

**Asaan 1003** machine provides facility of printing three and single channel ECG report as per selection. It acquires ECG and prints it on a 2" thermal paper roll.

### 1. Dimension and Weight

Dimensions : 211 L X 161 W X 93 H  
Weight : 1.5 kg. (With Battery)

### 2. Environmental

Operating Temp : -5 °C to +50 °C  
Operating & Storage : up to 95 % non-condensing  
Humidity

### 3. Performance

Display : 16 X 2 alphanumeric blue LCD display with backlit.  
Language : English  
Printout : ECG trace, Gain, Paper speed, Lead marking and calibration pulse  
Recording format : Auto and Manual  
: Auto with measurement and interpretation  
Writing device : Electronic thermal array printer  
Recording length : Auto2- 2 sec/lead, Auto3- 3 sec/lead and Auto4- 4 sec/lead  
(factory set- Auto format)  
Recording paper : Thermal, 55mm, 20mtrs

### 4. Power supply

Input : 150 - 260 VAC, 50 Hz, 1 Ø.  
Output : 18V DC @ 1.2 A.  
Battery : 12.0V /0.8A rechargeable.  
Power consumption : < 20 Watt  
Charging Time : 12hrs approximately for fully discharged battery

### 5. ECG

Frequency response : 0.05 to 150 Hz with notch at 50 Hz  
Input impedance : 10 M ohm  
Time constant : > 3.2 sec  
A/D conversion : 12 bit  
Noise : < 20  $\mu\text{V}_{\text{p-p}}$

Leakage current	: < 10 $\mu$ A
CMRR	: > 120 dB
Patient isolation	: Optical isolation.
Lead selection	: standard 12 leads
Gain	: 5, 10 & 20 mm/mV
Sweep speed	: 25.0, 50.0 mm/S.
Protection	: Resistant to Defibrillator

## Detailed Feature

### ❖ ECG

- User selectable 2 sec 3sec & 4 sec traces of all 12 channels of ECG get printed sequentially in groups.
- User selectable sweep speed: 25mm/sec or 50 mm/sec.
- User selectable gain: 5, 10 or 20mm/mv.
- DSP filter with 0.05 Hz to 150 Hz frequency response and notch at 50 Hz.

All settings through membrane keyboard with following keys provided on the front cover.

### ❖ Settings

- **START/STOP** – Start or stop the printing.
- **LINE FEED** - To move the paper out little bit.
- **MENU Key** - To choose user selectable modes for ECG printing
- **MODE** - Following user selectable modes are provided for ECG printing.

Press "Menu" Key. Press Enter key. The report format menu will be displayed. Under report format following option is provided:

- 1 Channel
- 3 Channel

Use Up/Down Key to choose report format. Press Enter key and then press down key to go to next submenu.

### ➤ Automatic Mode

- **AT2:** Automatic mode 2 with measurement and interpretation  
All ECG leads are printed in groups, 2 sec for each lead group.  
Group A: I, II, III  
Group B: aVR, aVL, aVF  
Group C: V1, V2, V3  
Group D: V4, V5, V6

For **single channel** all ECG leads are printed sequentially, 2 sec for each lead.

- **AT3:** Automatic mode 3 with measurement and interpretation  
All ECG leads are printed in groups, 3 sec for each lead group.  
Group A: I, II, III

Group B: aVR, aVL, aVF

Group C: V1, V2, V3

Group D: V4, V5, V6

For **single channel** all ECG leads are printed sequentially, 3 sec for each lead.

- **AT4:** Automatic mode 4 with measurement and interpretation

All ECG leads are printed in groups, 4 sec for each lead group.

Group A: I, II, III

Group B: aVR, aVL, aVF

Group C: V1, V2, V3

Group D: V4, V5, V6

For **single channel** all ECG leads are printed sequentially, 4 sec for each lead.

**For single channel and 3 channel, all Auto mode (Auto2, Auto3, auto4) are with Measurement and interpretation**

- Displays following Measurement:
  1. Amplitude (in V) and Duration (in msec) for Lead II
  2. All Medians.
  3. Axis measurement.
  4. Heart rate.
- Displays following **ECG interpretation:**
  1. Rhythm statements
    - a. Sinus Rhythm / Junctional or NonSinus Rhythm suspected / Sinus Bradycardia / Sinus Tachycardia
  2. PR interval statements
    - b. PR is normal / PR is long / PR is short
  3. QRS interval statements
    - c. Normal QRS Width / Wide QRS
  4. QT interval statements
    - d. Normal QT interval / QT Interval is prolonged / QT Interval - Little clinical significance
  5. QRS Axis statements
    - e. QRS Axis is normal / Right axis deviation / Left axis deviation / QRS Axis is indeterminate
  6. T wave inversion
    - f. Lead names of leads showing T wave inversion
  7. ECG
    - g. Normal ECG / ECG not normal / Otherwise normal ECG

**ECG comment:** ECG comment facility is given with measurement and interpretation **in auto mode only**. In report depending on the interpretation, ECG comment (i.e. "ECG Normal", "Otherwise Normal ECG" or "ECG not Normal") gets printed. ECG comment will be printed if "YES" option is selected and ECG comment will not be printed if "NO" option is selected.

## Measurement and Interpretation:

Measurement and interpretation facility is given for 3 channel and single channel in auto mode only. Measurement and interpretation will be printed if "YES" option is selected and ECG comment will not be printed if "NO" option is selected.

- **Long Lead Group:-** In this mode user can select any desired lead group, which will be printed as per selected long lead length. It is indicated as "Long" on LCD under the title 'Mode'
  - **GRP1:** When GRP1 mode is selected, leads I, II, III of selected long lead length are printed.
  - **GRP2:** When GRP2 mode is selected, leads aVR, aVL, aVF of selected long lead length are printed.
  - **GRP3:** When GRP3 mode is selected, leads V1, V2, V3 of selected long lead length are printed.
  - **GRP4:** When GRP4 mode is selected, leads V4, V5, V6 of selected long lead length are printed.

In **single channel** mode user can select any desired lead, which will be printed for selected long lead length. It is indicated as "**Long**" on LCD under the title '**Mode**'

- ❖ **Select Long Lead Length:-**Asaan-1003 allows you to choose desired long lead length (8, 10, 15, sec).
  - After selecting the mode press Enter and down key to go to the next submenu.
  - The **Long Lead Length** menu will be displayed. Select the desired long lead length of 8, 10, 15, sec with the help of up/down key.
- ❖ **Choice of recording sensitivity:** Asaan-1003 allows you to choose desired recording sensitivity (5, 10, 20mm/mv).
  - After selecting the mode press Enter key and then press down key to go to the next submenu.
  - The GAIN menu will be displayed. Select the desired gain of 5, 10 or 20mm/mv with the help of up/down key.
  - The selected Sensitivity is displayed on a LCD panel under the title '**Sn**'.
- ❖ **Select the paper speed:** Asaan-1003 allows you to choose desired speed of paper [25, 50 mm/sec.]
  - After selecting the desired gain press Enter key and then press down key to go to the next submenu.
  - The SWEEP SPEED menu will be displayed. Select the sweep rate of 25mm/sec or 50mm/sec with the help of up/down key. Then press 'Enter' key to display Default Screen.

- Recording speed is displayed on LCD panel under the title '**Sp**'
  
- ❖ **Enter patient details:**
  - Press "PATIENT DETAILS" Key. "Patient Name" sub menu will be display. Press "enter" key
  - Enter Patient Name (max 15 character) then press 'Enter' Key and then press down key to go next sub menu (Age menu).
  - Clear Key is used to modify the Patient Name.
  - Enter age using number keys.
  - Use 'Clear' Key to clear age and reenter age then Press 'Enter' key and then press down key to go next sub menu (Sex menu).
  - Use Up/Down Key to choose 'Sex' then press 'Enter' key and then press down key to display Default Screen.
  
- ❖ **Paper out indication**
  - Paper out detection: If paper is not present in the machine, "PAPER OUT" message will be displayed and printing will be aborted.
  - Easy paper loading
  
- ❖ **LED indication**
  - Mains on—Green LED.
  - Battery on—Yellow LED.
  - Battery low—Red LED.

\* Due to our continuous product improvement programme, features can be enhanced.