

Cardy 301/301L Recorder



- 2 / 3 channel digital recorder for 24 and 48 hours recording
- Maintenance free and super durable recorder against patient's tough action
- Comfortable size to wear : business card size, thickness 15mm
- Real time wireless checking for signal quality and lead-off using Cardy Controller 02
- Patient information memory
- Body Movement Sensor for diagnosis of Angina pectoris with HR, ST trend and arrhythmia analysis
- Pacemaker pulse detection 1 channel

Cardy 302 MAX Waterproof Recorder



- One of the smallest and lightest models available in global market in comfort Smaller than business card size that is designed to wear inside the clothes
- 2 / 3 channel digital recording for 48 hours with Pacemaker pulse detection 1 channel / 2 levels
- SD card memory for immediate data acquisition in 14 seconds
- 3D Body Movement Sensor for diagnosis of Angina pectoris with HR, ST trend and arrhythmia analysis
- Real time wireless checking for signal quality and lead-off using Cardy Controller 02
- Input Patient information and Postural ECG Templates using Cardy Controller 02
- Pacemaker pulse detection 1 channel

Cardy Controller 02



- Wireless data entry for Patient information to Cardy recorders : ID, name, sex, age and blood pressure. Register postural ECG templates in Cardy 302.
- Wireless ECG checking of Cardy recorder for signal quality and lead-off
 - Preview ECG data on LCD for Cardy 301/301L and memory card
 - Data transfer from Cardy 301/301L to CF card and SD card
 - Alphanumeric cell-phone key pad
 - 3.8" backlit graphic LCD

Specifications

Cardy Holter Analysis System

Holter ECG recorder	Cardy 301/301L	Cardy 302 Max
Recording channel	2 or 3 channel, Pacemaker 1 channel	
Recording period	24 hours / 48 hours	48 hours
Body movement sensor	Uni-axial accelerometer	Tri-axial accelerometer
Sampling rate	8 msec (125 Hz)	8 msec (125 Hz) or 4 msec (250 Hz)
AD converter	10 bits	10 bits or 11 bits
Input level		16 m Vp.p
Frequency response	Conform to IEC60601-2-47 : 2001	
Input impedance	Over 10 MΩ	
Safety	Type B	
Dimension	W85 x D54 x H15 mm	W58 x D67 x H20 mm
Weight	72 g including batteries	67 g including battery & SD card
Power	2 x 1.5V AAA alkaline	1 x 1.5V AAA alkaline
Operating environment	Temperature: 10 - 45 °C, Humidity: 10 - 95 % Rh non condensing	
Storage environment	Temperature: -20 - 60 °C, Humidity: 30 - 95 % Rh non condensing	
Waterproof Standard*	Not applicable	IPX5: shower IPX8: within 15 min., 40 °C & 1 meter depth or less *Cardy 302 requires water proof patient cable and a periodical inspection for water proof feature. Please ask local Kenz distributor for maintenance service.
Standard accessories	Operation manual, patient cable 2ch or 3ch, 2 x AAA battery, carrying case, shoulder-west belt	Operating manual, patient cable, 1 x AAA battery, carrying case Shoulder-waist belt, Holter Card S
Option	Connecting cable for disposable patient cable	Connection Cable for regular patient cable, Disposable patient cable Cardyrode W Disposable patient cable Cardyrode E, Adhesive pouch

Holter ECG Analyzer Program (Required Hardware Specifications)

	Cardy Analyzer 03	Cardy Analyzer 05
Operation System	Windows XP, VISTA (32 bit), No guaranty on the upgraded version of XP and VISTA	
CPU	800 MHz or higher clock speed recommended	2 GHz or higher clock speed recommended
Memory	128 MB (256 MB recommended)	1 GB or higher
Hard disk	Free capacity of 30 GB or higher, 200 MB needed for software installation	
Disk installation	CD-ROM/DVD-RAM drive required for installation	
Display graphic mode	SXGA 1280 x 1024 dots or higher	
Interface	USB Revision 1.0 conformity required for USB transfer unit USB Transfer unit must be connected directly with USB port. Serial port required to connect with BPM AM300 for Analyzer 03	
Card reader	Compact flash/Secured digital card	
Data back-up size	Compressed ECG data 24 hrs: 20 MB, 48 hrs: 40 MB	
Printer and paper size	Laser printer with 300DPI or higher, A4 or Letter size paper printer with Ethernet port is recommended.	

Cardy Controller 02

Data reader/writer	Holter card, Holter card S
Display	3.8" 320 x 240 dots
Dimension	W90 x D220 x H30 mm
Weight	355 g including batteries
Power	4 x 1.5V AAA alkaline batteries
Operating temperature	10-35 °C
Humidity	30-80 % RH non condensing
Storage temperature	-20-60 °C
Humidity	30-90 % RH non condensing
Standard accessories	Operation manual 4 x 1.5V Alkaline batteries
Option	Holter card (compact flash card, 32 MB), Holter card S (secure digital card, 128 MB)

Ambulatory Blood Pressure Monitor AM300

Operating	Oscillometric method
Measurement range	Pressure: 0-320 mmHg Systolic: 60-280 mmHg Diastolic: 40-160 mmHg Pulse: 30-200 bpm
Measurement time and memory	Approx. 200 times, 300 data
Data output	RS-232C
Power	3 x AA alkaline or Ni-cd batteries
Dimension	W72 x D27 x H100 mm
Weight	225 g with batteries
Operating environment	10-40 °C, less than 85% RH (non condensed)
Storage environment	-20-50, less than 95% RH (non condensed)
Standard accessories	Operation manual, 10 x activity memo card, belt pouch 2 x Adult left cuff cover, 3 x AA Alkaline batteries
Option	Printer terminal AM300P, BP Analysis Software AM300S Serial/USB cable, belt pouch for Cardy and AM300



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Kenz®

Cardy Holter Analysis System

Cardy Analyzer
Cardy Recorder
Cardy Controller



SUZUKEN COMPANY

Evolutionally advanced Holter ECG system

Cardy Analyzer

A simplified approach to Holter analysis workflow is possible by clicking the Job Icons and selecting the Tool Bar.

Full automatic process and multitask workflow

Full automatic process and simultaneously running multiple tasks such as printing Full disclosure while downloading raw data and analyzing other patient data.

Versatile standard functionality

AF detection, Pacemaker detection, Heart Rate Variability analysis and Interlocking ECG and BP data output are fully equipped as the standard features.

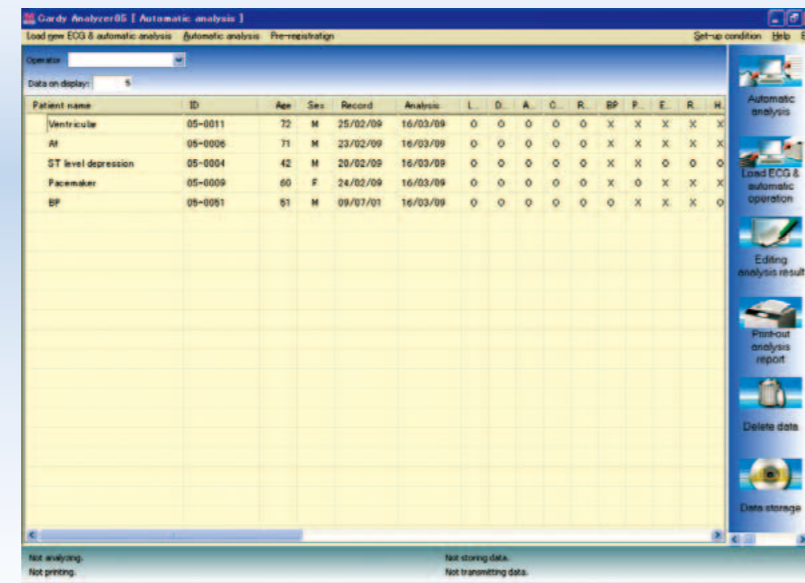
Data search and PDF report filing for network

Organized ECG data and Analysis reports filing is the key solution for medical record system on network.

Analysis and edit functions

- Template matching and Morphology reclassification for group/individual
- Search and edit by Auto-superimposed ECG*
- Zone-edit and Auto-scrolling search for Full Disclosure
- Arrhythmia link-Editing in Histogram ↔ Strip ↔ Full Disclosure*
- ST link-Editing in Trend ↔ Strips ↔ Full disclosure and ST point adjustment*
- ECG Strips editing based on an episode list and selecting for print
- Atrial fibrillation detection
- Advanced Heart Rate Variability analysis
- Pacemaker pulse analysis and evaluation
- Ambulatory blood pressure analysis
- Body postural analysis using Body Movement Sensor

* Feature applicable in Analyzer 05 only

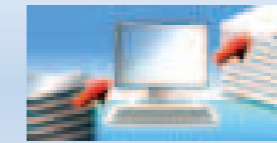


Explanation of Job icons



Automatic analysis

A series of operation starting from Pre-check to Printout of analysis results can be activated. Automatic analysis will be performed in the following order. Pre-check, Set-up basic template, Set-up ST points, Load ECG data, Morphology and labeling, Confirm and edit templates, Arrhythmia analysis, ST analysis, Print out analysis results.



Load ECG & automatic operation

The following 7 functions can be executed after selecting this icon. The functions are Load new ECG data, Pre-registration, Analysis condition, Automatic operation, Patient information, Load BP data, Set-up condition.



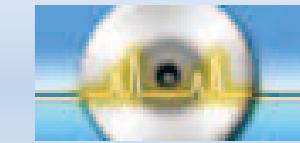
Editing analysis result

The following 7 functions can be executed after selecting this icon. The functions are Editing analysis result, Create Image data, Patient information, Set-up condition.



HRV analysis

HRV analysis program can be executed by selecting this icon. Various analysis methods which include Auto Regressive Spectrum (AR) and Fast Fourier Transform (FFT) of Frequency Domain, and Complex Demodulation (CDM) of Time Domain can be used for HRV analysis.

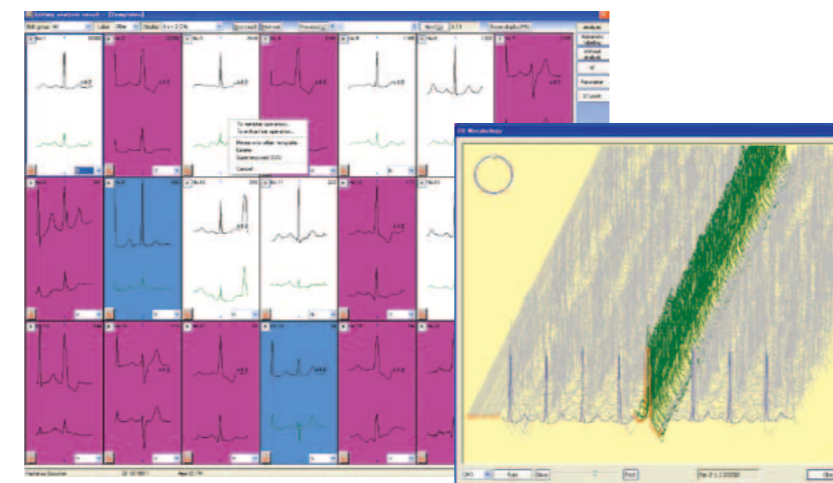


Data storage

Raw data, analysis results and edited reports can be saved in a hard disk or archival medium by selecting the check box in the list after selecting this icon.

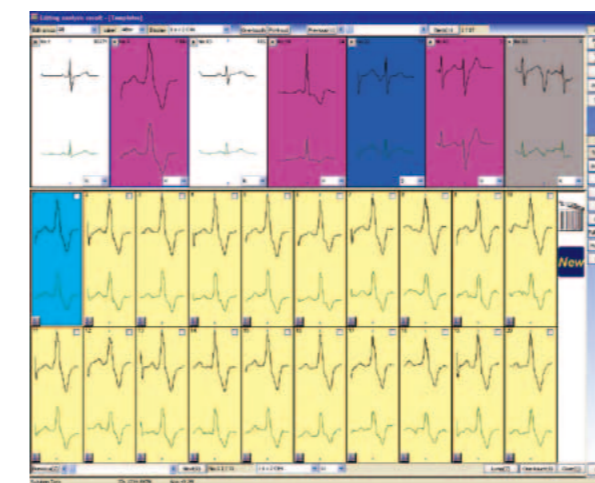
Template Matching & Re-labeling for Superimposed ECG

Matching ECG within the template can be superimposed for confirmation. Other types of ECG mix-up in the superimposed ECG can be selected for delete or reclassification.



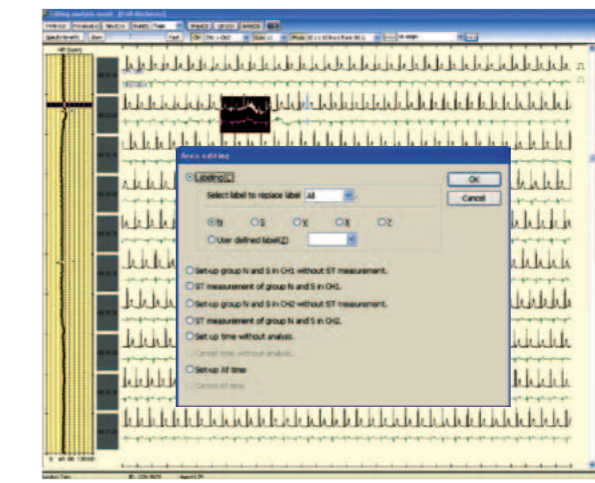
Individual Morphology Reclassification

Individual Morphology template that is wrongly merged with other template group can be extracted from the group. The extracted morphology template can be remerged with the correct template group or reclassified as a new template group.



Zone editing on Full Disclosure

The ECG shown under full disclosure can be selected by specifying the range or zone. The selected range or zone will be highlighted in different color. The highlighted range or zone of ECG can be edited.



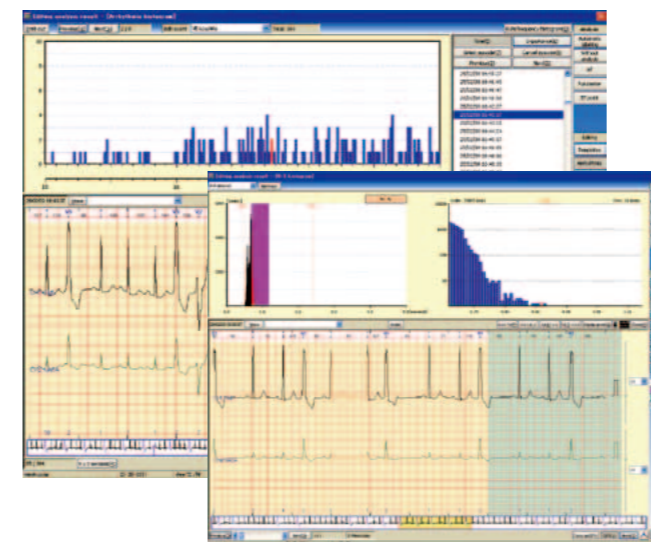
Link editing [Histogram ↔ Strip ↔ Full Disclosure]

Histogram, ECG strip and Full disclosure can be interlocked and displayed on the same screen. By clicking any part of the histogram, the ECG strip of that particular section will appear. And the full disclosure of that particular ECG strip will be displayed when you click the Interlock icon.



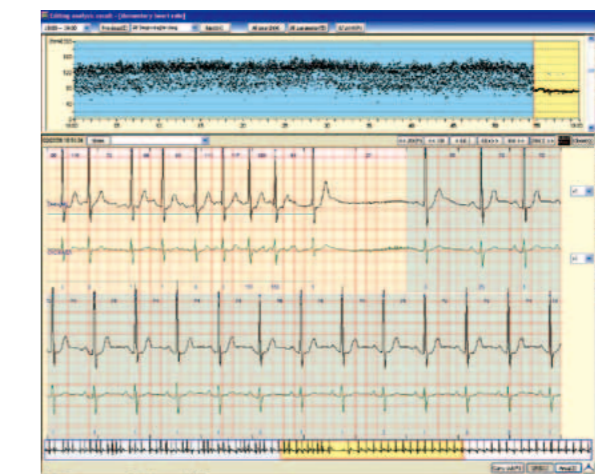
Arrhythmia Detection

ECG can be called from the histogram, and all the arrhythmias that were automatically detected can be confirmed on the arrhythmia histogram and R-R histogram. The histograms of VE single, VE Bigeminy, VE couplets, VT, SVE single, SVE couplets, SVT are shown on the same screen.



AF Detection

By selecting [AF search], measurement of Atrial Fibrillation will be performed, and the range of Atrial Fibrillation will be searched. The data will be shown as blue color on the trend graph and the ECG will be displayed with blue underline.



Print Report Format

Arrhythmia Reports

Text reports, Arrhythmia text report (VE, SVE)
Arrhythmia histogram (Total, No.1-4)
RUN Frequency histogram, R-R interval, R-R ratio
Main and all templates, AF histogram and summary report

Ischemic Diagnosis Report

ST trend (9 hrs, 24 hrs, 9 hrs/3 channel, 24 hrs/3 channel)
ST point, Postural strip
Strips (7, 14, 21 sec, 1 min, 7 sec/3 channel, 7 sec/postural)
Strips screen print, Episode list,
Full disclosure (sec/line)/momentum HR,
ST trend, Postural trend*

Ambulatory Blood Pressure Report

BP trend, BP text report, List of BP data

Pacemaker Analysis and Evaluation

Pacemaker text report and summary report,
Strips, Full disclosure

Heart Rate Variability

HRV report, CDM (24 hrs, 30 min)
AR analysis and enlarge display, AR analysis (3D)
FFT analysis and enlarge display, FFT analysis (3D)
Long term analysis*, Time domain

* Feature applicable in Analyzer 05 only