Target Specification
S-65A35-Kx/CXP
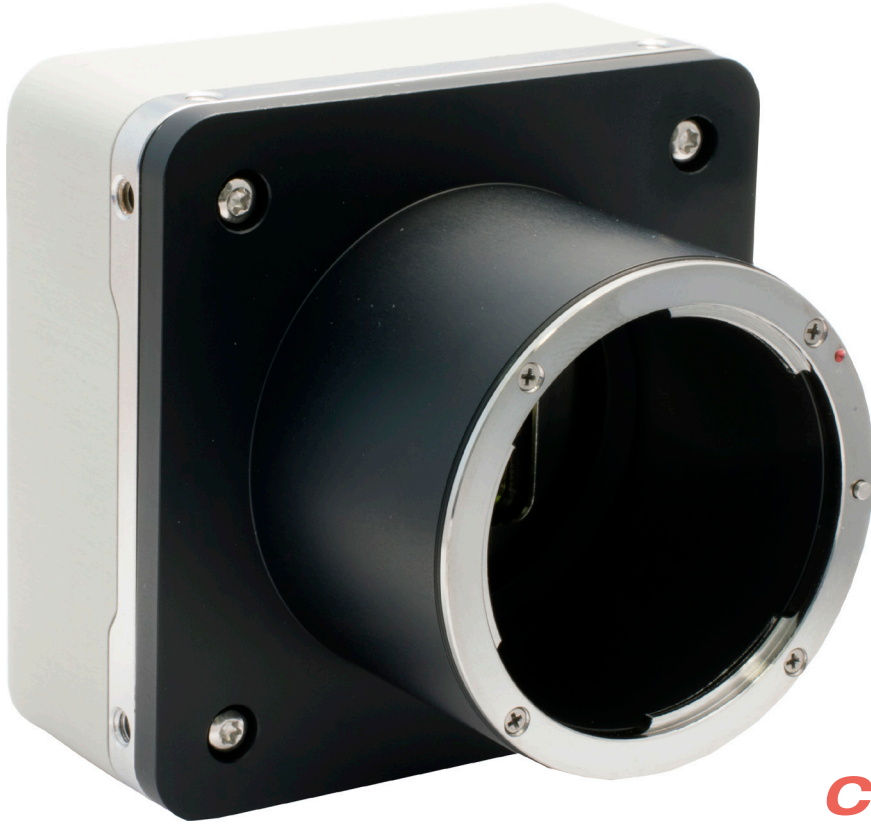
Key characteristics

65 Mpx 3.2 µm^2	9344 7000	**35+ FPS**
Mono / Color	37 mm Optical format	8-10-12 bit
< 3e- Read noise	> 40 dB SNR	**72 dB DNR**

- 65 Megapixel at 35 fps
- Monochrome and Color
- Dark field DSNU uniformity correction
- Bright field column and low frequency uniformity 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 over 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 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
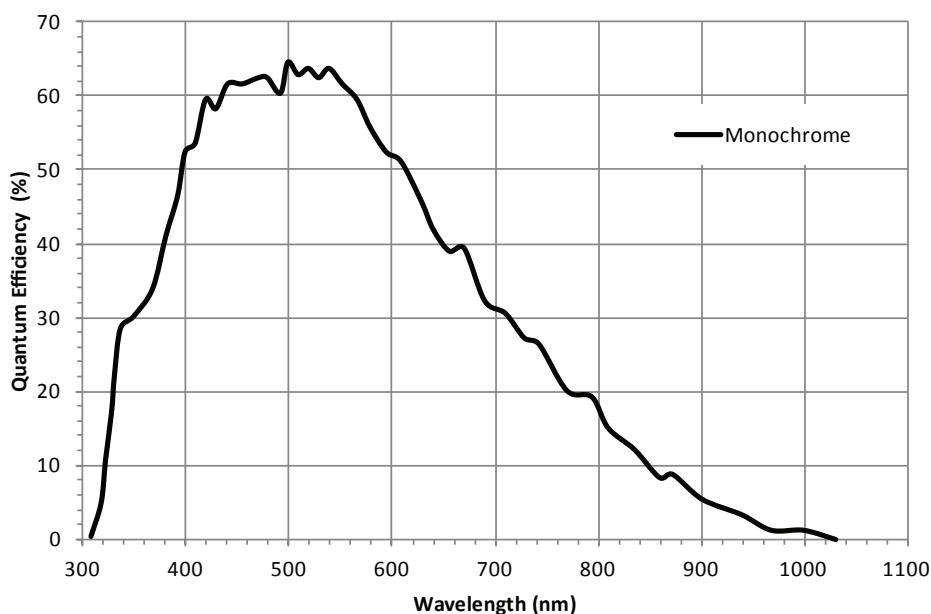
Adimec
Excellence in Imaging

High Resolution Metrology Camera

Performance

Type	CMOS
Architecture	Progressive scan Global Shutter (PLS <1/25000)
Optical format	37.5 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	> 72 dB*
Full well	+/- 12.5 ke$^-$ *
Dark noise	Read noise: < 3.0 e$^-$ *
Sensitivity mono	To be determined

* Sensor specification

Quantum Efficiency

Functionality

Image acquisition	Timed, TriggerWidth, SyncControl, TimedTriggerControl
Integration time control	Programmable between TBD µs and 1 s 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
Region of interest	Programmable ROI; size and position of readout image - Increased frame speed via ROI - Band 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 direction
Uniformity correction	Flat field correction can be performed with multiple low frequency flat field correction sets User calibratable dark field and bright field uniformity correction, including pixel based Dark Signal Non-Uniformity correction
Miscellaneous functions	Programmable I/O polarity - 1 factory set and 1 user set for storage of camera settings - Frame counter - Temperature readout - Camera type, build state and serial number can be read via software

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

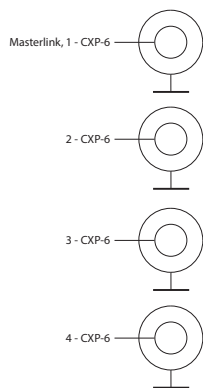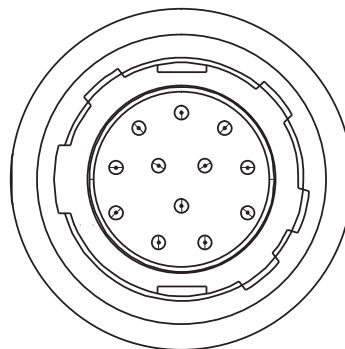|	
Input voltage	24 Vdc PoCXP
Power dissipation	<11 W @ 24 Vdc full continuous operation at maximal framespeed.
Power connector	DIN1.0/2.3 CoaXPress Masterlink (figure 1)

Masterlink, 1 - CXP-6
2 - CXP-6
3 - CXP-6
4 - CXP-6

Figure 1: Quad CXP DIN1.0/2.3

Figure 2: Hirose 12 pin I/O connector

Mechanical

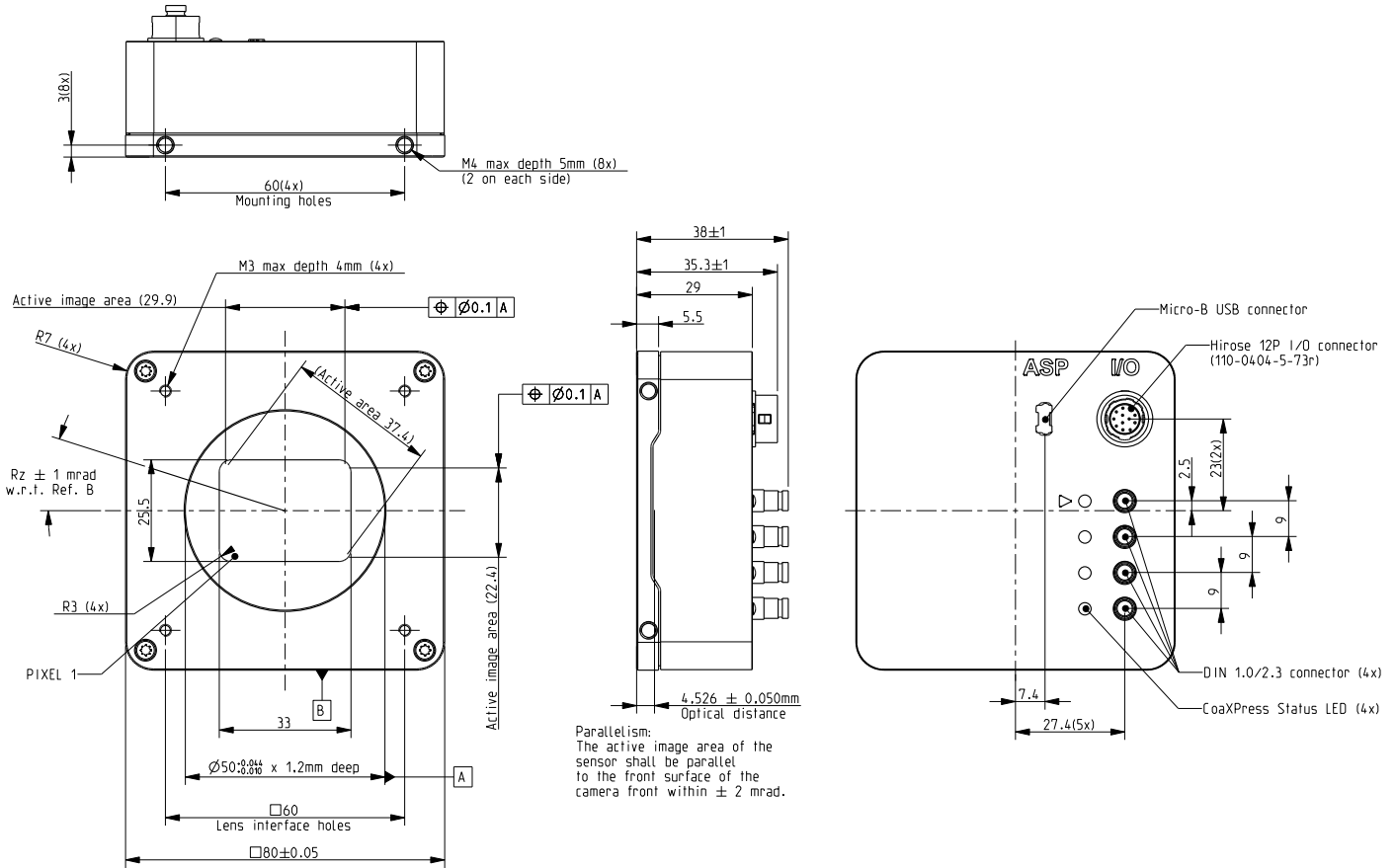|	
Mounting	2 M4 mounting holes per side on camera front
Lensmount	4 x M3 at 60mm pitch - 50mm G7 reference (optional: F, TFL-II, T2, M42)
Outline	See figure 3
Weight	400 g +/- 5% excl. lensmount

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

CE-mark

Electromagnetic compability	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.

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 ±X, ±Y and ±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 ±X, ±Y and ±Z
Vibration	10 g sinusoidal vibration sweeps 5 - 150 Hz

Camera Types

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-Kmrg/CXP-6	4 x DIN1.0/2.3	Hirose 12 pin	CMOS	Monochrome removable coverglass	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.

For maximum image quality, performance, and reliability in demanding applications - Choose Adimec

www.adimec.com