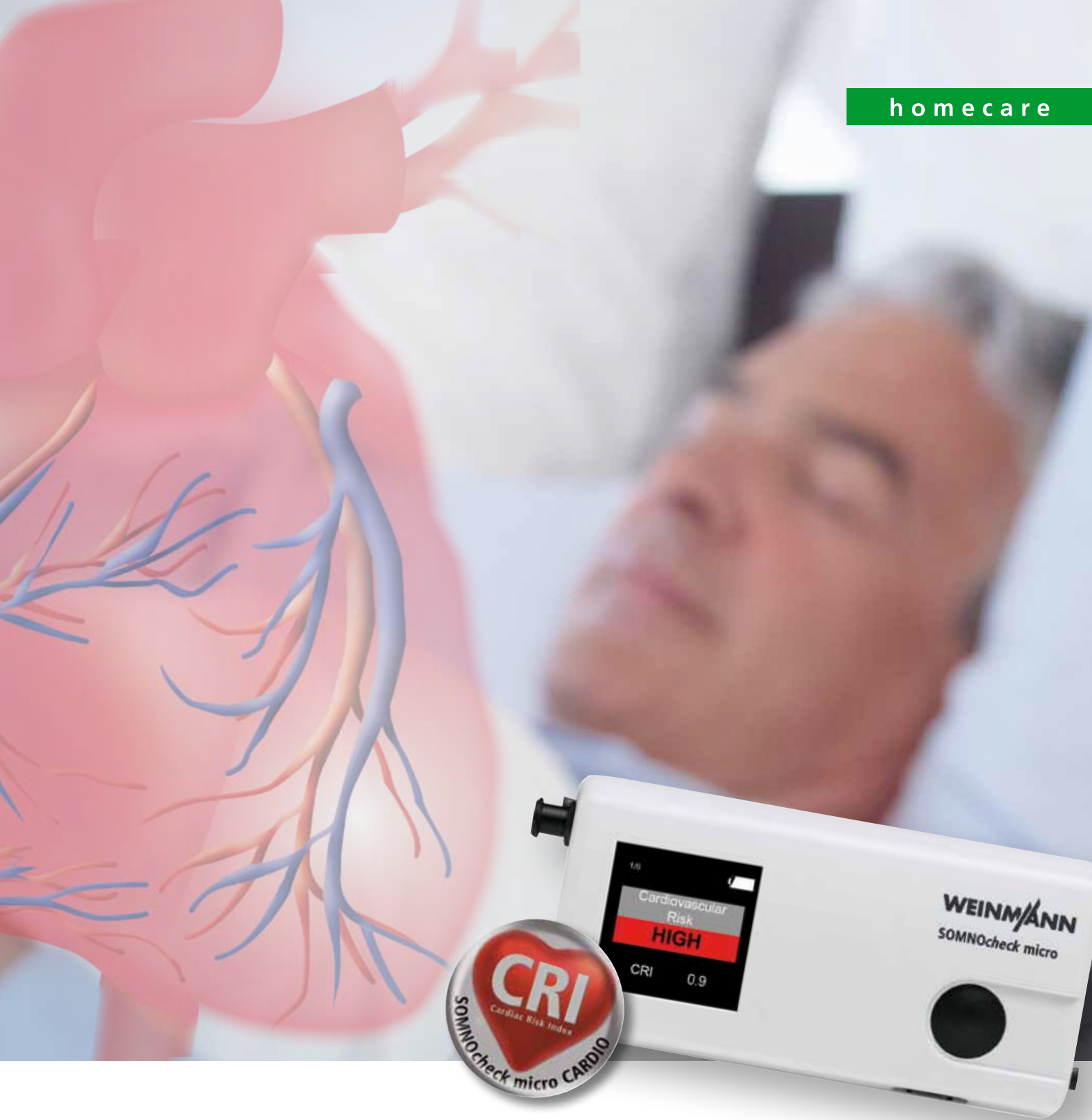


home care



SOMNOcheck micro CARDIO

Simple Assessment of Cardiovascular Risk During Sleep

In sleep medicine – In internal medicine – In preventive medicine



SOMNOcheck micro CARDIO *Simple Assessment of Cardiovascular Risk During Sleep*

In sleep diagnostics we provide classic data about apnea, desaturation and arousals.

Now we have answers to other questions that have long been open.

Which patient most urgently needs treatment?

The Cardiac Risk Index (CRI) is the new severity parameter in sleep diagnostics. It supplements the well-known Apnea-Hypopnea Index (AHI) with the cardiovascular risk dimension. So for the first time in an early screening of Sleep-Disordered Breathing (SDB), it is possible to see whether a patient is at risk of developing cardiovascular disease in addition to or as a result of SBD.

Which patient is really at risk?

The very first sleep screening made with SOMNOcheck micro CARDIO, identifies patients with a generally elevated cardiovascular risk. Furthermore, special indication is given of two additional risk factors for heart failure: arrhythmia (atrial fibrillation) and Cheyne-Stokes breathing.

Which additional diagnostics lead to the right diagnosis?

The CARDIO fingerprint for each patient shows which secondary or concomitant diseases may have led to an increased cardiovascular risk. This information shows the way to the next diagnostic steps – in or outside sleep medicine.

Fast, simple and non-invasive diagnostics made possible with the innovative measurement method at work in our diagnostic device SOMNOcheck micro CARDIO. For the first time a sleep screening device can determine a new severity parameter called „Cardiac Risk Index“ (CRI) during a nighttime measurement. The CRI supplies information about your patient’s cardiovascular risk, existent cardiovascular diseases and potential diagnostic steps.

A complete picture from only one nighttime measurement

Conventional methods have shed light on particular aspects of cardiovascular risk, but SOMNOcheck micro CARDIO’s measurement method is the first to yield a complete clinical picture with a single nighttime measurement. The Cardiac Risk Index is based on measuring actual changes in the patient, as opposed to assessing probability from statistically based risk scores. The algorithm in SOMNOcheck micro CARDIO has been validated against the risk scores of ESC/ESH.*

* Grote L, Sommermeier D, Zou D, Eder, D, N., Hedner J. Oximeter-Based autonomic state indicator algorithm for cardiovascular risk assessment. Chest 2011; 139:253-259

SOMNOcheck micro CARDIO measures also classic parameters such as desaturation and arousals and recognizes Sleep-Disordered Breathing, another important risk factor for cardiovascular diseases.

The basis of the analyses is the pulse oximetric measurement of the pulse wave. Changes in blood vessels are likewise detectable in the Pulse Wave Analysis (PWA), as are the responsiveness of the autonomic nervous system and heart rhythm. The same sensor measures oxygen saturation, which provides information about breathing disorders such as sleep apnea or Cheyne-Stokes breathing. With the optional nasal cannula the screening device also detects mild obstructions in the patient’s upper airways.

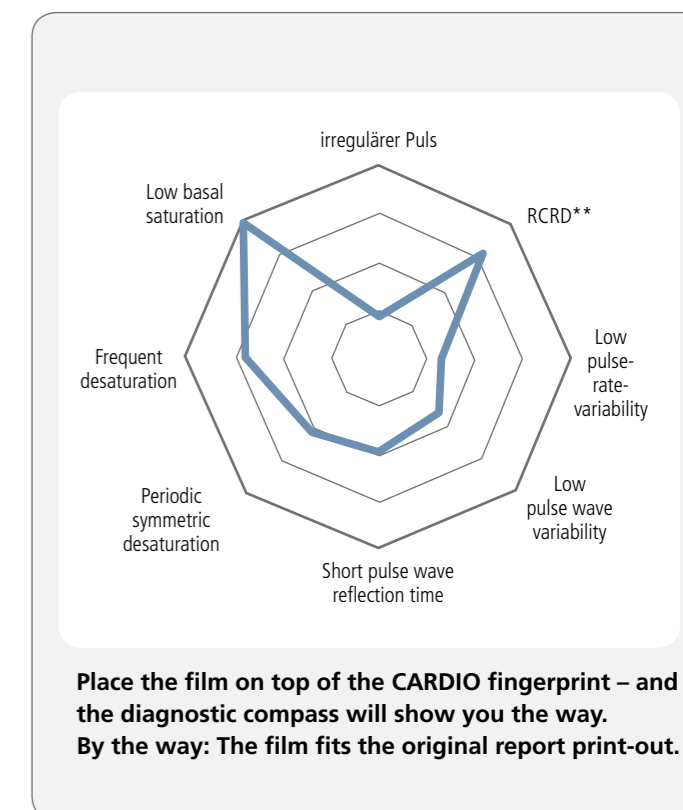


Worn like a wristwatch: SOMNOcheck micro CARDIO

Explain increased risk with CARDIO fingerprint

The patient’s own manifestations of the individual parameters go into the CARDIO fingerprint. Each parameter indicates certain diseases. The fingerprint serves as a compass, pointing toward the next diagnostic step and suggesting simple prioritization of patients.

- Innovative algorithms assess CRI:
 - Pulse wave amplitude analyses
 - Pulse wave reflection time - and pulse rate analysis
 - Oxygen saturation analysis
 - Combined measurement parameters
- Extensive risk status assessment:
 - Indication of endothelial dysfunction
 - Indication of central artery stiffness
 - Recognition of pattern of diminished responsiveness
 - Detection of arrhythmia (atrial fibrillation)



Place the film on top of the CARDIO fingerprint – and the diagnostic compass will show you the way. By the way: The film fits the original report print-out.

** RCRD = Reduced Cardiac Response to Desaturation

Window	Displayed values	Source
Analysis time insufficient If there is no signal from either pulse oximetry sensor or flow sensor for more than two hours.	Analysis time insufficient	Analysis of artefact-free time per signal
Cardiovascular Risk	Low / Moderate / High CRI	Pulse wave analysis
Risk of sleep disorders Shows if patient is at risk of sleep-related breathing disorder	Low / Moderate / High Traffic light display: green, yellow, red	Analysis of results
Check for arrhythmia (AFIB) / Verdacht auf Arrhythmien (Afib)	Window appears with analysis	Pulse rate analysis
Overview of Respiratory Events Apnea/Hypopnea Index Obstructive Apnea/Hypopnea Index Central Apnea/Hypopnea Index	AHI RDI OAHl ORDl CAHI CRDI	Flow signal: AHI. If this signal contains artefacts, an RDI determined by PWA will be displayed.
Check for Cheyne Stokes Breathing / Verdacht auf Cheyne-Stokes-Atmung	Window appears with analysis	Saturation analysis
Overview of Autonomic Arousals Autonomer Arousal-Index Respiratorischer autonomer Arousal-Index Respiratory Effort Related Arousal-Index (autonom)	AAI AAI resp RERAs	Pulse oximetry signal Pulse oximetry signal Pulse oximetry signal and flow signal
Overview of Oxygen Saturation Desaturation index Average Minimum	Drops Average Min	Pulse oximetry signal
Other Snore Average pulse rate Duration of recording	Snore Pulse av. Rec. time	Flow signal Pulse oximetry signal Analysis of artefact-free time
Artefact-free recording time If one of the two signals appears for less than four hours (i. e. several artefacts), a window opens that shows how long which signal was artefact-free.	Flow Pulse	Analyse artefact-free time per signal
Erase Data – erases all stored data	To erase press button for 3 sec	
Next Calibration – shows date of next recommended calibration on customer's own PC or by Weinmann Service		Internal clock

Software System Requirements

For a trouble-free installation of SOMNOlab, you will need administrator's rights on an IBM-compatible PC which fulfills the following requirements:

Processor:	Pentium IV with 1,8 Ghz
Available space:	Hard drive with at least 1 GB available memory and 1 GB available memory on a system partition
Drive:	CD-ROM drive
Input:	Keyboard and mouse or another pointer supported by Microsoft Windows
Printer:	Supported by Microsoft Windows
Operating system and main memory:	- Windows 2000 SP 4 or higher, if compatible with minimum 512 MB RAM, recommended 1024 MB RAM - Windows XP 32 bit SP 2 or higher, if compatible with minimum 512 MB RAM, recommended 1024 MB RAM - Windows 7 32 bit / Windows 7 64 bit with minimum 1024 MB RAM, recommended 2048 MB RAM
Additional software:	- Internet Explorer 6.0 SP1 or higher if compatible - Adobe Acrobat Reader 6.0 or higher if compatible

Software

Data import via USB	Visualization of measurement data and events
Event editing	Patient CARDIO fingerprint in report
Extensive documentation Sleep-Disordered Breathing in report	Simple self-calibration – no maintenance costs
Personalize the device	Programmable measurement time and duration

Accessories for SOMNOcheck micro CARDIO



- 1 Set of 100 nasal cannula, 90 cm
WM 94522
- 2 Softtip sensor CARDIO with Minimed plug (right-angled)
Size. M: WM 94586 (not shown), Size. L: WM 94585
- 3 Wristband
WM 94560
- 4 Transport bag
WM 94055
- 5 Software SOMNOlab, now with SOMNOcheck micro edition
WM 98500
- 6 USB cable WM 94524

- Instructions for use
SOMNOcheck micro CARDIO EN WM 96621 (not shown)
- Patient instructions for use
SOMNOcheck micro CARDIO EN WM 96631 (not shown)

Our complete offering of therapy solutions accessories, mask systems and other technical data are at: weinmann.de

Technical data SOMNOcheck micro CARDIO



Product class as per directive 93 / 42 / EEC:	Ila	Temperature range	<ul style="list-style-type: none"> ■ Operation: +5 °C to +40 °C ■ Storage: -10 °C to +60 °C ■ Transport: -10 °C to +60 °C
Dimensions (W x H x D):	112 x 30 x 50 mm	Pulse oximeter (Clipsensor)	<ul style="list-style-type: none"> ■ SpO₂ measurement range: 45 to 100 % ■ SpO₂ accuracy 70 % < SpO₂ < 100 %: better than 2 % accuracy not validated SpO₂ < 70 %: ■ Pulse rate measurement range: 30 to 250 bpm ■ Pulse accuracy: 1 bpm to 2 % of displayed value
Weight	<ul style="list-style-type: none"> ■ Without batteries: 79 g ■ With batteries: 145 g 	Power supply:	Type AA – Mignon 2 batteries (about 15 hrs.) 2 NiMH rechargeable batteries (about 20 hrs.)

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