World-class technologies for healthcare and diagnosis

Advancing innovations in medical imaging and routine clinical analysis

As a leading global provider of both diagnostic imaging and analytical instrumentation technologies, Shimadzu offers broad expertise in medical imaging and mass spectrometry detection platforms helping to deliver a measurable impact on healthcare and diagnosis. The company is the perfect partner for transformational technologies to accelerate diagnosis.

Medical Imaging Systems

Based on more than 100 years of extensive clinical experience in X-ray technologies, Shimadzu provides a multitude of radiographic and fluoroscopic systems, both either floor- or ceiling mounted, and mobile units. World-leading technology, cutting-edge applications and functionalities enhance healthcare providers’ examination efficiency and safety while reducing the radiation dose.

Laboratory Systems

Shimadzu’s analytical instrumentation units support healthcare and diagnosis applications through chromatography, mass spectrometry, spectroscopy, and life sciences. The company’s world-leading quantitative mass spectrometry systems are utilized for various applications, e.g. TDM (Therapeutic Drug Monitoring), NBS (Newborn Screening), toxicology, steroid and vitamin analysis.

The instruments provide high-speed methods and high sensitivity for multi-component simultaneous analysis even at low concentrations.

Passion for details

Diagnostic imaging systems and units with best-in-class features and new functionalities provide excellent image quality for a wide range of efficient examinations. Patients benefit from a high level of comfort and low exposure dose, and clinical staff from operability, better patient coverage and throughput.
Angiography & Cardiology – Trinias MiX package

Shorter treatment times and less contrast media used

The Trinias MiX package (Minimally invasive eXperience) supports less invasive treatments through a variety of applications. The Trinias MiX package is an extension of the Trinias angiography system, which facilitates high-level interventions using a proprietary image processing technology. The high-quality ceiling-mounted angiography system and premium operating table provide the functionality necessary for advanced hybrid procedures.

- **SCORE PRO Advance**
  This high-speed image processing unit was designed based on a concept of low exposure dose and high image quality featuring a state-of-the-art motion tracking noise reduction function. The resulting high-quality images obtained by using Shimadzu’s real-time image processing technology support advanced interventional procedures.

- **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 across the abdomen and extremities, 3D imaging in combination with C-arm precession and pendulum modes and examinations on patients who have difficulty holding their breath.

- **TraceMAP (SCORE MAP)**
  creates an overlay image on fluoroscopy by automatically tracing the contours of vessels from the DSA image. This makes it possible to recognize bifurcation and control devices quickly and easily in various vascular interventions such as EVT etc. In addition, manually drawn lines or guides can be used to provide further flexibility. The easy-to-operate TraceMAP is part of the SCORE MAP package.

- **SCORE 3D/CT/Navi+Plus**
  are options extending the Trinias MiX package. By acquiring images using high-speed rotation at 60 degrees per second, SCORE 3D offers both shorter contrast media injection times and higher quality images that are less affected by patient movement. SCORE CT has a 16-bit image processing capability achieving superior low-contrast image resolution. SCORE Navi+Plus provides effective coordination between preoperative CT images and C-arm operations that can potentially reduce the amount of contrast media used during interventional procedures.

Radiography & Fluoroscopy – best-in-class:

Sonialvision G4 multifunctional R/F system

The Sonialvision G4 high performance R/F table provides numerous best-in-class features significantly increasing its functionality and operability. Sonialvision G4 unites the widest possible range of examinations with inter-departmental hospital capability. The largest available FPD at 43 x 43 cm provides an extensive imaging area. An additional ceiling-mounted telescopic arm, a Bucky wall stand, and a second mobile FPD turn the system into a sophisticated multifunctional R/F room.

- **SUREengine-Advance**
  is a leading-edge digital image processing technology and ensures extremely clear fluoroscopy and radiography images.

- **SLOT Advance**
  provides high accuracy images with long fields of view, such as for full spine or full leg images, taken with a minimal X-ray dose. SLOT Advance acquires a series of accurate images of a few centimeters central slit as the imaging chain moves successively along the patient and allows precise measurements of extremities.

- **T-smart**
  generates even clearer tomosynthesis images suppressing the artifacts around metal objects even further. This application is of great help in orthopedics especially for patients with metal implants or fixators as it allows a very exact diagnosis of the status of the boundary between bone and implant.
Category Leader in operator satisfaction survey

The Shimadzu MobileDaRt Evolution digital mobile X-ray system has been favorably received thanks to its excellent maneuverability, reliability, performance and ease of positioning. To date, more than 3,000 units have been installed. In a customer satisfaction survey by KLAS Research, a U.S. based Research Firm, this system has been named “Category Leader” in the field of digital mobile X-ray systems, for three out of the last four years (with the first award presented in 2011). This is truly an internationally top rated product.

The new X-ray MobileDaRt Evolution MX7 can be moved to any location where radiography is required, enabling on-site examinations and image verification. Capitalizing on the merits of efficiency and high throughput, this digital mobile X-ray system, broadens its applications from clinical rounds in hospitals to critical care and applications at disaster sites, as well as operating rooms and neo-natal intensive care units (NICU).

The MX7 series offers a wide range of FPD types to match individual clinical requirements, such as physical size, sensitivity and data transmission. In particular, the 2.5 kg 14 x 17-inch FPD (SL-DR 21417S), which offers especially high general applicability, is lighter than any other FPD of comparable size in the industry. The combination of liquid-resistant and ultra-light FPD makes daily handling much easier.

MobileDaRt Evolution MX7 mobile X-ray system

General Radiography – RADspeed Pro EDGE

The RADspeed Pro EDGE digital radiography system adds numerous functionalities to support diagnostics in clinical applications.

General radiography systems are used for many different parts of the body, such as the chest and abdomen or bones and joints. In orthopedic surgery, they have become an important instrument for the initial diagnosis of a wide variety of diseases. In the past few years, particularly radiography systems with detectors have gained increasing importance due to digital imaging technology used for a growing number of applications and delivering images providing excellent diagnostic capabilities.

RADspeed Pro EDGE combines the advantages of the well-known RADspeed Pro series in one instrument – for example the highly praised easy operability or the comprehensive measures to reduce exposure levels. Numerous further functionalities can be added.

- **Tomosynthesis**
  allows to easily obtain multiple digital cross-section images from a single linear tomography scan.

- **Dual-energy subtraction**
  utilizes the difference in X-ray absorption levels of bones and soft tissue to generate separate images, which is useful for diagnoses in the chest area, such as lung cancer.

- **Auto-stitching radiography**
  covers the entire lower extremities or entire spine and links the settings made on the X-ray tube with the Bucky table or Bucky stand with subsequent automatic image stitching.

- **Dedicated tomosynthesis workstation allows parallel processing**
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The Opescope Acteno combines high image quality with ease of use. The system enables free and easy positioning and optimal performance to meet the demands of operation and emergency rooms.

The fully counter-balanced C-arm provides extra-light and extra quick C-arm movements and positioning. The exclusive manual vertical C-arm movements enable much quicker height adjustments in routine operations.

Shimadzu’s unique C-arm lock/release button at the image intensifier allows the C-arm to be positioned from the clinician’s side without the need to go back to the cart unit. The enlarged 78 cm wide opening of the C-arm facilitates approaches to the patient, minimizing the risk of contact with the operating table.

RSM technology minimizes motion artifacts in DSA
Adding the unique RSM filtering process to DSA images will eliminate the motion artifacts which can easily happen in patients under anesthesia who cannot control their breathing or patients who might move during shunt imaging. This broadens the potential scope of application for using DSA.

Smart seCURE integrated power management function
utilizes the battery more effectively by minimizing unnecessary power consumption. This is based on superior communication between the main unit and the DR system, Smart seCURE.

Scatter Correction software
generates a scatter model which is subsequently subtracted from the image. Whereas a grid physically reduces scatter and increases image contrast, the software mimics this process virtually. The result is an image with reduced scatter and increased contrast.

Opescope Acteno surgical C-arm system
High operability and image quality

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Touch Focus
is the brand-new innovative technology for Opescope Acteno to optimize the image brightness focused to your ROI (Region Of Interest) which cannot always be located at center spot but anywhere in the FOV (Field Of View), just by touching your ROI on the displayed image on the C-arm unit at real-time during fluoroscopy.

This unique feature will be a great help to provide proper clinical images without being disturbed by halation or artifacts caused by the metal surgical devices often used in surgery operations.