



NIBP UP®

INNOVATION MADE IN GERMANY

OEM Module: NIBP2020 UP Combi Board



NIBP Module with SpO2 Measurement for Patient Monitors

PAR Medizintechnik GmbH & Co. KG
Rigistr. 11
12277 Berlin

Telephone: 030 2350700

www.par-berlin.com
info@par-berlin.com

Dok.-Rev. C

NIBP UP[®] Technology – a new generation in patient-friendly blood pressure measurement!

The innovative NIBP UP[®] technology by PAR Medizintechnik is a revolution in the field of patient-friendly blood pressure measurement. It enables blood pressure and heart rate to be determined while the blood pressure cuff is being inflated (inflation method or IMT). This means that the cuff pressure can be released immediately after the systolic pressure has been reached, which approximately halves the measurement time (15 – 20 s with NIBP UP[®] instead of 20 – 30 s with classic step deflation).

In addition, the earlier release of the cuff pressure leads to a considerable reduction in the pressure load on the patient. The innovations of the NIBP UP[®] technology are perceived extremely positively by both doctors and patients, which leads to a high level of

„Comfort, Quality and Performance!“

„Flexible and easy to use!“





- ☑ CE marked
- ☑ Officially approved for measurements on adults and neonates
- ☑ Accuracy and reproducibility proven in extensive clinical studies
- ☑ Measurement artifact suppression
- ☑ Long service life
- ☑ NIBP UP® inflation measurement as well as classic deflation measurement

Reliable Blood Pressure Measurement.

For YOUR Patient Monitor!

The precision of the measurement results of our products is proven by extensive clinical studies. Furthermore, the feedback from our customers confirms the comfort and accuracy of the measurements.

Our modules are equipped with a 2-controller, 2-pressure transducer and 2-valve design, which ensures full compliance with international safety standards.

With this product you get the proven quality of PAR Medizintechnik, which has promised you a long service life and reliability for over 35 years thanks to the use of high quality components.

Electrical safety:

DIN EN 60601-1
DIN EN 60601-1-2

Standards for Blood Pressure Measurement:

DIN EN 80601-2-30
DIN EN ISO 81060-2

SpO₂ Technology.

Oxygen Saturation Measurement.

Standards for SpO₂ Measurements:

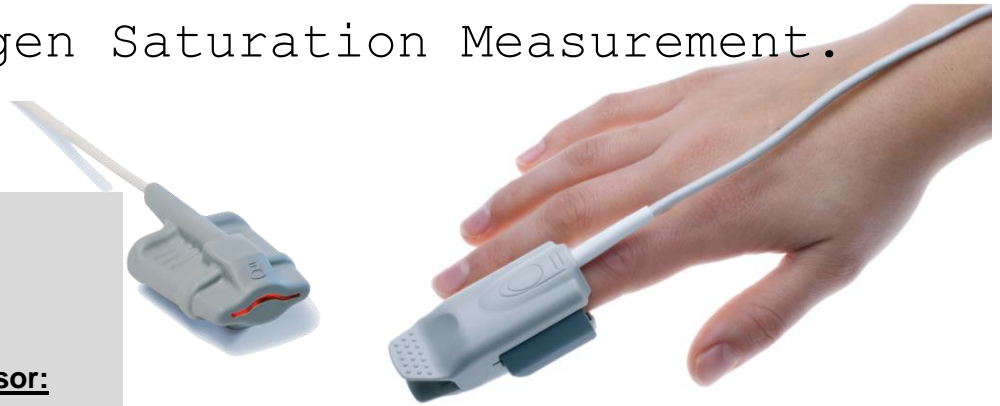
DIN EN ISO 80601-2-61

Standards for SpO₂ Sensor:

DIN EN ISO 10993-1

DIN EN ISO 10993-5

DIN EN ISO 10993-10



The SpO₂-Board technology platform has been developed over the past few years in close cooperation with established research institutions and university hospitals. By using the latest and most innovative signal processing technologies and algorithms, precise measurement of oxygen saturation is possible even under difficult physiological conditions. The proven pulse oximetry sensors are calibrated according to ISO standards and checked in comparison with dyshemoglobin-free reference measurements, which were determined by CO-oximeters and do not contain any saturation of the hemoglobin groups SaCO and SaMet.

Finger sensor

The easy handling of the sensors makes them the ideal solution for outpatient use and long-term monitoring. They are based on the most modern production technologies, materials and design elements. The sensors allow effective high level disinfection, which reduces the risk of nosocomial infections with pathogenic microorganisms living on surfaces.

Technical Specifications

Blood Pressure Measurement			
Measurement Method	Oscillometric method with NIBP® UP inflation technology (IMT) or classic deflation technology (DMT), selectable		
Typical Measurement Time	15 - 20 s (IMT)		
Measurement Intervals	1 – 90 min, programmable		
Operating Modes	manual, cycle, continuous, programmable Tourniquet, and service mode		
Measurement Range		DMT	IMT
Systole	(adults)	25 – 280 mmHg	77 – 200 mmHg
	(neonates)	20 – 150 mmHg	–
Diastole	(adults)	10 – 220 mmHg	45 – 190 mmHg
	(neonates)	5 – 110 mmHg	–
Pulse Rate	DMT: 30 – 240 bpm, IMT: 45 – 200 bpm		
Accuracy Blood Pressure	Max. ± 3 mmHg or $\pm 2\%$ (whichever is greater)		
Accuracy Pulse Rate	Max. ± 3 bpm or $\pm 3\%$ (whichever is greater)		
Cuff			
Connection	Metal-snap connection		
Size	Different sizes available		
Cuff Pressure	Max. 300 mmHg adult modus, max. 150 mmHg neonate modus		
Oxygen Saturation Measurement			
Measurement Method	Transmission measurement		
Sampling Rate	75 Hz or 300 Hz		
Measurement Range			
SpO ₂	0 – 100 %		
Pulse Rate	30 – 240 bpm (standard) or 20 – 300 bpm (EPR)		
Accuracy SpO ₂	60 – 100 %: $A_{rms} < 2\%$ (no motion)		
	70 – 100 %: $A_{rms} < 3\%$ (motion condition) ¹		
	60 – 100 %: $A_{rms} < 2\%$ (low perfusion, no motion) ²		
Accuracy Pulse Rate	Standard mode	30 – 240 bpm ± 2 bpm	(no motion)
	EPR mode	20 – 300 bpm ± 2 bpm	(no motion)
System			
Size (LxWxH)	(flat pump)	80 mm x 60 mm x 25 mm	
	(round pump)	80 mm x 60 mm x 33 mm	
Weight	(flat pump)	90 g (100 g with SpO ₂ function)	
	(round pump)	110 g (120 g with SpO ₂ function)	
Power Supply	+5 V nominal (5.0 V – 7.0 V) and max. 750 mA +12 V nominal (11.0 V – 13.0 V) and max. 530 mA		
Interface to Monitor			
Transmission Standard	RS232-TTL level		
Baud Rate	19200 Baud with SpO ₂		
Protocols	CAS (default), Colin, Suntech, Welch Allyn, Criticon, and others		
Connection	10-pin twin-row plug for all connections		
Maximum Operation Conditions			
Temperature Range	0°C to +60 °C		
Relative Humidity	15 – 95 % (non-condensing)		
Air Pressure	700 – 1060 hPa		

¹ Tested with all motion patterns Index II

² Tested with ProSim 8 simulator