

## microtel

**microtel** is a 7-12 lead ECG acquirer fitted with a display and keyboard, the basic version of which can acquire and transmit an ECG trace in analogue format to a remote PC via sound coupling.

The device also has the optional possibility of storing up to 75 ECGs in SCP digital format and transmitting them to a local PC via a USB cable or via a wireless connection such as Bluetooth.

There are 2 product versions available, one without a Bluetooth interface and the other with Bluetooth installed:

- **microtel**
- **microtelbt**

### Standard version - **microtel**

#### *Basic functional specifications:*

- standard and/or rechargeable AA batteries
- system display that allows 1 ECG channel to be monitored
- functional keyboard for recording operations and sending ECG tests
- alpha-numeric keyboard for entering patient data
- ability to simultaneously acquire and store 12 standard leads acquired from a 10 wire cable, or 7 leads (6 peripheral + 1 precordial) acquired from a 5 wire cable.
- ability to transmit the ECG in an analogue format via sound coupling.

#### *Optional functional specifications:*

##### **Digital Option**

- Possibility of managing the ECG test in SCP format with storage of up to 75 ECGs. The file is identified by date-time acquisition and through patient data, which can be entered on the alpha-numerical keyboard and system display.

Transmission of the ECG file in digital format to the PC via USB port.

##### **Option ECG Interpretation**

- The program provides a proposal for automatic interpretation of ECG signals;

##### **ECG measurements option**

- Automatic calculation of the main ECG parameters;

##### **Option PC-ECG**

- For the real-time display of the twelve ECG leads on your PC (for the Bluetooth version only)

### Bluetooth version - **microtelbt**

- The product has the same basic functional characteristics as the previous version, but also includes the Digital Option.
- Transmission of the ECG file can occur via the USB port and also via the wireless Bluetooth channel.

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## Technical specifications

Specification	Description
Leads	12 standard leads acquired simultaneously and continuously
Sampling frequency	500 samples per second
Resolution	11 bit
Sensitivity (LSB)	5.0 microV/bit
Input dynamic	$\pm 300$ mV @ 0 Hz, $\pm 5$ mV in the through band
Frequency response	0.05Hz – 150Hz (-3dB)
Slew rate	$\geq 320$ mV/s
Input impedance	$\geq 100$ Mohm
Common mode rejection	$\geq 100$ dB
Time constant	3.3 seconds
Saturation detection	Independent on each channel
Sound transmission	Frequency modulation; carrying 1900 Hz; depth 100 Hz/mV
Sound transmission protocols	12X2.5 / DIIx10: sequence of 12 leads all transmitted for 2.5 s, except for DII transmitted for 10 s 12X2.5 + DIIx10: sequence of 12 leads all for 2.5 s with final repetition of DII transmitted for 10 s 12X10: sequence of 12 leads all transmitted for 10s The same protocols are available for 7 leads.
Digital transmission	Connection with USB port cable Wireless Bluetooth connection Class I ( microtelbt only)
ECG Memory	75 tests in SCP format complete with patient data and test data
Block or clamp on signal	automatic
Operating mode	Sound: acquisition and storage of 12 ECG leads for 10 seconds and possible transmission in sound mode Digital: acquisition and archiving of an ECG test in SCP standard format complete with patient data and possible transmission in digital mode via USB cable or via Bluetooth ( microtelbt only)
Keyboard	Silicon rubber keyboard with 20 buttons
Display	Backlit single-colour graphic LCD - 128x64 pixels or 6 lines of 20 characters
Patient cable	10 wire cable with banana end and protection against defibrillation
Protection against defibrillation	Discharging resistance in the patient cable
Power supply	4 AA ultra alkaline batteries or rechargeable NiMh (at least 2500mAh) Battery life > 7 hours
Maximum absorption	340 mA
Size	155x115x30 mm
Weight	375gr (with batteries) and 275gr (without batteries)
Grade of casing protection	IP 20
Applied parts	CF type
Class (Directive 93/42/EEC)	Ila
Working environmental conditions	Temperature between +10 and +40 °C inclusive Relative humidity between 25 and 95 % inclusive (without condensation) Atmospheric pressure between 700 and 1060 mbar

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		inclusive
Storage conditions	environmental	Temperature between -10 e +40 °C inclusive Relative humidity between 25 and 95 % inclusive (without condensation) Atmospheric pressure between 500 and 1060 mbar inclusive
PC interface		USB Port, Bluetooth key on USB (only microtelbt)

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## Standard Accessories Supplied

The basic equipment varies depending on the sale configuration chosen at the time of purchase.

## Options

<i>Ref.</i>	<i>Description</i>
9MICDIGI	Digital Option (std in bt version)
9INMICRO	ECG interpr.Upgr.only x 10 lead cable
9PAMICRO	ECG measurement Upgrade
9RTMICRO	Real Time PC ECG, only for BT vers.

## Accessories

<i>Ref.</i>	<i>Description</i>
63030105	4 periph. ECG electrodes clamp Ag/Agcl
63030107	4 periph.ECG electr.clamp ped. Ag/Agcl
63030163	6 chest ECG electr.suction type Ag/Agcl
63050097	ECG patient cable IEC, 5 lead, plug 4mm
63050098	ECG patient cable IEC, 10 lead, plug 4mm
63050102	ECG patient cable AHA, 5 lead, plug 4mm
63050103	ECG patient cable AHA, 10 lead, plug 4mm
63090236	Set of 10 snap adapters for 4mm plug
63090295	BT USB dongle for PC cl.I + extens.cable
63090296	USB cable microtel
65090018	Carrying case
66020002	ECG electrode gel, 260 ml
66020006	10 Alligator clip adapter x4mm plug
66030031C	Disposable electrodes ECG, snap, 50 pcs
66030034C	Disposable electrodes ECG, tab, 100pcs
66030036C	Disposable electr.ECG neonatal 25pcs
66030037C	Disposable electrod. ECG banana, 60 pcs

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