QUARTZ series

CMOS cameras for metrology & inspection

Product highlights

- 2, 4 & 12 Megapixel Resolutions
- Global shutter CMOS technology
- Up to 340 full frames per second
- 12 dB noise reduction
- Cable length over 130 meters

Performance. Accuracy. No compromises

The Adimec QUARTZ series is our most versatile line of high-performance cameras, offering a complete range of capabilities for a variety of applications. Based on our proprietary Adimec True Accurate Imaging® technology and state of the art global shutter CMOS sensors, the QUARTZ family delivers the performance you need with no compromises in measurement accuracy.

Ideal for metrology and inspection equipment, and for moving from 2D to 3D inspection, the QUARTZ series can be tailored for your specific requirements.

Inline Inspection and Metrology

In demanding machine vision systems, there's no room for errors. Put the power of True Accurate Imaging to work for you, and get the results you need: high dynamic range, high sensitivity and high image uniformity.

Adimec
Excellence in Imaging

No more trade-offs

Most cameras force you to make a trade off between performance and accuracy. Not Adimec. We know leading-edge systems need speed and precision so we deliver both through our unique Adimec True Accurate Imaging® technology*.

Leveraging the performance of sophisticated CMOS sensors, and enhancing them with unmatched uniformity, even for a large field of view, QUARTZ is the complete solution for all your machine vision needs.

Speed with accuracy

Faster speeds without higher costs

The image burst acquisition functionality of the QUARTZ series allows image buffering up to the maximum sensor frame rate, while outputting data at the maximum frame rate of your Camera Link or CXP frame grabber, simultaneously!

This unique memory functionality allows higher transmission processing performance without having to upgrade to more expensive frame grabbers.

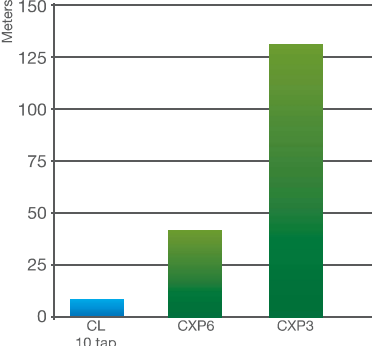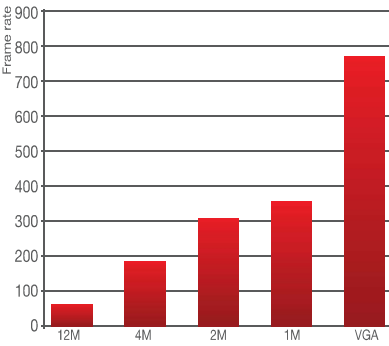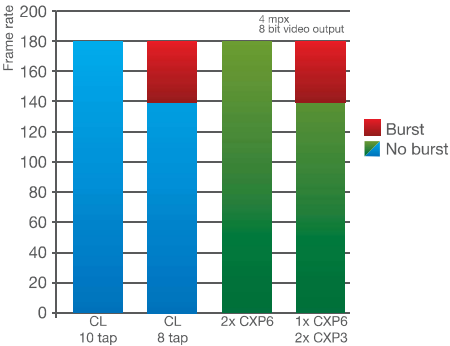### Unsurpassed speeds with ROI

The QUARTZ support ROI (Region of Interest) directly on the sensor. This enables frame rates to almost 800 fps at VGA resolution.

The ROI functionality allows optimal fine tuning between speed and field of view.

Go further with CoaXPress

Adimec's QUARTZ series is the industry first to implement the CoaXPress interface, based on efficient and flexible coaxial cable. CoaXPress enables longer cable lengths (over 130 meters) and a more robust connection than other digital interfaces.

Achieve higher speeds than twisted pair and get the convenience of video, power, commands and control over one cable, all in a low-cost cabling solution.

Detailed information about other QUARTZ models are available on request.
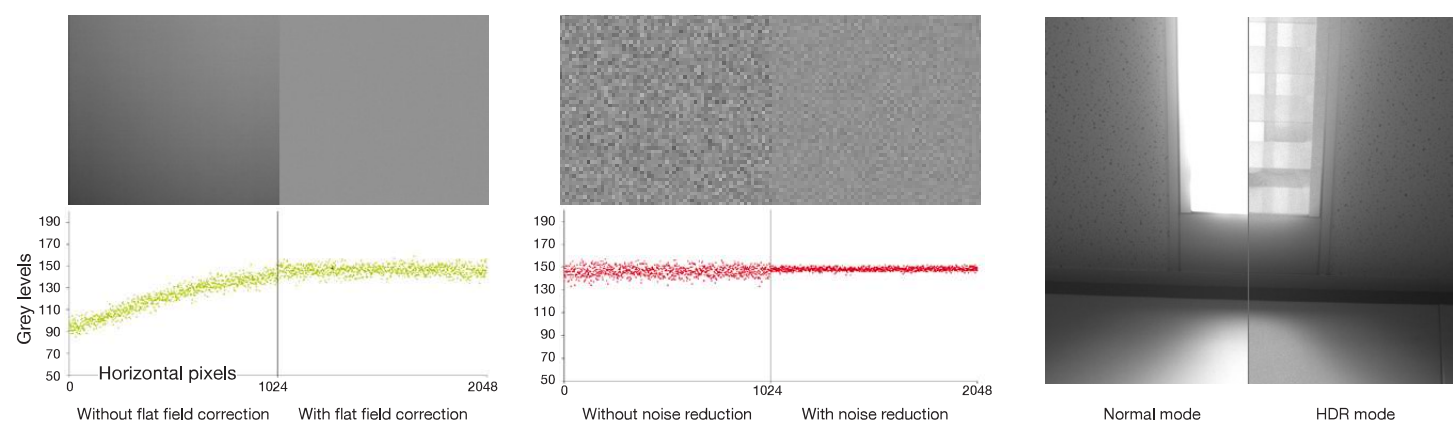
Accuracy with speed

Flat field correction

To improve and simplify image uniformity, all QUARTZ cameras are calibrated in the factory with flat field correction. This embedded function also supports in field calibration to compensate for non-uniformity in the optical path and lighting non-uniformities of the application. The QUARTZ series can store up to 40 calibrated sets to allow fast switching during operation between different lighting-optics setups. This off-loads the processing needs on the frame grabber and simplifies the development effort at system integration.

Shot noise reduction

QUARTZ cameras provide improved shot noise performance and sensitivity via user-configurable binning or HiQ (High Image Quality) functionality. Both functions support a shot noise improvement up to 12 dB. With 2 directional binning, shot noise is improved while keeping the maximum frame speed. With HiQ mode, shot noise is improved while keeping the field of view or selected region of interest. Using ROI imaging in HiQ mode, speed can be increased for smaller FOV's.

High Dynamic range

The QUARTZ Series supports both linear and non-linear dynamics range improvements. The linear method enables capturing scenes with a dynamic ranges up to 72 dB, resulting in less noisy images and the ability to image a more contrast rich scene with linear detection response. The non-linear HDR (High Dynamic Range) function, captures scenes with up to 90 dB dynamic range onto the 60 dB range of the sensor via a user-defined non-linear response mapping.

Without flat field correction   With flat field correction

Without noise reduction   With noise reduction

Normal mode   HDR mode

Why are Adimec cameras so special?

Adimec's success in the industrial camera market, particularly in high performance machine vision applications where image quality and consistency is essential, has been achieved through a proprietary technological innovation that we call True Accurate Imaging.

It enables us to deliver superior performance, consistency, and value for the most advanced imaging needs. It is based on years of experience working with leading OEMs in machine vision, medical imaging, and outdoor imaging to define and refine optimized solutions for their needs.

CMOS cameras for metrology & inspection

Models
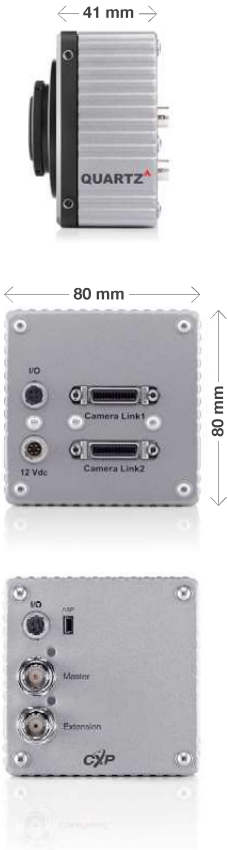(Detailed specifications are available on request)

	Q-2A340	Q-4A150	Q-4A180	Q-12A65
Sensor	CMOS	CMOS	CMOS	CMOS
Pixel size	5.5 μm	5.5 μm	5.5 μm	5.5 μm
Resolution	2048 x 1088	2048 x 2048	2048 x 2048	4096 x 3072
Optical sensor size	2/3"	1"	1"	APS-C
Video output	Camera Link (Base/Medium/Full or Deca) CoaXPress (CXP3/CXP6)	Camera Link (Base/Medium or Full)	Camera Link (Base/Medium/Full or Deca) CoaXPress (CXP3/CXP6)	Camera Link (Base/Medium/Full or Deca)
Max frame rate Sustained @ 8 bit full resolution	340 fps (CL) 340 fps (CXP)	157 fps (CL)	180 fps (CL) 180 fps (CXP)	66 fps (CL)
Max frame rate Sustained @ 10 bit full resolution	150 fps (CL) 340 fps (CXP)	80 fps (CL)	80 fps (CL) 180 fps (CXP)	27 fps (CL)

Specifications
(Applicable for all Quartz models)

← 41 mm →

Dynamic range	60 dB* (>54 dB linear)
Shot noise improvement	12 dB (Additional to sensor)
Electronic shutter	Global shutter (high shutter efficiency)
Image acquisition	Continuous / Controlled
Output resolution	8 or 10 Bit
Monochrome / color	Available Monochrome / Color (Bayer RGB) / NIR**
Power input	10.2 - 27.6 Vdc
Operating temperature	-10°C to +40°C
Testing	Every camera is 100 % tested on all specifications
Reliability	MTBF > 75,000 h @ 40°C
Weight	400 g (Excluding lensmount)
Lensmount	Available with: C-,T2- or M42 Mount (for 2 & 4 Megapixel versions) T2-, M42-, F- or TFL-II Mount (for 12 Megapixel versions)
Compliance	CE, ROHS
Functions & features	• Region of interest • Burst mode • Flat field correction • Programmable I/O • HiQ mode (averaging) • High dynamic range mode • Mirroring • Internal & external triggering • Video LUT • Anti reflection coatings

QUARTZ

← 80 mm →

80 mm

*According to sensor specifications
**Q-12A65: On request

Pushing the limits

With over 20 years of experience, we make our customers more competive by manufacturing cameras that are optimally tailored to their application. We are commited to delivering the best camera solution possible to our customers.

Adimec

Adimec is the leading supplier of high-end cameras for machine vision, medical and outdoor imaging applications. Its patented Adimec True Accurate Imaging technology forms the foundation for its broad range of camera products, and brings new levels of precision and accuracy to vision systems. Adimec supports its products with customized and expert service to systems developers around the world.

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