

# Defibrillator/Monitor S8



## Standard Configuration:

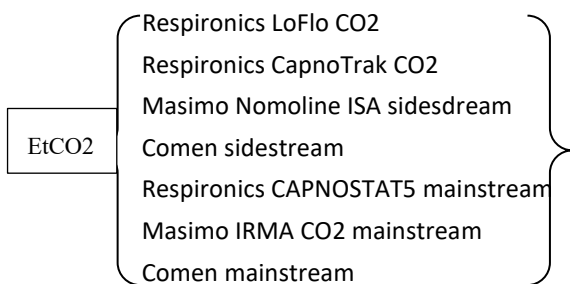
Manual defibrillation, AED, 5-lead ECG, RESP, Thermal Recorder

## Application:

For use in the ICU, surgical rooms, emergency area or during emergency life threatening situations. For adults and pediatrics

## Optional:

12-lead ECG, NIBP, TEMP, PR, EtCO<sub>2</sub>, IBP, SPO<sub>2</sub>, Pacing



Specific parameters refer to the CO<sub>2</sub> module parameter table

## Safety Standards

ISO 13485:2016 approved, CE marking according to MDD93/42/EEC, IEC 60601-1 conformity

## Physical Characteristics

Size:	323mm×277mm×338mm
Weight:	Standard Device: 6.55 kg (without battery) Standard Device + Paddles: 7.2 kg (without battery) Standard Device + Paddles: 7.9kg (with 1 battery)
Screen Size:	8.4" TFT screen
Resolution	800 × 600
Waveforms:	5 waveforms 6 waveforms for 12-lead ECG

## Operation Environment

Temperature:	0~45°C
Atmospheric pressure:	570hpa-1060hpa
Humidity:	10%~95%, non-condensation

Water Resistance:	IP44 (without external power)
Power requirement:	100-240V~, 50/60Hz
Battery type:	Rechargeable Lithium-ion battery
Battery capacity:	5000mAh,dc.14.4V; 7500mAh, d.c.14.8V
Battery number:	Max 2
Battery recharging Time:	Less than 1.5 hours to 80% and less than 2.5 hours to 100% with equipment power off(500mAh)

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

Brightness:	Manual from 1 to 100
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## Indicator:

- Two alarm indicators
- Power indicator
- Battery indicator
- Maintain indicator
- Error indicator
- QRS beep and alarm sound
- Operating key sound

## Interfacing

- USB interface
- RJ45 interface
- AC power input
- VGA interface
- Multi-functional connector

## Date storage

Alarm Event:	200 groups
Patient profiles:	100 groups
Patient Events	1000 groups

Wave Review:	16.6 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:	Connected to Central Monitoring System by hardwire/wireless

### Recorder

Type:	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)
Background grid:	Configurable
External printer:	Yes

### Defibrillation

Operating mode:	Manual Mode, AED Mode, Synchronous defibrillation
Waveform:	Biphasic truncated exponential waveform, with impedance compensation
Defibrillation pathway:	External defibrillation
Electrode type:	External defibrillation paddles, multifunctional electrode (adult and pediatric)
External defibrillation electrode paddles:	Supports charging, discharging and energy selection; Charging completion indicator
Charge Time: (Battery power)	DC: Less than 3 seconds to 200 Joules with a new, fully charged battery; Less than 7 seconds to 360

Joules with a new, fully charged battery	
AC: Less than 4 seconds to 200 Joules with a new, fully charged battery; Less than 8 seconds to 360 Joules with a new, fully charged battery	
Energy accuracy:	±1.5J or ±10% of setting, whichever is greater, while 50 Ω impedance
Patient Impedance Range:	±2J or 15% of setting, whichever is greater, while 25 Ω, 75 Ω, 100 Ω, 125 Ω, 150 Ω, 175 Ω impedance
Defibrillation proof:	20~300 Ω (External defibrillation); 15~300 Ω (Internal defibrillation)
	Type CF: ECG, RESP, SpO2, NIBP, IBP, TEMP, PR;
	Type BF: CO2

### Manual Mode

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)
Synchronous Cardioversion:	Energy transfer begins within 60ms of the R wave
	Energy transfer begins within 25ms of the External Sync signal

### AED

Output Energy:	Adjustable: 100-360J
Number of electric shocks	Adjustable: once, twice, 3 times
AED maximum time required for cardiac rhythm analysis to be ready for discharge	Battery power supply: 18s
Types can be AED	AC power supply: 21s
	VF & VT

### Noninvasive Pacing

Waveform:	Monophasic square wave pulse
Pulse Width:	20 ms or 40ms
Accuracy:	±5%
Pacing Mode:	On-demand or fixed
Pacing frequency:	30 ppm to 210 ppm
Accuracy:	±1ppm or ±1.5% (whichever is greater)
Pacing output:	0 mA to 200 mA
Accuracy:	±5% or ±5mA, whichever is greater

Speed-down pacing: Pacing pulse frequency reduced to 25% of original value.

## Monitoring ECG (leads)

Lead Type: 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 wave gain: Auto, 1.25 mm/mV ( $\times 0.125$ ), 2.5 mm/mV ( $\times 0.25$ ), 5 mm/mV ( $\times 0.5$ ), 10 mm/mV ( $\times 1$ ), 20 mm/mV ( $\times 2$ ), 40 mm/mV ( $\times 4$ )

Accuracy: Less than  $\pm 5\%$

Sweep speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

Accuracy: Less than  $\pm 10\%$

Heart Rate: Adult: 15~300bpm  
Pediatric: 15~350bpm  
Accuracy:  $\pm 1$ bpm

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:  $\pm 1\%$  or  $\pm 1$ bpm (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:  $> 105$ dB  
Diagnosis:  $> 90$ dB  
Surgery:  $> 105$ dB

ST:  $> 105$ dB

Input Impedance:  $\geq 5M\Omega$

Input signal range:  $\pm 8$ mV

HR trigger threshold 200 $\mu$ V

Lead off detection current: Measuring electrode:  $< 0.1\mu$ V

Driving electrode:  $< 1\mu$ V

Pacemaker pulse suppression switch: Manual selection when the pacemaker is turned on

Analog output: Magnification: 1:1000;

Accuracy:  $\pm 5\%$

Bandwidth: 0.5Hz~40Hz

Delay:  $\leq 35$ ms

ST Detection: -2.0mV~+2.0mV

Resolution: 0.01mV

Accuracy: -0.8mV ~ +0.8mV:  $\pm 0.02$ mV or  $\pm 10\%$ ; Others: Unspecified

ST analysis review 20 groups

System noise: Less than 25 $\mu$ V

Calibration voltage 1 mV; Accuracy:  $\pm 5\%$

Arrhythmia Analysis: 26 Types

Pacemaker detection: Detectable

## ECG (paddles)

Lead Type: Single lead ECG

Heart Rate Adult: 15~300bpm

measurement & alarm Pediatric: 15~350bpm

range:

Resolution: 1 bpm

Accuracy:  $\pm 1\%$  or  $\pm 1$ bpm (whichever is greater)

Bandwidth: Defib: 1~20Hz

CMRR: Defib:  $> 105$ dB

Input Impedance:  $\geq 5M\Omega$

Input signal range:  $\pm 8$ mV

HR trigger value 200 $\mu$ V

Arrhythmia Analysis: 5 Types, ASY, VF, VT, PNC, and PNP

## Respiration

Method: Thoracic Impedance Method

RR measurement Adult: 0~120bpm

range: Pediatric: 0 ~150bpm

Accuracy: 7~150bpm:  $\pm 2$ bpm or  $\pm 2\%$  (whichever is greater)

0~6bpm: unspecified

Apnea Alarm: Adult: 10s~60s Ped: 10s~40s

Accuracy:  $\pm 5$ s

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)

Over pressure protection: Adult: 297mmHg  
Pediatric: 240mmHg

Tolerance:  $\pm 3$ mmHg

Accuracy: Maximum average deviation:  $\pm$

Resolution: 5mmHgO ( $\pm 0.667$ Kp)

Maximum standard deviation:  $\pm$

Alarm limit: 8mmHg ( $\pm 1.607$ kPa)

Same as the range of measurement

PR from NIBP: 40bpm~240bpm

Resolution: 1bpm

Accuracy:  $\pm 3\%$  or  $\pm 3$ bpm, whichever is

greater

### Nellcor SpO<sub>2</sub>

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:  $\pm 3$ bpm (20~250bpm)

Unspecified (251~300bpm)

Alarm range: 20~350bpm

### MASIMO SpO<sub>2</sub>

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: 25~240bpm

Range

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

### COMEN SpO<sub>2</sub>

Measurement & alarm

range: 0~100%

Resolution: 1%

Accuracy:  $\pm 2\%$  (70~100%, Ped/Adu, non-

motion)

0~69% unspecified

PR Measurement

Range: 20~254bpm

Resolution: 1bpm

Accuracy:  $\pm 2$ 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

Resolution: 1%

Accuracy:  $\pm 2\%$  (70~100%, Ped/Adu, non-

motion)

1~69% unspecified

Alarm range: 20~100%

PR Measurement

Range: 20~300bpm

Resolution: 1bpm

Accuracy:  $\pm 3$ bpm (20~250bpm)

### 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)

**Respironics EtCO<sub>2</sub> (Sidestream)**

Measurement range: 0~150mmHg, 0to 25% (at 760mmHg)  
 Accuracy: ± 2 mmHg (0 – 40 mmHg)  
 ± 5% of reading (41 – 70 mmHg)  
 ± 8% of reading (71 –100 mmHg)  
 ± 10% of reading (101~150 mmHg)  
 Resolution: 1mmHg  
 awRR range 0~150rpm  
 awRR accuracy: ±1rpm  
 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  
 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: ±2% or ±1mmHg (whichever is greater)  
 Resolution: 0.1kPa or 1mmHg (-50mmHg~+300mmHg)  
 Alarm Range: -50mmHg~+300mmHg  
 PR from IBP: 20bpm~350bpm  
 Resolution:  
 Accuracy: ±1% or ±1bpm, whichever is greater  
 PPV/SPV Available  
 measurement:  
 PAWP measurement: Available

**Cart**

COMEN universal cart

**Accessories**

12Pin 5Lead Clip  
 Connector ECG  
 Cable/Lead  
 replaceable Anti-Defibrillation/IEC  
 MSB Electrodes for 1bpm  
 Adult(pack)  
 Recorder Paper  
 Defibrillation  
 Extension Cable  
 Electrode Extension  
 Wire (For stress testing)  
 Conductive Gel  
 Operation guide  
 User Manual  
 Power Cord

**Warranty**

Comprehensive warranty2 years  
 Spare parts after warranty period5 years  
 MaintenanceAnnually