

The Powerheart® AED Family of Products



[www.cardiacscience.com](http://www.cardiacscience.com)

# The Cardiac Science Difference



## OUR ROOTS

The headlines are breathtaking:

*Two Quick-Thinking Teachers Save 12-Year-Old Student's Life*

*Officer Saves Life of Fellow Officer during Anything-but-Routine Patrol*

*Fitness Center Workers Save New Mother's Life*

The common thread in these real-life stories? Rescuers used a Powerheart® automated external defibrillator (AED) with its green Rescue Ready® indicator that let these customers know that their device was ready for a cardiac emergency.

Welcome to Cardiac Science, a company founded in 1991 and recognized globally as a leader in developing AED technology, as evidenced by more than 100 patents to our name. We are based in the United States – yet with over 500,000 AEDs deployed globally, our presence is felt worldwide. Our singular purpose is to be the company that helps first responders increase sudden cardiac arrest (SCA) survival.

Should you ever need to deploy your AED, feel confident knowing that the technology inside your AED is built on a legacy of industry firsts.



## Cardiac Science – A History of Innovation

### THE BEGINNING

**1991**  
Cardiac Science, Inc. is formed to develop rhythm-analysis software, the foundation for the first fully automatic bedside defibrillator. Founded in Irvine, California.

**1992**  
SurVivaLink Corporation founded in Minnesota by Byron Gilman and Kenneth Olson.

**1995**  
SurVivaLink Corporation receives FDA clearance for VivaLink, the first commercial AED.

**1999**  
SurVivaLink receives FDA market clearance on the first pre-connected defibrillation pads.

### THE POWERHEART G3 ERA

**2001**  
Cardiac Science, Inc., acquires SurVivaLink Corporation.

**2003**  
Cardiac Science launches Powerheart G3 AEDs.

**2004**  
Cardiac Science receives FDA clearance on the first fully automatic public access defibrillator AED.

**2010**  
Cardiac Science incorporates new AHA guidelines into Powerheart G3 models.

**2012**  
Corporate headquarters relocates to Waukesha, Wisconsin.

### G5 ERA

**2013**  
Cardiac Science introduces G5 AED in parts of Europe and Australia.

**2015**  
Cardiac Science introduces G5 AED in the United States.

**Our footprint:** Over 500,000 AEDs deployed in 90 countries throughout the world.

**Our customers:** Schools, corporations, fire and police departments, military installations, airports, and many more.





Opening lid activates AED

**STAR® Biphasic Waveform Technology**

Self-Tracking Active Response (STAR) Biphasic customizes defibrillation energy to the patient.

**RHYTHMx® Technology**

RHYTHMx heart rhythm-analysis technology filters ECG signals for noise and classifies cardiac rhythms as shockable or non-shockable.

**Variable Escalating Energy Technology**

Designed to deliver customized energy needed to each patient. If more than one shock is required, the AED does not repeat the same effort. Rather, it increases the energy dose to an appropriate higher level.

Intellisense medical-grade battery communicates status and usage information to the AED

**Non-Polarized AED Pads**

This technology allows pads to be placed interchangeably on either location of the patient's chest – eliminating confusion and hesitation during rescue.

**Fully Automatic Operation\***

Also available as a semi-automatic AED.

**Intellisense® Supplies**

Embedded smart circuitry communicates performance condition, age and other vital information directly to your AED.

**Rescue Ready® Technology**

Patented Rescue Ready technology self-tests critical electrical components of the AED including medical-grade battery and rescue pads. Each day, over a half-million Powerheart® AEDs around the world account for a collective 4,100 hours of self-tests to ensure readiness.

**Dual-Language Capability**

Choose between two languages in select models. A touch of a button changes the voice prompts in the chosen language without restarting or delaying the rescue.

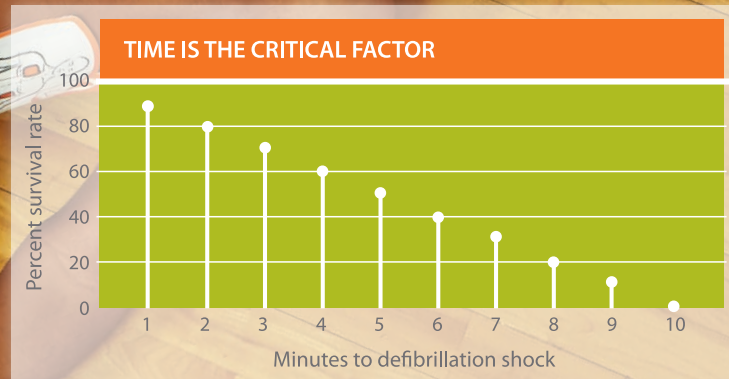
\* Powerheart fully automatic AEDs are available in the United States but may not be authorized for sale in your country. Contact your local AED distributor to determine availability.



# Why You Need an AED

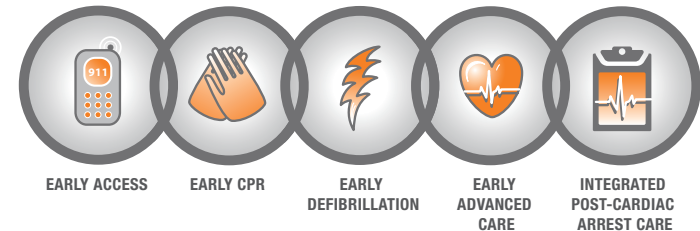


Optional Intellisense™  
CPR Feedback device shown  
with Powerheart G5 AED.



## EMPOWER EVERYDAY PEOPLE TO BECOME PART OF THE CHAIN OF SURVIVAL THROUGH POWERHEART® AEDS

Each year, more than 17.3 million people throughout the globe die from SCA, according to the American Heart Association. SCA is triggered by an abrupt, unpredictable electrical malfunction in the heart causing an irregular heartbeat. Victims are often healthy and fit adults and children, who have no known risk factors. The sooner the defibrillation, the better the victim's chances of survival – precisely why having your own AED to use while you're waiting for emergency medical responders is so important.



## TIME IS CRITICAL FOR SURVIVAL

Several studies document the effects of time to defibrillation on survival from cardiac arrest and the consensus is that minutes count: If a rescuer can provide defibrillation in the first minute, the victim's chance of survival increases to more than 90 percent. However, each minute that passes will decrease the victim's chance of survival by 7–10 percent if no defibrillation is provided.<sup>1</sup>

1. A.S. Go et al. *American Heart Association Guidelines 2010 - Electrical Therapies*. American Heart Association Circulation, 122 (2010): S710.

# Why Cardiac Science AEDs?

## Five reasons to choose a Powerheart® AED

1

### PATENTED RESCUE READY® TECHNOLOGY

Powerheart AEDs perform automatic daily, weekly, and monthly self-tests to monitor critical components including the internal circuitry, software, and medical-grade battery for readiness; the pre-connected defibrillation pads are also tested for both presence and functionality. If anything is amiss, the Rescue Ready indicator immediately changes from green to red and emits an audible distress tone to cue users that attention is required.

2

### EASY WITHOUT COMPROMISE

Extensive rescue and CPR prompts guide first-time rescuers through the stressful situation. Our innovative RescueCoach™ technology, backed by research,<sup>2</sup> guides first-time responders through the entire rescue process. And it delivers the confidence to perform a rescue. The fully automatic shock delivery feature eliminates user hesitation.<sup>3</sup>

3

### ADVANCED PATIENT CARE

Each Powerheart AED includes patented RHYTHMx® technology to assess the patient's heart rhythm. Sophisticated STAR® biphasic technology delivers a customized shock at an appropriate energy level.

4

### FLEXIBILITY AND DURABILITY

Powerheart AEDs are designed to be tough and have been deployed in the most challenging settings. The high-impact AED meets rugged military standards and a high ingress protection rating (IP55) against water and dust. The Powerheart G5 lets you choose from an array of prompt settings, shock protocols, and CPR settings to meet specific requirements.

5

### THE PEACE OF MIND IN WORKING WITH CARDIAC SCIENCE

For more than 20 years, Cardiac Science has developed patented technologies such as fully automatic AED operation, pre-connected pads, and many other innovations that shape how first responders use AEDs to save lives. Each Powerheart is supported by an experienced global staff of AED Certified Specialists and a team of select partners to provide expert deployment consultations and training. Finally, Powerheart AEDs are built to last with a multi-year device warranty program, the industry's strongest indemnification policy, and a 4-year full operational guarantee on genuine Intellisense® non-rechargeable medical-grade batteries.

2. Peer reviewed study by Benjamin S. Abella et. al. "Untrained Volunteers Perform High Quality CPR When Using an Automatic External Defibrillator with a CPR Voice Prompting Algorithm," Circulation. 2007; 116:II\_437.

3. Note: Fully automatic models are not available in every country.

## SCA Survivor: Lt. Regis Thimons

A fellow officer found Lieutenant Regis Thimons in the restroom – unresponsive, no pulse, in a pool of blood from where his head had hit the floor. He had collapsed from SCA. Quick-thinking officers began chest compressions and located a Powerheart AED. He received four shocks, and his pulse returned by the time paramedics arrived.

The availability of the AED that saved his life is the product of years of preparation – for which Thimons himself is largely responsible. Years earlier, Thimons worked with HeartReach Michiana, an organization that purchases and distributes AEDs as part of its non-profit mission, to equip his department's patrol vehicles, the county jail, and the courthouse with AEDs.

*"If it wasn't for one of these devices, I probably wouldn't be here today."*

– Lt. Regis Thimons





# Power to Believe. Power to Act.

## Powerheart® G5.

Whether you are an experienced rescuer or a first-time responder, you will appreciate how the Powerheart G5\* AED combines ease of use, reliability and advanced technology to help respond to an SCA victim. The Powerheart G5 is the first FDA-cleared AED to combine fully automatic shock delivery, dual-language functionality, variable escalating energy, and fast shock times.

### EASY TO USE

- Fully automatic shock delivery eliminates user hesitation. (Semi-automatic AED version also available.)
- Intuitive, interchangeable pad design simplifies placement.
- RescueCoach™ user-paced prompts guide users through each critical step of a rescue.
- Text prompts provide extra help in noisy and chaotic environments.
- Switch to an alternate language during a rescue with the push of a button to help more potential responders. (Available in select languages.)

### ADVANCED TECHNOLOGY

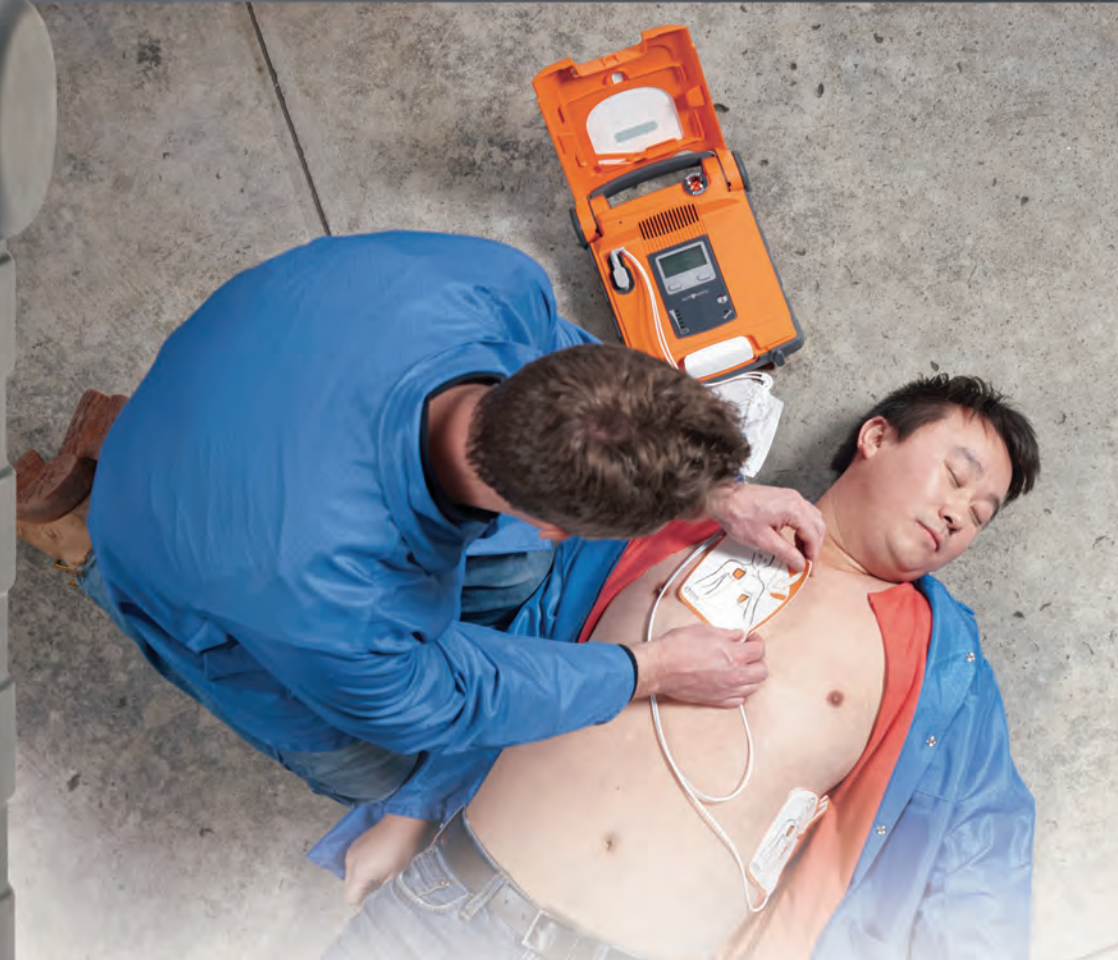
- Delivers post-CPR shock in as few as 10 seconds for effective therapy.
- Assesses the patient's therapy needs and delivers customized shock at an appropriate energy level.
- Customizable prompts and protocols to meet user's needs and preferences.
- Automatically detects pediatric pads and delivers a reduced energy shock.
- Enables quick transfer and review of data via USB.
- Optional Intellisense™ CPR Feedback monitors the quality of both chest compression depth and rate. If either compression rate or depth is outside the 2015 American Heart Association-acceptable parameters, the rescuer will receive a short corrective prompt to ensure effectiveness.

### RUGGED AND RELIABLE

- Rugged, durable design for transport, storage and use in challenging settings.
- High ingress protection (IP55) against dust and water for performance in harsh environments.
- Meets rigorous military standards for shock and vibration testing.
- Rescue Ready® technology self-checks all main AED components (battery, hardware, software, and pads) daily. The AED completes a partial charge of the high-voltage electronics weekly, and a full charge monthly.
- The highly visible Rescue Ready indicator assures responders that they are retrieving a working AED.
- 8-year AED warranty.
- Medical-grade battery with a 4-year full operational guarantee.



\* The Powerheart G5 is available for sale in the United States but may not be authorized for sale in your country. Contact your local AED distributor to determine availability.



Enables both professional and first-time users to swiftly provide effective, life-saving therapy.



# Powerheart® G3 Plus

**RELIABLE, SIMPLE-TO-USE AND RESCUE READY®**

You don't become legendary overnight. The Powerheart G3 Plus\* introduced industry-leading features such as fully automatic functionality, and pre-connected rescue pads. These features, and other patented technologies, provide rescuers around the world with the confidence to respond to an SCA emergency. Rescue Ready technology provides assurances that your G3 Plus will be ready when called upon while RescueCoach™ prompting guides users through the entire rescue. Available in fully automatic and semi-automatic models.

\* The Powerheart G3 Plus is available for sale in the United States, but may not be authorized for sale in your country. Contact your local AED distributor to determine availability.



*Features emergency workers need to know – heart rate, ECG waveform, number of shocks delivered, and the elapsed rescue time – are all offered on a backlit color display.*



# Powerheart® G3 Pro

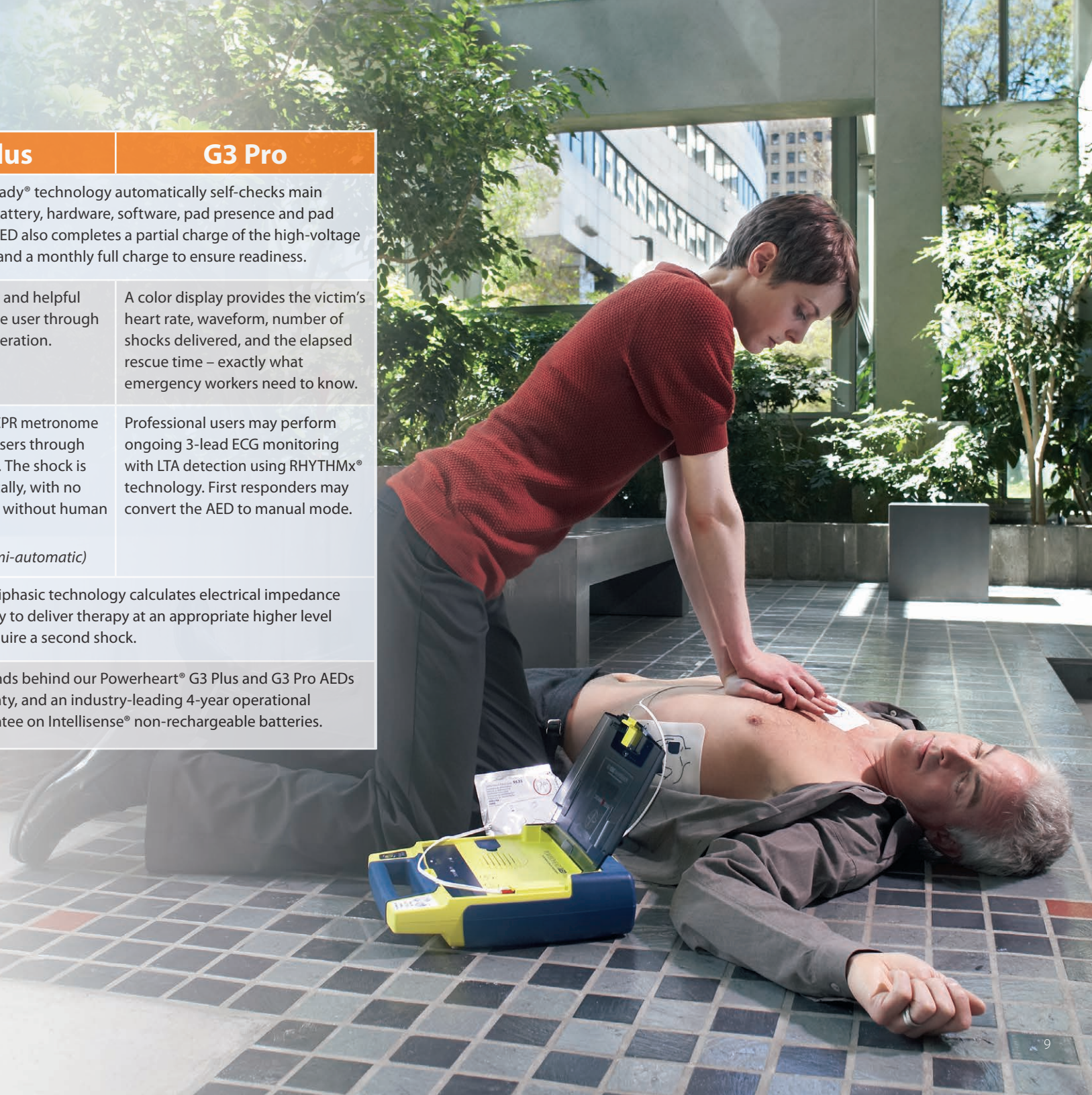
**PUTS ADVANCED RESPONDERS IN COMPLETE CONTROL**

The advanced Powerheart G3 Pro\* is the industry's first AED with backlit color ECG display, manual override, and 3-lead ECG monitoring capabilities. Thanks to its RHYTHMx® analysis algorithm, the G3 Pro lets professional rescuers proactively monitor the patient's heart rhythm for life-threatening arrhythmias. This is a major benefit: The earlier a responder detects life-threatening arrhythmias, the shorter the time to defibrillation and the better the chance for survival.




\* The Powerheart G3 Pro is available for sale in the United States, but may not be authorized for sale in your country. Contact your local AED distributor to determine availability.



	G3 Plus	G3 Pro
<b>Readiness</b>	Each day, Rescue Ready® technology automatically self-checks main AED components (battery, hardware, software, pad presence and pad functionality). The AED also completes a partial charge of the high-voltage electronics weekly, and a monthly full charge to ensure readiness.	
<b>Ease of Use</b>	Clear voice prompts and helpful text screen guide the user through the entire rescue operation.	A color display provides the victim's heart rate, waveform, number of shocks delivered, and the elapsed rescue time – exactly what emergency workers need to know.
<b>Advanced Technology</b>	RescueCoach™ and CPR metronome functionality pace users through chest compressions. The shock is delivered automatically, with no button to push, and without human intervention. <i>(Also available as semi-automatic)</i>	Professional users may perform ongoing 3-lead ECG monitoring with LTA detection using RHYTHMx® technology. First responders may convert the AED to manual mode.
	Proprietary STAR® biphasic technology calculates electrical impedance and escalates energy to deliver therapy at an appropriate higher level should a patient require a second shock.	
<b>Assurance</b>	Cardiac Science stands behind our Powerheart® G3 Plus and G3 Pro AEDs with a 7-year warranty, and an industry-leading 4-year operational replacement guarantee on Intellisense® non-rechargeable batteries.	



# Powerheart® AEDs...

	Powerheart G3 Plus	Powerheart G5	Powerheart G3 Pro
			
<b>KEY FEATURES</b>			
Size (H x W x D)	3.3" x 10.6" x 12.4" (8 cm x 27 cm x 31 cm)	3.4" x 9.0" x 11.8" (9 cm x 23 cm x 30 cm)	3.3" x 10.6" x 12.4" (8 cm x 27 cm x 31 cm)
Weight (with battery and pads)	6.6 lbs. (3.10 kg)	5.7 lbs (2.6 kg)	6.6 lbs. (3.10 kg)
Fully Automatic Mode	•	•	
Semi-Automatic Mode	•	•	•
Variable Escalating Energy	•	•	•
Rescue and CPR Prompt Settings	Basic, Standard	Basic, Standard or Advanced	Professional
RescueCoach™	•	•	
Daily, Weekly, and Monthly Rescue Ready® Self Testing	•	•	•
Weekly Partial Charge of the AED High-Voltage Electronics	•	•	•
Monthly Full Charge of the AED High-Voltage Electronics	•	•	•
Dual-Language Functionality		•	
Fast Shock Functionality (<10 seconds)*		•	
Optional Intellisense™ CPR Feedback		•	
Device Warranty	7 years	8 years	7 years
4-Year, Non-Rechargeable Battery Replacement Performance Guarantee	•	•	
Ingress Protection Rating	IP24	IP55	IP24
Data Transfer	Direct Connect Cable	USB Flash Drive or Direct Connect Cable	Direct Connect Cable
Recommended User Type	First-Time Rescuer and Intermediate Rescuer	First-Time Rescuer, Intermediate Rescuer and Professional Rescuer	Professional Rescuer



# ...Ideal for Every Rescuer.



## First-Time Rescuer

You never performed a rescue and have minimal experience with an AED. So you want an AED to provide clear, intuitive guidance and automatically shock the victim during a rescue.

### AED PLACEMENTS:

- Schools
- Athletic fields
- Transportation (airports, train stations, etc.)
- Corporations
- Hotels and lodging
- Public access locations (movie theaters, shopping malls, etc.)
- Health clubs



## Intermediate Rescuer

You could be the first responder during an SCA emergency, so you want an AED with cutting-edge technology, yet intuitive and able to withstand the rigors of your job.

### AED PLACEMENTS:

- Law enforcement
- Military
- Government

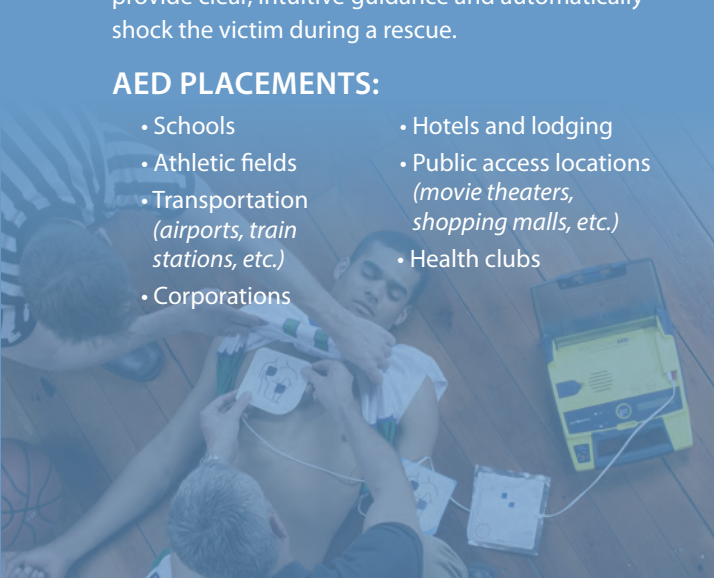


## Professional Rescuer

You are often the first and last line of defense during an SCA emergency, so you demand an AED that is rugged, utilizes cutting-edge technology and advanced patient treatment capabilities.

### AED PLACEMENTS:

- Fire departments
- EMS
- Hospitals and clinics
- Surgery centers





# We Manage the Details. You Save Lives.

Cardiac Science has designed more than 20,000 Rescue Ready® AED programs worldwide to help communities, schools, and workplaces implement successful AED programs. Why do organizations continue relying on Cardiac Science after they purchase AEDs? We remove the burden of managing an AED program so your organization can focus on saving lives.

Consider that organizations with Rescue Ready programs increase survival rates to more than 50 percent, up from the national average of only 5 percent.



## SCA Survivor: Danny Berger

*Thanks to its investment in AEDs, Utah State was prepared when Danny Berger collapsed during basketball practice. Head trainer Mike Williams, with an assist from the basketball team's manager, saved Danny's life with a Powerheart® AED.*

*"I started CPR on Danny and the AED was there within a minute of the time Danny hit the floor," Williams says. "The AED did the analyzing and then it shocked him. I continued with the CPR and checked his pulse. By the time the EMTs were entering the building, Danny's heartbeat had come back strong."*

*Preparation was the key to saving Berger's life. Williams points out that the basketball team's manager had run to get the AED as soon as Berger collapsed, even before Williams had called for it. The EMTs from the on-campus fire department arrived quickly. They had Berger out of the building and on the way to the hospital less than 10 minutes after he'd collapsed.*





How to implement a successful AED program:

1

## STEP 1: You Choose Your AEDs

Select an AED that is easy to use and always ready for a rescue.



2

## STEP 2: We Design Your Program



Our Rescue Ready® experts will perform an onsite assessment of your facility to determine the ideal number and location of your devices. We also provide training programs in accord with the American Heart Association and European Resuscitation Council and will assist with medical direction in places where it is required.

3

## STEP 3: We Implement Your Program

Our team will provide medical direction, including an AED prescription, if it is required, and will train your staff in AED/CPR, first aid, and other courses. Our courses accommodate up to 10 students per class, who enjoy a 1:1 student-to-manikin ratio. Students receive certification issued at course completion. We also provide medical oversight, including rescue protocol, education protocol and, post-event reporting. Finally, we make sure your organization has a trained, qualified person to manage your AED program.



4

## STEP 4: We Maintain Your Program

Our powerful MasterTrak™ solution is more than a database, it is the lifeblood of your AED program. Providing ongoing record keeping that includes AED inventory, locations, and serial numbers, MasterTrak helps ensure your AEDs are ready for an emergency. You will receive email updates on upcoming training and upcoming battery and pad expiration dates. We also provide answers to questions and solutions to problems, helping maintain a successful program. Plus, optional service agreements can be integrated into your program.



It's that simple.

# Intellisense® Supplies & Accessories

## THE INTELLISENSE FACTOR

With over 500,000 Powerheart® AEDs worldwide, it is not by chance that Intellisense batteries and pads deliver consistent and reliable performance. Only Intellisense supplies are designed with embedded smart circuitry to constantly communicate performance condition and other vital information directly to your Powerheart AED.

With Intellisense supplies installed, you and your Powerheart AED are protected by a multi-year product warranty and the industry's strongest indemnification policy.

When you're responding to a cardiac arrest, every second is critical. Take advantage of every second with Intellisense AED supplies from Cardiac Science.

## INTELLISENSE BATTERIES FOR POWERHEART AEDS

Intellisense battery circuitry works with patented Rescue Ready® technology to communicate battery performance, capacity, and other vital information directly to your Powerheart AED. Other devices require as many as ten digital camera batteries for power. Only one genuine Intellisense medical-grade battery is required to provide your Powerheart AED with years of unmatched performance. In fact, each new Intellisense non-rechargeable battery comes with a 4-year performance guarantee.



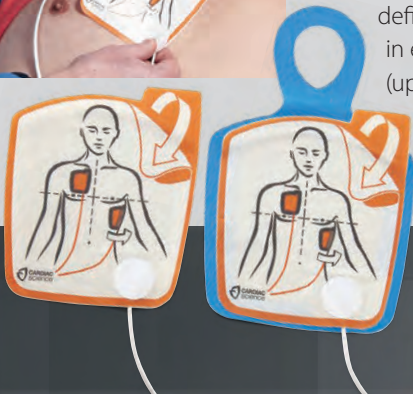
## INTELLISENSE™ CPR FEEDBACK FOR POWERHEART G5

Intellisense CPR Feedback includes a compact CPR sensor to monitor chest compressions for effectiveness. The sensor uses a proprietary algorithm to monitor chest compressions rate and depth for effectiveness. If either compression rate or depth is outside the 2015 American Heart Association-acceptable parameters, the rescuer will receive a corrective prompt. No complicated instructions or special rescue site preparation required. Simply place and press.



## INTELLISENSE DEFIBRILLATION PADS FOR POWERHEART AEDS

Intellisense Defibrillation Pads for adults use the pre-connected connector, a technology originally developed by Cardiac Science to expedite the rescue process. Intellisense non-polarized defibrillation pads may be placed in either position on the chest (upper-right or lower-left) to reduce confusion and save you time during a rescue.

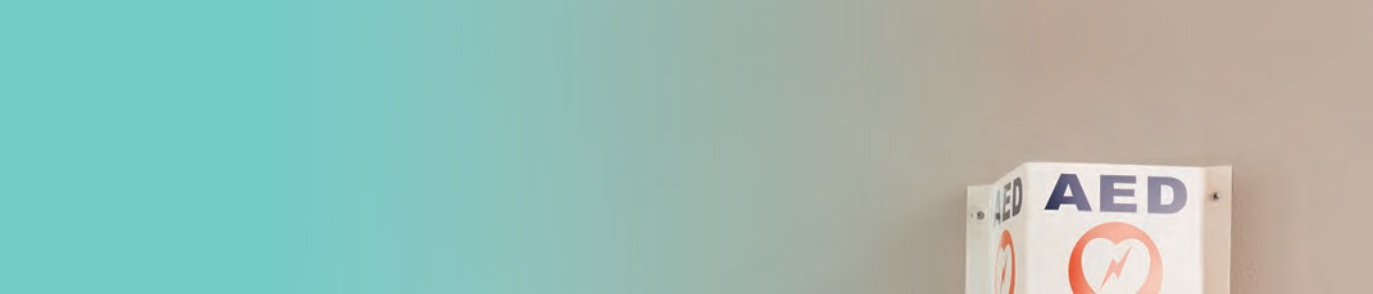


## INTELLISENSE PEDIATRIC DEFIBRILLATION PADS FOR POWERHEART G5 AED

Intellisense Pediatric Defibrillation Pads are small in size and may be placed in either position on the chest (upper-right or lower-left) to reduce confusion and expedite the rescue. Powerheart G3 Pediatric Pads use a special attenuator to reduce energy to the pediatric patient. The Powerheart G5 uses embedded circuitry to quickly detect the pad style and automatically adjusts the AED to pediatric energy and CPR protocols. Intellisense Pediatric Defibrillation Pads are for patients 8 years of age or younger or who weigh less than 55 pounds.







To see the full list of accessories for your Powerheart® AEDs, visit:  
[www.cardiacscience.com](http://www.cardiacscience.com)

*“Every state should be required to have these [AEDs] in schools and public places.”*

*– Sheryl Shea, Kylee’s mom*



### SCA Survivor: Kylee Shea

*In 2011, the world met Kylee Shea, a 7th-grader who collapsed from an undiagnosed heart condition before gym class. In fact, during NBC’s Today show, viewers were shown dramatic surveillance footage of Shea collapsing, and teachers responding to the unconscious girl seconds later. Working together, the teachers saved Kylee’s life with a Powerheart AED.*

*For many, this segment was a revelation: Average people with little or no training could save lives with AEDs. For others, this story was a reminder of how a loved one or a friend suffered a sudden cardiac arrest and needed an AED to survive.*

*“If it wasn’t for this [AED] and for what they did, our daughter still may be here today but not the Kylee we know today,” Kylee’s dad, Mike Shea, told the Today show.*

*AEDs, while mandated in Texas public schools, are not required nationwide. As Kylee’s mom Sheryl Shea explained to Today’s Matt Lauer, “I think it should be a nationwide mandate. Every state should be required to have these in schools and public places.”*



## ***At the Heart of Saving Lives®***

*Founded in 1991 on the guiding principle that AEDs must be simple to use and ready when called upon, Cardiac Science is the leader in developing AED technology.*

*We are based in the United States yet our presence extends globally, with over 500,000 AED deployed worldwide. We are the company that helps first responders increase sudden cardiac arrest survival rates.*

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