

Technical data

Specification		OEM I	OEM II	OEM III
Measurement Range	SpO ₂	0 - 100 %	0 - 100 %	0 - 100 %
	Pulse Rate	20 - 300 bpm	0 - 300 bpm	0 - 300 bpm
	Perfusion	0.02 - 30 % (no motion)	0.1 - 30 % (no motion)	0.1 - 30 % (no motion)
Accuracy	SpO ₂	60 - 100 % +/- 2 Arms ¹ (no motion) 60 - 100 % +/- 3 Arms (motion condition) ³ 60 - 100 % +/- 2 Arms (low perfusion)		
	Pulse Rate	20 - 240 bpm +/- 3 bpm, > 240 bpm +/- 5 bpm (no motion) 20 - 240 bpm +/- 5 bpm, > 240 bpm unspecified (motion)		
Power requirements		OEM I	OEM II	OEM III
Input voltage		3.3 VDC (+/- 0.1 V)	3.1 - 3.6 VDC	3.1 - 3.6 VDC
Average power consumption ⁴		50 mW, 75 Hz sampling rate	60 mW, 75 Hz sampling rate	24 mW, 75 Hz sampling rate
Maximum power consumption ⁴		≤ 70 mW, 75 Hz sampling rate ≤ 150 mW ² , 300 Hz sampling rate	≤ 70 mW, 75 Hz sampling rate ≤ 175 mW ² , 300 Hz sampling rate	≤ 29 mW, 75 Hz sampling rate ≤ 95 mW ² , 300 Hz sampling rate
Environmental conditions				
Operation		-25 to +60 °C		
Storage		-40 to +70 °C		
Relative humidity		15 % - 95 % (operation, non-condensing) 10 % - 95 % (storage, non-condensing)		
Environmental conditions				
Baud Rate		9600 baud up to 230400 baud		
Applied Standards				
SMARTsat module OEM I, II, III		IEC 60601-1:2005 (3rd Ed); IEC 60601-1 (2nd Ed) IEC 60601-1-2:2014 (4th Ed); IEC 60601-1-2 (3rd Ed) EN ISO 80601-2-61:2011; EN ISO 9919:2009 ISO 14971:2007; IEC 60601-1-6:2010 ; IEC 60601-1-11:2010		
SMARTsat sensors		ISO 10993-1:2009; ISO 10993-5:2009; ISO 10993-10:2010		
Miscellaneous		OEM I	OEM II	OEM III
Dimensions (L x W x H)		50.8 mm x 35.1 mm x 6.6 mm	31.0 mm x 14.0 mm x 5.0 mm	31.0 mm x 14.0 mm x 5.0 mm

¹ A_{rms}: +/- 1 Arms represents approx 68 % of measurements

² High Resolution Pleth Mode (300 Hz sampling rate)

³ Motion: Tested with selected motion patterns Index II

⁴ Power consumption measured at a data transfer rate of 230 kBaud. Reduced data tranfer rates increases the power consumption.

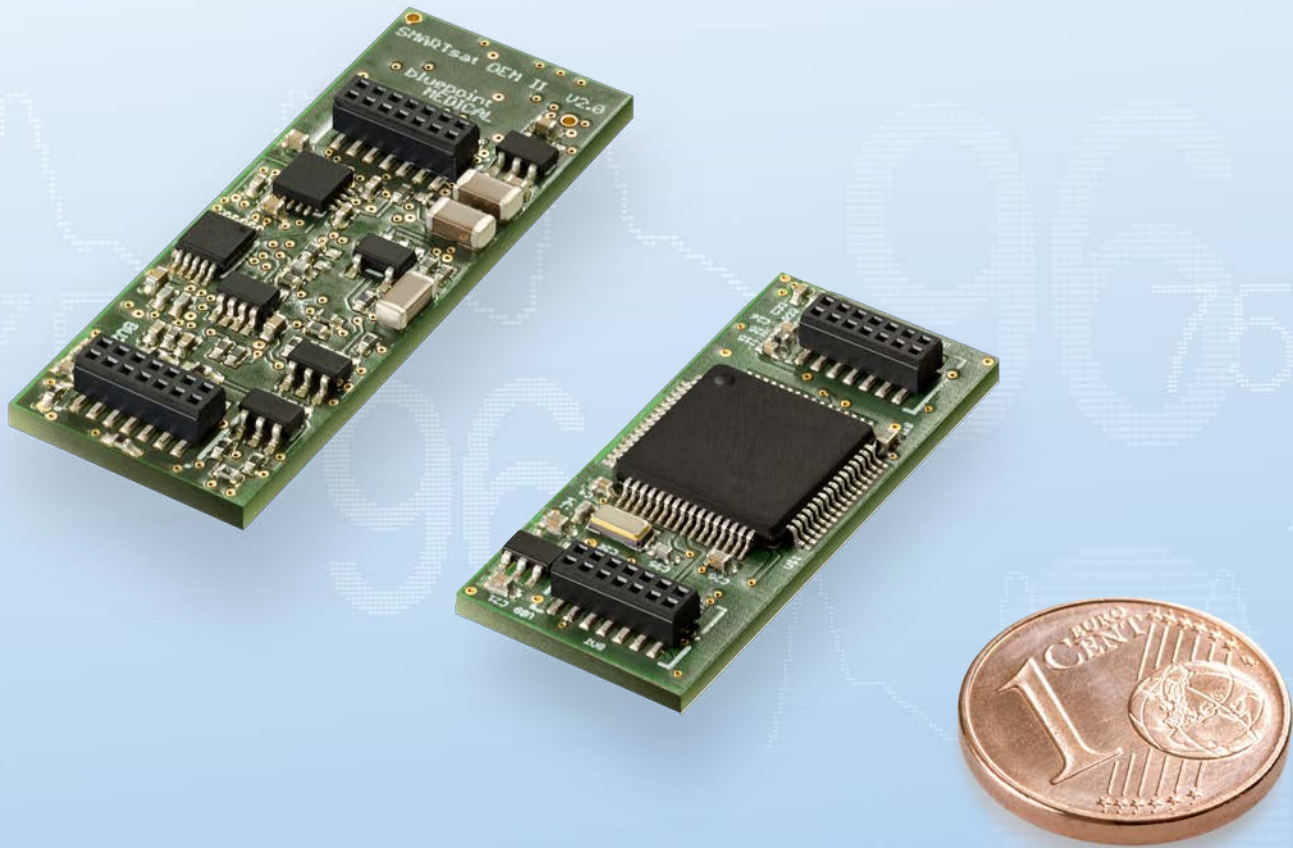
Specification subject to change

SMARTsat® modules are designed to comply with 2nd and 3rd edition standards.

For further information, please contact info@bluepoint-medical.com

SMARTsat®

High performance SpO₂ technology for OEMs



» PRODUCTS that care for you «

Technical data

Specification		OEM I	OEM II	OEM III
Measurement Range	SpO ₂	0 - 100 %	0 - 100 %	0 - 100 %
	Pulse Rate	20 - 300 bpm	0 - 300 bpm	0 - 300 bpm
	Perfusion	0.02 - 30 % (no motion)	0.1 - 30 % (no motion)	0.1 - 30 % (no motion)
Accuracy	SpO ₂	60 - 100 % +/- 2 Arms ¹ (no motion) 60 - 100 % +/- 3 Arms (motion condition) ³ 60 - 100 % +/- 2 Arms (low perfusion)		
	Pulse Rate	20 - 240 bpm +/- 3 bpm, > 240 bpm +/- 5 bpm (no motion) 20 - 240 bpm +/- 5 bpm, > 240 bpm unspecified (motion)		
Power requirements		OEM I	OEM II	OEM III
Input voltage		3.3 VDC (+/- 0.1 V)	3.1 - 3.6 VDC	3.1 - 3.6 VDC
Average power consumption ⁴		50 mW, 75 Hz sampling rate	60 mW, 75 Hz sampling rate	24 mW, 75 Hz sampling rate
Maximum power consumption ⁴		≤ 70 mW, 75 Hz sampling rate ≤ 150 mW ² , 300 Hz sampling rate	≤ 70 mW, 75 Hz sampling rate ≤ 175 mW ² , 300 Hz sampling rate	≤ 29 mW, 75 Hz sampling rate ≤ 95 mW ² , 300 Hz sampling rate
Environmental conditions				
Operation		-25 to +60 °C		
Storage		-40 to +70 °C		
Relative humidity		15 % - 95 % (operation, non-condensing) 10 % - 95 % (storage, non-condensing)		
Environmental conditions				
Baud Rate		9600 baud up to 230400 baud		
Applied Standards				
SMARTsat module OEM I, II, III		IEC 60601-1:2005 (3rd Ed); IEC 60601-1 (2nd Ed) IEC 60601-1-2:2014 (4th Ed); IEC 60601-1-2 (3rd Ed) EN ISO 80601-2-61:2011; EN ISO 9919:2009 ISO 14971:2007; IEC 60601-1-6:2010 ; IEC 60601-1-11:2010		
SMARTsat sensors		ISO 10993-1:2009; ISO 10993-5:2009; ISO 10993-10:2010		
Miscellaneous		OEM I	OEM II	OEM III
Dimensions (L x W x H)		50.8 mm x 35.1 mm x 6.6 mm	31.0 mm x 14.0 mm x 5.0 mm	31.0 mm x 14.0 mm x 5.0 mm

¹ A_{rms}: +/- 1 Arms represents approx 68 % of measurements

² High Resolution Pleth Mode (300 Hz sampling rate)

³ Motion: Tested with selected motion patterns Index II

⁴ Power consumption measured at a data transfer rate of 230 kBaud. Reduced data tranfer rates increases the power consumption.

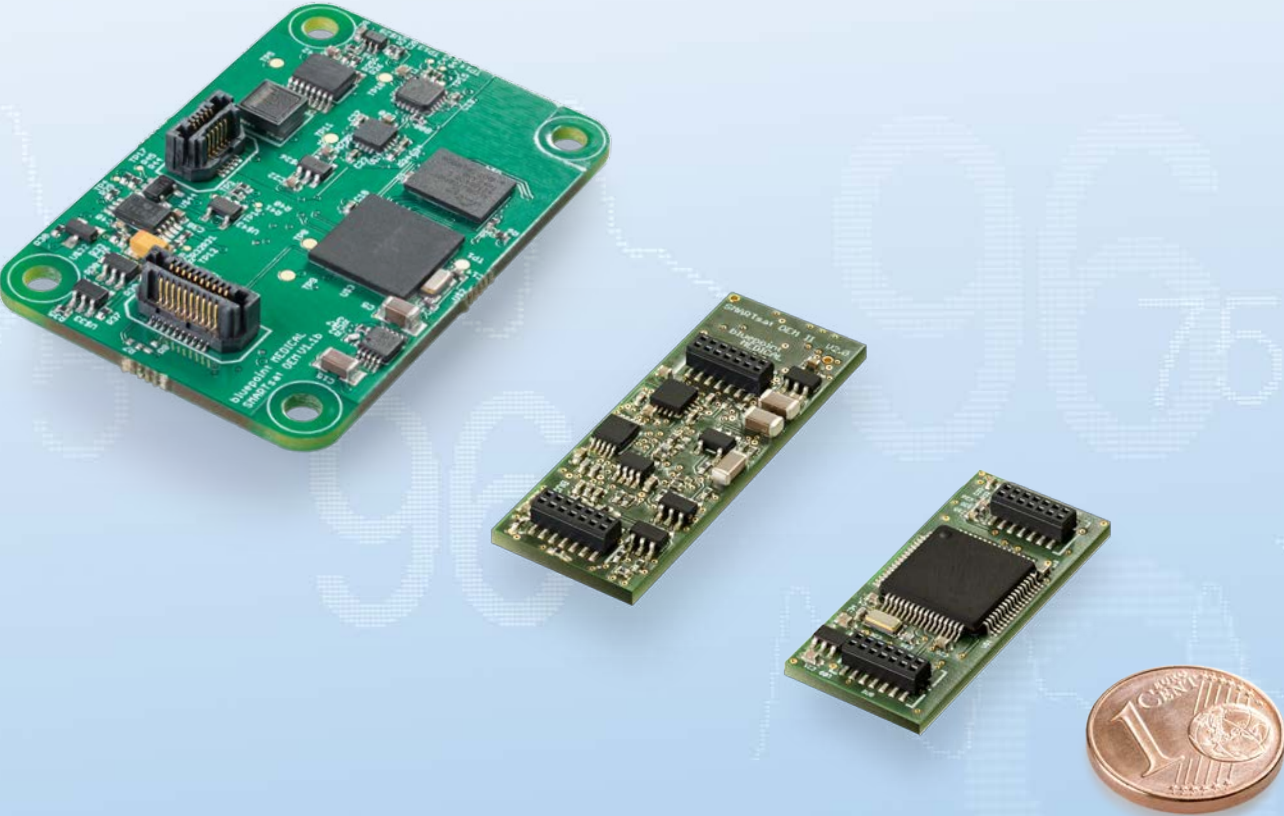
Specification subject to change

SMARTsat® modules are designed to comply with 2nd and 3rd edition standards.

For further information, please contact info@bluepoint-medical.com

SMARTsat®

High performance SpO₂ technology for OEMs



» PRODUCTS that care for you «

Technical data

Specification		OEM I	OEM II	OEM III
Measurement Range	SpO ₂	0 - 100 %	0 - 100 %	0 - 100 %
	Pulse Rate	20 - 300 bpm	0 - 300 bpm	0 - 300 bpm
	Perfusion	0.02 - 30 % (no motion)	0.1 - 30 % (no motion)	0.1 - 30 % (no motion)
Accuracy	SpO ₂	60 - 100 % +/- 2 Arms ¹ (no motion) 60 - 100 % +/- 3 Arms (motion condition) ³ 60 - 100 % +/- 2 Arms (low perfusion)		
	Pulse Rate	20 - 240 bpm +/- 3 bpm, > 240 bpm +/- 5 bpm (no motion) 20 - 240 bpm +/- 5 bpm, > 240 bpm unspecified (motion)		
Power requirements		OEM I	OEM II	OEM III
Input voltage		3.3 VDC (+/- 0.1 V)	3.1 - 3.6 VDC	3.1 - 3.6 VDC
Average power consumption ⁴		50 mW, 75 Hz sampling rate	60 mW, 75 Hz sampling rate	24 mW, 75 Hz sampling rate
Maximum power consumption ⁴		≤ 70 mW, 75 Hz sampling rate ≤ 150 mW ² , 300 Hz sampling rate	≤ 70 mW, 75 Hz sampling rate ≤ 175 mW ² , 300 Hz sampling rate	≤ 29 mW, 75 Hz sampling rate ≤ 95 mW ² , 300 Hz sampling rate
Environmental conditions				
Operation		-25 to +60 °C		
Storage		-40 to +70 °C		
Relative humidity		15 % - 95 % (operation, non-condensing) 10 % - 95 % (storage, non-condensing)		
Environmental conditions				
Baud Rate		9600 baud up to 230400 baud		
Applied Standards				
SMARTsat module OEM I, II, III		IEC 60601-1:2005 (3rd Ed); IEC 60601-1 (2nd Ed) IEC 60601-1-2:2014 (4th Ed); IEC 60601-1-2 (3rd Ed) EN ISO 80601-2-61:2011; EN ISO 9919:2009 ISO 14971:2007; IEC 60601-1-6:2010 ; IEC 60601-1-11:2010		
SMARTsat sensors		ISO 10993-1:2009; ISO 10993-5:2009; ISO 10993-10:2010		
Miscellaneous		OEM I	OEM II	OEM III
Dimensions (L x W x H)		50.8 mm x 35.1 mm x 6.6 mm	31.0 mm x 14.0 mm x 5.0 mm	31.0 mm x 14.0 mm x 5.0 mm

¹ A_{rms}: +/- 1 Arms represents approx 68 % of measurements

² High Resolution Pleth Mode (300 Hz sampling rate)

³ Motion: Tested with selected motion patterns Index II

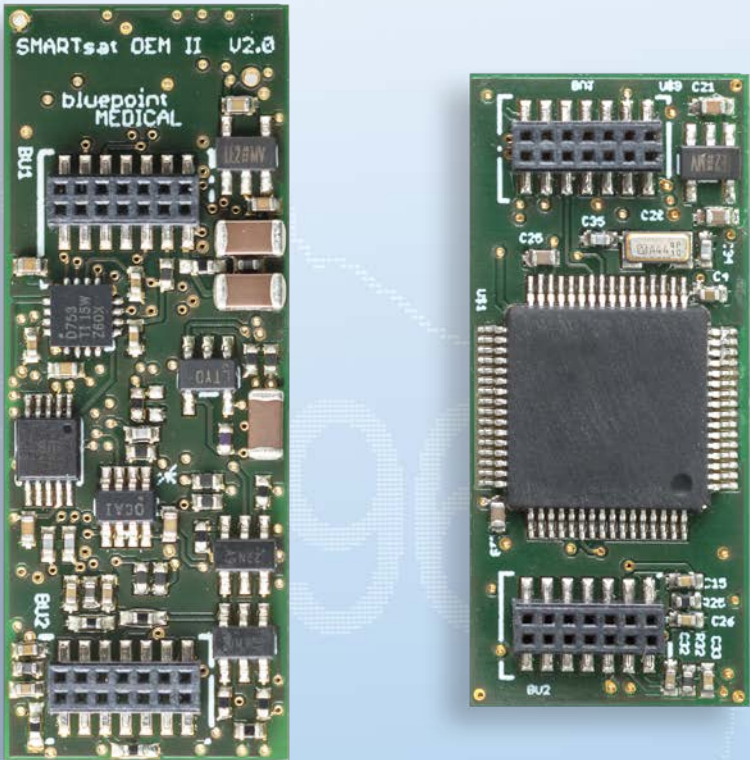
⁴ Power consumption measured at a data transfer rate of 230 kBaud. Reduced data tranfer rates increases the power consumption.

Specification subject to change

SMARTsat® modules are designed to comply with 2nd and 3rd edition standards.

For further information, please contact info@bluepoint-medical.com

SMARTsat®
High performance SpO₂ technology for OEMs



» PRODUCTS that care
for you «

Technical data

Specification		OEM I	OEM II	OEM III
Measurement Range	SpO ₂	0 - 100 %	0 - 100 %	0 - 100 %
	Pulse Rate	20 - 300 bpm	0 - 300 bpm	0 - 300 bpm
	Perfusion	0.02 - 30 % (no motion)	0.1 - 30 % (no motion)	0.1 - 30 % (no motion)
Accuracy	SpO ₂	60 - 100 % +/- 2 Arms ¹ (no motion) 60 - 100 % +/- 3 Arms (motion condition) ³ 60 - 100 % +/- 2 Arms (low perfusion)		
	Pulse Rate	20 - 240 bpm +/- 3 bpm, > 240 bpm +/- 5 bpm (no motion) 20 - 240 bpm +/- 5 bpm, > 240 bpm unspecified (motion)		
Power requirements		OEM I	OEM II	OEM III
Input voltage		3.3 VDC (+/- 0.1 V)	3.1 - 3.6 VDC	3.1 - 3.6 VDC
Average power consumption ⁴		50 mW, 75 Hz sampling rate	60 mW, 75 Hz sampling rate	24 mW, 75 Hz sampling rate
Maximum power consumption ⁴		≤ 70 mW, 75 Hz sampling rate ≤ 150 mW ² , 300 Hz sampling rate	≤ 70 mW, 75 Hz sampling rate ≤ 175 mW ² , 300 Hz sampling rate	≤ 29 mW, 75 Hz sampling rate ≤ 95 mW ² , 300 Hz sampling rate
Environmental conditions				
Operation		-25 to +60 °C		
Storage		-40 to +70 °C		
Relative humidity		15 % - 95 % (operation, non-condensing) 10 % - 95 % (storage, non-condensing)		
Environmental conditions				
Baud Rate		9600 baud up to 230400 baud		
Applied Standards				
SMARTsat module OEM I, II, III		IEC 60601-1:2005 (3rd Ed); IEC 60601-1 (2nd Ed) IEC 60601-1-2:2014 (4th Ed); IEC 60601-1-2 (3rd Ed) EN ISO 80601-2-61:2011; EN ISO 9919:2009 ISO 14971:2007; IEC 60601-1-6:2010 ; IEC 60601-1-11:2010		
SMARTsat sensors		ISO 10993-1:2009; ISO 10993-5:2009; ISO 10993-10:2010		
Miscellaneous		OEM I	OEM II	OEM III
Dimensions (L x W x H)		50.8 mm x 35.1 mm x 6.6 mm	31.0 mm x 14.0 mm x 5.0 mm	31.0 mm x 14.0 mm x 5.0 mm

¹ A_{rms}: +/- 1 Arms represents approx 68 % of measurements

² High Resolution Pleth Mode (300 Hz sampling rate)

³ Motion: Tested with selected motion patterns Index II

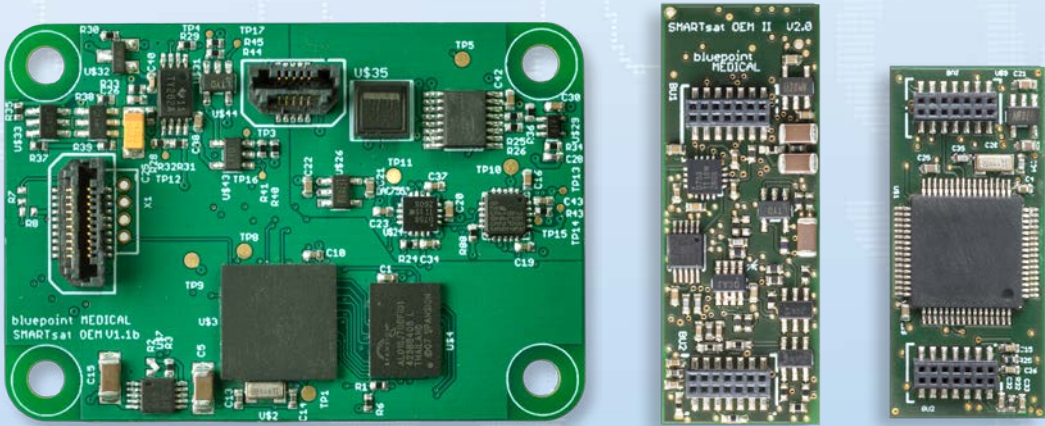
⁴ Power consumption measured at a data transfer rate of 230 kbaud. Reduced data tranfer rates increases the power consumption.

Specification subject to change

SMARTsat® modules are designed to comply with 2nd and 3rd edition standards.

For further information, please contact info@bluepoint-medical.com

SMARTsat®
High performance SpO₂ technology for OEMs



» PRODUCTS that care
for you «



SMARTsat technology – Now you have a choice! «



High performance SpO₂ technology for OEMs

The SMARTsat technology platform was developed over the last few years in close cooperation with well-established research institutions and university hospitals.

The very latest and innovative signal processing technologies and algorithms enable precise measurements, even under very difficult physiological conditions. SMARTsat technology has extremely low power consumption requirements, and is a real alternative for OEM customers whom require high-end pulse oximetry solutions for their applications.

According to the ISO Standards, the approved pulse oximetry sensors are calibrated and evaluated against dyshemoglobin-free reference measurements, which were determined from CO oximeter data and do not contain saturation components of the hemoglobin fractions SaCO and SaMet.

SMARTsat has been calibrated within the range of 60 - 100 % SpO₂.

SMARTsat ARMS in the SaO₂ ranges

	100 - 60 %	100 - 90 %	90 - 80 %	80 - 70 %	70 - 60 %
SoftCap Softsensor	1.5	1.3	1.1	1.5	2.4
SoftFlap Fingerclip	1.2	1.0	1.0	1.2	2.0
SoftWrap Wrapstyle	1.5	0.9	0.9	1.7	3.2
Disposable Adult	1.7	1.1	1.5	2.0	2.4
Earprobe	1.3	1.3	1.4	1.3	1.7



» Typical applications

SMARTsat is designed for integration into:

- High-End SpO₂ monitoring devices
- Patient monitors
- Transport monitors
- Sleep screening devices
- Defibrillators
- Home care monitors
- ... and more

Flexible robust and hygienic

Bluepoint® MEDICAL provides advanced sensors latest technology which features high quality and comfort.

SoftCap® SC/SCM/SCP



SoftWrap® W



Due to its robust design, the SoftCap® and SoftWrap® sensors are well suited for use in the tough environment of rescue services, emergency care and hospital facilities. Reliable elimination of even the most problematic pathogens using highly effective disinfectants.

Bluepoint® Soft Sensors are manufactured from premium materials and their design allows for effective high-level disinfection. This reduces the risk of nosocomial infection associated with surface-borne pathogenic microorganisms.

Additional sensors

SoftFlap® SF



SoftFlap® sensors are the ideal solution for ambulatory use, or for long-term monitoring. Advanced manufacturing technologies, materials and design elements found their use in these sensors.

Ear Sensor EP



High-quality ear sensor with very pleasant wearing comfort and utility. The ear sensor has an additional sensor holder that prevents the ear sensor while wearing/using slip on the ear or is demolished.

Disposables



Disposable sensors with Plaster Tape – high flexibility and adaptability distinguishes this particularly soft material. By the use of Plaster Tapes the sensors are repeatedly re-applied. Available versions for adults, pediatrics, infants and neonates.



SMARTsat technology – Now you have a choice! «



High performance SpO₂ technology for OEMs

The SMARTsat technology platform was developed over the last few years in close cooperation with well-established research institutions and university hospitals.

The very latest and innovative signal processing technologies and algorithms enable precise measurements, even under very difficult physiological conditions. SMARTsat technology has extremely low power consumption requirements, and is a real alternative for OEM customers whom require high-end pulse oximetry solutions for their applications.

According to the ISO Standards, the approved pulse oximetry sensors are calibrated and evaluated against dyshemoglobin-free reference measurements, which were determined from CO oximeter data and do not contain saturation components of the hemoglobin fractions SaCO and SaMet.

SMARTsat has been calibrated within the range of 60 - 100 % SpO₂.

SMARTsat ARMS in the SaO₂ ranges

	100 - 60 %	100 - 90 %	90 - 80 %	80 - 70 %	70 - 60 %
SoftCap Softsensor	1.5	1.3	1.1	1.5	2.4
SoftFlap Fingerclip	1.2	1.0	1.0	1.2	2.0
SoftWrap Wrapstyle	1.5	0.9	0.9	1.7	3.2
Disposable Adult	1.7	1.1	1.5	2.0	2.4
Earprobe	1.3	1.3	1.4	1.3	1.7



Typical applications

SMARTsat is designed for integration into:

- High-End SpO₂ monitoring devices
- Patient monitors
- Transport monitors
- Sleep screening devices
- Defibrillators
- Home care monitors
- ... and more

Flexible robust and hygienic

Bluepoint® MEDICAL provides advanced sensors latest technology which features high quality and comfort.



SoftCap® SC/SCM/SCP SoftWrap® W

Due to its robust design, the SoftCap® and SoftWrap® sensors are well suited for use in the tough environment of rescue services, emergency care and hospital facilities.



Reliable elimination of even the most problematic pathogens using highly effective disinfectants.

Bluepoint® Soft Sensors are manufactured from premium materials and their design allows for effective high-level disinfection. This reduces the risk of nosocomial infection associated with surface-borne pathogenic microorganisms.

Additional sensors



SoftFlap® SF

SoftFlap® sensors are the ideal solution for ambulatory use, or for long-term monitoring. Advanced manufacturing technologies, materials and design elements found their use in these sensors.



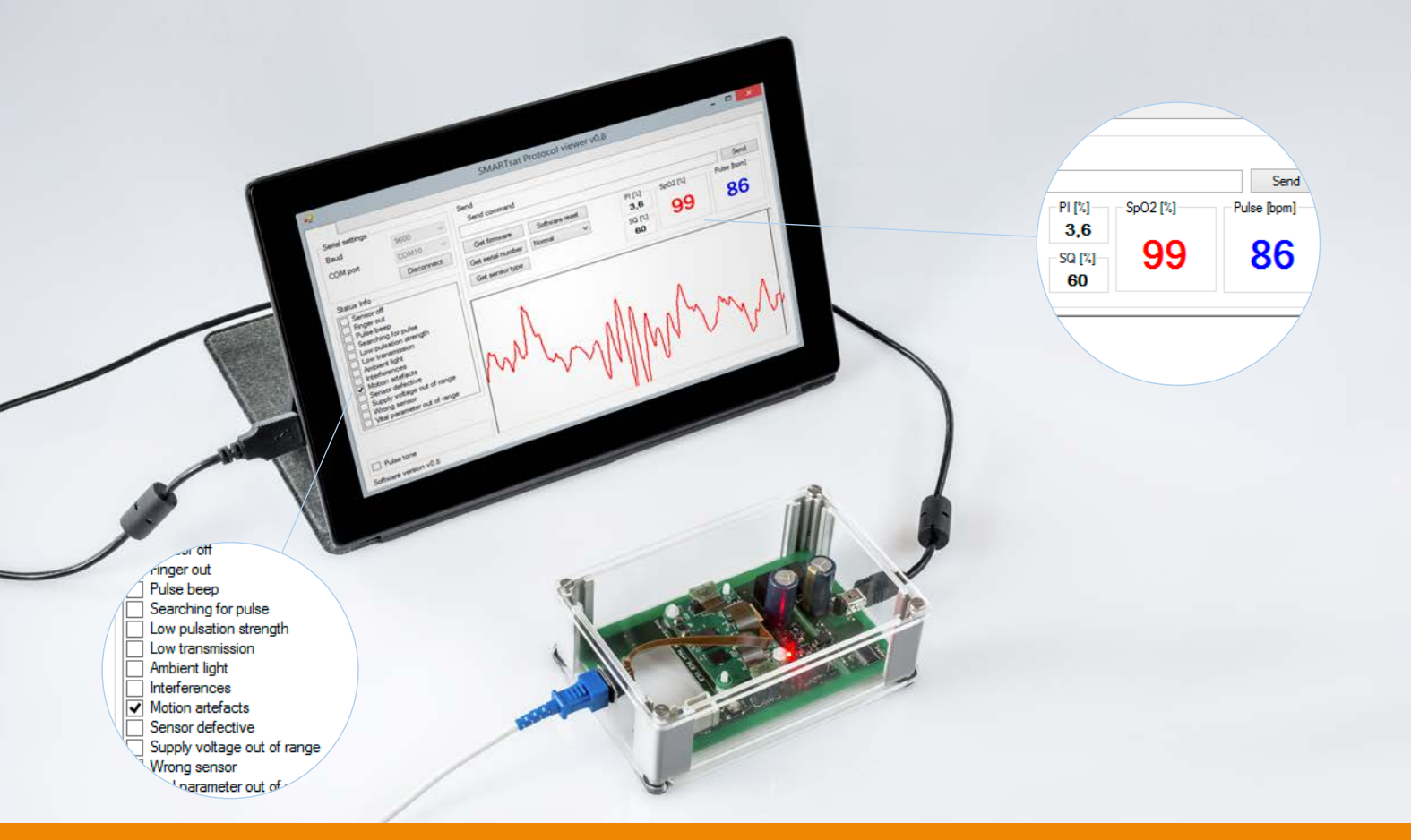
Ear Sensor EP

High-quality ear sensor with very pleasant wearing comfort and utility. The ear sensor has an additional sensor holder that prevents the ear sensor while wearing/using slip on the ear or is demolished.



Disposables

Disposable sensors with Plaster Tape – high flexibility and adaptability distinguishes this particularly soft material. By the use of Plaster Tapes the sensors are repeatedly re-applied. Available versions for adults, pediatrics, infants and neonates.



SMARTsat technology – Now you have a choice! «



High performance SpO₂ technology for OEMs

The SMARTsat technology platform was developed over the last few years in close cooperation with well-established research institutions and university hospitals.

The very latest and innovative signal processing technologies and algorithms enable precise measurements, even under very difficult physiological conditions. SMARTsat technology has extremely low power consumption requirements, and is a real alternative for OEM customers whom require high-end pulse oximetry solutions for their applications.

According to the ISO Standards, the approved pulse oximetry sensors are calibrated and evaluated against dyshemoglobin-free reference measurements, which were determined from CO oximeter data and do not contain saturation components of the hemoglobin fractions SaCO and SaMet.

SMARTsat has been calibrated within the range of 60 - 100 % SpO₂.

SMARTsat ARMS in the SaO₂ ranges

	100 - 60 %	100 - 90 %	90 - 80 %	80 - 70 %	70 - 60 %
SoftCap Softsensor	1.5	1.3	1.1	1.5	2.4
SoftFlap Fingerclip	1.2	1.0	1.0	1.2	2.0
SoftWrap Wrapstyle	1.5	0.9	0.9	1.7	3.2
Disposable Adult	1.7	1.1	1.5	2.0	2.4
Earprobe	1.3	1.3	1.4	1.3	1.7



Typical applications

SMARTsat is designed for integration into:

- High-End SpO₂ monitoring devices
- Patient monitors
- Transport monitors
- Sleep screening devices
- Defibrillators
- Home care monitors
- ... and more

Flexible and easy to use

Bluepoint® MEDICAL provides advanced sensors latest technology which features high quality and comfort.

SoftCap® SC and SCP

The SoftCap® SC and SoftCap® SCP Pediatric sensors from the Rubberboot® series are the 3rd generation of soft sensors utilising the latest production technologies, materials and design elements. The new Thermo-Q optosets from bluepoint® MEDICAL have a thermo-balanced light radiation characteristic with high light efficiency which significantly improves signal to noise ratio.

SoftWrap® W

SoftWrap® sensors are universal and skin friendly in use. They are particularly suitable for every application, from adults to infants. Wrap tapes are provided with mounting loops, so a simple fixation of the wrap sensor is given.

SoftFlap® SF

SoftFlap® sensors are the ideal solution for ambulatory use, or for long-term monitoring. Advanced manufacturing technologies, materials and design elements found their use in these sensors.

Ear Sensor EP

High-quality ear sensor with very pleasant wearing comfort and utility. The ear sensor has an additional sensor holder that prevents the ear sensor while wearing/using slip on the ear or is demolished.

Disposables

Disposable sensors with Plaster Tape – high flexibility and adaptability distinguishes this particularly soft material. By the use of Plaster Tapes the sensors are repeatedly re-applied.



Available sensors

