Crossover Angiography System

Based on our many years of experience, Shimadzu has added the latest advancements in imaging technology to our Trinias system to achieve the highest quality patient care in interventional procedures. The result is a patient-centric experience, free from worry for operators to easily perform all types of interventional procedures.

Trinias Unity edition sets the bar high with improved functionality with new hardware and software features that provide a simple workflow for cardiac and vascular procedures from head to toe.

The system uses Intelligent Design to provide Intelligent Care in minimally invasive procedures. Our technology provides solutions to the imaging problems that you face every day.

*unity = unlimited intelligent technology

Biplane system

Single plane system

B12 unity edition

C12 unity edition

F12 unity edition

SCORE Imaging

SMART Design

SMILE Concept
SCORE PRO Advance

Equipped with advanced functionality for motion tracking noise reduction, and object isolation-based enhancement, the SCORE PRO Advance image processing unit was designed to achieve lower exposure levels and higher image quality. Shimadzu’s real-time image processing technology can isolate fine blood vessels, such as micro vascular arterioles during chronic total occlusion angioplasty (CTO) procedures, by enhancing only the target object without sacrificing image quality or increasing exposure dose. Consequently, Shimadzu supports advanced interventional procedures with even higher quality images.

Even Lower Exposure Dose Levels

The higher image quality offered by SCORE PRO Advance represents another step forward in the advancement of minimally invasive (low dose) procedures. By using an optimal combination of low-dose mode and low pulse rate, optimized for each examination, Trinias systems can be expected to reduce exposure levels by about 50% per examination while also providing high image quality.
SCORE StentView

SCORE StentView is the latest, advanced version of StentView, considered truly revolutionary by many clinical users, allowing you to enhance stents and adjust position in dynamic images in real-time. The function for specifying the region of interest (ROI) now allows multiple markers to be used for automatic detection, which contributes to higher detection efficiency and shorter examination times.

Specifying a region of interest (ROI) improves device detection efficiency, even if multiple devices are present.

Real-Time Observation
Without Looking Away

Simply pressing the [StentView] button or pressing the foot switch automatically displays the StentView image on the live monitor that the operator is watching. Because StentView images can be viewed in real time without looking away from the live monitor, StentView can be used without interrupting the procedure.

1. Specify regions with an ROI
2. Specify markers with an ROI

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SCORE StentShot

Outstanding stent visualization with SCORE StentShot enhances patients' safety and reduces treatment time. This application provides a static noise-free, stent enhanced image, for optimum, post-deployment stent visualization.

1. Specify regions with an ROI
2. Specify markers with an ROI
SCORE RSM is an extremely motion-tolerant DSA technique, achieved through Shimadzu’s high-speed digital image processing technology. This application is especially effective for tracking vessels across the entire lower extremities, for 3D imaging in combination with C-arm precession and pendulum modes and for examinations on patients who have difficulty holding their breath.

**Score Chase**

Improves Visibility of Entire Lower Extremities Area

Shimadzu’s SCORE Chase enables freely panning longitudinally or laterally during exposure to trace blood flow through blood vessels. After exposure, SCORE Chase instantly creates a positionally-corrected stitched image automatically and displays it on the monitor so that the overall blood flow through blood vessels in the lower extremities can be determined easily.

**Linking Images to Catheterization Table**

Used in combination with a SMART Table multifunctional catheterization table, the stitched images are linked to the table, so that the SMART Table is automatically repositioned based on the region of interest during magnification or panning in that image. It supports minimally invasive procedures in the lower extremity areas by moving to the region of interest more smoothly and quickly.

**View Images from Multiple Directions with a Single Imaging Session**

New Type of DSA Unaffected by Breathing Movements and Intestinal Gas

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Flex-APS saves time by automatically adjusting three-dimensional misregistration caused by all body movements, including twist motion, providing enhanced DSA imaging.

Trinias includes a wide variety of roadmap functions that can be selected based on the body area, procedure, and technique in interventional procedures.

Because MAP image settings are kept associated with images even after changing the field of view or magnifying the image or after switching to the frontal or lateral views, MAP functionality can be used without repeating exposures for MAP purposes.

The TraceMAP function dramatically improves the visibility of wires and devices by automatically overlaying an outline of vascular walls isolated from DSA images onto fluoroscopic images. It can be used for sector views and select areas to enhance interventional procedures in the lower extremities.

The DSA-MAP function displays DSA images overlaid on fluoroscopic images. Either a without-bone display mode, used for areas such as the head, or a with-bone display mode that retains the bones for use as a reference can be selected.

The BlankMAP function enables easily drawing guide lines by hand on fluoroscopic images. This applies a subtraction process to the current fluoroscopic image and uses the resulting image of blood vessels as a MAP image. Because it does not require any additional exposures for the MAP function, it results in reducing the contrast medium and exposure levels used. Either a without bone or with-bone display mode can be selected.

The Sketch function enables easily drawing guide lines by hand on fluoroscopic images. It can be used for coil or liquid embolization of tumors in the head region, for example.

The DSA-MAP function displays DSA images overlaid on fluoroscopic images. When a subtraction process mode, used for areas such as the head, or a with-bone display mode that retains the bones for use as a reference can be selected.

SCORE MAP

TrackMAP

The TrackMAP function dramatically improves the visibility of wires and devices by automatically overlaying an outline of vascular walls isolated from DSA images onto fluoroscopic images. It can be used for sector views and select areas to enhance interventional procedures in the lower extremities.

Sketch function

TraceMAP

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Sketch function

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Flex-APS — Advanced real-time pixel shift for DSA—
SCORE 3D

The SCORE 3D application allows rapid display of the 3D reconstructed images automatically after rotational radiography. With a top rotational image acquisition speed of 60 degrees per second, the shorter contrast medium injection time reduces the burden on patients while suppressing the impact of movements on the images and ensuring high image quality. In addition, operability has been dramatically improved thanks to easy GUI customization via the pallet function.

SCORE CT

SCORE CT is an application for observing cross-sectional images of low-contrast regions, primarily tumor stains, during procedures. The application has two modes for use depending on the procedure and radiographic region of interest: a 10-second mode (20 degrees/second rotation) and a 20-second mode (10 degrees/second rotation). Axial, coronal, and sagittal images are displayed automatically after fluoroscopy.

SCORE Navi / Navi+Plus

SCORE Navi/Navi+Plus is an application that utilizes preprocedural images to support minimally invasive interventions. By synchronizing the C-arm projections to pre-procedure MDCT images, the system enables these MDCT images to be used as a reference during interventions, reducing contrast media usage and X-ray dose. Automatic registration of the MECT images with live fluoroscopy images is easily achieved. With the MECT image overlaying the live fluoroscopy it allows you to adjust the rate of blending. The Navi+Plus application also includes a virtual stent feature that allows you to simulate the stent size and placement position before carrying out a procedure.

Confirm intracranial hemorrhages using post procedure C-arm CT. Clearly renders low-contrast areas during TACE procedures.
SMART Design
Changing the way. Making it possible.

The single-plane system is available either with a ceiling-mounted (C12) or floor-mounted (F12) model. Both models are designed to provide a broad operating range. The system layout can be freely configured based on the procedures performed and can flexibly accommodate installing peripheral equipment as well.

SMART Access
The system has been designed for single-action performance to make system control in the examination room and control room as simple as possible. This improves efficiency during procedures.

SMART Assist
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C-Arm Controller
The C-arm can be freely controlled using a lever-type Cyber Console.

Direct Memory
Registered clinical angles can be called up intuitively using a graphical controller layout.

Wide Coverage Reduces the Burden on Patients
The ceiling-mounted C-arm is capable of full-body coverage without moving the patient, thanks to a wide 210 cm coverage in the transverse direction and 190 cm in the longitudinal direction. Movement in the transverse direction, in particular, supports a safe radial catheterization approach.

Six-Axis Triple-Pivot Construction for Full-Body Coverage
A total of six axes are provided for the base and rotational axes of the floor-mounted C-arm, achieving wide coverage. In particular, the triple-pivot construction of the base enables freely adjustable arm positioning and also allows transverse movement for additional access.

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CyberChase Function Automatically Follows Areas of Interest

The ceiling gantry offers a vertical movement of 17.5 cm of the imaging chain to permit rapid biplane positioning to a region of interest, without altering the table height. The CyberChase function automatically follows the area of interest, even when the angle is changed, to ensure rapid and accurate positioning.

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High Speed C-arm Movement Supports Fast Workflow

The high-speed frontal C-arm positioning of 25º/s in single-plane mode or 15º/s in biplane mode allows rapid switching between single-plane and biplane operation providing a stress-free, smooth operating environment.

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Smart Table can be configured for approaches based on complicated procedures and techniques in various areas, from cardiovascular and head areas to lower extremities, to accommodate a wide range of imaging.

With the large 58-inch high-resolution color LCD and touch panel controller, the operator can select the optimal display of image data to suit the current procedure.

A multiprocessor enables parallel image processing during examinations providing an efficient workflow.

Reference images can be changed, replayed, or paused during fluoroscopy. Moving images from before and after surgical procedures can be compared and replayed.

All screen operations are consolidated in one place on the touch panel, including for changing the fluoroscopy/radiography program required during surgical procedures, switching between a wide variety of functionality, and selecting images. By making operations easier to understand and intuitive, it supports a more sophisticated use of surgical procedures and techniques.

SMART Display

With the large 58-inch high-resolution color LCD and touch panel controller, the operator can select the optimal display of image data to suit the current procedure.

SMART Touch Provides Smooth Operability

With no cables on the floor, it is easy to position the foot switch where the operator is standing.
### SMILE Concept

**Safety + Comfort = SMILE**

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### SMILE Dose-eye

**Seven Features That Reduce Exposure**

SMILE Dose-eye achieves an excellent system-wide optimization between lower dose and high image quality.

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**SMILE Recovery**

- **High-Speed Setup**
  - All functions are available within two minutes after the power is turned on.

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**SMILE Dose-eye**

- **Patient-Friendly Clean Design**
  - The color design not only creates a side form and clean look.

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**SMILE Recovery**

- **Data Mirroring**
  - The mirroring architecture provides data storage redundancy.

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**SMILE Recovery**

- **Backup Filament**
  - If a filament burns out during an examination, the other filament will be automatically selected so the examination can be continued.

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### Seven Features That Reduce Exposure

- **LL⇔RL switching**
  - X-ray tube left or right positioning (LL⇔RL) with single button operation. Switching the X-ray tube position for each examination alleviates the concentrated X-ray exposure at a specific position on the patient.

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### Four Extra Features

- **Anode**
  - X-ray Filament for large focus

- **Focal spot**
  - Filament for small focus

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### Four Extra Features

- **Effectively eliminates unnecessary soft X-rays.**
- **1** MBH Filter
  - Select from 10 different rates depending on the procedure.

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### Four Extra Features

- **2** Pulsed Fluoroscopy
  - Blocks unnecessary soft radiation.

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### Four Extra Features

- **3** Grid Control
  - Enables collimation without fluoroscopy.

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### Four Extra Features

- **4** Virtual Collimation
  - SCORE PRO Advance ensures lower dose and higher image quality.

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### Four Extra Features

- **5** Image Processing
  - High-definition fluoroscopy can substitute for radiography.

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### Four Extra Features

- **6** Fluoroscopy Video Recording
  - The monitor displays the actual dosage in real time.

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### Four Extra Features

- **7** Area Dosimeter
  - The monitor displays the actual dosage in real time.
Even More Worry-Free and Reliable Japanese Quality for Interventional Procedures

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Shimadzu manufactures Trinias products at Shimadzu’s own advanced technology plant, where all processes from production to quality control and shipping are performed within the Shimadzu facility to ensure Trinias products are delivered with the highest quality.

Advanced Quality Center Ensures High Quality

Within the Shimadzu facility, Shimadzu has built a Quality Center that is equipped with state-of-the-art equipment for various evaluation and analysis necessary to ensure that only the highest quality products are delivered. The Quality Center is also used for product development, quality assurance, and to ensure compliance with various regulations and standards.

Worldwide Service Network

- Periodic Maintenance
  • Our professional service experts will periodically inspect the system.
  • Mechanical, electrical, and safety checks are performed. Calibration is carried out whenever necessary to ensure optimal system performance.

- Emergency Service Support
  • Shimadzu’s local service centers provide rapid response times.
  • On-call support is available for your emergency needs.

- Parts Warranty Program
  • A selection of parts warranty programs is available for you to select to manage your service needs and plan your running costs.

- Remote Maintenance Service
  The Shimadzu “Site-ViewBB” provides you with remote maintenance service.
  • In the event of possible system errors, the Site-ViewBB automatically generates an alert message for proactive service support by our field service engineers.
  • Some software updates can be performed by the Shimadzu Remote Maintenance Center through Site-ViewBB, further improving system uptime.
  • Our system experts periodically analyze system log files through Site-ViewBB.

- Proactive Service Support Program
  • Periodic Maintenance
  • Emergency Service Support
  • Parts Warranty Program
  • Remote Maintenance Service