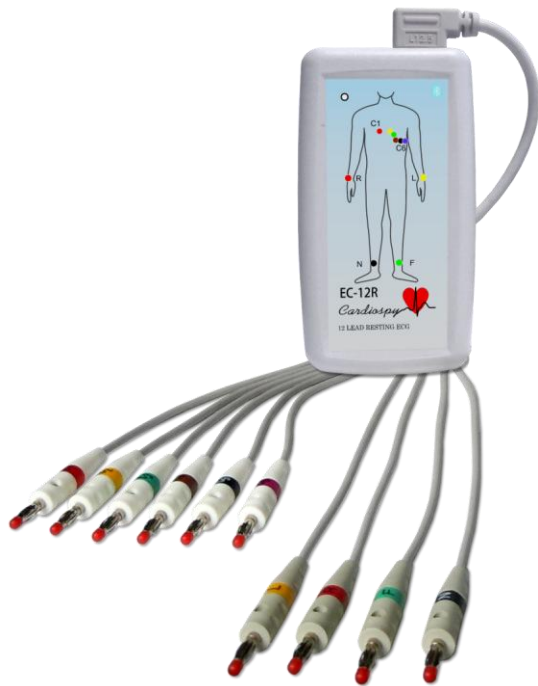


# EC-12R EC-12RM EC-12R/S EC-12S Resting and Stress ECG Family

## Technical specification



TECHNICAL SPECIFICATION OF RECORDERS								
	EC-12R	EC-12RM	EC-12R/S	EC-12S	EC-12R Wi-Fi	EC-12RM Wi-Fi	EC-12R/S Wi-Fi	EC-12S Wi-Fi
<b>Leads</b>	Standard 12-channel (10 electrodes): I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6 NEHB 6-channel (4 electrodes): I, II, III, aVR, aVL, aVF							
<b>Resting ECG (Windows)</b>	With USB-02/A or /B interface				With supplied Wi-Fi interface			
<b>Stress ECG (Windows)</b>	-		With USB-02/A or /B		-		With Wi-Fi interface	
<b>Resting ECG (Android)</b>	-	+	-			+	-	
<b>Resting ECG (iOS)</b>	-					+	-	
<b>BP measurement method</b>	-			Auscultatory QRS-gated	-			Auscultatory QRS-gated
<b>BP measurement range</b>	-			20-280 Hgmm	-			20-280 Hgmm
<b>BP measurement accuracy</b>	-			± 3 mmHg	-			± 3 mmHg
<b>Wireless connection</b>	Bluetooth 2.0				Wi-Fi IEEE 802.11g			
<b>Patient protection</b>	EN 60601 (IEC-601-1), CF type							
<b>Power supply</b>	2 x 1,2 V rechargeable batteries (or 2 x 1.5 V AA alkaline battery) Exchangeable during recording.							
<b>Dynamic interval</b>	±20 mV							
<b>DC offset range</b>	±1000 mV							
<b>Frequency response</b>	0.05 Hz ... 150Hz							
<b>Sampling rate (recorder)</b>	1024 Hz							
<b>Transmission rate</b>	512 Hz							
<b>Sampling rate (software)</b>	1000 Hz							
<b>A/D resolution</b>	16 bit							
<b>Input impedance</b>	≥100 MΩ							
<b>Size</b>	125 x 70 x 33 mm							
<b>Weight</b>	ca. 110 g			ca. 200 g	ca. 110 g			ca. 200 g
<b>On/off switch</b>	Option	+	Option	-	Option	+	Option	-

## Specifications of Cardiospy (Windows) software

BASIC FUNCTIONS OF SOFTWARE		
<b>DATABASE FUNCTIONS</b>		
<ul style="list-style-type: none"> <li>Common database for all Labtech system</li> </ul>	<ul style="list-style-type: none"> <li>Record recycle bin function</li> </ul>	<ul style="list-style-type: none"> <li>Search records</li> </ul>
<ul style="list-style-type: none"> <li>Acquire Patient ID from barcode reader</li> </ul>	<ul style="list-style-type: none"> <li>System log</li> </ul>	<ul style="list-style-type: none"> <li>Local database, Network database: Microsoft SQL Server database, SQLite database</li> </ul>
<ul style="list-style-type: none"> <li>Acquire Patient ID using magnetic card reader</li> </ul>	<ul style="list-style-type: none"> <li>Filter records</li> </ul>	<ul style="list-style-type: none"> <li>Different date format</li> </ul>
<ul style="list-style-type: none"> <li>Medical record for patients</li> </ul>	<ul style="list-style-type: none"> <li>Import – export records</li> </ul>	<ul style="list-style-type: none"> <li>Password protected software starting</li> </ul>
<ul style="list-style-type: none"> <li>Access control</li> </ul>	<ul style="list-style-type: none"> <li>Import – export records by date</li> </ul>	
<b>BASIC FUNCTIONS</b>		
<ul style="list-style-type: none"> <li>Automatic update</li> </ul>	<ul style="list-style-type: none"> <li>Normal and MSI install</li> </ul>	<ul style="list-style-type: none"> <li>Full screen mode</li> </ul>
<ul style="list-style-type: none"> <li>HIS integrations: GDT, DICOM MODALITY WORKLIST, Cardiospy SDK</li> </ul>	<ul style="list-style-type: none"> <li>Two display mode</li> </ul>	<ul style="list-style-type: none"> <li>Cubios HRV export</li> </ul>
<ul style="list-style-type: none"> <li>FTP integration</li> </ul>	<ul style="list-style-type: none"> <li>Email function</li> </ul>	<ul style="list-style-type: none"> <li>AHA / IEC electrode placement</li> </ul>
<b>PRINT AND EXPORT FUNCTIONS</b>		
<ul style="list-style-type: none"> <li>Report printing and exporting</li> </ul>	<ul style="list-style-type: none"> <li>Automatic print</li> </ul>	<ul style="list-style-type: none"> <li>Selectable reports</li> </ul>
<ul style="list-style-type: none"> <li>Color and Black and white reports</li> </ul>	<ul style="list-style-type: none"> <li>Contrast settings</li> </ul>	<ul style="list-style-type: none"> <li>Resizable resolution</li> </ul>
<ul style="list-style-type: none"> <li>Customizable company logo</li> </ul>	<ul style="list-style-type: none"> <li>Automatic diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>Custom report</li> </ul>
<ul style="list-style-type: none"> <li>Adjustable paper speed and amplitude</li> </ul>	<ul style="list-style-type: none"> <li>Import /Export settings</li> </ul>	<ul style="list-style-type: none"> <li>Export ECG data to CSV, SCP, Dat format</li> </ul>
<ul style="list-style-type: none"> <li>Export QRS data</li> </ul>	<ul style="list-style-type: none"> <li>Export N-N intervals</li> </ul>	<ul style="list-style-type: none"> <li>Export R-R intervals</li> </ul>

REST SOFTWARE FUNCTIONS		
<ul style="list-style-type: none"> <li>5, 10, 20 sec and long ECG record</li> </ul>	<ul style="list-style-type: none"> <li>Rhythm curves</li> </ul>	<ul style="list-style-type: none"> <li>Lead-off warning</li> </ul>
<ul style="list-style-type: none"> <li>Precise QRS classification</li> </ul>	<ul style="list-style-type: none"> <li>Store the Indication and medication of the patient</li> </ul>	<ul style="list-style-type: none"> <li>Smoothing, baseline, mains filters</li> </ul>
<ul style="list-style-type: none"> <li>Arrhythmia analysis</li> </ul>	<ul style="list-style-type: none"> <li>QRS frontal axis</li> </ul>	<ul style="list-style-type: none"> <li>Full Disclosure ECG recording</li> </ul>
<ul style="list-style-type: none"> <li>Paper speed: 5-12,5-25-50-100-200 mm/s</li> </ul>	<ul style="list-style-type: none"> <li>Amplitude: 2,5, 5-10-20-40 mm/mV</li> </ul>	<ul style="list-style-type: none"> <li>BMI and BMI prime</li> </ul>
<ul style="list-style-type: none"> <li>Automatic diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>Average view</li> </ul>	<ul style="list-style-type: none"> <li>ECG contrast</li> </ul>
<ul style="list-style-type: none"> <li>Milimeter paper settings</li> </ul>	<ul style="list-style-type: none"> <li>Display channels: 3, 6, 12, additionally: Cabrera, Custom</li> </ul>	

## STRESS SOFTWARE FUNCTIONS

• Lead-off warning	• Precise QRS classification	• colour-coded ST level, slope and ST loop graphs
• Store the Indication and medication of the patient	• SAECG	• Smoothing, baseline, mains filters
• MET and VO2 computation	• HR, BP, LOAD, MET graphs	• Customizable alarm and stop criteria
• Ergometer and treadmill database	• Show T-wave deviation: QT, QTc trends	• Vectorcardiography in stress-continuous test
• Arrhythmia analysis	• Weber and Morris function classification	• Bayes theorem in the analysis
• Duke-nomogram	• Borg rank	• QRS frontal axis
• Exercise and condition plan	• Pacemaker detection	• Paper speed: 5-12,5-25-50-100-200 mm/s
• Amplitude: 2,5, 5-10-20-40 mm/mV	• Gender and age-specific ECG analysis software	• Full Disclosure ECG recording
• Modifiable protocols under Load	• standard stress protocols, custom protocols	• manual blood pressure measure
• Speed measure km/h and mph	• BMI and BMI prime	• Adjustable infoboxes
• Rhythm curves	• Templates analysis	• Event screen
• QT, QTc, QT%	• QRS Axis	• Ectopic rate
• Average view	• ECG contrast	• Milimeter paper settings
• Display channels: 3, 6, 12, additionally: Cabrera, Custom	•	•

## COMPUTER MINIMUM CONFIGURATION

<b>Processor</b>	minimum: Core 2 Duo or better recommended: Intel® Core™ i3 or better (Sandy Bridge or newer architecture)
<b>RAM</b>	minimum: 2 GB; recommended: 6 GB
<b>Graphics card</b>	DirectX 10 compatible, min. 128 MB video memory
<b>Display</b>	minimum: min. 1280x800 resolution recommended: dual 22" monitor 1920 x 1080 resolution (Full HD)
<b>HDD</b>	200 GB (SATA II or newer recommended)
<b>Interface</b>	1 USB port for the USB-02 or Wi-Fi dongle 1 USB port for the printer
<b>Printer</b>	Laser (printing speed: 15-20 page/min, color printer recommended)
<b>Operating system</b>	Windows XP SP 3 (32-bit only) Windows Vista, Windows 7, Windows 8, Windows 8.1 (32-bit or 64-bit versions)

\*Windows XP is no longer supported by Microsoft. Labtech provides only limited support for previously installed systems.

## Specifications of Cardiospy Mobile (Android, iOS) software

Software specification	
Simple, user friendly software with multiple functions	
Precise QRS classification	
Built-in ST analysis	
Baseline; Main; Smoothing filter	
Real-time ECG display	
1x3; 2x3; 1x6; 2x6; 1x12 leads view	
Sending JPEG reports in e-mail, and telemedicine support	
Record uploading to Labtech NetEcg Server	
Record viewer	
ECG amplitude, time measurement	
Patients database	
Continuous updating and developments	
Bluetooth communication	
5-10-20s and long ECG recording	
Lead-off warning (Indication of disconnected electrodes)	
Language: English	

ANDROID MINIMUM CONFIGURATION	
<b>Operating system</b>	Android 4.0 (Ice Cream Sandwich) or newer
<b>CPU</b>	ARM or Intel architecture, min. 2 core, 1 GHz
<b>RAM</b>	minimum: 1 GB; recommended: 2 GB
<b>Bluetooth</b>	Bluetooth interface with serial port profile enabled
<b>Wi-Fi</b>	Internet tethering or external Mi-Fi hotspot
<b>Display</b>	minimum: 1024 x 768 or 1280 x 720

iOS SUPPORTED DEVICES	
<b>Operating system</b>	7.0 or newer, newest version recommended
<b>Phones</b>	iPhone 4, 4S, 5, 5C, 5S: supported with internal or external hotspot iPhone 6, 6 Plus, 6S, 6S Plus: supported with external hotspot only
<b>Wi-Fi only tablets</b>	iPad 2, 3, 4, iPad Air 1, 2, iPad Mini 1, 2, 3, 4, iPad Pro: supported with external hotspot only
<b>Wi-Fi + Cellular tablets</b>	iPad 2, 3, 4, iPad Air 1, iPad Mini 1, 2: supported with internal or external hotspot iPad Air 2, iPad Mini 3, 4, iPad Pro: supported with external hotspot only
<b>Display</b>	Display size of iPhone 4, 4S, 5, 5C and 5S is not optimal for the display of 12-channel ECG, only 3-6 channels are visible without overlapping