# BeneHeart D60

## Defibrillator / Monitor

### Physical Specifications

| | |
|---|---|
| Dimension | Paddle version: 275 mm (w) × 160 mm (d) × 280 mm (h), without external paddles<br>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)<br>3.9 kg (the equipment is configured with DC power input, 3/5-lead ECG, manual defibrillation but without the paddle tray) |

1.3.

### Environmental and Physical Requirements

| | |
|---|---|
| Water resistance | IPX5 |
| Solids resistance | IP5X |
| Temperature | Operating: -20 to 55 °C<br>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<br>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 |

vibracija

sraigtasparnio kategorija 14

11.

### Display

Ekranas

| | |
|---|---|
| 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<br>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 |

Matmenys: 9 coliai

### Power

Energija

9.

**AC Power**

Elektros tinklas

| | |
|---|---|
| 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<br>12-30.3V, with transport dock |
| Input current | 7.2 Amax<br>15.5 to 6.5A, with transport dock |

9.

**Battery**

Baterija

| | |
|---|---|
| Type | 4500 mAh, rechargeable lithium ion battery pack |
| Number | DC version: max. 2<br>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<br>Defib mode: 220 times, 360 J discharge at intervals of 1 minute without recording<br>Pacing mode: 4.5 hours, 50 Ohm load impedance, pacing rate: 80 bpm, pacing output: 60 mA |

7.

### Recorder

Spaudintuvas

| | |
|---|---|
| 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 Range | 25 to 300 Ω (external defibrillation) |

2.1. **Manual Mode** Rankinis režimas

| | |
|---|---|
| 4. 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 |
| Energija | |
| Synchronous cardioversion | Energy transfer begins within 60 ms of the QRS peak<br>Energy transfer begins within 25 ms of the external sync pulse |

2.3. **AED Mode** Automatinis režimas

| | |
|---|---|
| Output energy | User configurable |
| AED shock series | Energy level: 100 to 360J, configurable for adult; 10 to 200J, configurable for pediatric<br>Shocks: 1, 2, 3, configurable |
| Time from rhythm analysis to charge done | Meets 2020 AHA/2021 ERC guidelines by default<br>Initial analysis: 10s<br>Non-initial analysis: 8s |

AED režimas monitoruoja: EKG, SPO2, CO2, NIK;EKG;CPR

2.3. 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 |

neinvazinis stimuliacija

2.2. **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 |

1. **ECG** EKG

| | |
|---|---|
| Lead type | 3 leads ECG, 5 leads ECG, 12 leads ECG |
| Lead selection | 3-lead: I, II, III<br>5-lead: I, II, III, aVR, aVL, aVF, V<br>12-lead: I, II, III, aVR, aVL, aVF, V1 to V6 |
| Heart rate display | Adult: 15 to 300 bpm<br>Pediatric: 15 to 350 bpm<br>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<br>Pediatric, neonate: 0 to 200 rpm |
| Resolution | 1 rpm |

1. **$SpO_2$ Pulse Oximetry** SpO2

**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 |

1. **NIBP** neinvazinis kraujospūdis

| | |
|---|---|
| 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<br>Pediatric: 140 mmHg<br>Neonate: 90 mmHg |
| PR Range | 30 to 300 bpm |

1. **$CO_2$**

**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<br>61 to 150 rpm: ±2 rpm |
| Sample Flowrate | 50ml/min |

1. **Temperature** temperatūra

| | |
|---|---|
| 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 |

1. **IBP** invazinis kraujospūdis

| | |
|---|---|
| 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<br>From pads: rate, interruption time<br>From Mindray SPO2: rate, CCF, interruption time, Compression Quality Index (CQI) |
| CPR Metronome | Yes |
| CPR countdown | Yes |
| CPR filter | Yes |

**CPR Sensor (Reusable Version) ***

| | |
|---|---|
| Weight | Approximately 180 g (without battery) |
| Thickness | 17.5 to 19 mm |
| Compression depth | Measurement range: 0 to 8 cm<br>Accuracy: ±5 mm or 10 %, whichever is greater |
| Compression rate | Measurement range: 40 to 160 cpm<br>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<br>Supports freezing, playing and saving the images<br>Supports reviewing, printing and sending the reports<br>Provides step-by-step trauma identification, operation guide and reference image |

## Scoring & Warning Tools

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

## Network

| | |
|---|---|
| Data connection | Wired, Wi-Fi, 4G, 5G, Bluetooth* |
| Data transmission | |
| Patient data | In-hospital: sends real-time data to CMS or HL7 service via Wi-Fi or wired network<br>Pre-hospital: sends real-time data to CMS via 4G/5G 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.

**www.mindray.com**

P/N: ENG-D60 Datasheet -210285X2P-20250120



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healthcare within reach

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# BeneHeart D60

Defibrillator Monitor

# Expand Rescue Potential


www.mindray.com

P/N:ENG-BeneHeart D60-210285X12P-20230109



mindray

healthcare within reach


**Ultra-light**
Only 4.2kg (with battery), over 25% deduction*

**All in one**
Manual defib /AED /pacing
ECG /$SPO_2$ /NIBP/ $CO_2$ /IBP /TEMP

**Magnetic connector**
Automatically attracted to connect, no precise alignment is required

**Versatile paddles**
External paddles with contact indicator improve usability for clinicians

**Status indicator**
Clear status at a glance with comprehensive auto-test

**6-channel printer**
Paper width 110 mm for up to 6 curves

* D60 Elite version

# Smart Touch, More Intuitive

## Capacitive Full Touch

With advanced high-definition capacitive touch screen technology and flat UI design, D60 offers optimal experience of clearer display and smoother operation, enabling efficiency at your fingertips.

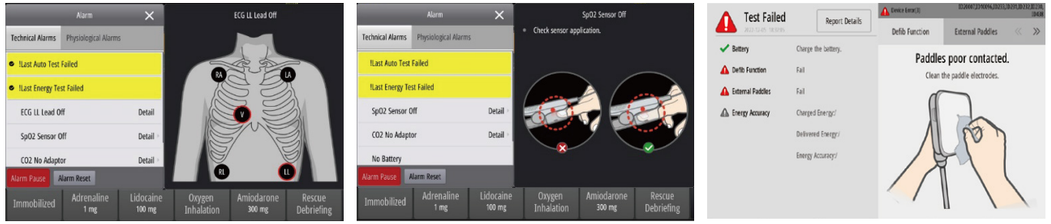

**Optimal visibility**
- First 9" display with1200 x 1020 resolution
- Auto-brightness

**Confident operation**
- Gesture-control touchscreen
- Keep physical knob and buttons for key operations

**Wide adaptability**
With the intelligent sensing, you can operate D60 normally, even if
- the screen is spilled with liquid
- wearing up to 5 layers of gloves

## Visual AlarmSight™

D60 provides a series of problem-solving support with graphical visualization, not only alerting you to the problems, but also suggesting solutions to help resolve them simply.

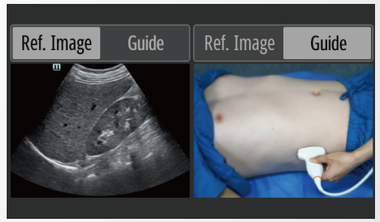



# One Device with Multi-talent

In the face of unpredictable rescue, you often hope to provide more on-site diagnosis and analysis for patients to give treatments as soon as possible, but various devices make your rescue journey unbearable. This is why we have given D60 more diagnosis and analysis technologies. It is not only a defibrillator/monitor, but also a 12-lead ECG machine, a point-of-care ultrasound, an infrared ear thermometer, and a set of scoring and early warning tools.

## Point-of-care Ultrasound (POCUS)

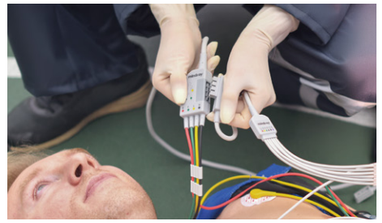
- Step-by-step trauma identification (FAST/eFAST)
- Reference images help quickly detect abnormalities by scanning comparison
- Operation guides show how to properly place the probe




- High-quality images with excellent resolution for accurate decision-making
- Support heart, lung, abdominal examination, no need to carry extra probes

## Professional 12-lead ECG Analysis

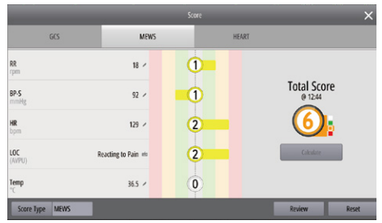
- Special 12-lead ECG accessories: integrated 4 limb leads + removable 6 chest leads, more flexible for both monitoring and resting analysis.
- Connection status indicator automatically displays to help find the disconnected leads



- Critical value & Mi location help quickly judge the risk situation of patients with chest pain
- Comparing two ECG reports on one screen allows to easily observe abnormal changes

## Scoring & Early Warning Tools

- Support GCS/EWS/HEART scoring
- Help to fast obtain the severity of the patient and detect the risk of deterioration in time




- TBI (Traumatic Brain Injury) warning combined with GCS and vital signs ($SpO_2$ \$ETCO_2$ \SBP) monitoring
- More effective management of TBI patients to ensure better prognosis

# Rescue Triangle, More Comprehensive

High-quality rescue requires the resuscitation team to maintain the high quality and effectiveness of cardiopulmonary resuscitation during the rescue process. It also relies on timely, regular review and analysis of the rescue data and rescue quality that help identify the highlight for routine rescue training and assessment. Only by combining and advancing the three-in-one solution can the quality of rescue and the survival rate of SCA patients be improved.

## QShock™ -Faster Time to Shock

In line with the BeneHeart series, D60 is also equipped with new QShock™ technology, taking less than 5s from power on to shock.

Power on in **2**s → Charging to 200J in **3**s → ECG recovery in **2.5**s

## Shorter Interruption

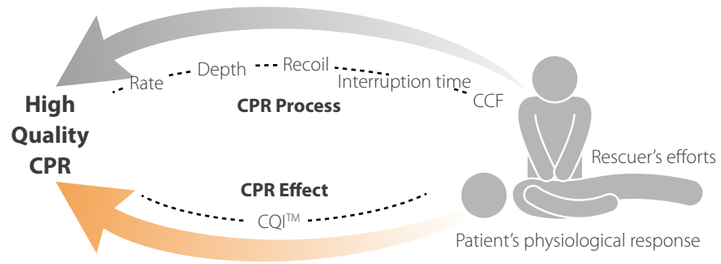
Mindray has developed state-of-the-art technologies that can filter out the compression interference for both ALS and BLS, to effectively reduce pauses in recognizing heart rhythm*.

**Raw ECG with compression interference**

**Filtered ECG without compression interference**

## CPR Feedback of both Process & Effect

With the CPR process feedback monitoring the real-time performance of rescuers, and the effect evaluation reflecting patients' responses to the rescue, D60 provides a comprehensive assessment of CPR to obtain a satisfactory resuscitation result.




-Based on Mindray $SpO_2$.
-Real-time, feasible, and noninvasive index quantifying the quality of CPR

**More Complete Process Evaluation Tech**

**+**

**Groundbreaking Effect Evaluation Tech**

* Only available when you perform CPR using defib pads or the CPR sensor.


## Structured Debriefing

D60's structured debriefing protocols improve the performance of resuscitation teams in subsequent resuscitation events.

- The key data of each rescue is automatically uploaded to the debriefing system.
- CPR quality and defibrillation data included
- Not only post-event analysis, but also periodic review


## Hands-on Training

- Training mode in D60 help you get real operation experience.
- Both single and multi-person mode are available.
- Support CPR and defib operation training


# Redefine Toughness with Innovation

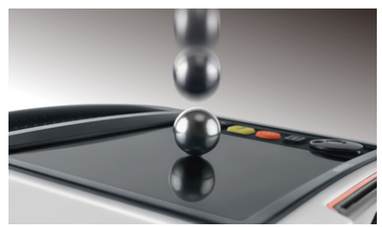
Lightweight, compact and sturdy, this is Mindray's new generation of high-end defibrillator /monitor D60. Powered by innovative technologies, D60 is designed to withstand demanding environmental conditions, fighting side by side with you anywhere, anytime.

Meets all standards for helicopter and other transport

Operate in temperatures ranging from -20°C up to +55°C, fearless of any extreme challenge

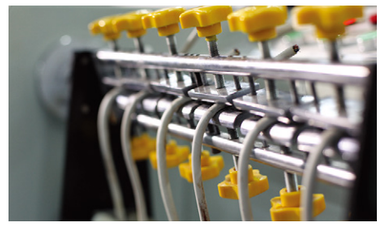

- IP55 water-/dust-proof
- More durability when using common cleaners and disinfectants (up to 49 kinds)


Touch screen protected by the latest version of Corning®'s tough glass, thinner but stronger



6-surface 1.5m drop protection without carrycase, 3m with carrycase

- Bend-resistant defib cable, withstanding more than 400,000 bending tests
- Extremely tight interface connection, even if the pulling force exceeds 100kg, it will not fall off



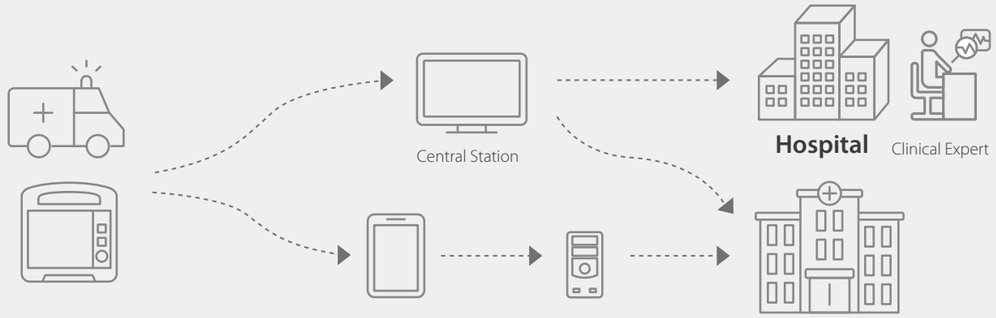
- Thick, ultra-durable carrycase, made of special ballistic nylon fabric which often used in flak jackets

# Keep Connected with Greater Efficient

A defibrillator contains rich data resources, not only the patient data that medical staff are concerned about, but also device status that managers need to know. In the past, due to the lack of systematic solutions, it was difficult to effectively and comprehensively manage such information, and the defibrillator became an "data silos". M-Connect™ IT solutions are designed to help you solve this problem.

## Pre-hospital IT Solution

M-Connect™ IT solution for pre-hospital scenario enables the data transmission between remote vehicle and in-hospital department in real time, helping medical staff to diagnosis and prepare in advance.




**Flexible data transfer**

D60 can not only send patient data to the CMS service remotely via 4G, but also connect the medical pad via Wi-Fi or Bluetooth to send the data to the ePCR system.

**Pre-arrival Clinical Data**

Pre-arrival patient data such as real-time vital signs, 12-lead report, and ultrasound report can be sent to the target hospital when patient is in transport.

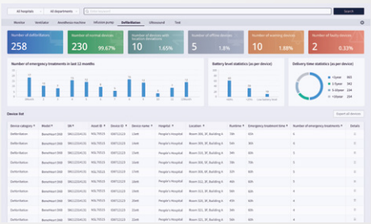
## In-hospital IT Solution

M-Connect™ IT solution integrates the patient data from D60 to avoid manual recording errors and allows flexible viewing of patient data on mobile devices anytime, anywhere. Its simple yet robust network connection is compatible with standard information infrastructure in most hospitals.


## M-IoT Device Manager

M-IoT Device Manager obtains comprehensive device data to help biomedical engineers ensure the safety and effectiveness of all equipment at all times.

- Real-time failure monitoring and guidance for timely maintenance, reducing equipment downtime
- Battery status monitoring to ensure patient safety by limiting interruptions
- IP/MAC address for network access control to ensure cybersecurity



*Pictures and function descriptions are for reference only. For actual configuration, please consult Mindray's sales staff.*

# BeneHeart D60/BeneHeart D50A

# BeneHeart D50/BeneHeart D50C

# Defibrillator/Monitor

# Operator’s Manual

| Power supply | Manual Defib | | | | | | AED | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Charge time* | | From initial power on (from cold start) to charge done | | From initial power on (from fast startup mode) to charge done | | From initiation of rhythm analysis to charge done | | From initial power on (from cold start) to charge done | | From initial power on (from fast startup mode) to charge done | |
| | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** |
| With a new fully charged battery | <3 s | <7 s | <11 s | <14 s | <6 s | <10 s | <10 s | <12 s | <21 s | <26 s | <13 s | <15 s |
| With a new fully charged battery, depleted by 15 discharges of 360 J | <4 s | <8 s | <12 s | <15 s | <7 s | <11 s | <11 s | <13 s | <23 s | <27 s | <14 s | <16 s |
| With an external power supply | <4 s | <7 s | <11 s | <14 s | <7 s | <10 s | <11 s | <12 s | <22 s | <24 s | <14 s | <15 s |
| * The battery is charged at ambient temperature of 20 ±5 °C. | | | | | | | | | | | | |

**NOTE**

- **The equipment startup time in the fast startup mode is less than 2s.**

## A.7.2 CPR Compression Specifications

### Compressions from CPR Sensor

| | |
|---|---|
| Compression rate | Measurement range: 40 to 160 cpm<br>Accuracy: ±2 cpm |

### Compressions from Electrode Pads

| | |
|---|---|
| Compression rate | Measurement range: 60 to 200 cpm<br>Accuracy: ±3 cpm |

## A.7.3 Pacer Specifications

| | |
|---|---|
| Standards | Meet standards of IEC 60601-2-4 |
| Pacer mode | Demand, fixed |
| Output waveform | Monophasic square wave pulse<br>pulse width 20 ms or 40 ms<br>Accuracy: ±5% |
| Pacing rate | 30ppm to 210ppm<br>Accuracy: ±1.5%<br>Resolution: 5 ppm |
| Pacing output<br>Stimuliacijos srovė | 0mA to 200mA,<br>Accuracy: ±5% or ±5mA, whichever is greater<br>Resolution: 1mA, 2mA or 5mA Žingsnis: 1 mA |
| Refractory period | 200 to 300 ms (depending on pacing rate) |
| 4:1 pacing | Pacing pulse frequency reduced by factor of 4 when this function is activated. |

Įsikrovimas iki 200 J mažiau nei 3 sekundės

5.

| Power supply | Manual Defib | | | | | | AED | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Charge time* | | From initial power on (from cold start) to charge done | | From initial power on (from fast startup mode) to charge done | | From initiation of rhythm analysis to charge done | | From initial power on (from cold start) to charge done | | From initial power on (from fast startup mode) to charge done | |
| | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** | **200J** | **360J** |
| With a new fully charged battery | <3 s | <7 s | <11 s | <14 s | <6 s | <10 s | <10 s | <12 s | <21 s | <26 s | <13 s | <15 s |
| With a new fully charged battery, depleted by 15 discharges of 360 J | <4 s | <8 s | <12 s | <15 s | <7 s | <11 s | <11 s | <13 s | <23 s | <27 s | <14 s | <16 s |
| With an external power supply | <4 s | <7 s | <11 s | <14 s | <7 s | <10 s | <11 s | <12 s | <22 s | <24 s | <14 s | <15 s |
| * The battery is charged at ambient temperature of 20 ±5 °C. | | | | | | | | | | | | |

**NOTE**

- **The equipment startup time in the fast startup mode is less than 2s.**

## A.7.2 CPR Compression Specifications

### Compressions from CPR Sensor

| | |
|---|---|
| Compression rate | Measurement range: 40 to 160 cpm<br>Accuracy: ±2 cpm |

### Compressions from Electrode Pads

| | |
|---|---|
| Compression rate | Measurement range: 60 to 200 cpm<br>Accuracy: ±3 cpm |

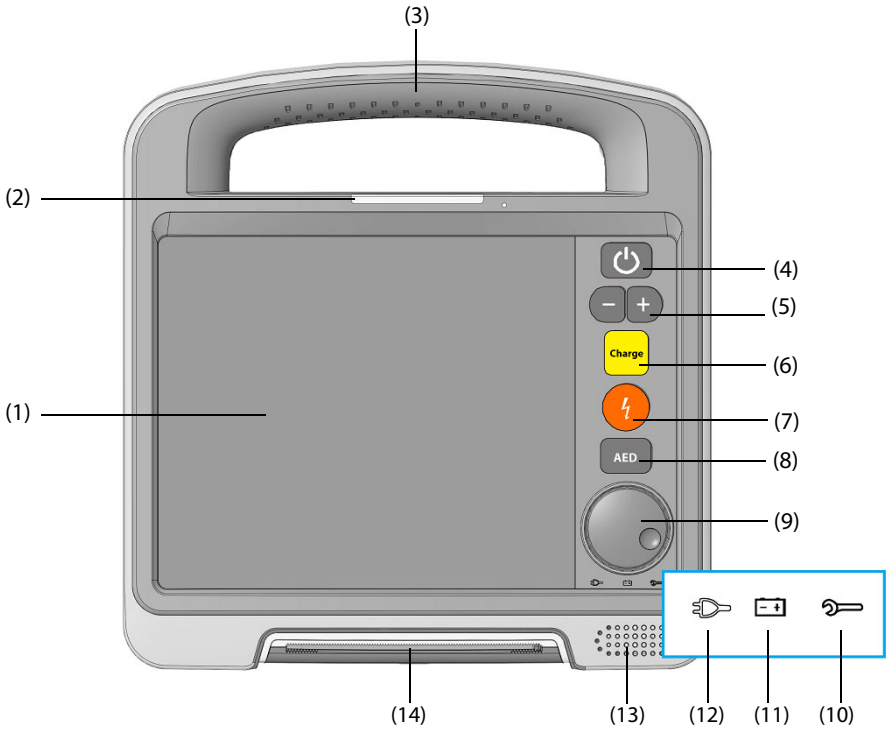
## A.7.3 Pacer Specifications

| | |
|---|---|
| Standards | Meet standards of IEC 60601-2-4 |
| Pacer mode | Demand, fixed |
| Output waveform | Monophasic square wave pulse<br>pulse width 20 ms or 40 ms<br>Accuracy: ±5% |
| Pacing rate | 30ppm to 210ppm<br>Accuracy: ±1.5%<br>Resolution: 5 ppm |
| Pacing output | 0mA to 200mA,<br>Accuracy: ±5% or ±5mA, whichever is greater<br>Resolution: 1mA, 2mA or 5mA |
| Refractory period | 200 to 300 ms (depending on pacing rate) |
| 4:1 pacing | Pacing pulse frequency reduced by factor of 4 when this function is activated. |

## 2.4 Main Unit and Connectors

Different configurations can be configured for this equipment. In the following sections, the equipment configured without the paddle tray is taken as an example to describe front, left and right views. Equipments with different configurations are used to describe back view.

### 2.4.1 Front View




(1) Display screen

(2) Alarm lamp: flashes in different color and frequency to match the alarm level.

(3) Handle

(4) Power switch

- When powered on, press it to turn on the equipment.
- When turned on, press and hold it for 3 seconds to turn off the equipment.

(5) Energy Selection buttons

- When turned on, press it to enter the Manual Defib mode.
- In the Manual Defib mode, press it to select the desired energy level.

(6) Charge button

- When turned on, press it to enter the Manual Defib mode.
- In the Manual Defib mode, press it to charge the equipment to the desired energy level.

(7) Shock button

- When turned on, press it to enter the Manual Defib mode.
- In the AED or Manual Defib mode, press it to deliver a shock to the patient. It flashes when the equipment is charged and ready.

(8) AED button: accesses the AED mode when the equipment is turned on.

(9) Navigation knob: provides the screen-related operations.

(10) Status indicator

- Steady green:
  - external power supply is connected, and the equipment operates properly.
  - only battery is connected for power supply, the equipment is turned on and operates properly.
- Flashing green:
  - only battery is connected for power supply, the equipment is turned off and operates properly.
- Flashing red
  - auto test fails, or a failure is detected on the equipment.
  - DC power supply connected is overcurrent or overvoltage.
  - only one battery is connected for power supply, and the battery has a low power or battery fails.
  - only two battery are connected for power supply, both batteries have a low power or either of batteries fails.
  - only external power supply is connected for power supply, and **No Battery** is set to **Status Indicator On**.
- Off: external power supply and battery are not connected.

(11) Battery indicator

- Yellow: the battery is being charged.
- Green: the battery is fully charged or the equipment operates on battery power.
- Off: battery is not installed or battery fails.

(12) Power indicator

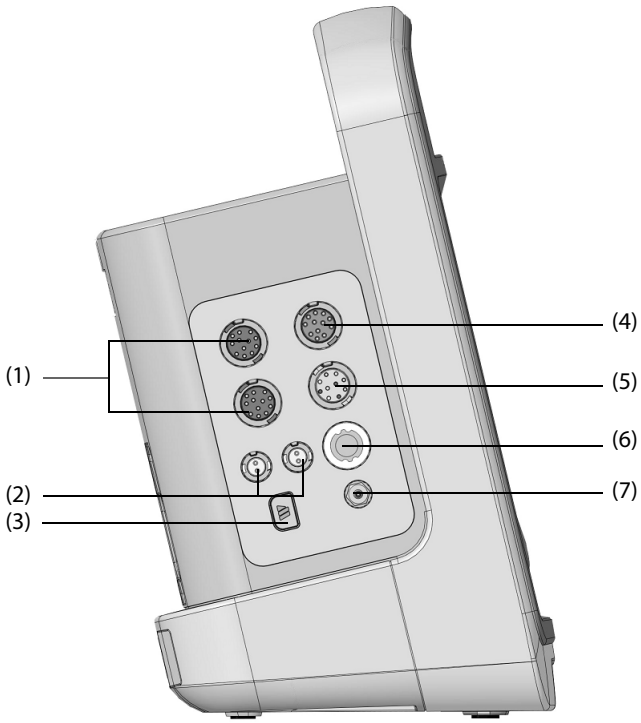
- Illuminated: the external power supply is connected.
- Off: the external power supply is not connected.

(13) Speaker

(14) Recorder

Mirksinti žalia:
◆ maitinimui prijungta tik baterija, įrenginys yra išjungtas ir veikia tinkamai.
6.

## 2.4.2 Left View



# 21 Printing

## 21.1 Recorder

The equipment is configured with a build-in recorder.

The equipment can print out the following reports through the recorder:

- Realtime report
  - Real-time waveform report
  - ST realtime report
  - QT realtime report
  - Event real-time report, including charging event, shock event and 12-lead analysis event
- Physiological alarm report
- Frozen waveform report
- Review reports
  - Tabular trends review report
  - Graphic trends review report
  - Physiological event review report
  - Full disclosure review report
  - 12-lead analysis review report
- Rescue record report
- Summary report
- Auto test report
- System configuration report

For details about alarms printing, see *10 Alarms*.

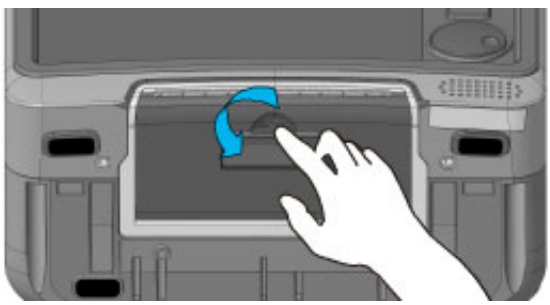
For details about specific function printing, see corresponding chapters of this manual.

## 21.2 Loading Paper

7. Integruotas spausdintuvas

To load paper, follow this procedure:

1. Place the equipment on the worktable with face up.
2. Use the latch at the bottom of the equipment to pull the door open.



| | |
|---|---|
| Alarm delay time from the equipment to other remote equipment | • For pre-hospital network: the alarm delay time measured at the equipment signal output connector: ≤10 s<br>• For hospital network: the alarm delay time measured at the equipment signal output connector: ≤2s |
| Alarm signal sound pressure level range | 45 db(A) to 85 db(A) within a range of one meter |

## A.5 Data Storage

| | |
|---|---|
| Internal storage | 4 GB |
| Events | At least 1000 events for each patient. |
| Waveforms | At least 120 hours for one ECG waveform and pace pulses with the resolution no less than 1 second, or 60 hours for two ECG waveforms and pace pulses |
| Voice recording | At least 8 hours for each patient |
| Tabular trends | At least 200 hours trend data with the resolution no less than 1 minute. |
| Auto test reports | At least 1000 records |
| Data export | Data can be export to a PC through a USB drive |

10. Duomenų eksportavimas Duomenis galima eksportuoti į kompiuterį per USB atmintinę

## A.6 Communication Specifications

### A.6.1 Wi-Fi Specifications (SX-SDMAC-2832S+ as Station)

| | |
|---|---|
| Protocol | IEEE 802.11a/b/g/n/ac |
| Modulation mode | BPSK, QPSK, 16QAM, 64QAM, 256QAM |
| Operating frequency | 2412 MHz to 2472 MHz<br>5180 MHz to 5320 MHz, 5500 MHz to 5700 MHz, 5745 MHz to 5825 MHz |
| Wireless baud rate | IEEE 802.11a: 6 Mbps to 54 Mbps<br>IEEE 802.11b: 1 Mbps to 11 Mbps<br>IEEE 802.11g: 6 Mbps to 54 Mbps<br>IEEE 802.11n: MCS0-MCS7<br>IEEE 802.11n: MCS0-MCS8 |
| Output power | <20 dBm (CE requirement: detection mode- RMS) |
| Operating mode | As station, access AP for data transmission |
| Data security | Standards: WPA-PSK, WPA2-PSK, WPA-Enterprise, WPA2-Enterprise<br>EAP method: EAP-TLS, EAP-TTLS, PEAP-MSCHAPv2<br>Encryption: TKIP, AES |
| Distinct vision distance | The distinct vision distance between the equipment and the AP: ≥ 50 m. |

### A.6.2 Wi-Fi Specifications (Wlink as Station)

| | |
|---|---|
| Protocol | IEEE 802.11a/b/g/n |
| Modulation mode | BPSK, QPSK, 16QAM, 64QAM |
| Operating frequency | 2412 MHz to 2472 MHz<br>5180 MHz to 5320 MHz, 5500 MHz to 5700 MHz, 5745 MHz to 5825 MHz |
| Wireless baud rate | IEEE 802.11a: 6 Mbps to 54 Mbps<br>IEEE 802.11b: 1 Mbps to 11 Mbps<br>IEEE 802.11g: 6 Mbps to 54 Mbps<br>IEEE 802.11n: MCS0 to MCS7 |

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# Accessories and Consumables

CATALOGUE 2024.07

www.mindray.com

P/N:ENG-Accessories and Consumables Catalogue-210210X160P-20240717



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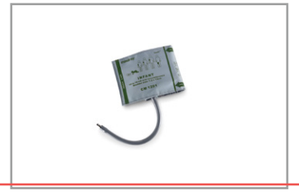
**Adapted with the tubing (6200-30-09688, 115-012522-00, 040-002712-00)**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | CM1905 | 040-000688-00 | NIBP Cuff Tubing Adapter<br>(Adult tubing to Neonate cuff ) | Each |

## CM1200 Series

- Soft and comfortable. Low hazard to skin even if a long-term use
- Easy to clean. The cuff wrap can not be damped or stained by liquid if duly cleaned
- Pilling-proof. Not deform even if for long-term use
- TPU bladder ensures good air tightness and long life
- Latex free, PVC free
- Good biocompatibility, free from biological hazard to skin

**Connected with the tubing 6200-30-09688, 115-012522-00 and 040-002712-00**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | CM1200 | 115-002480-00 | Reusable cuff, Small Inf, 7-13cm<br>- ISO80369 | Each |
|  | CM1201 | 0010-30-12157 | Reusable cuff, Inf, 10-19cm,<br>with connector<br>- ISO80369<br>15.1.<br>NIV Manžetė vaikiška | Each |



| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | CM1202 | 0010-30-12158 | Reusable cuff, Child, 18-26cm,<br>with connector<br>- ISO80369 | Each |
|  | CM1203 | 0010-30-12159 | Reusable cuff, Adu, 25-35cm,<br>with connector<br>- ISO80369<br>NIV manžetė vidutinė<br>15.1. | Each |
|  | CM1204 | 0010-30-12160 | Reusable cuff, Large Adu, 33-47cm,<br>with connector<br>- ISO80369<br>NIV manžetė didelė<br>15.1. | Each |
|  | CM1205 | 0010-30-12161 | Reusable cuff, Thigh, 46-66cm,<br>with connector<br>- ISO80369 | Each |

# $SpO_2$ Accessories

## Mindray $SpO_2$ Accessories

## Integrated $SpO_2$ Cable

**For BeneVision, ePM, uMEC, VS series monitors, BeneHeart defibrillator**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | 512FLH | 115-012807-00 | Integrative reusable $SpO_2$ sensor, Adult, Finger, >30 kg, 3 m | Each |
|  | 518BLH | 115-020887-00 | Integrative reusable $SpO_2$ sensor, Neo, Foot (adult/pediatric, finger), <5 kg, 3 m | Each |

15.1.
Spo2 daviklis suaugusiesms



## Mindray $SpO_2$ Cable

**For BeneVision, ePM, uMEC, VS series monitors, BeneHeart defibrillator**

- Ergonomic design, precise engineering and clinical testing guaranteeing reliable measurement
- Well anti-electromagnetic interference, suitable for complex electrical environment
- Flexible and durable cables
- Outstanding cable jacket, enduring repeated cleaning and disinfection
- Easy to change sensor, meeting clinical requirements for patient use
- Latex free

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | 562A | 0010-20-42710 (009-004600-00) | Mindray $SpO_2$ extension cable, 7 Pin, 2.5 m | Each |
| | 562B | 040-001443-00 | Mindray $SpO_2$ extension cable, 7 Pin, 1.2 m | Each |

15.1.
Prailginimo kabelis

**For Telemetry**

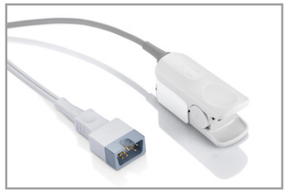
| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | SAT 10 | 115-029488-00 | Mindray $SpO_2$ module for BeneVision TM80, 6 Pin, 0.5 m | Each |
|  | | 125-000058-00 | Masimo $SpO_2$ module for BeneVision TM80 and TMS 40 | Each |

## Mindray $SpO_2$ Sensor

### Finger-Clip Sensor (Reusable)

- Ergonomic design, precise engineering and clinical testing guaranteeing reliable measurement
- High quality photoelectric element, ensuring precise measurement
- Well anti-electromagnetic interference, suitable for complex electrical environment
- Perfect performance against light interference, can be used in environment of strong light
- ESU-proof, ensuring $SpO_2$ signals not interfered during operation
- Strict electric safety specification, guaranteeing safety for use
- Few pit structure, not easily staining, convenient for cleaning
- Outstanding cable jacket, enduring repeated cleaning and disinfection
- Latex free
- Good biocompatibility, avoiding allergic reactions to patient

**For all Mindray $SpO_2$ Cables and PM-50/60 pulse oximeter**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | 512F | 512F-30-28263 | Reusable sensor, adult, finger-clip, 1.1 m, >30 kg | Each |
|  | 512H | 512H-30-79061 | Reusable sensor, pediatric, finger-clip, 1.1 m, 10-30 kg | Each |

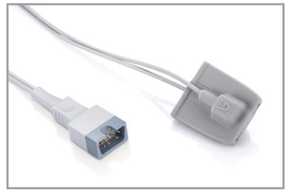
Spo2 daviklis vaikams



### Finger-Tip Sensor (Reusable)

- Ergonomic design, precise engineering and clinical testing guaranteeing reliable measurement
- High quality photoelectric element, ensuring precise measurement
- Well anti-electromagnetic interference, suitable for complex electrical environment
- Perfect performance against light interference, can be used in environment of strong light
- ESU-proof, ensuring $SpO_2$ signals not interfered during operation
- Strict electric safety specification, guaranteeing safety for use
- Silicone rubber sheath, not likely to break in case of drop, hardly sensor off
- Few pit structure, not likely staining, convenient for cleaning
- Outstanding cable jacket, enduring repeated cleaning and disinfection
- Latex free
- Good biocompatibility, avoiding allergic reactions to patient

**For all Mindray $SpO_2$ Cables and PM-50/60 pulse oximeter**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | 512E | 512E-30-90390 | Reusable sensor, adult, finger-tip, 1.1 m, >30 kg | Each |
|  | 512G | 512G-30-90607 | Reusable sensor, pediatric, finger-tip, 1.2 m, 10-30 kg | Each |

# Non-invasive Blood Pressure Accessories


## Non-invasive Blood Pressure Tubing

- Not deform even if for long-term use
- Reasonable hardness avoids severe bending, ensures the safety of deflation
- Reasonable hardness ensures well transmission of blood pressure signal
- TPU ensures good air tightness and long life
- Latex free, PVC free
- Good biocompatibility, free from biological hazard to skin



**For BeneVision, ePM, uMEC, VS series monitors, BeneHeart defibrillator**

| Picture | Model | Part No. | No. Description | Purchasing Unit |
|---|---|---|---|---|
|  | CM1903 | 6200-30-09688 | NIBP Tubing, Adu/Ped/Inf/Neo, with air plug connectors, 3m - ISO80369 | Each |
|  | CM1903 | 115-012522-00 | NIBP Tubing, Adu/Ped/Inf/Neo, with air plug connectors, 3m - ISO80369 | Each |
|  | CM1908 | 040-002712-00 | NIBP Tubing, Adu/Ped/Inf/Neo, with air plug connectors, 3m - ISO80369 | Each |
|  | CM1901 | 6200-30-11560 | NIBP Tubing, Neo, with connectors, 3 m | Each |

15.2.

Žarnelė manžetės pajungimui

# BeneHeart D60/BeneHeart D50A

# BeneHeart D50/BeneHeart D50C

# Defibrillator/Monitor

# Operator’s Manual

| Model | Part No. | Description | Applicable Patient |
|---|---|---|---|
| MVPOL | 040-006177-00 | Disposable nasal sampling line, long, plus $O_2$ | Pediatric |

## F.6.2 Mainstream $CO_2$ Accessories

| Model | Part No. | Description | Applicable Patient |
|---|---|---|---|
| 6063 | 0010-10-42662 | Airway adapter, disposable | Adult, Pediatric |
| 6421 | 0010-10-42663 | Airway adapter, disposable, with mouthpiece | Adult, Pediatric |
| 6312 | 0010-10-42664 | Airway adapter, disposable | Pediatric, Neonate |
| 7007 | 0010-10-42665 | Airway adapter, reusable | Adult, Pediatric |
| 7053 | 0010-10-42666 | Airway adapter, reusable | Neonate |
| 9960LGE | 0010-10-42669 | Mask, large | Adult |
| 9960STD | 0010-10-42670 | Mask, standard | Adult |
| 9960PED | 0010-10-42671 | Mask | Pediatric |
| 6934 | 0010-10-42667 | Cable management straps | / |
| 8751 | 0010-10-42668 | Sensor holding clips | / |
| 1036698 | 6800-30-50760 | $CO_2$ sensor | / |

## F.7 Therapy Accessories

15.2. Elektrodai suaugusiam ir vaikui

| Model | Part No. | Description | Applicable Patient |
|---|---|---|---|
| MR6601 | 125-000130-00 | Reusable external paddles (for hospital) | Adult, Pediatric |
| MR6603 | 125-000251-00 | Reusable external paddles (for pre-hospital) | Adult, Pediatric |
| MR6501 | 115-018366-00 | Reusable internal paddles, 1 inch without button | Neonate |
| | 125-000166-00 | Reusable internal paddles, 1 inch with button | |
| MR6502 | 115-018367-00 | Reusable internal paddles, 2 inches without button | Pediatric |
| | 125-000167-00 | Reusable internal paddles, 2 inches with button | |
| MR6503 | 115-018368-00 | Reusable internal paddles, 3 inches without button | Adult |
| | 125-000168-00 | Reusable internal paddles, 3 inches with button | |
| MR60 | 0651-30-77007 | Disposable multifunction electrode pads, 5 sets/ package | Adult |
| MR61 | 0651-30-77008 | Disposable multifunction electrode pads, 5 sets/ package | Pediatric |
| MR62 | 115-035426-00 | Disposable multifunction electrode pads, 5 sets/ package | Adult |
| MR63 | 115-035427-00 | Disposable multifunction electrode pads, 5 sets/ package | Pediatric |
| MR6701 | 115-006578-00 | Reusable pads cable with 50Ω test load | Adult, Pediatric |
| MR6911 | 040-001101-00 | Adapter for electrode pads | All |
| MR6912 | 040-001100-00 | Adapter for electrode pads | All |
| MR6913 | 040-005717-00 | Adapter for electrode pads | All |