esse 3®

# ES-12DE

## Digital 12-Channel ECG machine

CARDIOLOGY

## Main Unit

*Lead: Standard 12-lead*
*Acquisition Mode: Simultaneous 12-lead*
*Record Format: 12-lead: 3×4, 3×4+1R, 3×4+3R, 6×2, 6×2+1R, 6×2+3R, 12×1*
*VCG: 6×1+3, 3×2+3, 3×2+3+1R, 3×2+3+3R, Frank*
*Record Mode: Economic, Auto, Manual, Upload, Cycle, Trigger*
*Lead Format: 12-lead: 3×4, 3×4+1R, 6×2, 6×2+1R, 12×1*
*VCG: 3×2+3, 6×1+3, Frank*
*Long-term Recording: Record for a long term (30 s～300 s) and rhythm analysis*
*Measurement Parameters: HR, PR interval, QRS internal, QT/QTC interval, P/QRS/T axis, RV5/SV1 voltage and RV5+SV1 voltage*
*Filters: AC, low-pass and high-pass filters*
*CMRR: >89 dB, >100 dB (with AC interference filter)*
*Input CIR current: ≤0.1 μA*
*Patient Leak Current: <10 μA*
*Time Constant: ≥3.2 s*
*Frequency Response: 0.01 Hz～250 Hz*
*Noise Level: ≤15 μVp-p*
*Sensitivity Threshold: ≤20 μV*
*Signal Gain: Eight levels as 1.25 mm/mV, 2.5 mm/mV, 5 mm/mV, 10 mm/mV, 20 mm/mV, 10/5 mm/mV, 20/10 mm/mV, Auto Gain (Auto Gain is just for the Automatic mode)*
*Calibration Voltage: 1 mV±5 %*
*Accuracy of Input Signal Reproduction: Using the method described in 4.2.7.1 of AAMI EC11 to test the overall system error, which is within ±5%; Using method A and D described in 4.2.7.1 of AAMI EC11 to test frequency response.*
*Because of sampling characteristics and the asynchronism between sample rate and signal rate of the ECG machine, digital systems may produce a noticeable modulating effect from one cycle to the next, particularly in pediatric recordings.*
*This phenomenon, which is not physiologic, shall be clearly described in the operator's and service manuals.*
*Input Circuit: Floating circuit input*
*Input Impedance: ≥2.5MΩ (full-band)*
*Sampling Rate of Signals: 8000 Hz*

## Other specifications

Patient Cable: Standard 12-lead cable with defibrillation-proof
Display on LCD: 1280×768, 8.9-inch LCD touch screen, the whole instrument work status, time, heart rate, and with the backlight
Safety Classification: IEC60601-1 Class I Type CF
AC Power Supply: 100 V~240 V, 50 Hz /60 Hz, 110 VA
DC Power Supply: Rechargeable lithium battery, 14.8 V/ 4400mAh. In environment temperature ranging from 20°C to 30°C and with the machine turning off, the charging time is not more than 4 hours to charge the battery to 90%.
In environment temperature ranging from 20°C to 30°C, the continuous working time is not less than 3 hours while the ECG device is continuously printing.

## Recorder Specification

Recorder: Thermal Dot Matrix Word Printing System 8 points/mm (perpendicular) 40 points/mm (horizontal, 25 mm/s)
Recording Paper: 210mm×140mm-140P (recommended) or 210mm×150mm-140P Z-fold paper
Paper Speed: (5, 6.25, 10, 12.5, 25, 50) mm/s, ±5%

## Environment Requirements

**Transportation**
EnvironmentTemperature -20℃ ~ +55 ℃
RelativeHumidity ≤95 % (No condensation)
Air Pressure 70 kPa ~106 kPa
Transportation: avoid direct sunshine and rain.
**Storage**
EnvironmentTemperature -20°C ~+55°C
RelativeHumidity ≤95 % (No condensation)
Air Pressure 70 kPa ~106 kPa
The packed ECG should be stored in the well-ventilated room without corrosive gases.
**Using**
Environment temperature +5°C ~ +40°C
Relative humidity ≤95 % (No condensation)
Air pressure 70 kPa ~106 kPa

## Features

- Smart and portable design
- 9-inch TFT touch screen with 0 to 60 degree rotated angle, high resolution for clear display
- Waterproof and full alphanumeric keyboard with shortcut keys, efficient in operation
- Broad frequency response 0.05  250Hz for weaker signal recognition and capture, more suitable for pediatrics
- Specific age and gender differential validity in Biocare cardioPro analysis program maximizes the accuracy of the ECG interpretation
- Up to 300 seconds frozen waveforms reviewable and recordable
- Up to 300 seconds R-R analysis in 1 or 3 rhythms for easier in arrhythmia locating
- cabrera mode available

  Various file formats: ECG, XMl DICOM,JPEG and PDF
- Massive local storage for up to 5000 files
- 3 ways of file storage: local memory, SO card, USB flash disk
- ECG management software connected by LAN or WIFI (optional)
- HL7 protocol capability enable it to seamlessly interact with HIS

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