

CHEETAH

RUGGEDIZED CAMERA SERIES

C4181

CMOS 16 MP

10G GigE Vision®



Imperx: C4181

The 10G GigE C4181 camera features the ON Semiconductor Python NOIP1xx016KA CMOS image sensor with a native resolution of 4096 x 4096 in an APS-H optical format. The GenICam™ compliant camera delivers up to 60.5 frames per second in global shutter mode using the GigE Vision standard interface. 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. In addition, Imperx puts you in control and gives you full access to raw data without corrections. Using the simple, intuitive graphical user interface, you can quickly apply or remove image corrections. Flexibility and image quality make the C4181 suitable for a broad range of diverse and demanding applications. Imperx can help optimize the camera to your exacting requirements.

Specifications

Feature	Description	Feature	Description
Output Interface	10G GigE Vision	Strobe Output	2 strobes, programmable position and duration
Resolution	4096 (H) x 4096 (V)	Pulse Generator	Yes, programmable
Sensor	Python NOIP1xx016KA, CMOS Color/Mono/ENIR	Data Corrections	2 LUTs pre-programmed with Gamma 0.45 Defective/hot pixel correction (static, dynamic), Flat field correction, Fixed pattern noise correction
Sensor Format	18.4 mm (H) x 18.4 mm (V), 26 mm diagonal, APS-H optical format	Lens Mount	F-Mount (Default), M42, EF Canon (passive or active)
Pixel Size	4.5 microns square	Supply Voltage Range	12 V DC (5V - 33V) 1.5 A inrush without enabled Canon controller 12 V DC (6.5V - 33V) 1.5 A inrush with enabled Canon controller
NIR Sensitivity	Mono: 850 nm: 18%, 950 nm: 6% ENIR: 850 nm: 30%, 950 nm: 11%	Camera Current	Typical: 1.1 A, Maximum: 1.2 A
Shutter	Global shutter (GS)	Size - Width/Height/Length	72.0 mm (W) x 72.0 mm (H) x 72.3 mm (L)
Fixed Pattern Noise	<0.9 LSB	Weight	579.5 g
Sensor Digitization	10-bit	Vibration, Shock	Complies with IEC60068-2-64 and IEC60068-2-27
Frame Rate	60.5 fps (8-bit), 36 fps (10-bit packed), 28.3 fps (10-bit unpacked)	Environmental	-40 °C to +75 °C Operating -50 °C to +90 °C Storage
Dynamic Range	59 dB	Humidity	10% to 90% non-condensing
Output Bit Depth	8, 10-bit	MTBF	>323,000 hours @ 40 °C (Telcordia SR-332)
Analog Gain Control	1x, 1.26x, 1.87x, 3.17x	Military Standard	MIL-STD-810G
Digital Gain	1x (0 dB) to 15.9 (24 dB) with a precision of 0.001x, Auto	Regulatory	FCC Part 15 Class A, CE, RoHS
AEC/AGC	Yes		
Black Level Offset	Manual (-511...+511), Auto		
White Balance	Manual, Auto, Off		
Shutter Speed	1 µs/step, 40 µs to 1.0 s		
Exposure Control	Off, Internal, External, Auto		
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		
Trigger Options	Edge, Debounce		
Trigger Modes	Internal, External, Software		
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 • Intelligent Traffic Systems • Aerial Imaging • Open Road Tolling Systems • Situational Awareness

Absolute Quantum Efficiency

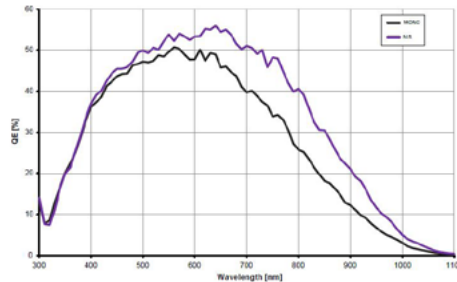
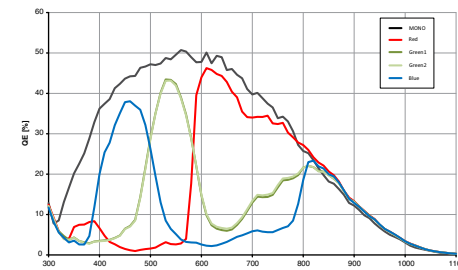
Mono & Color Spectral Response

NOIP1xx016KA

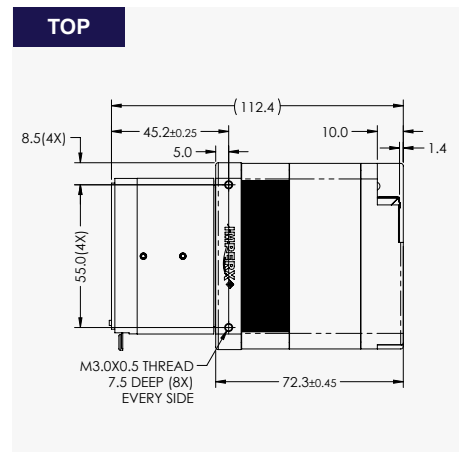
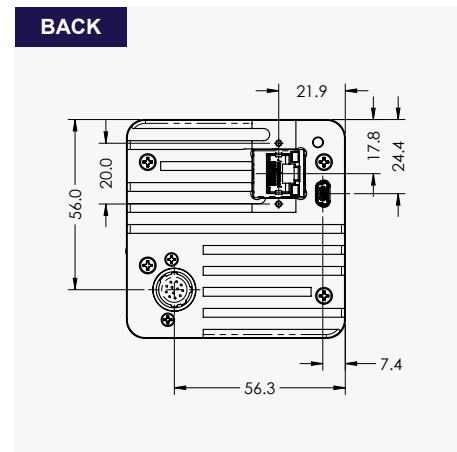
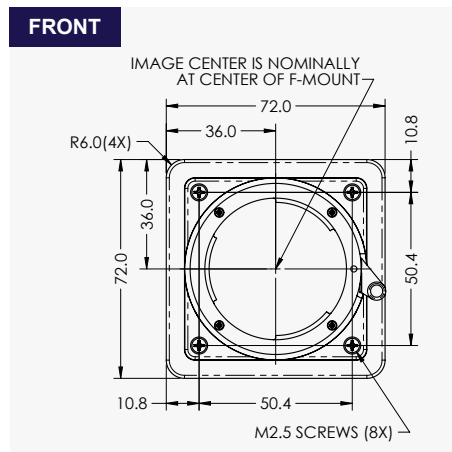
Mono & ENIR Spectral Response

NOIP1xx016KA

Quantum Efficiency



Dimensions



Ordering Information

Output Interface
10G GigE Vision (10G)
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

Hirose Connectors

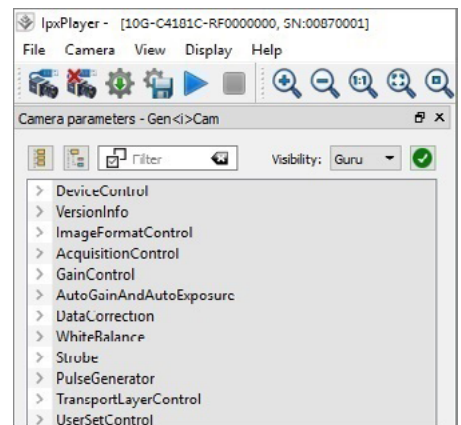
Power and I/O Interface
1. 12 V DC Return 2. +12V DC 3. Reserved 4. Reserved 5. OUT2 OPTO - 6. OUT1 TTL Gnd 7. OUT1 TTL Signal 8. IN1 OPTO + 9. IN2 TTL Signal 10. IN1 OPTO - 11. IN2 TTL Gnd 12. OUT2 OPTO +

Connector: Hirose HR 10A-10R-12PB(71)

Rev: 10g_c4181_r3_2019

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)

Gen<I>Cam Compliant Camera Configurator



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