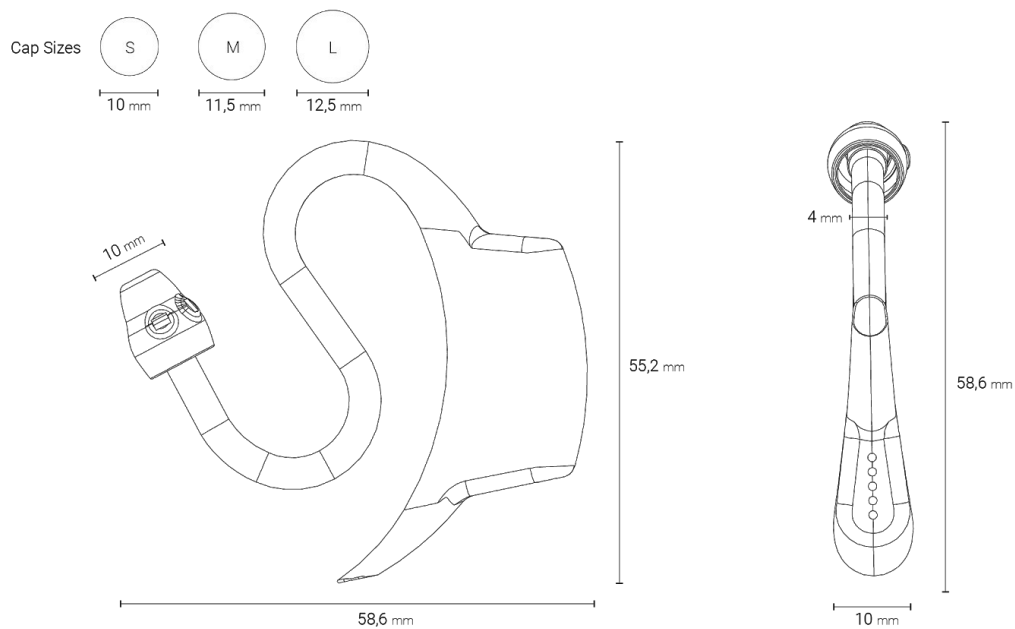


c-med° alpha

Medical wearable for continuous vital signs measurements



Features

- Continuous measurement of key vital signs:
 - heart rate
 - core body temperature
 - blood oxygen saturation (SpO₂)
 - more raw data available
- Medically certified
- Approx. 15 hours of battery life when measuring continuously, longer battery life when measuring periodically.
- IP47 protected
- Operating temperature range: 15 °C – 40 °C

General

Product specification

Type number	MS01
Generation	1
Device type	Continuous vital sign monitor
Usage	Measuring key vital signs continuously in the outer ear canal
Measuring position	Outer ear canal
Measured values	Heart rate, oxygen saturation (SpO2), core body temperature, RR-intervals.
Medical product classification	Ila
Certification	Medical CE & FCC, Bluetooth
Status indicators	RGB-LEDs
Size, H x W x D	55.2 mm x 58.6 mm x 10.0 mm
Weight	Approx. 7 g
Material	Silicone rubber, medical grade - ISO 10993-5 /-6 /-11 - USP class VI
Color	White
Battery life	Continuous: approx. 15 h Periodical (3 min every 15 min): approx. 48 h Standby: approx. 1 year
Environmental temperature for usage	15 °C – 40 °C
Barometric pressure for usage	700 – 1060 hPa (700 – 1060 mbar)
Storage temperature	-20 °C – 60 °C
Storage relative air humidity	≤ 95 % (non condensing)
Protection type	IP47

c-med° alpha - data sheet

Appliance class	II
Power supply requirements	BF
Service life	2 years
Scope of delivery	c-med° alpha device, charging box, charging cable, power supply, manual

Radio transmission

Radio data transmission

Type	Bluetooth Low Energy (BLE)
Version	5.0 (backwards compatible to 4.2)
Frequency	ISM band 2.4 – 2.485 GHz
Transmitting power	0 dBm
Services	Battery Service, Device Information Service, Health Thermometer Service, Heart Rate Service, Pulse Oximeter Service, Custom Profile
Encryption	AES
Transmitting range	approx. 10 m

Power supply

Rechargeable battery

Type	Lithium battery, rechargeable
Capacity	60 mAh
Charging time	approx. 1 h

Sensor technology

Sensor types	Infrared and contact thermometer, optical measurement (LEDs and photodiode), accelerometer
Raw data	PPG (red, infrared and ambient light), acceleration

Quality indexes	Heart rate quality, perfusion index
Vital signs	Heart rate, core body temperature, blood oxygen saturation (SpO2),
Further derived parameters	Breathing rate

Photoplethysmography (PPG) sensor

Type	Red LED, infrared LED and photodiode
Method	Photoplethysmography (PPG)
Resolution	19 bit
Sampling rate	Variable, standard 200 Hz

Thermometer

Type	Infrared sensor
Measuring range	Measuring range: 34 °C – 43 °C Measuring limits: -25 °C – 50 °C
Resolution	0.1 °C
Technical accuracy	Inside of the measuring range ± 0.3 °C Outside of the measuring range ± 0.5 °C
Sampling rate	Variable, standard 0.1 Hz

Accelerometer

Type	3-axis, linear
Measuring range	Up to ±156,96 m/s ²
Resolution	16 bit
Technical accuracy	± 0.002 m/s ²
Sampling rate	Variable, standard 100 Hz

Vital Signs

Core body temperature

Type	Infrared thermometer
Measuring range	Measuring range: 34 °C – 43 °C Measuring limits: -25 °C – 50 °C
Resolution	0.1 °C
Technical accuracy	Inside of the measuring range ± 0.3 °C Outside of the measuring range ± 0.5 °C
Interval	Variable, standard 0.1 Hz

Heart rate

Type	PPG
Measuring range	35 bpm – 220 bpm
Resolution	1 bpm
Accuracy	± 2 bpm
Interval	Variable, standard 1 Hz

Oxygen saturation (SpO2)

Type	PPG
Measuring range	70 % – 100 %
Resolution	1 %
Accuracy	± 3 %
Interval	Variable, standard 1 Hz

Accessories

Charging box

Model	MC01
Usage	Storage, transport and charging of the c-med° alpha. Also switches it on and off.
Material	PC and ABS blend, flame retardant UL 94 V-0
Protection type	IP21
Protection class	II
Socket	Micro-USB B

Power supply

Model	FJ-SW2660501000E
Input	100 – 240 V ~ 50/60 Hz, 0.35 A Max.
Output	5 V, 1000 mA
Plug	Europlug CEE 7/16
Socket	USB A

Charger cable

Model	2464 OD3.0 1500±50mm
Socket	USB A to Micro-USB B

Compatibility

cosinuss° components	c-med° app (Android and iOS), Lab App (Android and iOS), LabGateway
Cosinuss° LabSystem	Yes
Third party apps	Yes
Smartwatches	Yes
Bike computers	No

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Glossary

Symbol	Quantity
bpm	Beats per minute
°C	Degree Celsius
m, cm, mm	Meter, centimeter, millimeter
dBm	Decibel milliwatt
g	Grams
H x W x D	Height x width x depth
hPa, Pa	Hectopascal, Pascal
Hz, kHz, MHz, GHz	Hertz, Kilohertz, Megahertz Gigahertz
mbar	Millibar
mAh	Milliampere hour
s, h	Second, hour
m/s ²	Acceleration in meter per second squared
Mbit	Megabit

Abbreviations

approx.	Approximately
PPG	Photoplethysmography

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