

Pathfinder Holter Analyzer

CARDIAC DIAGNOSTIC SOLUTIONS



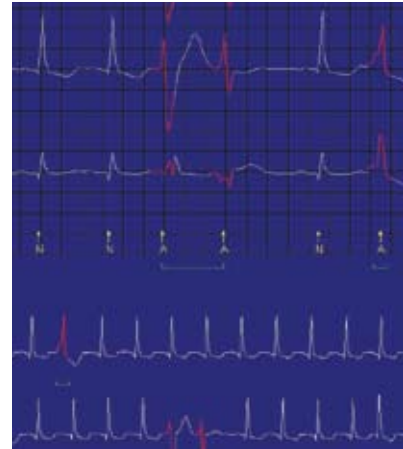
SPACELABS
Healthcare

Pathfinder Digital - An Evolution...

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.

Pathfinder Digital represents an evolution of more than 7 generations of the Pathfinder range, developed over 30 years by Del Mar Reynolds Medical, that has helped shape Pathfinder into the high performance, complete arrhythmia diagnostic solution that it is today.

Pathfinder's unparalleled analysis speed and accuracy is based on the ergonomics and workflow of the system, the accuracy of its automatic analysis, and the level of interaction and control, that Pathfinder provides the trained operator. This ensures a rapid and confident result, from even the most challenging ECG recording.

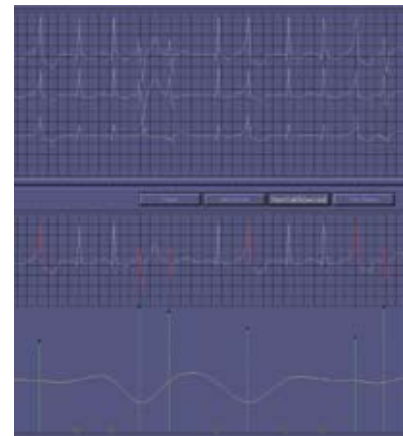


Multi morphology beats classified automatically

Arrhythmia Analysis Method

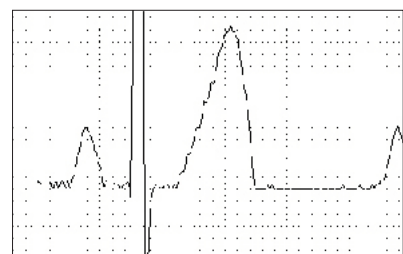
The accuracy of any Holter system depends upon its efficiency in handling noise, variable morphologies, and the subsequent classification of beats.

- Patented shape differential analysis algorithms, provide a dynamic and prospective analysis of the recording.
- User control of the QRS and VE detection sensitivity.
- Shows effect of adjustments in real time.
- Dynamically adapts to noise and artefact to minimize false positive beat classifications.
- Multi channel, beat to beat analysis.
- Retrospective or prospective application of adjustments.

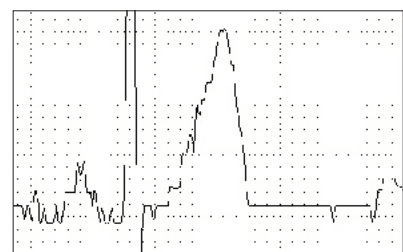


High Resolution ECGs

Pathfinder takes 12-bit ECGs from our Lifecard CF digital recorders and uses the full resolution to analyze and display the smallest features of the ECG.



High resolution 12-bit ECG

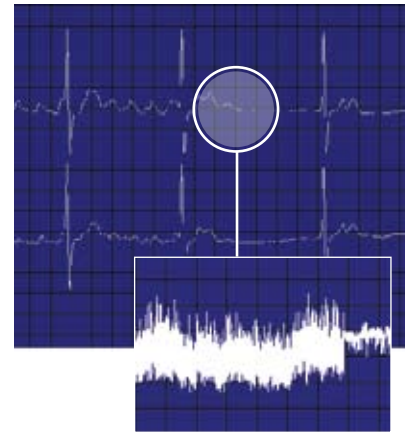


Low resolution 8-bit ECG

Atrial Analysis

Subtle atrial events such as atrial fibrillation and heart blocks can be easily identified and reported.

- High resolution 12 Bit ECG
- Marking of Atrial Fibrillation episodes providing accurate and comprehensive calculation and reporting of the number of events, durations and total time in AF
- High resolution beat on beat superimposition of the QRS complex emphasizes P-R interval



RR tachogram and corresponding ECG

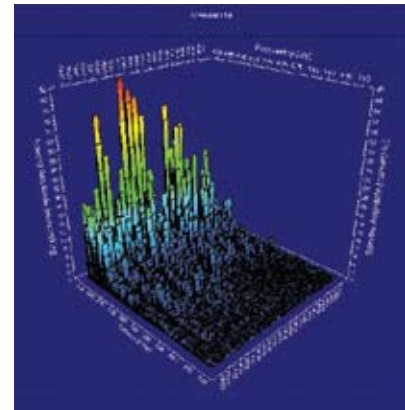
HRV Analysis

Pathfinder offers the operator:

- RR-interval resolution of one millisecond
- Prospective control of QRS detection
- Comprehensive HRV time domain
- Rejection of non-sinus intervals

HRV Tools provides a program for spectral HRV analysis that can be run on Pathfinder or on a separate research PC.

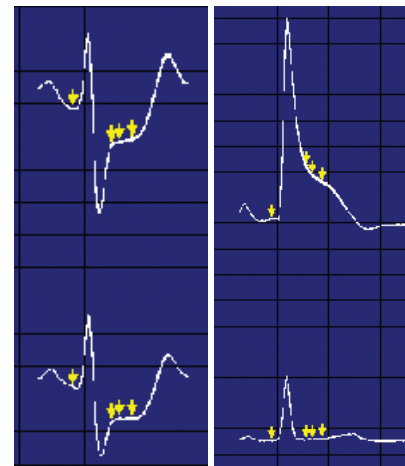
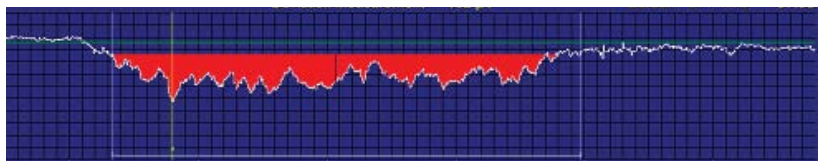
HRV Tools provides a multitude of tools to manipulate the data or analysis. See the HRV Tools Brochure for more details.



ST Analysis

Pathfinder's ST-analysis enables variation from the patients baseline ST level to be measured with simple graphical tools.

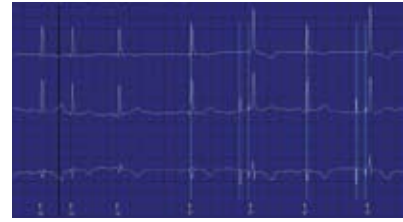
- The ST-Action Replay Review function
- Adjustable measurement and event detection criteria
- Automatic table of editable ST events according to ST deviation or ischemic burden



ST-Action Replay clearly shows depression and elevation

Pacemaker Analysis

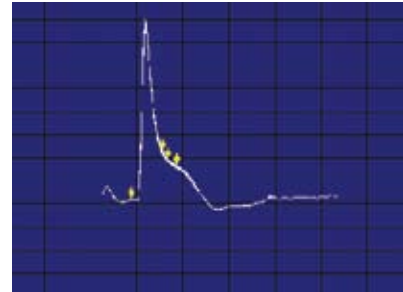
Lifecard CF has dedicated circuitry to accurately determine pacing pulses. Pathfinder uses this information to classify paced beats and display the presence of atrial and ventricular pulses on the ECG. With Pathfinders high resolution ECG, pacing abnormalities can be diagnosed with confidence.



The exact position of pacing markers are shown superimposed on the ECG

Beat to Beat QT Analysis

- 24-hour continuous QT interval analysis in Pathfinder makes full use of its 12-bit resolution
- Extensive automatic artefact rejection is used to produce a reliable measure of QT changes in the challenging environment of ambulatory ECG
- Results are presented in graphs of QT and RR intervals against time, with hourly and 24 hour values of QT and QTc in tabular form
- QT action replay enables the operator to verify results



CardioNavigator

CardioNavigator is the Spacelabs Healthcare central data management system for communication and integration of data from all of our products.

CardioNavigator Provides:

- A central SQL or paradox database of recordings and reports that can be accessed for analysis or review from any networked system
- Network viewing of reports including, editing, analysis of results including local printing
- Electronic transmission of recordings or results via e-mail to remote users of CardioNavigator
- HL7, Bidirectional interface to hospital information systems
- Storage of reports in PDF or RTF formats
- Network, CD or DVD archiving and backup of databases.



Data Output for Research & Clinical IT Applications

Raw ECG data and analysis results such as RR and QT intervals or ST measurements can be stored to a file for further analysis.

Ease of Use

Pathfinder's user interface is both ergonomic and intuitive. Mouse movements are kept to a minimum. Screen layouts include all the information you need without scrolling.

- High resolution 1600 x 1200 display, to provide maximum clarity of subtle ECG changes
- White ECG on a blue background to further increase clarity
- Easy on the eye flowing ECG page display with scan speed and gain controls
- Simple graphical display of analysis sensitivity with sliders for adjustment



Adjust the speed at which the ECG 'flows' across the page

7-Day Digital Holter

For over 30 years, clinicians have based their diagnosis on one day of ECG. The Lifecard CF digital recorder represents a leap in technology, that enables 7-days of continuous ECG to be recorded.

This integration between our Lifescreen software and Pathfinder provides the clinician with a 7 day overview report and a detailed worst case 24 hour report without significant additional operator workload.

The Lifescreen provides:

- Simple ECG scanner to review the 7 days
- Diagnostic tools to identify significant events
- Export of the worst case 24-hours to Pathfinder for more detailed analysis



7-Day ECG - increase diagnostic yield

12 Lead Holter

Pathfinder provides comprehensive viewing, measurement and documentation of 12 lead ECG recorded using Lifecard CF

- ST measurements in all leads
- PQRST interval measurement
- View all leads simultaneously
- Add ECG and measurement strips to report



Technical Specifications

Analysis Modes	
Retrospective	YES
Prospective	YES
Channels Analyzed	3
Arrhythmia Analysis	Automatic & Interactive
Pacemaker Analysis	Standard
HRV Analysis (Time Domain)	Standard
HRV Analysis (Spectral)	Requires HRV Tools
ST Segment Analysis	Standard
QT Analysis	Standard

Display Modes
Time display
Full disclosure display
Flowing page display
Superimposition display
Pacing marker display
Multiple event display
Event plus details display

Morphologies Totals
Normal
Ventricular
Supraventricular
Artefact
Paced

Event Totals and Tables

Trend Graphs
Heart Rate/minute
Ventricular beats/minute
Paced beats/minute
N-N Interval
ST Segment Deviation
QT & QTc Interval

Recorder compatibility	
Digital	Lifecard CF (digital), Lifecard 12
Cassette	Industry standard cassette

Compatible with	
Format	17 Formats,
Strip Annotation	Time, Event, HR, Event details
Full Disclosure	

Network
Fully networkable using CardioNavigator (C-NAV) Cardiology Information Management System
Available HL7 integration with Hospital Information Management System via C-NAV
Available Multi-user analysis on C-NAV networked systems
*subject to change

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