



Lifeline **ARM**

Automated chest compression device for professionals

Precise operation of the Lifeline ARM helps to ensure high-quality and continuous cardiopulmonary resuscitation (CPR) associated with better survival for victims of sudden cardiac arrest (SCA)¹.

With an innovative and elegant design, the Lifeline ARM is an automated solution for providing victims of sudden cardiac arrest high-quality and continuous CPR that is associated with better survival outcomes.² Easy to deploy and use, the device delivers compressions, with complete chest recoil, at the depth and rate recommended by the AHA/ERC cardiopulmonary resuscitation guidelines. Using a proprietary algorithm that compensates for variability in patient chest resistances, the Lifeline ARM delivers precise compressions, an important factor for effective CPR.³



Lifeline ARM

Removable compression module

The removable compression module is unique to the Lifeline ARM. Its modularity facilitates easy deployment and makes it much more convenient to use and service. The module houses a software controlled motor and the compression piston. In conjunction with the frame and backboard, the compression module delivers chest compressions at a consistent depth and rate without undue frame deflection or distortion, both of which impact CPR efficacy.¹

- The module provides high quality CPR (recommended depth and rate) with full chest recoil without interruptions according to AHA/ERC Guidelines
- A proprietary algorithm ensures consistent depth and rate of the compressions across a wide range of patient chest resistances
- A custom designed brushless DC motor drives the compression piston delivering smooth and consistent operation



Increased structural integrity

For superior performance during compressions, a rigid frame and backboard enable operation without unwanted flex.



- Single-piece design of the frame enhances usability during deployment and use
- Stiff structure provides consistent compression depth, an important element for patient survival¹
- Accommodates a broad range of adult patient sizes (weight is not a factor)
- Provides high quality CPR delivery during transport
- Well-balanced and lightweight

Maximum patient accessibility

Self-centering and self-locking latches on the frame make it easy to match up with, and securely snap into, the backboard.

- Two sets of wide release levers, located on each side of the frame, provide multiple frame release options
- Purposeful redundancy of release levers enables easy detachment of both sides of the frame, or one side at a time
- Integrated patient lift handles
- Simultaneous defibrillation is possible





Intuitive interface with real-time CPR protocol selection

The Lifeline ARM's simplified control panel requires just two steps to initiate mechanical CPR.

1. Adjust the compression piston's height relative to the patient's chest using the Up/Down buttons,
2. Select from two rescue protocols by pressing the corresponding soft key: Chest compressions only (no breaths), or chest compressions with rescue breaths.

With real-time CPR protocol selection, you can switch between the two protocols during the rescue

- The compressions with breaths protocol has timed pauses programmed into the compression cycle to allow for rescue breaths
- At any time, compressions may be stopped (paused), or resumed



Unmatched operating times

With the Lifeline ARM's longer battery life, it is especially suited for extended periods of uninterrupted CPR accommodating long transports to, or lengthy treatments in, a hospital.

By design, the Lifeline ARM may be operated using the rechargeable battery pack or the external AC power adapter, which even during use is capable of recharging the battery pack.



- Fastest in-unit recharge time
- Higher number of charge/discharge cycles
- Rapid battery pack swapping
- Battery pack can be inserted in multiple orientations

Highly visible and portable

Time is of the essence in a rescue, and equipment needs to be easy to carry, deploy, and pack up. The lightweight Lifeline ARM comes with a canvas carrying case designed for backpack portability.

Built to withstand demanding environments

The structural design of the frame and backboard, and the housing of the compression module, combine to contribute to its extreme durability, strength, and impact resistance, making it one tough unit. Designed to be reliable and rugged, the Lifeline ARM is protected against ingress and fluid spray, and it meets military standards for vibration.

Easy to maintain and field serviceable

The removable compression module makes it much more convenient to use, maintain, perform field updates, and ship-in for service.

- A USB port on the module supports data recovery of event data for post event review
- Software updates may be performed in the field making the Lifeline ARM adaptable to future resuscitation requirements
- Scheduled preventive maintenance is only needed every 18 months

¹ Wik L, et al: Quality of Cardiopulmonary Resuscitation during Out-of-Hospital Cardiac Arrest. JAMA. 2005;293(3):299-304. doi:10.1001/jama.293.3.299.

² Kleinman ME, et al: 2015 American Heart Association guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 5: Adult Basic Life Support & CPR Quality. Circulation (2015); 132:S414-S435.

Specifications

Lifeline ARM (RMU-1000)

Compressions

Compression modes	Continuous Compressions; Compressions with Breathing (30:2, 30 compressions with 3-second pause for ventilation) factory default; future protocols via field updates
Compression depth	2.1 inches \pm 0.1 inches (5.3 cm \pm 0.3 cm) from start position (nominal patient)
Compression frequency	101 \pm 1 compressions per minute
Compression duty cycle	50% \pm 5%

Dimensions and weight

Size (assembled)	59.7 x 52.7 x 22.9 cm
Size (in carrying case)	50.8 x 50.8 x 25.4 cm
Weight (with battery pack)	7.1 kg
Adult patient ranges	Adult patients that fit into the ACC: Chest width – 45.7 cm max Chest height – 16.5 to 30 cm Use of the Lifeline ARM is not restricted by patient weight

AC Power Adapter

Model number	RPM-1000
Rated output	24.0V \pm 5% at 4.2A
Input voltage	85 - 264VAC (100 - 240VAC nominal)
Input frequency	47 - 63Hz
Input current	<2.3A rms
Operating temperature	0 to 40°C full load
Storage temperature	-40 to 85°C
Electromagnetic compatibility (emissions and immunity)	IEC 60601-1-2

Environmental

Operating / maintenance temperature	0 to 40°C
Stand-by / storage / transport temperature	-20 to 70°C
Humidity	5% to 95% (non-condensing)
Vibration	MIL-STD-810G 514.6 Category 20 (Ground)
Sealing / water resistance	IEC 60529 class IP43 (battery pack installed)
Electromagnetic compatibility (emissions and immunity)	IEC 60601-1-2:2007/AC: 2010
Design standards	Meets applicable requirements of: <ul style="list-style-type: none">• IEC 60601-1• UL 60601-1• CAN/CSA C22.2 60601-1• IEC 60601-1-2
Device classification	Internally powered Class II (with external power source)

Battery Pack

Model number	RBP-1000
Battery type	18.5V, 5300 mAh, Lithium-ion. Rechargeable, recyclable.
Operation time	1 hour (normal patient)*
Battery pack charging time	Less than 3 hours in ACC*; less than 2 hours in external battery pack charging station*
Battery pack useful life	Recommended to replace battery pack every 3 years or if battery pack indicator displays a replace battery pack condition (~300 charge/discharge cycles)
Battery pack operating time	1 hour
Charging temperature	0 to 40°C ambient
Storage temperature	0 to 40°C; -20 to 60°C short-term <1 month
Sealing/water resistance	IEC 60529 class IP44

*typical, with new battery at 25° C