NASAN SIMPLE. RELIABLE.	Title: Website Catalog & specification Document	Document no: NASAN-D&D-D-007
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		Date: 29-1-2024
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This is an ambulatory 3 leads ECG recorder and arrhythmia analyzer. Reveala-3 is hooked up to the patient for 24 hours. ECG data of 3 channels for 24 hours is stored on the SD (Secure Digital) card inserted into the Reveala unit. Whenever patient feels restless he can record the events, by pressing event button on Reveala unit. When recording is completed, the events if marked and the ECG data of 3 channels are downloaded in PC using data download cable.

Technical Specifications

1. Environmental

Operating Temp   : -5 to +50 ºC

Operating & Storage Humidity : 0 to 95 % non-condensing

2. Dimension and Weight

Dimension   : 104 X 74 X 25 mm (LXBXH)

Weight   : 180 gm with battery

3. Power supply

Battery   : Duracell MN1500 or equivalent, Alkaline batteries

                          of AA size

Back up time   : 24hrs

4. Performance

Language   : English

PC interface   : USB

Storage medium   : In built SD card

Data Download rate   : USB @ 3MBPS

Visual Indications   : Through LED for Bat Low, Memory Full, Recording,

                          Leads Off

Audio indications : Beep Buzzer- Record start & end

: Alarm Buzzer - Leads off

Switch : keys- Start, Event mark

Slide switch- USB (download)/OFF/ ON (Rec)

5. Acquisition

Frequency response : 0.5 Hz to 35 Hz

Filter : DSP

Input impedance : 10 M ohm

Time constant : > 1.6 sec

A/D conversion : 8 bit

Noise : < 20μV_{p-p}

Leakage current : < 10 µA

Gain : 5, 10 & 20 mm/mV selectable.

CMRR : > 120 dB

Accuracy : +/- 1 bit

Sampling Frequency : 100 samples per second simultaneous

Data acquisition : Simultaneous recording of 3 channels for 24hrs

Printouts : Printing of marked report with grid On/off facility,

Print colour reports.

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6. Minimum PC configuration

a. Operating system   : Windows 11/10/7 professional 64 bit

b. Intel Pentium 4, , HDD-500GB

c. RAM: minimum 4GB.

d. Color monitor

e. USB port   : One free USB port to connect Holter

7. Detailed features

1. Download
a. Facility to download 3 lead ECG data recorded in SD card @100 samples/ second to PC using data down load cable.

2. Full disclosure
a. Default display of 10 min disclosure of Ch 1 in 3 Channel
b. Configurable Disclosure time of 10, 20, 30, 60 Min.
c. Selection of any of the channels for disclosure.
d. Editable page start time for full disclosure.
e. Facility to view next / previous ECG page for the selected disclosure time with Left-Right arrow keys with horizontal scroll bar
f. Mark page for printing
g. Facility to zoom selected minute ECG.

3. One minute disclosure
a. Selection of any of the channels for disclosure
b. View next / previous 1 min. ECG page with Left-Right arrow keys or horizontal scroll bar
c. Mark page for printing.
d. Facility to enter comments (up to 70 chars).
e. Grid or Graph on / off.
f. Mark noise facility (before and after classification).
g. Select start beat and channel for classification.
h. Mark noise

4. Start beat and channel selection for analysis
a. Display of 8 sec ECG data in 3-channel model for all channels.
b. Detection of Normal beat automatically / manually. Automatically selected beat displayed in red color
c. Selection of any of the channels for analysis.
d. Gain Increment / Decrement
e. View next / previous 8 sec ECG data for 3 channels with Left-Right arrow keys or horizontal scroll bar
f. Facility to invert channel

5. Classification
a. Display of continuous Heart rate trend during Classification
b. Facility to view 15 templates at a time
c. View next / previous 15 templates with Left-Right arrow keys or horizontal scroll bar
d. Facility to rename the selected template
e. Edit templates during Classification
f. Analyze data to detect arrhythmias and display trends

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6. **Edit Template**
   a. Facility to display 28 similar beats in a template at a time on the screen.
   b. View 8 sec of 3 channel data of all beats one at a time in selected template.
   c. Facility to edit Labels of selected beats in template
   d. View next / previous 28 beats with Left-Right arrow keys or horizontal scroll bar

7. **Review Screens**
   a. Facility to select patient from patient list.
   b. Review screen displays 24 hour trends of following parameters
      i. HR
      ii. VE
      iii. V-Tach
      iv. SVE
      v. SVE-Tach
      vi. ST Levels of 3 channels
      vii. Bigeminy
      viii. Trigeminy
      ix. Bradycardia
      x. Tachycardia
   c. Following parameters are displayed on review screen
      i. Min HR bpm with time.
      ii. Max HR bpm with time.
      iii. Longest Pause duration with time.
      iv. Longest Vtach duration with time.
      v. Longest SVTach duration with time.
      vi. Longest STEpisode duration with time.
      vii. Max Delta ST (+/-) in mm for channel with time.
   d. View one minute disclosure of selected events
   e. View one minute disclosure of standard events
   f. View medians and edit fiducial points
   g. View Arrhythmias
   h. View ECG of any minute
   i. View following HRV reports
      i. RR interval distribution table
      ii. RR interval distribution histogram
      iii. Heart rate variability indices
      iv. PoinCare graph
      v. Normal RR histogram

8. **Review mode utilities**
   a. Editable marked page list.
   b. Unmark the marked noisy data in review.
   c. Editable patient details
   d. Editable summary report
   e. Editable arrhythmia summary report
   f. Select reports for printing
   g. Save & retrieve saved test from backup

9. **Reports**
   a. Facility to navigate through pages, zoom-in and out in a page in Print preview
   b. Arrhythmia disclosure report

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       i. 8 sec of ECG strip of all channels with arrhythmia in center and in different color (if selected).

       ii. Arrhythmia label

  c. Arrhythmia summary report

       i. 24 hrs details at the interval of 1 hr. of Min HR, Max HR, Avg HR, VE, VE Pair, Vtach, Pause, R On T, SVE, SVE Pair, SV Run, Bigeminy, Trigeminy, Bradycardia, Tachycardia, Total analyzed minutes

       ii. Trends for 24 hrs of HR, VE/Min, VTACH, SVE/Min, SVRun, Bigeminy, Trigeminy, Bradycardia, Tachycardia, Pauses, VE Pair

  d. One minute disclosure report

       i. 1 min ECG data of the given Channel No starting from Report date and time with arrhythmia in different color (if selected and if exists) along with event marks (if selected and if exists).

  e. Full disclosure report

       i. 10, 20, 30, 60 minute disclosure

       ii. 10 / 20 / 30 / 60 min ECG data of the given Channel.

       iii. Arrhythmia printed in different color if selected

       iv. Event marks is selected.

  f. Template summary report

       i. Template label

       ii. 2 sec ECG data of each template with total number of templates and total number of beats in template

  g. ST-Analysis report

       i. ST reference beats of all channels with E, J and Post J points

       ii. Following information about ST levels

          1. Total ischemic time

          2. Number of episodes between 1 – 2 min, 2 – 5 min, Above 5 min

          3. Severity in mm between 1.0 – 1.9, 2.0 – 2.9, Above 3.0

       iii. Trends of ST levels of all channels for 24 hrs

  h. Summary report

  i. HRV report

       i. Normal RR interval distribution table

       ii. Normal RR interval distribution histogram

       iii. HR variability table

       iv. PoinCare Graph

10. Settings

  a. Hospital details

  b. Referring Doctor list

  c. Printing details configuration

  d. Prematurity of SVE

  e. Arrhythmia labels

  f. Standard comments

  g. Pause time

  h. Download speed

*Due to our continuous product development program, the specification may change without prior notice.