

1.1.21.

# SE-1200 Express

## Electrocardiograph 1.1.



### Specification

Physical Specifications 1.1.10.	Dimensions	420mm×330mm×120mm
	Weight	5kg (Excluding recorder paper and battery)
	Display	8 inch, 800×600 multicolor LCD screen (touch screen as optional)
Power Supply T2.	Mains Supply:	Operating Voltage = 100V-240V Operating Frequency = 50Hz/60Hz Input Current = 0.9-0.4A 1.1.20.
	Internal Li-ion Battery Pack:	Rated voltage = 14.8V Rated capacity = 2500/5000mAh continuous printing, 300/450 ECG reports) Necessary Charge time: 3/6 hours
Recording	Recorder:	Thermal dot-matrix recorder
	Printing Density:	8 dots per mm / 200 dots per inch (amplitude axes) 40 dots per mm / 1000 dots per inch (time axes, @ 25 mm/s)
	Recorder Paper:	Folded thermal paper: 210mm×295mm×100pages Folded thermal paper: 215mm×280mm×100pages (Optional) Rolled thermal paper: 210mm×30m (Optional)
	Paper Speed:	5mm/s, 6.25mm/s, 10mm/s, 12.5mm/s, 25mm/s, 50mm/s
	External Printer:	HP2010/2132/1050/2000, HPM401/2015/2035, HP1106/1020P, HP1112/4729/3638, HPM202D/1525/M403D 1.1.21.
HR Recognition	HR Range:	30 BPM ~300 BPM 1.1.17.
	Accuracy:	±1 BPM
ECG Unit	Leads:	12 standard leads 1.1.1.
	Acquisition Mode:	Simultaneously 12 leads
	A/D Converter:	24 bits 1.1.13.
	Resolution:	0.1192uV/LSB
	Time Constant:	≥5s
	Frequency Response:	0.01Hz ~ 500Hz (-3dB) 1.1.16.
	Gain:	1.25, 2.5, 5, 10, 20, 10/5 mm/mV, AGC
	Input Impedance:	≥100MΩ (10Hz)
	Input Circuit Current:	≤0.01μA
	Input Voltage Range:	≤±5 mVpp
Calibration Voltage:	1mV±2%	
CMRR:	≥140dB (AC on)	

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		≥123dB (AC off)
	Sampling Frequency	64,000 Hz
Pacemaker	Amplitude:	±750µV to ±700 mV <i>T1</i>
	Width:	50µs to 2.0 ms
	AC Filter:	ON/OFF, 50/60Hz
Filter	DFT Filter:	0.01Hz/0.05Hz/0.15Hz/0.25Hz/0.32Hz/0.5Hz/0.67Hz
	EMG Filter:	Off/25Hz/35Hz/45Hz
	LOWPASS Filter:	350Hz/300Hz/270Hz/150Hz/100Hz/75Hz
	Report Format:	PDF, XML, DICOM, FDA-SCP
Data Transmission	Data Transmission:	Wi-Fi, Ethernet, RS232
	Data Management System:	SE-1515 Data Management System, bi-directional communication
	HIS connection:	DICOM Worklist/DICOM Storage/HL7/GDT
	Transmitting Frequency:	2400-2497MHz
<i>1.1.9</i> Wi-Fi	Frequency Band:	2400-2497MHz
	Modulation Type:	DSSS, CCK, OFDM
	Transmitting Power:	6 - 17dBm
	Effective Radiated Power:	6 - 17dBm
	Comply with:	IEC 60601-1:2005/A1:2012 EN 60601-1:2006/A1:2013 IEC 60601-1-2:2007 EN 60601-1-2:2007/AC:2010 IEC/EN 60601-2-25
Safety Specifications	Anti-electric-shock type:	Class I with internal power supply
	Anti-electric-shock degree:	CF type with defibrillation-proof <i>1.1.5</i>
	Patient Leakage Current:	NC <10µA (AC) / <10µA (DC) SFC <50µA (AC) / <50µA (DC)
	Patient Auxiliary Current:	NC <10µA (AC) / <10µA (DC) SFC <50µA (AC) / <50µA (DC)
	Temperature:	Transport & Storage: -20°C (-4°F) ~ +55°C (+131°F) Working: +5°C (+41°F) ~ +40°C (+104°F)
Environment Specifications	Relative Humidity:	Transport & Storage: 25%~93% Non-Condensing Working: 25%~80% Non-Condensing
	Atmospheric Pressure:	Transport & Storage: 70kPa ~106kPa Working: 86kPa ~106kPa

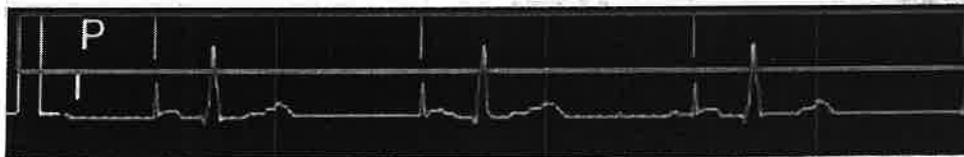
- The threshold of P-wave duration can be chosen from 110ms or 120ms. The chosen threshold will be used for P-wave broadening diagnosis.
- The user can select amplitude or area method for electrical axis calculation.
- The max signal sampling range can be selected from  $\pm 5\text{mV}$ ,  $\pm 10\text{mV}$  and  $\pm 20\text{mV}$ . This option must be supported by the new hardware.

- **Professional Pacemaker Analysis**

Now SE-12 Series supports 80 kHz Pacemaker sampling rate. Moreover, SE-12 Series has the capability of auto detection of the pace work mode and supporting the analysis of the AV pacemaker.

Besides, the pacemaker marker is showed on sampling display. The pace marker channel is printed separately.

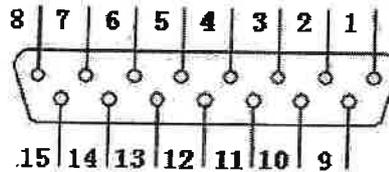
Please be noted that this feature must be supported by the new hardware.



The display of pacemaker marker on screen.

	Name	Explanation
A	Patient Cable Socket	Connecting to the patient cable
B	Serial Port 1	Connecting to a PC
C	USB Socket 1 (Optional)	Standard USB socket, connecting to a PC
D	USB Socket 2 (Optional)	Standard USB socket, connecting to a U disk, a bar code reader or a USB printer recommended by the manufacturer
E	External Input / Output Socket	Connecting to the external signal device
F	Serial Port 2	Reserved
G	Net port	Standard net port, connecting to a PC

### 1) Patient Cable Socket



: Applied part of type CF with defibrillator proof

: Caution

Definitions of corresponding pins:

Pin	Signal	Pin	Signal	Pin	Signal
1	C2 / V2	6	SH	11	F / LL
2	C3 / V3	7	NC	12	C1 / V1 or NC
3	C4 / V4	8	NC	13	C1 / V1
4	C5 / V5	9	R / RA	14	RF (N) / RL or NC
5	C6 / V6	10	L / LA	15	RF (N) / RL

**NOTE:** The left side of " / " is European standard, and the right side is American standard.

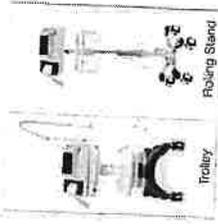
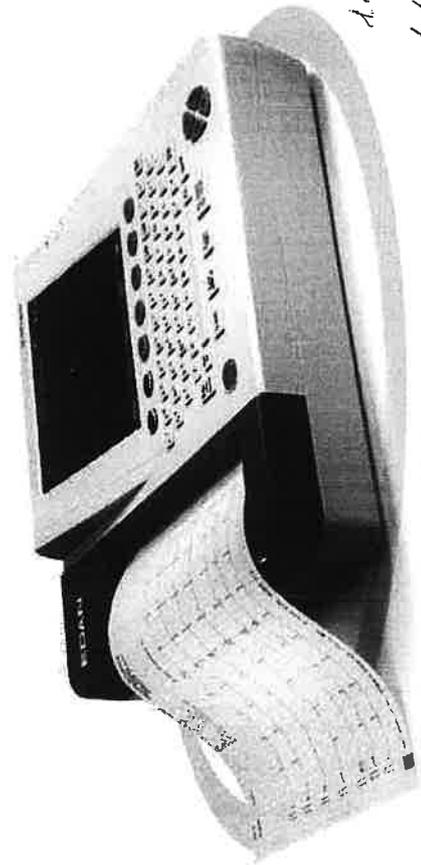
# SE-1200 Express

12-Channel Electrocardiograph

- User-friendly Design
- 8" high resolution color touch screen
- Alphanumeric keyboard
- Streamlined Workflow
- One-touch operation with age and gender shortcuts
- Support linear/2D barcode scanner to simplify workflow
- Accurate Clinical Performance
- Wide signal deflection with the advanced 24-bit A/D converter technology
- Anti-noise technology with comprehensive filters and high CMRR over 140dB
- ECG Signal Quality Indication
- 120s real-time ECG waveform freezing and review to assist diagnosis
- Automatic measurements and interpretation tested with CSE/AHA/AMI databases
- Extend printing once arrhythmia is detected for further rhythm analysis
- Built-in Glasgow Interpretation **1.1.6**
- Advanced ECG analysis: Vector ECG (optional)

- Flexible Printing Solutions
- Built-in high resolution thermal recorder to print on normal thermal paper and A4 size fax paper
- Support external USB printer
- Data Management
- SE-1515 Data Management System software for data management on PC (optional)
- Extensive Communications
- DATA transmitting to PC via LAN/Wi-Fi (Wi-Fi is optional)
- Report formats: PDF and optional SCP/PDA/XML/DICOM data export **1.1.9**
- Bi-directional data communication with DMS

\* We still offer a basic version of SE-1200 Express to help with your budget limitations.



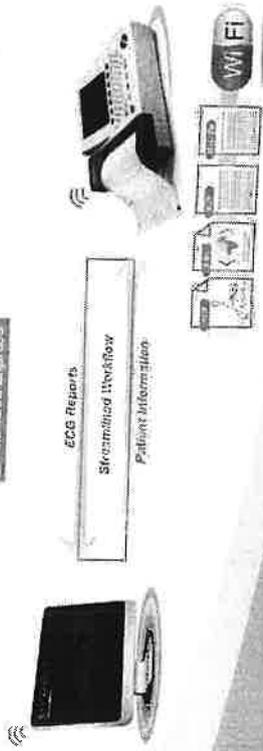
T3

1.1.8

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1.1.8

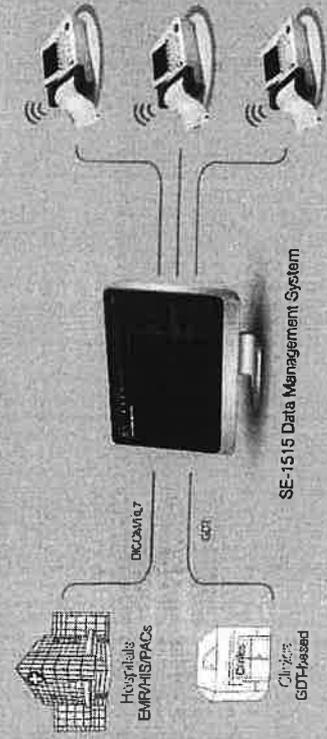
SE-1200 Express



SE-1200 Express (Basic)



## Seamless Connectivity



Network your ECG data with the help of EDAN's SE-1515 Data Management System in the same LAN. It is convenient to share, review, edit and diagnose ECG reports between different doctors. Meanwhile, with the help of Smart ECG Views, EDAN SE-1200 Express series are able to access EMR/HIS/PACS/GDT-based Systems via the standard protocols: DICOM, Workflow/HL7/GDT.

Hospital System Access  
Patient information workflow will be upgraded to hospital systems to ECG machines. Meanwhile, reports or final diagnostic results will be uploaded to hospital systems for archiving.

Standard Communication Protocols  
HL7/DICOM workflow are supported on SE-1515 Data Management System.

### 3.4 About the main screen

After you turn on the device, the main screen pops up.

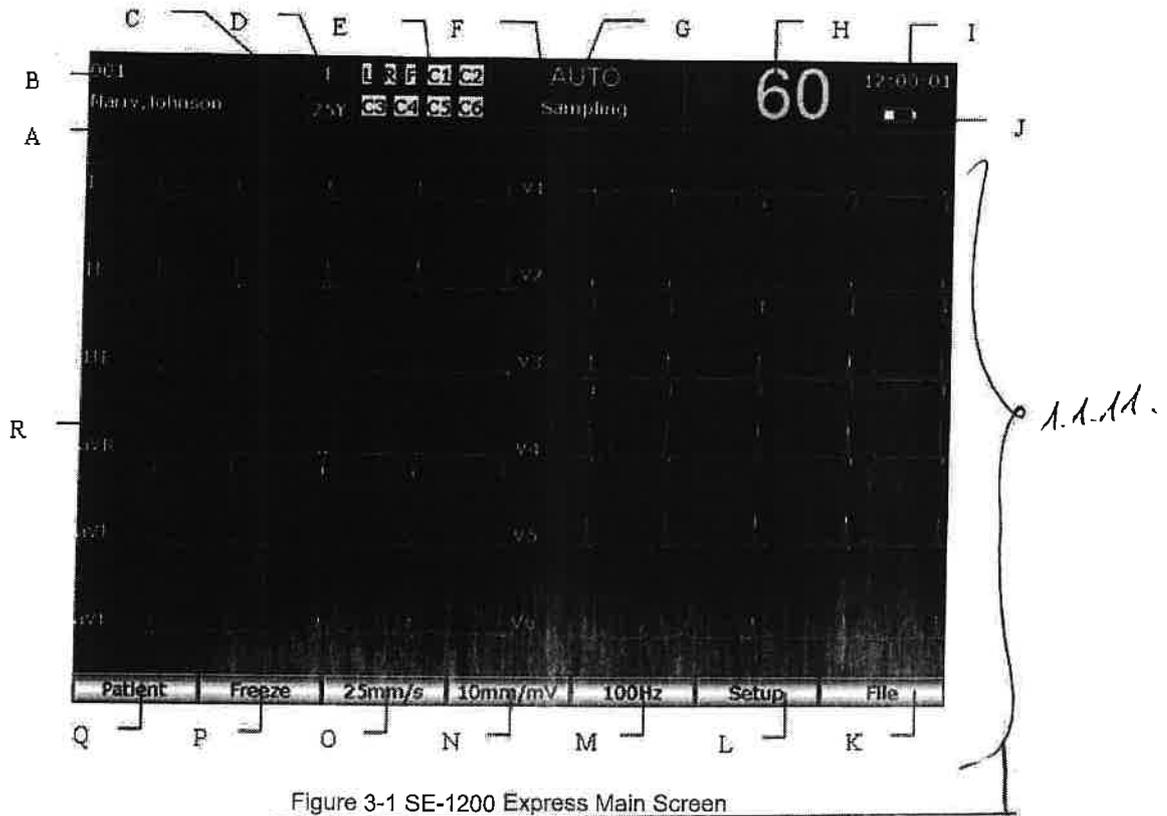


Figure 3-1 SE-1200 Express Main Screen

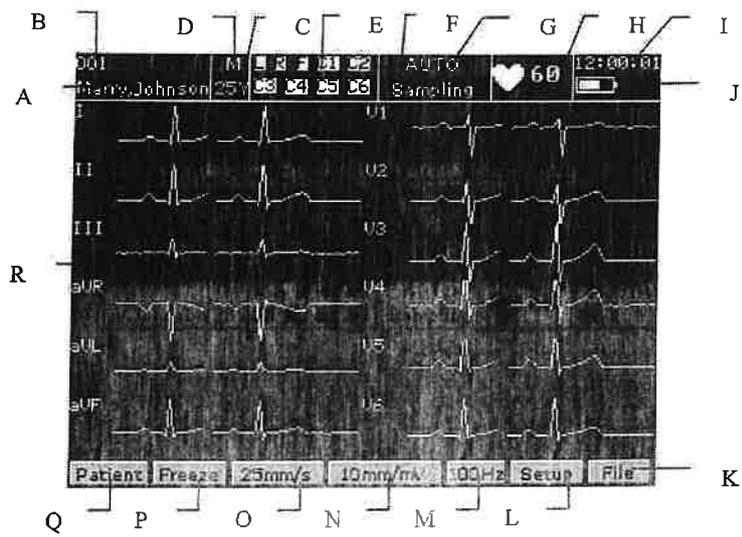


Figure 3-2 SE-1200 Main Screen

6.

	Name	Explanation
A	File Count 1.1.7.	For example, 0% (1) 0% is space occupancy of the files stored in the electrocardiograph, 1 is the current number of files stored in the electrocardiograph. For 10s AUTO data, the upper storage limit is 800.
B	File List	Files will be loaded and displayed in the file list. The file information includes ID, Name, Time, Mode and State. State includes: No mark T indicates the file is transferred successfully. E indicates the file is exported successfully. C indicates the file has been edited. <b>NOTE:</b> A file can be displayed in more than one state at the same time.
C	Return	Press to return to the main screen.
D	Import	Press to import files from the U disk to the electrocardiograph.
E	Search	Press to open the SearchInfo Setup window.
F	Select	Press to highlight a file on the File Manager screen1, and then press Select to select the file and display the File Manager screen2.
G	Del All	Press to delete all the files from the electrocardiograph.
H	Export All	Press to export all the files from the electrocardiograph to the U disk.
I	Trans All	Press to transmit all the files to the PC.
J	Return	Press to return to the File Manager screen1.
K	Preview	Press to open the file preview screen.
L	Delete	Press to delete the selected file from the electrocardiograph.
M	Export	Press to export the selected file from the electrocardiograph to the U disk.
N	Trans	Press to transmit the selected file to the PC.
O	Record	Press to print the selected file.
P	Edit	Press to open the Patient Information window. Then you can edit the patient information.

Export file path: *ECGDATA\ECG-Device No.\Export\ Export Date and Time*

Import file path: *ECGDATA*

## 2.7 Features

- ◆ Supporting AC and DC power supply modes, internal rechargeable li-ion battery with professional battery powered circuit, battery management and protection systems
- ◆ Supporting multi-language
- ◆ Full alphanumeric keyboard (For SE-12 Express/SE-1200 Express/SE-1201, touch screen is available)
- ◆ ECG signals of 12 leads are gathered and amplified simultaneously, 12-channel waves are displayed and printed continuously and simultaneously 1.1.5,
- ◆ Correct detection for failure electrodes
- ◆ Convenient operation of recording by pressing the **PRINT/STOP** key with high efficiency
- ◆ Supporting external USB printer
- ◆ Supporting accurate digital filter to decrease the polarization voltage and other interferences
- ◆ Despite that SE-1201 only supports folded paper, the other models can support both rolled and folded paper recorded with high resolution waveforms, calibration mark, gain, speed and filter
- ◆ The auto, manual, rhythm, R-R analysis and VCG (only configurable for SE-12 Express/SE-1200 Express/SE-1201) modes can be chosen freely
- ◆ Flexible printing formats
- ◆ Supporting ECG waves displaying with grid
- ◆ Automatic baseline adjustment for optimal printing
- ◆ Convenient operation of system setup and file management
- ◆ Multiple file formats: DAT, PDF and configurable formats (SCP/FDA-XML/DICOM)
- ◆ Measurement function and 12-lead ECG interpretation function. Interpretation algorithm uses both gender and age of the patient 1.1.6.
- ◆ Supporting bar code reader
- ◆ Digital signal processing 1.1.12. 1.1.4.
- ◆ ECG data can be transmitted to the PC software through the serial cable, net cable, or WIFI (configurable for SE-12 Express/SE-1200 Express/SE-1201)
- ◆ Real-time transmission to ECG data management software
- ◆ Supporting order function
- ◆ Ability to disable USB ports, which can enhance security of ECG data and lower the potential of distribution of computer viruses
- ◆ Supporting QTcFd and QTcFm formulae

Internal Li-ion Battery Pack:	Rated Voltage = 14.8V		
	Rated Capacity = 5000mAh or 2500mAh 5000mAh battery pack is configurable for SE-1200 Express and SE-12 Express only.		
	<b>Rated Capacity</b>	<b>100% Charge Time</b>	<b>90% Charge Time</b>
	2500mAh	3 hours	2 hours
	5000mAh	6 hours	3.5 hours
	<b>Rated Capacity</b>	<b>Normal Work Hours</b>	<b>Print Number and Duration</b>
		<b>Auto Mode (3×4+1R)</b>	<b>Manual Mode (Continual)</b>
2500mAh	≥ 4h	≥ 250	≥ 2h
5000mAh	≥ 8h <i>T<sub>4</sub></i>	≥ 500	≥ 4h
Fuse:	T3.15AH250V, Ø5×20mm;		

## A1.5 Performance Specifications

<b>Recording</b>	
Recorder:	Thermal dot-matrix recorder
Printing Density	8 dots per mm / 200 dots per inch (amplitude axes)
	40 dots per mm / 1000 dots per inch (time axes, @ 25 mm/s)

### 4.3 Work Mode Description

There are five work modes in SE-12 series electrocardiograph.

- AUTO:** In the auto mode, the ECG data can be analyzed, saved, printed and transmitted. The lead groups are switched automatically according to the lead sequence during the printing course. After the ECG waves of one lead group are printed within a certain time, the system switches to print ECG waves of another lead group automatically. 1mV calibration marks will be printed at the beginning of an ECG report.
- MANU:** In the manual mode, you can determine the lead group to be displayed and printed. Pressing the Left or Right arrow can switch among the lead groups (6 or 12 lead). The desired record length can be set. *1. 1. 19.*
- RHYT:** In the rhythm mode, the ECG data can be saved and transmitted. You can print 60s rhythm-lead ECG waveform of one lead in the **Single Lead** style or 20s rhythm-lead ECG waveform of three leads in the **Three Leads** style.
- R-R:** In the R-R analysis mode, you can select a lead to print its R-R histogram, R-R trend chart, 180s compressed ECG waveform and all the R-R interval values.
- VCG** Only configurable for SE-12 Express/SE-1200 Express/SE-1201  
In the VCG mode, X, Y, Z waves and frontal, horizontal, sagittal planes can be displayed. 10s sampled ECG data can be analyzed, and vector waves, vector loops, measure information, diagnosis information can be printed.

Diagnostic ECG

Version NO. : EDAN+EN+ECG+SE-12 Series Upgrade

# SE-12 Series

*1.1.15.*

## Upgrade Note

**Good news! The SE-12 Series ECG devices have been upgraded regarding specifications.**

### General Introduction

The SE-12 Series consists of five 12 channels ECG models, which are SE-12 Express, SE-1200 Express, SE-1201, SE-12 and SE-1200. With different models targeting in different practices, you may choose accordingly for resting ECG, stress test, or mobile applications.



**SE-12 Express**



**SE-1200 Express**



**SE-1201**



**SE-12**

### What's new on SE-12 Series?

The new released software versions for each models are:

**SE-12 Express/1200 Express: V2.22**

**SE-1201: V1.44**

**SE-12/1200: V2.21**

#### ④ Upgrade of Hardware Specification

The hardware specifications have been improved on SE-12 Series as shown in the table below. The new specifications can be used for tender.

*Adm*

### User-friendly Design

- 8" high resolution color touch screen
- Alphanumeric keyboard

### Streamlined Workflow

- One-touch operation with age and gender shortcuts
- Support linear/2D barcode scanner to simplify workflow

### Accurate Clinical Performances

- Weak signal detection with the advanced 24-bit A/D converter technology
- Anti-noise technology with comprehensive filters and high CMRR over 140dB
- ECG Signal Quality Indication
- 120s real-time ECG waveform freezing and review to assist diagnosis
- Automatic measurements and interpretation tested with CSE/AHA/MIT databases
- Extend printing once arrhythmia is detected for further rhythm analysis
- Built-in Glasgow Interpretation
- Advanced ECG analysis: Vector ECG (optional)

### Flexible Printing Solutions

- Built-in high resolution thermal recorder to print on normal thermal paper and A4 size fax paper
- Support external USB printer

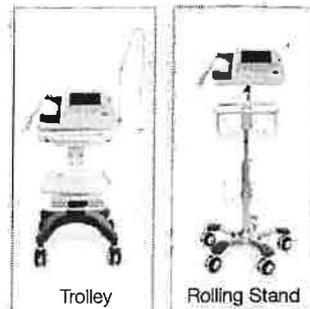
### Data Management

- Internal storage up to 800 ECGs and can be enlarged by USB flash disk
- SE-1515 Data Management System software for data management on PC (optional)

### Extensive Communications

- DATA transmitting to PC via LAN/ internal Wi-Fi (Wi-Fi is optional)
- Report formats: PDF and optional SCP/FDA-XML/DICOM data export
- Bi-directional data communication with DMS

★ We still offer a basic version of SE-1200 Express to help with your budget limitation.



SE-1200 Express(Basic)

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### Hospital System Access

Patient information (worklist) will be transmitted from hospital systems to ECG machines. Meanwhile, reports or final diagnostic results will be uploaded to hospital systems for archiving.

### Standard Communication Protocols

HL7/DICOM worklist are supported on SE-1515 Data Management System.

## Declaration Letter

To whom it may concern,

We, EDAN Instruments Inc., 15 Jinhui Road, Pingshan District, Shenzhen, 518122, P.R. China, who is an established and reputable manufacturer of ECG devices, do hereby confirm the following specifications of ECG devices model SE-12 series:

1. SE-12, SE-12Express, SE-1200, SE-1200 Express recorder paper configuration:

Folded thermal paper: 210mm×295mm×100pages ( i.e. A4 paper)

Folded thermal paper: 215mm×280mm×100pages (Configurable)

Folded thermal paper: 210mm×30m (Configurable)

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1.1.18.

2. SE-1201 recorder paper configuration:

Folded thermal paper: 210mm×140mm×144 pages (i.e. A5 paper)

Folded thermal paper: 210mm×295mm×100 pages (Configurable)

Folded thermal paper: 215mm×280mm×100 pages (Configurable)

For further information, please contact [william.liu@edan.com](mailto:william.liu@edan.com).

Yours sincerely

Edan Instruments, Inc.

Name: William Liu

Title: Sales Manager

Date: 2024/01/17

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- ◆ Real-time analysis, ST segment and trend are applied while sampling
- ◆ Real-time display and automatic print of 12-lead simultaneous ECG waveforms on A4 paper with average template 1-1-18.
- ◆ ST segment analysis while sampling; ST position is adjustable while sampling;
- ◆ Providing average templates of three rhythm leads in every stage to observe the change of ST segments between every two stages
- ◆ Automatically forming elaborate reports, including Summary Report, ST Scope Report, Summary Average Template Report and Trend Graph Report
- ◆ Supporting magnifying or minifying the average templates
- ◆ Providing saving PDF files to U disk and transmitting PDF files to the server by implanting FTP protocol.
- ◆ Providing classical exercise protocols; exercise protocols can be edited and created
- ◆ Providing 30 exercise stages at most in a user-defined protocol
- ◆ Automatically controlling and adjusting the speed and grade of the treadmill or the power of the ergometer
- ◆ Supporting multi-types of treadmill or ergometer