

# PEARL family

## Camera lens assembly for digital IITV X-ray chains

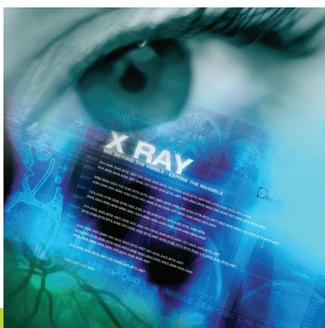


### Key specifications

- 1k<sup>2</sup> at 30 fps with 14 bit ADC
- Excellent image contrast at low dose
- Cost effective
- Compact all in one design
- Real-time clinical image processing
- Plug & Play Connectivity
- Ease of integration to a variety of image intensifiers

### Description

PEARL Camera Lens Assemblies (CLA) offer attractive and unique solutions for equipment manufacturers of image intensifier based x-ray systems. PEARL is a reliable compact and cost effective CLA that delivers high quality 1k<sup>2</sup> images at lowest dose. It supports easy to integrate imaging solutions for Fluoroscopy, Surgery, Universal RF and Cardio/Vascular applications. The optional features offer scalable image processing and support a variety of digital video interface standards. Customer specific implementations can be added with a short time to market.



### X-ray • Ophthalmology • High-end microscopy

With medical imaging systems, there is no room for errors. The quality of the image can mean a correct diagnosis or a fatal mistake. With high dynamic range, high sensitivity and medical grade blemish correction, our medical cameras reproduce accurate and contrast rich images in both the light and dark parts of the image.

**Adimec**  
*Excellence in Imaging*

[www.adimec.com](http://www.adimec.com)

## Product Highlights

### Excellent image contrast at low dose

The PEARL supports improved diagnosis at lower doses with high image quality by:

- Rich image contrast (user adjustable)
- High sensitivity
- Factory adjusted image artifacts correction
- Full 1024 x 1024 resolution @ 30 fps
- Highest 1k<sup>2</sup> detail visibility in market
- Supporting Fluoroscopy & Spot Imaging
- Factory optimized image uniformity & vignetting
- Optimized for P20 & P43 phosphor screens

### Easy system integration

- Available with Camera Link, LVDS, CoaXPress<sup>1</sup> or DVI
- Adapter Plate for all popular 20 & 25 mm Image Intensifiers (customization possible)
- Small form factor and very short length of total camera lens assembly
- Factory alignment of the optical path (optics, adaptor plate & sensor plane)
- Command controlled operation. Slave and master triggering, ABC and AEC differential outputs for dose control

### Integrated iris & ND filter wheel control

- Fully motorized iris & ND filter wheel
- No specific hardware required to control the iris motor or ND filter motor

### Cost efficient solution

PEARL facilitates simplified & cost effective system architectures by:

- Embedded real time image processing allows simplified PC systems
- Eliminating PC in low-end solutions by DVI output
- All in one solution
- Compact form factor supporting easy fit on existing system solutions



### Installation & field service

Embedded supporting tools for fast and easy installation and field service by:

- Test pattern and LEDs for fast fault finding in total imaging chain
- Overlay for positioning & alignment on II
- Error reporting
- Grey level measurement for automation of calibration sequences

### Easy adjustable to procedure

Programmable & selectable image processing functions supports optimized settings for different procedures:

- Programmable measuring field in video (ABC)
- User uploadable LUTs for edge enhancement, noise reduction and gamma correction

### Digital image rotation

Digital rotation has a longer MTBF and supports improved diagnoses by:

- Eliminating the requirement of masking
- Absolute fixed center of rotation
- Instant angular & endless rotation (<0.1° resolution)
- Continuous zoom & image panning
- No degradation in image quality
- Suitable for additional image processing

### Dose saving without IQ compromise

PEARL offers the possibility to minimize the patient dose needed for reliable diagnoses by:

- Low noise camera design allows higher gain in lower dose imaging on large patient conditions
- User modifiable processing on images in memory (last image hold)
- Fastest viewing angle modification due to instant digital rotation and last image hold

### Pearl functionality

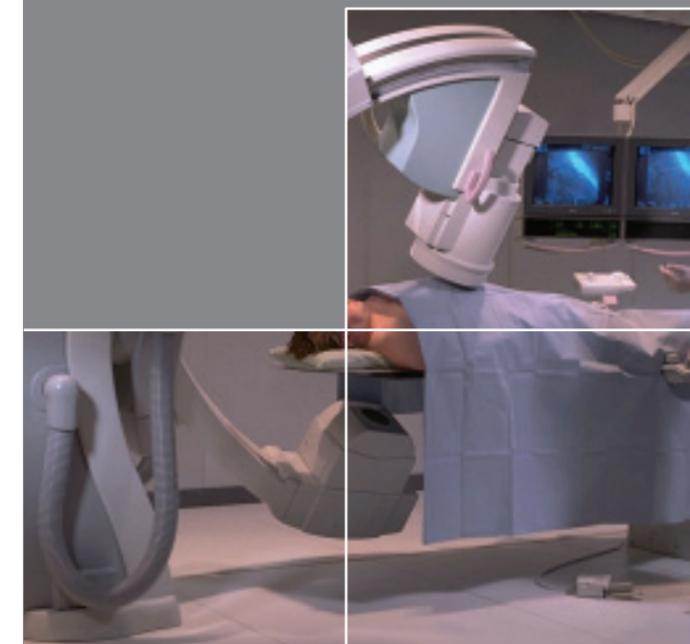
- Command controlled motorized iris
- Extended defect pixel correction
- High quality digital angular rotation
- ND Filter – fixed or variable 2 steps & AEC
- ND Filter - variable 3 or 4 steps
- Command controlled neutral density filter
- Auto Exposure Control
- Programmable video measurement field
- Electronic gray scale pattern

### Image processing packages

For optimal diagnoses every PEARL camera can be equipped with several image processing functionalities. An image processing package is a combination of functions. The following packages are available:

- Image Orientation Package
- Image Correction Package
- Image Enhancement Package
- Dose & Brightness Control Package
- Digital Zoom & Pan Package
- Image Overlay/Display Package

Please visit [www.adimec.com](http://www.adimec.com) for more information about these image processing packages.



<sup>1</sup> CoaXPress is a high speed point to point serial communication standard for the transmission of video and still images, scalable over single coaxial cable. Please contact us or visit [www.adimec.com](http://www.adimec.com) or [www.coaxpress.com](http://www.coaxpress.com) for more information

## Applications & Specifications

PEARL CLAs are available in three base configurations. Each configuration is optimized for specific applications.



### PEARL-F for low dose fluoroscopy applications

PEARL-F is the optimal imaging solution for low dose fluoroscopy applications. Dedicated optic-sensor combinations support low-dose 1k<sup>2</sup> imaging on 6", 9" and 12" Image Intensifiers of any brand. Command controlled gain and motorized iris give easy and optimal control on sensitivity. Programmable ABC (measuring field, signal feedback) support automated dose control. Real-time embedded clinical processing and video interfaces offer best in industry connectivity to PC or monitor.



### PEARL-S for mobile C-arm systems

Specifically designed for mobile C-arm systems, PEARL-S adds real-time 12 bit in/12 bit out 30 fps 1k<sup>2</sup> digital rotation to the possibilities of PEARL-F. This approach improves the ease of use over optical rotation for surgical applications. The high precision processing does not degrade image quality compared to optical rotation making it also suitable for use with additional image processing.



### PEARL-E for RF and CV applications

The ideal solution for 1k<sup>2</sup> imaging in RF and CV applications. Based on PEARL-F, this version provides AEC and command controlled motorized Neutral Density Filter selection. Up to 4 selectable ND-filters can be supported within the CLA. In combination with the iris this allows imaging over a large dose-range. The photo pickup based AEC signal facilitates photo-timed dose control, ideal for first-time-right exposures and optimized x-ray dose management.

### Adimec

Adimec designs and manufactures high performance, innovative, and reliable cameras for OEM customers worldwide with demanding applications whose goal is to be a product leader in one of more of the following markets.

- Machine Vision
- Medical & Science
- Defense & Security

Adimec's mission is to serve leading OEMs around the world who value quality and reliability as essential to their success.

Contact us today to find out why top corporations rely on Adimec.

[www.adimec.com](http://www.adimec.com)

### Specifications

	PEARL-F/S/E
Output diameter	20 or 25 mm
Image resolution	1024 x 1024 pixels
Output	12 bit (14 bit ADC)
Maximum frame speed	30 fps at full resolution
Dynamic range	62 dB
Power dissipation	4 W (<8 W peak)
Input voltage range	10.2 .. 27.6 Vdc
MTBF	66.000 hours
RoHS Compliant	Yes

All specifications are typical at 25°C unless otherwise specified

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

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