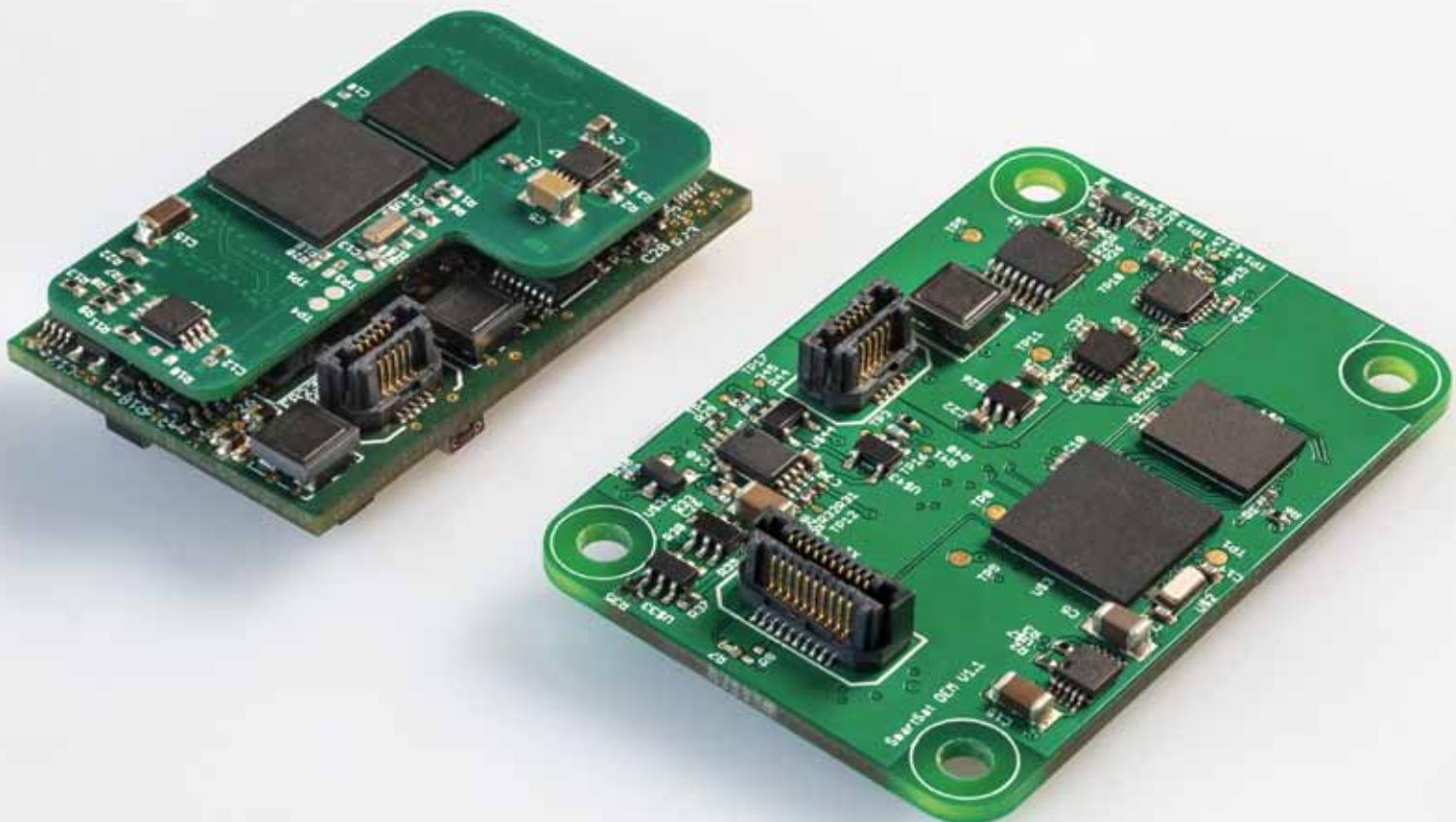


pulse oximetry



SMARTsat®

High performance SpO₂ technology for OEMs



 VIAMED



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.

In accordance with 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 A_{RMS} in the SpO₂ ranges

	100 - 60%	100 - 90%	90 - 80%	80 - 70%	70 - 60%
Silicone Sensors	1.5	1.3	1.1	1.5	2.4
Finger Clip Sensors	1.2	1.0	1.0	1.2	2.0
Silicone Wrap Sensors	1.5	0.9	0.9	1.7	3.2
Disposable Adult	1.7	1.1	1.5	2.0	2.4
Ear Sensors	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

Viamed provides advanced sensors latest technology which features high quality and comfort



Silicone Sensors

The Silicone Sensors from the 4000 series are the 3rd generation of soft sensors, utilising the latest production technologies, materials and design elements.



Silicone Paediatric Sensors

The Silicone Paediatric sensors from the 4000 series are the 3rd generation of soft sensors, utilising the latest production technologies, materials and design elements.



Finger Clip Sensors

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



Silicone Wrap Sensors

Silicone Wrap sensors are for universal applications, for use on infants to adults. Wrap tapes are provided with mounting loops, enabling a simple fixation of the skin friendly wrap sensor.



Ear Sensor

High-quality ear sensor, which is comfortable and easy to use. The ear sensor has an additional sensor holder that prevents sensor movement and prevents it from being dislodged.



Disposables

Disposable sensors with Plaster Tape – the soft material is flexible and adaptable, and enables the sensors to be reapplied.

Technical data

Specification

	SpO ₂	0 - 100 %
Measurement Range	Pulse Rate	20 - 300 bpm
	Perfusion	0.02 - 30 % (no motion)
		60 - 100 % +/- 2 A _{RMS} ¹ (no motion)
Accuracy	SpO ₂	60 - 100 % +/- 3 A _{RMS} (motion condition) ³
		60 - 100 % +/- 2 A _{RMS} (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

Input voltage	3.3 VDC (+/- 0.1 V)
Average power consumption	50 mW, 75 Hz sampling rate
Maximum power consumption	70 mW, 75 Hz sampling rate ≤ 150 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)

Serial communication

Baud Rate	9600 baud up to 230400 baud
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Applied Standards

SMARTsat module	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

Dimensions (L x W x H)	Single board	50.8 mm x 35.1 mm x 6.6 mm
	Stacked board	41.2 mm x 27.1 mm x 11.9 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

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

Specifications subject to change



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ISO 13485:2003



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