Specification: S5

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Defibrillator/ Monitor

S5

Standard Configuration:

Manual defibrillation, AED, 3/5-lead ECG, RESP, Thermal Recorder

Optional:

Pacer, NIBP, PR, $EtCO_2$, SpO_2

Safety Standards:

Physical Characteristics

Size:	295mm×252mm×316mm
Weight	5.2kg (Including 1 battery)
Screen Size:	7" TFT screen
Resolution	800 × 480
Waveforms:	Max 4 waveforms

Operation Environment

Temperature:	0~45℃
Humidity:	10%～95%, non-condensation
Atmosphere Pressure:	700hPa~1060hPa
Ingress Protection:	IP44
Power requirement:	100-240V~, 50/60Hz±3Hz
Battery type:	Rechargeable Lithium-ion battery
Battery capacity:	7500mAh, d.c.14.8V 5000mAh, d.c.14.8V
Battery number:	1
Battery recharging Time:	7500mAh Battery: Less than 2 hours to 80% and less than 3 hours to 100% with equipment power off 5000mAh Battery: Less than 1.5 hours to 80% and less than 2.5 hours to 100% with equipment power off
Battery backup:	7500mAh Battery: Monitoring Mode: no less than 6 hours Defib Mode: 210 times (360J charge at intervals of 1minute without recording); Pacing Mode: 4.5 hours (Load:50 Ω, frequency: 80bpm, current: 60mA, without recording) 5000mAh Battery: Monitoring Mode: no less than 4 hours Defib Mode: 120times (360J charge at intervals of 1minute without recording); Pacing Mode: 3hours (Load:50 Ω, frequency: 80bpm, current: 60mA, without recording)
Brightness:	Manual from X to 100, X refers to the darkest brightness (X is 10 by default)

Indicator

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

Interfacing

USB interface
RJ45 interface
AC power input
Multi-functional connector

Date storage

Alarm Event:	200 groups
Patient profiles:	100 groups
Patient Events:	1000 groups
Wave Review:	10min
NIBP Review:	2000 groups
Trend Graph:	160 hours
Trend Table:	160 hours
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:	Max 3 channel waveforms
Real-time recording:	3s, 5s, 8s, 16s, 32s, Continual
Speed:	6.25mm/s, 12.5mm/s, 25mm/s, 50mm/s
Record width:	50mm
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
External defibrillation electrode paddles:	Supports charging, discharging and energy selection; Charging completion indicator
Charge Time: (Battery power)	Less than 3 seconds to 200 Joules with a new, fully charged battery Less than7 seconds to 360 Joules with a new, fully charged battery
Charge Time: (AC power)	Less than4 seconds to 200 Joules; Less than 8 seconds to 360 Joules
Energy accuracy:	±1.5J or ±10% of setting, whichever is greater, while 50Ω impedance ±2J or 15% of setting, whichever is greater, while 25Ω, 75Ω, 100Ω, 125Ω, 150Ω, 175Ω impedance
Patient Impedance Range:	20~300Ω (External defibrillation);
Defibrillation proof:	Type CF: ECG, RESP, SpO_2, NIBP, PR; Type BF: $EtCO_2$

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 from internal Sync signal Energy transfer begins within 25ms of the External Sync signal

AED

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

Noninvasive Pacing

Waveform:	Monophasic square wave pulse
Pulse Width:	20ms 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, AUTO
Lead selection:	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),

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 Pediatric:15~350bpm Accuracy: ±1bpm or ± 1%(whichever is greater)
Alarm limit range	Adult: High limit: (low limit+2bpm) ~ 300bpm Low limit: 15bpm~ (high limit-2bpm) Pediatric: High limit:(low limit+2bpm) ~ 350bpm Low limit: 15bpm~(high limit-2bpm)
Resolution:	1 bpm
Accuracy:	±1bpm
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 (-20.0mm~+20.0mm)
Resolution:	0.01mV
Accuracy:	-0.8mV ~ +0.8mV: ±0.02mV or ±10%; Others: Unspecified
ST analysis review	20 groups
System noise:	Less than 25μV
Calibration voltage	1 mV; Accuracy: ±5%
Arrhythmia Analysis:	26 Types
Pacemaker detection:	Detectable

ECG (paddle)

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 (-3dB~+0.4dB)
CMRR:	Defib: ＞105dB
Input Impedance:	≥5MΩ
Input signal range:	±8mV
HR trigger value	200μV
Arrhythmia Analysis:	5 Types, ASY, VF, VT, PNC, and PNP

Respiration

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

COMEN 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 Continuous: 5min
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: 39.6kPa (297mmHg) Pediatric: 32kPa (240mmHg)
Accuracy:	Tolerance: ±0.4kPa (±3mmHg) ±±0.667kPa (±5mmHg), if exceeds the above range, the monitor can still display normally, but the accuracy is not considered
Alarm limit:	Same as the range of measurement
PR from NIBP:	40~240bpm
Resolution:	1bpm
Accuracy:	±3% or ±3bpm, whichever is greater

SunTech NIBP

Regulatory compliance:	YY 0670-2008
Initial inflation range:	Adult: 16~37.3kPa (120~280mmHg) Pediatric: 10.7~22.7kPa (80~170mmHg)
Maximum measurement cycle:	Adult: 130s Pediatric: 90s
Over pressure protection:	Adult/Pediatric: 40.0kPa (300mmHg)
Static pressure measurement range:	0kPa~40.0kPa (0mmHg~300mmHg)
Resolution:	±0.4kPa (±3mmHg)
Range of systolic pressure:	Adult: 5.3~34.7kPa (40~260mmHg) Pediatric: 5.3~21.3kPa (40~160mmHg)
Range of diastolic pressure:	Adult: 2.7~26.7kPa (20~200mmHg) Pediatric: 2.7~16kPa (20~120mmHg)
Range of mean pressure:	Adult:3.5~29.3kPa (26~220mmHg) Pediatric: 3.5~17.7kPa (26~133mmHg)
PR from NIBP	30~220bpm
Accuracy:	±2% or ±3bpm, whichever is greater

Nellcor SpO_2

Measurement range:	0~100%
Resolution:	1%
Accuracy:	±2% (70~100%, Adu/Ped, non-motion) 1~69% unspecified
Alarm range:	20~100%
PR Measurement	
Range:	20~300bpm
Resolution:	1bpm
Accuracy:	±3bpm (20~250bpm) Unspecified (251~300bpm)
Alarm range:	20~350bpm

MASIMO SpO_2

Measurement & alarm range	1~100%
Resolution:	1%
Accuracy:	±2% (70~100%, Ped/Adu, non-motion) ±3% (70~100%, motion); 1~69% unspecified
Alarm range	1~100%
PR Measurement	
Range	25~240bpm
Resolution:	1bpm
Accuracy:	±3bpm (non-motion) ±5bpm (motion);
Alarm range:	20~350bpm
PI value:	0.02~20%
Resolution:	0.01% (0.02~9.99%) 0.1% (10~20%)
SIQ:	Available

COMEN SpO_2

Measurement & alarm range:	0~100%
Resolution:	1%
Accuracy:	±2% (70~100%, Ped/Adu, non-motion) 0~69% unspecified
PR Measurement	
Range:	20~254bpm
Resolution:	1bpm
Accuracy:	±2bpm

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

MASIMO $EtCO_2$ (Sidestream)

Measurement range:	0~190mmHg, 0~25vol% (at 760mmHg)
Accuracy:	Standard environment 22±5℃, 1013±40kPa: a) 0~114mmHg: ±(1.52mmHg+reading×2%) b) 114~190mmHg: not defined All environment: a) 0~114mmHg: ±(2.25mmHg+reading×4%) b) 114~190mmHg: not defined
Resolution:	1mmHg or 0.1% or 0.1kPa
awRR range:	0~150rpm
awRR accuracy:	±1rpm
Response time:	＜3 s

Respironics $EtCO_2$ (Sidestream)

Measurement range:	Loflow: 0~150mmHg, 0~19.7%, (0~20kPa) (at 760mmHg) CapnoTrak: 0~99mmHg, 0~13.03%, 0~13.2kPa (at 760mmHg)
Accuracy:	Loflow: ± 2mmHg (0~40mmHg) ± 5% of reading (41 – 70mmHg) ± 8% of reading (71 –100mmHg) ±10% of reading (101~150mmHg) (In 25℃, if RR＞80rpm, accuracy is 12% of reading) CapnoTrak: ±2mmHg (0~38mmHg) ±10% of reading (38~99mmHg) RR influence to $EtCO_2$ (0~99mmHg): -2~0.5mmHg (0-40bpm) (-6% of reading)~0.5mmHg (41-70bpm) (-14% of reading)~0.5mmHg (71~100bpm)
Resolution:	1mmHg
awRR range	Loflow: 2~150rpm CapnoTrak: 0, 2~100rpm
awRR accuracy:	±1rpm