



The **HP Codemaster XL+** combines a DC defibrillator / cardioscope, annotated recorder, and hands-off defibrillation capabilities into a single, high-performance unit. It operates on AC power or the internal battery supply and is available with a noninvasive pacemaker. The HP Codemaster XL+ is designed for high-use areas of the hospital. It's perfect for operating rooms, intensive care units, cardiac care units, and emergency departments.

## Features

- Defibrillator with ECG and recorder
- Provides 1-2-3 operation
- Built-in pediatric paddles under slide-off adult paddles
- Preset heart rate alarms
- High-capacity battery
- Built-in diagnostics



## Specifications

### Dimensions

**Height:** 7.9" (20 cm)  
**Width:** 11.8" (30 cm)  
**Depth:** 15.6" (39.7 cm)  
**Weight:** 24 lbs (10.9 kg)

### Defibrillator

**Waveform:** Damped sinusoidal (Lown)  
**Output Energy:** 2, 3, 5, 7, 10, 20, 30, 50, 70, 100, 150, 200, 300, and 360 joules  
**Charge Control:** Push-button on apex paddle and on front panel  
**Charge Time:** Less than 5 seconds to 360 joules with battery present. Less than 15 seconds to 360 joules on AC only.  
**Armed Indicators:** Charge done tone, charge done lamp on apex paddle, and available energy indicated on display.  
**Paddle Contact Indicator (optional):** 3-color LED bar graph array on STERNUM paddle indicates quality of defibrillator paddle contact before discharge.  
**Paddles:** Standard paddles are anterior/anterior, adult and pediatric. Adult electrodes (83 cm<sup>2</sup>) slide off to expose pediatric electrodes (21 cm<sup>2</sup>). Paddle cord is 10 ft (3 m). Full range of internal paddles available.

### Monitor

**Inputs:** ECG may be viewed through paddles or patient cable. Lead I, II, III, or PADDLES selectable. Additional leads (aVR, aVF, aVL, V Leads) and PADS are available. Monitor and recorder indicate selected ECG source  
**Lead Fault:** LEADS OFF message and dashed baseline appear on monitor if a lead becomes disconnected  
**Common Mode Rejection:** Greater than 100 dB measured as per AAMI standards for cardiac monitors (EC13)  
**Display Size and Type:** 5 inch (12.7 cm) diagonal CRT for 4 seconds of ECG data on screen; non-fade, fixed trace. Scrolling trace is selectable  
**Sweep Speed:** 25 mm/sec nominal  
**Frequency Response:** 0.5 to 40 Hz  
**Heart Rate Display:** Digital readout on monitor from 15 to 300 BPM.  
**Heart Rate Alarms:** Three pre-set pairs of high and low heart rate alarm limits from 20 to 280 BPM. (Configurable pairs are optional.)  
**ECG Output:** 1V/mV  
**Patient Cable Length:** 10 ft (3 m)



## Specifications Continued

### Thermal Array Recorder

**Event Summary (optional):** Stores and prints 3 seconds pre- and 8 seconds postcritical event data for up to 28 events. Data retained after unit is turned off

**Annotates:** Time, date, HR, event marker, ECG mode, defibrillator mode, selected energy, actual delivered energy, peak current, and patient impedance

**Speed:** 25 mm/sec.

**Paper Size:** 50 mm by 30 m (100 ft)

**Recorder Mode:** Automatically documents events and ECG during defibrillation episodes. The recorder can be configured to run in either real time or with a six second delay

**Frequency Response:** 0.5 to 40 Hz or 0.05 to 150 Hz selectable

### Battery

**Type:** Rechargeable sealed lead-acid battery. 4 Ah, 12 V nominal

**Charge Time:** 2 hours to 90% of full capacity. 18 hours to 100% capacity. Repeated charging to less than 100% will reduce useful life of battery.

**Capacity:** 2 1/2 hours monitoring or fifty (50) full-energy discharges or 1 hour monitoring and recording.

**Battery Indicators:** Illuminated LED indicates battery is charging. LOW BATTERY message appears on monitor when limited battery capacity remains.

### External Pacemaker (Optional)

**Current Pulse Amplitude:** 10 mA to 200 mA.

**Pulse Width:** 20 msec.

**Rate:** 40 ppm to 180 ppm.

**Modes:** Demand or fixed rate.

**Refractory Period:** 40 to 80 ppm 340 msec; 90 to 180 ppm 240 msec.

### SpO2 (Optional)

**Measurement Range:** 0 to 100%

**Accuracy with HP M1190A Sensor:** 1 standard deviation, 65-80%:  $\pm 2.5\%$ , 80- 100%:  $\pm 1.5\%$ , resolution: 1%

**Averaging:** 8 beats

**SpO2 Alarm Limits — Range:** 100/90, 100/85, 100/80

**SpO2 Alarm Delay:** Ten seconds after value drops below the low alarm setting.

**INOP Alerts:** Triggered by disconnected sensor, noisy signal, light interference or low signal.

**Pulse Rate Measurement Range:** 30 to 300 bpm  $\pm 1\%$ ; resolution 1 bpm.

**Pulse Amplitude Indicator:** Indicates pulsatile activity.

