

# THERAPEUTIC CARDIAC RHYTHM MONITORING



## POWERHEART<sup>®</sup> CRM<sup>™</sup> cardiac rhythm module



### FEATURES

#### Therapeutic Modes (Standard)

- STAR Biphasic energy delivery customizes defibrillation energy to deliver optimal therapy for each patient
- RHYTHMx tachyarrhythmia detection
- User selectable therapy modes
  - AED mode (with voice prompts)
  - Automatic mode
  - Advisory mode
  - Manual mode
  - Dual mode, non-invasive external pacing (Demand, Asynchronous)
- Shock delivery through two prophylactically attached therapy PADS
- Synchronized cardioversion shocks

#### ECG Monitoring Mode (Standard)

- ECG monitoring via 3-lead patient electrodes or therapy PADS
- User adjustable high / low heart rate alarm limits

#### General Features

- Sharp color LCD display
- Z-Bar<sup>™</sup> Therapy PAD Impedance Indicator provides graphical presentation of the two therapy PADS for assessing Therapy PAD integrity, quality and location
- Built-in digital event recording with computer ECG event review software included
- Quick Select Rotary Control knob ensuring simple one button activation

## ESTABLISHING A NEW STANDARD OF CARE FOR CARDIAC PATIENTS

### Introducing the Cardiac Science Powerheart CRM Therapeutic Cardiac Rhythm Monitoring

The next generation Powerheart<sup>®</sup> CRM has arrived. Our feature-rich Powerheart CRM offers customers many new user-friendly features. It's all right here—the industry's first and only transportable automatic therapeutic vital signs defibrillator-monitor. The Powerheart CRM combines biphasic defibrillation technology, non-invasive external pacing, and ECG monitoring technology in a new portable, compact device, which immediately and automatically monitors, detects, and treats patients who suffer life-threatening tachyarrhythmias. Detection criteria and therapy protocols are easily programmed and customized for individual patients by hospital staff.

Because it's both a bedside monitor, transport monitor as well as a defibrillator, the CRM can provide round the clock surveillance and protection for any at-risk cardiac patient in a hospital or clinic. Ideally suited for intra-hospital transport monitoring—the CRM provides continuous ECG monitoring via standard ECG monitoring electrodes and instant and automatic defibrillation therapy via defibrillation pads upon the detection of a shockable rhythm. With or without clinician intervention once attached to a patient, the CRM will immediately advise or automatically provide therapeutic intervention. The CRM can also be used as a manual defibrillator or cardioverter.

The Powerheart CRM incorporates advanced patented technology—including RHYTHMx<sup>®</sup> analysis software and STAR<sup>®</sup> biphasic defibrillation energy waveform. Establish a new standard of care with the next generation of Cardiac Science CRMs.

To learn more about Cardiac Science's unique Powerheart CRM, visit our website [www.cardiacscience.com](http://www.cardiacscience.com), or email [info@cardiacscience.com](mailto:info@cardiacscience.com), or call 1.866.289.5649 (USA and Canada only).



CARDIAC SCIENCE

CREATING HEARTSAFE ENVIRONMENTS

# SPECIFICATIONS

## DISPLAY

Size	9.65 cm (3.8 in)
Type	STN Color
Resolution	240x320 pixels (VGA)
Contrast ratio	17:1
Number of waveform channels	1
Sweep speed	25mm/sec
Screen waveform format	Rolling

## DEFIBRILLATOR

Waveform	Biphasic truncated exponential
Output energy	5 to 270 joules delivered into a 50Ω load
Charge time	10 seconds (nominal)
Shock delivery method	Via therapy pads
Non-committed device	CRM will not deliver shock if arrhythmia is spontaneously converted to normal non-shockable rhythm. CRM will disarm and abort therapy

## NON-INVASIVE PACING

Output waveform	Rectilinear, constant current, 40 milliseconds
Pulse width	40 milliseconds
Pacing modes	Demand or Asynchronous (Fixed Rate)
Pacing rate	User adjustable: 30 to 180 ppm, (increments of 5 ppm)
Output current	User adjustable: 5 to 140 mA (increments of 5 mA)

## ECG MONITORING

Detection lead	Through either standard 3-lead patient cable or Therapy Cable / PADS
Lead selection	3-Lead Cable: (I, II, III) PADS: (Modified Lead II)
Heart rate range	25 to 300 bpm
Frequency response	0.5 to 43 Hz
Heart rate alarms	User adjustable High / Low heart rate alarm limits
ECG leads fault	"ECG LEAD OFF" prompt message (text and audible voice) will be activated upon detection of disconnected lead
Therapy PADS fault	"PADS OFF" prompt message (text and audible voice) will be activated upon detection of disconnected therapy PAD

## THERAPY PAD IMPEDANCE INDICATOR

Z-Bar	Graphical indication of the total transthoracic impedance between the two therapy PADS, providing indication for: - Proper PAD placement - PAD quality - PAD adhesion to patient skin
Impedance range	Operational Range: 22 to 200Ω

## MODES OF OPERATION

Modes	AED, Automatic, Advisory, Manual, Disarm, Pacing, ECG Monitoring
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## DATA STORAGE

Recording type	Built-in digital event recorder
Number of events recorded	6 events for current patient. Each event can store up to 6 shocks
ECG event rhythm strip recording	Digitally records 2 minutes of ECG waveform data prior to shock, and up to 6 minutes following each shockable event. Data includes number of delivered shocks, delivered energy level per shock, mode of operation
Full disclosure event review	Complete event history file is downloaded to PC for full disclosure review and printout using the Event Review Software
PC interface to CRM	9-pin RS-232 service connector. Requires Event Review Software and serial interface cable

## POWER REQUIREMENTS

AC power	External AC to DC power converter - Input Power: 100-240 VAC, 50/60 Hz, Automatic switchover, 330 VA maximum - Output Power: 14.5 VDC, 6.5 Amps
Battery	
- Type	Sealed lead acid (SLA), 12 volts nominal, 2.5 amp hour
- Number of batteries	1 internal battery
- Operating time	New fully charged battery, CRM will: - Monitor up to 3 hours - Provide pacing up to 2 hours and be able to deliver up to 6 defibrillation shocks after 3 hours monitoring
- Maximum Emax shocks	30 shocks
- Recharge time	10 hours (maximum)
- Battery indicator	Dual indicators: - LED Indicator: external power / battery charge - On-screen Indicator: external power / battery gauge

## PHYSICAL DIMENSIONS

Height	25.4 cm (10 in)
Depth	29.2 cm (11.5 in)
Width	11.18 cm (4.4 in)
Weight	5.62 kg (12.4 lbs)

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