

# Schallware

## ULTRASOUND SIMULATOR

for  
INTERNAL MEDICINE • EMERGENCY  
CARDIOLOGY • GYNAECOLOGY



## Ensuring quality diagnosis through ultrasound simulation.

Provide your doctors with a revolutionary, easy-to-use system for hands-on practice in ultrasound diagnosis.



The Schallware Ultrasound Simulator allows your doctors to practice ultrasound diagnosis just as under real conditions; moving one of the four dummy transducers over the dummy torsos produces the exact B-scans of the selected case. Our exclusive lossless multi-volume *reslicing algorithm* computes these B-scans in real-time from the actual patient scan data.

The scan data is organized into thematic modules ranging from beginner to advanced difficulty; with two

dummy torsos and four dummy transducers available, our system covers ultrasound diagnosis scenarios in the internal medicine, emergency, cardiology and gynaecology departments.

The *Core System* includes one dummy torso, three modules and corresponding transducers. Various add-on modules are available from our continuously growing library produced by our affiliated clinics. Each module includes up to twelve documented patient cases.

Ensure consistent quality and knowledge by allowing doctors to regularly revisit documented cases at any time.

With the Simulator, your doctors can now regularly practice ultrasound diagnosis on both common and rare, once-in-a-year cases. Doctors can test their knowledge by comparing their diagnosis to the documentation associated with each module. In this way,

the Simulator serves as a reference for your clinic, available at any time. Providing these constantly available training and reference resources to your doctors sets a consistent quality standard in ultrasound diagnosis throughout your clinic.

“By providing these resources, you can set a consistent **quality** standard throughout your clinic.”

Offer training beyond your clinic and serve your region while connecting with your area’s resident doctors.



As an alternative to using your clinic’s own Simulators, you can rent four Simulators for eight days of training and workshops. In our *On-Site Module Training* we familiarize a few of your doctors with the system; these doctors are then your clinic’s instructors and can instruct your entire clinic on the operation of the Simulator.

Your clinic can then host a week of workshops on ultrasound diagnosis for your region, giving back to the community while connecting to your resident doctors. Such community-based educational events are commonly supported by sponsors and companies involved in the industry.

Perfect practice makes perfect.

## The Technology Behind the Schallware Ultrasound Simulator

The basic Schallware module included with each system consists of 30 documented cases from individual patients and over 50 volumes of data. Each 3D volume is professionally recorded by our affiliated clinics using the Schallware 3D freehand technique to position the scans in the virtual torso. We use up to 2000 raw B-scans in constructing one 3D volume for optimal resolution.

We also developed an import function for 4D volumes recorded with a 4D transducer. Our affiliates produced the cardiology and fetal echocardiography extension modules with this technique.

For both the 3D and 4D simulation processes, we developed a custom reslicing algorithm capable of slicing through a vast number of original B-

*Far right: Simulated ultrasound scan as displayed on the computer. Right: Internal working details of B-scan superimposition upon torso. Below: Sector transducer on male dummy torso.*



scans, ensuring optimal resolution for all insonification angles while maintaining an instantaneous response between transducer and display.

### Price List

All packages include an embedded electromagnetic tracking system with 6 degrees of freedom and a Linux PC with Schallware software.

Core System	Full Package	Event Leasing
The Core System includes a configuration of two modules (e.g. Cardiology I, II) and the corresponding dummy torso and dummy transducers.	The Full Package includes nine modules, both dummy torsi, four different dummy transducers, as well as our Module Training Course.	The Event Leasing allows you to lease four simulators for seven days. The leasing offer includes both the delivery and our Module Training Course.
(ex. VAT) starting at <b>€ 24.500</b>	(ex. VAT) starting at <b>€ 42.500</b>	in Europe (ex. VAT) starting at <b>€ 4.900</b>



*Male dummy torso, for internal medicine, cardiology and emergency departments.*

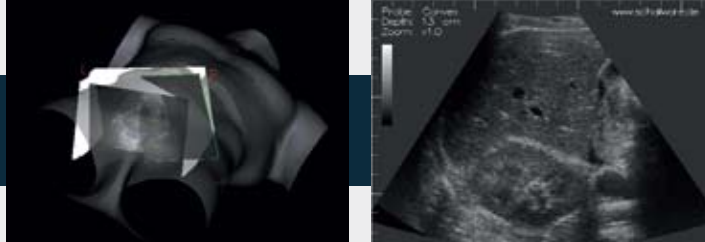


*Pregnant female dummy torso, for gynaecology department.*

**Gernot Jehle • CEO, Schallware GmbH**  
DIPL. MECHANICAL ENG. & BIOMEDICAL TECH. ENG.



*After a decade in hardware and software engineering and consulting, in 2007 Gernot re-launched the ultrasound simulator development with Schallware GmbH. He resides in Berlin with his wife and family.*



### Modules

All modules are produced by our internationally-recognized affiliate clinics using our Schallware acquisition platform. Most modules consist of scans from 12 patients.

#### M/IN TORSO MODULES

**Emergency • Abdomen • Biliary • Aorta**  
**• Intestinal • Vascular, Neck • FAST**

PROF. GEBEL, HANNOVER MHH

**Mitral Regurgitation & Stenosis • Aortic Insufficiency & Stenosis • Kinetics**  
**• Hypertension**

PROF. HAGENDORFF, UNI. CLINIC LEIPZIG

#### W/GYN TORSO MODULES

**Gynaecology • Obstetrics • Emergency**  
**Pelvis • Breast**

HEIDELBERG

**Fetal Echocardiography**

DR. WÜSTEMANN, HANNOVER

### Extra Options

Option	Price ex. VAT
<b>Module Training</b> Hannover, Leipzig, Heidelberg	<b>€ 1.500</b>
<b>Module</b> See details in inset box above	<b>P.O.A.</b>
<b>Support Service</b> Per year, per system	<b>€ 1.500</b>
<b>Transportation Case</b> Custom-designed, with wheels	<b>€ 1.200</b>
<b>Add-On Case Import</b> create your own modules for personal use	<b>€ 9.900</b>

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# Schallware

## ULTRASOUND SIMULATOR



**A) INTERNAL MEDICINE modules**

Emergency • Abdomen • Biliary • Aorta • Intestinal • Vascular, Neck • FAST

**B) CARDIOLOGY modules**

Emergency, Mitral Regurgitation & Stenosis • Aortic Insufficiency & Stenosis • Kinetics Hypertension

**C) FEMALE MODULES:** gynecology • obstetrics • emergency Pelvis • Breast, fetal heart

...extraction of cases internal medicine

**III. Abdominal aorta**

1. normal aorta
- 1.1 aorta longitudinal (visceral arteries)
- 1.2 aorta lateral (truncus up to bifurcation)
2. aortic clerosis
- 2.1 aortic elongation
- 2.2 aortic dilatation
- 2.3 plaque
- 2.4 massive, diffuse aortic sclerosis
- 2.5 ulcerous aortic sclerosis
- 2.6 small, infrarenal aneurysm
- 2.7 large aneurysm with thrombus
- 2.8 local or extensive dissection

**IV. Biliary**

1. biliary
- 1.1 biliary NAD
- 1.2 inspissated biliary
- 1.3 biliary mud
- 1.4 microliths
2. cholecystolithiasis
- 2.1 large bilestone
- 2.2 multiple, midsize bilestones
- 2.3 small, passable bilestones
3. biliary tract
- 3.1 intrahepatic dilated biliary tract
- 3.2 choledochectasia
- 3.3 choledocholithiasis
- 3.4 pancreatic tumour

**V. Abdomen**

1. liver NAD
2. cholecystolithiasis
3. livermetastases
4. fatty liver with fat sparing regions
5. liver cirrhosis
6. liver cirrhosis with ascites



**VI. Emergency**

1. liver abscess
2. liver tumour
3. cholecystitis
4. dilated biliary tract
5. large splenomegaly
6. pancreatic pseudocyst / necrosis / abscess
7. splenic infarction
8. urinary stasis / nephrolithiasis
9. abdominal liquid / hemorrhage (4 quadrants)
10. psoashematoma

**VII. Neck**

1. lateral NAD
2. longitudinal NAD
3. thyriod adenoma
4. hemithyroidectomy
5. thyroiditis
6. cervical lymph node

**IX. Small pelvis**

1. ascites
2. lymphoma
3. diverticulitis
4. tumour (adnexa / enteric)
5. bladder
6. bladder diverticulum
7. enlarged prostate
8. bladder tumour / fistula