

# CardioMem CM 4000

## Multi-channel digital ECG recorder

Simplicity and reliability – two qualities of the CardioMem<sup>®</sup> CM 4000 ECG recorder. This handy, lightweight recorder supports the user throughout all phases of recording and analysing Holter ECGs, from applying the electrodes and entering patient demographic data up to inspecting the ECG waveforms.

### Compelling technology, easy to handle, ideal for everyday use

Helpful functions, such as the detection of faulty electrode contacts or continuous battery monitoring, helps reduce the risk of corrupted or shortened recordings and hence the costs and trouble associated with having to repeat examinations. Optional auxiliary information that can aid in the final diagnosis, such as transthoracic impedance variations (which show respiration activity during sleep) and pacemaker function. A large, color display with touch screen offers an overview of all the necessary information. The user is intuitively guided through the recorder menus. The CM 4000 is small, lightweight and ingress protected against splashed water and dust. Users can choose between 5 or 7 lead patient cables for different types of recordings.

An optional Bluetooth<sup>®</sup> module allows encrypted, bidirectional data transfer for wireless set up. The user can decide whether, prior to recording, patient demographic data be wirelessly transferred to the recorder, or entered manually using the recorder interface provided. A further feature is the optional voice recorder, which allows the user to dictate relevant patient information to the recorder, thereby helping to prevent any mix-up of data that could occur, for example, in stressful situations. At the end of the recording period, the record file is transferred to a PC via the hi-speed USB interface. The CardioMem is then ready for the next recording.



### The CardioMem CM 4000 and CM 4000 B

Both recorders are equipped with manual event activation. The CM 4000 housing is 14.5 mm thin and has a battery compartment for one LR03 (AAA) battery, which is sufficient for continuous recordings up to 48 hours. The CM 4000 B has a slightly larger battery compartment and can operate up to 5 days<sup>\*\*\*</sup> with one 1.5 V LR6 (AA) battery.

### Features

- Recording: 2- or 3-channel ECG and optional respiration
- Operating time: Up to 5 days (depending on battery type)
- Sampling rate: 1024 Hz /12 bit
- Display: 2.4" touch screen, self-orientating
- Storage medium: Integrated micro SD card
- Data transfer: Hi-speed USB, optional Bluetooth
- Casing: Ingress protection against dust & splashed water



# CardioMem CM 4000 + CM 4000 B

## Technical Specifications

Specifications	
Dimensions (W x H x D)	65 x 108 x 14.5 mm (CM 4000) 65 x 108 x 16.5 mm (CM 4000 B)
Weight (CM 4000)	76 g (without battery) 89 g (with battery)
Weight (CM 4000 B)	78 g (without battery) 99 g (with battery)
Battery Type (CM 4000)	1 x 1.5 V Alkaline (AAA) 1 x 1.2 V NiMH (AAA)
Battery Type (CM 4000 B)	1 x 1.5 V Alkaline (AA) 1 x 1.2 V NiMH (AA)
Operating time	48 h (CM 4000) Up to 120 h*** (CM 4000 B) (alkaline battery)
Controls	Event key and touch screen, multi-lingual
Display	2.4" color display, 320 x 240 pixel
Connectors	Patient cable Data transfer (Mini-USB)
Available patient cables	2 channels (5 leads) 3 channels (7 leads)
Parameters	
ECG channels	2 or 3 independent, bipolar channels
Bandwidth	0,05 ... 100 Hz
Input dynamic range	± 6 mV
Offset voltage range	± 300 mV
Pacemaker detection	Optional unipolar, bipolar and biventricular systems
Pulse width	0,1 ... 2 ms
Pulse amplitude	2 ... 250 mV
Open lead detection	Yes
Additional channels	Optional thoracic impedance variations and activity

Storage	
Storage Type	Integrated micro-SD card (non-removable)
Sampling Rate	1024 Hz
Resolution	12 Bit
Data storage	256 Hz, optional 1024 Hz
Memory capacity	≥ 1 GByte
Data transfer mode	Hi-speed USB 2.0
Data transfer time	30 s (for 24 h, 3 channel ECG)
Wireless Transmission	
Wireless transmission (Online-ECG and settings)	Optional Bluetooth 2.0 + EDR, Class 2
Range (free field)	Min. 5 m
HF frequency range	2.4 ... 2.5 GHz ISM-Band
HR output	0.5 ... 4.5 dBm
Classification	
Product classification	IIa in accordance with 93/42/EEC
Classification of applied part	Type CF (Cardiac Floating)
Defibrillation protection	Integrated in patient cable (optional)
Ingress protection	IP 64
UMDNS code	12-388
Environmental conditions	
Operating conditions	Temperature +5 °C ... +45 °C; Relative humidity 10 ... 95 %, noncondensing
Storage and transport conditions	Temperature -20 °C ... +65 °C; Relative humidity 5 ... 95 %, noncondensing
Scope of delivery	
Recorder, pouch with waist belt, start-up kit with ECG electrodes and batteries, user manual, quick start guide, transport box	

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\*\*\* 120 hours achieved using the Panasonic EVOiA battery

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Not commercially available in all markets.

Not for sale in the U.S. Not cleared by the U.S. FDA.

Manufactured by

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