BeneHeart D60

Defibrillator / Monitor

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)

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

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

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 Amax 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

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

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

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	25 to 300 Ω (external defibrillation)
Range	
Manual Mode	
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
Synchronous cardioversion	Energy transfer begins within 60 ms of the QRS peak Energy transfer begins within 25 ms of the external sync pulse
AED Mode	
Output energy	User configurable
AED shock series	Energy level: 100 to 360J, configurable for adult; 10 to 200J, configurable for pediatric 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

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
Heart rate display	Adult: 15 to 300 bpm Pediatric: 15 to 350 bpm Neonate: 15 to 350 bpm
Resolution	1 bpm
Arrythmia	Yes
Alarms	Yes
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

Respiration

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

SpO_2 Pulse Oximetry

Mindray SpO_2	
Range	0 to 100 %
Resolution	1 %
PR range	20 to 300 bpm
Nellcor SpO_2	
Range	0 to 100 %
Resolution	1 %
PR range	20 to 300 bpm
Masimo SpO_2	
Range	1 to 100 %
Resolution	1 %
PR range	25 to 240 bpm

NIBP

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

CO_2

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

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

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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