

HEARTSTART FR2+ DEFIBRILLATOR



The HeartStart FR2+ is the automated external defibrillator trusted most often by those trained and counted on to save a life.



Each year sudden cardiac arrest (SCA) strikes approximately a quarter million people in the U.S. alone. Fewer than 5% of those victims survive, largely because it is not possible for emergency medical services to reach them in time. Timely defibrillation is a highly effective treatment for SCA, improving the chances of survival to 40% or more.

Philips HeartStart defibrillators enable responders to treat SCA quickly wherever it happens – at work, at play, in the air, in emergency vehicles, and in medical facilities – by providing them the power to save a life.



250,000 DEATHS PER YEAR ARE ATTRIBUTED TO SUDDEN CARDIAC ARREST.

WITH WIDESPREAD ACCESS TO DEFIBRILLATORS, AN ESTIMATED 40,000 ADDITIONAL LIVES COULD BE SAVED.



Its host of features makes it an extremely versatile and rugged defibrillator, enabling responders to potentially save the life of a coworker, friend, patient or fellow citizen under demanding circumstances.

- ▶ **Lightweight:** Fully equipped at just under 5 pounds
- ▶ **Rugged:** Designed for use in extreme environments and conditions
- ▶ **Intuitive:** 1-2-3 operation, with text and voice prompts
- ▶ **Capable:** Cleared for use on anyone of any age, including children
- ▶ **Ever-Ready:** Powered by either a long-life disposable or a rechargeable battery
- ▶ **Effective:** Clinically proven low-energy waveform

Tool of the pros; simplicity for the lay responder

The FR2+ has come to be a trusted tool of professional responders and designated response teams in the work place and public settings. Its clean, uncluttered design is optimized for fast, efficient operation and rapid delivery of life-saving therapy. Commands are clear, streamlined, confident, and concise: ideal for responders who are trained, drilled, and ready to save a life now.

The HeartStart FR2+ offers features that make hand-off to ALS professionals seamless for maximum continuity of care for the patient. An ECG display is available. The FR2+ can be configured to allow ALS responders to switch to a manual mode, giving them more decision-making control. And defibrillator pads adapters enable the pads to remain on the patient when transferring to many popular ALS manual defibrillators from Philips and other manufacturers.

But don't be misled by its advanced capabilities. The HeartStart FR2+ is extremely easy to use. Its design is based on years of research, refinement by Philips human factors experts and user testing with the full range of responders from healthcare professionals to lay people. In fact, hundreds of thousands of citizens are already trained and ready to save a life with the FR2+.

Optimized for challenging environments

Because of its ruggedness and ability to stand up to temperature extremes and wet conditions, the HeartStart FR2+ is the

right choice for harsh, outdoor, or mobile use. It combines natural sounding voice instructions that are loud and clear, with text prompts on a large, bright back-lit display. This makes it ideal if you anticipate use in noisy or poorly lit settings. And at just 4.7 pounds, it's incredibly small and lightweight so it won't weigh you down.

Versatility

The FR2+ is designed to be highly flexible and versatile. You can tailor your FR2+ to match your specific response protocol.

Infant/Child Defibrillation

The FR2+ can treat patients of any age. When equipped with special infant/child defibrillator pads that reduce the energy of the FR2+'s shock, you can safely treat a child or infant in cardiac arrest.



Conscious Monitoring

The reusable 3-leadwire FR2+ ECG assessment module enables the professional responder to proactively use the FR2+ to assess the rhythm of patients who are not in cardiac arrest, but are conscious, breathing, and suspected of being at risk for cardiac distress. This small light-



weight defibrillator/monitoring solution is ideal for in- and out-of-hospital patient transport, bike medics, situations requiring long or difficult travel, fire rigs that may be staffed on occasion by paramedics, clinics and physicians' offices.

Ready to use

The HeartStart FR2+ is reliable and virtually maintenance-free. It automatically performs daily, weekly, and monthly self-tests of the battery, electrical components, and subsystems. A highly visible status indicator shows at a glance whether the FR2+ is ready for use.

The most thoroughly proven therapy

The FR2+ uses the proven SMART Analysis algorithm to ensure that a shock is delivered only if it is appropriate. And Philips' low-energy SMART Biphasic waveform delivers a highly effective defibrillation shock that is also gentle to the heart. No other external defibrillation therapy has been supported by more clinical data.

Realistic training keeps your skills honed

To help responders maintain their lifesaving skills, Philips gives you a wide range of realistic training solutions.

When equipped with the rechargeable training and administration pack, you can actually use your FR2+ as a trainer. Its shock delivery capability is disabled while you train with ten realistic scenarios. When you connect the FR2+ to a simulator or a special manikin able to produce an ECG rhythm, you can elicit realistic FR2+ responses to various heart rhythms for even more refined training.



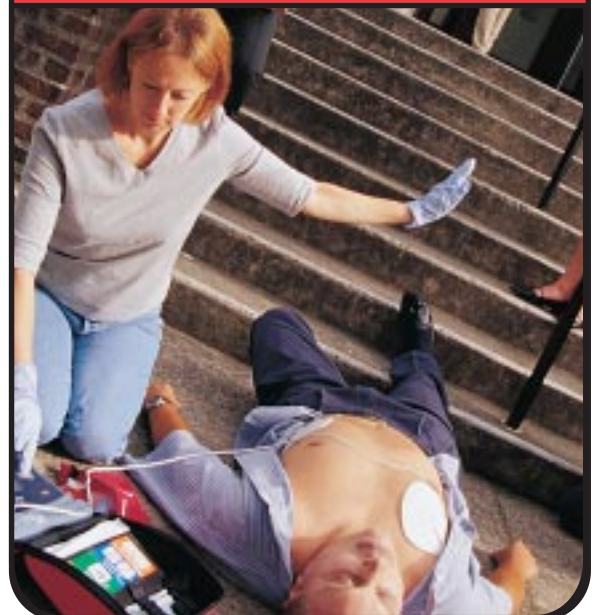
Philips also offers an economical AED trainer that comes with ten scenarios. An optional remote control enables instructors to pace the scenario to match their instruction, and to challenge the trainee with surprise scenario changes. Also available is the comprehensive AED Little

Anne training system, featuring a manikin that gives the student realistic pad placement feedback.

Comprehensive data management

To maintain high standards of response timeliness and quality, many organizations place a high premium on detailed retrospective event reporting. The FR2+ facilitates this with an optional data card that records patient heart rhythm, defibrillator use and, if configured, voice recording of the event. The removable data card lets you produce a variety of reports via HeartStart Event Review PC software, without taking your FR2+ out of service.

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CITIZENS ARE ALREADY
TRAINED AND READY
TO SAVE A LIFE WITH THE
HEARTSTART FR2+.**



POWER TO SAVE A LIFE

DEFIBRILLATOR

Defibrillator Model	With ECG M3860A With Text Only Display M3861A
How Supplied	Defibrillator, instructions for use, standard battery, defibrillator pads (2 pair), quick reference card.
Waveform	Truncated exponential biphasic. Waveform parameters adjusted as a function of patient impedance.
Energy	Single energy output. Adults: 150 J nominal into a 50ohm load; Pediatric: 50 J nominal into a 50 ohm load.
Charge Time From Shock Advised	Typically less than 10 seconds.
Shock-to-Shock Cycle Time	Typically less than 20 seconds (including analysis time) in automated mode.
Protocol	Text and voice prompts guide user through protocol. Follows pre-configured settings. Can be modified with the M3864A training & administration pack.
Shock Delivery	Via defibrillator pads placed in anterior-anterior (lead II) position for adult defibrillation and anterior-posterior for infant/child defibrillation.
Controls	On/off, shock, screen contrast/option buttons.
Indicators	LCD screen, beeper, audio speakers, status indicator, shock button, connector socket LED.
Advanced Mode	Configurable protocol.

PHYSICAL

Size	
Height	6.6 cm. (2.6 inches)
Width	21.8 cm. (8.6 inches)
Depth	21.8 cm. (8.6 inches)
Weight	
With battery	2.1 kg. (4.7 pounds)
Without battery	1.8 kg. (3.9 pounds)

ECG DISPLAY (M3860A)

Screen	High-resolution LCD with bright back light.
Screen Dimensions	2.8 inches wide x 2.3 inches high (7.0 cm x 5.8 cm).
Display Range	Differential: ±2 mV full scale (nominal).
Sweep Speed	23 mm/second (nominal).
Frequency Response	1 Hz to 20 Hz (-3dB) (nominal).
Sensitivity	1.16 cm/mV (nominal).
Heart Rate	30 to 300 beats per minute updated each analysis period during monitoring.
Monitored Lead	Anterior-anterior (lead II) placement with adult defibrillation pads or ECG Assessment module (M3860A only).

PATIENT ANALYSIS SYSTEM

Patient Analysis	Per protocol, evaluates patient ECG and signal quality to determine if a shock is appropriate, and evaluates connection impedance for proper defibrillation pad contact.
Sensitivity/Specificity	Meets AAMI DF-39 guidelines.

FR2 SERIES STANDARD BATTERY (M3863A)

Type	12 VDC 4.2 Ah lithium manganese. Disposable, recyclable, long-life, primary cells.
Capacity	Minimum 300 shocks or 12 hours operating time.
Install-By Date	Battery is labeled with an install by date at least 5 years from date of manufacture.
Standby Life	Defines how long the battery will power the AED in standby operation within the standby temperature range (one battery insert test and no uses). 4 years minimum when battery is installed by the Install-By-Date (5 years typical).

HEARTSTART AED DEFIBRILLATOR PADS

Configuration	DP2: two pair or DP6: six pair
How Supplied	Disposable self-adhesive defibrillation pads with integrated cable and connector.
Surface Area	100 cm ² each (nominal active surface area).
Cable Length	Approximately 122 cm (48 inches).

HEARTSTART FR2 INFANT/CHILD PADS (M3870A)

Patient	Under 8 years or 25 kg (55 pounds)
Defibrillator Compatibility	FR2-series (FR2 and FR2+) automated external defibrillator only.
Configuration	M3870A FR2 Infant/Child Reduced Energy Defibrillator Pads. 1 set per package.
How Supplied	Disposable self-adhesive pads with cable and connector.
Energy Delivered	Reduces defibrillator shock energy to nominal 50 Joules into a 50 ohm load.
Surface Area	44 cm ² each pad (nominal active surface area).
Cable Length	Approximately 122 cm (48 inches).

MEDICAL CONTROL/RECORDING FEATURES

Standard Event Review	Elapsed time and number of shocks are displayed on screen.
Enhanced Event Review	Optional data card (M3854A) expands the above on-screen event review capabilities. Review chronological events in detail including ECG. 8 Hours of event & ECG recording or one hour if voice recording is activated.

ENVIRONMENTAL/PHYSICAL REQUIREMENTS

Sealing	Meets IEC529 class IP54 with battery and data card tray installed.
Temperature	Operating: 0° - 50° C (32° - 122° F) Standby: 10° - 43° C (50° - 109° F) Standby applies to AED with battery installed and stored with defibrillation pads
Humidity	Operating: 0% to 95% relative humidity (non-condensing) Standby: 0% to 75% relative humidity (non-condensing)
Altitude	-500 to 15,000 feet per MIL-STD-810E 500.3 Procedure II
Aircraft	Method: RTCA/DO-160D: 1997 Section 21 (Category M - Charging)
Shock/Drop Abuse Tolerance	1 meter any edge, corner or surface. MIL-STD-810E 516.4 Procedure IV.
Vibration	MIL-STD-810E 514.4-17
EMI	Requirements: Tested to EN60601-1-2 Limits. Radiated: Method EN55011: 1998 Group 1 Level B. Immunity: Method EN61000-4-3:1998 Level 2

AUTOMATED AND USER ACTIVATED SELF TESTS

Automatic Self-Tests	Tests internal circuitry, waveform delivery system, and battery capacity. Verifies calibration of key circuits monthly.
Automatic Self-Test Frequency	Daily when stored within operating environmental conditions.
Status Indication	Dynamic visual and audible indication of self-test results. Indicates device readiness.
Battery Insertion Test	Upon battery insertion, extensive automatic self-tests and user interactive tests check device readiness. Verifies calibration of key circuits.
Automatic Standby Temperature Monitoring	Instrument automatically monitors temperature and warns user if device is stored outside of standby temperature range.

FR2+ TRAINING AND ADMINISTRATION PACK (M3864A)

Function	Places FR2+ in scenario-based training mode and disables energy delivery. 10 real-world scripts provided. Permits modification of preprogrammed FR2+ protocol.
Type	12 VDC 1.1 Ah Rechargeable Nickel Metal Hydride
Capacity	Minimum 4 hours training time.
Recharge Time	90 minutes to full capacity using M3855A charger (sold separately).

* Refer to FR2+ User Guide for detailed product use instructions. All specifications based on 25° C unless otherwise noted. Specifications are subject to change. FR2+ and accessories are made of latex-free materials.

Philips, Leading the Way

Philips, a leader in defibrillation technology,* offers a full portfolio of resuscitation products, helping rescuers treat SCA quickly and effectively wherever it occurs, from the home to the hospital and the places in between, where people live, work and play.

To learn more about the HeartStart FR2+ Defibrillator, Philips Medical Systems and these services, call 800-453-6860 or visit www.medical.philips.com/cms.

* Frost and Sullivan



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