

Heartstream FR2

automatic external defibrillator



The Heartstream FR2 is a portable, lightweight automatic external defibrillator (AED) that requires minimal device training to use and is an essential part of administering first aid immediately to a victim of sudden cardiac arrest.

Due to its easy-to-use design, superior technology and affordability, Heartstream AEDs are now being placed in a wide range of settings such as hospitals and clinics, offices and industrial locations, airports and airplanes, health clubs and golf courses. This innovative AED technology has also enabled a broader range of people—beyond community EMS professionals—to provide lifesaving therapy.

The Heartstream FR2 AED operates with long-life maintenance-free, lithium manganese batteries, which are designed specifically for high-volume consumer applications, where safety and reliability are of the utmost importance.

The Heartstream FR2 performs daily automated self-tests that check readiness for use. Other features include easy-to-follow voice prompts, and a bright LCD display to reinforce the voice prompts, making it easy to use in noisy or dark settings; the FR2 also has enhanced features that can be enabled for improved hand-off to advanced life support (ALS) responders. Additionally, the FR2 has on-board training capabilities when used with the fully rechargeable Training and Administration Pack. This allows users to safely train on the FR2 using realistic training scenarios.

The Heartstream FR2 AED incorporates a number of breakthrough technologies that distinguish it from other AEDs on the

market, including Agilent's low-energy SMART Biphasic technology. Additionally, the Agilent Technologies SMART Analysis system automatically determines if a shock is required and protects against inappropriate delivery of a shock. This feature eliminates the need for the operator to be trained in reading and interpreting the patient's electrocardiogram (ECG).



Agilent Technologies
Innovating the HP Way

AED MODELS

WITH ECG	M3860A
NO ECG	M3861A

DEFIBRILLATOR

HOW SUPPLIED	Defibrillator, User's Guide, Battery Pack, Electrodes (2 pair), Quick Reference Card
OPERATING MODE	Semi-automatic
WAVEFORM	Truncated Exponential Biphasic. Waveform parameters adjusted as a function of patient impedance.
ENERGY	Single energy output. Nominal: 150 Joules into a 50ohm. 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 semi-automatic mode.
VOICE AND TEXT PROMPTS PROTOCOL	Extensive text prompts and audible messages guide user through protocol. Follows pre-configured settings. Can be modified with the M3864A Training & Administration Pack.
SHOCK DELIVERY CONTROLS	Via defibrillation pads placed in anterior-anterior (lead II) position On/off, shock, screen contrast/option buttons (Standard on both models)
INDICATORS	LCD screen, beeper, audio speaker, status indicator, shock button, connector socket LED
ADVANCED MODES	Configurable

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)

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 guidelines.

BATTERY PACK (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.

ECG DISPLAY (M3860A)

SCREEN	High Resolution LCD with bright backlight.
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 defibrillation pads (M3860A only)

DEFIBRILLATION PADS, CABLE, CONNECTOR

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)

MEDICAL CONTROL/RECORDING FEATURES

STANDARD EVENT REVIEW	Elapsed time and the number of shocks delivered are displayed on screen.
ENHANCED EVENT REVIEW	Optional Data Card expands the above on-screen event review capabilities: Review chronological events in detail including ECG

OPTIONAL PC DATA CARD (M3854A)

Review the patient's initial ECG on the screen
4 Hours of event & ECG recording or 30 minutes if Voice Recording is enabled.

ENVIRONMENTAL/PHYSICAL REQUIREMENTS

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

AUTOMATED AND USER ACTIVATED SELF TESTS

AUTOMATIC SELF TESTS	Tests internal circuitry, waveform delivery system, 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.

TRAINING AND ADMINISTRATION PACK (M3864A)

FUNCTION	Places FR2 in scenario-based training mode. 10 real world scripts provided. Disables energy delivery Permits modification of preprogrammed FR2 protocol.
TYPE	12 VDC 1.1 Ah Rechargeable Nickel Metal Hydride
CAPACITY	Min 4 hours training time
RECHARGE TIME	90 minutes to full capacity using Charger, M3855A (sold separately)

CHARGER (M3855A)

POWER INPUT / MAINS	For use with the Training and Administration Pack, M3864
POWER	100-240 VAC 47-63 Hz 30 Watts

CODERUNNER WEB SOFTWARE

OPTIONAL	Software for review of data from optional PC Data Cards.
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Refer to FR2 User's Guide for detailed product use instructions.
All specifications are based on 25°C unless otherwise noted. Specifications are subject to change.
The FR2 and accessories are made of latex-free materials.

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Note: In the U.S. federal law restricts this device to sale by or on the order of a physician. The information in this document is subject to change without notice.

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