



Quick Reference Guide of *DENA 650* Electrocardiograph




For more information about the device, please refer to User Manual.

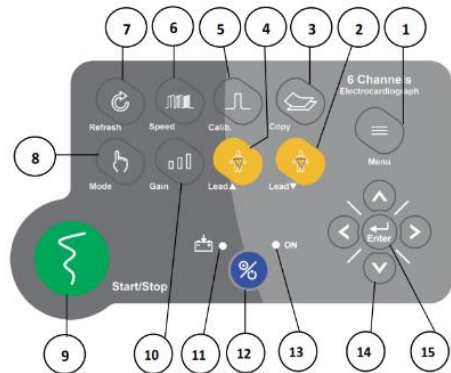


This guide is provided for medical professionals who are knowledgeable about the device function (and its accessories). The professionals are expected to study the User Manual beforehand.



Keys and Indicators

- ① Menu key
- ② ▲Lead: to select previous lead(s)
- ③ Copy: to record the last saved data
- ④ Lead▼: to select next lead (s)
- ⑤ Calib: to record a 1mv calibration signal
- ⑥ Speed: to adjust the recording speed
- ⑦ Refresh: to reset Drift filter and restore signals to the screen
- ⑧ Mode: to select recording mode
- ⑨ Start/Stop: to start/stop ECG recording
- ⑩ Gain: to adjust the amplitude of ECG waveform on the screen and recording paper
- ⑪  Battery indicator
- ⑫ Power key: to turn on or off the device
- ⑬ On indicator
- ⑭ Arrow keys
- ⑮ Enter: to enter software menus or select menu options



Intended Use and Specifications

- Dena 650 is a small, light-weight and portable Electrocardiograph intended to display 12-lead ECG waveform and to measure and save ECG signal parameters. It is equipped with a touch screen, a printer (Auto and Manual modes) and a built-in battery.
- The battery charging time is about 5 hours. A fully charged battery allows an operation time of minimum 8 hours. To get more information about the battery run-time, please refer to the section “Technical Specifications” of the user manual.

Setting

- To use filters, press **Home/Menu** key on the control panel or the screen to access **Main Menu** and then select **User Setting**.
- Switch On **Drift** filter. This filter is used to reduce signal oscillations.
 - Switch on **EMG** filter to reject muscular noise.
 - If the **EMG** filter could not remove the noise, use **Low-pass** filter.
 - The low-pass filters (25, 35 and 75 Hz) will reduce amplitude of QRS complex.
 - Select **HUM** filter with regard to your local AC frequency.
 - If the EMG filter is enabled, only 75, 150 and off options will be available for low-pass filter.

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Recommendations

- Inspect the accessories daily for any damage.
- Never use sulfated electrodes.
- Check that the ECG cable and the power cable have no contact.
- If the hospital is not equipped with an appropriate earth system, unplug the power cable and use the battery.
- Clean the patient skin before connecting the electrodes.
- The patient should not have stress or placed in an uncomfortable position.
- Do not place the electrodes on bony site of the body.
- Apply sufficient gel to the skin.
- Use the device filters if in spite of taking all above actions, the signal is noisy.

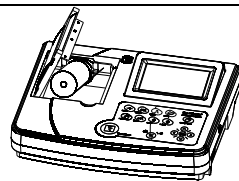


- Do not touch the screen with sharp objects.
- Use only the manufacturer recommended accessories.
- The electrocardiograph should not be used adjacent to or stacked with other equipment.
- Use only the manufacturer recommended cable and electrodes when the system is used in the vicinity of defibrillator.
- Do not touch the recorder immediately after recording because thermal head and its surrounding area are hot.
- Equipment is not suitable for use in the presence of a flammable anaesthetic mixture.
- Do not use the electrocardiograph system during magnetic resonance imaging (MRI) scanning.

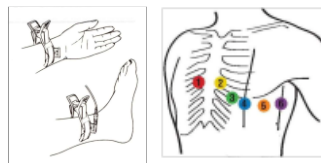
Operating the Device

- Press Power switch on the control panel to turn on the device. The green power indicator lights up when the device is powered on.
- Press Mode key on the screen or the control panel to select the recording mode (2, 3, 4 or 6 channels).
- Press Speed key on the screen or the control panel to set the recording speed. Available options are 6.25, 12.5, 25 and 50 mm/s.
- Press Sensitivity key on the screen or the control panel to select gain. Available options are 2.5, 5, 10, 20 mm/mV and Auto.

- To load the recorder paper, open the recorder door by pressing the release button and place the paper roll in the recorder and push it, then place the other side of the roll in the compartment and close the door firmly.



- The limb electrodes are placed on the left arm (L), the right arm (R), the left leg (F) and the right leg (N). The chest electrodes should be placed as shown in the figure.
- After connection of the electrodes and setting the system, press Start/Stop key to record.
- If the signals peak exceeds the Waveform area, press Reset key.



Measurement and Save

- Enabling **Measurement** in **User Setting** menu will change **Rec Mode** to “Sync in Auto” and “Auto 1+1” modes. If **Rec Mode** is changed to **Manual** or **Rhythm**, **Measurement** will be disabled. This item is intended to measure ECG parameters including duration of P and QRS waves, time interval of PR, QT and QTC waves (per millisecond) and the heart axes.
- Enabling **Save** in **Memory** menu will save Automatic recording data in the internal memory.

Note: Your device may not have **Measurement & Save** function.