

evoduo superior

Combined system for the most demanding studies with two monitors and dual computing concept

evoduo superior was designed specifically to meet the requirements of modern investigative methods and functional diagnosis, during left/right-heart catheterization.

This heart-catheter workstation combines two systems in one: the hemodynamics system and an EP-TRACER system for electrophysiology. The modular design of the system provides an efficient, space-saving workstation that provides outstanding functionality and signal quality.



Features of evoduo superior

HEMODYNAMICS

Intuitive operation via functional keyboard

This proven interface is the centerpiece of the system:

- The single keyboard covers all processes - from measuring up to report generation
- Intuitive graphical elements increase ease of use
- Measurement locations in the heart are defined on the heart graphic with corresponding functional buttons.

At the push of a button you can (for example):

- Access curve segments
- View input reports for O₂ saturations
- Switch between ECG and blood pressure measuring ranges and signal amplitudes

Measurement

- Automatic and simultaneous measurement of the signal sections
- Manual measurements
- Manual correction of measured sections
- Automatic assignment of pull-back sections

In addition to the 12 standard measuring positions, additional measurement locations can be configured and analyzed using the various test algorithms.

Calculation

The calculated parameters include:

- **pressure gradient**, cardiac output, vascular resistance
- valve areas, body surface area and systemic and pulmonary flows during shunt evaluation

The algorithms and formulas for the hemodynamic results can be edited by the user. All edited values go into the final calculations.

Full Disclosure File and increased reliability

All signals are recorded and, after completion of the investigation, can be retrospectively evaluated and documented in full. The dual-computer design of the evoduo superior provides increased functional redundancy and reliability.

ELECTROPHYSIOLOGY

EP-TRACER amplifiers offer the connection of either 20, 52 or 84 intracardiac channels. The brilliant signal quality supports you throughout the EP procedures.

Integrated stimulator

The EP-TRACER incorporates a built-in 2-channel stimulator within its compact design. Stimulation of any intracardiac channel is achieved with the click of the mouse, without need for further external wiring or equipment. Stimulation protocols are easily customized and accessed, thus further streamlining the procedural workflow.

Measurement and evaluation

The software allows you to view, store and analyze both surface and intracardiac ECG signals. Special display modes, such as the triggered mode or partitioned screen mode, are designed for the optimal display of data from various examination types. The connection of any commonly used radiofrequency ablator allows for treatment of arrhythmias. Stimulation and ablation events are automatically recorded, allowing for a more efficient and effective way of working.

GENERAL

Interfaces

HL7 (Health Level 7)

- Exchange patient data from HIS to the patient database of the evo system via HL7 ADT
- Transfer the investigation reports from the evo system to the HIS via HL7 MDM

DICOM (Digital Imaging and Communications in Medicine)

- All patient data can be transferred through the DICOM Work list Management (WLM) to x-ray stations,
- All patient data from x-ray stations can be transferred to the evo system using the DICOM Modality Performed Procedure Step (MPPS)
- Transmission of the report to an image archive (PACS)

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Components

- Cabinet housing
 - Central interface unit
 - Power supply, 230V
 - Transformer isolation
 - 2 PC system

- 2 x 19" LCD monitor
- Patient connection box
- EP-TRACER
- Functional keyboard DE / EN / FR
- Laser printer
- Mouse
- Uninterruptible power supply; APC Smart-UPS 1500W / 230V

- Options
 - Vitals monitor for Cardiac
 - Output, NiBP, SpO₂
 - Laser printer (color)

- Cabling
 - Serial connection cable for patient connection box

- Standard accessories
 - Transducer
 - Catheter connection boxes (EP)
 - 4 carbon fiber cables L = 90cm
 - Adhesive electrodes
 - 2 monitoring cables (pressure signals)
 - 1 bracket for 2 transducers
 - ECG patient cable with electrode connection
 - Filter Set with EP-TRACER 70 and 102

Technical details

Classification according to European Medical Device Directive (93/42 / EEC):	Class IIb
Surface ECG Hemo/EP	
Number of input channels	9/12
Sampling rate	500 Hz/1000 Hz
Leads	I, II, III, aVL, aVR, aVF V1-V6
Amplification	5, 10, 20 mm/mV
Heartrate	20 bis 240 HF/min
Number of channels	max. 18
Recording programs	Freely programmable
Invasive blood pressure Hemo/EP	
Pressure amplification	4/3 channels
Amplification	10, 25, 50, 100, 200, 400 mmHg
Intracardiac ECG	
Number of channels	20/52/84
Input mode	bipolar or unipolar
Sampling rate	1000 Hz
Amplification factor	0.1-25
Current leakage	< 50 µA
Back-up Stimulations mode	60 beats per min at Out1-Out2 simultaneously; current = 8mA, pulse amplitude = 2msec
Stimulator	Current 0 - 25.5mA (customizable) Minimum increment 0.1 mA Maximum output-voltage: 20 V Safety stimulation: 60 beats/min Connections: 4 x 2mm banana plug
Operating system	Windows 7, 32bit
Monitors	2 x 19" LCD
Printer	Laser (black and white)
Applicable standards	IEC 60601-1:1988 + / A1:1991 + A2:1995 UL 60601-1:2003/ IEC 60601-1-1:2000 IEC 60601-1-2:2001+ A1:2004/ IEC 60601-2-25:1993 + / A1:1999/ IEC 60601-2-34:2000 IEC 60601-1-4:1996 + A1:1999 / IEC 60601-1-6:2004
Patient safety	Safety class I, type CF according to IEC 60601-1; Patient connections protected against the effects of defibrillation impulses
Dimensions (h x w x t) Hemo/EP	
Base unit	710 x 560 x 600 mm
Amplifier	265 x 200 x 65 mm / 110 x 290 x 260 mm
Weight Hemo/EP	
Base unit	ca. 100 kg
Patient connection box	ca. 0.8 kg / ca. 2.2 - 3.8 kg
Functional keyboard	ca. 2.0 kg
LCD monitors	ca. 10.6 kg
Labelling	CE 0197

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