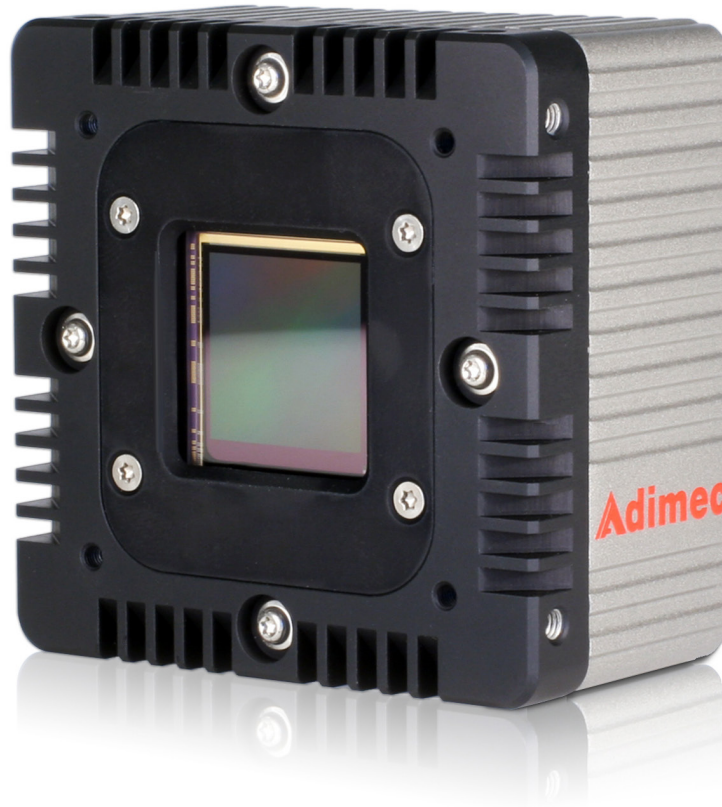


Product Specification Sapphire

Sapphire S-25A30/CL



Key features

- 25 Megapixel at 32 fps
- Optimized for stable image to image performance
- Images with high uniformity and linear response
- Low power architecture
- Compact design
- Custom processing possible

The S-25A30 is a 25 megapixel CMOS global shutter camera and delivers images of 5120 x 5120 pixels at 32 fps over Camera Link. Using the standard Region of Interest function the frame rate can be increased. The combination of Adimec image quality, compact form factor and low power usage makes the camera ideal for inspection systems that require high resolution to increase throughput or accuracy.

The S-25A30 is ideal for metrology and electronics inspection equipment and can be customized to meet specific system application and architecture requirements.

Adimec

Performance

All values are typical and measured at 25°C

Type	Monochrome - S-25A30-Em/CL-S10 Color (Bayer RGGB) - S-25A30-Ec/CL-S10 Monochrome with removable coverglass - S-25A30-Em/CL-V19
Architecture	5T CMOS technology with global shutter, microlenses
Pixel size	4.5 μm (H) x 4.5 μm (V)
Active pixels	5120 (H) x 5120 (V)
Quantum efficiency	53% at 550 nm
Optical format	35 mm
Interface	Camera Link Full and Deca (see page 4)
Frame rate (full frame)	32 frames per second (CL 10 tap, 85 MHz) 25 frames per second (CL 8 tap, 85 MHz) See Table 1 for maximum frame rates at other resolutions
Readout noise	34 e ⁻
Full well capacity	Usable: 13 ke ⁻ (max linear)
Dynamic range	52 dB
Blooming and Smear	No Blooming or Smear

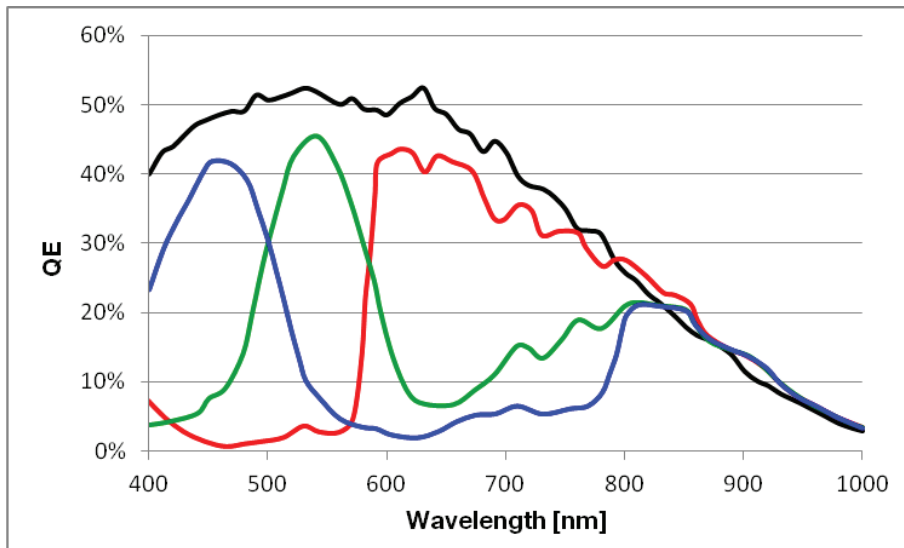


Figure 1. Quantum Efficiency curve for monochrome and color (R, G, B) version

Functionality

Acquisition

Image acquisition	Continuous mode (free run), Control mode (triggered pulse width controlled integration time), Trigger mode (pre-programmed integration time), Sync control mode
Integration time control (continuous mode)	Programmable between 77µs and 100ms, in steps of 1µs
Gain	Digital fine gain selectable between 1x and 8x in steps of 0.01
Region Of Interest (ROI)	Configurable output (crop) window. Decreasing the size of the crop allows for higher frame rates. For framespeed references related to ROI imaging, see table 1. Framespeed increases through: <ul style="list-style-type: none"> a. ROI in vertical axis b. ROI in horizontal axis
Multi band ROI*	Within the defined ROI, up to 32 sub ROI's (bands) can be defined. Each band is defined as a cluster of multiple lines with the same width as set by the ROI. Each band has a starting position and height that are user defined. Bands are non-overlapping. On the camera output the bands are packed to form a single output image

Processing

Internal processing is done at 10 bits resolution minimal

Defect pixel correction	User programmable 2-directional defect correction
Vertical Binning	Averaging 1, 2 or 4 vertically adjacent pixels
Flat Field Correction	Offset and gain correction per pixel
Video compression	10-bit output LUT, user programmable

Service & Miscellaneous

Test mode	Internal test pattern generator available for checking the complete imaging chain
Frame counter	Image count, digitally tagged in each frame (user configurable)
Camera ID	Camera type, build state and serial number can be read via software

ROI Resolution		Max sustained speed	
Mp	H (Column) x V (Row)	fps @ CL 8tap	fps @ CL 10tap
25 Mp	5120 x 5120	25	32
16 Mp (1:1)	4096 x 4096	39	49
12 Mp (4:3)	4096 x 3072	52	66
8 Mp (1:1)	2800 x 2800	84	97
8 Mp (4:3)	3320 x 2490	80	99
8 Mp (16:9)	3840 x 2130	80	100

Table 1. Maximum frame rates at various ROI resolutions; Camera Link at 85MHz

* This function is not available if Flat Field Correction is enabled

Interfacing

Video

Video output	Camera Link 8 tap (8 or 10 bit) or 10 tap (8 bit) (user programmable)
Interface clock	66 or 85 MHz
Connector	2x 3M MDR 26

Camera Control

Interface	Camera Link
Baud rate	57600
Protocol	ASCII based

I/O

Output	Strobe signal (user programmable)
Input	Trigger signal (user programmable)
Connector	Hirose HR10A-7R-4SB

Power

Input voltage	10 – 24 Volt +/- 10%
Typical power dissipation	<7.5 W
Reverse voltage protection	Yes
Power connector	Hirose HR10A-7R-6PB

Mechanical

Mounting	2 mounting holes per side on camera front, M4 thread
Lens mount	Options: TFLII, F-mount, M42 and T2
Outline	See Figure 2, last page.
Weight	400 g +/- 10%, excluding lens mount

Sensor Mounting Accuracy

XY-centering	Within +/- 0.1 mm
Rotation	Within +/- 4 mrad
Optical distance	4.526 +/- 0.3 mm
Perpendicularity	Within +/- 2 mrad

Environmental

Operating

Temperature	-10°C to +40°C
Humidity (relative)	20% - 80% non-condensing
Shock	10 g, half sine shape, 6-10 ms duration
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
Vibration	10 g, sinusoidal vibration sweeps 5-150 Hz

Compliance & Reliability

RoHS

Directive	2011/65/EC
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CE-mark

Electromagnetic compatibility	2004/108/EC
Generic standard	EN61000-6-4 and EN61000-6-2

Reliability

MTBF	> 75,000 h @ 40°C
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Product Specification S-25A30/CL

Outline Drawing

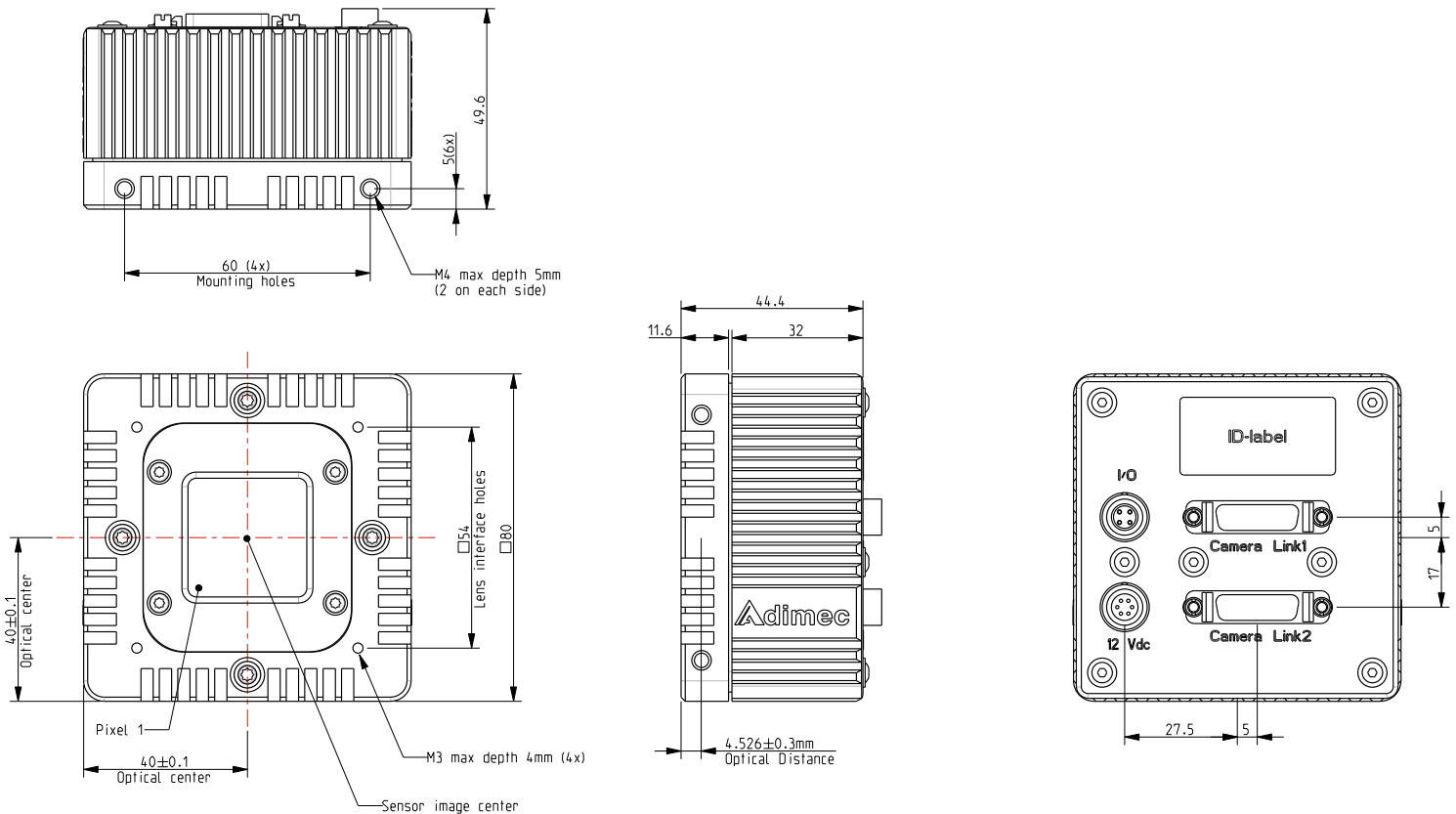


Figure 2. Outline drawing excluding lensmount

NOTE: For the removable coverglass version of this camera (S-25A30-Em/CL-V19) the optical distance after removing the coverglass equals 4.8 ± 0.3 mm.

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