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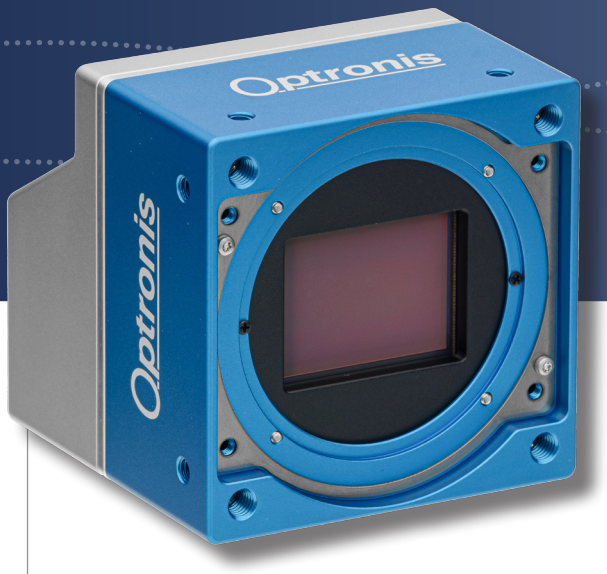
CYCLONEPLUS SERIES

CyclonePlus-65

CyclonePlus-65LS



- ☑ AUTOMATED OPTICAL INSPECTION (AOI)
- ☑ METROLOGY AND HIGH SPEED MACHINE VISION
- ☑ SEMICONDUCTOR QUALITY CONTROL

- 9344 x 7000 pixel with 71 fps (CyclonePlus-65)
- Global shutter with low noise pixel
- Short Back-Focal design
- Flat Field Correction (FFC)
- Power and trigger via CoaXPress
- CoaXPress V2.0 interface with 4 x 12.5 Gbit/s

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CyclonePlus-65 / CyclonePlus-65LS High-Speed Machine Vision Camera

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DESCRIPTION

These cameras provide high resolution with high frame rate up to 71 fps for CyclonePlus-65 and 30 fps for CyclonePlus-65LS. Various machine vision applications are covered with these models. Combined with a CoaXPress frame grabber all CyclonePlus cameras are streaming image data for real time processing. The cameras allow flexible cooling solutions.

- 9 344 x 7 000 pixel resolution
- Low noise pixel
- Short back-focal distance

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

Resolution (HxV)	Frame rate -65 / -65LS	Resolution (HxV)	Frame rate -65 / -65LS
9 344 x 7 000	71 / 30 fps	9 344 x 3 500	141 / 61 fps
3 840 x 2 160	228 / 98 fps	9 344 x 512	919 / 398 fps
1 280 x 720	664 / 288 fps	9 344 x 4	13 885 / 6 017 fps

EMVA1288 data (v4.0 typ.)	8 bit	10 bit
Dynamic range	57 dB	61 dB
Saturation capacity	10 500 e^-	10 500 e^-
Temporal dark noise	<17 e^-	8 e^-
System gain	46 e^-/DN	12 e^-/DN
Signal-to-Noise Ratio	40 dB	40 dB
Dark Signal Non-Uniformity	55 e^-	55 e^-
Photo Response Non-Uniformity	2.0 %	2.0 %
Non-Linearity Error (V3.0)	0.3 %	0.3 %

SPECIFICATIONS

Sensor type	GMAX3265, Global Shutter, Grade 1
Resolution	9 344 pixel x 7 000 pixel
Frame rate (full resolution)	1 .. 71 fps (CyclonePlus-65) 1 .. 30 fps (CyclonePlus-65LS)
Exposure time	12 µs .. 1 / frame rate (...-65) 14 µs .. 1 / frame rate (...-65LS)
Active area / Diagonal	29.90 mm x 22.40 mm / 37.36 mm
Pixel distance	3.2 µm x 3.2 µm
A/D conversion	8/10 Bit
Quantum efficiency (sensor, typ.)	65 % @ 500 nm
Trigger signals	Synch IN and Synch OUT, TTL level, electrically isolated
Interface	CoaXPress 2.1 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.), 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 (typ.)	370 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, TriggerWidth, TriggerControlled
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
Reverse X	Yes
Reverse Y	Yes
Line Skipping (Decimation)	Yes
User Global Adjustments	Offset 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

CyclonePlus-65 / CyclonePlus-65LS High-Speed Machine Vision Camera

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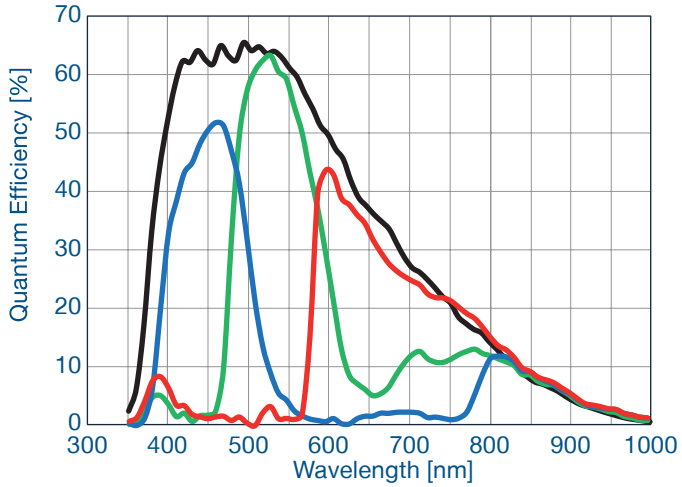
MODELS

CyclonePlus-65-M	monochrome Camera
CyclonePlus-65-C	color Camera
CyclonePlus-65LS-M	monochrome Camera, low speed
CyclonePlus-65LS-C	color Camera, low speed
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



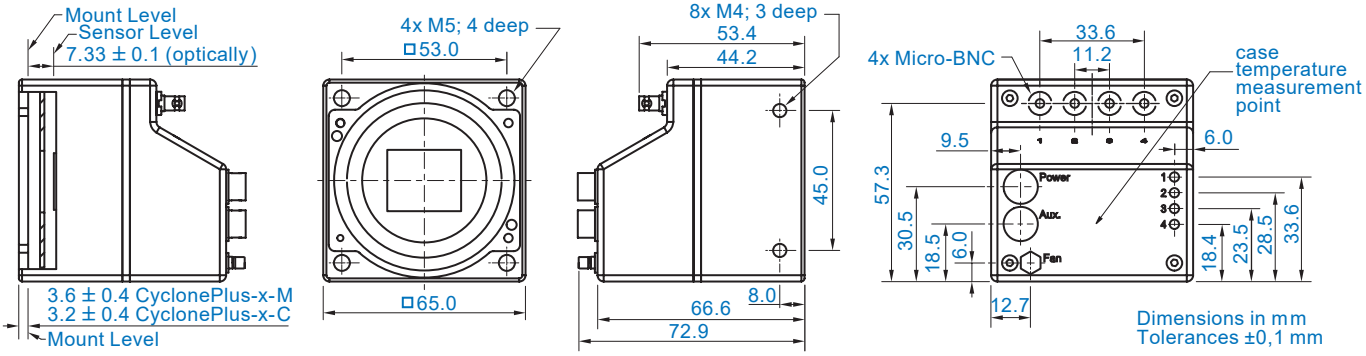
FLAT FIELD CORRECTION (FFC)

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.

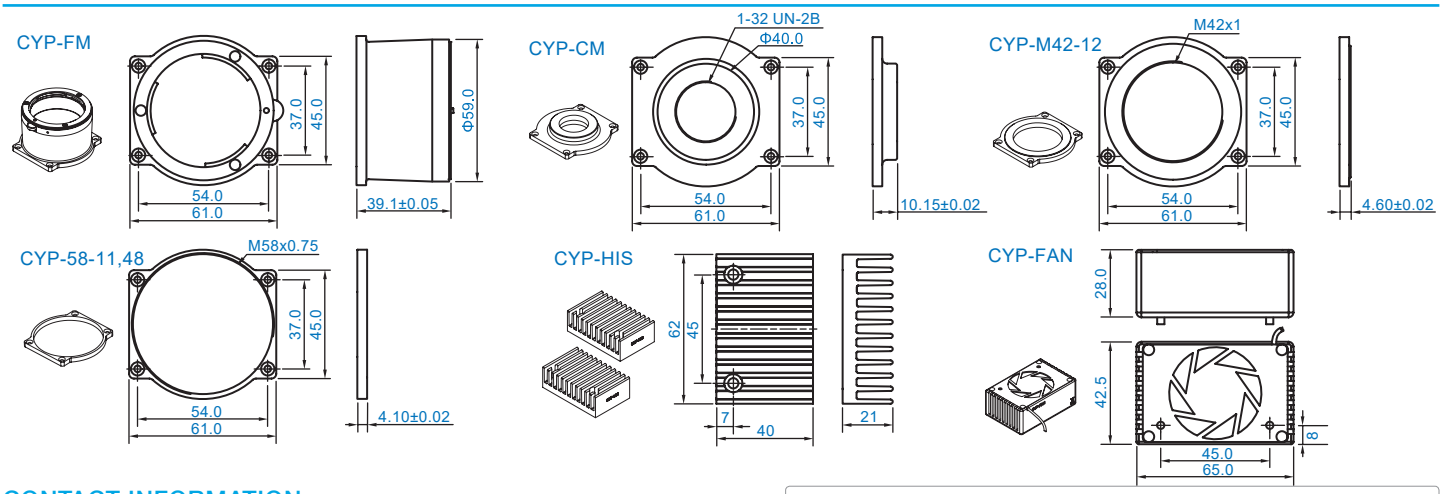
COOLING CONCEPT

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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