface Available

Camera Link® Full (CLF)
USB3 (U3V)

Sensor Types available

Monochrome
Bayer Color
NIR

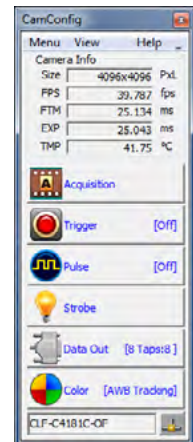
Lens Mounts

F Mount (Default)
M42
EF Canon

Accessories (Sold separately)

PS12V04A-Power Supply w/ 1 input and 1 output

Software/Drivers/Interface



IMPERX
Industrial Cameras & Imaging Systems

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Hirose Connectors

Power and I/O Interface



- | | |
|------------------|--------------------|
| 1. 12V DC Return | 7. OUT1 TTL Signal |
| 2. +12V DC | 8. IN1 OPTO + |
| 3. Reserved | 9. IN2 TTL Signal |
| 4. Reserved | 10. IN1 OPTO - |
| 5. OUT2 OPTO - | 11. IN2 TTL Gnd |
| 6. OUT1 TTL Gnd | 12. OUT2 OPTO + |

Quality Management System ISO 9001:2015 Registered
Environmental Management System ISO 14001:2015 Registered
DDTC Registered (Directorate of Defense Trade Controls, US Department of State)



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