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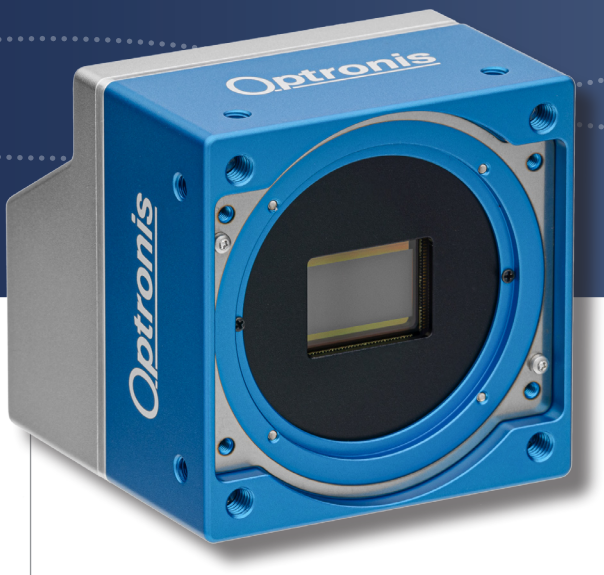
CYCLONEPLUS SERIES

CyclonePlus-1HS

High-Speed Machine Vision Camera



- ☑ GENERAL HIGH SPEED MACHINE VISION
- ☑ AUTOMATED OPTICAL INSPECTION (AOI)
- ☑ LASER LINE PROFILOMETRY

- 3 500 fps with 1 280 x 860 pixels
- Global shutter with low noise pixel
- CoaXPress V2.0 interface with 4 x 12.5 Gbit/s
- Flat Field Correction (FFC)
- Short Back-Focal design
- Power and trigger via CoaXPress

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CyclonePlus-1HS High-Speed Machine Vision Camera

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DESCRIPTION

The CyclonePlus-1HS is a high speed camera for demanding machine vision applications. CyclonePlus cameras are streaming image data at up to 50 Gb/s to a CoaXPress frame grabber for real time processing. The cameras allow flexible cooling solutions and provide short back focal (BF) distances.

- up to 3 518 fps at full resolution
- 1 280 x 860 pixel resolution
- low noise pixel

PERFORMANCE (EXAMPLES, TYP., 8 BIT, 4xCXP12)

Resolution (HxV)	Frame rate	Resolution (HxV)	Frame rate
1 280 x 860	3 518 fps	1 280 x 8	216 743 fps
640 x 480	6 270 fps	1 280 x 4	302 915 fps
320 x 240	12 385 fps	256 x 4	302 915 fps

EMVA1288 data (v4.0 typ.)	8 bit	10 bit
Dynamic range	56 dB	TBD dB
Saturation capacity	21 000 e^-	TBD e^-
Temporal dark noise	33 e^-	TBD e^-
System gain	90 e^-/DN	TBD e^-/DN
Signal-to-Noise Ratio	43 dB	TBD dB
Dark Signal Non-Uniformity	85 e^-	TBD e^-
Photo Response Non-Uniformity	2.7 %	TBD %
Non-Linearity Error (v3.0 typ.)	2.3 %	TBD %

SPECIFICATIONS

Sensor type	LUX13HS, Global Shutter
Resolution	1 280 pixel x 860 pixel
Frame rate (full resolution)	20 .. 3 518 fps
Exposure time	2 µs .. 1 / frame rate
Active area / Diagonal	17.54 mm x 11.78 mm / 21.13 mm
Pixel distance	13.7 µm x 13.7 µm
A/D conversion	8/10 Bit
Quantum efficiency (typ. sensor)	30 % @ 550 nm
Trigger	internal, external, CoaXPress
Trigger signals	Synch IN and Synch OUT, TTL level, electrically isolated
Interface	CoaXPress 2.0 Micro-BNC (HD-BNC) connectors
Interface Configurations	4 x CXP12, 2 x CXP12, 1 x CXP12, 4 x CXP6, 2 x CXP6
Power Consumption	12 W (typ.)
Power Supply	PoCXP, ext.
Temperature Ranges (to limit case temeratur to 65°C) - operation, amb., no cooling - operation, amb., with CYP-HIS - operation, amb., with CYP-FAN - operation, case temperature	 0 .. +25°C / 32 .. 77°F 0 .. +35°C / 32 .. 95°F 0 .. +45°C / 32 .. 113°F 0 .. +65°C / 32 .. 149°F
Weight	340 g w/o mount, w/o cooling
Dimensions	65 mm x 65 mm x 65.5 mm (3D model data available)

FEATURES

Exposure Modes	Timed
Trigger Activation	RisingEdge, FallingEdge, AnyEdge
Trigger Sources	External (Synch IN), CoaXPress, software
Trigger Filter and Trigger Hold-Off Time	Yes, for external trigger source
Trigger Delay	Adjustable
Flat Field Correction (FFC)	Block-based with up to 16 reference data in camera, auto calibration Column-based
Defect Pixel Correction	Yes, factory setting or customer configuration
Digital Binning Modes	Average, Sum
Digital Binning horizontal / vertical	x1, x2, x4 / x1, x2, x4
Dual ROI	Yes
User Global Adjustments	Offset analog and digital / Gain analog and digital
Programmable User Output	Yes
White Balance	Yes, with auto function ROI control, manual RGB gain
Counter and timer control	Yes
Image Stamp (Counter information in frame)	Yes
Save setup to flash and load on power-on	Yes
Over Temperature Monitoring	Yes
Firmware Update	via USB (CPH6-USB) and CXP
File Access Control	Yes, up to 3 MByte user data
Test Pattern Generation	Yes

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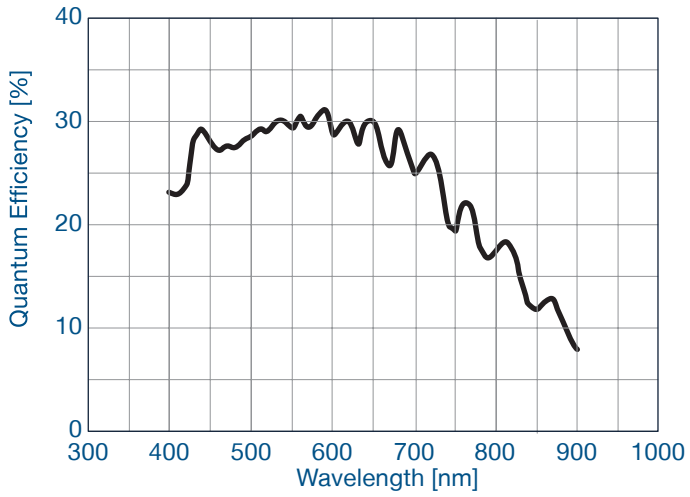
MODELS

CyclonePlus-1HS-M	monochrome Camera
CyclonePlus-1HS-C	color Camera
Scope of delivery	Camera, brief introduction

ACCESSORIES

CYP-CM	C-Mount lens adapter
CYP-FM	F-Mount lens adapter
CYP-M42-12	M42 Mount lens adapter, BF 12 mm
CYP-M58-11,58	M58 Mount lens adapter, BF 11.58 mm
CYP-HIS	Heat Sink
CYP-FAN	Cooling Fan
CPH6-PTC	Pig Tail Cable for synch
CPH6-USB	Programming Cable

SPECTRAL SENSITIVITY



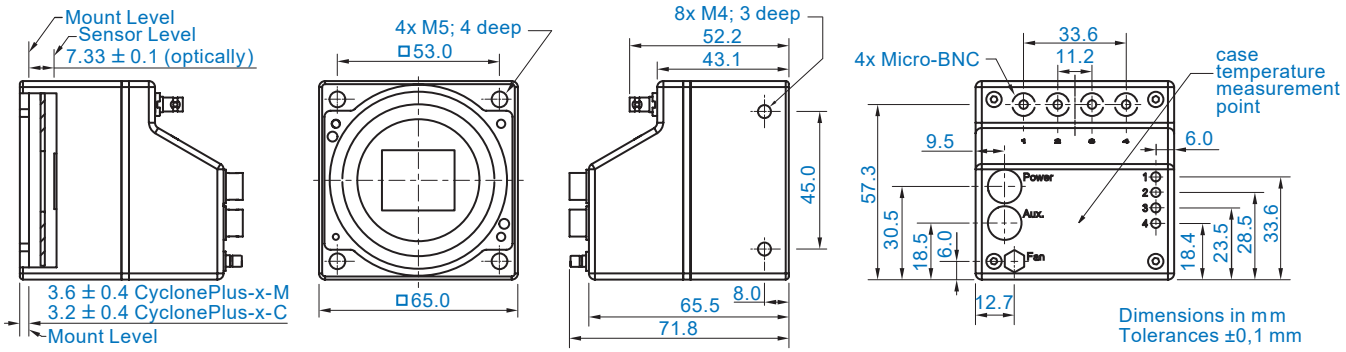
FLAT FIELD CORRECTION (FFC)

The camera allows FFC in real-time to correct non-homogeneous image intensity typically caused by non-homogeneous illumination or lens vignetting. Data of up to 16 reference images are saved in the camera.

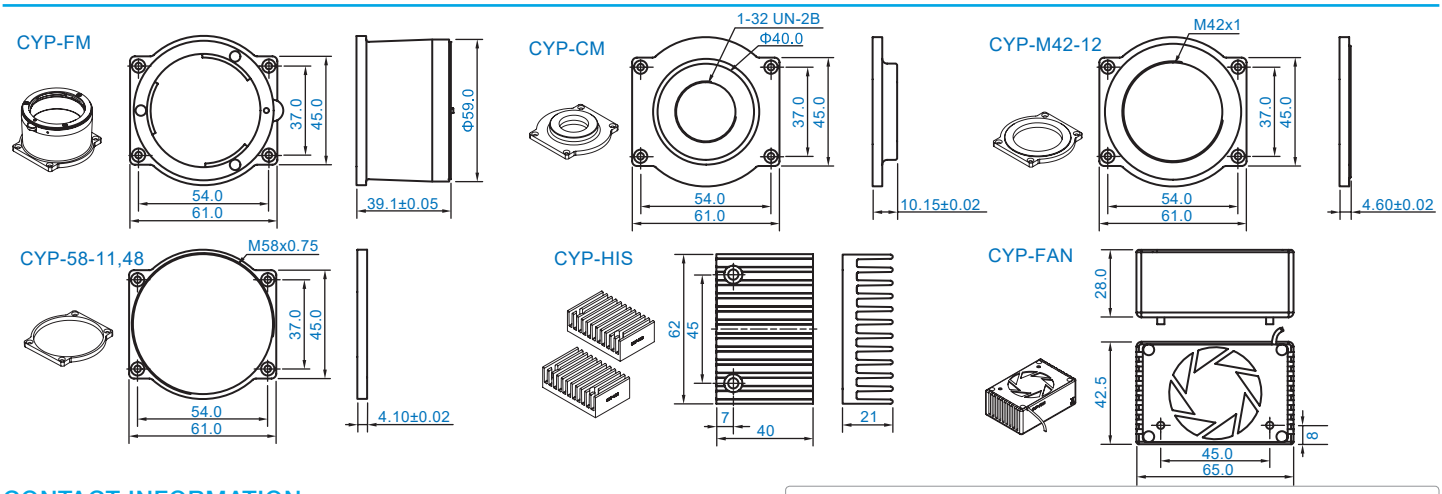
COOLING CONCEPT

Passive heat sink or active fan can be installed by customer to adapt camera to operate at required temperatures. Alternatively, camera allows to be fixed onto a customer specific heat sink.

TECHNICAL DRAWINGS CAMERA



TECHNICAL DRAWINGS ACCESSORIES



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