LIFEPAK® 15 MONITOR/DEFIBRILLATOR

Works like you work.™
Building on a Proud Legacy

The pioneer in portable defibrillation and monitoring technology, Physio-Control continues to define the standard for cardiac emergency care equipment.

Our LIFEPAK devices have been carried to the top of Mount Everest and launched into orbit on the International Space Station. More than half a million units are in use today on fire rescue rigs, ambulances and hospital crash carts worldwide. Since Physio-Control was founded in 1955, our products have helped save tens of thousands of lives and positively impacted countless more.

Even as we bring ground-breaking products to market, some things don’t change. As always, the LIFEPAK brand stands for a rugged, portable device that you can trust—every single day.

A LIFEPAK device never stands on its own. Our goal is to provide complete solutions for cardiac emergencies—from first responder through the hospital. Our products are systems. Everything works with you—whether it’s accessories, disposables, flexible energy dosing, or data solutions that help you capture patient data and learn from it to improve care.

When you buy a LIFEPAK monitor/defibrillator, you get a leading-edge monitor/defibrillator AND the company that stands behind it. With Physio-Control, you get:

- The pioneers of prehospital cardiac monitoring and defibrillating equipment.
- Innovators continually at the forefront of improving patient care—ADAPTIV™ biphasic technology up to 360J to give patients the best chance at survival; secure, web-based flow of ECG data to help improve STEMI patient outcomes; and carbon monoxide monitoring to catch the number-one cause of poisoning deaths.
- The most comprehensive warranty in the business.
- Industry-leading technical field service.
- A company that has been in business for more than five decades.

We’re inspired and informed by the rescuers who rush our products to life-threatening emergencies every day. Knowledge gained from working with the world’s largest EMS organizations keeps us innovating—raising the bar on durability and clinical standards.
The New Standard
The New Standard

Your monitor is measured by what it can do for you. You need a product with the latest clinical capabilities. One designed to provide the performance you need today and in the future, and one tough enough to ensure it continues to deliver in all conditions you encounter when delivering emergency care.

Physio-Control defibrillators have set the standard for over 50 years, and the 15 raises the bar. Leading the way with new clinical and operational innovations, and surrounded with legendary 360 degree ruggedness that defines LIFEPACK TOUGH™.
The New Standard...

...in Clinical Innovation

- **New monitoring parameters** — Detect hard-to-diagnose conditions and improve patient care with Masimo® Rainbow® Technology. The 15 is the first monitor integrating noninvasive monitoring for carbon monoxide, SpO₂ and methemoglobin (to detect chemical exposures and certain drugs).

- **Advanced support for treating STEMI patients** — Easily acquire a pre-medication 12-lead ECG and then rely on the 15 to continuously monitor all 12 leads in the background and alert you to changes via our ST-Segment Trending feature. Using your 15 in conjunction with the Web-based LIFENET STEMI Management Solution lets you automatically and simultaneously share critical patient data with multiple patient care teams throughout a region.

- **Most potent escalating energy available** — ADAPTIV™ biphasic technology provides the option to escalate to 360J for best results. Recent studies have shown that refibrillation is common among VF cardiac arrest patients and that defibrillation of recurring episodes of VF is increasingly difficult.1,2,3 Another recent randomized controlled clinical trial shows the rate of VF termination was higher with an escalating higher energy regimen of 200J and over.1 The 15 gives you the option to escalate your energy dosing up to 360J for difficult-to-defibrillate patients.

- **Proven CPR guidance** — Demonstrated to aid users in performing compressions and ventilations within the recommended range of the AHA Guidelines,4 the CPR Metronome uses audible prompts to guide you without distracting vocal critique. And get the post-event feedback you need to improve CPR performance with CODE-STAT™ Data Review Software with Advanced CPR Analytics.
...in Operational Innovation

- **Dual-mode LCD screen with SunVue™**—With one touch, switch from full-color to high-contrast SunVue mode for the best sunlight viewability in the industry. A large screen (8.4 inches diagonally) and full-color display provide maximum viewability from all angles.

- **Upgradable platform**—Our products are built as platforms—flexible to adapt to evolving protocols and new guidelines and upgradeable when you are ready to deliver new therapies. With more processing power and speed, the 15 is designed to grow as your needs change, helping you avoid costly premature replacements. This flexibility means the 15 is ready for the anticipated changes coming from the 2010 Guidelines.

- **Latest Lithium-ion battery technology**—Battery power that beats or matches every competitor in the market. Enough juice to run a shift, with less weight. And the smart technology included in this battery system helps you manage your battery inventory appropriately letting you know when battery life is coming to an end.

- **Data connectivity**—As you treat patients, collect monitoring data in your LIFEPAK monitor/defibrillator. Then easily connect to ePCR and other systems so information flows to where it’s needed. Bluetooth® has been simplified so you just touch a button to transmit data.

- **Attention to detail**—We didn’t overlook a thing. Finishing touches on this next-generation monitor/defibrillator include an ergonomic handle, larger SPEED DIAL for easy selection, and updated, easy-to-clean keypad.

...LIFEPAK TOUGH

- **Works when dropped, kicked, soaked, dirty**—Just like you. The LIFEPAK 15 monitor/defibrillator passes 30-inch drop tests—equal to falling off a cot or dropping it in transit. IP44 rating means it keeps working in steady wind, rain and other harsh environments.

- **Toughened inside and out**—We listened to your feedback and added a shock-absorbing handle, a double-layer screen that can take a beating from doorknobs and cot handles, and redesigned cable connections for confident monitoring and therapy delivery.

- **Unmatched field service**—Our one-of-a-kind service team* operates 24/7 in North America. The unit’s self-checking feature alerts the service team if the device needs attention—so you know it’s ready when you need it.

* A variety of customized service options are available.
LIFEPAK 15 Monitor/Defibrillator
The New Standard in Emergency Care

1. The only monitor/defibrillator on the market with Carbon Monoxide and Methemoglobin monitoring integrated into the device.

2. ST-Trend Tracking and 12-lead ECG transmissions via the LIFENET STEMI Management Solution makes the 15 a vital part of decreasing EMS-to-Balloon (E2B) response times.

3. CPR Metronome is a proven technology that actively guides users to a consistent compression rate without the need for extra external hardware.

4. Latest Lithium-ion battery technology allows for nearly six hour run time and an approximate two-year replacement cycle.

5. Redesigned cable connector gives you the confidence for secure therapy delivery.

6. Ergonomically designed handle has built-in shock absorbers for cushion and fits two gloved hands for easy pass off.

7. With one touch, switch from LCD color view to SunVue mode for best viewing in sunlight available.
With nearly 100,000 LIFEPAK 12 devices in the field worldwide, we had an incredible natural laboratory to work with in designing the LIFEPAK 15 monitor/defibrillator.
Working WITH you
Our five decades of working with EMS organizations gives us the depth of knowledge to offer innovative solutions that really work.

Continuum of care
From the streets to the emergency room to your administrative office, we offer a full suite of solutions, whether your need is emergency response or quality control analysis.

Our product line ranges from AEDs for minimally trained responders (LIFEPAK CR® Plus AED) to compact, powerful defibrillators for BLS crews (LIFEPAK 1000 defibrillator) to sophisticated devices for ALS (LIFEPAK 12 and LIFEPAK 15 monitor/defibrillators) to the ideal hospital crash-cart device (LIFEPAK 20e defibrillator/monitor). Consistency among our products means you can count on uniform energy doses across LIFEPAK devices, easily share data, and minimize training costs.

Quality CPR to help save more lives
Physio-Control equips the new LIFEPAK 15 monitor/defibrillators with proven CPR guidance (the CPR Metronome) and offers the LUCAS™ Chest Compression System, designed to provide effective, consistent and uninterrupted compressions according to AHA Guidelines.

In tandem with CODE-STAT 7.0 Data Review software with Advanced CPR Analytics, these products give you a powerful feedback loop to drive improvements in resuscitation outcomes.

Linking field and hospital to improve STEMI patient survival
Studies show a significant association between prehospital 12-lead ECGs and shorter E2B times for patients with Acute Coronary Syndrome (ACS). Two recent studies found the effect was strongest when the cath lab was activated while the patient was still en route to the hospital. Minutes matter—if E2B time stretches from 90 minutes to 120 minutes, mortality for ACS has been shown to increase 40%.

Transmitting 12-lead ECGs from the field with the LIFEPAK 12 or LIFEPAK 15 monitor/defibrillator via the LIFENET Cardiac Care network can help you meet the AHA/ACC 90-minute door-to-balloon guideline for patients with ST-segment elevation myocardial infarction (STEMI). While care teams focus on patients, the STEMI Management Solution from Physio-Control securely delivers ECG data when and where it’s needed, linking prehospital, emergency room, and Percutaneous Coronary Intervention treatment teams.

Connecting patient data across your system
Collect patient data in your LIFEPAK monitor/defibrillator and push the data out to other systems, including electronic Patient Care Reporting (ePCR). Our data management solutions make it easy to transfer patient information from LIFEPAK devices to your PC, consolidate patient data, and analyze outcomes across your system.

Use DT EXPRESS™ Data Transfer Software to download critical event and waveform data from LIFEPAK devices to your PC, add supplemental patient data, print out a hardcopy report, and store records on a disk. Export data to CODE-STAT™ 7.0 Data Review Software with Advanced CPR Analytics to consolidate all dispatch, treatment and outcome data into a single e-file.

We’ve got you covered
We build our products LIFEPAK TOUGH and back them with the most comprehensive warranty in the business. We make them easy to configure for your patient care protocols and we provide software upgrades as technology advances.

To help you get the most out of your Physio-Control products, your sales representative will provide inservice training, and we also offer specialized instruction—ranging from self-paced CDs to live webcasts to on-site classes.

When you need service, you can turn to the largest and best-trained network of field technical service representatives in the industry. On call 24 hours a day, 7 days a week (North America), our goal is to return your phone call within two hours, to work with you to quickly assess the problem and find the best solution.

LIFEPAK 15 Monitor/Defibrillator
The New Standard in Emergency Care
The New Standard in Emergency Care
Experience the legendary quality that has made LIFEPAK products and services the clear favorite around the world.

As your trusted partner in saving lives, we offer a full suite of solutions from field to hospital, whether your need is emergency response or quality control analysis.

LIFEPAK® Defibrillators/Monitors

LIFEPAK 12 Defibrillator/Monitor
Over 80,000 LIFEPAK 12 defibrillator/monitors are in use today—on rescue rigs and in hospitals worldwide. Feedback from this global community keeps us innovating—adding features to help you in your lifesaving work. The LIFEPAK 12 defibrillator/monitor packs multi-parameter therapeutic and diagnostic functions into a rugged, portable device. Use a tool that can tackle today’s patient care needs and adapt to tomorrow’s challenges.

LIFEPAK 20e Defibrillator/Monitor
Building on the design of its predecessor, the LIFEPAK 20e defibrillator/monitor is compact, lightweight and easy to rush to the scene or use during transport. The 20e is highly intuitive to use, putting early, effective defibrillation into the hands of first responders. The 20e skillfully combines AED function with manual capability so that ACLS-trained clinicians can quickly and easily deliver advanced diagnostic and therapeutic care. Clinically advanced and packed with power, the 20e uses Lithium-ion battery technology that provides extended operating time for transporting patients from one area of the hospital to another and includes ADAPTIV biphasic technology up to 360 joules.

LIFEPAK CR® Plus Automated External Defibrillator
Designed for minimally trained rescuers in commercial and public settings, the CR Plus guides the rescuer step by step with calm, clear voice prompts. Simple to use, it is built with the same advanced defibrillation technology used by EMS and hospital personnel.

LIFEPAK 1000 Defibrillator
The 1000 is a powerful and compact device designed to treat cardiac arrest patients and provide continuous cardiac monitoring capabilities. Built-in flexibility allows the 1000 to be programmed for use by first responders or professionals and enables care providers to change protocols as standards of care evolve. A large, intuitive screen displays graphics and ECG readings that are clear and easy to read from a distance. The most rugged defibrillator in the LIFEPAK fleet, you can carry the 1000 with confidence into the harshest environments.

Physio-Control Products and Solutions

Experience the legendary quality that has made LIFEPAK products and services the clear favorite around the world.

As your trusted partner in saving lives, we offer a full suite of solutions from field to hospital, whether your need is emergency response or quality control analysis.

LIFEPAK® Defibrillators/Monitors

LIFEPAK 12 Defibrillator/Monitor
Over 80,000 LIFEPAK 12 defibrillator/monitors are in use today—on rescue rigs and in hospitals worldwide. Feedback from this global community keeps us innovating—adding features to help you in your lifesaving work. The LIFEPAK 12 defibrillator/monitor packs multi-parameter therapeutic and diagnostic functions into a rugged, portable device. Use a tool that can tackle today’s patient care needs and adapt to tomorrow’s challenges.

LIFEPAK 20e Defibrillator/Monitor
Building on the design of its predecessor, the LIFEPAK 20e defibrillator/monitor is compact, lightweight and easy to rush to the scene or use during transport. The 20e is highly intuitive to use, putting early, effective defibrillation into the hands of first responders. The 20e skillfully combines AED function with manual capability so that ACLS-trained clinicians can quickly and easily deliver advanced diagnostic and therapeutic care. Clinically advanced and packed with power, the 20e uses Lithium-ion battery technology that provides extended operating time for transporting patients from one area of the hospital to another and includes ADAPTIV biphasic technology up to 360 joules.

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CPR Assistance

LUCAS™ Chest Compression System
Designed to provide effective, consistent and uninterrupted compressions according to AHA Guidelines, the device is used on adult patients in out-of-hospital and hospital settings. Maintaining high-quality hands-free compressions frees responders to focus on other lifesaving therapies and enables them to wear seatbelts during transport.

LIFENET® System

LIFENET STEMI Management Solution
Enabling a seamless, secure and flexible flow of ECG data from prehospital to hospital helps you quickly identify STEMI patients, improve door-to-balloon times and reduce false-positive cath lab activations. With the touch of a button, EMS responders send 12-lead ECG data from medical-informatics-enabled LIFEPAK defibrillator/monitors to multiple endpoints, over a virtual STEMI care network created using our web application and secure datacenter and your gateway devices like smartphone PDAs and existing hospital PCs.

CODE-STAT™ Data Review Software with Advanced CPR Analytics
This post-event review tool annotates chest compressions onto the patient’s continuous ECG report and calculates CPR statistics, helping you meet 2005 AHA Guidelines. The software simplifies data collection and reporting by consolidating all dispatch, treatment and outcome data into a single e-file. Download, review, manage, and analyze emergency medical data from multiple LIFEPAK defibrillators. The application also facilitates quality analysis and business decisions, allowing creation of benchmarking and trending reports to review your system’s performance.

DT EXPRESS™ Data Transfer Software
The simple Windows-based software application manages data from LIFEPAK devices. The software makes it easy to download critical event and waveform data to your PC, add supplemental patient data, print out a hardcopy report, and store records on a disk. For storage and on-screen viewing of reports, export files to CODE-STAT data review software.
The LIFEPAK 15 monitor/defibrillator has six main operating modes:

- **AED Mode**: for automated ECG analysis and a prompted treatment protocol for patients in cardiac arrest.
- **Manual Mode**: for performing manual defibrillation, synchronized cardioversion, noninvasive pacing, and ECG and vital sign monitoring.
- **Archive Mode**: for accessing stored patient information.
- **Setup Mode**: for changing default settings of the operating functions.
- **Service Mode**: for authorized personnel to perform diagnostic tests and calibrations.
- **Demo Mode**: for simulated waveforms and trend graphs for demonstration purposes.

**COMMUNICATIONS**

The device is capable of transferring data records by wired or wireless connection. Serial Port RS232 communication + 12V available. Limited to devices drawing maximum 0.5 A. Current Bluetooth® technology provides short-range wireless communication with other Bluetooth-enabled devices.

**DATA MANAGEMENT**

The device captures and stores patient data, events (including waveforms and annotations), and continuous waveform and patient impedance records in internal memory. The user can select and print reports, and transfer the stored information via supported communication methods.

**MEMORY CAPACITY**

Information via supported communication methods. The user can select and print reports, and transfer the stored patient impedance records in internal memory.

**MONITOR**

ECG

ECG is monitored via several cable arrangements:

- A 3-wire cable is used for 3-lead ECG monitoring.
- A 5-wire cable is used for 7-lead ECG monitoring.
- A 10-wire cable is used for 12-lead ECG acquisition. When the chest electrodes are removed, the 10-wire cable functions as a 4-wire cable.

Standard paddles or O'KOMBO pacing/defibrillation/ECG electrodes are used for paddles lead monitoring.

**Service Mode**: for accessing stored patient information.

**MEMORY CAPACITY**

Total capacity is 360 minutes of continuous waveform display with autogain control.
Energy which results in the delivery of 360 joules into 50 ohms. Voltage Compensation:

HSFBUFS JOUPPINT greater, into 50 ohms ±2 joules or 15% of setting, whichever is Energy Accuracy:

The following specifications apply from 25 to 200 ohms, 0.05 to 150 Hz or 0.05 to 40 Hz, Biphasic Waveform: Biphasic Truncated Exponential

The following specifications apply from 25 to 200 ohms, unless otherwise specified:

Energy Accuracy: ±1 joule or 10% of setting, whichever is greater, into 50 ohms ±2 joules or 15% of setting, whichever is greater, into 25-175 ohms. Voltage Compensation: Active when disposable therapy electrodes are attached. Energy output within ±5% or ±1 joule, whichever is greater, of 50 ohms value, limited to the available energy which results in the delivery of 360 joules into 50 ohms. Paddle Options: QUOK-COMBO® pacing/defibrillation/ECG electrodes (standard). Cable Length 8 foot long (2.4 m) QUOK-COMBO cable (not including electrode assembly). Standard paddles (optional) Manual Mode Energy Select: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 70, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, and 360 joules Charge Time: Charge time to 360 joules in less than 10 seconds, typical

Synchronous Cardioversion: Energy transfer begins within 60 msec of the QRS peak

Paddles Lead Off Sensing: The transition point at which device changes from assuming that QUOK-COMBO electrodes are properly connected to patient to assuming that electrodes are not connected is 300±50 ohms.

AED Mode

Shock Advisory System™ (SAS): an ECG analysis system that advises the operator if the algorithm detects a shockable or non-shockable ECG rhythm. SAS acquires ECG via therapy electrodes only. Shock Ready Time: Using a fully charged battery at normal room temperature, the device is ready to shock within 20 seconds if the initial rhythm finding is "SHOCK ADVISED.

Biphasic Output: Energy Shock levels ranging from 150–360 joules with same or greater energy level for each successive shock

cprMAX™ Technology: In AED mode, cprMAX™ technology provides a method of maximizing the CPR time that a patient receives, with the overall goal of improving the rate of survival of patients treated with AEDs. Setup Options: • Auto Analyze: Allows for auto analysis. Options are OFF, AFTER 1ST SHOCK • Initial CPR: Allows the user to be prompted for CPR for a period of time prior to other activity. Options are OFF, ANALYZE FIRST, CPR FIRST • Initial CPR Time: Interval time for Initial CPR. Options are 15, 30, 45, 60, 90, 120, and 180 seconds. • Pre-Shock CPR: Allows the user to be prompted for CPR while the device is charging. Options are OFF, 15, 30, seconds. • Pulse Check: Allows the user to be prompted for a pulse check at various time. Options are ALWAYS, AFTER EVERY SECOND NSA, AFTER EVERY NSA, NEVER • Stacked Shocks: Allows for CPR after 3 consecutive shocks or after a single shock. Options are OFF, ON • CPR Time: 1 or 2 User selectable times for CPR. Options are 15, 30, 45, 60, 90, 120, 180 seconds and 30 minutes

cprMAX™ Technology:

1.1V typical Power: 11.1V typical Capacity (rated): 5.7 amp hours Charge Time (with fully depleted battery): 4.5 hours (typical)

Battery Specifications

Battery Type: Lithium-ion

Weight: 0.59 kg (1.3 lb)

Voltage: 11.1V typical Capacity (rated): 5.7 amp hours Charge Time (with fully depleted battery): 4.5 hours (typical)

Battery Indicators: Each battery has a fuel gauge that indicates its approximate charge. A fuel gauge that shows two or fewer LEDs after a charge cycle indicates that the battery should be replaced.

Charging Temperature Range: 5° to 35° (41° to 95°F)

Operating Temperature Range: 0° to 50°C (32° to 122°F)

Long Term (>1 day) Storage Temperature Range: 0° to 35°C (32° to 95°F)

Vibration: MIL-STD-810E Method 514.4, Propeller Aircraft - category 4 (figure 514.4-1 spectrum a), Helicopter - category 6 (3.75 Gms), Ground Mobile - category 8 (3.14 Gms), EN 1789: Sinusoidal Sweep, 1 octave/min, 10-150 Hz, ±0.15 mm/2 g

Shock (drop): 5 drops on each side from 18 inches onto a steel surface EN 1789: 30-inch drop onto each of 6 surfaces

Shock (functional): Meets IEC 60608-2-27 and MIL-STD-810E shock requirements 3 shocks per face at 40 g, 6 ms half-sine pulses

Bump: 1000 bumps at 15 g with pulse duration of 6 msec

Impact, Non-operating: IEC 60601-1-5.0 + 0.05 joule impact UL 60601-1 6.78 Nm impact with 2-inch diameter steel ball. Meets IEC62262 protection level IK 04.


Cleaning: Cleaning 20 times with the following: Quaternary ammonium, isopropyl alcohol, hydrogen peroxide

Chemical Resistance: 60 hour exposure to specified chemicals: Betadine (10% Povidone-iodine solution), Coffee, Cola, Dextrose (5% Glucose solution), Electrode Gel/Paste (88% water, 2% Carbopol 940), HCL (0.5% solution), pH=1), Isopropyl Alcohol, NaCl solution (0.9% solution), Cosmetic discoloration of the paddle well shorting bar shall be allowed following exposure to H2O (0.5% solution).

Operating Mode Monitoring (minutes) Pacing (minutes) Defibrillation (360J discharges)

Total Capacity to Shutdown Typical 360 340 420

Minimum 340 320 400

Capacity After Low Battery Typical 21 20 30

Minimum 12 10 6

PACER

Pacing Mode: Demand or non-demand rate and current defaults (user configurable)

Pacing Rate: 40 to 170 PPM

Rate Accuracy: ±1.5% over entire range

Output Waveform: Monophasic, truncated exponential current pulse (20 + 1.5 msec)

Output Current: 0 to 200 mA

Pause: Pacing pulse frequency reduced by a factor of 4 when activated

Refactory Period: 200 to 300 msec ±3% (function of rate)

ENVIRONMENTAL

Unit meets functional requirements during exposure to the following environments unless otherwise stated.

Operating Temperature: 0° to 45°C (32° to 113°F) -20°C to -4°F) for 1 hour after storage at room temperature; 60°C (140°F) for 1 hour after storage at room temperature

Storage Temperature: -20° to 65°C (-4° to 149°F) except therapy electrodes and batteries

Relative Humidity, Operating: 5 to 95%, non-condensing, NIBP only: 15 to 95%, non-condensing

Atmospheric Pressure, Operating: -382 to 4,572 m (-1,253 to 15,000 ft), NIBP only: -152 to 3,046 m (-500 to 10,000 ft)

Water Resistance, Operating: IP44 (splash proof, dust and sand resistant) per IEC 529 and EN 1799 (without accessories except for 12-lead ECG cable, hard paddles, and battery pack)

Defibrillator

Impact, Non-operating: IEC 60601-1-5.0 + 0.05 joule impact UL 60601-1 6.78 Nm impact with 2-inch diameter steel ball. Meets IEC62262 protection level IK 04.
For more than 50 years, Physio-Control, maker of the renowned LIFEPAK defibrillators, has been developing technologies and designing devices that are legendary among first response professionals, clinical care providers and the community.

REFERENCES


All information including comparative statements are valid as of March 2009.

For further information please contact your local Physio-Control representative or visit www.physio-control.com.