



Innovation brings performance

# Biotech-Lab

Product family of sensors and actuators designed for testing and quality control of medical instrumentation

## Application includes

### Pressure

- Hemodialysis machines
- Ophthalmological lasers
- Blood pressure meters
- Automatic tourniquets
- Drainage devices
- IV pumps
- Diagnostic, surgical suction
- Ventilators
- Pressure gauges

### Temperature

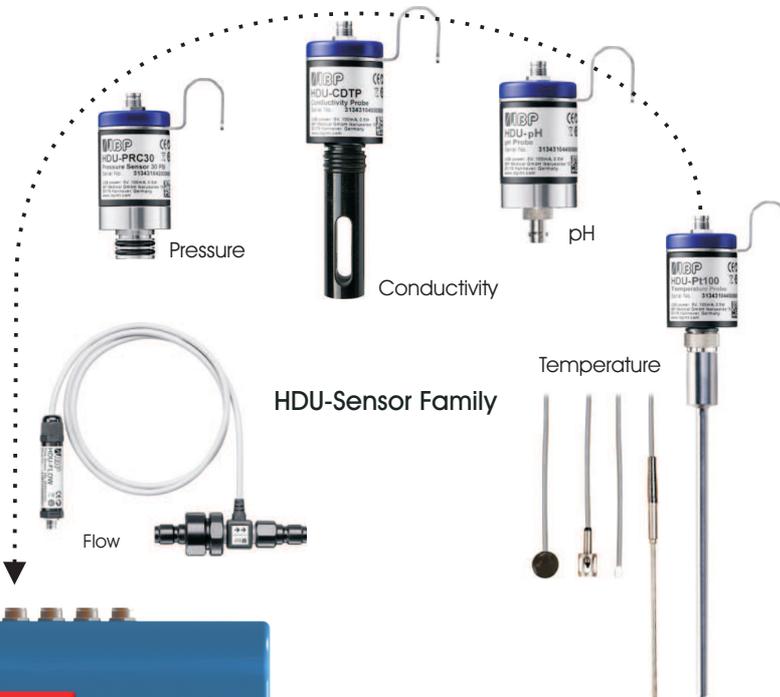
- Temperature monitors
- Electronic thermometers
- Humidifiers/nebulizers
- Blood warmers
- Hypo/hyperthermia machines
- Infant incubator
- Radiant warmers

### Conductivity

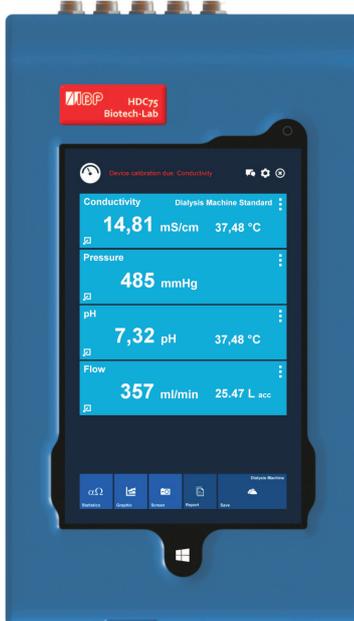
- Hemodialysis machines
- RO-Systems
- Water Treatment

### Flow

- Hemodialysis machines
- RO-Systems
- Water Treatment



HDU-Sensor Family



## HDC75 Display and Control Unit

- Robust housing
- 7" Touch Screen
- 5 Sensor Ports
- Microsoft Windows 10 based
- Different programs for different applications
- AC and battery operation
- Battery for up to 35 hours operation

## New Concept

The Biotech-Lab system is a new approach combining a family of intelligent reference sensors, actuators and patient simulators with a handheld smart computer, for testing and quality control of medical instrumentation. The product line combines more than 30 years experience of innovative measuring device development.

## Customisable

The modular concept of the Biotech-Lab system allows the use of any combination of sensors in order to fulfil specific test or calibration requirements. Only one central unit is required for all of the various daily tasks.

## Advanced Hard- and Software

Advanced electronics technology combined with highly developed software results in a completely new type of measuring system with features and a high level of accuracy simply not achievable with other units.

The central unit is Microsoft Windows 10 based. This allows to use all the features of a modern smart computer. Measuring data handling has never been so easy.

Different software is available to fulfil different tasks. The basic Biometer software allows the user to see measurement information in both numerical and graphical format.



# HDU-Sensor Family



## Flexibility

The HDU-Sensor family fulfills the need for high accuracy and reliability, whether it be for taking conductivity, temperature, pressure, pH or flow readings. The sensors intelligently communicate and via an RS485-Bus. For annual calibration only the sensors are needed.



Different adapter such as Luer allows easy connection to any device.



A flow through adapter allows easy connection to a dialysis machine.



For more details refer to [www.ibpmt.com](http://www.ibpmt.com)

## HDU-Sensor Specifications:

### Pressure

#### HDU-PRH15

Range	- 12 to 15 psi -0.85 to 1 bar -650 to +775 mmHg
Resolution	0.01 mmHg
Accuracy	General 0.05% full scale 0 to 300 mmHg $\pm$ 0.4 mmHg,
Over pressure	2 x full scale

#### HDU-PRH30

Range	-12 to 30 psi -0.85 to 2 bar -650 to +1550 mmHg
Resolution	0.01 mmHg
Accuracy	General 0.05% full scale 0 to 300 mmHg $\pm$ 0.8 mmHg,
Over pressure	2 x full scale

#### HDU-PRH100

Range	-12 to 100 psi -0.85 to 7 bar -650 to 5150 mmHg
Resolution	0.01 mmHg
Accuracy	0.05% full scale
Over pressure	2 x full scale

### Temperature

#### HDU-Pt100

Range	0 to 100 °C
Resolution	0.001 °C
Accuracy	25 to 40 °C $\pm$ 0.03 °C otherwise $\pm$ 0.08 °C

#### HDU-OL-Series

Range	0 to 100 °C
Resolution	0.01 °C
Accuracy	25 to 40 °C $\pm$ 0.10 °C otherwise $\pm$ 0.15 °C

### Conductivity

#### HDU-CDTP

##### Conductivity

Range	0 to 200.00 mS/cm
Accuracy	0 to 199 uS/cm 0,3% $\pm$ 0.6 uS/cm 200 to 1999 uS/cm $\pm$ 6 uS/cm 2 to 11.99 mS/cm $\pm$ 0.06 mS/cm 12 to 19.99 mS/cm $\pm$ 0.03 mS/cm 20 to 200 mS/cm $\pm$ 0.6 mS/cm

Temperature  
Compensation

Referenced to 25°C  
Adjustable via multiple modes:  
linear 1 value, dynamic 2 values,  
nLF-Iso - nonlinear according ISO7888

##### Temperature

Range	0 to 100 °C
Resolution:	0.01 °C
Accuracy	25 to 40°C $\pm$ 0.05°C, otherwise $\pm$ 0.1°C



# HDC75 Display and Control Unit



The HDC75 display and control unit was developed with the busy biomed technician in mind. The combination of a touch screen and the Windows 10 operating system opens up new possibilities in daily tasks i.e repairing and calibrating medical instruments. Printing, sending reports via eMail, even online databases are all now made possible.

### Features include

- Robust design
- Large 14,000 mAh battery for up to 35 hours continuous work
- 7" Capacitive multi touch Screen
- MS Window 10 operating system



Robust mechanical design makes our device suitable for everyday use. For convenient fixation of the HDC75 to an infusion pole, a fold-away holder is incorporated. This movable holder also allows the user to set up the HDC75 in a tilt position on a flat surface.

Specifications		HDC75
<b>Computer</b>		
CPU	Intel Atom Z3735G (1.33GHz)	
Screen	7" diagonal HD WXGA IPS multitouch 1280 x 800,	
Memory	32 GB Flash Memory, 1 GB DDR3L SDRAM 32 GB Flash Memory Card	
OS	Microsoft Windows 10	
Network	WLAN 802.11 b/g/n	
Camera	0.3 MP fixed focus (front-facing); 2 MP fixed focus (rear-facing)	
Audio	Mono speaker	
<b>Interface</b>		
	Micro USB-B Host, also charger connector 5 x RS485, M8-Connector for HDU-Sensors and BSM-Simulators	
<b>Power supply</b>		
	Li-ion polymer battery 3,7 V / 14000 mAh (52 Wh) External charger Quick Charge 2.0 Compatible	
<b>Protection Class</b>	IP54	
<b>Dimensions</b>	250 x 140 x 50 mm	
<b>Weight</b>	1,5 Kg	

## Software for different applications

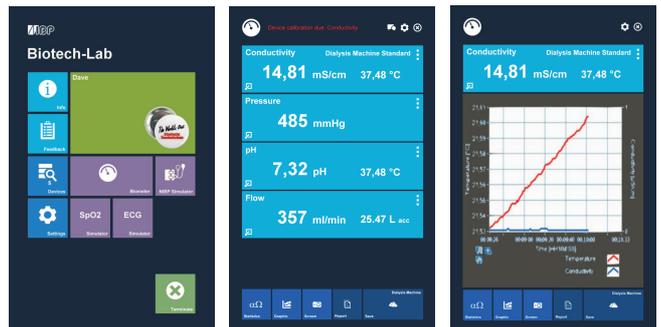
The Biotech-Lab software is designed as modular software allowing the user to add any applications as needed. The handling is self explaining and safe to use.

The standard Biometer software allows the user to display, record, save and print measurements.

### Biometer software features include

- Display of measuring values
- Display of statistical measuring data
- Record data over time
- Data export to Microsoft Excel

Software updates can easily be performed at any time and do not affect the calibration certificates of the different sensors, actuators or simulators.



Future software development for other functions will include

- NIBP Simulation
- Temperature Simulation
- ECG Patient Simulation

If you have any specific requirements please contact us. Any idea for additional functionality is highly appreciated.

# Preview

Products under development compatible with Biotech-Lab

## BioSim Biomed Simulators

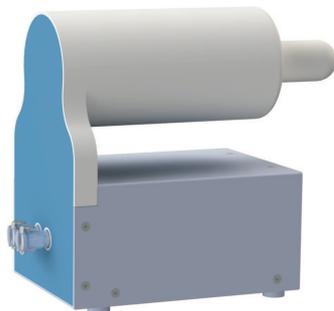
BioSim Modules are a new generation of modules for testing and quality control of medical instrumentation. Innovative electronics combined with sophisticated software provide a new and flexible way of testing and quality control. The devices feature an RS485 bus and can be controlled by the HDC-Display and control unit in conjunction with Biotech-Lab software. It is also possible to connect them to a PC or tablet with MS Windows via USB using a special interface cable.

The Biotech-Lab software can also perform;

- NIBP Simulation
- Temperature Simulation
- ECG Patient Simulation

### BSM-NIBP-ST

The first module to become available will be an auscultatory NIBP Simulator.



- $\pm 0.5$  mmHg pressure accuracy
- Supports adult and neonate cuffs.
- Internal pump for static calibration
- 500 ml tank according EN1060 included
- AC or battery operation
- Leak and over-pressure test

## LabCon-L Laboratory Modules

LabCon-L Modules are a new generation of modules for laboratory automation with regards to research, production and quality assurance. Innovative electronics and fluid technology combined with sophisticated software provide a new and flexible way of laboratory automation.

### Modularity that suits your needs

The LabCon-L series of modules consist of actuators, sensors, interfaces.

The range of modules will grow as customer requests help expand the range. Contact us today for a solution that suits your needs.

### Actuator Modules

- Pumps - Peristaltic with different sizes  
Gear, Piston - other on request
- Fluid Valves
- Tubing clamps



### Sensor modules

- Scale
- other on request



### Interface Modules

- 110/220 Volt power PWM
- RS232/485
- Analog/Digital IO



### Quality

All devices are developed and produced under a certified quality management system according to ISO 13485. We also offer a calibration service with certification in accordance with ISO 17025.

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