

# ALGORITHM PORTFOLIO

## Medical applications

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## CARDIOVASCULAR MONITORING

Parameter	Description	Body location
RR intervals	Interval of time between successive R waves (cardiac contractions)	
Heart rate	Number of beats per minute (bpm)	
Heart rate variability	Variation in the time interval between heartbeats	
Perfusion	Rate of blood delivery to a capillary bed	
SpO2	Blood oxygen saturation	
VO2	Instantaneous oxygen consumption	
VO2max	Maximum oxygen consumption	
EPOC	Excess post-exercise oxygen consumption after exercise	
Breathing rate	Number of breaths taken in a minute	
Blood pressure	Non-occlusive systolic/diastolic blood pressure measurement	
Arrhythmia classifier	Detection of various cardiac arrhythmias (atrial and ventricular fibrillations, ventricular premature beats)	
Stress level	Feature derived from autonomous nervous system balance (sympathetic vs parasympathetic)	
Pulmonary artery pressure	Non-invasive blood pressure in the pulmonary artery	
Pulmonary edema	Non-invasive determination of fluid accumulation in the lungs	
Stroke volume	Non-invasive measurement of the blood volume pumped each beat	
Stroke volume variation	Non-invasive stroke volume variation measurement	
Cardiac coherence	Rhythmic component that balances the nervous system (stress) and emotional state.	



## SLEEP MONITORING



Parameter	Description	Body location
Drowsiness	Detector of sleepiness or lethargy	
Total sleep time	Duration of actual sleep time during a sleep episode	
Sleep stage scoring	Classification of sleep (wake, deep and light)	
	Classification of sleep (wake, REM and NREM)	
Time in bed	Time from "Lights Out" to "Lights On"	
Sleep latency	Duration of time from bedtime to the onset of sleep	
Sleep quality	Sleep duration, sleep fragmentation and sleep cycles	

CSEM delivers tailored, embedded solutions for vital sign monitoring. Our algorithms have undergone stringent validation processes (incl. clinical assessment) to ensure they are ready for tomorrow's wearables.

[www.csem.ch/Medtech](http://www.csem.ch/Medtech)

