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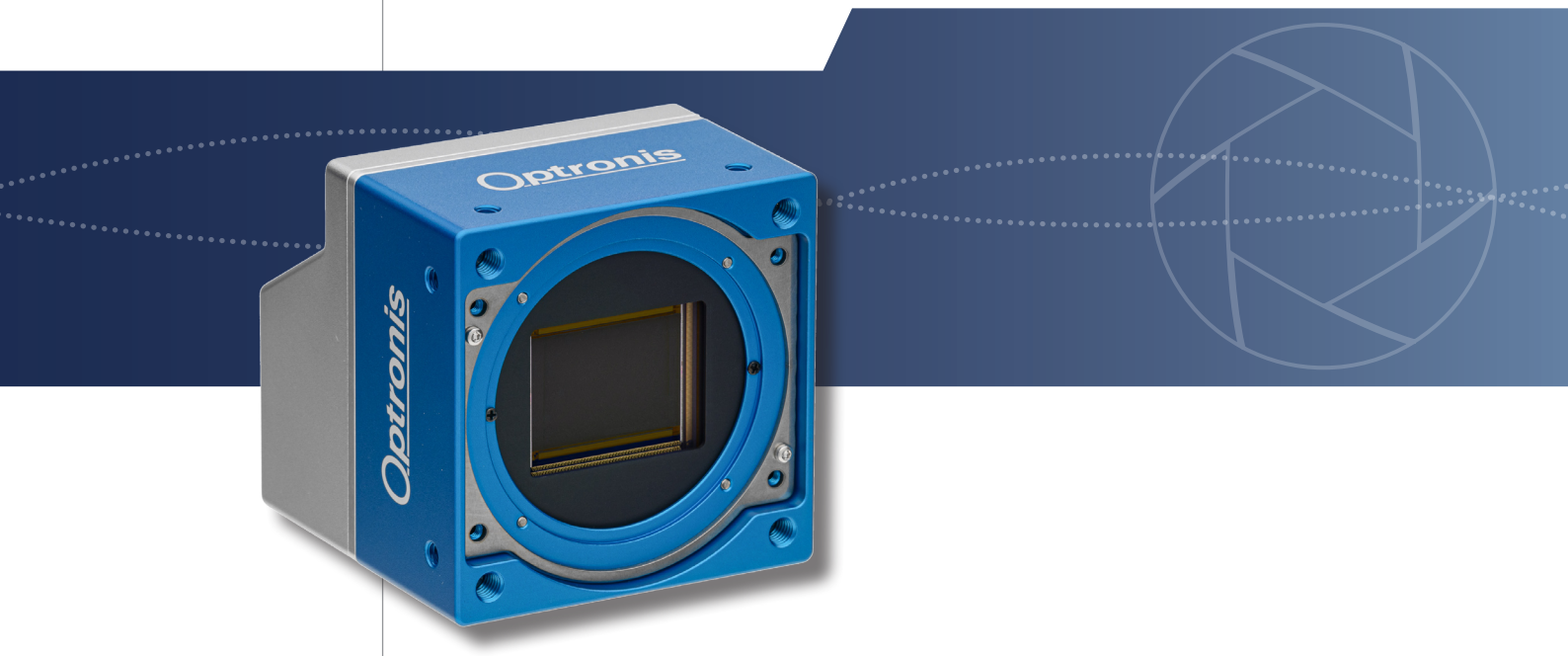
CYCLONEPLUS SERIES

CyclonePlus-14

High-Speed Machine Vision Camera



- ☑ HIGH RESOLUTION MACHINE VISION
- ☑ AUTOMATED OPTICAL INSPECTION (AOI)
- ☑ UV IMAGING

- 312 fps with 4 608 x 3 072 pixels
- Global shutter with low noise and UV sensitive 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-14 High-Speed Machine Vision Camera

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DESCRIPTION

The CyclonePlus-14 is a high speed and high resolution camera with low noise pixels covering the spectral range from UV to visible light. CyclonePlus cameras are streaming image data at up to 50 GBb/s to a CoaXPress frame grabber for real time processing. The cameras allow flexible cooling solutions and provide short back focal (BF) distances.

- 4 608 x 3 072 pixel resolution at up to
- high sensitive, low noise pixel
- UV sensitive version available

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

Resolution (HxV)	Frame rate	Resolution (HxV)	Frame rate
4 608 x 3 072	312 fps	4 608 x 1 024	898 fps
3 840 x 2 176	436 fps	4 608 x 512	1 695 fps
640 x 480	1 794 fps	4 608 x 32	10 006 fps

EMVA1288 data (v4.0 prelim.)	8 bit	10 bit
Dynamic range	55 dB	57 dB
Saturation capacity	11 000 e^-	11 000 e^-
Temporal dark noise	19 e^-	14 e^-
System gain	46 e^-/DN	11 e^-/DN
Signal-to-Noise Ratio	40 dB	40 dB
Dark Signal Non-Uniformity	14 e^-	3.2 e^-
Photo Response Non-Uniformity	1.6 %	1.6 %
Non-Linearity Error (EMVA 3.0)	0.2 %	0.2 %

SPECIFICATIONS

Sensor type	GSPRINT5514 BSI, Global Shutter
Resolution	4 608 pixel x 3 072 pixel
Frame rate (full resolution)	312 fps
Exposure time	4 µs .. 1 / frame rate
Active area / Diagonal	25.34 mm x 16.90 mm / 30.46 mm
Pixel distance	5.5 µm x 5.5 µm
A/D conversion	8/10 Bit
Quantum efficiency (typ. sensor)	80 % @ 500 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, 4 x CXP6, 2 x CXP6
Power Consumption	18 W (typ.)
Power Supply	PoCXP, ext.
Temperature Ranges (to limit case temeratur to 65°C)	
- operation, amb., with CYP-HIS	0 .. +25°C / 32 .. 77°F
- operation, amb., with CYP-FAN	0 .. +40°C / 32 .. 104°F
- operation, case temperature	0 .. +65°C / 32 .. 149°F
Weight	350 g w/o mount, w/o cooling
Dimensions	65 mm x 65 mm x 66.6 mm (3D model data available)

FEATURES

Exposure Modes	Timed, TriggerWidth, TriggerControlled, SynchControlled
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 mono only) / x1, x2, (x4 mono only)
Reverse X	Yes
Reverse Y	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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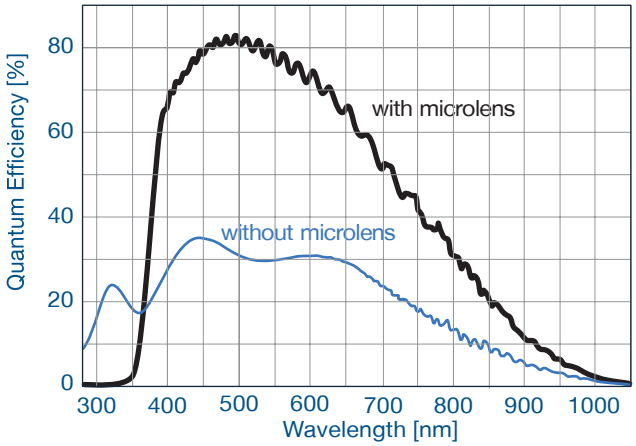
MODELS

CyclonePlus-14-M	monochrome Camera (with microlens)
CyclonePlus-14-UV	monochrome Camera (without microlens,removalbe cover glass)
CyclonePlus-14-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



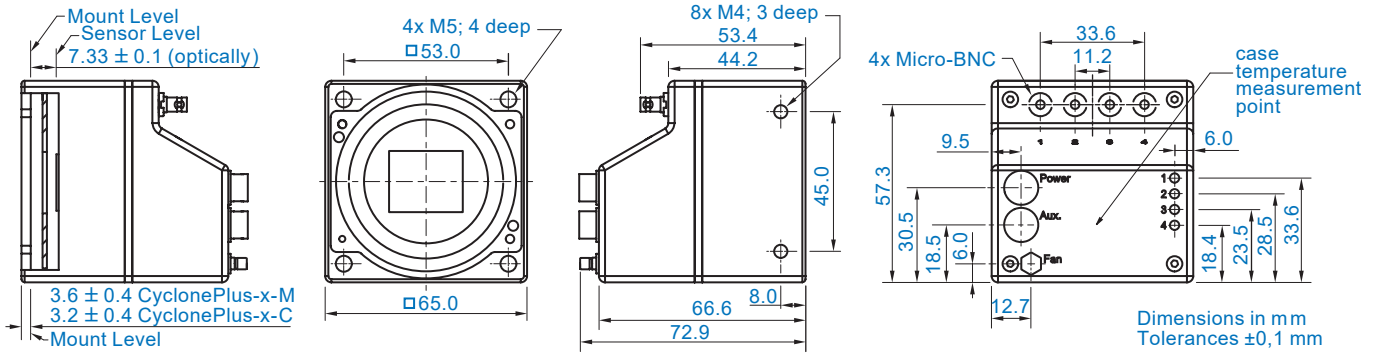
FLAT FIELD CORRECTION (FFC)

The camera allows FFC in real-time to correct non-homogeneous image intensity typically caused by non-homogeneous illumination or lens vignetting.

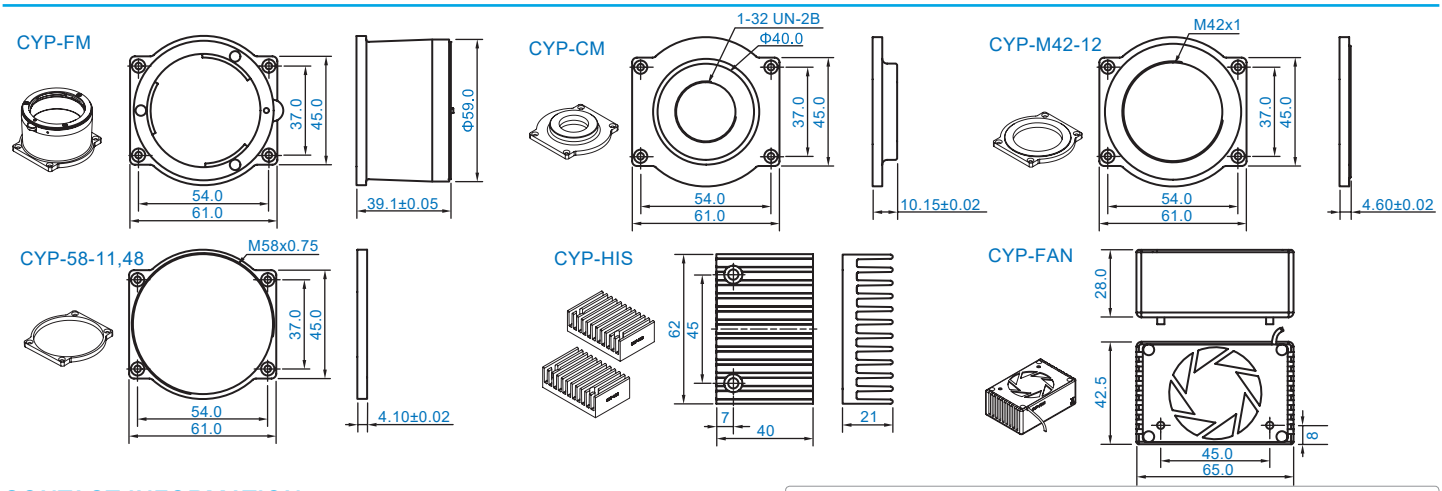
COOLING CONCEPT

Passive heat sink or active fan should be installed by customer to allow camera to operate at typical ambient temperatures. Alternatively, camera allows to be fixed onto a customer specific heat sink to operate at higher ambient temperatures.

TECHNICAL DRAWINGS CAMERA



TECHNICAL DRAWINGS ACCESSORIES



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