BeneHeart D60

Defibrillator / Monitor

3.1.

Physical Specifications

Dimension	Paddle version: 275 mm (w) × 160 mm (d) × 280 mm (h), without external paddles Pad version: 275mm (w) × 155 mm (d) × 280 mm (h)
Weight	4.3 kg (the equipment is configured with AC power input, 3/5-lead ECG and manual defibrillation) 3.9 kg (the equipment is configured with DC power input, 3/5-lead ECG, manual defibrillation but without the paddle tray)

3.1.27.1.

Environmental and Physical Requirements

Water resistance	IPX5
Solids resistance	IP5X
Temperature	Operating: -20 to 55 °C Storage: -40 to 75 °C
Humidity	Operating/storage: 5 to 95 % (non-condensing)
Altitude	Operating/storage: -382 m to +4575 m
Shock	Meets the requirements for medical devices of 6.3.4.2, EN1789 (10.1.3, IEC60601-1-12), RTCA-DO-160G-2010, Section 7
Vibration	Meets the requirements for medical devices of 6.3.4.2, EN1789 (10.1.3, IEC60601-1-12), 10.1.4, IEC60601-1-12, MIL-STD-810G, method 514.6, helicopter-category 14 and ground vehicle-category 20
Bump	Meets the requirements of 6.3.4.2, EN1789
Free fall	1 fall on each surface (6 surfaces in total), at the height of 1.5 m 1 fall from the normal operation position of the equipment configured with a carry case, at the height of 3.0 m
EMC	Meets IEC60601-1-2
Safety	Meets EN/IEC 60601-1

3.1.26.

3.1.14.1

Display

Type	LCD color capacitive touch display, protected by tempered glass
Dimensions	9 in
Resolution	1200 × 1020 pixels
Display waveforms	Max. 7 channels
Wave viewing time	Max. 36 s (ECG)
Sweep Speed	ECG/SPO2: 6.25, 12.5, 25, 50mm/s RESP/CO2: 3, 6.25, 12.5, 25, 50mm/s
Trace Freeze	Yes
Screenshot	Yes
High Contrast Mode	Yes
Auto-brightness	Yes
Gesture control	Yes

3.1.14.2.

3.1.21.

3.1.15.1.

3.1.21

Power

AC Power

Line voltage	100 to 240 V
Current	1.8 to 0.8 A

Frequency	50/60 Hz

DC Power (DC version)

Input voltage	18 V 12-30.3V, with transport dock
Input current	7.2 A max 15.5 to 6.5A, with transport dock

Battery

Type	4500 mAh, rechargeable lithium ion battery pack
Number	DC version: max. 2 AC version: max. 1
Charge time	Less than 3 hours to 90% and less than 4 hours to 100% with equipment power off
Capacity indicator	5-segment led indicator for fast battery capacity evaluation
Capacity (new, fully charged battery)	Monitoring mode: 6.5 hours, configured with 3-/5-lead ECG, manual defibrillation, screen brightness set to the lowest level without printing Defib mode: 220 times, 360 J discharge at intervals of 1 minute without recording Pacing mode: 4.5 hours, 50 Ohm load impedance, pacing rate: 80 bpm, pacing output: 60 mA

Recorder

3.1.23.

Method	High-resolution thermal dot array
Waveforms	Max. 6 channels
Speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Paper width	110 mm
Reports	Real-time waveforms, ST real-time, QT real-time, event real-time, physiological alarm, frozen waveforms, tabular trends review, graphic trends review, physiological event review, full disclosure review, 12-lead analysis review, rescue record, event summary, auto test, and configuration
Auto recording	Recorder can be configured to record marked events, charge, shock, alarm, auto test

3.1.23.

3.1.24.

Data Storage

Internal storage	4 GB
Events	Up to 1000 events for one patient
Waveform storage	Up to 120 hours of consecutive ECG waveform
Tabular trends	200 hours, resolution: 1 min
Voice recording	At least 8 hours for each patient
Data export	Data can be exported to PC through USB flash memory

Defibrillator

3.1.1

Waveform	Biphasic truncated exponential waveform, with impedance compensation
Energy accuracy	±2 J or 10 % of setting, whichever is greater
Power on time	Less than 2 seconds with a new, fully charged battery
Charge time	Less than 3 seconds to 200 J with a new, fully charged battery

	Less than 7 seconds to 360 J with a new, fully charged battery
ECG recovery time	Less than 2.5 seconds
Shock delivery	Via multifunction defib electrode pads, or paddles
Patient impedance Range	25 to 300 Ω (external defibrillation)

2-200 J diapazone keitimo žingsnis 1;5;20;30

3.1.3.1.
Manual Mode

3.1.2.2. **3.1.2.1.** Output energy	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 50, 70, 100, 120, 150, 170, 200, 300, 360 J
3.1.3.2. Synchronous cardioversion	Energy transfer begins within 60 ms of the QRS peak
	Energy transfer begins within 25 ms of the external sync pulse

3.1.3.3. **AED Mode**

Output energy	User configurable
AED shock series	Energy level: 100 to 360J, configurable for adult; 10 to 200J, configurable for pediatric
3.1.8	Shocks: 1, 2, 3, configurable
	Meets 2020 AHA/2021 ERC guidelines by default
Time from rhythm analysis to charge done	Initial analysis: 10s Non-initial analysis: 8s
AED Mode Monitor Parameters	ECG, SPO2, CO2, NIBP, filtered ECG, CPR feedback, CCF, CQI
Sensitivity and specificity	Meets IEC 60601-2-4 and AHA recommendation

Noninvasive Pacing

Waveform	Monophasic square wave pulse
Pulse width	20 ms or 40 ms, ±5 %
Refractory period	200 to 300 ms, ±3 % (function of rate)
Pacing mode	Demand or fixed
Pacing rate	30 ppm to 210 ppm, ±1.5 %
Pacing output	0 mA to 200 mA, ±5 % or 5 mA, whichever is greater
4:1 pacing	Pacing pulse frequency reduced by factor of 4 when activated

ECG   **3.1.16.1.**

Lead type	3 leads ECG, 5 leads ECG, 12 leads ECG
Lead selection	3-lead: I, II, III
	5-lead: I, II, III, aVR, aVL, aVF, V
	12-lead: I, II, III, aVR, aVL, aVF, V1 to V6 **3.1.17.**
3.1.16.5. Heart rate display	Adult: 15 to 300 bpm
	Pediatric: 15 to 350 bpm
	Neonate: 15 to 350 bpm
Resolution	1 bpm
Arrythmia	Yes **3.1.18.4.**
Alarms	Yes
3.1.15.2 ST/QT monitoring	Yes
ECG size	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), Auto
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Myocardial infraction (MI) location diagram	Yes

3.1.16.7.
Respiration

Method	Trans-thoracic impedance
Range	Adult: 0 to 200 rpm
	Pediatric, neonate: 0 to 200 rpm
Resolution	1 rpm

SpO₂ Pulse Oximetry   **3.1.16.2.**

Mindray SpO₂

Range	0 to 100 %
Resolution	1 %
PR range	20 to 300 bpm

Nellcor SpO₂

Range	0 to 100 %
Resolution	1 %
PR range	20 to 300 bpm

Masimo SpO₂   **3.1.16.2.**

Range	1 to 100 %
Resolution	1 %
PR range	25 to 240 bpm

NIBP   **3.1.16.3.**

Operating mode	Manual, Auto, STAT, Sequence
Static pressure range	0 to 300 mmHg
Displayed pressures	Systolic, Diastolic, Mean
Cuff inflation pressure (default)	Adult: 160 mmHg
	Pediatric: 140 mmHg
	Neonate: 90 mmHg
PR Range	30 to 300 bpm

CO₂   **3.1.16.6.**
Sidestream CO2

Measurement range	0 to 150 mmHg
Resolution	1 mmHg
awRR measurement range	0 to 150 rpm
awRR accuracy	0 to 60 rpm: ±1 rpm
	61 to 150 rpm: ±2 rpm
Sample Flowrate	50ml/min

Temperature   **3.1.16.8**

Parameter	T1, T2, TD
Range	0 to 50 °C (32 to 122 °F)
Resolution	0.1 °C
Infrared ear temperature	Can be obtained via NFC

IBP   **3.1.16.4.**

Channels	2
Zero adjustment range	±200 mmHg
Resolution	1 mmHg
Sensitivity	5 μV/V/mmHg
Measurement range	-50 to 360 mmHg

CPR Feedback

Parameters Monitored	From CPR sensor*: rate, depth, recoil, compression fraction (CCF), interruption time
	From pads: rate, interruption time
	From Mindray SPO2: rate, CCF, interruption time, Compression Quality Index (CQI)
CPR Metronome	Yes
CPR countdown	Yes
CPR filter	Yes

CPR Sensor*

Weight	Approximately 180 g (without battery)
Thickness	17.5 to 19 mm
Compression depth	Measurement range: 0 to 8 cm
	Accuracy: ±5 mm or 10 %, whichever is greater
Compression rate	Measurement range: 40 to 160 cpm
	Accuracy: ±2 cpm

Point-of-care Ultrasound

Probe type	**Phased array, 2.0-4.0 MHz**
Probe weight	**260±10 g**
Application	**Supports adjusting gain, depth, TGC**
	Supports freezing, playing and saving the images
	Supports reviewing, printing and sending the reports
	Provides step-by-step trauma identification, operation guide and reference image

Scoring & Warning Tools

Scoring type	**GCS, P-GCS score**
	NEWS, MEWS, NEWS2 score
	HEART score
TBI warning	**Provides trend and warning prompts for SPO2, EtCO2, SBP and GCS score**

Network

Data connection	**Wired, Wi-Fi, 4G, Bluetooth***
Data transmission	
Patient data	**In-hospital: sends real-time data to CMS or HL7 service via Wi-Fi or wired network**
	Pre-hospital: sends real-time data to CMS via 4G network, to third-party ePCR via Bluetooth* (connecting with medical pad)
Device data	**Sends device data (such as auto test report, battery status, etc.) to the device management system via Wi-Fi or wired network**

* Some of functions marked with an asterisk may not be available. Please contact your local Mindray sales representative

for the most current information.

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