

Preliminary Specification

S-65A35-Kx/CXP



CoaXPRESS

Key characteristics

65 Mpx
3.2 μm^2

9344
7000

35+ FPS

Mono /
Color

37.4 mm
sensor
diagonal

8-10-12
bit

< 5e-
Read noise
unity gain

40 dB
SNR

66 dB
DNR

- 65 Megapixel at 35 fps
- Monochrome and Color
- Dark field column uniformity correction
- Bright field column uniformity correction
- Low frequency flat field correction
- Configurable quad CXP6 speed
- Hirose 12pin I/O connector
- Adimec Connect & Grab™
- CoaXPRESS V1.1.1 compliant

Introduction

The SAPPHIRE 65 Megapixel camera delivers a superior performance in a 9344x7000 pixels resolution running at 35 fps. It uses state of the art global shutter sensor technology. The S-65A35 offers a high dynamic range with low noise levels and a high sensitivity. The camera is compatible with other CoaXPRESS cameras in the SAPPHIRE series: S-25 and S-50.

The S-65A35 CoaXPRESS camera comes in a low power, compact outline design without forced cooling through a fan. This provides optimal design freedom for system integration with maximum system reliability. The camera offers Adimec Connect & Grab™ allowing engineers to start system development.

Typical applications examples: Semiconductors metrology tools; Display Inspection; Solar panel inspection; Medical

Adimec
Excellence in Imaging

High Resolution Metrology Camera

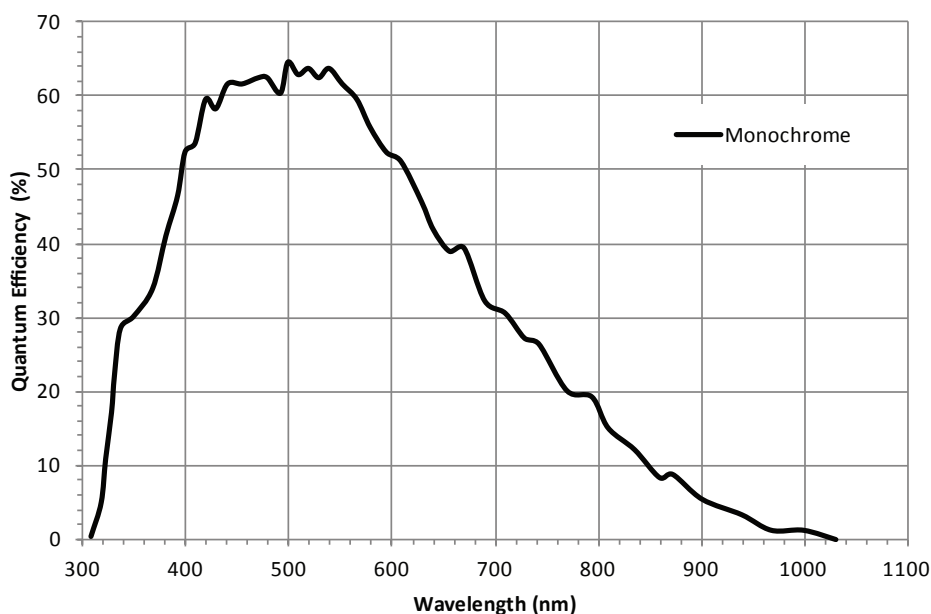
Performance

Type	CMOS	
Architecture	Progressive scan Global Shutter (PLS <1/25000, angular dependent)	
Sensor diagonal	37.4 mm (29.9 x 22.4 mm)	
Pixel size	3.2 μm x 3.2 μm	
Active pixels	9344 (H) x 7000 (V)	
Microlenses	Yes	
Dynamic range	> 66 dB*	> 66 dB**
Full well	10.9 ke *	10.0 ke **
Dark noise	at high gain: < 2.0 e- *	at unity gain: 5 e-; <2.0 e- at high gain **
Sensitivity mono	To be determined	

* Sensor specification

** Typical value

Quantum Efficiency



Functionality

Image acquisition	Timed, TriggerWidth, SyncControl, TimedTriggerControl
Integration time control	Programmable between 21 μs and the frame period in steps of 1 μs
Gain	Digital fine gain selectable between 1x and 32x in steps of 0.001
Video Processing	Automatic black level control loop - Manual/One push White Balance - User programmable LUT - Gamma - Digital binning
Region of interest	Programmable ROI; size and position of readout image - Increased frame speed via ROI - Digital binning
Defect pixel correction	On/Off switchable - Review and editing of defect pixel map - Factory calibrated
Test mode	Internal test pattern generator available for checking of the complete digital image chain
Mirroring	The output can be reversed in the horizontal and vertical direction
Uniformity correction	Flat field correction can be performed with multiple low frequency flat field correction sets User calibratable dark field and bright field column uniformity correction
Miscellaneous functions	Programmable I/O polarity - 1 factory set and 8 user set for storage of camera settings - Frame counter - Temperature readout - Camera type, build state and serial number can be read via software

High Resolution Metrology Camera

Interfacing

Video

Video output	CoaxPress V1.1.1 CXP3/6 1, 2, 4 lanes configurable
External Sync	I/O or CXP controlled
Output resolution	8 / 10 / 12 bit
Connector	4 x DIN1.0/2.3 (Figure 1)

Camera Control Protocol

Interface	GenICam via CoaXPress
Throughput	20 Mbps
Protocol	GenTL

I/O

Output	LVDS Fully programmable flash strobe signal (duration, delay and polarity)
Input	LVDS Trigger signal with programmable polarity
Connector	Hirose 12 pin (figure 2)

Power

Input voltage	24 Vdc PoCXP
Power dissipation	<11 W @ 24 Vdc full continuous operation at maximal framespeed.
Power connector	DIN1.0/2.3 CoaXPress Masterlink (figure 1)

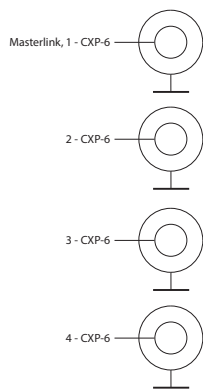


Figure 1: Quad CXP DIN1.0/2.3

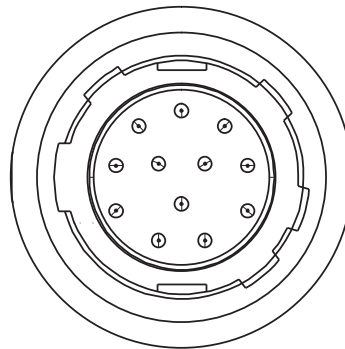


Figure 2: Hirose 12 pin I/O connector

High Resolution Metrology Camera

Mechanical

Mounting	2 M4 mounting holes per side on camera front
Lensmount	4 x M3 at 60mm pitch - 50mm G7 reference (optional: F, TFL-II, T2, M42)
Outline	See figure 3
Weight	400 g +/- 5% excl. lensmount

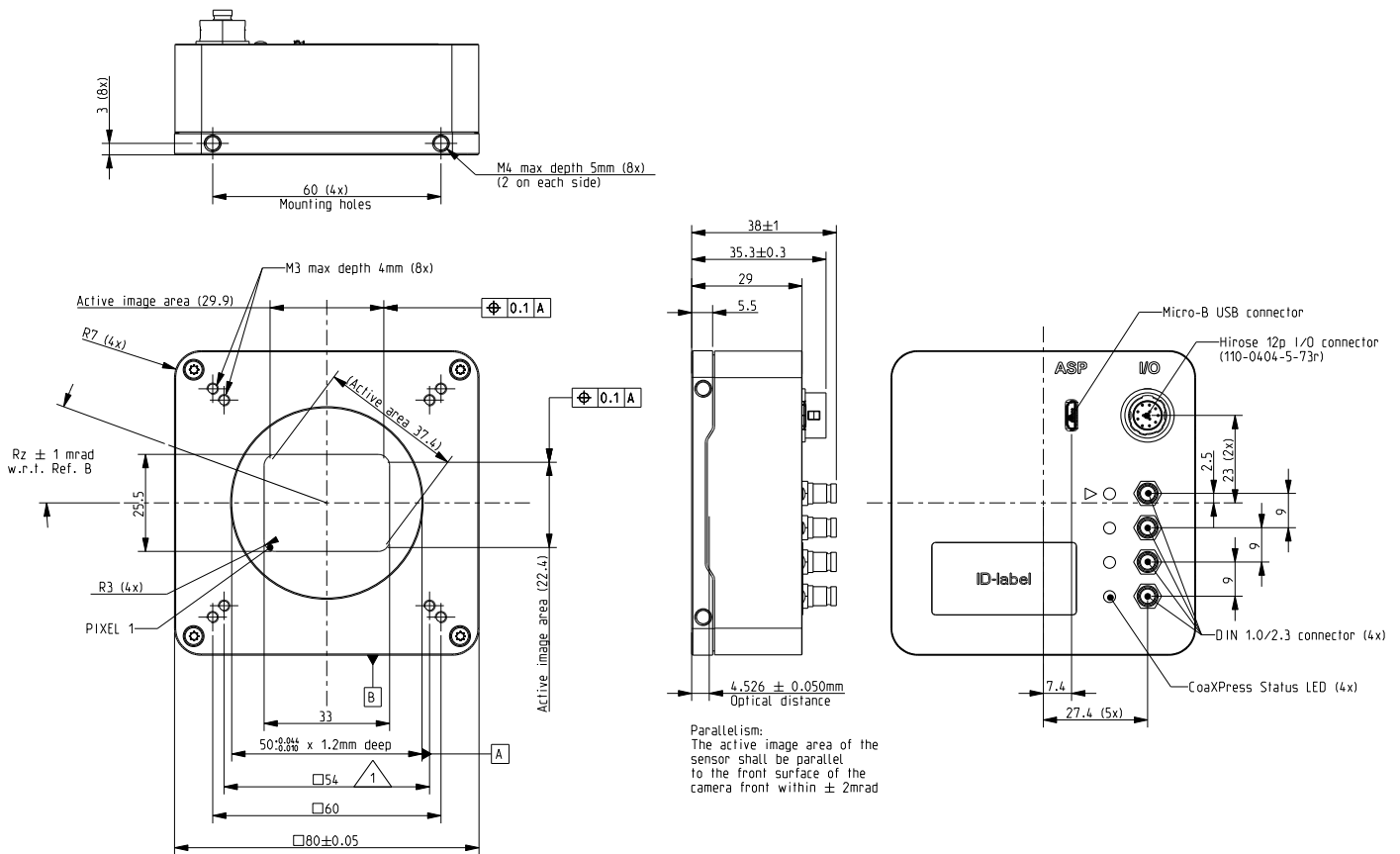


Figure 3: Mechanical outline

Sensor Mounting Accuracy

XY-centering	± 0.050 mm
Rotation	± 1 mRad
Optical distance	4.526 ± 0.050 mm
Perpendicularity	± 2 mRad

Compliance & Reliability

RoHS

Directive	2011/65/EU
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CE-mark

Electromagnetic compatibility	2014/30/EU: EN61000-6-3 and EN61000-6-2
ESD	Contact discharge +/- 4 kV; Air discharge +/- 8 kV
Workmanship	In accordance with IPC-J-STD-001 class 2 and inspected according IPC-A-610 class 2

Reliability

MTBF	> 75,000h @ 50°C calculated according to the part stress analysis of MIL-HDBK-217F for ground fixed, uncontrolled environment.
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High Resolution Metrology Camera

Environmental

Operating

Temperature	0°C to +30°C and a max housing temp +50°C
Humidity (relative)	20% - 80% non-condensing
Shock	10 g, half sine shape, 6-10 ms duration in $\pm X$, $\pm Y$ and $\pm Z$
Vibration	3 g sinusoidal vibration sweeps 5 - 150 Hz

Storage

Temperature	-25°C to +65°C
Humidity (relative)	5% - 95% non-condensing
Shock	25 g, half sine shape, 6-10 ms duration in $\pm X$, $\pm Y$ and $\pm Z$
Vibration	10 g sinusoidal vibration sweeps 5 - 150 Hz

Camera Types

	Interface connector	I/O connector	Sensor	Type	Max. fps @ Full resolution
S-65A35-Km/CXP-6	4 x DIN1.0/2.3	Hirose 12 pin	CMOS	Monochrome	35+ fps
S-65A35-Kc/CXP-6	4 x DIN1.0/2.3	Hirose 12 pin	CMOS	Raw Bayer	35+ fps

Adimec

Adimec is the leading supplier of high-end cameras for machine vision, medical and outdoor imaging applications. Our Adimec True Accurate Imaging® technology forms the foundation for a broad range of camera products, and brings new levels of precision and accuracy to vision systems.

Custom cameras

Adimec has the ability to offer additional camera functionality and create customer specific cameras even for small volume programs. Built from platforms, our standard line of cameras give us a flexible base that can be tailored to fit your specifications. Contact us to discuss these options in more detail. Visit: www.adimec.com for product details.



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