

Specifications Corsano Vitals

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	Definition	Unit	Range	Acquisition Time	Update interval	Accuracy *	Analysis
Heart Rate	Number of beats of the heart per minute	beats/minute (bpm)	30-220	5-10 sec	1 sec	HR is ± 4 bpm MAD, $\pm 5\%$ MARD (at rest)	Firmware on device
RR Interval	Elapsed time between two consecutive heart beats	ms	300-2000 ms	5-10 sec	1 sec	RR Interval ± 50 ms MAD, $\pm 5\%$ MARD (at rest)	Firmware on device
Heart Rate Variability	Beat to beat (RR interval) variations	ms	0-200 ms	5-10 sec	1 sec	HRV ± 10 ms MAD, $\pm 5\%$ MARD (at rest)	Firmware on device
Atrial Fibrillation	Paroxysmal atrial fibrillation	AF event	0-120/h	30 sec	30 sec	AF $\pm 5\%$ MAD, $\pm 5\%$ MARD	Cloud Application
Respiration Rate	Number of breaths (inhalation - exhalation cycles) per minute	breaths/minute (brpm)	5-45 brpm	20-30 sec	1 sec	Respiration Rate ± 1 bpm MAD, $\pm 5\%$ MARD (at rest)	Firmware on device
Saturation (in development)	Oxygen saturation level in the arterial blood	SpO2 %	0-100%	20-30 sec	1 sec	SpO2 $\pm 1\%$ MAD, $\pm 5\%$ MARD (at rest)	Firmware on device, Cloud Application
Activity Count	Level of movement	number (integer)	0-65535	1 sec	1 sec	Activity Count ± 1 MAD, $\pm 5\%$ MARD	Firmware on device
Activity Type	Detection of specific activities	category	resting, walking, running, cycling, other	10 sec	1 sec	Activity Type $\pm 10\%$ MAD, $\pm 5\%$ MARD	Firmware on device
Speed	Rate of change of position	0.1m/sec	0-54km/h	10 sec	1 sec	Speed ± 5 km/h MAD, $\pm 5\%$ MARD	Firmware on device
Cadence	# of periodic events per min in cyclical activities	strides/minute	20-120	10 sec	1 sec	Speed ± 3 strides/minute MAD, $\pm 5\%$ MARD	Firmware on device

Steps	Steps taken every day	number (integer)	0-65535	10 sec	1 min	Steps ± 5 MAD, $\pm 5\%$ MARD	Firmware on device
Activity Score	Active minutes (minutes with >100 steps) normalized for the day	%	0-100%	10 sec	1 min	Activity Score ± 5 % MAD, $\pm 5\%$ MARD	Firmware on device
Activity-Energy Expenditure	Energy spent by the body, due to Physical activity	kcal/h	0-1200	5-10 sec	1 sec	Speed ± 10 kcal/h MAD, $\pm 5\%$ MARD	Firmware on device
VO2Max	Maximum rate of oxygen consumption during incremental exercise	ml/kg/min	10-100	20-30 min walking >3km/h or running >6km/h	1 min	VO2Max ± 3 ml/kg/min MAD, $\pm 5\%$ MARD	Firmware on device
Cardio Fitness Index	VO2Max normalized for age and gender	number (integer)	0-100	60 min walking >3km/h or running >6km/h	1 min	CFI ± 3 MAD, $\pm 5\%$ MARD	Firmware on device
Sleep Stages	Detection of specific sleep stages & sleep HR	awake, light sleep, deep sleep, REM	sleep stage	upon end of the entire sleep event	1 min	Sleep Stage ± 10 % MAD	Firmware on device, Android/iOS app
Sleep Score	Sleep performance and sleep consistency with equal weight	%	0-100%	10 sec	1 min	Sleep Score ± 5 % MAD	Firmware on device, Android/iOS app
Temperature	Core body temperature	degrees Celsius, degrees Fahrenheit	15-45 °C, 60-110 °F	5-10 sec	1 min	Temperature ± 0.5 °C MAD, $\pm 5\%$ MARD	Firmware on device
Blood Pressure (in development)	Non-Invasive Systolic and diastolic blood pressure	mmHg	100-200 (systolic), 50-120 (diastolic)	5-10 min	30 min	BP ± 5 mmHg MAD, $\pm 5\%$ MARD	Cloud Application

Remarks: * MAD=Mean absolute difference & MARD=Mean absolute relative difference under motion