

X-PANEL[®] 2301

CMOS X-ray flat panel detector



X-Panel 2301 is a CMOS X-ray flat panel detector designed primarily for cephalometric imaging. X-Panel 2301 complements the X-Panel detector family targeted for the dental X-ray market. A combination of X-Panel 2301 and X-Panel 1412 boosts all mainstream extraoral dental X-ray imaging modalities. The combo facilitates to design and maintain imaging systems that run cone beam computed tomography (CBCT), panoramic and cephalometric applications.

The low-dose X-Panel 2301 detector has the largest active area yet fast scanning speed, which enhances patient experience and safety. X-Panel 2301 comes with an active area of 233.1 x 7.2 mm, and a frame rate of up to 300 fps in full size and full resolution. The solution is powered by

a 14-bit ADC providing fast, low-noise and high-resolution analog-to-digital conversion.

As a unique feature, X-Panel is equipped with a data buffer that can be used in a specific scan-to-buffer mode to store a full pack of images, up to 2,600 full frames. This provides extra safety for imaging data management. X-Panel 2301 has a pixel size of 100 μ m, and is designed for an X-ray energy range of 40-125 kVp.

The X-Panel 2301 design pays special attention to robustness and usability. X-Panel 2301 has a durable housing that effectively shields the vulnerable parts of the sensor and readout electronics. X-Panel has a Gigabit Ethernet interface, and a software development kit available to support easy integration.

BENEFITS

- Best-in-class image quality
- Large active area yet fast scanning speed
- Image data buffer, a specific scan-to-buffer mode
- Easy integration with X-Panel 1412 for 3-in-1 dental X-ray imaging systems
- Robust housing protecting electronics

KEY FEATURES

- Pixel matrix of 2331 x 72
- Pixel pitch of 100 μ m
- Two gain modes: High gain and high dynamic range modes
- 14 bit ADC
- Supports both continuous and synchronous triggering modes
- Medical-grade, structured CsI scintillator
- GigE data interface
- Software development kit (SDK)
 - API / DLL enabling easy development of application SW
 - User interface SW for easy start / control and image acquisition

APPLICATIONS

- Dental cephalometric and panoramic imaging
- Industrial X-ray

Key characteristics

Parameter	Specification
X-ray energy range	40-125 kVp
Active area	233.1 mm x 7.2 mm
Pixel pitch	100 μ m
Pixel matrix	2331x72
Frame rate	Full size, 14 bit, GigE: 300 FPS
ADC	14 bits
Gain modes	2 (LFW/HFW)
ROI mode	Single, programmable
Scan to buffer mode	Up to 2600 frames @full resolution
Binning	1x1 (14 bit) , 2x2 (16 bit)
Trigger modes	Continuous / synchronous
Scintillator type	Medical-grade, structured CsI
Data interface	GigE
Saturation dose	LFW 2uGy HFW 14uGy
Dynamic range	LFW 72dB HFW 76dB
DQE(0), @RQA5	70%
MTF	60%@1lp/mm / 30%@2lp/mm
Image lag	Negligible

Mechanical dimensions (mm)

