iMAC 120 12-Ch ECG Machine Datasheet

1 Overview

1.1 Features Overview

1.1.1 Simultaneously 12 leads Acquisition

1.1.2 Applicable Range:
Adult and pediatric

1.1.3 Languages:
Simplified Chinese, English, Spanish, German, Italian, etc.

1.1.4 Built-in protection against defibrillator

1.2 Structure and Composition

1.2.1 Screen
10.4-inch HD color LCD, touch screen with standard grid background; 1024*768 pixel

1.2.2 Handle
The foldable handle designs for easier carrying. It also functions as an angled stand for better visual when folded.

1.2.3 Interfaces
2 USB ports, LAN connectors, SD card slot;
Support to connect to Barcode/QR Code scanner, keyboard, mouse, card reader, printer and etc.

1.2.4 Keyboard
Standard qwerty physical keyboard and shortcut keys;
Virtual keyboard can be activated.

1.2.5 Internal thermal printer

1.3 Power Specifications

1.3.1 AC Power
100V-240V, 50Hz/60Hz, 120VA

1.3.2 Battery
Rechargeable li-ion battery (14.52V/5200mAh);
Working continuously for more than 10.5 hours.

1.4 Environmental Conditions

1.4.1 Operation condition
Ambient Temperature: ＋5℃～＋40℃
Ambient Humidity: 20%~85% (no condensation)
Atmospheric Pressure: 570hPa～1060hPa

1.4.2 Shipment and Storage
Ambient Temperature: －20℃～+55℃
Ambient Humidity: 10%～95%
Atmospheric Pressure: 500hPa～1060hPa

1.5 Dimension and Weight

Equipment: 285mm*360mm*94mm; 3.6kg (with battery)
Package: 446mm*238mm*483mm; 6.2kg

1.6 Monitor:

10.4 inch(L*W=21.13cm*15.85cm,
Diagonal: 26.42cm) HD Color LCD.
Full Touch Screen
1024*768 pixel resolution

2 Functions

2.1 Lead System

Standard Wilson, Posterior Wall, Right Chest, Right Chest Posterior Wall, Previous Intercostal Space, Next Intercostal Space, Cabrera, NEHB and customized mode, etc.

2.2 Sampling Mode

2.2.1 Real-time sampling mode:
Auto-simultaneous, Auto-sequential manual, Rhythm (1-5 min), Manual, Manual-any

2.2.2 Pre-sampling mode

2.2.3 Triggered sampling mode

2.2.4 Periodic sampling mode

2.3 Freeze

Max 60 s waveform freezing and review function.
Up to 360s 12-lead waveform storage, review and upload.

2.4 Printing Duration

2.5 sec, 5 sec, 7 sec, 10 sec, Two pages, Three pages, Four pages

2.5 Display and Print Layout

3×4, 3×4+1, 3×4+3, 6×2, 6×2+1, 12×1, 6×2+3

2.6 Algorithm

Glasgow ECG algorithm can make precise diagnosis according to age, gender, race, medication history and etc., especially for AMI, Ventricular Fibrillation, Ventricular Tachycardia, quarterly Bradycardia,

Wuhan Zoncare Bio-Medical Electronics Co., Ltd.
Add: #380, High-tech 2nd Road, Eastlake high-tech district, Wuhan, Hubei, P. R. China.
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malignant arrhythmia, etc.

2.7 Recording and Analysis

2.7.1 Pace detection

2.7.2 Minnesota code

2.7.3 Auto diagnosis and Re-analysis

2.7.4 Auto measurement

13 2.7.5 R-R histogram

2.7.6 R-R chart

2.7.7 Auto Detection of disconnected and incorrect electrode placement before printing (Leads in both extremities and chest).

2.7.8 The body map and waveform show the signal quality of each electrode using red, orange and green colors.

2.8 Report Template

2.8.1 Measurement matrix 13

2.8.2 Average template

2.8.3 ST-Graphs

2.9 Alarm

2.9.1 Bradycardia and Tachycardia

2.9.2 Lead-off

2.9.3 Recorder unavailable(out of paper)

2.9.4 Low-battery

2.9.5 Lead Reversal

2.10 Network

Wi-Fi and RJ45 networking

2.11 Support Graded Gain

2.12 Connectivity 17

Support USB, RJ45, WIFI connectivity.

Support direct access to third-party network systems such as HIS, EMR, PACS and other systems through network. 18

2.13 Report Formats 18

17 ZQECG, JPG, PDF, PNG, XML, HL7, DICOM-JPG, DICOM-PDF, DICOM-WAVEFORM, GDT, etc., through

18 LAN and WIFI to export to external media

2.14 Transfer Protocol

Support FTP, DICOM, HL7, HTTP, samba and so on transfer protocol

2.15 Storage

2.15.1 Local

14 ⩾20,000 reports.(12-lead, 10s)

2.15.2 USB (SD card)

Reports can be saved directly in USB (SD card) only when it is inserted. Reports are stored in ZQECG format and can be viewed on our ECG Machine or ECG workstation.

3 Technique Specification

3.1 Sampling Rate

3 32000 samples per second (or Hz/channel)

3.2 5 **Pace Sample Rate:**

32000 samples/s

3.3 A/D shift

4 24-bit

3.4 A/D resolution

0.1589 μV/LSB

3.5 Polarization Resistance

±950mV

3.6 Frequency Response(signal bandwidth)

9 0.01~ 350Hz

3.7 Time Constant ⩾3.2S

7 CMRR ≥ 130 dB

3.8 Sensitivity valve:

⩽20 μ V (p-p)

3.9 8 **Defibrillation proof**

5000V (360 J) charge without data loss or corruption

3.10 Gain

40, 20, 10, 5, 2.5, Auto mm/mV

3.11 Paper Speed

5, 6.25, 10,12.5, 25, 50 mm/s

3.12 Calibration Voltage

1 mV

3.13 Patient Leakage Current

≤10 μ V

3.14 Recording Mode

Thermal array printer;

8 dot/ mm (or 200 dpi Vertical)

40 dot/ mm (or 1000 dpi Horizontal, 25mm/s)

3.15 Paper Specifications

15 A4 Z-fold Paper; 210mm/216mm width;

Network printer can be connected directly to print on normal A4 paper.

3.16 Filter Setting

AC: off/50/60Hz

Baseline Drift: off/0.01/0.05/0.3/0.6Hz

EMG: off/25/35/45/75/100/150/250/350Hz

3.17 Heart Rate Range

11 30-300 bpm

3.18 WiFi Security Standards:

WEP 17

WPA/WPA2 PSK
WPA2-Enterprise / ieee802.1x
Compliant to IEEE 802.11 a/b/g/n

4 Standard Accessories

4.1 19.1 Main Unit
4.2 19.2 Limb Electrodes-Adult/IEC/4 per Set
4.3 19.2 Chest electrodes-Adult/IEC/6 per Set
4.4 19.2 ECG Cable-ECG Cable\12-lead/banana plug
4.5 Power cord
4.6 19.3 Thermal paper-A4 Z-fold 210mm width pateikiami 3 vnt
4.7 Ground wire-Clip type
4.8 User manual

5 Optional

5.1 Patient Cable

5.1.1 Snap type ECG cable
5.1.2 Clip type ECG cable

5.2 Electrodes

5.2.1 Chest electrodes-Adult/pediatric
5.2.2 Limb electrodes-Adult/pediatric
5.2.3 Disposable electrodes-Snap Type-Adult/Pediatric
5.2.4 Electrodes adapter
Banana type to Snap and Clip type

5.3 Others

5.3.1 Digital ECG workstation (PC software)
5.3.2 Barcode/QR Code Scanner--USB Type
5.3.3 Trolley-TT03
5.3.4 Carrying bag- TT11

6 Adhere to Standards

6.1 ISO9001
6.2 ISO13485
6.3 ISO 14001
6.4 ISO 45001
6.5 CE
EN ISO 14971:2012
EN ISO 15223-1:2016
ISO10993-1:2009
ISO 10993-5:2009
ISO 10993-10:2010
EN 1041:2008
EN 60601-1:2006+A1:2013
IEC 60601-2-25: 2011
EN 60601-1-2:2015
EN 62304:2006/A1:2015
EN 62366-1:2015
EN 60601-1-6:2010/2015
ETSI EN 300328 V2.2.2(2019-07),
ETSI EN301489-1 V2.2.3(2019-11)
Draft ETSI EN301489-17 V3.2.2(2019-12)
EN 62479:2010

NOTE

1. The specifications of this system may change without any prior notification.
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Aug. 2025

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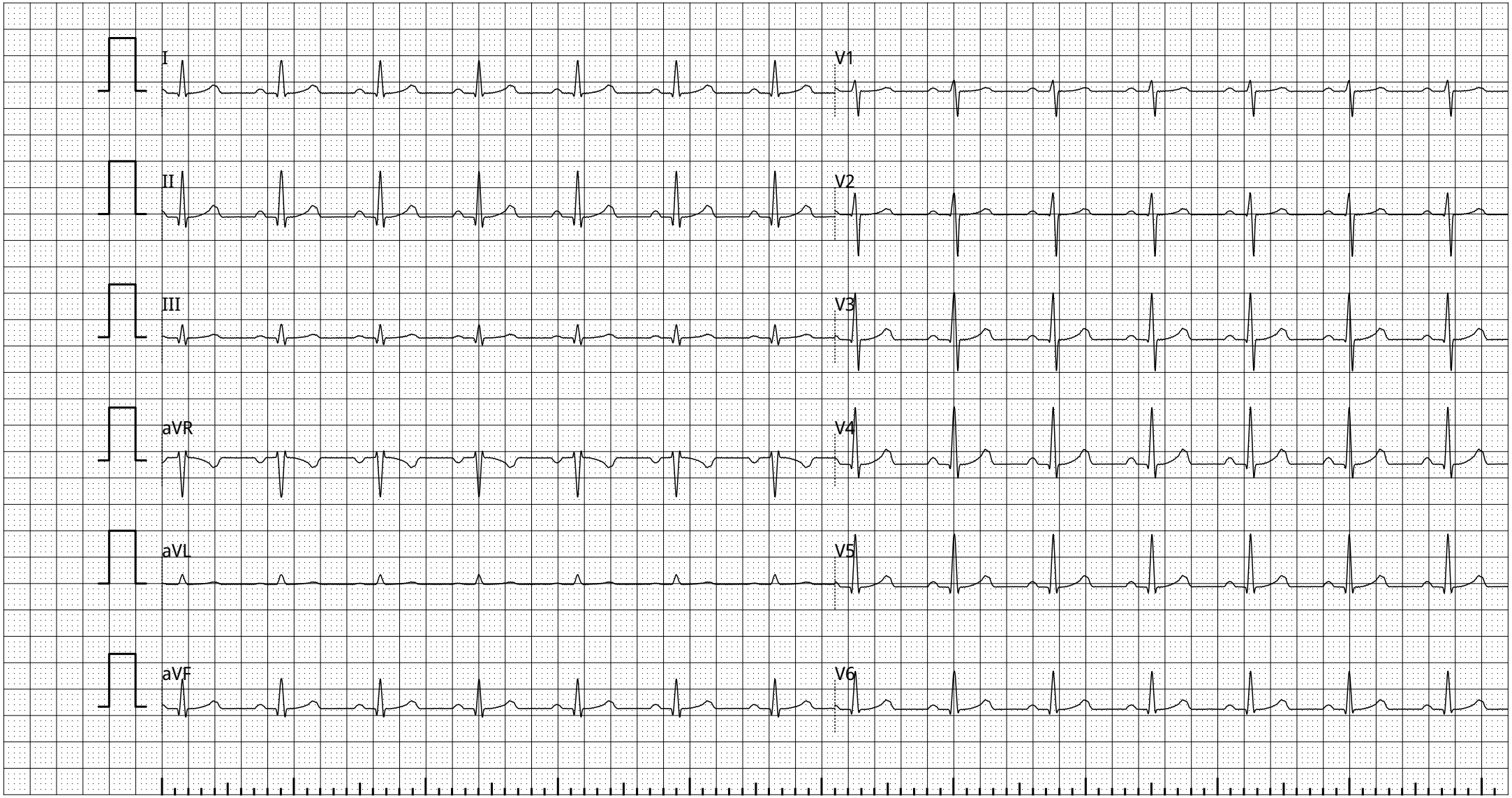
Add: #380, High-tech 2nd Road, Eastlake high-tech district, Wuhan, Hubei, P. R. China.
Tel: +86-27-87770203 Fax: +86-27-87770581 Email: info@zoncare.com Website: https://en.zoncare.com/

ECG report

Reporting time : 2021-06-03 11:15:20
Confirm and sign:

ID	: 36212120090	HR	: 80 bpm
Name	: Jonas Jonaitis	PR	: 162 ms
Gender	: M	QRS	: 84 ms
Age	: 59 Years	QT/QTc	: 356/391 ms
Dept	: 92 kg	P/QRS/T	: 51/31/48 °
Bed No	: 180 cm	RV5/SV1	: 0.964/0.461 mv
		RV5+SV1	: 1.425 mv

Interpretations :
Sinus rhythm
Normal ECG



0.30Hz -75Hz - AC 50Hz 25mm/s 10mm/mv iMAC 120 1.0.25 Simultaneous Examination time: 2021-06-03 11:10:02

ECG report

ID : 36212120090
Name : Jonas Jonaitis
Gender : M
Age : 59 Years
Dept : 92 kg
Bed No : 180 cm

Reporting time : 2021-06-03 11:15:21
Confirm and sign:

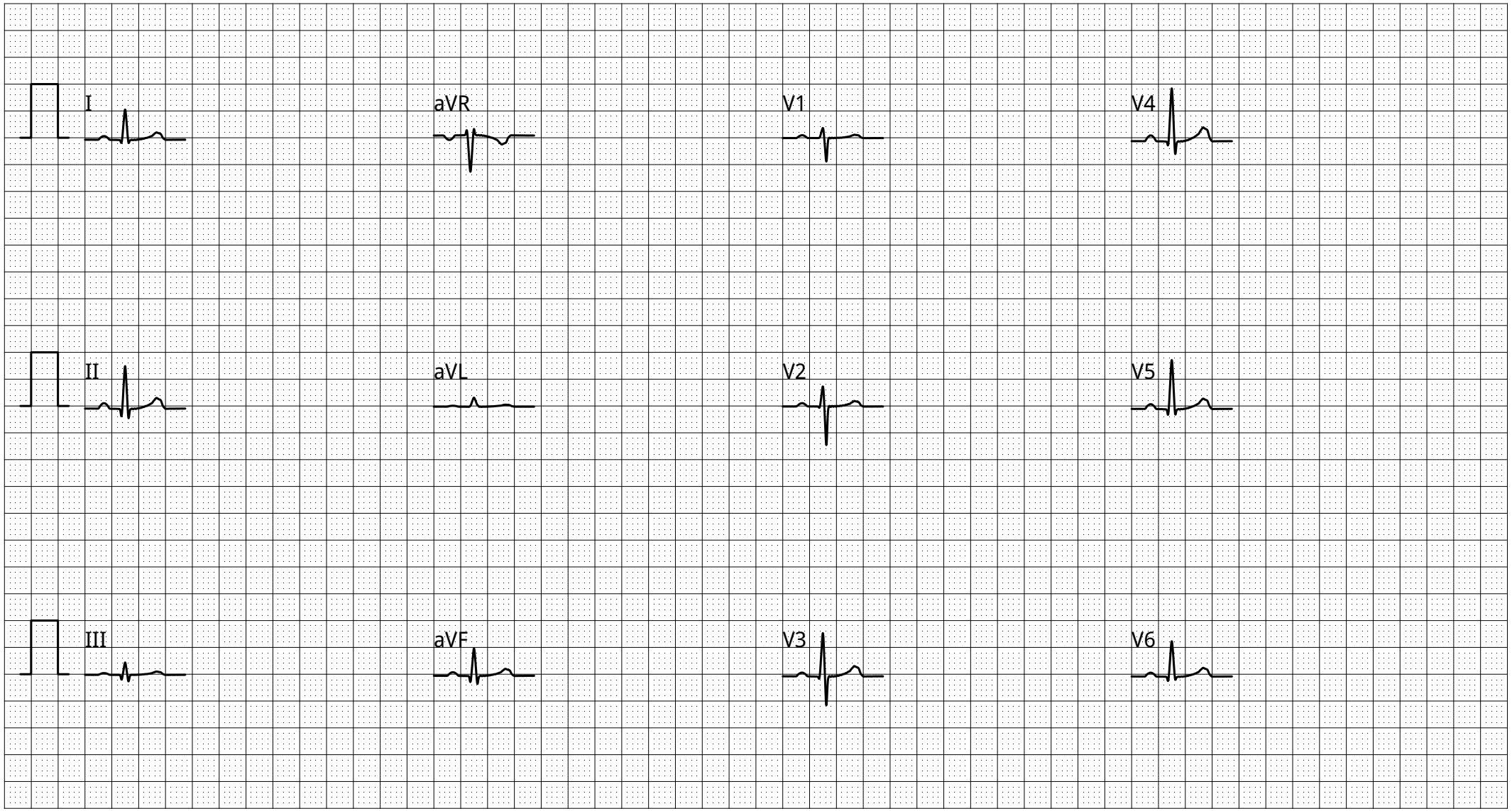
	I	II	III	aVR	aVL	aVF	V1	V2	V3	V4	V5	V6
P Ons	264	264	264	264	264	264	264	264	264	264	264	264
P Dur	94	94	94	94	94	94	94	94	94	94	94	94
QRS Ons	426	426	426	426	430	426	440	442	428	426	426	426
QRS Dur	60	82	80	78	70	82	68	68	82	84	84	68
Q Dur	16	18	21	0	0	19	0	0	12	15	17	17
R Dur	43	40	34	17	70	38	33	32	39	42	44	50
S Dur	0	23	24	41	0	24	34	35	29	25	22	0
ST Dur	174	128	128	152	172	150	166	156	122	126	144	162
T Ons	660	636	634	656	672	658	674	666	632	636	654	656
T Dur	122	146	148	126	110	124	94	116	150	146	128	126
QRS IntD	36	36	37	62	34	37	22	20	34	39	39	39
Q Amp	-49	-143	-94	0	0	-118	0	0	-35	-73	-103	-80
R Amp	582	834	250	96	166	542	184	381	847	1042	964	687
S Amp	0	-173	-130	-707	0	-151	-461	-768	-571	-236	-86	0
ST Amp	7	14	6	-10	0	11	0	3	9	10	13	7
QRS Area	694	804	109	-747	295	458	-223	-280	526	1085	1103	802
P Area	173	251	77	-211	49	166	108	135	172	291	228	182
T Area	649	951	297	-794	182	630	201	408	882	1215	929	747
P Morph	1	1	1	-1	1	1	1	1	1	1	1	1
T Morph	1	1	1	-1	1	1	1	1	1	1	1	1
STM Amp	3	5	2	-4	0	4	0	1	1	2	4	3
ST60 Amp	7	9	1	-8	3	5	0	3	8	10	9	7
STTMidAmp	2	5	3	-3	0	4	0	3	2	1	4	0

Examination time: 2021-06-03 11:10:02

ECG report

ID : 36212120090
Name : Jonas Jonaitis
Gender : M
Age : 59 Years
Dept : 92 kg
Bed No : 180 cm

Reporting time : 2021-06-03 11:15:22
Confirm and sign:



25mm/s 10mm/mv

Examination time: 2021-06-03 11:10:02

ECG report

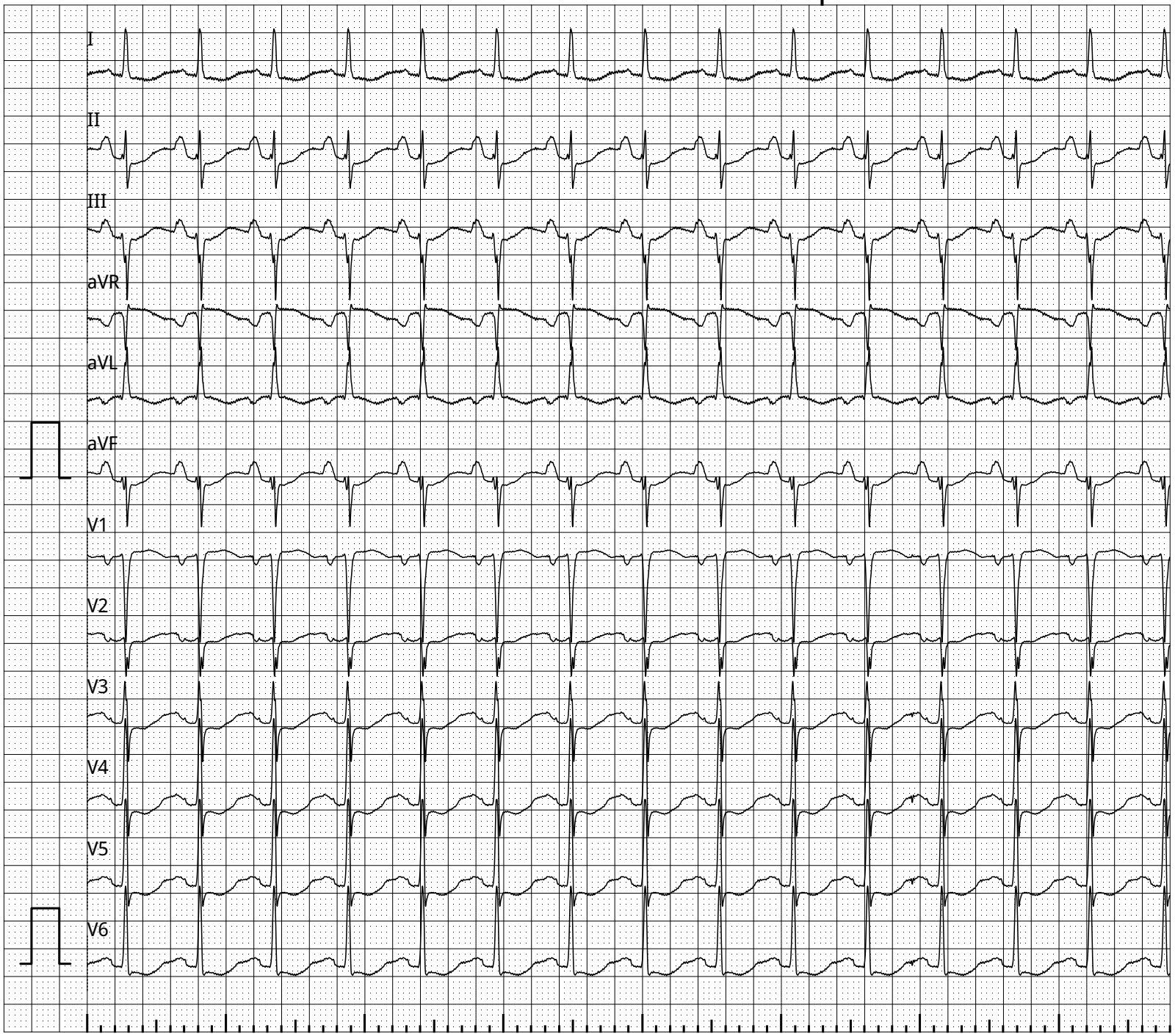
Reporting time: 2021-06-03 11:15:25

ID : 36212120090
Name : Jonas Jonaitis
Gender : M
Age : 59 Years
Dept : 92 kg
Bed No : 180 cm

HR : 113 bpm
PR : 154 ms
QRS : 80 ms
QT/QTc : 290/383 ms
P/QRS/T : 79/-37/109 °
RV5/SV1 : 1.609/1.515 mv
RV5+SV1 : 3.124 mv

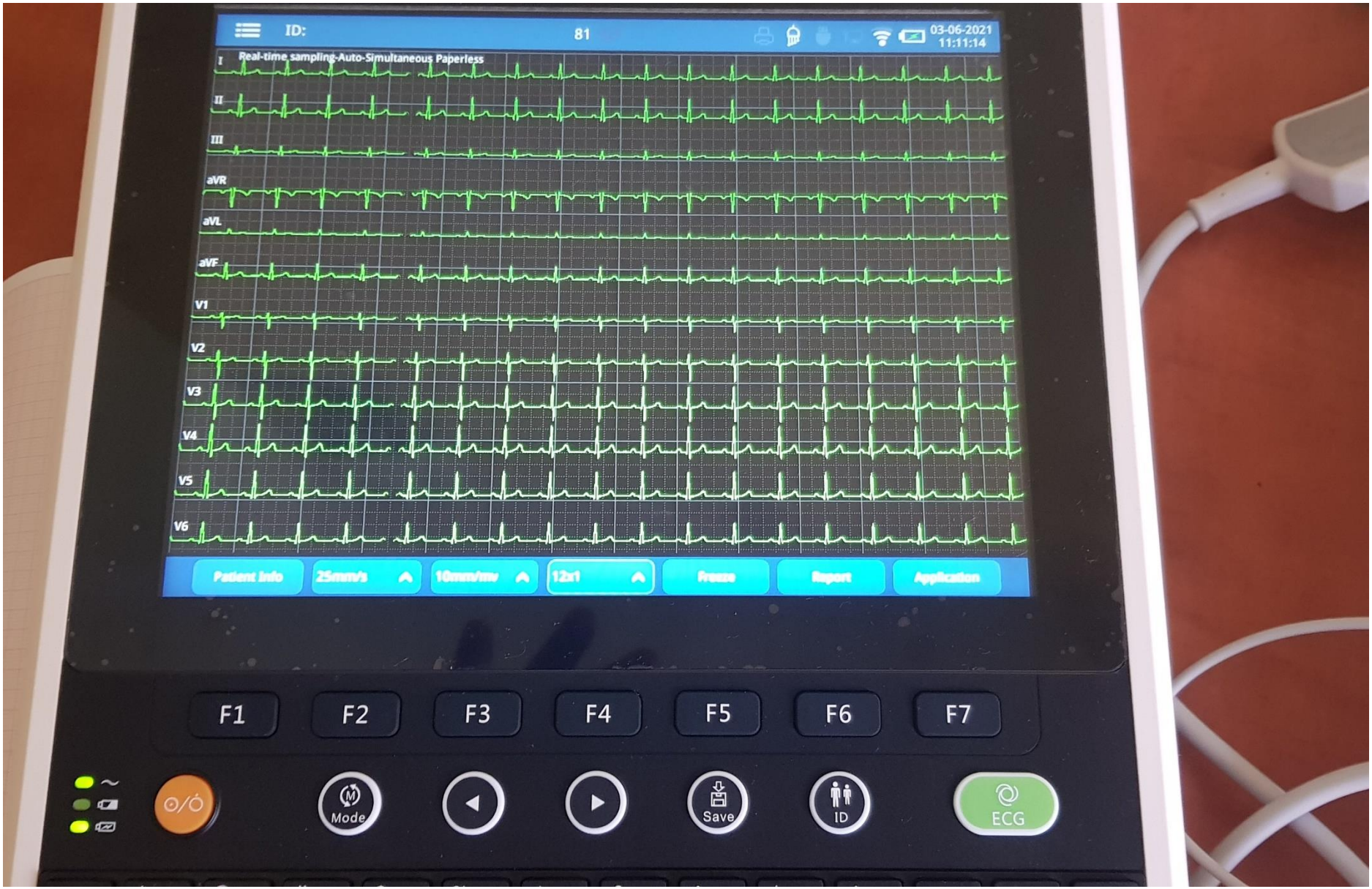
13

Interpretations :
Sinus tachycardia with sinus arrhythmia
Possible right atrial abnormality
Possible left anterior fascicular block
Left ventricular hypertrophy
Widespread ST-T abnormality ~ may be due to the hypertrophy and/or ischemia
Abnormal ECG



0.30Hz -75Hz - AC 50Hz 25mm/s 10mm/mv iMAC 120 1.0.25 Simultaneous Examination time: 2021-06-03 11:08:26

Confirm and sign:


ID:
81
03-06-2021
11:11:14
Real-time sampling-Auto-Simultaneous Paperless
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
Patient Info
25mm/s
10mm/mv
12x1
Freeze
Report
Application
F1
F2
F3
F4
F5
F6
F7
Mode
Save
ID
ECG

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Add: 380, High-tech 2nd road, Eastlake High-tech Development Zone, Wuhan, Hubei (430206), China.
Tel: 86-27-87770203 Email: info@zoncare.com
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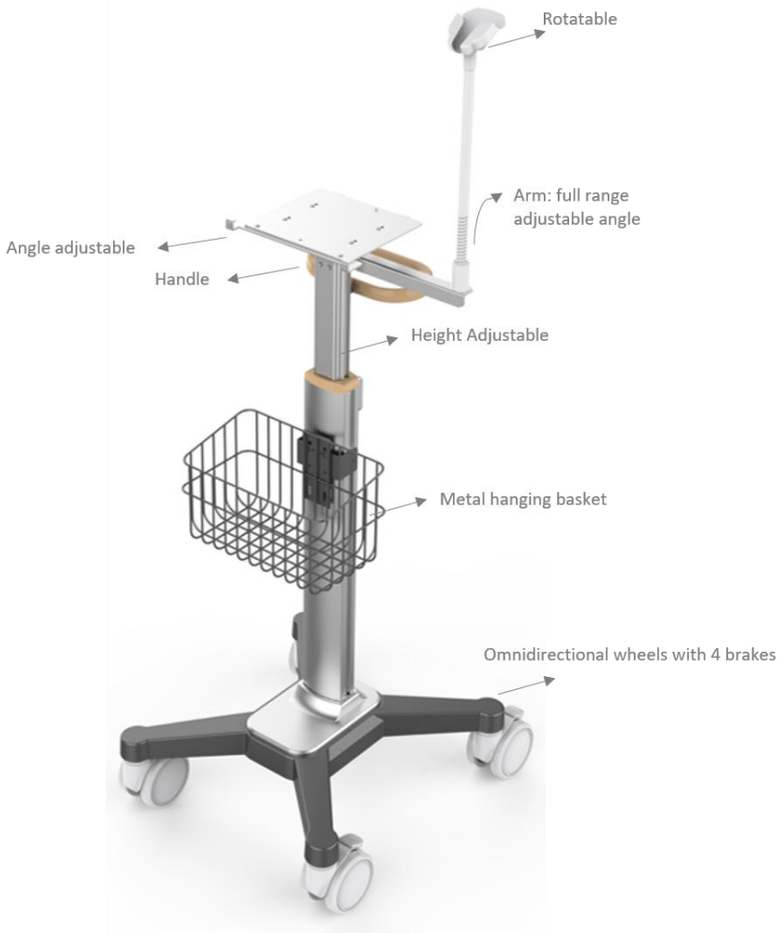
iMAC 300/ iMAC 120/ iMAC 12 trolley characteristics and material

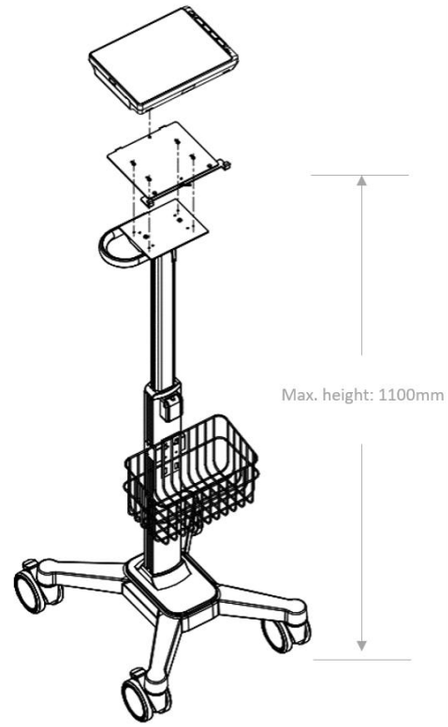
Code No.: 3902800106

Full View



Height Range: 90cm - 110cm

Size

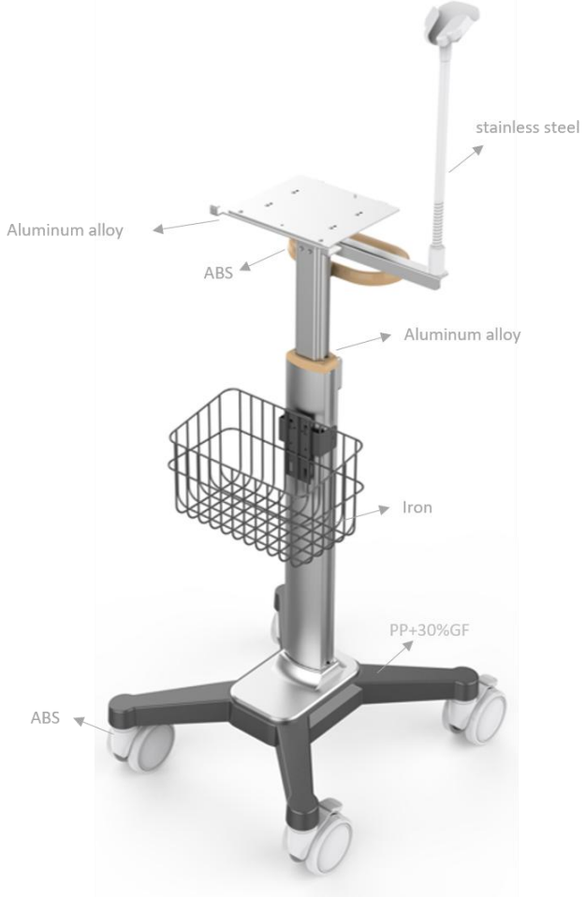


Package size: 750 * 502 * 235 (mm)

G.W.: approx. 7.1 kg

N.W.: approx. 5.6 kg

Material



Notice: Product color matching maybe different with the above one, please refer to the actual received goods.

Dec 7, 2020

Tolley for holding of ECG Machine iMAC120 (and other models such as iMAC12, iMAC300) with bar code reader holder, and bar code reader.

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Add: 380, High-tech 2nd road, Eastlake High-tech Development Zone, Wuhan, Hubei (430206), China.
Tel: 86-27-87770581 Email: info@zoncare.com
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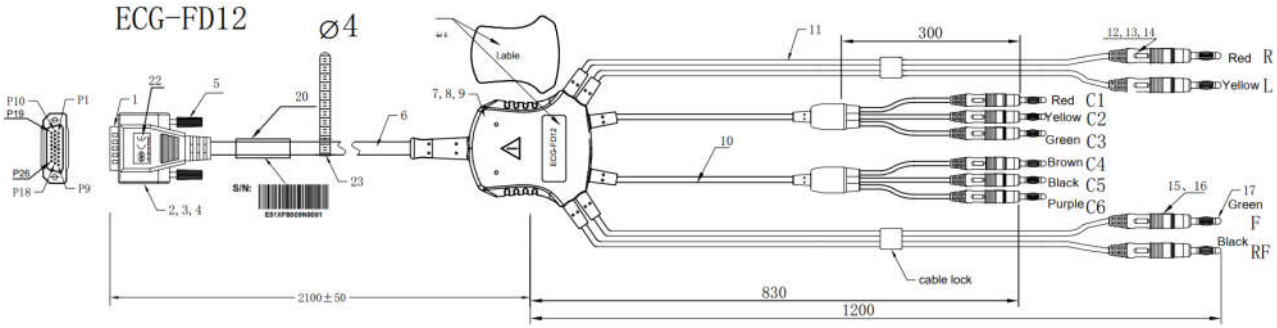
T1ype text here

ECG Cable Specifications

1. Model : ECG-FD12
2. Code : 3902800031
3. Material and specifications :



1	Plug		DB 26P
2	PVC	20g	55P gray-white color PVC
3	Gum	10g	LD-PE natural color
4	Copper foil	1PCS	W30*L60mm
5	Screws	2PCS	Lock bolt
6	Wire	2210mm	⌀6.5
7	Printed board	1SET	PCB Board
8	Gum	50g	
9	Gum	100g	
10	Wire	2*500mm	⌀3.2
11	Wire	2×650mm	⌀3.2
12	Internal mold	5g	PP natural color
13	PVC	4-10g	55P White PVC
14	Resistance	10PCS	Anti-defibrillation resistance
15	PVC	6-10g	55P White PVC
16	Color label set	5g	85P, 10 characters
17	Pins	10PCS	Ø4, H62 nickel plating
18	Clip chain	1PCS	W190*L220*0.1mm

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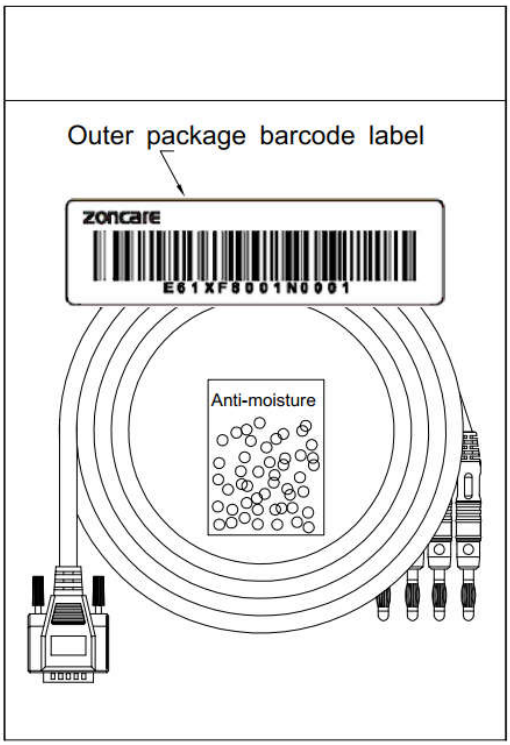
19	Chip	1PCS	DS2431
20	product label	1PCS	Transparent PVC
21	Identification label	1PCS	PVC cold gray 3C
22	CE label	1PCS	
23	Magic cable tie	1PCS	1.5×15 Gray

4. Packing

Package Method



Limb electrodes, 4 units

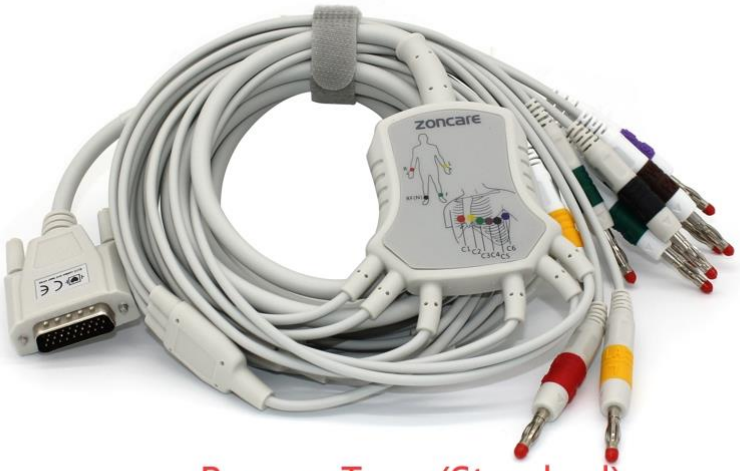
Chest electrodes, 6 units

Set of pediatric electrodes for iMAC type cardiographs

1. **For chest – 6 units in a set**

2. **For limbs – 4 units in a set**

Types of ECG cables for cardiographs iMAC type



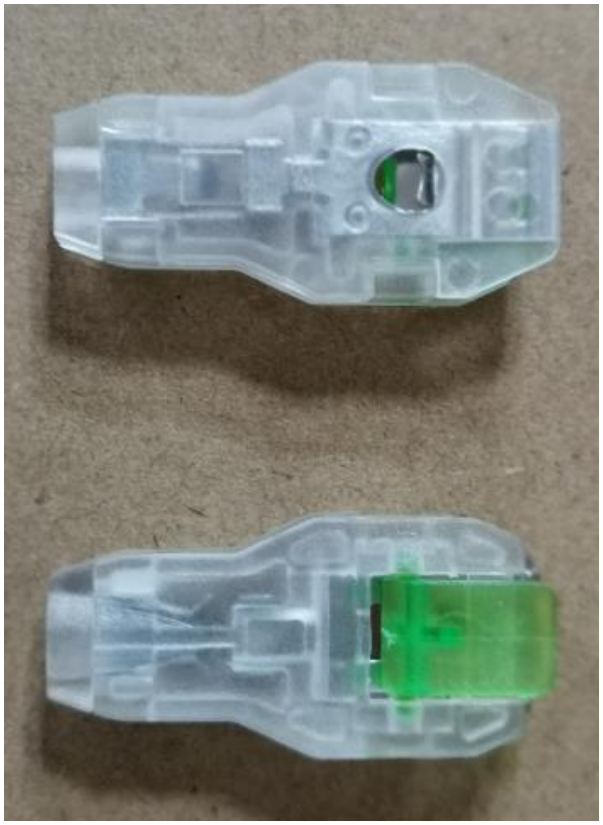
Banana Type (Standard)

To be used with reusable patient electrodes

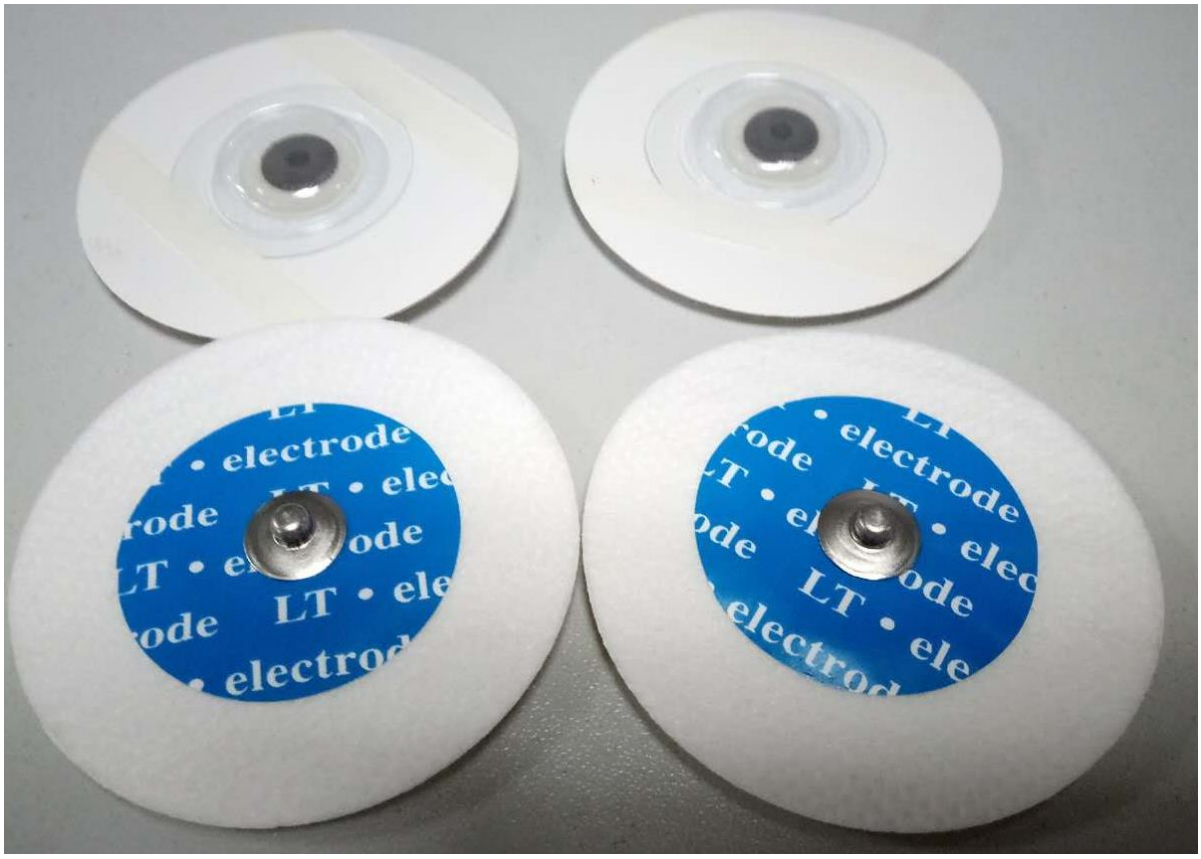
Snap Type ECG Cable

To be used with disposables patient electrodes

Adapters from Banana type ECG electrode cable connectors to Snap type connectors (to use disposables electrodes)

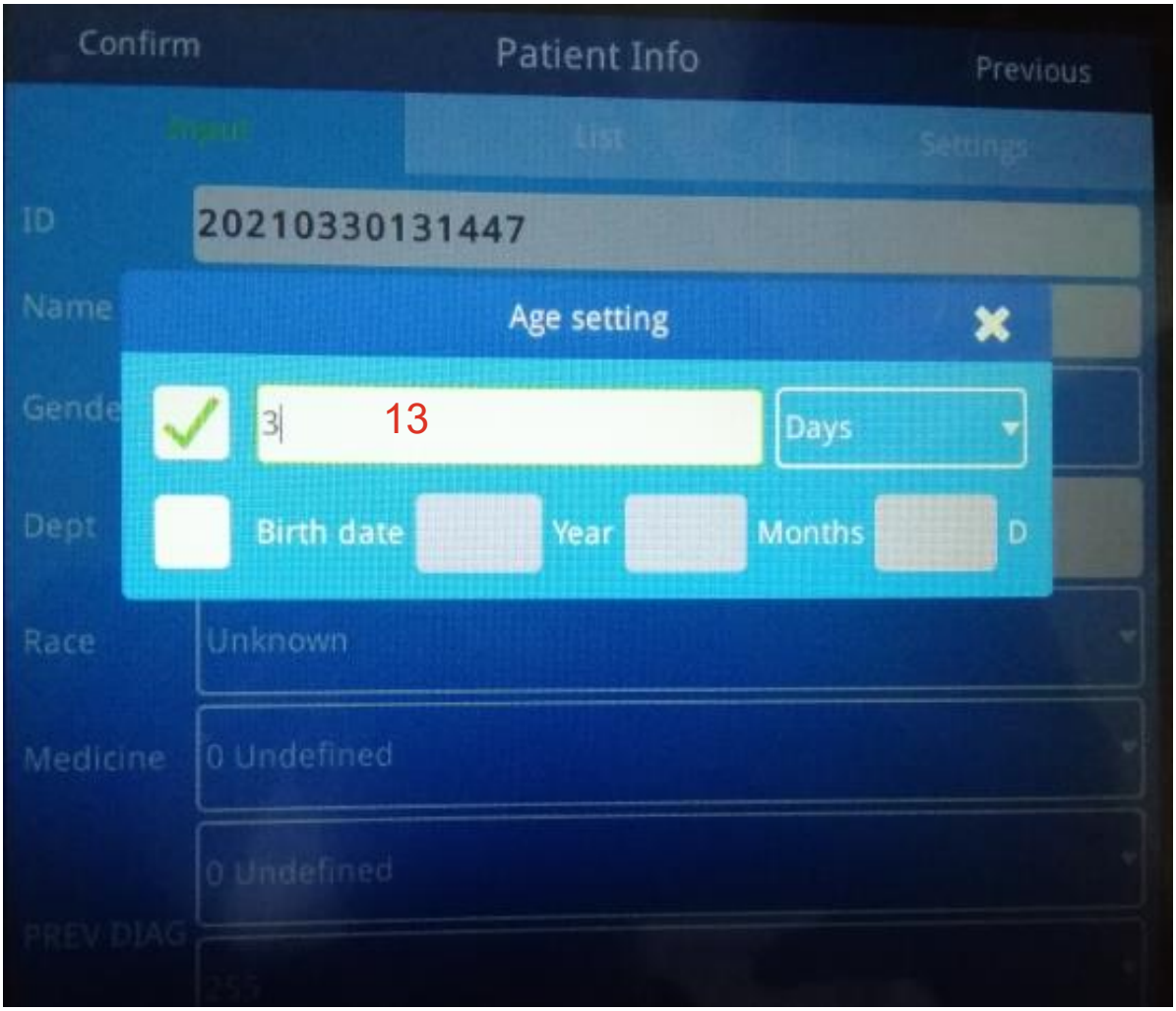


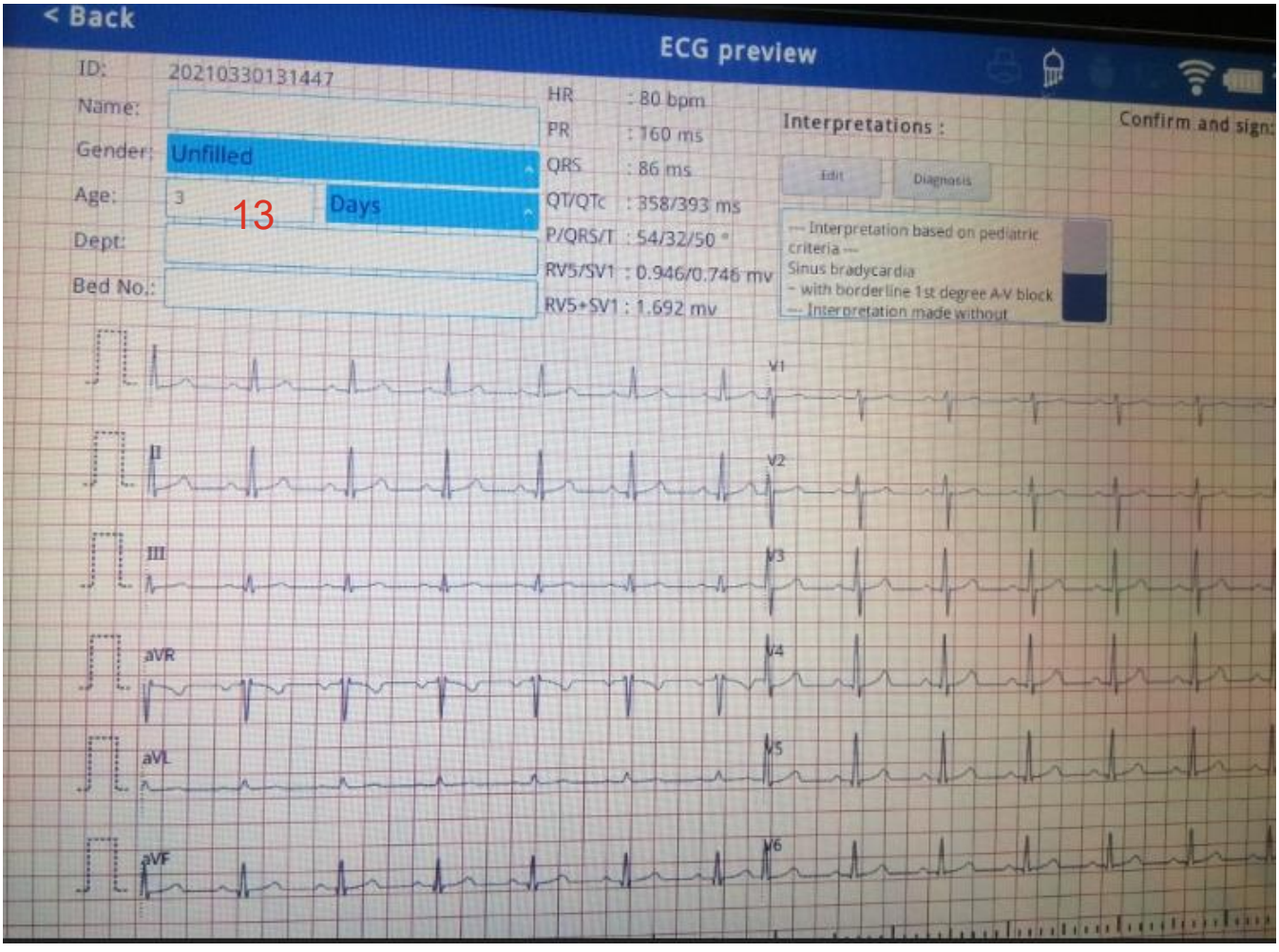
Types of disposable electrodes for connecting to snap type cable.



For adult and for pediatric patients.

Contact area diameters – 25-30 mm, 45-50 mm, (± 2 mm)


Confirm
Patient Info
Previous
ID
20210330131447
Name
Age setting
Gende
3
13
Days
Dept
Birth date
Year
Months
D
Race
Unknown
Medicine
0 Undefined
0 Undefined
PREV DIAG


< Back
ECG preview
ID:
20210330131447
Name:
Gender:
Unfilled
Age:
3
13
Days
Dept:
Bed No.:
HR : 80 bpm
PR : 160 ms
QRS : 86 ms
QT/QTc : 358/393 ms
P/QRS/T : 54/32/50 °
RV5/SV1 : 0.946/0.746 mv
RV5+SV1 : 1.692 mv
Interpretations :
Confirm and sign
Edit
Diagnosis
--- Interpretation based on pediatric criteria ---
Sinus bradycardia
- with borderline 1st degree A-V block
--- Interpretation made without
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6

13 **Neonatal ECG cable and disposable electrodes**

Wuhan Zoncare Bio-medical Electronics Co., Ltd.
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Statement on iMAC 120 ECG device Parameters

To whom it may concern,

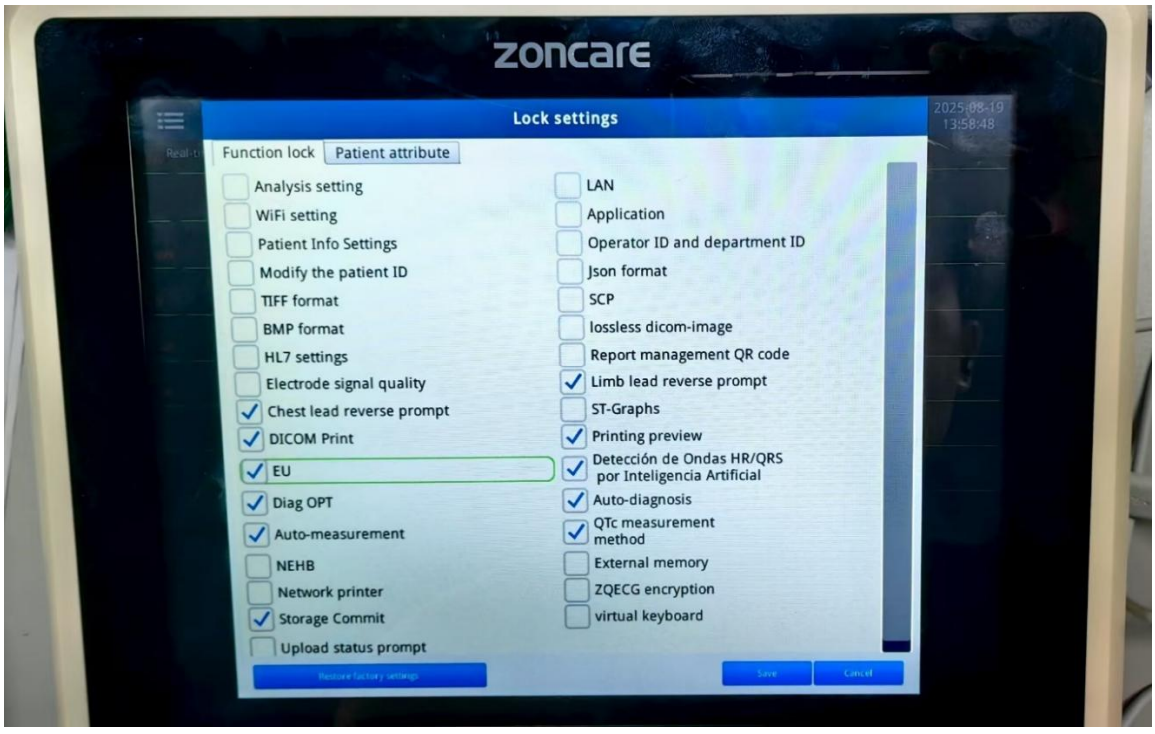
We, Wuhan Zoncare Bio-medical Electronics Co., Ltd., manufacturer of ECG Machine, Ultrasound Machine, Patient Monitor makes the statement regarding our iMAC ECG machines as below.

In the case that some specific tenders require the information of the below item, while it's not included in our technical specifications such as datasheet, user manual, etc., we hereby state that bellow listed features and functions are available in our ECG devices：

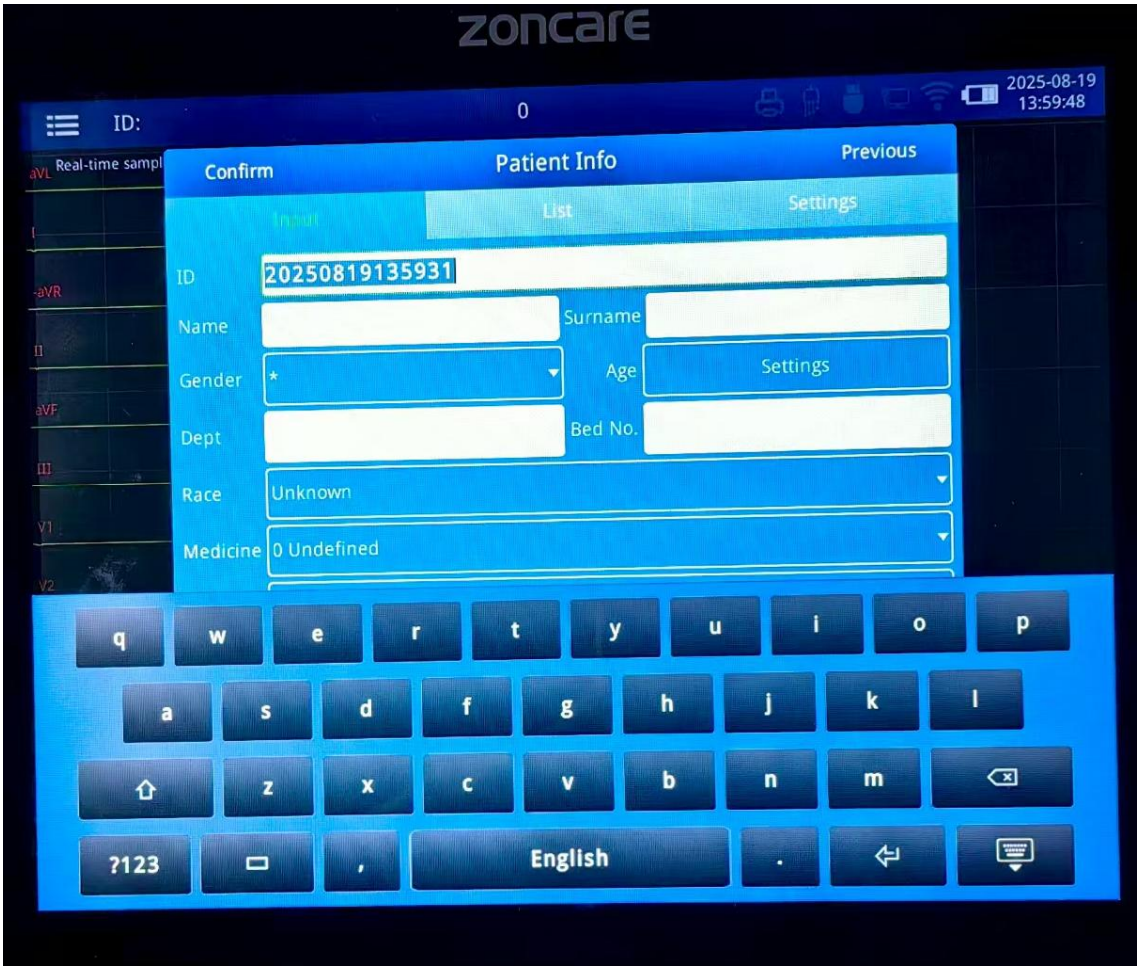
10 **For our ECG models iMAC 12 and iMAC 120, their touch screens can be switched when wearing gloves.**

Type tex

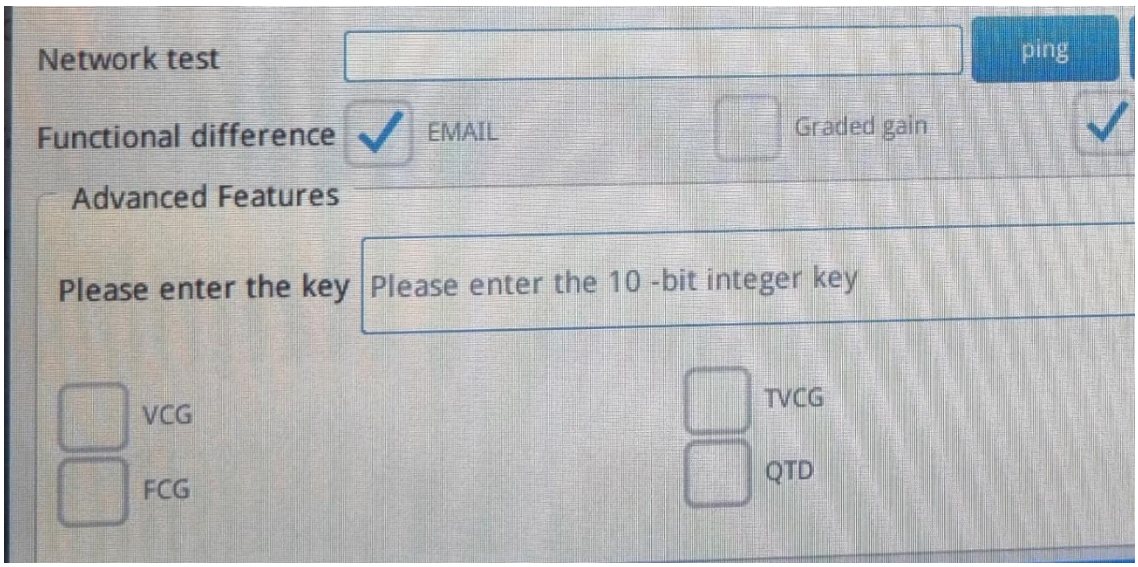
Function set-up for iMAC120



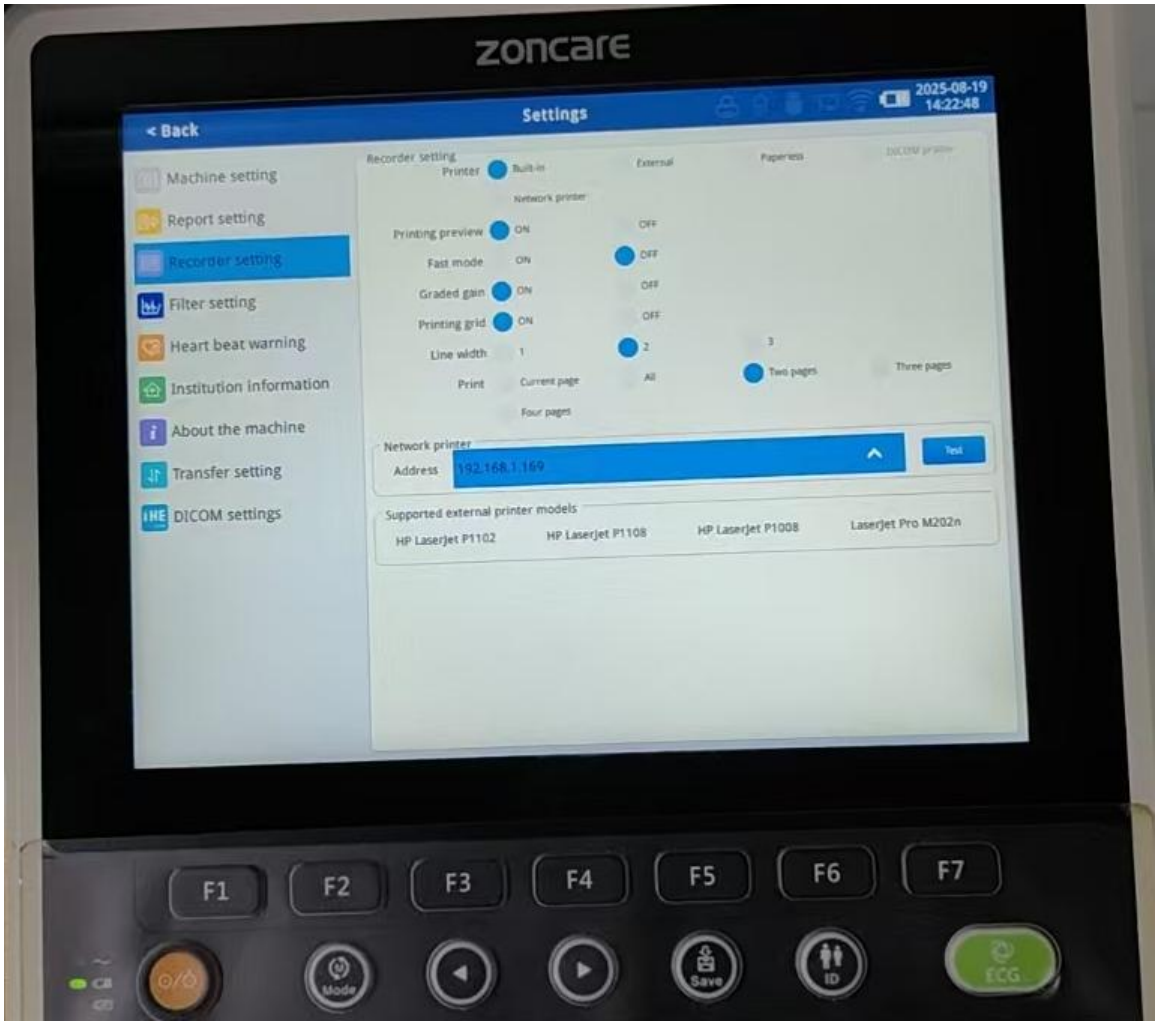
Virtual keyboard



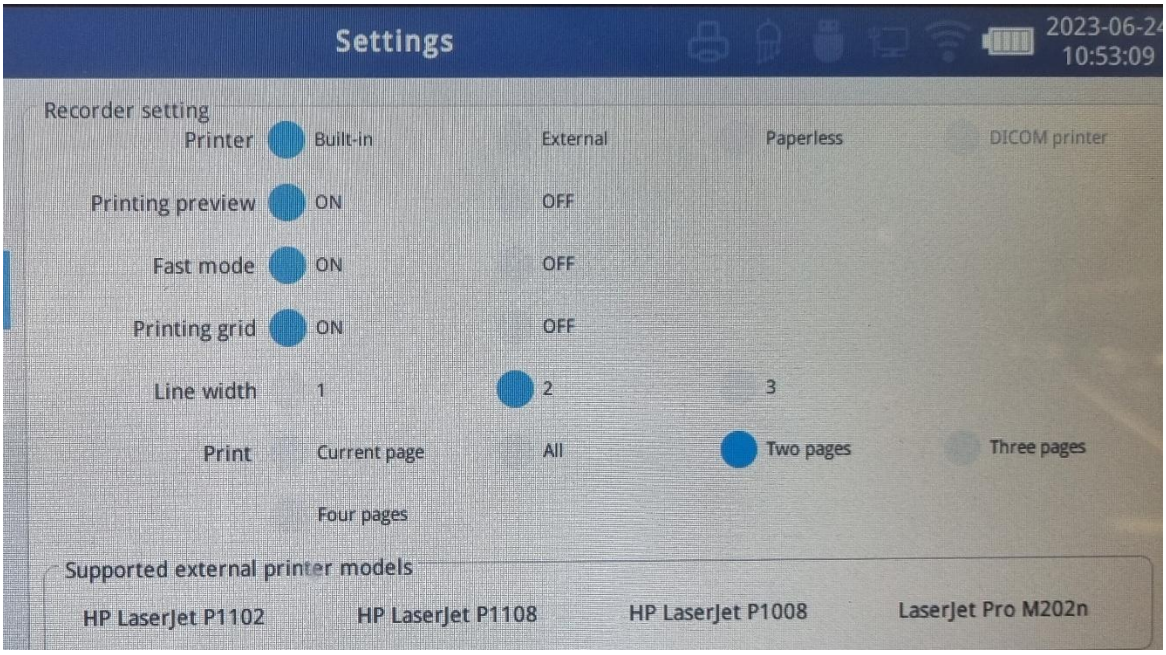
VCG- vector cardiogram feature, when enabled, device prints vector ECG report.



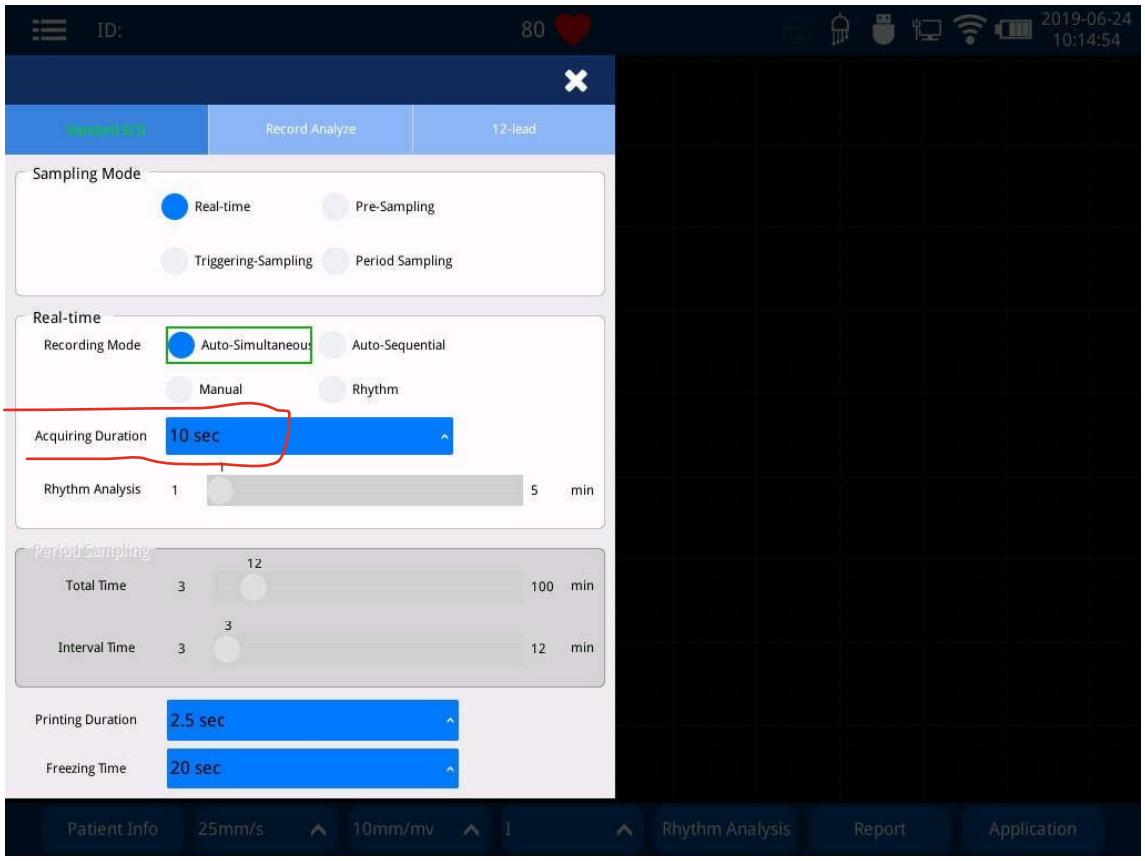
Network printer set-up



Fast print mode set up: Enables to start ECG registration, printing and analysis within 1 second after pressing ECG green button:



Sampling modes



Sampling mode setup

Wuhan Zoncare Bio-medical Electronics Co., Ltd.
Add: 380, High-tech 2nd road, Eastlake High-tech District, Wuhan, Hubei (430206), China.
Tel: 86-27-87770203 Email: info@zoncare.com
Fax: 86-27-87770203 Website: www.zoncare.com

Statement on iMAC ECG Noise Reduction

To whom it may concern,

We, Wuhan Zoncare Bio-medical Electronics Co., Ltd., manufacturer of ECG Machine, Ultrasound Machine, Patient Monitor makes the statement regarding our iMAC 120, iMAC 12, iMAC 300 ECG machines as below:

In the case that some specific tenders require the indication of ECG noise reduction function/technology, while it's not included in our technical specifications such as datasheet, user manual, etc., we hereby state that the iMAC ECGs obtained two patents for inventions relating to noise filtering/removal:

- Apparatus and method for filtering out industrial frequency noise(Patent No. ZL 2017 1 0082475.3).
- An ECG signal filtering method for removing ringing(Patent No. ZL 2018 1 1443998.7).

The original patent certificate are attached.

This parameter is for reference and Zoncare holds the final right of explanation.

Date: July. 26th 2023

Wuhan Zoncare Bio-medical Electronics Co., Ltd.
Add: 380, High-tech 2nd road, Eastlake High-tech Development Zone, Wuhan, Hubei (430206), China.
Tel: 86-27-87770203 Email: info@zoncare.com
Fax: 86-27-87770203 Website: www.zoncare.com

Statement on some parameters of iMAC120

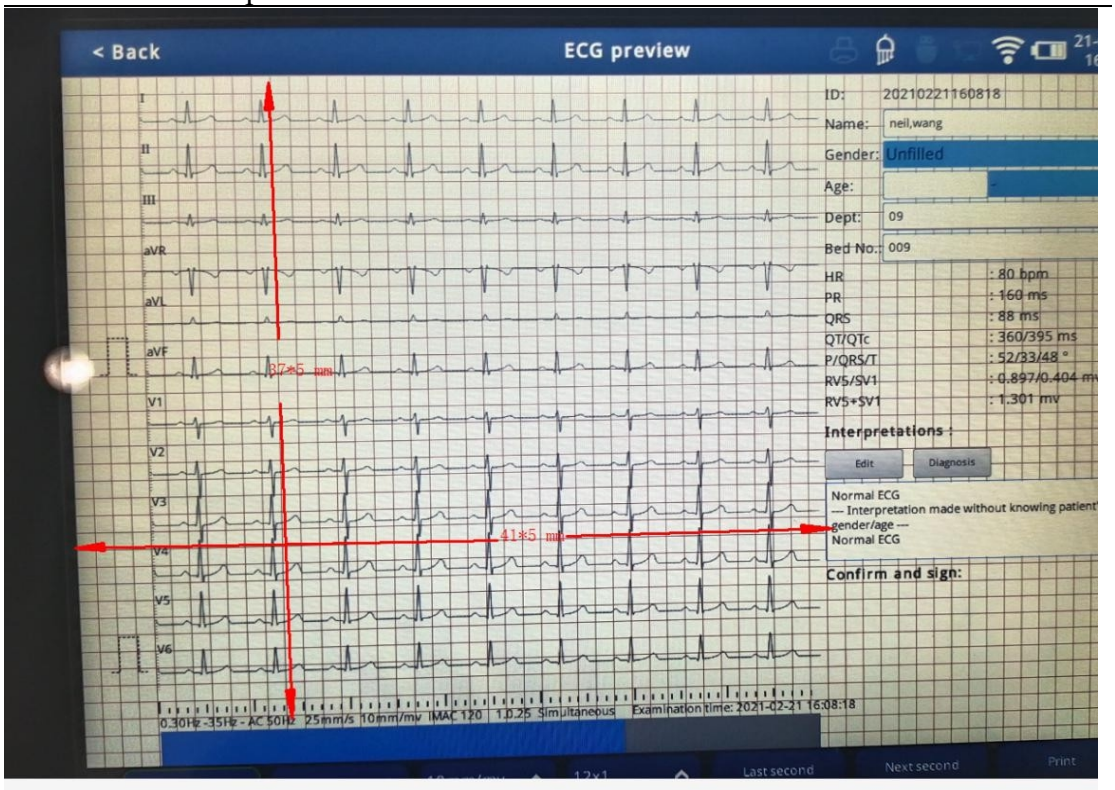
To whom it may concern,

We, Wuhan Zoncare Bio-medical Electronics Co., Ltd., manufacturer of ECG Machine, Ultrasound Machine, Patient Monitor makes the statement regarding our iMAC 120 ECG machine as below.

1. Printer speed when recording the rhythm of calm ⩽ 6,25 mm/s
Yes, support in all Manual/Auto/Rhythm Modes.

2. Changes the sensitivity of the cardiograph printer to recording the rhythm of rest 2.5/5 mm/mV
Yes, support in all Manual/Auto/Rhythm Modes.

3. The cardiograph display must be able to view the electrocardiogram At least 110 x 190 mm on a screen width
Yes, the ECG review area for iMAC 120 is 205x185mm based on the layout of 12x1.As show in the below picture.



4. The possibility for the user to choose from the following derivations:

- Standard
- Posterior wall
- Right chest(which includes C4r)
- Right chest posterior wall(which includes C4r)
- Prev intercostal space
- Next intercostal space

Wuhan Zoncare Bio-medical Electronics Co., Ltd.
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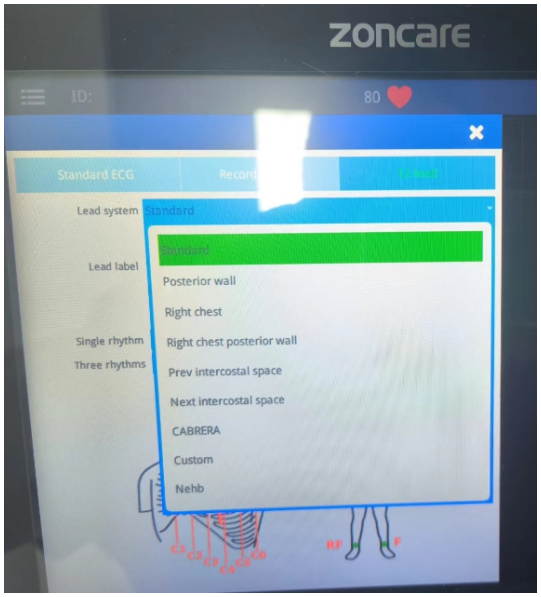
Fax: 86-27-87770203 Website: www.zoncare.com

T13ype text here

- CABRERA
- Custom
- Nehb

The machine interface as below：



5. In our data sheet, frequency response indicated starting from 0.01, which is the High-Pass Filter frequency.But it is possible to set frequency to “0”, when High-Pass Filter is turned off. Therefore, the total minimum frequency is “0”.

This parameter is for reference and Zoncare holds the final right of explanation.

WUHAN ZONCARE BIO-MEDICAL ELECTRONICS CO., LTD

Date: 2024-7-1