



PHILIPS

Automated
External Defibrillator

HeartStart HS1

Side by side.
Step by step.

Philips HeartStart HS1 AED



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To save a life

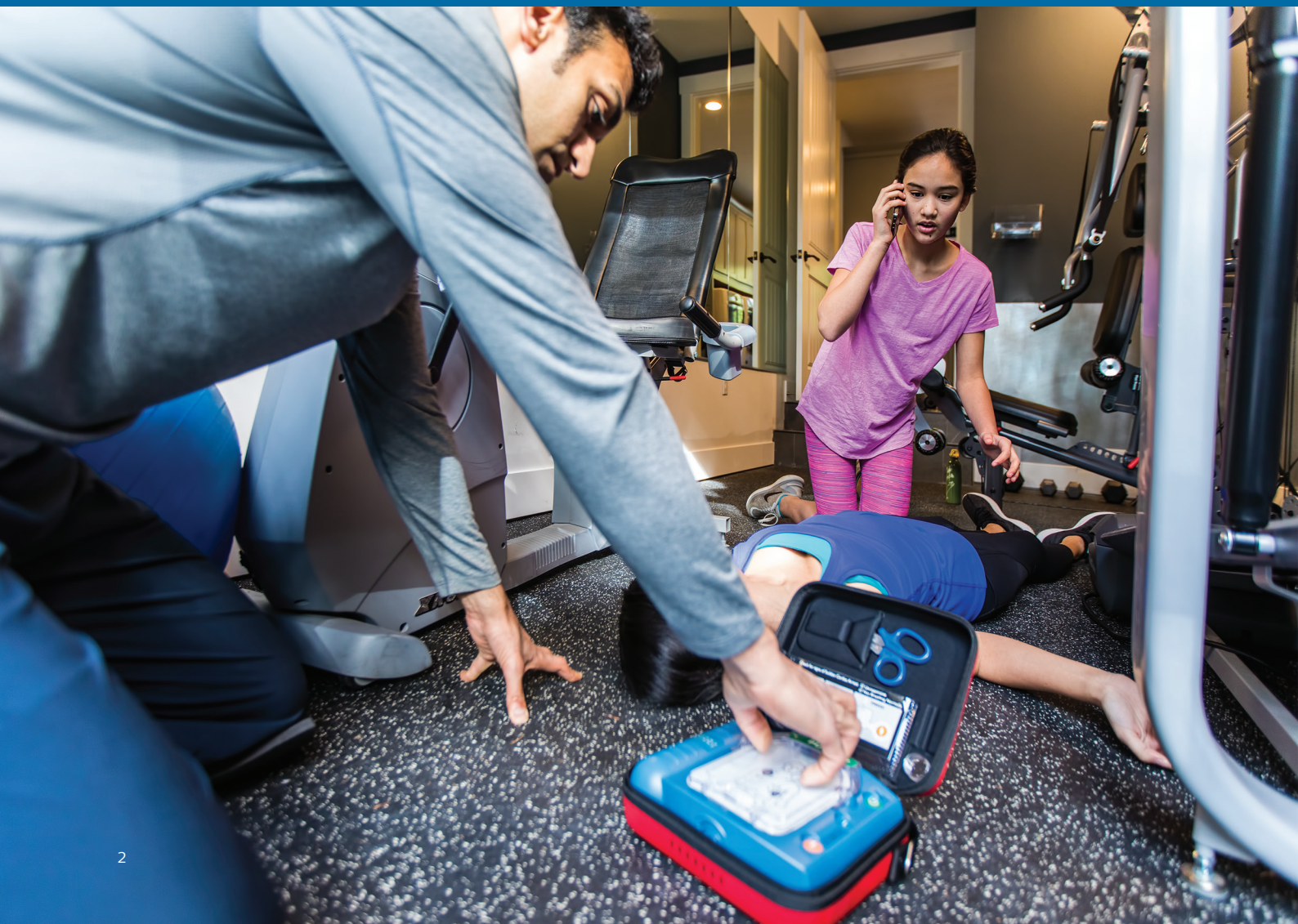


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Most people have never been in a position to administer an AED. When the moment arrives, it is easy to panic. A calm voice walking you through the process step by step means you are never alone. With Philips AED Solutions, you can have an expert by your side.

It is crucial that AEDs be close at hand, ready to go, designed to be easy to use, lightweight and rugged.

Cardiovascular disease is a leading cause of global mortality, accounting for almost 17 million deaths annually, or 30% of all global mortality.¹

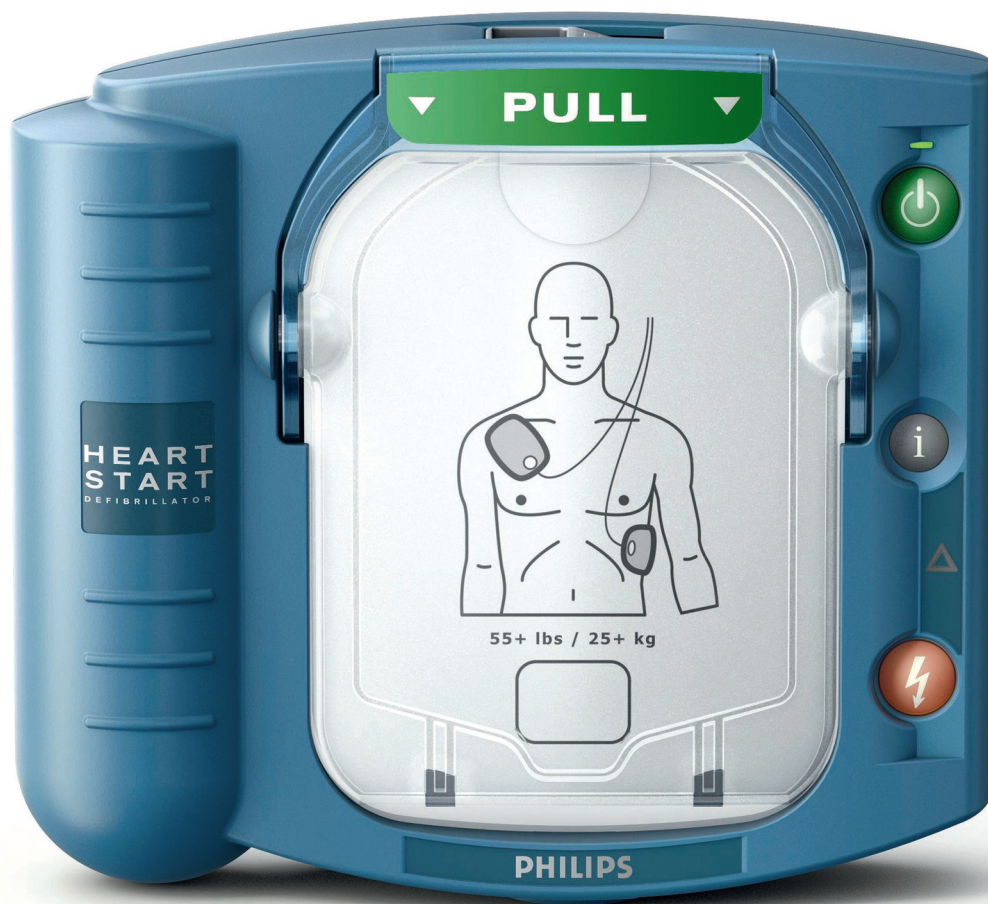




The Philips HeartStart HS1 AED assists you through the process of treating a victim of suspected sudden cardiac arrest (SCA). HS1 provides practical, real-time guidance through step-by-step voice commands and CPR guidance.

- Includes features to help guide the treatment of SCA with easy setup, clear voice commands and real-time metronome
- Arrives virtually ready to use — with the Ready-Pack configuration, HS1 is positioned inside the carry case with Adult SMART Pads Cartridge and battery already installed and with a spare Adult SMART Pads Cartridge in place
- Guides you through a cardiac emergency with a simple, step-by-step process, adaptive instructions and intelligent sensors to help deliver therapy
- Use on infants and children under 25 kg (55 lb) or 0–8 years old, and adults and children over 25 kg (55 lb) or greater than 8 years old
- Senses when the special Infant/Child SMART Pads Cartridge is installed, and automatically adjusts CPR instructions and shock energy
- Can be converted to a trainer with installation of training pads cartridge
- Conducts a series of automatic self-tests daily, weekly and monthly, to check pad readiness and verify functionality and calibration of circuits and systems

Advanced technology. Proven therapy.



Patented Quick Shock feature allows HS1 to typically deliver a shock within eight seconds after CPR.²



Ready to act. Ready to go.

Designed for the ordinary person in the extraordinary moment, HS1 is ready to act and virtually ready to go. It allows anyone with little or no training to treat the most common cause of SCA by delivering a shock quickly and effectively, wherever SCA happens.

Start quickly. Treat confidently.

With access to the right equipment and support, you can help save a life. HS1 guides you through the process of treating a victim of suspected SCA. HS1 provides practical, real-time guidance through step-by-step voice commands and CPR guidance.



Easy as 1-2-3.

We've equipped HS1 with integrated SMART Pads that will provide feedback to the AED so it can adapt its voice instructions to your actions and your pace. The system won't announce the next step until you are ready. Prompts are repeated and rephrased if needed and include additional instruction to aid understanding.

Answers for your questions

Sudden cardiac arrest (SCA)

Q: What causes SCA?

A: SCA occurs when the electrical system of the heart becomes chaotic, causing it to stop beating effectively. Lacking proper blood flow, the person becomes unresponsive and stops breathing normally. CPR is important, but it alone cannot restore a normal heart rhythm.^{3,4} A shock from a defibrillator is the most effective way to restore the heart's normal pumping rhythm.⁵

Technique

Q: What if I don't know the proper technique?

A: HS1 acts as your personal coach to guide you through the process of treating a victim of suspected SCA. HS1 provides practical, real-time guidance with real-time step-by-step voice instructions.

Q: How soon must the defibrillator shock be administered?

A: The person's best chance of survival is to receive that shock within 3–5 minutes of collapse.^{6,7} A defibrillator will not save every person who experiences SCA, but more lives could be saved if those affected were reached more quickly.^{6–8} Your quick response makes a real difference.

Q: How do I know if a shock is needed?

A: The defibrillator assesses the patient's heart rhythm. If a shock is advised, it directs you to press the flashing orange Shock button.

Q: What if I don't know where to put the pads?

A: The SMART Pads Cartridge contains two adhesive pads that have pictures on them to show you where to place the pads on the person's bare skin, and voice instructions will remind you to look at the pictures. The pads are "smart" because they sense when they have been removed from the cartridge, peeled from their liners, and applied to the patient, causing the voice instruction to adjust to your actions.

Q: What do I tell the professionals when they arrive?

A: They will know what questions to ask you. If an Emergency Medical Services (EMS) responder needs a summary of care, it can be retrieved from the defibrillator's internal memory. The EMS provider simply presses the i-button, and HS1 will verbally recount events from its last clinical use.

Technology

Q: How does HS1 assess heart rhythm?

A: HS1 includes proven Philips technology for heart rhythm assessment, called SMART Analysis. SMART Analysis is a sophisticated algorithm that simultaneously evaluates several attributes of a person's heart rhythm to determine if the rhythm is shockable.

Q: How does HS1 know how much energy to deliver?

A: A technology called SMART Biphasic Impedance Compensation helps HS1 deliver the optimal amount of current and energy. Smart Biphasic is the first biphasic therapy with sufficient evidence to be classed "standard of care" and "intervention of choice" by the American Heart Association.^{4–8} SMART Analysis and SMART Biphasic's effectiveness are backed by over 40 published, peer-reviewed studies.⁹

Training

Q: Is training available?

A: Yes. A special training SMART Pads Cartridge can be installed in the defibrillator. It disables the defibrillator's ability to shock, while walking you through patient care scenarios. We also offer easily accessible, online training that discusses everything from setting up an AED program to replacing your defibrillator's battery.

HeartStart HS1 AED specifications

Defibrillator

| | |
|------------------------------|---|
| Defibrillator family | HS1. Order M5066A |
| Standard configuration | Defibrillator, battery, adult SMART Pads Cartridge (1 set), Setup and Maintenance Guides, Owner's Manual, Quick Reference Guide, date sticker |
| HS1 Ready-Pack configuration | Order option R01. Defibrillator, battery, carry case, adult SMART Pads (1 pre-installed set, 1 spare set), Setup and Maintenance Guides, Owner's Manual, Quick Reference Guide, date sticker |
| Waveform | Truncated Exponential Biphasic; waveform parameters adjusted as a function of each patient's impedance |
| Therapy | Adult defibrillation: peak current 32 A (150 J nominal into a 50 ohm load) Pediatric defibrillation with optional Infant/Child SMART Pads Cartridge installed: peak current 19 A (50 J nominal into 50 ohm load) |
| 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 8 seconds |
| Voice instructions | Detailed voice messages guides the responder through use of the defibrillator |
| CPR guidance | Instructions for infants and children under 25 kg (55 lb) or 0–8 years old, and adults and children over 25 kg (55 lb) or greater than 8 years old |
| 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, Shock button lights up when shock is advised |

Physical

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| Size | 7.2 cm x 19 cm x 21 cm (2.8 in x 7.4 in x 8.3 in) H x D x W |
| Weight | With battery and pads cartridge: 1.5 kg (3.3 lb) Without battery or pads cartridge: 1 kg (2.4 lb) |

Environmental/physical requirements

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| Sealing | Solid objects per EN60529 class IPX2 Drip-proof per EN60529 class IPX1 |
| Temperature | Operating: 0° – 50° C (32° – 122° F) Standby: 10° – 43° C (50° – 109° F) |
| Humidity | Operating: 0% to 95% relative, non-condensing Standby: 10% to 75% relative, non-condensing |
| Altitude | Operating: 0 to 4,572 m (15,000 ft) Standby: up to 2,591 m (8,500 ft) |
| Shock/drop abuse | Withstands one-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 1 Level B Class B and EN61000-4-3 |

Data recording and transmission

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| Infrared | Wireless transmission of event data to a smartphone or PC, using the IrDA protocol |
| Data stored | First 15 minutes of ECG and the entire incident's events and analysis decisions |

Patient analysis system

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| 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 |

Battery (M5070A)

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| 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 |
| Install-by date | Battery is labeled with an install-by date of at least 5 years from date of manufacture |
| Standby life | Typically, 4 years when battery is installed and when stored and maintained according to directions provided in this document |

SMART Pads

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|-----------------------------------|--|
| Adult SMART Pads Cartridge | M5071A defibrillation pads for patients over 8 years of age or 25 kg (55 lb) and over |
| Infant/Child SMART Pads Cartridge | M5072A defibrillation pads for patients 0–8 years of age and under 25 kg (55 lb), by prescription only |
| Active surface area | 85 cm ² (13.2 in ²) each |
| Cable length | Adult SMART Pads: 137.1 cm (54 in) Infant/Child SMART Pads: 101.6 cm (40 in) |
| Use-by date | Cartridge is labeled with a use-by date of at least 2 years from date of manufacture |

Training SMART Pads

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|----------|---|
| M5073A | Adult Training SMART Pads Cartridge |
| M5074A | Infant/Child Training SMART Pads Cartridge |
| Function | Training SMART Pads Cartridges feature 8 real-world training scripts; use with training mat (included) or with adapters on manikins |

Automated and user-activated self-tests

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|----------------------------|---|
| 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 Indicators | Blinking green "Ready" light indicates ready for use; audible "chirp" indicates need for maintenance |



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* Refer to the Philips HeartStart HS1 AED Owner's Manual for detailed product instructions. All specifications based on 25° C (77° F) unless otherwise noted. The defibrillator and its accessories are made of latex-free materials.

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