

Specification: S 8



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Defibrillator/ Monitor

S 8



Standard Configuration:

Manual defibrillation, AED, Pacer, 5-lead ECG, RESP, Thermal Recorder

Optional:

12 p. 12-lead ECG, NIBP, TEMP, PR, EtCO₂, IBP, SPO₂

Safety Standards

ISO 13485:2016 approved, CE marking according to MDD93/42/EEC

Physical Characteristics

Size: 323mm×277mm×338mm

Weight: 7.2 kg

Screen Size: 8.4" TFT screen

9.2 p. Resolution: 800 × 600

Waveforms: 5 waveforms

Operation Environment

Temperature: 0~45°C

Humidity: 10%~95%, non-condensation

Water Resistance: IP44 (without external power)

Solids Resistance: IP4X

Power requirement: 100-240V~, 50/60Hz±1Hz

Battery type: Rechargeable Lithium-ion battery

Battery capacity: 7500mAh, d.c.14.8V

Battery number: Max 2

Battery recharging

Time: Less than 2 hours to 80% and less than 3 hours to 100% with equipment power off

Battery backup: **10 p.** Monitoring Mode: 12 hours;
(Two new, fully charged battery) **7 p.** Defib Mode: 420 times (360J charge at intervals of 1minute without recording); 500 times (200J Pacing Mode: 9 hours (50 Ω load impedance, Pacing rate: 80bpm, Pacing output: 60mA, without recording)

Brightness: Manual from 1 to 100

Indicator:

Two alarm indicators

Power indicator

Battery indicator

Maintain indicator

Error indicator

QRS beep and alarm sound

Operating key sound

Interfacing

16 p. USB interface

RJ45 interface

AC power input

VGA interface

Multi-functional connector

Date storage **16 p.**

Alarm Event: 200 groups

Patient profiles: 1000 groups

Wave Review: 48 hours

NIBP Review: 2000 groups

Trend Graph: 160 hours

Trend Table: 160 hours

ECG report: 500 cases of 12-lead ECG diagnosis report (Up to 5 case reports per patient)

Voice recording: Max 240 min in total; (Up to 60 min for each patient)

Marked events: Available

Power-off storage: Yes

Alarm: User-adjustable High and Low 3-level Limits; Prioritized audible and visual alarm

Network: **16 p.** Connected to Central Monitoring System by hardwire/wireless

Recorder

Type: **11 p.** Built-in; Thermal array

Channel: 4 channel waveforms

Real-time recording: 3s, 5s, 8s, 16s, 32s, Continual

Speed: 25mm/s, 50mm/s

Record width: 80mm

Resolution:	8dot/mm (Horizontal and vertical)	Synchronous Cardioversion:	Energy transfer begins within 60ms of the R wave
Background grid:	Configurable		Energy transfer begins within 25ms of the External Sync signal
External printer:	Yes		
Defibrillator		AED	
Operating mode:	Manual Mode, AED Mode, Synchronous defibrillation	Output Energy:	Aadjustable:100-360J
Waveform:	Biphasic truncated exponential waveform, with impedance compensation	Number of electric shock	Adjustable: once, twice, 3 times
Defibrillation pathway:	External defibrillation & Internal defibrillation	AED maximum time required for cardiac rhythm analysis to be ready for discharge	Battery power supply: 18s
Electrode type:	External defibrillation paddles, multifunctional electrode and internal defibrillation paddles	Types can be AED	AC power supply: 21s
External defibrillation electrode paddles:	Supports charging, discharging and energy selection; Charging completion indicator	Noninvasive Pacing	VF & VT
Charge Time: (Battery power)	Less than 5 seconds to 200 Joules with a new, fully charged battery	Waveform:	Monophasic square wave pulse
Charge Time: (AC power)	Less than 7 seconds to 200 Joules;	Pulse Width:	20 ms
	Less than 11 seconds to 360 Joules	Accuracy:	±5%
Energy accuracy:	±1.5J or ±10% of setting, whichever is greater, while 50 Ω impedance	Pacing Mode:	On-demand or fixed
	±2J or 15% of setting, whichever is greater, while 25 Ω , 75 Ω , 100 Ω , 125 Ω , 150 Ω , 175 Ω impedance	Pacing frequency:	40 ppm to 170 ppm
Patient Impedance Range:	20~250 Ω (External defibrillation); 15~250 Ω (Internal defibrillation)	Accuracy:	±1ppm or ±1.5% (whichever is greater)
Defibrillation proof:	Type CF: ECG, RESP, SpO2, NIBP, IBP, TEMP, PR; Type BF: CO2	Pacing output:	0 mA to 200 mA
Manual Mode		Accuracy:	±5% or ±5mA, whichever is greater
External defibrillators:	1J~360J, 25 types (1/2/3/4/5/6/7/8/9/10/15/20/30/50/70/100/120/150/170/200/220/250/270/300/360J)	Speed-down pacing:	Pacing pulse frequency reduced to 25% of original value.
Internal defibrillation:	1J~50J (1/2/3/4/5/6/7/8/9/10/15/20/30/50J)	12 p. Monitoring ECG	
		Lead Type:	13.1 3 leads ECG, 5 leads ECG, 12 leads ECG, AUTO
		Lead selection:	12-Lead: I; II; III; aVR; aVL; aVF; V1~V6 5-lead: I; II; III; aVR; aVL; aVF; V 3-lead: I; II; III
		Multi-lead synchronization analysis:	Available
		ECG sensitivity:	Auto, 1.25 mm/mV (×0.125), 2.5 mm/mV (×0.25), 5 mm/mV (×0.5), 10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4), Less than ±5%
		Accuracy:	Less than ±5%
		Sweep speed:	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
		Accuracy:	Less than ±10%
		Heart Rate :	Adult: 15~300bpm 13.2 p. Pediatric:15~350bpm Accuracy: ±1bpm

3 p.

5 p.

2 p.

8 p.

12 p.

13.3 p.

12 p.

13.2 p.

Alarm limit range	Adult: High limit: (low limit+2bpm) ~ 300bpm Low limit: 15bpm~ (high limit-2bpm) Pediatric: High limit:(low limit+2bpm) ~ 300bpm Low limit: 15bpm~(high limit-2bpm)
Resolution:	1 bpm
Accuracy:	±1% or ±1bpm (whichever is greater)
Bandwidth:	Monitoring: 0.5~40Hz (-3.0dB~+0.4dB) Diagnosis: 0.05~150Hz (-3.0dB~+0.4dB) Surgery: 1~20Hz (-3.0dB~+0.4dB) ST: 0.05~40Hz(-3.0dB~+0.4dB)
CMRR:	Monitoring: >105dB Diagnosis: >90dB Surgery: >105dB ST: >105dB
Input Impedance:	≥5MΩ
Input signal range:	±8mV
HR trigger threshold	200μV
Lead off detection current:	Measuring electrode: <0.1μV Driving electrode: <1μV
Pacemaker pulse suppression switch:	Manual selection when the pacemaker is turned on
Analog output:	Magnification: 1:1000; Accuracy: ±5% Bandwidth: 0.5Hz~40Hz Delay: ≤35ms
ST Detection:	-2.0mV~+2.0mV
Resolution:	0.01mV
Accuracy:	-0.8mV ~ +0.8mV: ±0.02mV or ±10%; Others: Unspecified
System noise:	Less than 25μV
Calibration voltage	1 mV; Accuracy: ±5%
Arrhythmia Analysis:	26 Types
Pacemaker detection:	Detectable
Defibrillation ECG	
Lead Type:	Single lead ECG

Heart Rate measurement & alarm range:	Adult: 15~300bpm Pediatric:15~350bpm
Resolution:	1 bpm
Accuracy:	±1% or ±1bpm (whichever is greater)
Bandwidth:	Defib: 1~20Hz
CMRR:	Defib: >105dB
Input Impedance:	≥5MΩ
Input signal range:	±8mV
HR trigger value	200μV
Arrhythmia Analysis:	5 Types, ASY, VF, VT, PNC, and PNP (Manual Mode, AED Mode)

6 p.

Respiration

Method:	Thoracic Impedance Method
RR measurement range:	Adult: 0~120rpm Pediatric: 0~150bpm
Accuracy:	7~150rpm: ±2rpm or ±2% (whichever is greater) 0~6rpm: unspecified
Apnea Alarm:	Adult: 10s~60s Ped: 10s~40s
Accuracy:	±5s
Alarm:	Audible and visual alarm; alarm events reviewable

NIBP

Method	Automatic oscillometric
Work mode:	Manual / Automatic/Continuous
Interval Time:	Adjustable 1/2/2.5/3/4/5/10/15/30/60/90/120/180/240/480/720 min
Maximum measurement cycle	Adu/Ped: 120s
Measurement Unit:	mmHg / kPa selectable
Pressure types:	Systolic, Diastolic, Mean
Range of systolic pressure:	Adult Mode: 5.3~36kPa (40~270mmHg) Pediatric Mode: 5.3~26.7kPa (40~200mmHg)
Range of diastolic pressure:	Adult Mode:1.3~28.7kPa (10~215mmHg) Pediatric Mode: 1.3~20kPa (10~150mmHg)
Range of mean pressure:	Adult Mode: 2.7~31.3kPa (20~235mmHg) Pediatric Mode: 2.7~22kPa (20~165mmHg)

15.1

Over pressure protection:	Adult: 297mmHg Pediatric: 240mmHg Tolerance: ± 3 mmHg
Accuracy:	Maximum average deviation: ± 15.2 p.
Resolution:	5mmHgO (± 0.667 Kp) Maximum standard deviation: ± 8 mmHg (± 1.607 kPa)
Alarm limit:	Same as the range of measurement
PR from NIBP:	40bpm~240bpm
Resolution:	1bpm
Accuracy:	$\pm 3\%$ or ± 3 bpm, whichever is greater

Nellcor SpO₂

Measurement range:	0~100%
Resolution:	1%
Accuracy:	$\pm 2\%$ (70~100%, Adu/Ped, non-motion) 1~69% unspecified
Alarm range:	20~100%

PR Measurement	
Range:	20~300bpm
Resolution:	1bpm
Accuracy:	± 3 bpm (20~250bpm) Unspecified (251~300bpm)
Alarm range:	20~350bpm

Masimo SpO₂

Measurement & alarm range:	1~100%
Resolution:	1%
Accuracy:	$\pm 2\%$ (70~100%, Ped/Adu, non-motion) $\pm 3\%$ (70~100%, non-motion); 1~69% unspecified
Alarm range:	1~100%
PR Measurement	
Range:	25~240bpm
Resolution:	1bpm
Accuracy:	$\pm 3\%$ (non-motion) $\pm 5\%$ (motion);
Alarm range:	20~350bpm
PI value: Resolution:	0.02~20% 0.01% (0.02%~9.99%) 0.1% (10.0%~20.0%)
Accuracy:	unspecified
SIQ:	Available

12 p. Comen SpO₂

Measurement & alarm range:	0~100% 14.1 p.
Resolution:	1%
Accuracy:	$\pm 2\%$ (70~100%, Ped/Adu, non-motion) 0~69% unspecified

PR Measurement	
Range:	20~254bpm 14.2 p.
Resolution:	1bpm
Accuracy:	± 2 bpm
Alarm range:	20~350bpm
PI value:	0.05~20%
Resolution:	0.01% (0.05%~9.99%) 0.1% (10.0%~20.0%)
Accuracy:	unspecified
SIQ:	Available

Temperature (Dual Channel)

Measurement & alarm range:	0~50°C
TEMP sensor:	Standard configuration-skin TEMP sensor
Resolution:	0.1°C
Accuracy:	± 0.1 °C (exclusive of error of sensor)
Channel type:	T1, T2, TD (Temperature Difference)

MASIMO EtCO₂ (Sidestream)

Measurement range:	0~190mmHg, 0~25% (at 760mmHg)
Accuracy:	Standard environment 22 ± 5 °C, 1013 ± 40 kPa: 0~15%: $\pm (0.2\% + \text{reading} \times 2\%)$ 15~25%: not defined All environment: $\pm (0.3\text{kPa} + \text{reading} \times 4\%)$
Resolution:	1mmHg or 0.1%
awRR range:	0~150rpm
awRR accuracy:	± 1 rpm
Response time:	< 3 s
Delay time:	< 2s
Respironics EtCO ₂ (Sidestream)	
Measurement range:	0~150mmHg, 0 to 25% (at 760mmHg)

Accuracy: ± 2 mmHg (0 – 40 mmHg)
 $\pm 5\%$ of reading (41 – 70 mmHg)
 $\pm 8\%$ of reading (71 –100 mmHg)
 $\pm 10\%$ of reading (101~150 mmHg)
Resolution: 1mmHg
awRR range 0~150rpm
awRR accuracy: ± 1 rpm
Response time: <240msec (10% to 90%)
Delay time: <2s

IBP

Channel: 2 Channels
Measured Pressure: ART, PA, CVP, RAP, LAP, ICP, LV, AO, UAP, BAP, FAP, UVP, IAP, P1, P2, P3, P4
Measurement Unit: mmHg/ kPa/ cmH2O selectable
15.1 Measurement range: ART: 0~300mmHg
PA: -6~120 mmHg
CVP: -10~40mmHg
RAP: -10~40mmHg
LAP: -10~40mmHg
ICP: -10~40mmHg

LV: 0~300mmHg
AO: 0~300mmHg
UAP: 0~300mmHg
BAP: 0~300mmHg
FAP: 0~300mmHg
UVP: -10~ 40mmHg
IAP: -10~40mmHg
P1, P2,P3,P4: -50~300mmHg
Accuracy: **15.2 p.** $\pm 2\%$ or ± 1 mmHg (whichever is greater)
Resolution: 0.1kPa or 1mmHg (-50mmHg~+300mmHg)
Alarm Range: -50mmHg~+300mmHg
PR from IBP: 20bpm~350bpm
Resolution: 1bpm
Accuracy: $\pm 1\%$ or ± 1 bpm, whichever is greater
PPV/SPV measurement: Available
PAWP measurement: Available

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