



EDAN

A world of potential

iX Series Patient Monitor

Redefining Effortless Monitoring



EDAN Instruments, Inc.

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May.18, 2023

iX Series

iX15
15.6"
"

iX12
13.3"
"

iX10
10.1"
"

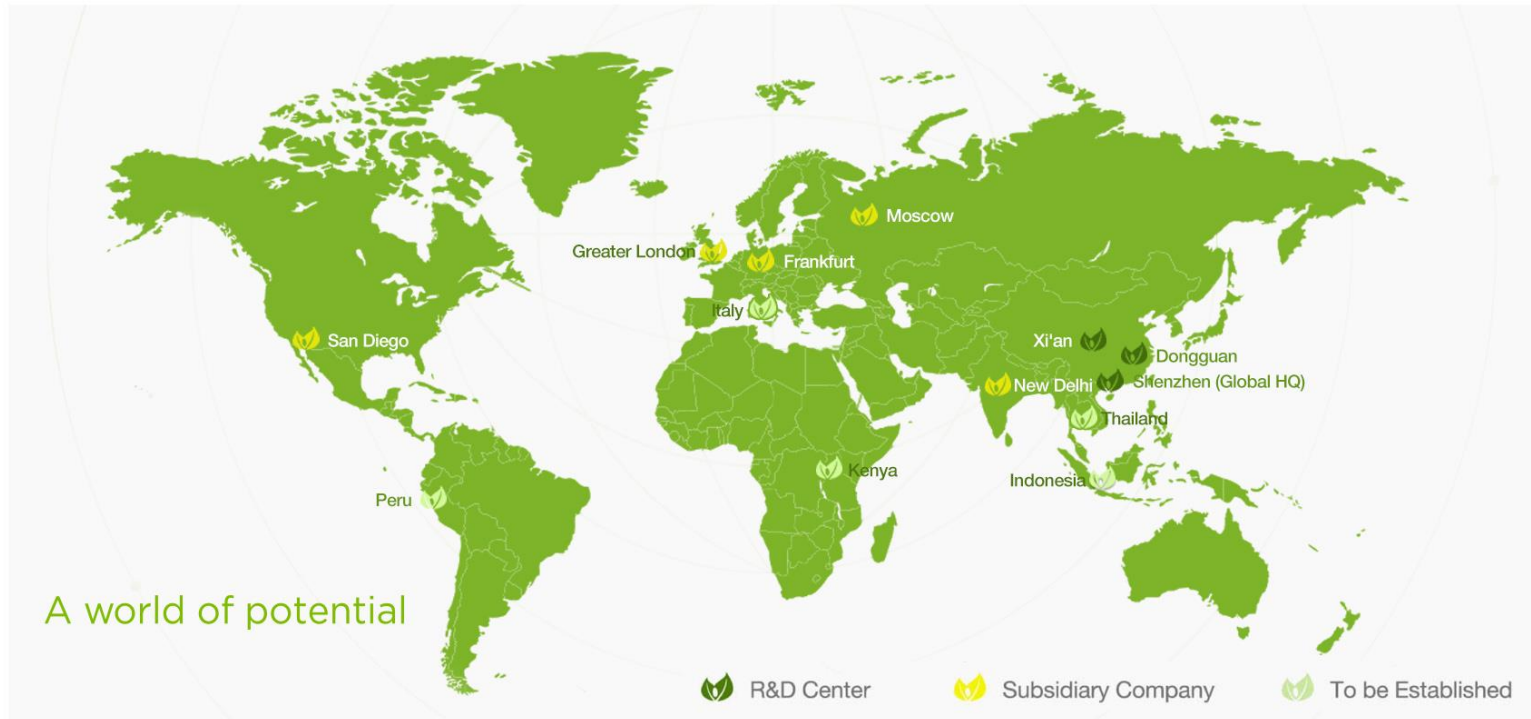
 Touch Screen





Our Position

- Top 2 patient monitoring exporter
- All products with CE approval



A world of potential

170⁺ Countries

have been covered by Edan's products

R&D Investments

- Global R&D Center in Shenzhen
- POCT R&D in San Diego
- POCT R&D in Dongguan
- Software R&D in Xi'an
- IVD R&D in Shenzhen



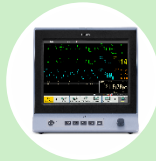
Product Portfolio

iX Series is positioned to replace iM Series.

Module Patient Monitors



Compact Patient Monitors



Vital Signs Monitors



Telemetry & Oximeters



Central Monitoring System



Product Portfolio

Mindray Multi-parameters Patient Monitors

Last Generation



T5/6/8



iPM10/12/15



iMEC8/10/12/15



MEC1000



N19/22

Separated
Modular Monitor



N12/15/17

Modular Monitor



ePM 10M/12M

Semi-modular
Monitor



ePM 10/12/15

Compact Monitor



uMEC 8/10/12

Compact Monitor

EDAN Multi-parameters Patient Monitors

Last Generation

iV22

Separated
Modular Monitor



iV12/15
Coming soon.

Modular Monitor



iX10/12/15

Compact Monitor



X8/10/12

Compact Monitor



V5/6/8

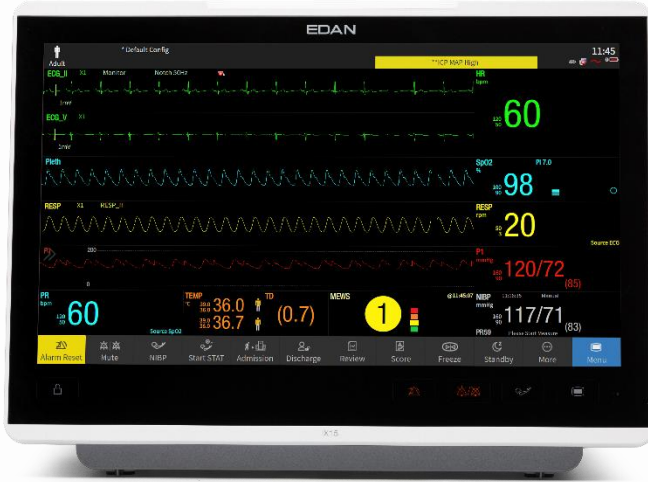


iM50/60/70/80

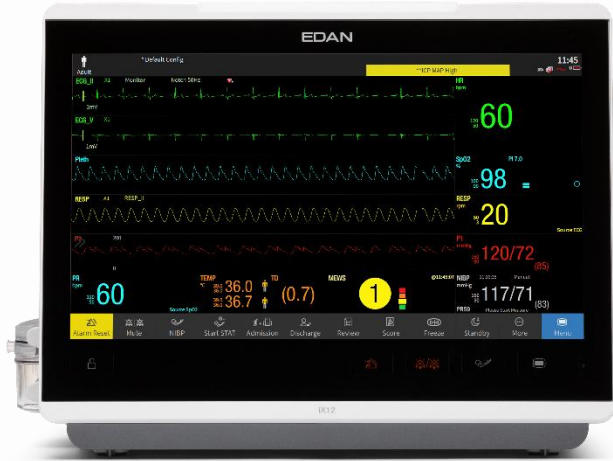


iM8 Series

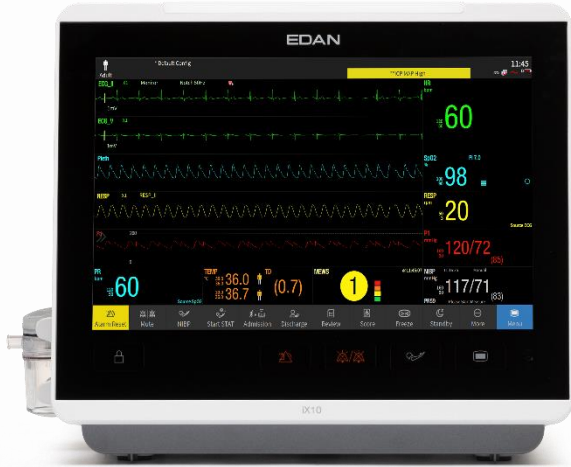
iX15 Acute Patient Monitor



iX12 Sub-acute Patient Monitor



iX10 Portable Patient Monitor



Clinical-Oriented Design



■ Clinical-oriented industrial design

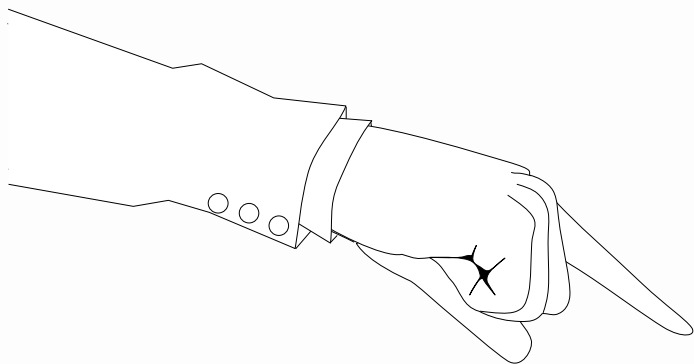
- Flat design of screen and bezel without blind spot for disinfection.
- Streamlined design for easy disinfection.

■ Wide range of disinfectant adaptations

- Support up to 31 types global leading disinfectants.
- Meet the clinical needs of disinfection.



Humanized Design



105°



With the 105 ° incline angle design, it's easy to operate & observe the iX series monitor on the table or on rolling stand.

No-fan Design



With low power consumption design, fan is no longer needed.

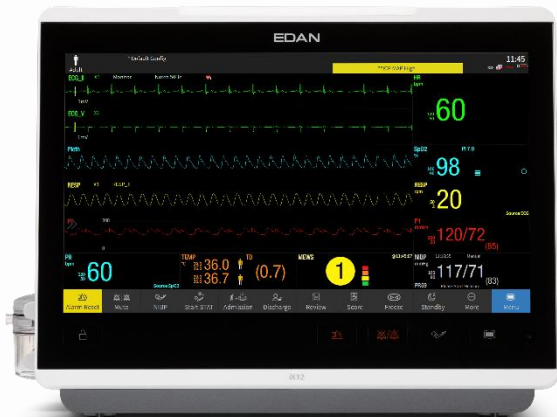
■ No Noise

No-fan design brings no noise to the environment.

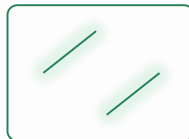
■ No Dust

On fan designs, dust accumulation is easily found on the flabellum and grids. With no fan, it brings no dust on these positions, bringing down the faulty rates and adapts well to critical divisions with strict dust control regulations.

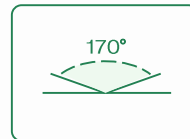
Stunning Visual Experience



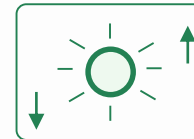
HD Visual Display



Anti-Glare Display



> 170° Viewing Angle



Auto Brightness

	iX Series	iM Series	Competitors
Resolution	iX12/15: 1920*1080 iX10: 1280*800	iM80:1024*768 iM60/70:800*600	ePM15: 1368*768 ePM10/12: 1280*800

■ HD Visual Experience

iX10: 1280x800 pixel, iX12/iX15:1920x1080 pixel.

■ Stunning Visual Experience

Anti-glare display with 170° wide viewing angle redefines nursing experience. Auto brightness adjustment can significantly reduces the workload of caregivers.

Remarkable Industrial Design

■ Recorder Gate

- Traditional hinge door requires users to lift the door, which is labour some and could damage the component.
- New industrial design enables a easier way to open the gate.

■ Battery Gate

- Mechanical chute design switch helps users get rid of the tools.
- Easy and convenient experience fits more needs of use.



Superb Backup Battery

■ Extremely Long Runtime

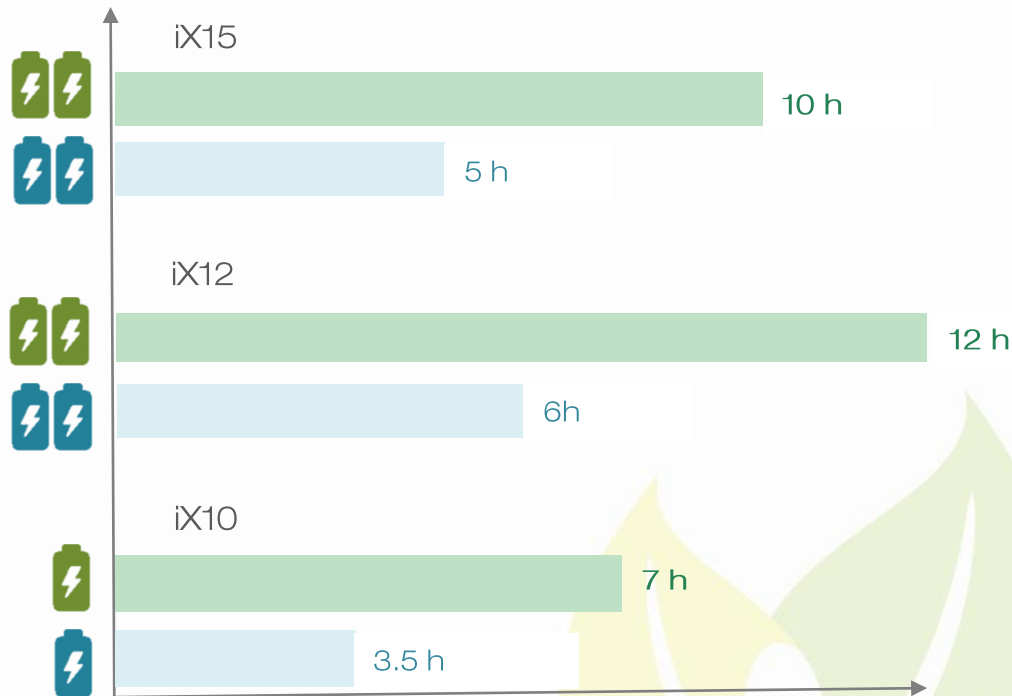
- Due to the low power consumption innovative design, the battery backup time of iX series is greatly improved.



5000mAh



2500mAh



Multi-Scenario Application

■ Multi-scenario

- Flexible mounting solutions are dedicated to meet various clinical need from sub-acute and general ward.
- Wall mounts and trolleys are compatible between iX series and iM series.

■ Quick Release Design

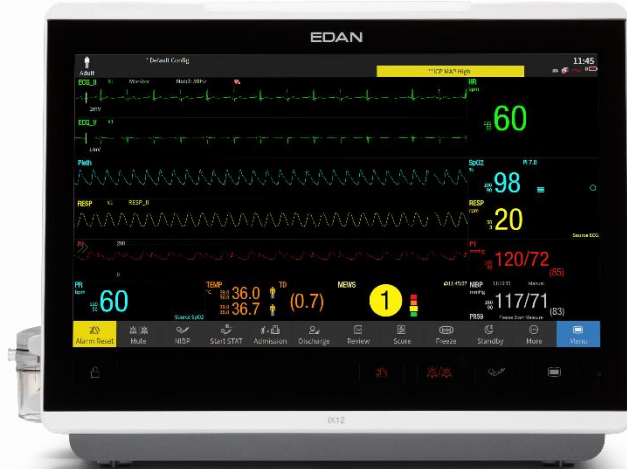
- MT-300 trolley has quick release function, enabling a more convenient transport experience.



MT-300



State-of-Art Operating Experience



■ Full Capacitive Touch Screen

- Full capacitive touch screen is applied in iX series patient monitor which brings highly responsive operation experience.

■ Capacitive Touch Buttons

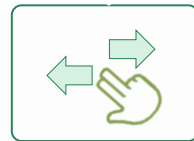
- State-of-art capacitive touch buttons could be easily cleaned in daily maintenance and it's water seepage free.

Easy-to-Use Gesture Operation



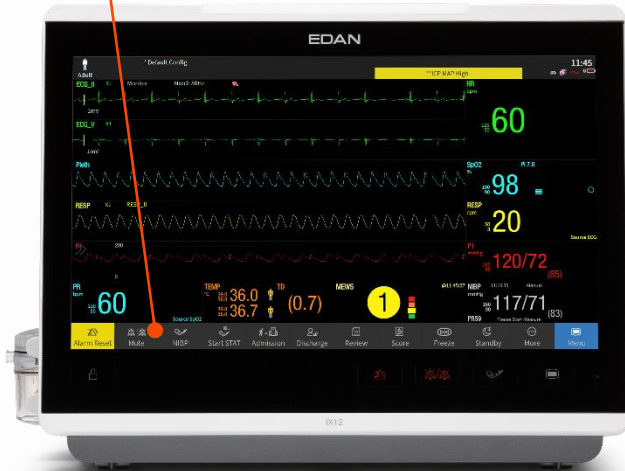
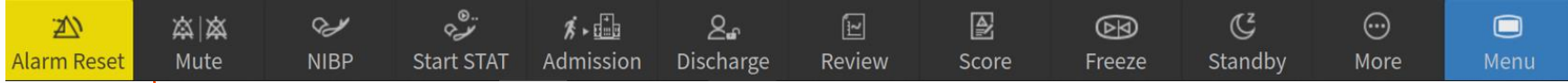
■ Gesture Operation

- The iX series supports gesture operation to switch between regular monitoring screens, providing a more intuitive operation practice for users.



Gesture
Operation

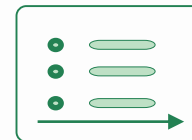
Customizable Shortcut Key



■ Customizable Shortcut Key

- Requirement comes from the end-user. This design brings flexible convenience for all medical professionals. Users can make their shortcut keys within all the settings' functions.

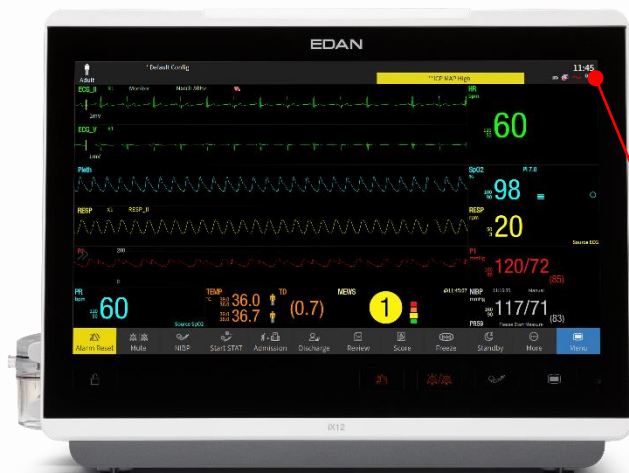
Intuitive Quick Settings



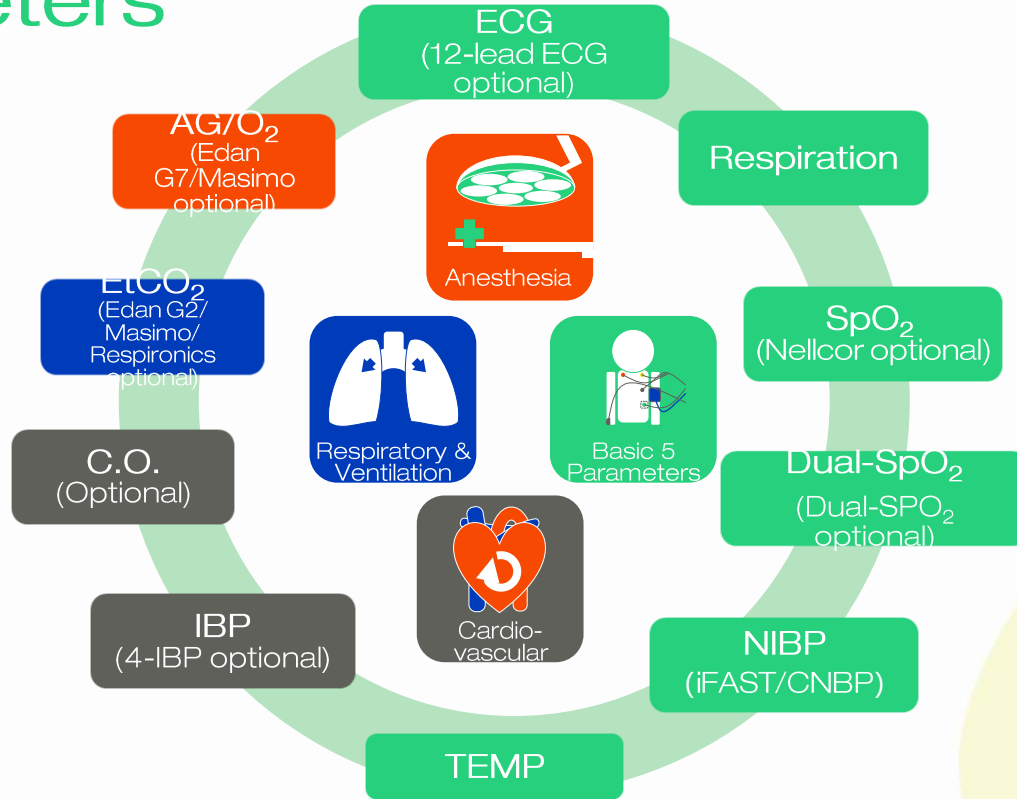
Quick Settings

■ Quick Settings

- Pull-down and intuitive Quick Settings of Brightness, Alarm volume, QRS volume and Button volume from system information extension area help caregivers quickly finish the routine setup.



Parameters



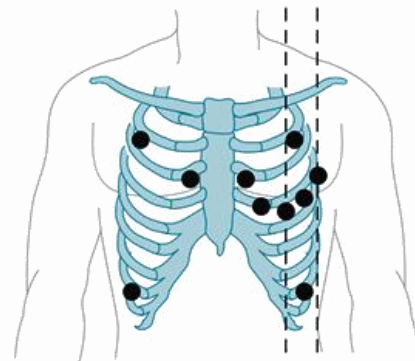
Reliable ECG Monitoring

- EDAN iSEAP™ algorithm optimized for arrhythmia detection, pacemaker detection, ST analysis, and HR measurement.
- Support 3/5/6/12 lead
- 33 types of arrhythmia events recording and alarms
- Pacemaker detection
- Defibrillator & ESU protection
- 6 types of filter for better performance



12-lead ECG Diagnostics

- EDAN SEMIP® diagnostics algorithm verified by CSE, AHA & MIT-BIH database
- Pacemaker detection
- Defibrillator/ESU protection
- 12-lead ST analysis
- 208 kinds of diagnosis results
- 10 seconds of 12-lead waveform to review and print out



Multi-lead ECG analysis

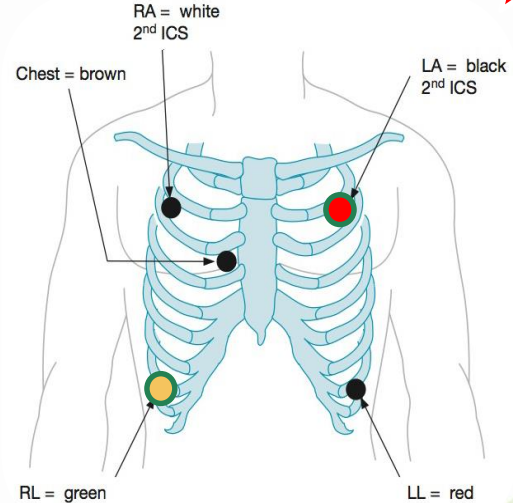


■ Single-Lead and Multi-Lead analysis mode

- Multi-Lead analysis mode improves detection sensitivity and reduce false alarm via calculation leads of both the primary and secondary leads. Monitor uses both leads to calculate HR, analyze and detect arrhythmias.

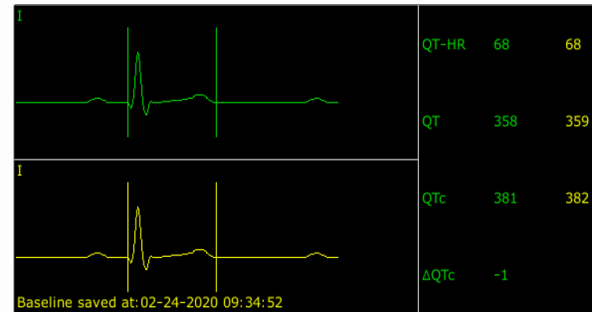
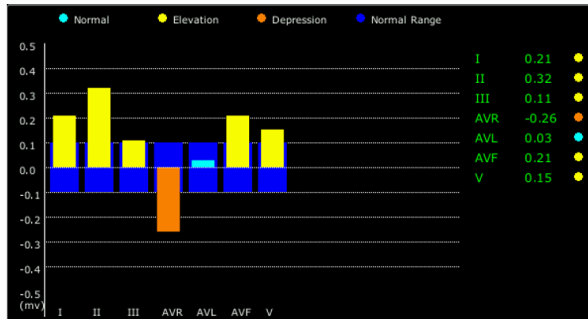
■ Note

- Available on 5/6/10-lead except 3-lead.
- Default use of Single-Lead analysis mode.



ST and QT/QTc

- Real-time ST / QT /QTc display and review for 3/5/6/12-lead ECG
- Unique ST Histogram is provided to view the ST value situation of each lead more intuitively
- QT analysis help detect long QT syndrome, while 4 alternative formulas to correct QT values (QTc), including Bazett, Fridericia, Framingham and Hodges



HRV (Heart Rate Variability)



Heart Rate Variability is the small variation between beating periods of the heart. HRV is mainly produced by the cardiac sinus node autonomic activity through sympathetic and vagus nerve, nerve center, baroreflex and respiratory activity and other regulatory factors, making the heart stroke interval generally exist tens of milliseconds difference.

■ Clinical Interpretation

- Risk assessment of patients with myocardial infarction.
- Evaluation of autonomic nerve damage in diabetic patients.

■ Measuring Parameters

SDNN, RMSSD, SDSD, NN50, PNN50, HRVI



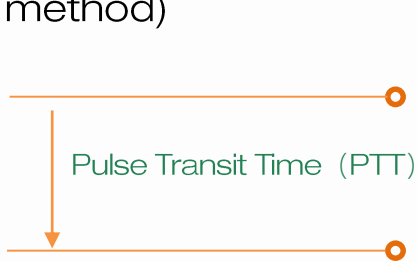
Continuous Non-invasive Blood Pressure:

CNBP

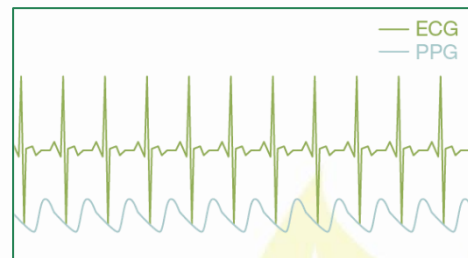
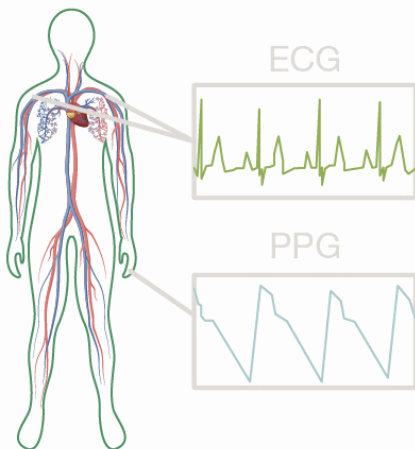
- Cutting-edge blood pressure monitoring methods. More comfortable compared with traditional BP monitoring with cuffs.
- Edan ECG and Edan SPO₂ must be used. (Based on PTT method)



No Cuffs
No Inflation



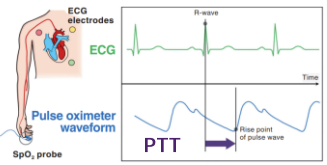
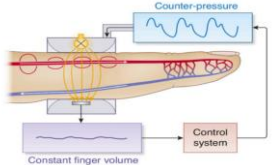
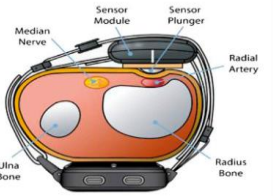
PTT was calculated according to the cardiac cycle, and arterial blood pressure was obtained accordingly



Record from: ECG Electrodes, SpO₂ Sensor

Introduction of CNBP solutions

- The most common solutions for CNBP include Pulse Transit Time (PTT) method, Volume Clamp method and arterial tonometry.

	PTT Method	Volume Clamp Method	Arterial Tonometry
Measuring principle			
Certification	FDA, CE, NMPA	FDA, CE, NMPA	FDA
Operability	Simple ECG and SpO ₂ simultaneous measurement	Difficult Finger cuffs need to be worn correctly	Difficult Requires proper wrist compression attachment
Advantages and disadvantages	Continuous, simple operation, no cuff attachment, non-inductive monitoring	Continuous, but finger cuff needed, and poor long-time monitoring experience	Continuous, pressurized accessories needed, poor monitoring experience, and extremely high requirements for the placement of accessories

PTT Method for CNBP Measurement

- The pulse wave transit time method uses the principle of "the higher the arterial blood pressure, the greater the blood vessel pressure and the faster the pulse wave velocity", and indirectly calculates the arterial blood pressure value through the measured pulse wave velocity.

Ma Y, Choi J, Hourlier-Fargette A, et al. Relation between blood pressure and pulse wave velocity for human arteries. *Proc Natl Acad Sci U S A*. 2018;115(44):11144-11149. doi:10.1073/pnas.1814392115

IF 12.78

$$P = \alpha \frac{L^2}{PTT^2} + \beta$$

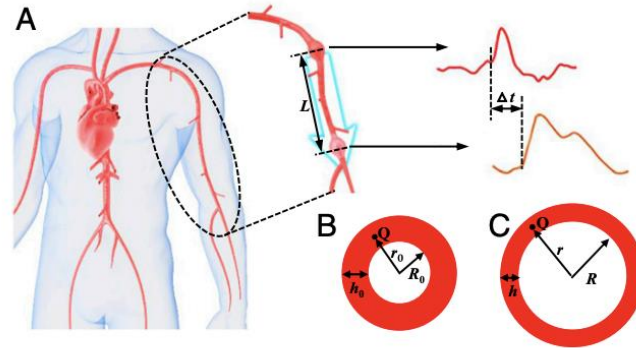


Fig. 1. (A) Schematic diagram of pulse wave propagation in a human artery. (B and C) The cross-sectional dimensions of the artery (B) before and (C) after deformation due to the blood pressure.

P: Pressure;

L: Propagation distance;

PTT: Pulse wave transit time, which is the time difference between the R wave of the ECG and the start of the pulse wave;

α , β : Correlation coefficient relating to individual vascular condition

EDAN CNBP

- The monitor can only be used for continuous blood pressure monitoring after CNBP

calibration. CNBP calibration must be performed if:

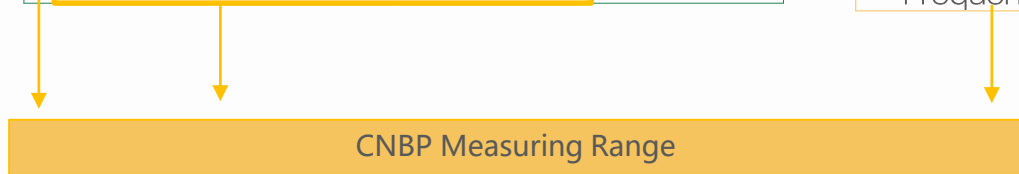
- Perform CNBP for the first time after each boot.
- Change the patient type or update patient.
- CNBP calibration is recommended when continuous monitoring is not calibrated for over 24 hours.
- Blood pressure reference value: manually input or automatically obtain the monitor measurement value.

EDAN CNBP

- Measuring parameters: CNBP (SYS), CNBP (DIA), Blood Pressure Variability Index(BPVI)
- Not validated for neonatal patients under the age of 3

NIBP Measuring Range(mmHg)			
	Adult	Pediatric	Neonate
SYS	25 ~ 290	25 ~ 240	25 ~ 140
MAP	15 ~ 260	15 ~ 215	15 ~ 125
DIA	10 ~ 250	10 ~ 200	10 ~ 115

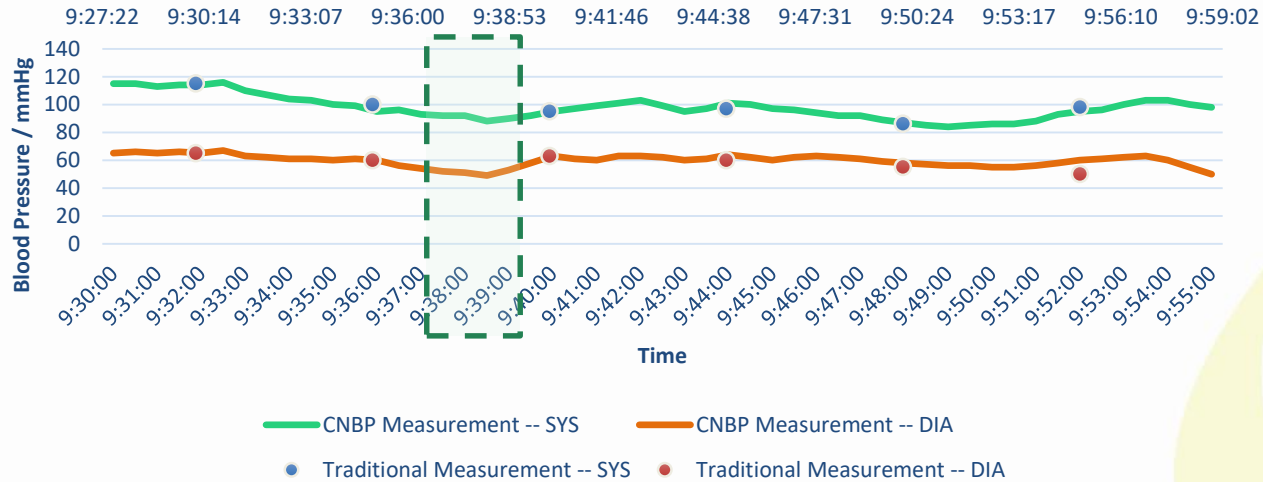
BPVI (Blood Pressure Variability Index) Measuring Range	
Patient Type	Adult, Pediatric (≥3 years old)
Measuring Range	0~100%
Resolution	1%
Renew Frequency	5s



EDAN CNBP

- Avoid the blind area in the interval of non-invasive cuff blood pressure monitoring. Detect sudden changes in blood pressure by continuous monitoring.
- More comfortable and safe.

Blood Pressure Change



Application Scenarios of CNBP

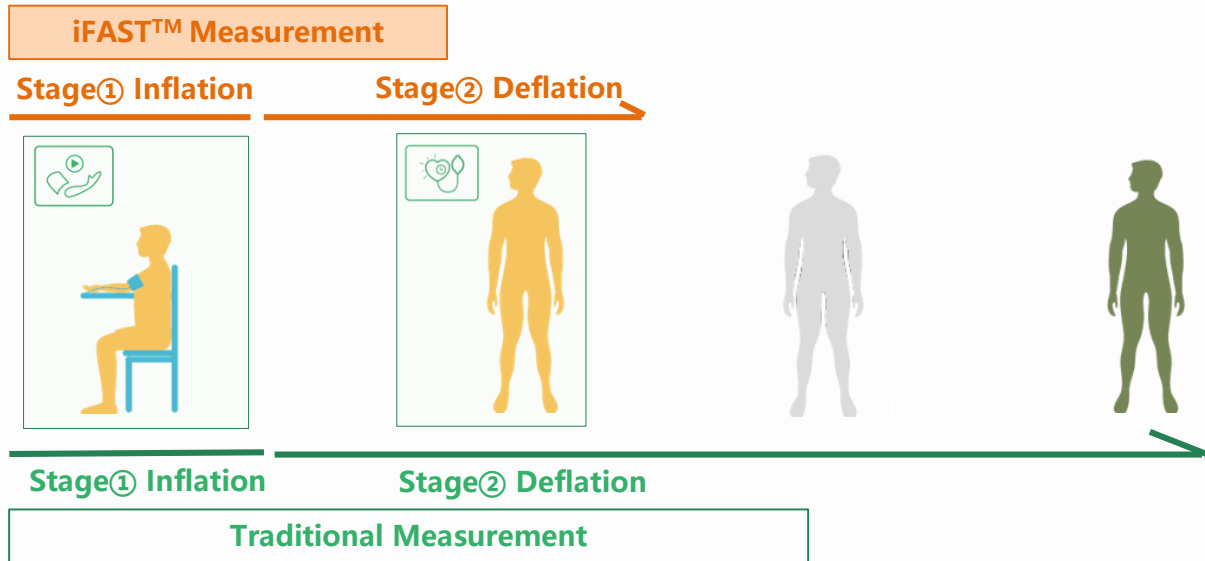
- When encountering the elderly and children who do not cooperate with NIBP measurement and need to ensure patient comfort:
 - The inflation and deflation of NIBP at night makes the patient unable to fall asleep, and adequate sleep is the basis for recovery



EDAN New NIBP Algorithm—iFAST™



Intelligent ascending measurement: the traditional three-stage measurement includes pressure, slow, and fast release. iFAST™ algorithm reduces it into two stages pressure and pressure retraction. Avoiding repeated stress and simplifying the measurement process.



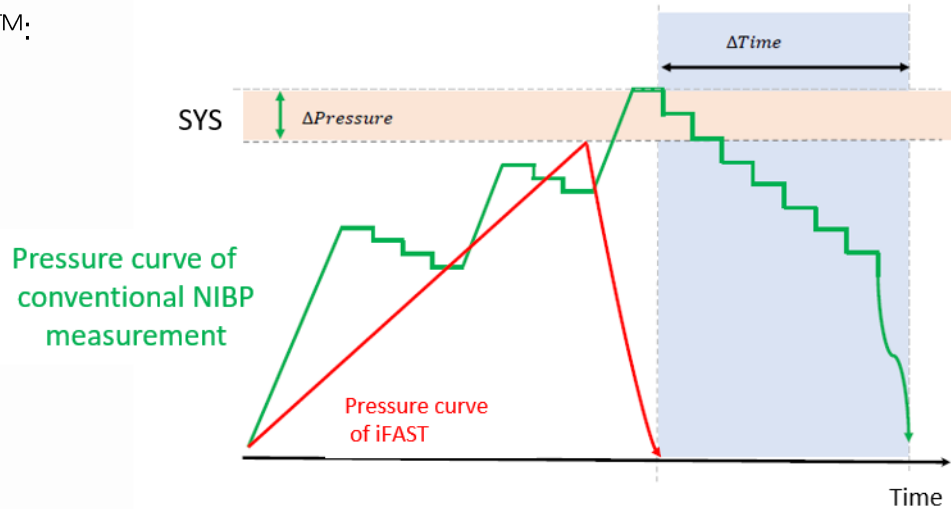
EDAN New NIBP Algorithm—iFAST™

iFAST™(intelligent Feasible Adaptive Supervision Technology)

A fast value output technology for non-invasive blood pressure measurement during adaptive slow inflation.

iFAST™ Measurement Time of iFAST™:

15S



24 Hours ECG Summary

ECG summary provides a dynamic analysis of heart rate changes over the time interval. It allows users to know the patient's condition of the latest 24 hours, including HR analysis, QT analysis, ST analysis and ARR analysis.

■ HR Summarize

Summarize All Day/ Daytime/ Night Time average. HR data, maximum HR, and minimum HR.

■ QT/QTc Review

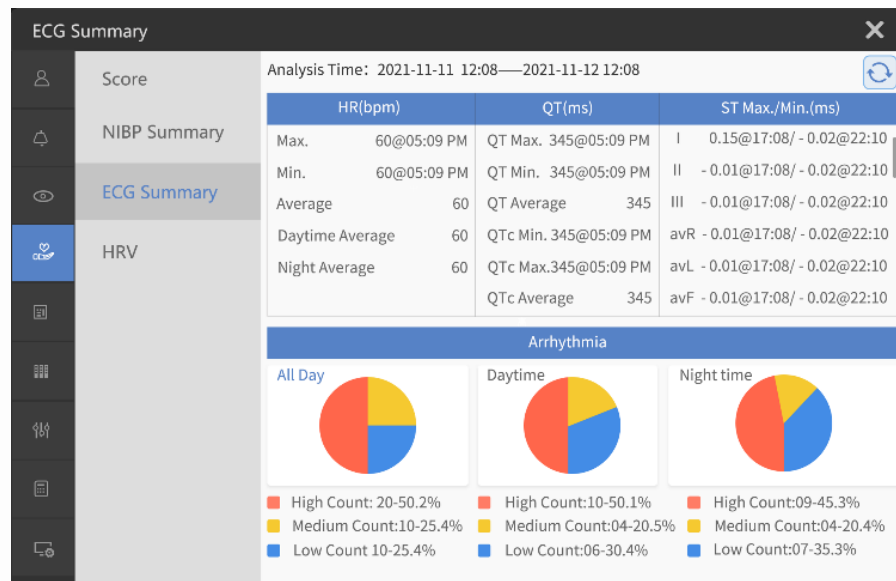
Calculate average and maximum QT/QTc.

■ ST Data Summarize

Summarize the maximum, minimum ST value of different leads.

■ Arrhythmia Alarm Review

Comprehensive arrhythmia alarm review for All Day/ Daytime/ Night Time.



24 Hours NIBP Summary

More accurate diagnosis with correlated average blood pressure, daytime BP, and Night Time BP.

■ Data Summarize

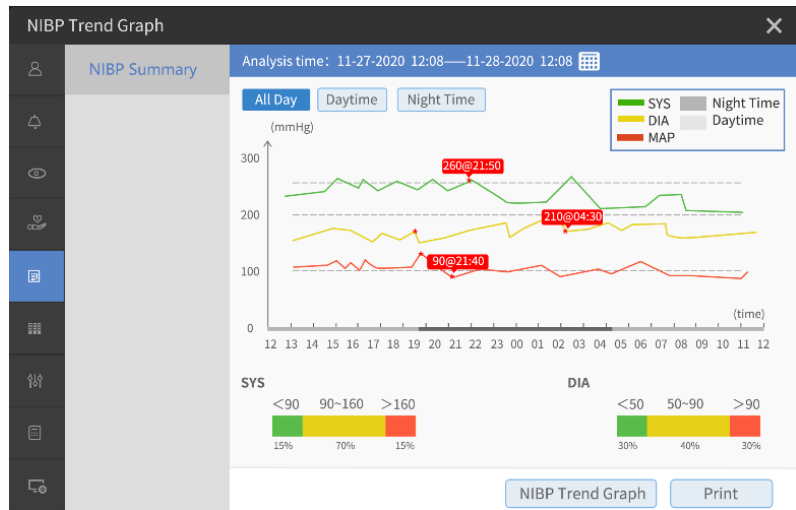
Summarize All Day/ Daytime/ Night Time BP data.

■ Alarm Review

Calculate the ratio of SYS & DIA alarms, and show in the bar graph.

■ Night Time Setting

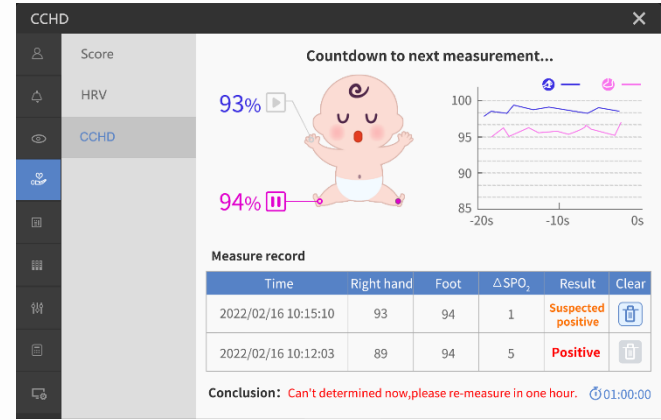
Users can set the night time on a 24-hour or 12-hour schedule. The minimum duration is 30 minutes. The default night time is 20:00 PM to 6:00 am.



CCHD Screening

In 2011, the U.S. Department of Health and Human Services added critical congenital heart disease (CCHD) to the list of conditions recommended to states for universal newborn screening. [1]

Some babies born with a critical CHD appear healthy at first, and they may be sent home before their heart defect is detected. These babies are at risk of having serious complications within the first few days or weeks of life, and often require emergency care. Newborn screening is a tool that can identify some of these babies so they can receive prompt care and treatment. Timely care may prevent disability or death early in life.



Edan SPO₂ and Dual-SpO₂

CCHD is diagnosed by comparing the difference in newborns' SpO₂ (ΔSpO_2) values on the right hand or their foot.

Clinical Auxiliary Tools

Multiple Scoring System

- GCS (Glasgow Coma Scale)
- MEWS (Modified Early Warning Score)
- NEWS (National Early Warning Score)
- NEWS2 (National Early Warning Score)
- PEWS (Pediatric Early Warning Score)

Intuitional Interface

Easy to distinguish the patients' status.

Advanced Scoring System

Useful tools for medical workers to quickly identify the severity of patients

MEWS	HR(bpm)	120	2
GCS	RR(rpm)	20	1
Trend Graph	SYS(mmHg)	100	1
Trend Table	Temp(°C)	36.1	0
	Consciousness	A	0

Suggestion: Report to the charge nurse and the doctor to observe the changes in the condition, and evaluate every 4 hours

@ 10:30 4

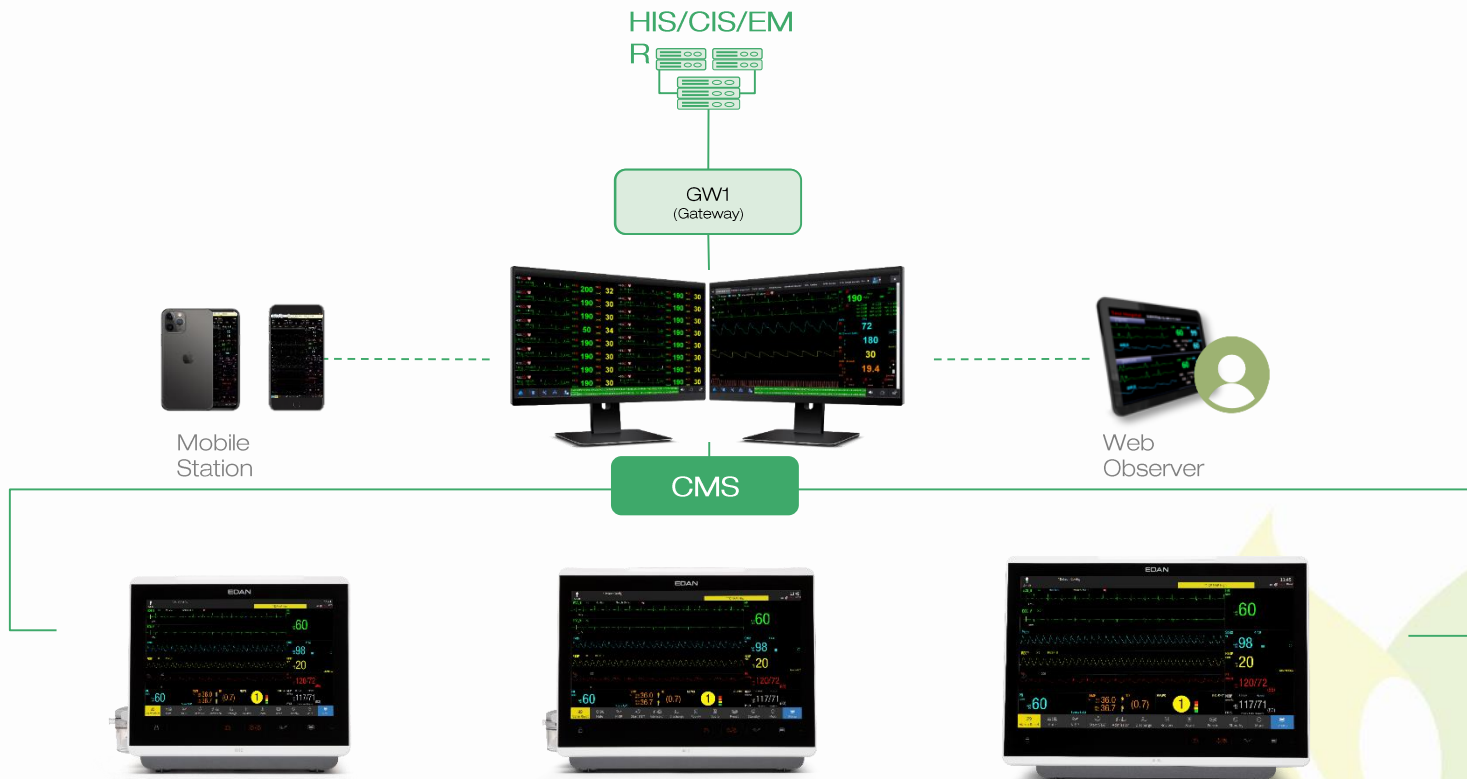
Start Reset Criteria

Eye Opening	Motor Response	Verbal Response
<input type="checkbox"/> Eyes Opening Spontaneously 4	<input type="checkbox"/> Obey Verbal Commands 6	<input type="checkbox"/> Oriented and Converses 5
<input type="checkbox"/> Eyes Opening to Verbal Command 3	<input type="checkbox"/> Localize to Pain 5	<input type="checkbox"/> Disoriented and Inconverses 4
<input type="checkbox"/> Eyes Opening Only with Painful Stimuli 2	<input type="checkbox"/> Withdraw from Pain 4	<input type="checkbox"/> Inappropriate Words 3
<input type="checkbox"/> No Response 1	<input type="checkbox"/> Flexor Response to Painful Stimuli 3	<input type="checkbox"/> Incomprehensible Sounds 2
	<input type="checkbox"/> Extensor Response to Painful Stimuli 2	<input type="checkbox"/> No Response 1
	<input type="checkbox"/> No Response 1	

@ 10:30 3 (Severe Disorder of Consciousness)

Start Reset Criteria

IT Solution



Configurations

● Standard ○ Optional X Not available

	iX10	iX12	iX15
3/5/6-lead ECG	●	●	●
12-lead ECG	○	○	○
RESP	●	●	●
EDAN SpO ₂	●	●	●
Nellcor™ Oximax™	○	○	○
EDAN Dual SPO ₂	○	○	X
EDAN NIBP(With iFAST)	●	●	●
CNBP	●	●	●
2-channel TEMP	●	●	●
Covidien Genius 3 (Coming Soon)	○	X	X
2-channel IBP	○	○	○ Up to 4-channel
C.O.	○	○	○
EDAN G2 / Respirationics / Masimo CO ₂	○	○	○
DEAN G7/MASIMO AG	X	○	○

iX V.S. iM



V.S.



■ Screen Upgrade

- High resolution up to 1920*1080
- Anti-glare screen & 170° viewing angle
- Auto brightness adjustment

■ Brand New Operating Experience

- Intuitive UI interface
- Capacitive control buttons
- Gesture operation

■ Clinical-Oriented Design

- Supports up to 31 disinfectants
- 105 ° incline angle design
- Auto brightness adjustment
- Longer running time up to 12h

■ Enhanced Monitoring



- CNBP
- Multiple-lead analysis
- HRV analysis
- iFAST™ algorithm
- 24h NIBP/ECG summary
- Dual-channel SpO₂
- CCHD

■ More scoring functions

- GCS, NEWS2, PEWS

Parameters

iX V.S. iM

	EDAN iX Series	EDAN iM Series
Picture		
Screen Resolution	Up to 1920*1080	Up to 1024*768
Anti-glare	✓	✗
HRV Analysis	✓	✗
Multiple-lead Analysis	✓	✗
24h ECG Summary	✓	✗
CNBP	✓	✗
24h NIBP Summary	✓	✗
Two-channel SpO ₂ & CCHD	On iX12 & iX10	✗
SV	✓	✗
Scoring	GCS, MEWS, NEWS, NEWS2, PEWS	GCS, MEWS, NEWS, NEWS2

Main competitors

PHILIPS



Efficia CM100/120/150



Efficia CM10/12

mindray 迈瑞



ePM10/12/15



iPM & iMEC



B105/B125/B155



C50/80/86



NC10/12



GE Healthcare

COMEN

A world of potential

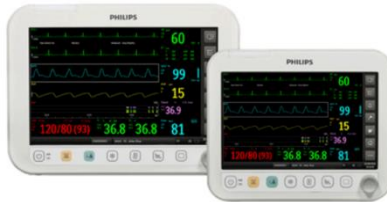
PHILIPS

Efficia CM Series

Product Overview



Efficia CM100/120/150



Efficia CM10/12

- Efficia CM100/120/150 position higher than CM10/12.
- Efficia CM10/12 do not support 12 lead ECG, C.O., ST Map, mini trend 8 hours.
- Efficia modules rack can be configured on Efficia CM12/120/150. Modules contains Dual IBP, BISx, BISx4, AG, CO2.

Product Overview



Efficia CM100/120/150



- Low resolution, no anti-glare and auto-brightness feature
- Only 24 kinds arrhythmia analysis, no 6 lead ECG, QT/QTc and HRV
- No CNBP
- No 24h ECG/NIBP summary
- No Two-channel SpO₂ and CCHD
- Configure CO₂ with high cost module frame
- Only CM120/150 support AG with high cost module frame
- Only 2 IBP
- IPX1, fan design

iX V.S. Philips CM1X0

Lockout:

- ① Standard capacitive screen, anti-glare, auto-brightness, high resolution
- ② Support gesture control
- ③ Support 33 kinds of arrhythmia analysis, 6-lead ECG, QT/QTc and HRV
- ④ Support 24h ECG summary/24h NIBP summary/Glasgow coma scale
- ⑤ Support CNBP, Two-channel SPO₂
- ⑥ CCHD screen
- ⑦ Longer battery life & No fan design
- ⑧ CO₂ and AG monitoring
- ⑨ 31 types of cleaning agent and disinfectant



mindray 迈瑞

ePM 10/12/15 Series



Product Overview



ePM10/ePM12/ePM15



Standard:

- Capacitive touch screen (10.1"/12.1"/15.6"), 3/5/6-lead ECG, ST, Resp, NIBP, 2 Temp, Mindray SpO₂

Optional:

- 12 lead ECG(12/15 only), Nellcor SpO₂, Masimo SET SpO₂, 2 IBP, Mindray CO₂, Mindray AG(12M only)

Product Overview



- Low resolution, no anti-glare feature
- Only 25 kinds arrhythmia analysis, no HRV
- No CNBP
- No Two-channel SpO₂ and CCHD
- Only ePM 12M support AG
- Only 2 IBP
- Only ePM10 series claim IP22, others claim IPX1

iX V.S. Mindray ePM – How to beat

Lockout:

- ① Standard capacitive screen, anti-glare, high resolution
- ② Support 33 kinds of arrhythmia analysis, HRV and ST Histogram
- ③ Support CNBP
- ④ Two-channel SPO₂
- ⑤ Two-channel SPO₂ on CCHD screen
- ⑥ Longer battery life
- ⑦ Support 4 channel IBP & AG
- ⑧ IP22





GE Healthcare

B1X5M Series



Product Overview



B105/B125/B155 Series



Standard:

- Capacitive touch screen (10.1"/12.1"/15.6"), 3/5-lead ECG, ST, Resp, NIBP, 2Temp, TruSignal SpO₂

Optional:

- Nellcor SpO₂, Masimo SET SpO₂, 2IBP, E-miniC (Sidestream CO₂), N-CAiO (Sidestream AG), E-ENTROPY, Recorder (external)

Product Overview



- Unreliable external recorder design. Recorder communicates with monitor via cable
- Made in China
- Only 5 years of useful life as declared
- Declare only 5 types of cleaning agent and disinfectant
- Optional module rack, installed in factory or updated by service engineers
- Bed hook is not available

iX V.S. GE B1X5 – How to beat

Lockout:

- ① Standard capacitive screen, anti-glare, auto-brightness, high resolution
- ② Support gesture control
- ③ Support 33 kinds of arrhythmia analysis, 6-lead ECG, QT/QTc, HRV and ST Histogram
- ④ Support 24h ECG summary/24h NIBP summary/Glasgow coma scale
- ⑤ Support CNBP, Two-channel SPO₂
- ⑥ CCHD screen
- ⑦ Longer battery life & Massive Data Storage
- ⑧ All in one CMS
- ⑨ 31 types of cleaning agent and disinfectant



COMeN

C50/C80/C86 Series



Product Overview



C50/C80/C86



NC10/12

Different screen size, same parameters and functions

Standard:

- LCD(resistive) touch screen (10.4"/12.1"/15"), 3/5-lead ECG, Resp, NIBP, Comen SpO₂, Single Temp

Optional:

- Nellcor SpO₂, Masimo SET SpO₂, 12 lead(C86 only), 2 IBP, C.O., CO₂, AG, Dual-Temp, Thermal Recorder

Product Overview



C80



C50

- Old style with fan
- Resistive touch screen, low resolution, no auto-brightness, no 105 ° incline angle design
- No 6-lead, ST Histogram, QT/QTc, 24h ECG/NIBP summary
- Limited running time
- Only IPX1
- Declare **only 5 types** of cleaning agent and disinfectant
- No EWS, GCS

iX V.S. Comen CXX – How to beat

Lockout:

- ① Standard capacitive screen, anti-glare, auto-brightness, high resolution, 105° incline angle design
- ② Support gesture control
- ③ Support 33 kinds of arrhythmia analysis, 6-lead ECG, QT/QTc, HRV and ST Histogram
- ④ Support 24h ECG summary/24h NIBP summary/Glasgow coma scale
- ⑤ Support CNBP, Two-channel SPO₂
- ⑥ No fan design
- ⑦ Longer battery life & Massive Data Storage
- ⑧ All in one CMS, Support HL7
- ⑨ 31 types of cleaning agent and disinfectant
- ⑩ IP22



Comparisons

Model

EDAN
iX15



Mindray
ePM 15



Biolight
S12



Comen
C86



Philips
CM150



Nihon Kohden
Life Scope
GEM 15



GE
B155



Model	EDAN iX15	Mindray ePM 15	Biolight S12	Comen C86	Philips CM150	Nihon Kohden Life Scope GEM 15	GE B155
Screen Resolution	1920*1080	1366*768	800*600	1024*768	1366*768	1366*768	1280*800
Auto-brightness	✓	✓	✓	N/A	N/A	✓	N/A
Arrhythmia Analysis	33 Types	27 Types	27 Types	26 Types	24 Types	25 Types	15 Types
HRV	✓	N/A	N/A	N/A	N/A	✓	N/A
Multiple-leads Analysis	✓	✓	✓	N/A	N/A	N/A	N/A
CNBP	✓	N/A	N/A	N/A	N/A	N/A	N/A
24h ECG/NIBP Summary	✓	✓	N/A	N/A	N/A	N/A	N/A
Dual SpO2 & CCHD	On iX12 & iX10	N/A	N/A	N/A	N/A	N/A	N/A
Ingress Protection	IP22	IPX1	IPX21	IPX1	IPX1	IPX1	IP22
Calculation	GCS/MEWS/NEWS/NEWS2/PEWS	GCS/MEWS/NEWS/NEWS2	GCS/MEWS/NEWS	N/A	MEWS/NEWS2/QSOFA	N/A	NEWS/NEWS2



A world of potential

THANK YOU

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May. 18th, 2023