Motion Simulator Sim4D-Cardio

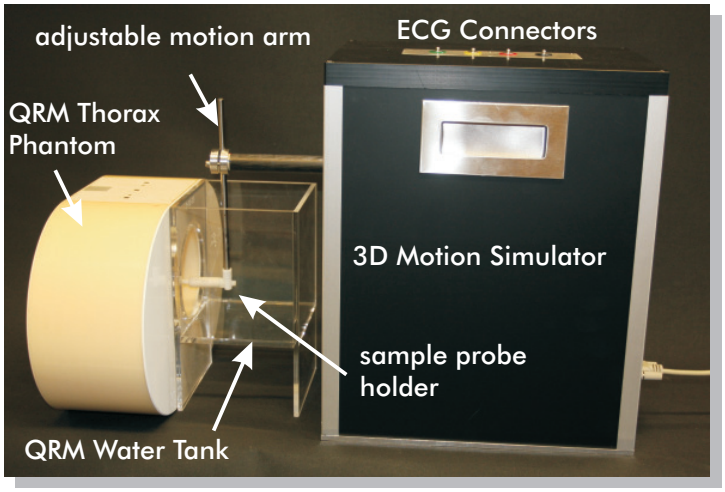
QRM-Sim4D-Cardio

Sim4D is a powerful tool to assess temporal and spatial resolution on 3D X-ray imaging modalities as CT or C-arm systems. The simulator provides 3D rhythmic and arrhythmic motion of a sample probe at multiple trajectories.

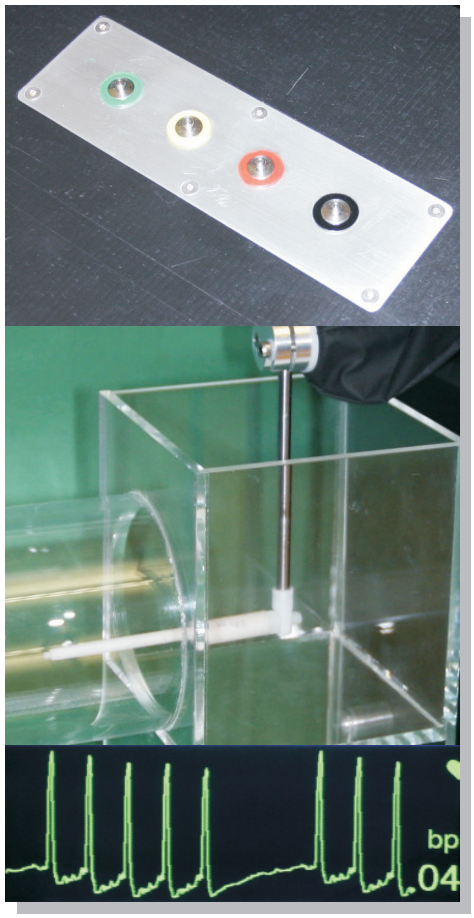
Detection and quantification of calcium in coronary arteries is a major issue in diagnostic imaging of the heart. Due to organ motion artefacts in cardiac imaging, tools are needed to verify spatial as well as temporal resolution in the images.
The 4D Motion Simulator is designed to fit the needs of scientists and researchers of 3D imaging devices, especially in computed tomography.
Sim4D is controlled by dedicated software. Users can create motion profiles in any order and in an easy way. The profiles can be transferred directly to the device.
Also the simulator can be operated by remote control; operation in the same room is not necessary.

Functions

- ✓ multiple trajectories programmable over a range of 80 x 40 mm in plane (x, y) and 80 mm axial (z)
- ✓ provides sync signal and supports ECG correlated reconstruction (ECG gating)
- ✓ rhythmic and arrhythmic motion profiles can be created in an easy way
- ✓ motion start and stop as well as profile programming and data transfer can be controlled by remote software in an easy way
- ✓ provides maximum frequency of a 3D moving profile about 3 Hz
- ✓ sample probes as Ca-spheres, rods or stents are available
- ✓ sync pulse (for ECG-gating) can be initialized



Bildunterschrift zum Beschreiben de Bildes



Bildunterschrift zum Beschreiben de Bildes

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Quality Assurance in Radiology and Medicine

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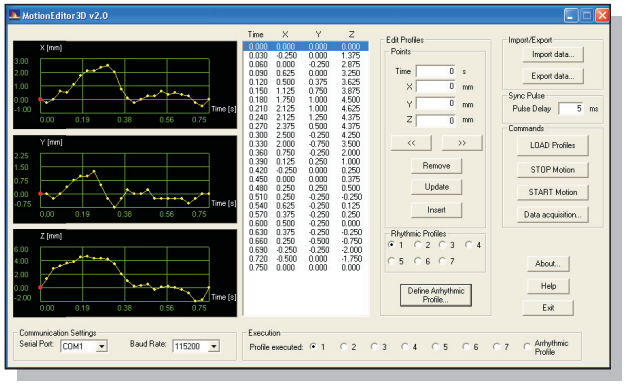

Motion Editor V2 Software - create your own 4D motion profiles and arrhythmic sequences.

Main control panel.

Specification

Dimensions:.....300 x 210 x 350 mm³
Weight:.....2500 g

Power supply:.....100-240 V (50-60 Hz)
Output:.....24 V DC

Sync. pulse output amplitude.....2.5 mV

Repeat accuracy 0.3 % at120 bpm

precision of zero reference < 0.2 mm

System Components

- Sim4D Simulator
- QRM Water Tank
- software Motion Editor
- power supply
- RS232 serial cable with USB adapter and drivers
- standard sample probe (3 mm CaHA-sphere on water-equivalent rod)

The standard *QRM thorax* has to be ordered separately
Custom-designed sample probes, spheres, stents, etc. are available upon request:
info@qrm.de

References: [1] Langner, O., Hoedlmayr, W., Ertel, D., Kyriakou, Y. Kalender, W.:
A Simulator for Organ Motion Studies in Medicine: Simulation of 3D Rhythmic and Arrhythmic Coronary Artery Motion to Assess Image Quality in Cardiac CT.
Proceedings of RSNA Annual Meeting 2007

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