Picasso-Trio – 3-D Dental Imaging

Digital Panoramic & Cephalometric, CBCT X-ray Imaging System – 3 in 1 System

Model

|	
Picasso-Trio - NP	Panoramic only [CT upgradeable]
Picasso-Trio - NC	Panoramic & Cephalometric [One sensor, CT upgradeable]
Picasso-Trio - SP8*5	Panoramic only with CT [Field of View (FOV) 8*5 cm]
Picasso-Trio - SC8*5	Panoramic & Cephalometric [One sensor] with CT [Field of View (FOV) 8*5 cm] – *3 in 1*
Picasso-Trio - SP12*7	Panoramic only with CT [Field of View (FOV) 12*7 cm]
Picasso-Trio - SC12*7	Panoramic & Cephalometric [One sensor] with CT [Field of View (FOV) 12*7 cm] – *3 in 1*

General Features

Picasso-Trio is the diagnostic system which consists of Digital Panoramic & Cephalometric Dental X-ray System, and Computed Tomography X-ray System with Cone Beam Technology.   Especially, the advanced digital imaging process allows considerably efficient diagnosis, all kind of management information, real-time sharing of image and its information on network.   It's equipped with the-state-of-the-art CT sensor to capture 3-D X-ray Computed Tomogram Scanned Image.

Movement Technology	Multi-motor with digital trajectory control / motorized carriage movement
Patient Positioning	
Panoramic	Triple [Midsagittal / Frankfurt / Canine] laser beam positioning system
CT	Triple [Midsagittal / Vertical / Horizontal] laser beam positioning system
Patient Positioning Aid	Electric-motive chin rest, bite, mirror
	Head-rest
	Edentulous bite positioner
	TMJ pointers
	Ear rods for CEPH mode
	Nasion support with vertical millimeter scale for CEPH mode
Voice Instruction	Typical – English / Available Local Language
Up/Down Movement	Silky up/down with one stage speed by electric-motor

Computed Tomography Examination Programs

- 3-D Volume Rendering
- Axial View
- Coronal View
- Sagittal View
- Cross-Sectional View
- Panoramic View
- MPR – Multi-Planar Reconstruction
- Region of Interest [ROI] – Analysis Bone Density [Hounsfield Units]
- Capturing Mode
  : Mandibular(Mn), Occlusion(Occl), Maxillary(Mx), TMJ Right(Rx), TMJ Left(Tx) for FOV12*7
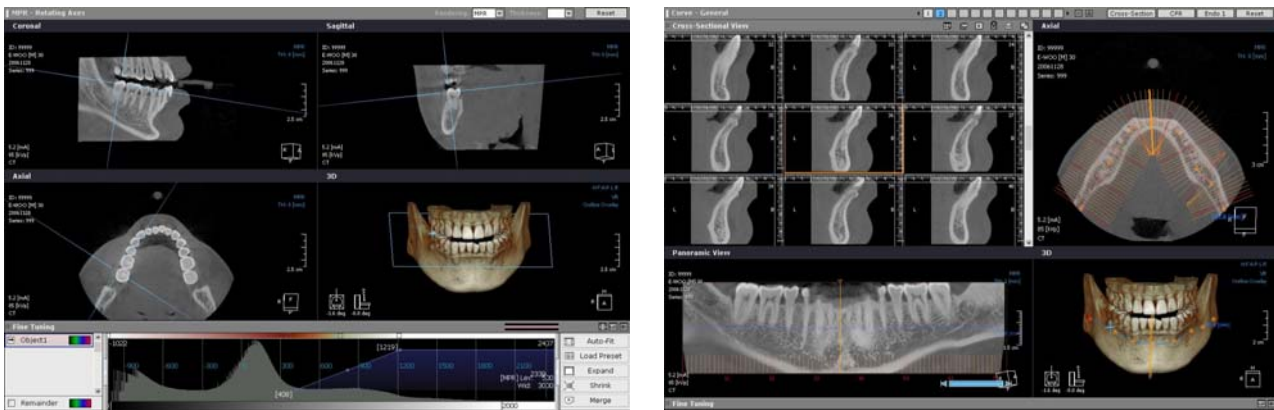
[**Sample Image from FOV 12*7: Capturing Mode – Mandibular**]

Standard Examination Programs

In each program the compensation for the spinal column is obtained by means of exposure parameter modulation, optimized in accordance with the selected anatomic program.

- Standard Panoramic
- Hemi-Panoramic (Left and Right)
- Frontal Dentition
- TMJ Open/Close mouth: 4 views [Right Open–Right Close–Left Close–Left Open] are taken on the same image
- Maxillary Sinus

Cephalometric Examination Programs

- Latero-Lateral
- Anterior-Posterior
- Carpus
- ServoMento Vertex

Anatomic Programs

CT Mode

- Patient :   3 choices: adult, weak, child
- Type: 2 choices: A-mode(normal), B-mode(sturdy short neck)

Panoramic & Cephalometric Mode

- Patient Size: 4 choices: adult man, adult woman, weak, child
- Patient Type: 3 choices: hard, normal, soft
- Arch Shape: 3 choices: wide, normal, narrow

Image Processing

- CT Mode: Metal Artifact [Normal, Metal]
- Standard Examination Programs: Metal Artifact [Normal, Metal]

* Metal Artifact: Please select "Metal" for patient with 2 ~ 3 metals, i.e. implants and/or crowns.

Image Reconstruction Time & File Size for CT Mode

- **FOV 8*5**

Voxel Size	Reconstruction Time (sec)				File Size (MB)
	Normal (scan time: 15 sec)		High (scan time: 24 sec)		
	Normal	Metal	Normal	Metal	
0.2	N/A	N/A	240	360	85
0.3	N/A	N/A	TBD	TBD	TBD

- **FOV 12*7**

Voxel Size	Reconstruction Time (sec)				File Size (MB)
	Normal (scan time: 15 sec)		High (scan time: 24 sec)		
	Normal	Metal	Normal	Metal	
0.2	180	360	300	720	222
0.3	75	165	110	250	70

* Image reconstruction time can be changed by computer specification and/or its working condition.

Image Magnification

- Computed Tomography Examination Programs   1.60 constant (virtual 1.00 constant)
- Standard Examination Programs   1.30 constant
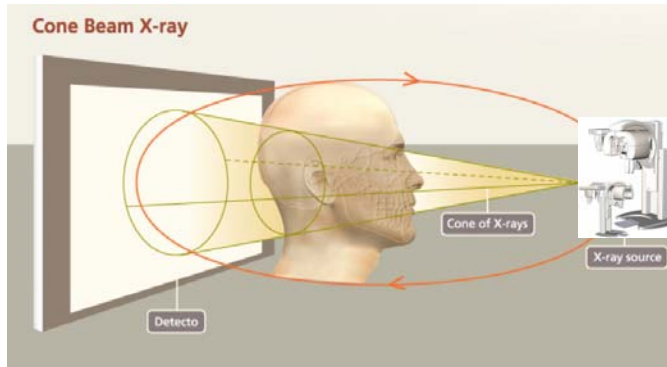- Cephalometric Examination Programs   1.10 constant

FOD, ODD, FDD (mm)

Mode	FOD	ODD	FDD
	(Focal Spot to Object Distance)	(Object to Detector Distance)	(Focal Spot to Detector Distance)
CT	424.0	254.0	678.0
Pano	422.7	173.0	595.7
Ceph	1,580.7	221.0	1,801.7

X-ray Generator

- X-ray Beam Formation   Cone Beam

- High frequency generator, constant potential, micro processor controlled
- Ripple   < 4%
- Inverter frequency   36 kHz push-pull
- Tube type   D-051, stationary anode type
- Nominal power   Below than 1.3 KW
- Tube voltage

CT Mode	50 – 90 kV (adjustable by 1kV)
Panorama Mode	40 – 90 kV (adjustable by 1kV)
Cephalo Mode	40 – 90 kV (adjustable by 1kV)

- Tube current

CT Mode	2.0 – 10.0 mA (adjustable by 0.1 mA)
Panorama Mode	2 – 10 mA (adjustable by 1 mA)
Cephalo Mode	2 – 10 mA (adjustable by 1 mA)

- High voltage   DC
- Exposure time

[Computed Tomography Examination Programs]

Scan Time

Normal Mode	15 sec (Available FOV 12*7 only)
High Mode	24 sec

[Panorama Examination Programs]

Standard Panoramic (Adult, Weak/Child)	13.2 sec/ 11.3 sec
Hemi-Panoramic (Right and Left)	6.6 sec
Frontal Dentition	6.6 sec
TMJ Open/Close	14 sec (4 * 3.5 sec)
Maxillary Sinus	13.2 sec

[Cephalometric Examination Programs]

Latero-Lateral	15 sec
Anterior-Posterior	13.5 sec
Carpus	13.5 sec
SMV	13.5 sec

- Cooling   by force, one minute for cooling / Protect > 50℃

X-ray Tube

- Focal Spot   0.5 mm
- Heat storage capacity   30 kJ (40 Khu)
- Total filtration   2.8mm Al eq.

Collimator

- Primary collimator

  Fixed in basic configuration

  Motorized positioning for PANO, CEPH & CT configuration

- Secondary collimator at CEPH

  Motorized positioning for CEPH configuration

Standard Accessories

- Bite blocks with supporters
- Disposable bag (Small & Large)

User Interface

All operating functions are easily controlled on the PC (kVp, mA, Image Capture Mode etc.)
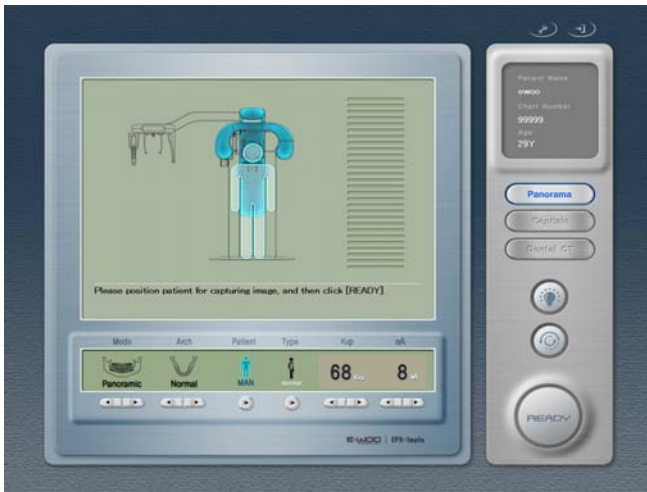
Voice instruction

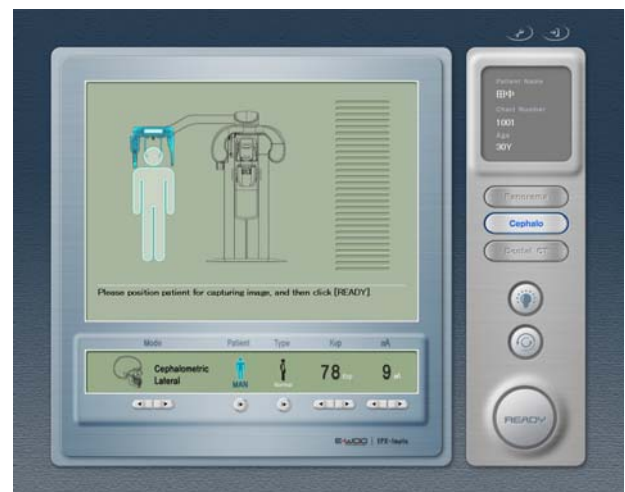**[Computed Tomography Examinations Programs – FOV12*7]**

Capturing Mode: Mandibular(Mn) – Occlusion(Occl) – Maxillary(Mx) – TMJ Right(Rx) – TMJ Left(Lx)

* NOTE: Above capture screen is subjected to FOV12*7.

**[Standard Examination Programs - SC]**   **[Cephalo Examination Programs - SC]**

Digital Image Acquisition System

Computed Tomography Image Detector

- Technology — High resolution flat panel detector
- Pixel size — 200 μm
- Voxel solution — 0.2 mm x 0.2 mm x 0.2 mm – Typical available 0.3 mm³
- Slices for 3-D image reconstruction — 306 (FOV12*7/Voxel 0.2 mm³)
  206 (FOV12*7/Voxel 0.3 mm³)
- Resolution of slice — 606 x 606 (FOV12*7/Voxel 0.2 mm³)
  408 x 408 (FOV12*7/Voxel 0.3 mm³)
- Projections
  - Normal — Approx. 450
  - High — Approx. 720
- Field of view (FOV) — 8*5 cm **&** 12*7 cm
- Frame rate — 30 fps
- Gray scale — 12 bits (Adjusted 16 bits for CT Number)
- Slice width (gap) — 0.1 ~ 10 mm (default - 2 mm)
- Sliced image thickness — 0.1 ~ 10 mm (default – 1 mm)

Axial Slices
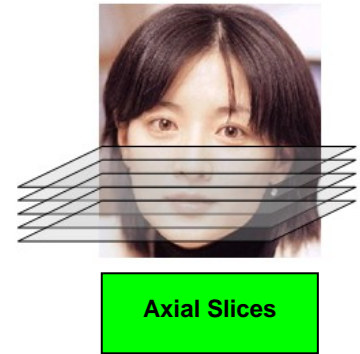
Panoramic & Cephalometric Image Detector

- Technology — Digital multi-linear CCD sensor, safe detachable sensor with hand grip
- Pixel size — 48 μm
- Active area
  - Panoramic mode — 6.144 * 147.456 mm
  - Cephalometric mode — 6.144 * 221.184 mm
- Image acquisition area
  - Panoramic mode — 140.000 * 272.640 mm
  - Cephalometric mode — 201.216 * 216.000 mm
- Gray level — 12 bits
- Resolution
  - Panoramic mode — 2840 * 1536 pixels
  - Cephalometric mode — 2096 * 2304 pixels

EzImplant Basic 〔3-D Image Viewer〕

EzImplant Basic is three-dimensional dental image viewer for prompt and accurate diagnosis with many useful functions as "various MPR function", "two-dimensional analysis" and "three-dimensional animating work" by loading DICOM format CT image, and more.

- Easy conversions through various rendering method as VR (Volume Rendering)/MIP/minIP/X-ray
- More accurate 3-D image by MPR rotating, curve, 3-D zoom rendering mode
- Cross-sectional view function for fast analysis
- Convenient management system of objects, color-map, opacity graph, preset files and more.
- Dicom format of reconstructed image for easy file saving and compacted interface that makes possible to operate with mouse button only in one window.
- Main Tool

    View

    Pan: Move image in the pane

    Rotate: 3D/2D rotation

    Zoom: Zoom in/out the image

    Windowing: Adjust image brightness and coloring

    Invert: Invert image brightness and coloring

    Text overlay: Show image information

    VOI (View of Interest) overlay

    Measure

    Distance: Ruler for 2 point, and Tapeline for various points

    Angle

    Profile: HU (Hounsfield Unit)

    Area: Measure the area by drawing ROI (Region of Interest)

    ROI (Region of Interest)

    Segmentation

    Draw Mask

    3D Picker/Mask Overlay

    Output

    Capture: Pane, Region, Full screen

    Print

    CINE player: Moving clip

- Task

    MPR

    Rotating axis: Move, rotate, adjust thickness

    Oblique slice

    Curve

    Cross-sectional

    General curve

    Select latest item

- Fine tuning

    Opacity adjusting function

- 3D Edition and Magnification

    Slice function, 3D distributing functions

EzImplant Professional [3-D Image Viewer]

EzImplant Professional supports following value-added functionality with all functionality at EzImplant Basic.

- Implant Simulation
- Canal Draw
- Show Bone Density
- Value-Added Utilities such as Free Draw, Report etc.

EasyDent [Viewer for Panoramic & Cephalometric Image]

- One click operation
- User friendly graphic interface
- Various image format
  - **BMP**
- Various image process & accurate measure tool
  - **Patient and Image Archive**
    - Main patient data
    - Examination for each patient
    - Radiological parameters set for each examination
  - **Drawing**
    - Various view modes
    - Implant simulation
    - Measure: 2 point distance, continuous distance, angle, user calibration
  - **Image Processing**
    - Bright adjustment
    - Contrast adjustment
    - Gamma adjustment
    - Coloring
    - Film coloring
    - Invert
    - Sharpen/Sharpen more
    - Local Enhancement (256x256, 128x128, 64x64)
    - Image rotation
    - Magnification etc.
- Print

  The system allows the user to print images on the screen with the following information:
  - Patient Information
  - Exposure parameters
  - Examination date

  Images can be printed any Windows compatible printer, although image quality may differ as per the printer model.

System Requirements for the Computer

A. Image Capturing

- Operating System   Microsoft XP Professional Service Pack 2
- CPU   Intel Pentium 4 950 3.4GHz Dual Core
- Cash Memory   4MB (2MB/Core)
- Chipset   Intel 955X
- HDD   250 GB (prefer bigger capacity)
- Main Memory   2 GB DDR2
- Video Memory   256 MB 128bit – Recommend NVIDIA Geforce
- Network   2 EA of 10/100/1000 Gigabit
- Serial   2 EA of RS232 serial port
- DVD+/-RW
- PCI Slot   Min. 3EA - Mandatory
- Monitor   Min, resolution 1280*1024

B. Image Viewer

- Operating System   Microsoft XP Professional Service Pack 2
- CPU   Intel Pentium 4 950 3.4GHz Dual Core
- Cash Memory   4MB (2MB/Core)
- Chipset   Intel 955X
- Main Memory   1 GB DDR2
- Video Memory   256 MB 128bit - Recommend NVIDIA Geforce
- Network   1 EA of 10/100/1000 Gigabit
- DVD+/-RW
- Monitor   Min, resolution 1280*1024

NOTE: E-WOO tested/verified HP Workstation XW4400 with CT system, model-named "Picasso - Trio", and we will not guarantee system performance by low specification of computer.

Mechanical Characteristics

- Source to Image distance [Focal spot to Sensor]

CT	678.0 mm
Panoramic	591.1 mm
Cephalometric	1801.67 mm

- Vertical column movement   Max. 700.0 mm
- Weight

Version without cephalometric unit	270.00 kg
Version with cephalometric unit	310.00 kg

- Total height   Max. 2312.0 mm
- Length * Width * Height

Version without cephalometric unit	1002(W) * 1476(D) * 2312(H) mm
Version with cephalometric unit	2000(W) * 1476(D) * 2312(H) mm

- Type of installation   Base Stand

Dimensions (indicated in mm)
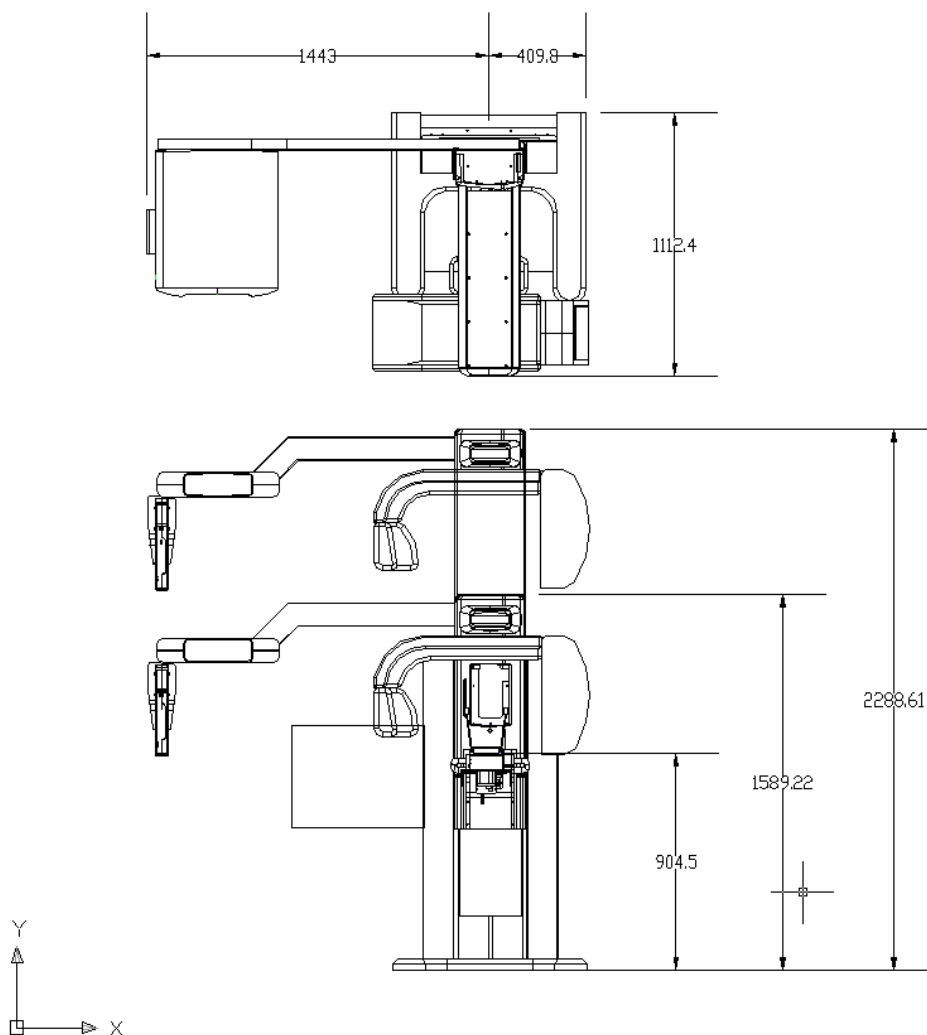
Electrical Characteristics

- Power supply voltage   AC 110/230V $\pm$ 10%
- Frequency   50/60 Hz
- Power rating   1.5KVA

Environmental Characteristics

- Operating temperature   10 - 40℃
- Operating relative humidity   30 – 75%
- Operating atmospheric pressure   700 – 1060 hPa
- Transport and storage temperature   -20 - 70℃
- Transport and storage relative humidity   < 90% non-condensing
- Transport and storage atmospheric pressure   500 – 1060 hPa

Standards and Regulations

This product is designed and produced to meet the following standards:

EN 60601-1, EN 60601-1-3, EN 60601-2-7, EN 60601-2-28, EN 60601-2-32,

EN 60601-1-2, EN 61000-3-2, EN 61000-3-3, EN 61223-3-4, EN 61223-3-5,

EN ISO 9001, EN ISO 13485

CE 0499   CE symbol grants the product compliance to the European Directive for Medical Devices 93/42 as a class IIB device. Authorized by **Grand-Duche De Luxemburg.**

Product Photography

NOTE: The actual specification may therefore be subjected to improvement and/or modification without notice.