Lifecard CF®
Digital Holter Recorder

CARDIAC DIAGNOSTIC SOLUTIONS
Lifecard CF - for the clearest digital ECG

Del Mar Reynolds’ rich history of innovation began nearly a half century ago with the development of Holter monitoring and analysis. Now the Diagnostic Cardiology part of Spacelabs Healthcare, we are proud to continue this tradition of connecting innovation with care.

Lifecard CF takes digital Holter recording to a higher level. 12-bit resolution and Ultrasharp™ technology deliver outstanding ECG quality for accurate analysis from the most challenging recording environments.

**On-board ECG Display**
Lifecard CF has a built in ECG display that allows you to monitor the ECG during hook-up. It even tells you when it has detected each atrial and ventricular pacing spike so you can optimize lead placement.

**Pacemaker Spike Detection**
Lifecard CF has an extremely sensitive pacemaker detection circuit with excellent noise rejection that operates continuously, with performance better than 10,000 Hz sampled pacemaker detection methods. The ultra low power design allows it to run from one AAA battery to acquire 7 days of continuous ECG.

The high resolution digital recorder

Lifecard CF uses 12-bit technology, which enables even the most subtle atrial arrhythmias and pacing to be clearly seen. P-waves are rounded, not squared off, and details like notched P-waves are precisely reproduced. 12-bit ECG can make the difference between confident diagnosis and an inconclusive Holter test. Some of the arrhythmias that show up clearly in 12-bit ECG could be missed altogether without it.

7-day continuous ECG capability

**Diagnose arrhythmias before they become an everyday occurrence.**
Lifecard CF can record up to 7 days of continuous ECG which can be quickly scanned using Lifescreen software to find the most appropriate day for Holter analysis. That 24-hour period can then be analyzed using any of our current Holter scanners. 7-day recording enables positive early diagnosis of patients before their arrhythmias become an everyday occurrence.
Comfortable patients - better recordings

Lifecard CF’s patented 3-channel 3-electrode hook-up improves patient comfort, which is very important for 7-day recordings. The splashproof design and disposable carrying pouch (see picture opposite) make it practical and convenient to wear the device under the clothing with short cables. This minimizes electrode disturbance and improves ECG quality, and it gives the patient the freedom to change clothes and perform their daily routine.

Never lose a recording again
Lifecard CF is designed to prevent tampering by the patient. Even if the battery or CF card is accidentally removed, when replaced the recording continues as normal, leaving a gap in the ECG and not a flat line. A back-up rechargeable battery maintains the clock and user settings for over three months when the recorder is not being used.

Latest technology in a rugged, splashproof enclosure

Lifecard CF benefits from all the latest improvements in CompactFlash memory technology. Removable cards allow future memory upgrades for today’s devices. Using multiple cards allows quick transition to the next patient, and ECGs recorded on cards can easily be sent to a remote location for analysis.

Rugged
Lifecard CF is tested to withstand a 3 foot drop onto concrete and still function perfectly.

Splashproof
A new Lifecard CF is rated to IPX4 when the seals are new, so you can be confident that it will be splashproof for years to come.

Voice recording: No PC necessary at hook-up
If no PC is available during hook-up, a voice recording of the patient’s name and ID can be stored on the card, so hook-ups can be done anywhere. With multiple cards, there is no need to access a PC before re-using the recorder – just insert a fresh card and make a voice recording.

Data Management & Networking
Lifecard CF recordings integrate with the Spacelabs Healthcare Cardiology Information Management System. CardioNavigator® (C-NAV) provides one central platform and core database for all ECG data and links to the Hospital Information Management System (HIS).

Upload patient details directly from the HIS via C-NAV into the Lifecard CF to save time and reduce transcription errors. Completed recordings can then be downloaded to any terminal on the C-NAV network for analysis on any networked system. All Holter data, including raw ECG and reports, are stored in the same central location as these other C-NAV integrated procedures:

- Resting ECG
- Stress Testing
- ECG Event Recording
- Ambulatory BP
### Additional Features

<table>
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<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pacemaker Spike Detection</td>
<td>Time and Date Recording</td>
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<td>Single AAA alkaline cell required</td>
<td>Patient event button</td>
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<td>Splash proof</td>
<td>Large Digit LCD Clock Display</td>
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<td>Patient ID storage (voice recording)</td>
<td>On board ECG hook up monitor</td>
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<td>Lightweight and comfortable to wear</td>
<td>Belt Clip standard on long length patient cables</td>
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<td>7-Day Capability with Lifescreen screening</td>
<td>for increased diagnostic yield</td>
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### Technical Specification

#### Dimensions
- 96 x 57 x 18 mm (3.8 x 2.2 x 0.7 inches)
- Weight 118 g (4.2 oz) weight includes battery, patient cable and compact flash card

#### Power Supply
- One AAA alkaline or rechargeable battery (NiMH)

#### Memory
- 90 MB removable CF card

#### Procedure Options
- 3 or 6 electrode: 3 channel 48 hr
- 4 electrode: 2 channel 48 hr
- 2 electrode: 1 channel 7-day
- OR
- 3 or 4 electrode: 2 channel 7-day

#### Data Compression
- None in 48 hour recording.
- In 7 day mode: 10 mV max. error compressing MIT-BIH databases. Exceeds EC38 requirements.

#### Further Information
- Dynamic Range: 10 mV
- Amplitude Resolution: 2.5 microvolt (0.0025 mV)
- Sampling Rate: 1024 samples per second
- Frequency Response: 0.05 Hz to 40 Hz
- Pacemaker Pulse Detection: Channels 1 and 2
- Pacemaker Pulse Sensitivity: 7 mV
- Calibration: Automatic
- Signal to Noise Ratio: 70 dB
- Common Mode Rejection: >80dB at 50/60 Hz
- Input Impedance: >5 Mohm
- Temperature Operating: 0º to +45º C
- Temperature Storage: -20º to +65º C