Specification
S-50A30-Jx/CXP

CoaXPress

Key characteristics

50 Mpx 4.6 µm^2	7920 6004	30+ FPS 12 bit
CMOS 8T Global Shutter	35 mm Optical format	<11 W
<80 mm	<400 g	64 dB DNR

- 50 Megapixel at 30 fps
- AMS Cmosis CMV50000 sensor
- True Global Shutter CMOS
- Monochrome and Color
- Dark and bright uniformity corrections
- Configurable single, dual and quad CXP3 to CXP6 speeds
- Hirose 12pin I/O connector
- Adimec Connect & Grab™
- CoaXPress V1.1.1 compliant

Introduction

The SAPPHIRE 50 Mpx CoaXPress camera delivers 7920x6004 pixel resolution at over 30 fps with 4.6 micron square pixels. The camera is fully compatible with the S-25 and Q-12 CoaXPress Adimec offers.

The S-50A30 CXP camera comes in a low power, compact outline design without forced cooling through a fan. This provides optimal design freedom for system integration with a maximum system reliability. The S-50A30 offers Adimec Connect & Grab™ allowing engineers to start system development immediately after camera installation.

The camera has a stable image performance to minimize customers' system calibration time. Typical applications examples: flat panel inspection - semiconductors metrology tools - solar panel inspection.

Adimec
Excellence in Imaging

Performance

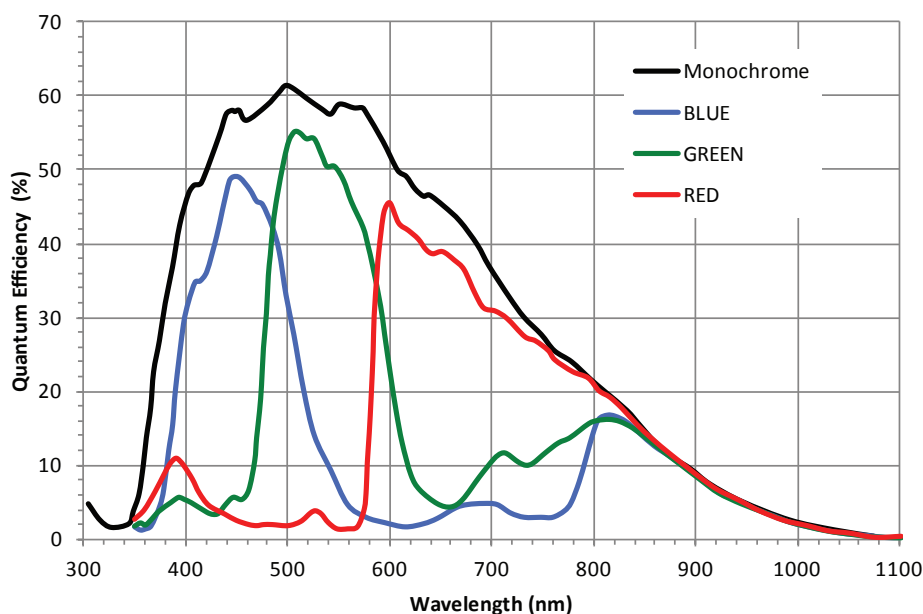|		
Type	AMS CMOSIS CMV50000 sensor	
Architecture	CMOS Progressive scan 8T Global Shutter (PLS <1/18000)	
Optical format	35 mm	
Pixel size	4.6 µm x 4.6 µm	
Active pixels	7920 (H) x 6004 (V)	
Microlenses	Yes	
Dynamic range	64 dB*	Including DSNU: 55 dB**
Full well	14.5 ke$^-$ *	12.8 ke$^-$ **
Dark noise	Read noise: 8.8 e$^-$ *	Read noise + DSNU: 23.5e$^-$ **
Sensitivity mono	350 LSB12	

* Sensor specification
** Typical value

Quantum Efficiency

Functionality

Image acquisition	Timed, TriggerWidth, SyncControl, TimedTriggerControl
Integration time control	Programmable between 100 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	Up to 20 low frequency flat field correction sets can be saved in non-volatile memory (Mono only) - Up to 8 out of 20 can be live switched from frame to frame (Mono only) User calibratable dark field and bright field 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 HR10A-10R-12P(73) (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
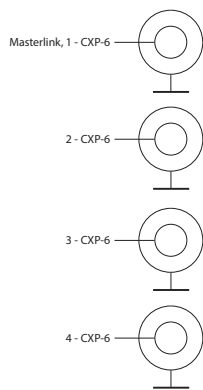
Figure 1: Quad CXP DIN1.0/2.3
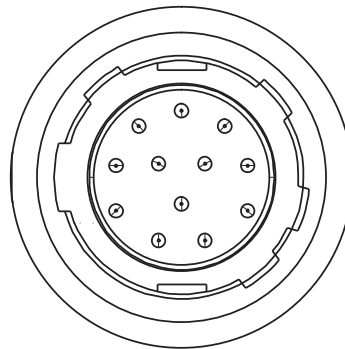
Figure 2: Hirose 12 pin HR10A-10R-12P(73) I/O connector

High Resolution Metrology Camera

Mechanical

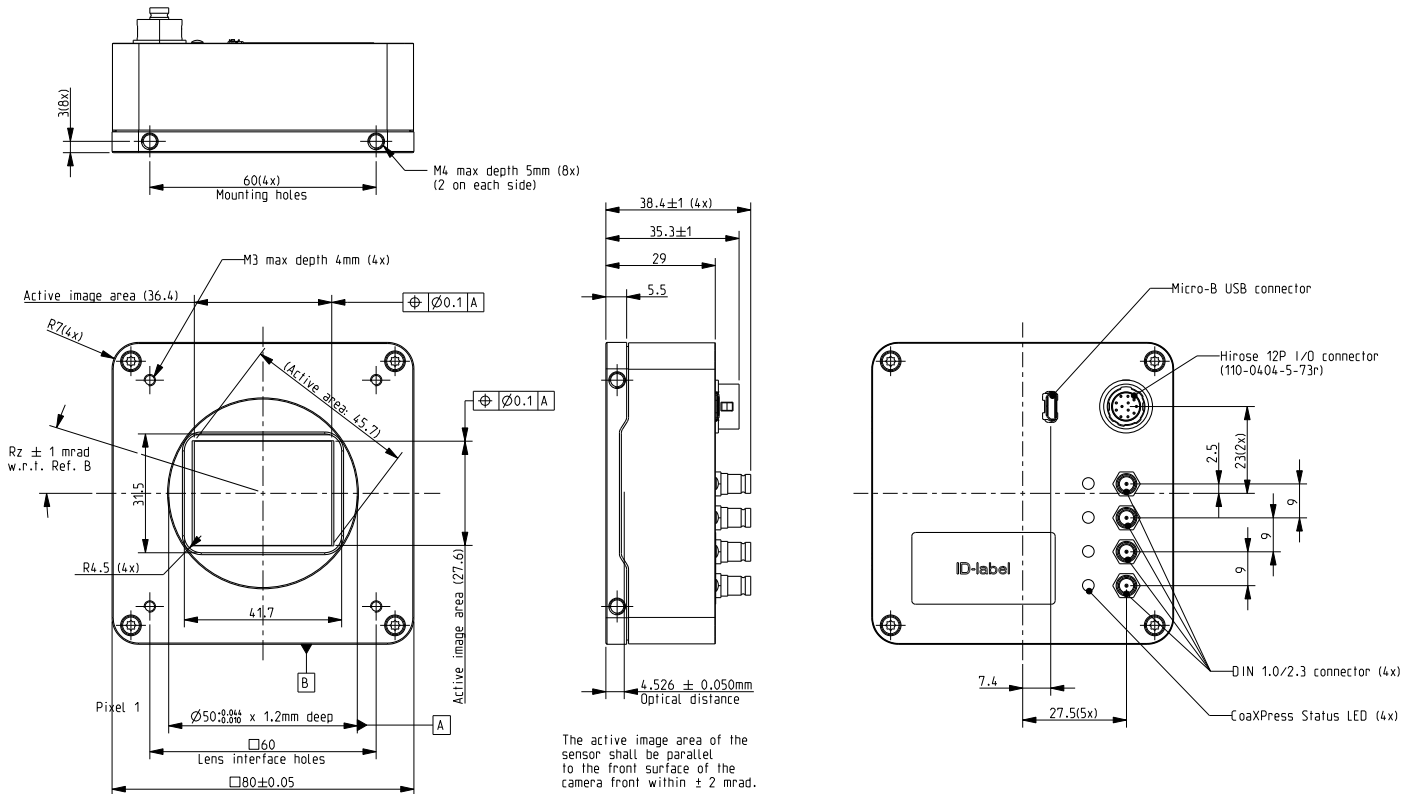|	
Mounting	2 M4 mounting holes per side on camera front
Lensmount	4 x M3 at 60mm pitch - 50mm G7 reference (optional: F, TFL-II, T2, M42, on request: M72)
Outline	See figure 3
Weight	400 g +/- 5% excl. lensmount

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.