

More  
visible.

# EXPEDITION

PreXion3D



More vivid, more accurate, more reliable.  
Diagnostic imaging technology crafted in Japan  
and recognized around the world.

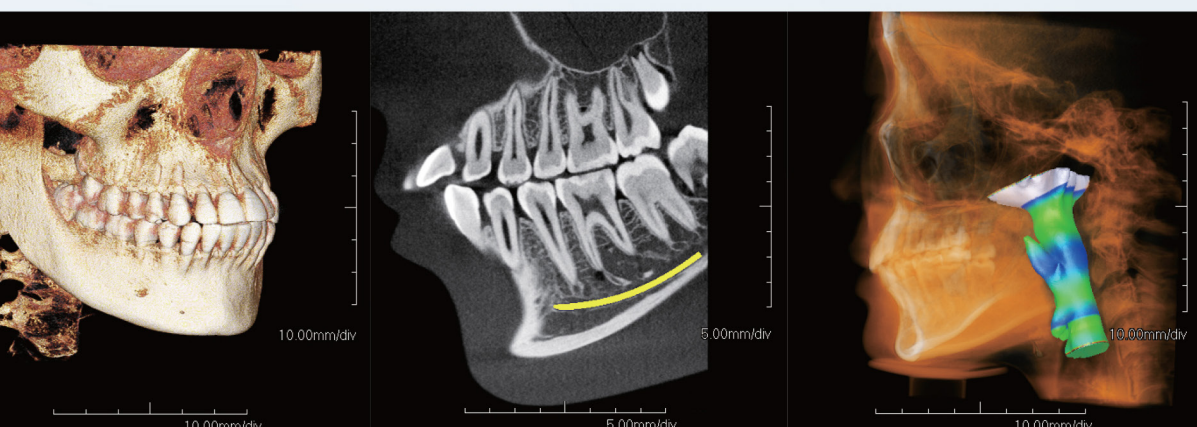


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# “Clearer Imaging”

## Making more consistent diagnosis and more confident treatment possible with 3D Imaging

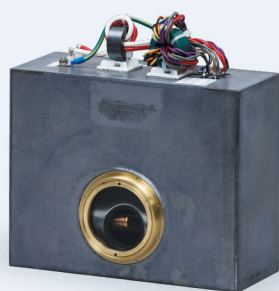
PreXion has made high resolution clinical image quality our first priority in development of dental cone beam CT. We have over 15 years of experience working with three-dimensional DICOM image processing and software, and we are currently contributing to daily oral pathology diagnostics around the world.



**Responsive customer support and strict quality control standards  
are the defining characteristics of our in-house product development.**

Every aspect of the PreXion3D Expedition, from our rigid quality control standards and manufacturing to our comprehensive customer support, is developed in Japan. Our software has been used for more than 15 years in clinical procedures, and we have developed our x-ray generator, a central component of a cone beam CT, in-house.

IN-HOUSE  
DEVELOPMENT



X-ray generator



Software



## The benefits of incorporating a cone beam CT into daily diagnoses

- 01 Practitioners can make diagnoses and provide treatment with more precision by viewing pathology that could not be recognized with conventional 2D images, such as the spatial structure of teeth and jawbone as well as the location of nerves.
- 02 Cone beam CT allows for low dosage without compromising on precise, clear image quality. This not only ensures accurate diagnosis, but also reduces the patient concern.
- 03 Easy-to-understand icons and intuitive operation during imaging allow for stress-free diagnosis and better patient understanding.

### IGZO FPD

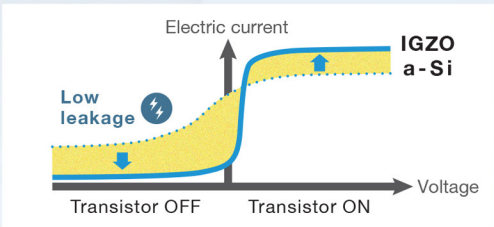
The IGZO semiconductor can conduct 20 to 50 times more current than the amorphous silicon (a-Si) semiconductor that was previously in wide usage, resulting in higher electron mobility and less leakage current. As a result, the amount of transmission per pixel can be increased, allowing for higher resolution image generation and noise reduction.



#### Comparison of electric current in an IGZO and a-Si semiconductor



#### Comparison of leakage current in an IGZO and a-Si semiconductor



With IGZO, there is only a small leakage current when the transistor is turned off, and when the transistor is turned on, the electric current is strong. This allows for generation of high-quality images with little noise.

# In Pursuit of High Image Quality

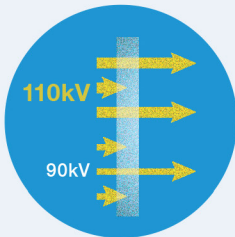
Superior image quality is produced by combining a high-quality X-ray generator, the key component for X-ray irradiation, with a variety of imaging technologies.

EXPEDITION  
PreXion3D



## 360° rotation

PreXion3D Expedition makes higher resolution images possible by obtaining information content from the entire circumference with 360° scanning with no image rendering necessary.



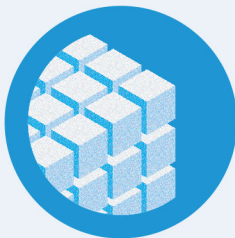
## 110kV High X-ray Tube Voltage

The high X-ray tube voltage of 110kV allows PreXion3D Expedition to deliver optimal image quality for all kinds of tissue while decreasing image artifacts.



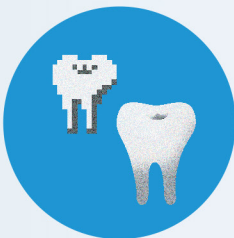
## X-Ray Tube Focal Spot 0.3 × 0.3mm

The focal spot is the part of the X-ray tube where electrons strike a target and emit X-rays. PreXion3D Expedition features a 0.3mm X-ray tube focal spot, among the smallest in the industry.



## Voxel Size Minimum : 0.06mm Maximum : 0.3mm

PreXion3D Expedition uses voxel sizes of 0.06 / 0.08 / 0.1 / 0.12 / 0.15 / 0.2 / 0.3mm. It displays 3D images with high resolution and high image quality. This is smaller than nearly every competitor.



## 16-bit grayscale

While many dental CT scanners have 14-bits (16,384 gradations), PreXion3D Expedition has a high gradation of 16-bits (65,536 gradations), enabling it to produce even smoother, higher resolution images.

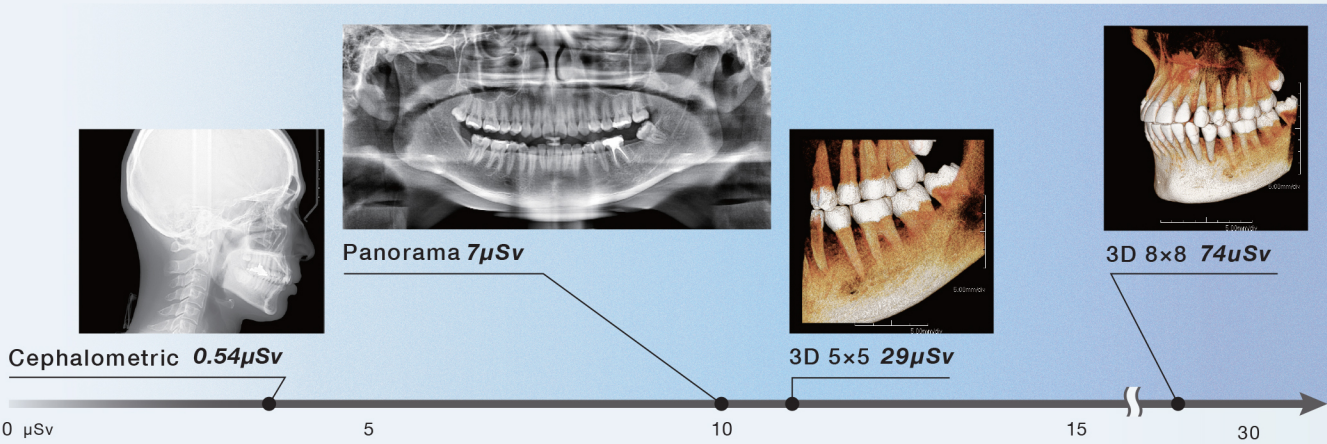


# Making Low Radiation Exposure a Reality

The PreXion3D Expedition is equipped with features such as pulse irradiation that emits X-rays intermittently and a low dose mode which can deliver high image quality while minimizing radiation exposure making more precise examinations possible.

## Exposure dose

Comparison of radiation dose when taking cephalometric, panoramic, or 3D scans. Although 3DCT provides a very large amount of information, it achieves low exposure.



## Low Dose mode

Reduces radiation exposure and shortens scan time.

| FOV       | Exposure dose | Scan time |
|-----------|---------------|-----------|
| 5x5cm     | 29μSv         | 8 seconds |
| 8x8cm     | 74μSv         |           |
| 12.5x10cm | 109μSv        |           |



\*Values are for scanning in Medium Adult mode.

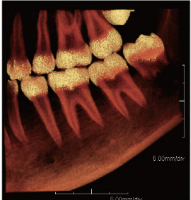
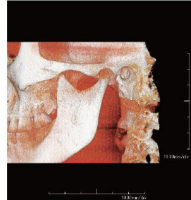
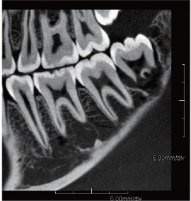
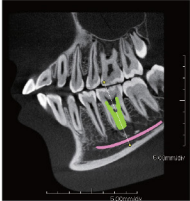
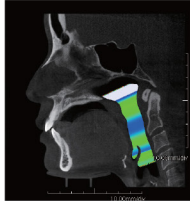
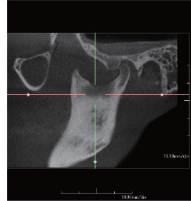
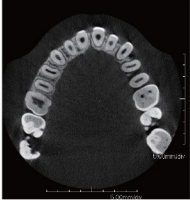
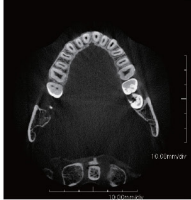
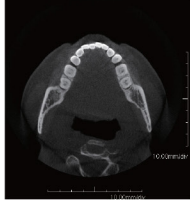
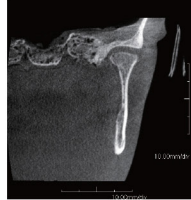
## Pulse irradiation

The exposure dose on the patient can be greatly reduced through the use of intermittent X-ray irradiation rather than continuous irradiation. This also reduces wear on the X-ray tube.



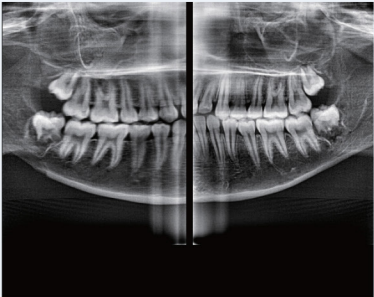
# Fields of View (FOV)

PreXion3D Expedition is equipped with CT image acquisition capabilities applicable for all clinical situations at 5×5cm, 8×8cm, 12.5×10cm, and 15×15cm (optional), covering endodontic to full mouth treatment. PreXion3D Expedition uses a 360° rotation to generate high resolution images for all FOVs.

|                              | 5×5cm                                                                               | 8×8cm                                                                               | 12.5×10cm                                                                           | 15×15cm<br>(Optional)                                                                | CT TMJ                                                                                |
|------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Voxel size                   | 0.06mm / 0.1mm                                                                      | 0.08mm / 0.1mm / 0.15mm                                                             | 0.12mm / 0.15mm / 0.2mm                                                             | 0.2mm / 0.3mm                                                                        | 0.15mm                                                                                |
| Image                        |    |    |    |    |    |
|                              |    |    |    |    |    |
|                              |  |  |  |  |  |
| Endodontic treatment         | ●                                                                                   | ●                                                                                   |                                                                                     |                                                                                      |                                                                                       |
| Periodontal treatment        | ●                                                                                   | ●                                                                                   | ●                                                                                   |                                                                                      |                                                                                       |
| Implant treatment            | ●                                                                                   | ●                                                                                   | ●                                                                                   |                                                                                      |                                                                                       |
| Oral surgery                 |                                                                                     | ●                                                                                   | ●                                                                                   | ●                                                                                    | ●                                                                                     |
| Maxillofacial treatment      |                                                                                     |                                                                                     | ●                                                                                   | ●                                                                                    |                                                                                       |
| Treatment of sleep disorders |                                                                                     |                                                                                     |                                                                                     | ●                                                                                    |                                                                                       |

## 2D Panorama

In addition to 3D analysis, dedicated 2D panoramic scanning is available.



Bitewing



TMJ



Panorama

# 2D One-Shot Ceph

The optional cephalo unit for PreXion3D Expedition takes clear cephalometric images with one-shot, reducing the patient scan time and exposure.



Ceph (LA)



Ceph (PA)



Carpus

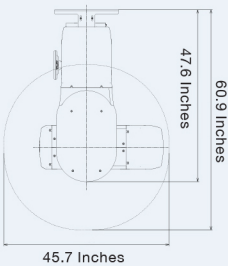


|                        |                 |                                                  |
|------------------------|-----------------|--------------------------------------------------|
| Device Type            |                 | Cone Beam Computed Tomography System             |
| Product Name           |                 | PreXion3D Expedition                             |
| Model                  |                 | P04B                                             |
| Rated Power            |                 | Voltage: 100-240V AC<br>Frequency: 50/60Hz       |
| X-ray Tube /Focal Spot |                 | 0.3mm×0.3mm                                      |
| Tube Voltage           |                 | 90-110kV (Varies Depending On Scan Mode)         |
| Tube Current           |                 | 1-5.3mA                                          |
| Total Filtration       |                 | Greater Than 2.7mm Aluminum Equivalent           |
| FPD Specifications     |                 | 0.19mm × 0.19mm, 16bit, Matrix 896 × 896         |
|                        | With Binning    | 0.095mm × 0.095mm, 16bit, Matrix 1792 × 1792     |
| FOV                    | Without Binning | Full : φ125mm × H100mm                           |
|                        |                 | Arch : φ80mm × H80mm                             |
|                        |                 | Teeth : φ50mm × H50mm                            |
|                        |                 | Complete: φ150mm × H150mm (Optional)             |
|                        |                 | CT-TMJ / φ125mm x H100mm                         |
| Voxel Size             |                 | 0.06 / 0.08 / 0.1 / 0.12 / 0.15 / 0.2 / 0.3mm    |
| Scanner Dimension      |                 | CT Mode: 1,160mm Cephalometric Mode: 1,833.6mm   |
|                        | (W)             | CT Mode: 1,546.5mm Cephalometric Mode: 1,546.5mm |
|                        | (D)             | CT Mode: 2,226mm Cephalometric Mode: 2,226mm     |
| Scanner Weight         |                 | 170kg (Without Cephalo)                          |
|                        | (H)             | 200kg (With Cephalo)                             |

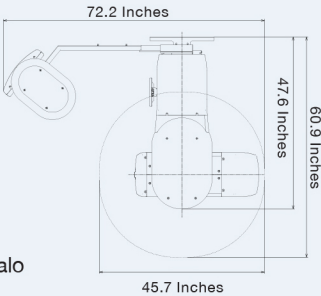
|           |                             |                                                    |
|-----------|-----------------------------|----------------------------------------------------|
| Scan Time | CT Scan Mode                | Low Dose Mode: 8sec                                |
|           |                             | HD Mode: 12sec                                     |
|           |                             | Endo Mode: 25sec                                   |
|           |                             | Complete Mode: 12sec × 2                           |
|           |                             | CT-TMJ Mode: 7sec × 2                              |
|           | Panoramic Scan Mode         | Full Arch Mode<br>Standard: 14sec<br>Narrow: 12sec |
|           |                             | TMJ2: 4sec × 2                                     |
|           |                             | TMJ4: 4sec × 2 × 2                                 |
|           |                             | Bitewing: 4sec × 2                                 |
|           | Cephalometric Exposure Mode | LA: 0.16sec                                        |
|           |                             | PA: 0.16sec                                        |
|           |                             | Carpus: 0.16sec                                    |

## Dimensions

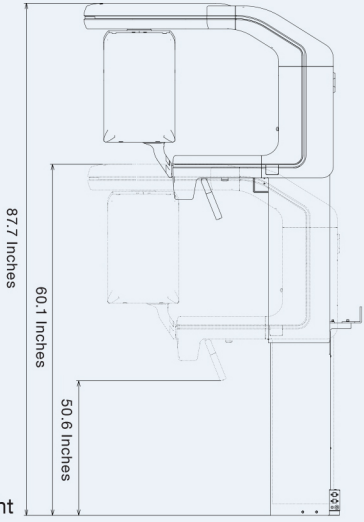
Without cephalo



With cephalo



Height



\*A dedicated support stand is available as an option.



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\*Product specifications may change without prior notice.

PJ004/2312 EN3