## **DMS**oftware

## CardioScan-12 Holter ECG System

## Pacemaker



Pacemaker displays are for the following:

- Beat-to-Beat
- Spike-to-Spike
- Beat-to-Spike
- Spike-to-Beat

The above is a Beat-to-Beat display. The length of each R-R interval is shown as a vertical line. When there is a sudden change in the length of these lines, there are probably ECG events of interest.



Place the mouse arrow at a change of interest, and then double left click.

When you double left click at the point where there is a sudden Beat-to-Beat change, you see the below display.



The sudden change in Heart Rate was caused by the pacemaker transferring from dual firing to ventricular paced beats.

Note the quality of the pacemaker spikes. The Holter recorder's high sample rate of 1,024 samples per second and the high frequency of 500 Hz produces the best pacemaker spikes in Holter ECG.



Doing a double left click on the single long line above resulted in the below display.



The single long line was the above VE beat.

The below display is an example of using the Spike-to-Spike display.



By doing a double left click where there was a sudden change from the long lines to the short lines, you can see the pacemaker change in the next display.



The sudden change in the length of the Spike-to-Spike intervals shows the pacemaker transferring from a single ventricular spike at rates of about 105 to dual firing spikes at rates of about 60.

The next display is for the Spike-to-Beat mode. This would be the mode for detecting Failures to Capture. If there was a failure of the QRS to follow the pacemaker spike, then you would see a long single line.



The sudden changes in the length of the vertical green lines indicate a change in the pacemaker function, and the spike to beat relationship. The next screen display shows the change in pacemaker function.



The resulting ECG shows the change in the pacemaker spike relationship to the following QRS.

The next display is for the Beat-to-Spike mode. This would show an indication of Failure to Sense.



The above Beat-to-Spike shows occasional and sudden changes in the Beat-to-Spike interval. The next display shows the resulting ECG.



Above there is a single ventricular spike and QRS at a rate of 118 that is surrounded by dual firing pacemaker function at a rate of about 60.



The below screen display shows the minimum QRS rate.

The below screen display shows the maximum QRS rate during the pacemaker recording.

