XR 4.0 X-ray Direct Digital Image Sensor II (XRIS II)

09057-41

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Fig. 1: 09057-41 XR 4.0 X-ray Direct Digital Image Sensor II (XRIS II)

Operating Instructions

The unit complies with the applicable EC regulations

TABLE OF CONTENTS

1 SAFETY INSTRUCTIONS

- Read the operating instructions thoroughly and completely prior to starting the unit. This is important for your own protection and for avoiding damage to the unit.
- Use the unit solely for its intended purpose.
- The unit is intended solely for use in dry rooms where there is no risk of explosion.
- Ensure that the venting slots of the experiment set-up are not covered.
- Do not open the unit.
- Do not connect any devices to the unit other than the ones that are intended for this purpose.
- Ensure that no liquids or objects penetrate the unit through the venting slots.
- Switch the unit off after using it. Continuous operation is not permissible.
- Do not connect any devices to the unit other than the ones that are intended for this purpose.

2 PURPOSE AND CHARACTERISTICS

Digital X-ray sensor for direct digital X-ray imaging. A high-performance image sensor based on CMOS technology for direct digital radiography ensures an excellent image quality and high resolution with short exposure times.

3 FUNCTIONAL AND OPERATING ELEMENTS

The detector (XRIS II) can be connected to a PC via the USB output using an Ethernet cable or the USB adapter supplied. The active area of the sensor fills the window in the housing completely. As a result, this part of the unit must be handled with great care. The XRIS II digital x-ray gene sensor can be mounted on the optical bench inside the x-ray unit 09057-99 with the aid of the associated holder.

4 OPERATING INSTRUCTIONS

A computer (Windows7® or higher) is necessary for using the device.

The digital X-ray sensor XRIS fulfils the technical requirements that are summarised in the current directives of the European Community.

The unit must be used under the supervision of an expert and in the electromagnetically controlled environment at research, teaching, and training facilities (schools, universities, institutes, and laboratories). This means that, in such an environment, radio transmission devices, e.g. mobile phones, should not be used in the direct vicinity of the unit. The connected cables must not be longer than 2 m.

Electrostatic charges or similar electromagnetic phenomena (HF, bursts, indirect lightning discharge, etc.) may affect the unit so that it will not work within the specified data range.

The following measures reduce or eliminate potential interferences: avoid carpets; provide equipotential bonding; perform the experiments on a conductive, earthed surface, use shields and shielded cables. Do not use radiofrequency transmitters (radio sets, mobile phones) in the direct vicinity of the unit.

After a total exit, perform a restart by briefly interrupting the power supply.

5 HANDLING

Connect the XRIS II (detector) to the PC as described in chapter 3.

Demo mode of the software: See Help in the Help menu of the software or QuickStart Guide.

Now start the XR 4.0 software measure CT. A dialog box appears on the screen with the instruction to calibrate the XRIS II (detector). Remove objects that are between XRIS II and the X-ray source. Lock the door and click on the "Calibrate" button in the software.

CT Scan Quick Start Guide (For more information please refer to the interactive help included in the software):

1st mode: "Live image and settings", Fig. 2:

Fig. 4: Screenshot in "Reconstruction" mode

Calibrate the XRIS II and then place an object in front of the active area of the detector (XRIS II) and click "play (4). To cancel the live mode, click "play" again.

Check the positioning of your specimen and, as soon as you want to start a scan, click on the next status "CT scan" (5).

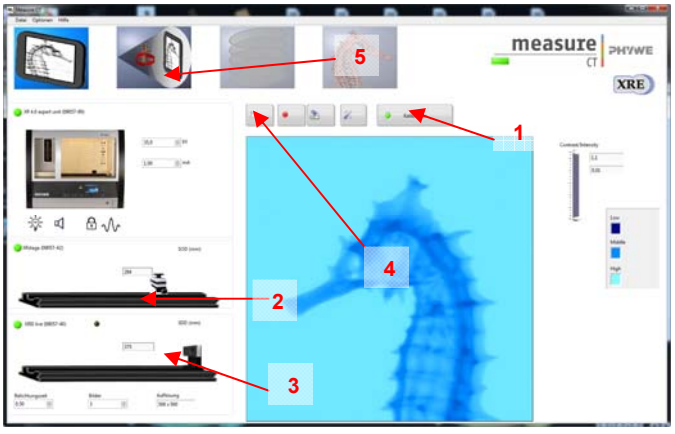

Fig. 2: Screenshot in "Live Image and Settings" mode

2nd mode: "CT scan", Fig. 3

Select 200 exposures per 360° (6).

Click on "Scan" (7) to start the scan. The time remaining is displayed next to the status bar (8)

Click on the windows to the right to change the color:

Click on the next step "Reconstruction" (9) to switch to the "Reconstruction" mode.

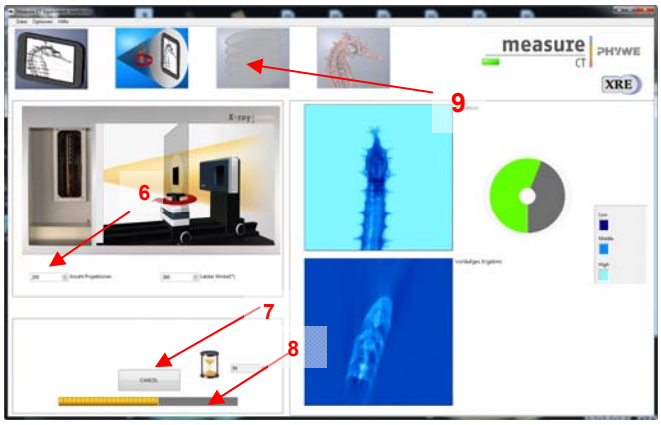

Fig. 3: Screenshot in "CT scan" mode

3rd mode "Reconstruction", Fig. 4

The project is opened automatically. Then change the COR (center of the rotation axis) value (10) until the marker (11) is satisfactory. Then click on "Start reconstruction" (12). Now it takes about 3 minutes until the reconstruction is completed. Click on "3D-View" (13) to enter the next mode.

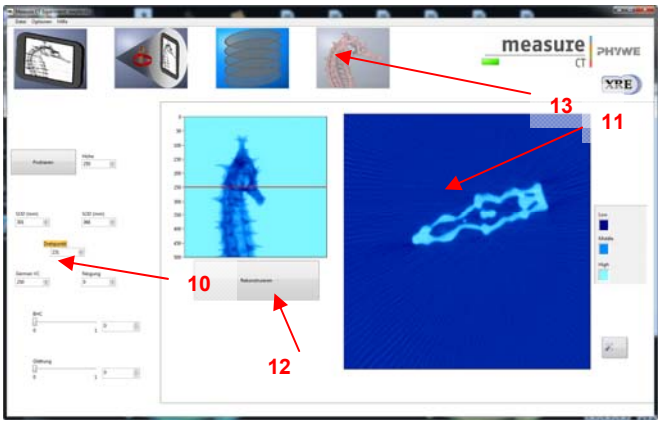

Abb. 4: Screenshot im Modus „Rekonstruktion"

4th mode "3D-View", Fig. 5

The project will be opened automatically. Move the 3D view by moving the arrows on the right side of the window (14). Move through the layers by moving the fine lines while holding down the left mouse button (15)

Export: Click on "Save Image" (16) to save the data in other formats (the projections and sectional images are automatically saved under C\measure CT\experiments) or click on "Volview" (17). Now the software Volview opens automatically. It is included on the measure DVD, but is not automatically installed with measure CT.

X-ray source/detector alignment (XRIS II)

A CT image is also possible if the X-ray beam is not exactly centered on the XRIS II. If you still want to set it up, loosen the screw connection of the optical bench (matching Allen key is included in X-ray expert set 09110-88) and move it until it fits.

6 TECHNICAL DATA

- Active area 49.3 x 49.2 mm
- Resolution 48 µm
- Image depth 12 bits
- GigE Interface
- 1024 x 1024 pixel

7 SCOPE OF SUPPLY

- Data cable Ethernet
- USB adapter
- Holder for installation on the optical bench

8 ACCESSORIES

- XR 4.0 X-ray CT Z-Rotation Unit (XRstage) 09057-42
- XRE 4.0 expert Set 09110-88
- Accessory Set 09057-43
- XR 4.0 Software measure CT 14421-61

9 WARRANTY

We give a warranty of 24 months for units supplied by us inside the EU, and a warranty of 12 months outside the EU. The following is excluded from the warranty: Damage that is due to non-compliance with the operating instructions, improper use, or natural wear.

The manufacturer can only be held liable for the function and safety-relevant properties of the unit, if the maintenance, service, and modifications of the unit are performed by manufacturer or by an institution that is expressly authorised by the manufacturer.

10 WASTE DISPOSAL

The packaging consists predominately of environmentally compatible materials that can be passed on for disposal by the local recycling service.

Should you no longer require this product, do not dispose of it with the household refuse.

Please return it to the address below for proper waste disposal.

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