Medtronic

LIFEPAK® CR Plus

Defibrillator

From the world leader in medical technology—for the minimally trained user

Easy 1-2-3-step operation

Semi-automatic or fully automatic configurations

Proven, flexible ADAPTIV™ biphasic technology

Unique, cost-effective power system

Lightweight and compact

Highly visible readiness indicator

Wireless data transfer and storage technology

QUIK-PAK™ pacing/defibrillation/ECG electrodes enable fast, accurate use

Medtronic created the LIFEPAK CR Plus automated external defibrillator (AED) for the first person at the scene of a sudden cardiac arrest to use. Designed for the minimally trained rescuer, the semi-automatic *CR Plus* requires just three steps to give a potentially lifesaving defibrillation shock, while the fully automatic *CR Plus* requires just two steps.

The LIFEPAK CR Plus defibrillator uses the latest ADAPTIV biphasic technology, which automatically adjusts energy based on the person's needs. The device provides additional shocks, up to 360J, if the heart doesn't respond to the first shock. This can enhance the chance of defibrillation success, with the goal of saving more lives.

An internal computer analyzes the heart's rhythm, making it possible for individuals without medical training to deliver potentially lifesaving treatment with the press of a button. The lightweight, cost-effective power system requires little maintenance, can deliver 20–30 full energy shocks, and is easy to recharge. The readiness display indicates the status of the CHARGE-PAK™ battery charger, and uses simple icons to indicate the status of the device.

QUIK-PAK pacing/defibrillation/ECG electrodes enable rapid access, incorporating a unique and easy pull handle with written and graphic prompts. The electrodes are compatible with all devices and connectors that can use QUIK-COMBO™ electrodes.

The device stores ECG data for wireless transmission through an infrared IrDA port to a personal computer (PC). This method of data storage and transfer is the most innovative idea in current AED technology, and eliminates the need for data cards.

User-friendly, PC-based software allows for complete and efficient review of both ECG and event data. Information from the *CR Plus* can be downloaded and stored in either the LIFENET® DT Express information management system or CODE-STAT™ Suite medical informatics system.

DEFIBRILLATOR

Waveform: Biphasic truncated exponential, with voltage and current duration compensation for patient impedance.*

Output Energy Sequence: Multiple levels, user configurable from 200J to 360J (150J min. outside the U.S.).

Output Energy Accuracy: ±10% into 50 ohms, ±15% into 25 to 100 ohms.

Shock Advisory System: An ECG analysis system that advises whether a shock is appropriate; meets rhythm recognition criteria specified in DF39.

The device charges for shock only when the Shock Advisory System advises defibrillation.

Device Capacity:
Typical: Thirty (30) full discharges or 210 minutes of "on time" with a fully charged device.

Minimum: Twenty (20) full discharges or 140 minutes of "on time" with a fully charged device.

Shock Charge Time: Charge times with a fully charged device: 200 joules in less than 9 seconds, 360 joules in less than 15 seconds.

System Recharge Times: Recharge times with a fully discharged device: able to deliver six (6) shocks or provide 42 minutes of operating time after 48 hours of recharge and 20 shocks or 140 minutes of operating time after fourteen (14) days of recharge time with a new CHARGE-PAK at temperatures above 15° C (59° F).

Controls:
Lid Release/ON-OFF - Controls device power.
SHOCK button (semi-automatic version) - delivers defibrillation energy. After electrodes are attached to a patient, the fully automatic version of the device delivers a shock, if appropriate, not requiring operator intervention.

Electrical Protection: Input protected against high voltage defibrillator pulses per IEC60601-1/EN60601-1

Safety Classification: Internally powered equipment. IEC60601-1/EN60601-1.

USER INTERFACE

User Interface: The user interface includes voice prompts, audible tones and graphic prompts.

Readiness Display: The readiness display shows the device status.

OK Indicator: Shows "OK" when the last self-test was completed successfully. When the "OK" indicator is visible, all other indicators are not visible. The "OK" indicator is not displayed during device operation.

CHARGE-PAK Indicator: When displayed, replace the CHARGE-PAK battery charger.

Attention Indicator: When first displayed, at least six (6) discharges or 42 minutes of operating time remain.

Service Indicator: Service required when displayed.

ENVIRONMENTAL

Note: *All performance specifications defined assume the unit has been stored (two hours minimum) at operating temperature prior to operation.*

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

Storage Temperature: -40° to +70° C (-40° to +158° F) with CHARGE-PAK and electrodes, maximum exposure time limited to one week.

Atmospheric Pressure: 760 mmHg to 429 mmHg, 0 to 15,000 feet above sea level.

Relative Humidity: 5 to 95% (non-condensing).

Water Resistance: IEC60529/EN60529 IPX4 "Splash proof" with electrodes connected, CHARGE-PAK installed.

Shock: MIL-STD-810E, Method 516.4, Procedure 1, (40g, 6-9 ms pulse, ½ sine each axis).

Vibration: MIL-STD-810E, Method 514.4, Helicopter – category 6 (3.75 Grms) and Ground Mobile – category 8 (3.15 Grms).

PHYSICAL CHARACTERISTICS

Height: 10.7 cm (4.2 in)

Width: 20.3 cm (8.0 in)

Depth: 24.1 cm (9.5 in), excluding handle

Weight: 2.0 kg (4.5 lb) with CHARGE-PAK and electrodes

SETUP OPTIONS

Energy Sequence: Users can choose an energy sequence to match their applicable energy protocol (e.g. 200J, 300J, 360J).

Motion Detection: The motion detection system can be set to off or on during analysis.

Energy Protocol: The user can configure the defibrillator to increase energy after every shock or only increase it after a lower energy was unsuccessful.

Turn-On Prompt: The turn-on prompt option allows the user to select the prompting style upon power on.

CPR Time: The CPR Time can be set to match local protocol.

Pulse Prompt: The pulse prompt option allows the user to select the voice message for CPR prompting according to the *Guidelines 2000*, as recommended by the American Heart Association (AHA) and the International Liaison Committee on Resuscitation (ILCOR).

Voice Prompt Volume: The voice prompt volume option allows changing the speaker volume.

Time/Date: The time and date can be changed.

Device ID: The device ID feature assigns a unique identifier to a particular device, which is printed on all reports.

Note: *Setup items are changed over a wireless interface. See the operating instructions for setup information instruction.*

ACCESSORIES

CHARGE-PAK Battery Charger

Type: Li/SO2Cl2 Lithium Sulfuryl Chloride, 11.7V, 1.4 amp-hours.

Replacement: Replace after each patient use, or when CHARGE-PAK indicator is visible, typically after two (2) years.

Weight: 80.5 grams (0.18 lb)

QUIK-PAK Electrode Pads

Pads: ECG is received from disposable defibrillation electrodes, standard placement (anterior-lateral).

Pads Packaging: User intuitive, rapid release QUIK-PAK electrodes allow the electrode pads to be preconnected to the device and protected under a top cover.

Pads Replacement: Replace every two (2) years.

DATA STORAGE

Memory Type: Internal digital memory.

ECG Storage: Dual patient data storage. Minimum 20 minutes of ECG stored for the current patient, summarized data stored for the previous patient.

Report Types:
- **Continuous ECG** – A continuous patient ECG report.
- **Continuous Summary report** – A summary of critical resuscitation events and ECG waveform segments associated with these events.
- **Event Log report** – A report of time stamped markers, which reflect operator and device activity.
- **Test Log report** – A device self-test activity report.

Capacity: Minimum 200 time-stamped event log markers.

Communications: Wireless transfer to a personal computer.

Data Review: Medtronic provides an array of tools to meet customer needs for data viewing and analysis.

* The specifications apply from 25 to 200 ohms. Voltage compensation is limited to the voltage that would result in delivery of 360 joules into 50 ohms.

All specifications are at 20° C unless otherwise stated.

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When Life Depends on Medical Technology

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