



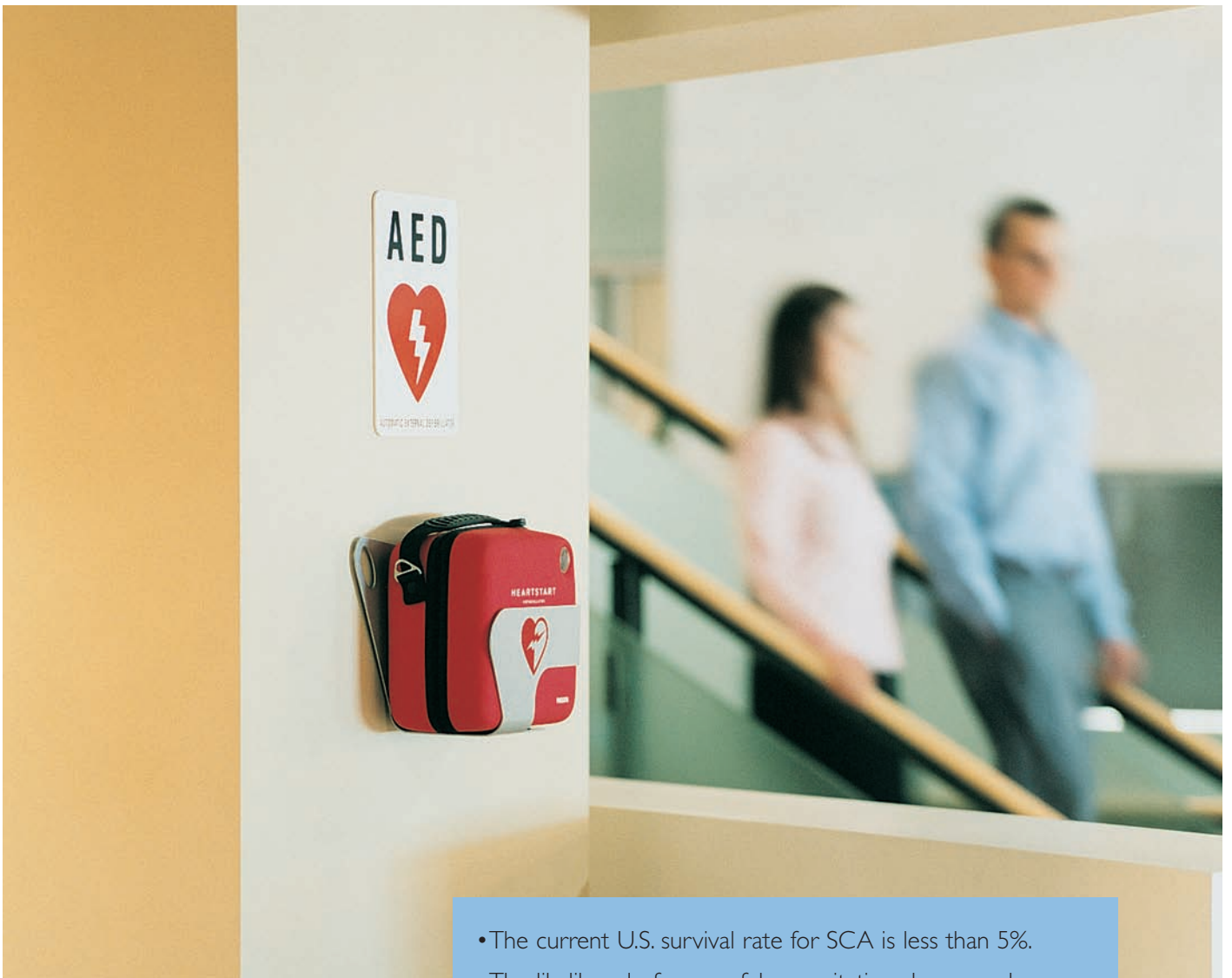
# For the ordinary person in the extraordinary moment

Philips HeartStart OnSite Defibrillator  
Product information

*Updated for Guidelines 2005*

**PHILIPS**

# Sudden cardiac anyone, anytime,



- The current U.S. survival rate for SCA is less than 5%.
- The likelihood of successful resuscitation decreases by about 10% with every minute that passes.
- An additional 40,000 lives could be saved each year in the U.S. alone with widespread access to defibrillators.

# arrest can happen to anywhere.

## Power to save a life

Each year sudden cardiac arrest (SCA) strikes approximately 340,000 people in the U.S. alone, and hundreds of thousands more worldwide. The majority of these people have no warning, since they show no prior symptoms. And sadly, fewer than 5% survive, often because emergency medical services cannot reach them in time.

SCA most often occurs when the electrical system of the heart becomes chaotic, causing it to stop beating effectively. Lacking proper blood flow, the person becomes unresponsive, stops breathing, and will die unless promptly treated. CPR is important, but it alone cannot restore a normal heart rhythm. A “shock” from a defibrillator is the

most effective way to restore the heart’s normal pumping rhythm. The victim’s best chance of survival is to receive that shock within 5 minutes of collapse. Just as seat belts or airbags do not save every life in a traffic accident, a defibrillator will not save every person who suffers a sudden cardiac arrest. Yet many lives could be saved if more people could be reached more quickly.

Philips HeartStart Defibrillators enable virtually anyone to treat the most common cause of SCA by delivering a shock quickly and effectively, wherever it happens – at work, at play, in the air – providing the power to save a life.



# The Philips HeartStart OnSite Defibrillator



Philips, the leader in portable defibrillation technology, designed the HeartStart OnSite Defibrillator for the ordinary person in the extraordinary moment. The first commercial defibrillator available without a prescription, the OnSite is designed to be the easiest to use and most reliable defibrillator available.<sup>1,2</sup> Our innovative technology, based on extensive research and user feedback, has produced a defibrillator so easy to use that you can potentially save the life of a coworker, friend, or anyone else stricken with sudden cardiac arrest.

Weighing just 3.3 lbs., this small and lightweight defibrillator can be easily carried to the victim's side. Using clear, calm voice instructions, the OnSite Defibrillator guides you through each step of defibrillation, including CPR Coaching. Integrated SMART Pads placed on the victim's bare skin transmit information to the defibrillator, which senses and adapts to your actions every step of the way.

HeartStart OnSite includes proven Philips technologies for heart rhythm assessment (SMART Analysis) and defibrillation energy delivery (SMART Biphasic). And like all HeartStart Defibrillators, it can be used to treat infants and children as well as adults.<sup>3</sup>

# The first defibrillator available without a prescription to commercial users

## Ready when needed

The OnSite has a long-life battery:

- 5-year shelf life plus 4-year installed life.
- The same battery technology used with confidence in millions of cameras.

Automatic self-tests help ensure continued readiness:

- Daily self-tests check electrical components, subsystems and battery.
- A self-test also verifies that the pads cartridge is installed and in working order.
- A blinking green “Ready” light means the OnSite has passed its last self-test, so you can be confident the defibrillator is ready for use.

## Easy to use

Using the HeartStart OnSite Defibrillator is simple. Pulling the green handle activates the defibrillator and voice instructions. These instructions are paced to your actions, to help guide you through the entire process – from placing each pad on the patient to delivering a defibrillation shock.



## HeartStart OnSite determines if a heart rhythm is shockable.

- If a shock is indicated, the defibrillator directs you to press the flashing orange Shock button. Then HeartStart OnSite delivers a dose of low-energy biphasic therapy, a highly-effective defibrillation waveform that is also gentle to the heart.
- If a shock is not indicated, the OnSite Defibrillator instructs you to perform CPR. While performing CPR,

the defibrillator’s voice instructions can be activated to coach you on the frequency and depth of compressions as well as breaths. HeartStart OnSite also reminds you to call emergency medical services (EMS). And should EMS need a summary of care, it can be retrieved from the defibrillator’s internal memory. An EMS provider simply presses the i-button and HeartStart OnSite verbally recounts events from its last clinical use.

# Designed to help save a life in extraordinary circumstances

## Lightweight

Just 3.3 pounds fully equipped.

## Intuitive

Clean design and clear voice instructions, including CPR Coaching, instill the confidence that's needed when treating a person in cardiac arrest.

## Effective

Patented SMART Analysis heart rhythm assessment and SMART Biphasic defibrillation therapy, clinically proven in nearly 10 years of use. No other external defibrillation therapy has been supported by more published clinical data.<sup>9</sup>

And with patented Quick Shock, the OnSite is fastest in class at delivering a shock after CPR. Studies show that minimizing time to shock after CPR may improve survival.<sup>4,5,6,7,8</sup> As American Heart Association Guidelines 2005 notes, "Reduction in the interval from compression to shock delivery by even a few seconds can increase the probability of shock success."<sup>10</sup>

## Replaceable SMART Pads Cartridges

The cartridge contains two adhesive pads that are placed on the patient's bare skin as indicated by the pictures on the pads. The pads are "smart" because they sense when they have been removed from the cartridge and when each has been applied to the patient, adjusting the voice instructions to your actions.

The HeartStart OnSite can be used on patients of any age, including infants and children. OnSite senses when the special infant/child SMART Pads Cartridge is installed. It automatically adjusts to use a lower energy level more appropriate for infants and children, and also provides coaching for performing infant/child CPR.

To practice your skills, a special training pads cartridge (adult or infant/child) can be installed in the defibrillator. It suspends the defibrillator's ability to shock, while walking you through patient care scenarios.



# Product specifications

Defibrillator	
Defibrillator Model	HeartStart M5066A
Defibrillator Family	HSI
How Supplied	Defibrillator, Owner's Manual, battery, 1 adult SMART Pads cartridge, Quick Reference Guide and Quick Start poster
Waveform	Truncated Exponential Biphasic. Waveform parameters adjusted as a function of each patient's impedance.
Energy	Single energy output. Adult: nominal 150 Joules into a 50 ohm load. Infant/Child: nominal 50 Joules into a 50 ohm load. Automatically set based on type of SMART Pads cartridge installed.
Shock-to-Shock Cycle Time	Typically less than 20 seconds between shocks in a series.
Quick Shock	Able to deliver a shock after the end of a CPR interval, typically in eight seconds.
Voice Instructions	Detailed voice messages guide responder through use of the defibrillator.
CPR Coaching	Instructions for adult and infant/child CPR available at user's option.
Shock Delivery	Via adhesive pads placed on patient's bare skin as illustrated on pads.
Controls	Green SMART Pads cartridge handle, green On/Off button, blue i-button, orange Shock button
Indicators	Ready light; blue i-button; caution light
Physical Specifications	
Size	2.8 x 7.4 x 8.3 inches (7 x 19 x 21 cm) H x D x W
Weight	With battery and pads case: 3.3 lbs. (1.5 kg) Without battery or pads case: 2.4 lbs. (1 kg)
Environmental/Physical Requirements	
Sealing	Solid objects per EN60529 class IP2X Drip-proof per EN60529 class IPX1
Temperature	Operating: 32° - 122° F (0° - 50° C) Standby: 50° - 109° F (10° - 43° C)
Humidity	Operating: 0% to 95% relative, non-condensing Standby: 0% to 75% relative, non-condensing
Altitude	Operating: 0 to 15,000 feet Standby: 0 to 8,500 feet > 48 hours and 8,500 to 15,000 feet < 48 hours
Shock/Drop/Abuse	Withstands 1 meter drop to any edge, corner or surface.
Vibration	Meets EN1789 random and swept sine, road ambulance specification in operating and standby states.
EMI (Radiated/Immunity)	Meets EN55011 Group I Level B Class B and EN61000-4-3.
Patient Analysis System	
Patient Analysis	Evaluates patient ECG to determine if a rhythm is shockable. Rhythms considered shockable are ventricular fibrillation (VF) and certain ventricular tachycardias (VT) associated with lack of circulation. For safety reasons, some VT rhythms associated with circulation will not be interpreted as shockable, and some very low-amplitude or low-frequency rhythms will not be interpreted as shockable VF.
Sensitivity/Specificity	Meets AAMI DF80 guidelines and AHA recommendations for adult defibrillation (Circulation 1997;95:1677-1682).
Artifact Detection	The effects of pacemaker artifact and electrical noise are minimized with artifact detection.
Battery (M5070A)	
Type	9 Volt DC, 4.2 Ah, composed of disposable long-life lithium manganese dioxide primary cells.
Capacity	Minimum 200 shocks or 4 hours of operating time (EN 60601-2-4:2003)
Install-by Date	Battery is labeled with an install-by date of at least five years from date of manufacture.
Standby Life	Four years typical when battery is installed by the install-by date. (Will power the AED in standby state within the specified standby temperature range, assuming one battery insertion test and no defibrillation uses.)
SMART Pads	
Adult SMART Pads Cartridge	M5071A defibrillation pads for patients 8 years of age and older or 55 lbs. (25 kg) and over.
Infant/Child SMART Pads Cartridge	M5072A defibrillation pads for patients under 8 years of age or 55 lbs. (25 kg). Rx only.
Energy Delivered	Adult: nominal 150 Joules into a 50 ohm load Infant/Child: nominal 50 Joules into a 50 ohm load
How Supplied	Disposable cartridge, containing adhesive defibrillation pads, clicks into defibrillator for an integrated pads solution.
Active Surface Area	13.2 in <sup>2</sup> (85 cm <sup>2</sup> ) each
Cable Length	Adult pads: 54 in (137.1 cm) Infant/Child pads: 40 in (101.6 cm)
Use-by Date	Cartridge is labeled with a use-by date of at least two years from date of manufacture.
Training Pads	
Adult Training Pads Cartridge	M5073A
Infant/Child Training Pads Cartridge	M5074A
Function	Special pads put HeartStart OnSite into training mode and disable its energy delivery capability. Training pads feature 8 real-world training scripts. Used with training mat (included) or with adapters on manikins.
Automated and User-activated Self-tests	
Daily Automatic Self-tests	Tests internal circuitry, waveform delivery system, pads cartridge and battery capacity.
Pads Integrity Test	Specifically tests readiness-for-use of pads (gel moisture).
Battery Insertion Test	Upon battery insertion, extensive automatic self-tests and user-interactive test check device readiness.
Status Indicator	Blinking green "Ready" light indicates ready for use. Audible "chirp" indicates need for maintenance.
Data Recording and Transmission	
Infrared	Wireless transmission of event data to a PC or Palm® PDA, using the IrDA protocol.
Data Stored	First 15 minutes of ECG and the entire incident's events and analysis decisions.

\* Refer to the HeartStart OnSite Defibrillator Owner's Manual for detailed product instructions.  
All specifications based on 25° C unless otherwise noted. The defibrillator and its accessories are made of latex-free materials.

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Would you like to know more about our innovative products? Please do not hesitate to contact us. We would be glad to hear from you.

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**Philips—The trusted choice**

- A Fortune Global 500 company, Philips is one of the world's largest medical products companies with annual revenue of over \$7 billion.
- With over 350,000 automated external defibrillators installed, Philips is the leader in public access defibrillation.<sup>11</sup>
- Over 7 billion HeartStart Defibrillator service hours have been logged, with an additional 7 million added every day.
- Over 17% of Fortune 1000 companies, 8 out of 10 major airlines, and 43 professional sports teams rely on Philips HeartStart Defibrillators.

The HeartStart OnSite Defibrillator is the first defibrillator available for commercial and institutional users without a prescription. As the leader in innovative defibrillation technology, Philips is committed to making defibrillators more widely available so that more lives can be saved. Now with over-the-counter status, Philips is making it easier for companies and organizations to institute early defibrillation programs.

Defibrillators are one part of a well-planned resuscitation program, which also should include responder training in CPR and AED use. Philips recommends medical oversight of your early defibrillation program by a physician or other authorized medical practitioner. Consult your state and local requirements regarding owning and operating defibrillators, and medical oversight.

**HeartStart user considerations**

- You cannot use the HeartStart OnSite to treat yourself.
- Responding to cardiac arrest may require you to kneel.

To learn more about the HeartStart OnSite Defibrillator and Philips Medical Systems, visit [www.philips.com/heartstart](http://www.philips.com/heartstart) or call 1-800-453-6860.

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- <sup>1</sup> Andre, et al. Automated External Defibrillator Use by Untrained Bystanders: Can the Public-use Model Work? *Prehospital Emergency Care* 2004;8:284-291.
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Printed in the Netherlands  
4522 962 16731 \* JAN 2007



# For those who get there first

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# Sudden cardiac anyone, anytime,



- The current U.S. survival rate for SCA is less than 5%.
- The likelihood of successful resuscitation decreases by about 10% with every minute that passes.
- An additional 40,000 lives could be saved each year in the U.S. alone with widespread access to defibrillators.

# arrest can happen to anywhere.

## Power to save a life

Sudden cardiac arrest (SCA) is one of the leading causes of death in the United States, striking more than 340,000 victims each year, and hundreds of thousands more worldwide.<sup>1,2,3</sup> More people die from SCA than from breast cancer, prostate cancer, house fires, hand guns, traffic accidents and AIDS combined.

SCA can happen to anyone, anytime, anywhere and sometimes in extreme conditions. Rely on the Philips HeartStart FRx Defibrillator to be up to the task. In the hands of those who get there first, it provides the power to save a life.



### **Coming to the rescue**

*Often first on the scene of an emergency, police forces equipped with AEDs can cut defibrillator response time to SCA victims by three minutes.<sup>4</sup>*



### **Taking care of business**

*Thirteen percent of workplace fatalities reported in 1999 and 2000 were due to cardiac arrest.<sup>5</sup>*



### **Protecting kids, parents and teachers**

*An estimated 5,000-7,000 children in the U.S. succumb to sudden cardiac arrest annually,<sup>6</sup> many related to sporting events.*

# The Philips HeartStart FRx Defibrillator



For more than a century, Philips has pioneered technology that makes life better. Today, we're taking this commitment one step further, creating products that not only enhance life, but also preserve it. The Philips FRx Defibrillator is the newest member of the HeartStart family of defibrillators designed with new technological advancements to help in treating the most common cause of SCA.

The Philips HeartStart FRx Defibrillator is designed to be easy to use, rugged and reliable for those who get there first. On the scene with law enforcement, on the field with student athletes or on the job with employees, the FRx Defibrillator is the solution for treating SCA from ventricular fibrillation in environments and conditions too demanding for many other defibrillators.

The HeartStart FRx Defibrillator carries innovation in its genes. Building on the successes of the other members of the HeartStart family of defibrillators, the FRx brings innovations to the treatment of SCA.

# The HeartStart FRx Defibrillator brings innovations to the treatment of SCA

## Preconnected SMART Pads II

Pads for all patients. Save valuable time in an emergency with preconnected pads for use on adults and children. SMART Pads II eliminate the expense of having to purchase different pads sets for different patient types. What's more, SMART Pads II enable the FRx to keep pace with responders by adjusting to their actions.

## Wireless Data Transfer

The FRx provides a mobile, wireless solution for data management using the Palm® handheld platform. It features an infrared data port for easy transmission of information without cables or hardwire compatibility issues.

## Infant/Child Key

Simply insert the Infant/Child Key into the FRx to signal to the device that you're treating an infant or a child. The defibrillator adjusts to provide special pads placement and CPR instructions. The pads icons also flash to show you the appropriate pads placement and the device reduces the shock energy to a level more appropriate for an infant or a child (less than 55 pounds or 8 years of age).

## CPR Coaching

The HeartStart FRx offers the industry's first and only CPR Coaching feature for use on adults and children. CPR Coaching reminds the responder of CPR basics through detailed voice instructions.



## Proven therapy

At the core of all HeartStart Defibrillators is SMART Biphasic technology. The HeartStart FRx Defibrillator's 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 published clinical data.<sup>7</sup>

SMART Analysis, a proven Philips technology for heart rhythm assessment, ensures that the FRx Defibrillator only shocks when it should. SMART Analysis automatically assesses the victim's heart rhythm and is designed not to deliver a shock unless the rhythm is determined to be shockable – even if the Shock button is pressed.

And with patented Quick Shock, the FRx is fastest in class at delivering a shock after CPR. Studies show that minimizing time to shock after CPR may improve survival. As American Heart Association Guidelines 2005 notes, "Reduction in the interval from compression to shock delivery by even a few seconds can increase the probability of shock success."<sup>8</sup>

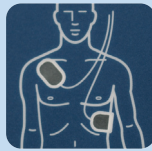
## Designed for real world use

The Philips HeartStart FRx Defibrillator is exceptionally rugged. Designed to surpass rigorous testing requirements, the FRx withstands jetting water, loads up to 500 pounds and a one-meter drop onto concrete.

## Easy as 1-2-3 in an emergency



**1** Press the green On/Off button, which activates voice instruction.



**2** Place the pads on the patient as directed.



**3** When instructed by the device, press the orange Shock button.

### **Built on a platform of proven ease-of-use**

The HeartStart FRx Defibrillator was designed to be as easy to use as the HeartStart OnSite Defibrillator and shares many of its features, including CPR Coaching and intuitive icon-driven operation. Although small and lightweight – just 3.5 pounds – the FRx is equipped to direct you through the resuscitation of a SCA victim.

The HeartStart FRx guides you through every step with clear, calm voice commands and descriptive visual icons. The FRx even reminds you to call emergency medical services (EMS). Pressing the blue i-button activates HeartStart CPR Coaching for assistance with CPR. The flashing icons and the Quick Reference Guide can be used to lead you through the defibrillation steps – even in situations where hearing voice instructions is a challenge.

Once EMS arrives, hand-off is fast and easy because the FRx is compatible with advanced defibrillators like the HeartStart MRx. With HeartStart adapters, our pads can be plugged into devices from other manufacturers to ensure continuity of care.

## Providing a complete, reliable solution

### **Reliability backed by Philips**

The HeartStart FRx Defibrillator is powered by an easy to install, long-life (four-year) battery, so you know the device is charged and ready. The device's automated daily, weekly and monthly self-tests check the pads readiness, and verify functionality and calibration of circuits and systems. With over 85 tests, the FRx is one of the most comprehensive self-testing devices on the market and is virtually maintenance-free. The blinking green "Ready" light on the defibrillator is your assurance that the device is ready for use.

### **Philips HeartStart Essentials — The key to a successful early defibrillation program**

Philips helps implement a comprehensive program with most everything you and your Medical Director will need to help save a life from sudden cardiac arrest. We'll get you started with pre-implementation consulting and site assessments. We can manage your everyday needs including medical direction from a licensed physician, web-based program management, data management software, and responder and instructor training. Philips offers ongoing support with a five-year warranty, optional extended warranty and continued customer support from supplies ordering to technical assistance.

# Product specifications

<b>Defibrillator</b>		<b>Battery</b>	
Model	HeartStart FRx Defibrillator	Item Number(s)	Standard: M5070A Aviation: 989803139301 (TSO C-142-U.S. only)
Model Number	861304	Type	9 Volt DC, 4.2Ah, lithium manganese dioxide, disposable long-life primary cell.
How Supplied	Defibrillator, battery (1), SMART Pads II (1 set), Owner's Manual, Quick Reference Guide	Capacity	Minimum 200 shocks or 4 hours of operating time (EN 60601-2-4:2003).
Waveform	Truncated Exponential Biphasic. Waveform parameters adjusted as a function of each patient's impedance.	Install-by Date	Battery is labeled with an install-by date of at least five years from date of manufacture.
Energy	Single energy output: Adult: nominal 150 Joules into a 50-ohm load Infant/Child: nominal 50 Joules into a 50-ohm load	Standby Life	Four years typical when battery is installed by the install-by date. (Will power the AED in standby state within the specified standby temperature range, assuming one battery insertion test and no uses.)
Protocol	Device follows preconfigured settings. Defibrillation and CPR protocol can be customized using HeartStart Event Review or HeartStart Configure software.	<b>SMART Pads II</b>	
<b>User Interface</b>		Item Number	989803139261
Instructions	Detailed voice prompts and visual icons guide responder through use of the defibrillator.	How Supplied	Disposable pads case containing adhesive multifunction defibrillator pads. HeartStart plug style connector clicks into device for reconnected pads solution.
CPR Coaching	Voice coaching for adult and infant/child CPR provides instructions and audio cues for the appropriate number, rate and depth of chest compressions, as well as for each breath.	Active Surface Area	12.4 in2 (80 cm2) each
Controls	Green On/Off button, blue i-button, orange Shock button, optional Infant/Child key	Cable Length	48 inches (121.9 cm)
Indicators	Ready light, blue i-button, caution light, illuminated pads, icons, Shock button lights up when shock is advised.	Use-by Date	Pads case is labeled with a use-by date of at least two years from date of manufacture.
<b>Physical</b>		Infant/Child Key Item Number	989803139311
Size	2.4 x 7.1 x 8.9 inches (6 x 18 x 22 cm) H x D x W	<b>Training Pads II</b>	
Weight	With battery and pads case: 3.5 lbs. (1.5 kg) Without battery or pads case: 2.6 lbs. (1.2 kg)	Item Number	989803139271
<b>Environmental</b>		Function	Special pads place HeartStart FRx into training mode and disable its energy delivery capability. Features 8 real-world training scenarios.
Sealing	Waterjet proof IPX5 per IEC60529 Dust protected IP5X per IEC60529	<b>Automated and User-activated Self-tests</b>	
Temperature	Operating/Standby: 32° - 122° F (0° - 50° C)	Daily Automatic Self-tests	Tests internal circuitry, waveform delivery system, pads and battery capacity.
Altitude	0 to 15,000 feet	Pads Integrity Test	Specifically tests readiness-for-use of pads (gel moisture).
Aircraft	Device: RTCA/DO-160D; 1997	Battery Insertion Test	Upon battery insertion, extensive automatic self-tests and user-interactive test check device readiness.
Crush	500 pounds	Status Indicator	Blinking green "Ready" light indicates ready for use.
Vibration	Operating: meets MILSTD 810F Fig. 514.5C-17, random; Standby: meets MILSTD 810F Fig. 514.5C-18, swept sine.	<b>Data Recording and Transmission</b>	
EMI (Radiated/Immunity)	CISPR II Group I Class B, IEC 61000-4-3, and IEC 61000-4-8	Infrared	Wireless transmission of event data to a PC or Palm® PDA, using the IrDA protocol.
<b>Patient Analysis System</b>		HeartStart Event Review Software	Data management software (optional) for download and review of data retrieved through defibrillator's infrared data port.
Patient Analysis	Evaluates patient ECG to determine if a rhythm is shockable. Rhythms considered shockable are ventricular fibrillation (VF), and certain ventricular tachycardias (VT) associated with lack of circulation. For safety reasons, some VT rhythms associated with circulation will not be interpreted as shockable, and some very low-amplitude or low-frequency rhythms will not be interpreted as shockable VF.	Data Stored	Stores first 15 minutes of ECG and the entire incident's events and analysis decisions.
Sensitivity/Specificity	Meets AAMI DF80 guidelines and AHA recommendations for adult defibrillation (Circulation 1997;95:1677-1682).	* Refer to the HeartStart FRx Defibrillator Owner's Manual for detailed product instructions. All specifications based on 25° C unless otherwise noted. The defibrillator and its accessories are made of latex-free materials.	
Shock Advised	Able to deliver a shock as soon as the device indicates a shock is advised.		
Quick Shock	Able to deliver a shock after the end of a CPR interval, typically in eight seconds.		
Shock-to-Shock Cycle Time	Typically less than 20 seconds between shocks in a series.		
Artifact Detection	Advanced signal processing allows accurate ECG analysis even in the presence of most pacemaker artifact and electrical noise sources. Other artifacts are detected and corrective voice prompts issued.		

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**Philips—The trusted choice**

- A Fortune Global 500 company, Philips is one of the world's largest medical products companies with annual revenue of over \$7 billion.
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- Over 17% of Fortune 1000 companies, 8 out of 10 major airlines, and 43 professional sports teams rely on Philips HeartStart Defibrillators.

To learn more about the HeartStart FRx Defibrillator and Philips Medical Systems, visit [www.philips.com/heartstart](http://www.philips.com/heartstart) or call : 1-800-453-6860.

Palm is a registered trademark owned by Palm, Inc.

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Printed in the Netherlands  
4522 962 16741 \* JAN 2007



# Trusted most often by those trained to save lives

Philips HeartStart FR2+ Defibrillator  
Product information

*Updated for Guidelines 2005*

**PHILIPS**

The Philips HeartStart

# FR2+ Defibrillator



Each year sudden cardiac arrest (SCA) strikes approximately 340,000 people in the U.S. alone and hundreds of thousands more worldwide. Fewer than 5% of those victims survive, largely because emergency medical services do not reach them in time. The combination of timely CPR and defibrillation is a highly effective treatment for the most common form of SCA, significantly improving the chances of survival.

## Now with SMART CPR and Quick Shock

Its host of features makes the FR2+ 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**

Weighs just under 5 pounds fully equipped.

### **Rugged**

Designed for use in extreme environments and conditions.

### **Intuitive**

1-2-3 operation, with text and voice prompts.

### **Capable**

Can be used on anyone of any age, including infants and children.

### **Ever-ready**

Powered by either a long-life disposable or a rechargeable battery.

### **Effective**

Clinically proven low-energy waveform.

# Tools for the pros; simplicity for the lay responder

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

The HeartStart FR2+ offers features that make hand-off to advanced life support (ALS) trained professionals seamless to ensure continuity of care for the patient. An ECG display is available, and 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 refined through 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 help save a life with the FR2+.

## Optimized for challenging environments

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 and child defibrillation

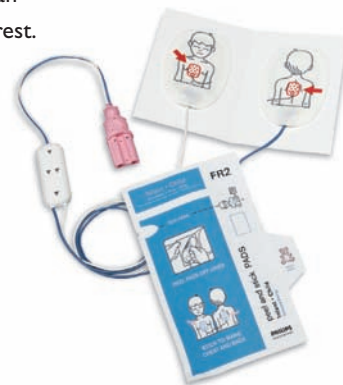
The FR2+ can treat patients of any age. When equipped with special infant/child defibrillator pads that reduce the energy of the FR2+'s shock to a more appropriate level, you can safely treat a child or infant in cardiac arrest.

## 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, lightweight 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.



Hundreds of thousands of citizens are already trained and ready to save a life with the HeartStart FR2+.



### 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+ has passed its last self-test and is ready for use.

### Reliable analysis technologies

The FR2+ uses Philips' patented SMART Analysis algorithm to assess the patient's heart rhythm and determine if it is shockable. Research shows that for some patients, especially those in long-duration cardiac arrest, CPR prior to defibrillation may provide more benefit.<sup>1,2,3</sup> At the discretion of the medical director, the defibrillator's SMART CPR algorithm can be configured to look at characteristics of a shockable heart rhythm and compute the likelihood that spontaneous circulation will return with an initial shock. Depending on the results, the caregiver is advised to provide either an immediate defibrillation shock or CPR first followed by a shock.

### Quick Shock

Research also suggests that the opportunity for survival can be improved if interruptions to CPR are minimized.<sup>4,5</sup> As American Heart Association Guidelines 2005 notes, "Reduction in the interval from compression to shock delivery by even a few seconds can increase the probability of shock success."<sup>6</sup>

The Quick Shock capability of the FR2+ readies the defibrillator within seconds (10 seconds typical) to deliver a shock, reducing the time between CPR and defibrillation.

### Proven therapy

When a shock is advised, the FR2+ prompts the user to deliver Philips' low-energy SMART Biphasic waveform, a highly effective defibrillation therapy that is also gentle to the heart. No other external defibrillation therapy has been supported by more published studies.

### Realistic training

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

When equipped with training pads and the rechargeable training and administration pack, you can use your FR2+ as a trainer. Its shock delivery capability is disabled while you train with ten scenarios. When you connect the FR2+ to a simulator or a special manikin that simulates 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 feedback on pad placement.

### 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 captures up to 8 hours of patient heart rhythm, defibrillator use and, if configured, voice recording of the event. The removable data card lets you produce a variety of reports using the HeartStart Event Review suite of software products, without taking your FR2+ out of service.

### Built to perform and backed by Philips

A five-year warranty and limited product indemnity comes with every HeartStart Defibrillator. Best of all, neither maintenance nor service contracts are required to maintain indemnification benefits. An extended two-year warranty is available. Coupled with the standard five-year warranty, the extended warranty gives you peace of mind, knowing your investment is protected for up to seven years.



*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.*

# Product specifications

Defibrillator		Patient Analysis System	
Defibrillator Model	With ECG M3860A With Text Only Display M3861A	Patient Analysis	Per protocol, evaluates patient ECG and signal quality to determine if rhythm is shockable, and evaluates connection impedance for proper defibrillation pad contact.
How Supplied	Defibrillator, instructions for use, standard battery, defibrillator pads (2 pair), Quick Reference Guide	Sensitivity/Specificity	Meets AAMI DF-80 guidelines and AHA recommendations for adult defibrillation (Circulation 1997;95:1677-1682).
Waveform	Truncated exponential biphasic. Waveform parameters adjusted as a function of patient impedance.	SMART CPR (configurable)	Enables support of an automated or user-initiated CPR interval prior to defibrillation.  The AUTO 1 and AUTO 2 settings automate the decision of whether to provide CPR first or deliver a shock first based on the amplitude and frequency of the presenting shockable rhythm. Once the decision is made, FR2+ provides the responder with the appropriate prompts.  SMART AUTO 1: advises CPR for patients with a presenting rhythm typical of very long-duration cardiac arrest.  SMART AUTO 2: advises CPR for an expanded group of patients inclusive of those in Auto 1, having a rhythm typical of long duration cardiac arrest.  USER: user-initiated CPR Pause interval. Supports a protocol under which the responder decides whether to perform CPR first. A Pause-for-CPR button is enabled, and can be pressed at the responder's discretion.
Energy	Single energy output. Adults: 150 J nominal into a 50 ohm load; Infant/Child: 50 J nominal into a 50 ohm load.	Quick Shock	Able to deliver a shock in typically less than 10 seconds after the end of a CPR interval.
Charge Time from Shock Advised	Typically less than 10 seconds.		
Charge Time in Manual Mode	Typically less than 5 seconds.		
Shock-to-Shock Cycle Time	Typically less than 15 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 and 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		HeartStart Adult Defibrillation Pads	
Size		Configuration	DP2: two pair or DP6: six pair.
Height	6.6 cm. (2.6 inches)	How Supplied	Disposable self-adhesive pads with cable and connector.
Width	21.8 cm. (8.6 inches)	Surface Area	Meets AAMI DF-80 guidelines.
Depth	21.8 cm. (8.6 inches)	Cable Length	Approximately 122 cm (48 inches).
Weight		HeartStart FR2 Infant/Child Defibrillation Pads (M3870A)	
With battery	2.1 kg. (4.7 pounds)	Patient	Under 8 years or 25 kg (55 pounds).
Without battery	1.8 kg. (3.9 pounds)	Defibrillator Compatibility	FR2-series (FR2 and FR2+) automated external defibrillator only.
ECG Display (M3860A)		Configuration	M3870A FR2 Infant/Child Reduced Energy Defibrillator Pads. 1 set per package.
Screen	High-resolution LCD with bright back-light.	How Supplied	Disposable self-adhesive pads with cable and connector.
Screen Dimensions	2.8 inches wide x 2.3 inches high (7.0 cm x 5.8 cm).	Energy Delivered	Reduces defibrillator shock energy to nominal 50 Joules into a 50 ohm load.
Display Range	Differential: $\pm 2$ mV full scale (nominal).	Surface Area	Meets AAMI DF-80 guidelines.
Sweep Speed	23 mm/second (nominal).	Cable Length	Approximately 122 cm (48 inches).
Frequency Response	1 Hz to 20 Hz (-3dB) (nominal).	Medical Control/Recording Features	
Sensitivity	1.16 cm/mV (nominal).	Standard Event Review	Elapsed time and number of shocks are displayed on screen.
Heart Rate	30 to 300 beats per minute updated each analysis period during monitoring.	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 and ECG recording or one hour if voice recording is activated.
Monitored Lead	Anterior-anterior (lead II) placement with adult defibrillation pads or ECG Assessment Module (M3860A only).		

## 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 of operating time (EN 60601-2-4:2003).
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).

## Environmental/Physical Requirements

Sealing	Meets IEC529 class IP54 with battery and data card tray installed.
Temperature	Operating: 0° - 50° C (32° - 122° F) Standby: 0° - 43° C (32° - 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).

340,000  
deaths a year in the  
U.S., and hundreds  
of thousands more  
worldwide, are  
attributed to Sudden  
Cardiac Arrest.

With widespread  
access to defibrillators,  
an estimated 40,000  
additional lives  
could be saved.

– American Heart Association



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**Philips—the trusted choice**

- A Fortune Global 500 company, Philips is one of the world's largest medical products companies with annual revenue of over \$7 billion.
- With over 350,000 automated external defibrillators installed, Philips is the leader in public access defibrillation.<sup>7</sup>
- Over 7 billion HeartStart Defibrillator service hours have been logged, with an additional 7 million added every day.
- Over 17% of Fortune 1000 companies, 8 out of 10 major airlines, and 43 professional sports teams rely on Philips HeartStart Defibrillators.

To learn more about the HeartStart FR2+ Defibrillator and Philips, call 1-800-453-6860 or visit [www.philips.com/heartstart](http://www.philips.com/heartstart).

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Printed in the Netherlands  
4522 962 16751 \* JAN 2007