



- DEFIBRILLATOR •
- AED •
- PACEMAKER •
- ECG •
- OXIMETRY •
- NIBP •
- CAPNOGRAPHY •
- PRINTER •
- CPR MAESTRO •

CARDIOMAX 8 SERIES

Cardioversion  
Monitor  
Biphasic  
Defibrillator



**RTC**  
Real Time Check

Auto **CAS** Sequencing

**SIP** Sudden  
Death  
Prevention

**bi**phasic  
SHOCK

## AVAILABLE PARAMETERS

- Real Time Check Technology (RTC)\*
- Automated External Defibrillator Mode (AED) - detachable.
- Sudden Death Prevention Mode (SDP)
- Cardiopulmonary Resuscitation Accessory (CPR Maestro)\*
- Electrocardiogram (ECG) up to 12 derivations\*

Complete, advanced, reliable and easy to use: definitely the best investment in emergency equipment.



\*Some items are optional - Please verify availability.

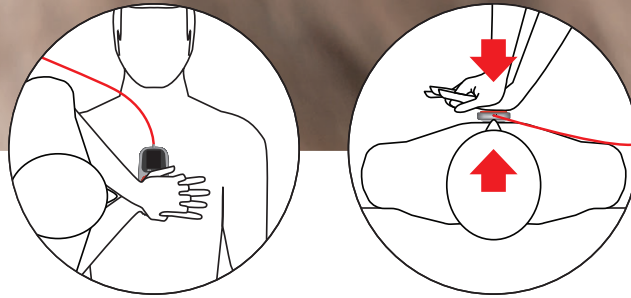
- Oximetry (SpO<sub>2</sub>)\*
- Non-invasive pacemaker\*
- Non-invasive pressure (NIBP)\*
- Capnography (EtCO<sub>2</sub>)\*
- Printer\*
- Removable rechargeable battery

## THE IDEAL PARTNER FOR YOUR CARDIOMAX

Positioned on the patient's chest, the CPR Maestro provides real-time feedback on the rescuer's performance by guiding him through voice, LCD display and indications on the CardioMax screen about the procedure's optimal frequency, strength and interval.

The result is a much more effective and consistent performance of CPR, resulting not only in increased chances of patient survival, but reducing the occurrence of severe sequel due to lack of oxygenation.

 **CPR**  
Maestro



**CARDIOMAX**   
SERIES

### PRACTICAL

- Light.
- Ready to use in less than 6 seconds.
- Biphase power delivery of up to 360 J.
- AED Mode – Automated External Defibrillator.
- CPR Maestro assists in performing cardiopulmonary resuscitation by measuring the frequency and depth of the chest compressions applied (optional).
- Internal battery, easy to replace, allows more than 100 shocks.

### EASY TO USE

- Easy operation - 1, 2, 3 standard.
- Quick access to main functions.
- Easy-to-use user interface - automatically adjusts itself to the number of active parameters, presenting clear and organized information.
- Large 8.4" color display.

### SMART

- Auto Sequencing Charge function - When enabled, applies charges pre-configured by the user for the first, second and third shocks without the need to change the selector manually.
- Smart monitoring alarms.
- Sudden Death Prevention (SDP) technology. This characteristic allows CardioMax to monitor the patient continually and identify the beginning of a Ventricular Fibrillation or Rapid Ventricular Tachycardia episode.

### RELIABLE

- Reliability - Instramed is a brand present in hundreds of medical organizations on more than 60 countries.
- Dependable products developed for the reality of emergency care.
- A wide network of dealers providing sales and parts, along with the factory-certified technical assistance, provides excellent post-sales service.
- With more than 30 years in the business, Instramed is a manufacturer that maintains stock parts and components even for discontinued products.

KNOW MORE ABOUT THIS PRODUCT IN [WWW.INSTRAMED.COM.BR](http://WWW.INSTRAMED.COM.BR)

## GENERAL SPECIFICATIONS

- Dimensions with pads:**
  - 30.0 cm (11.81 in) length.
  - 21.5 cm (8.46 in) depth.
  - 28.0 cm (11.02 in) height.
  - Carry handle.
- Weight:**
  - Device - 5.15 kg (11.35 lbs).
  - Li-Ion battery - 0.60 kg (1.32 lbs).
  - External pads - 0.85 kg (1.87 lbs).
  - Complete set (Li-Ion battery) - 6.60 Kg (15.66 lbs) (except NIBP).
- Electrical:**
  - AC: 100 to 240 VAC, 50/60 Hz (automatic selection).
  - Operated without battery.
  - DC external: 11 to 16 VDC.
- Removable rechargeable battery:**
  - Type: Li-Ion, 14.8 VDC 4.4 A/h.
  - Duration: battery with full charge - 3 hours in monitor mode, without printer, or a minimum of 140 shocks at 360 J or a minimum of 200 shocks at 200 J.
  - Battery full-charge time (when fully unloaded): 4h 30min.
  - Battery charges when connected to power source, whether the defibrillator is switched on or not.
  - Leds indicate that mains supply is switched on and battery charge.
  - Audible and visual alarm for low battery.
- Memory:**
  - Type: Nand Flash.
  - Capacity: 2 Mbytes.
  - Patients stored: >150 patients.
  - Storage: 15 seconds of ECG when in shock, physiological alarm and panel events.
  - ECG: 2 continuous hours of ECG curve recording, when in AED mode.
- RTC - Real Time Check:**
  - Defibrillation self-test, battery level, connected pads, power source connection check. Check is performed 3 times which are set in advance. This information is wirelessly transmitted to a PC with RTC System software installed and within range of the network.
  - Self-test when switched on.
  - Override of self-test if necessary.
- Alarms**
  - Low battery.
  - Audible and Visual Alarms.
  - No paper (printer).
  - ECG lead off/fault.
  - Low and High heart rate limits 30 to 300 bpm.
  - 4 seconds of asystole.
  - Mute function to temporarily silence the audible alarm.
  - Audible alarm-silencing period: 30 to 120 s (max).
  - SpO<sub>2</sub> Low Limit and High Limit Alarms.

## ENVIRONMENTAL SPECIFICATIONS

- Temperature:**
  - Operational: 0 to 50 °C.
  - Storage: -20 to 50 °C.
- Humidity:**
  - Operational: 10 to 95% RH, without condensation.
  - Storage: 10 to 95% RH, without condensation.
- IP Rating:**
  - IPX1.

## DEFIBRILLATOR

- Waveform:**
  - Biphasic truncated exponential. Waveform parameters adjusted in terms of patient's impedance.
- Shock application:**
  - By means of multifunctional pads (adhesive), defibrillation pads or internal pads.
  - Interchangeable cables and paddles for both AED and Defibrillator Modes.
  - Print ECG trace before and after defibrillation (optional).
  - Pacemaker detection.
- Scales for adult/external defibrillation:**
  - Scales: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 50, 80, 100, 150, 200, 250, 300 and 360 J (maximum power can be limited to 200 J). Maximum power limited to 50 J for children's pads or internal pads.

- Commands:**
  - On/Off button, charge, shock, synchronism.
  - Energy selection: selector switch in front panel.
  - Charge command: button in front panel or any button (apex or sternum) in external pads.
  - Discharge command: button in front panel or pressing buttons on both the apex and sternum paddles simultaneously.
  - Synchronized command: sync button in front panel (non-synchronized default).
  - Synchroniz indicates in the display that mode has been selected.
  - Synchronous defibrillation detection is possible via ECG patient cable and via paddles.
  - The synch marker is clearly indicated on the ECG trace.
- Charge auto-sequencing:**
  - When enabled, it charges power previously set by the user for the first, second and third shocks, with no need to manually adjust the selector.
- Charge indicators:**
  - Audio indication of equipment being charged, audio indication of charge completed, LED on external pads and charge level indicated on display.
  - Unique Audio Indication on Full Charge.
- Maximum charge time in maximum energy:**
  - < 6 s with 90% to 100% of the minimum specified voltage.
  - < 6 s with a full charge.
  - < 13 s from equipment initialization.
- External pads size:**
  - Adult - 10.3 cm x 8.5 cm (contact area = 81.9 cm<sup>2</sup>).
  - Children = 4.5 cm x 4 cm (contact area = 18 cm<sup>2</sup>).
- Cardioversion:**
  - < 60 ms.
- Pads (options):**
  - Adult and child external (included).
  - Multifunctional for pacemaker, monitoring and defibrillation (optional).
  - Multifunctional extension (optional).
- Funcional test:**
  - 50 ohms test load to check functionality.
- Internal discharge:**
  - Time to auto discharge between 30-120 seconds.

## AED MODULE

- Functional characteristics:**
  - Voice instructions, visual indications, CPR instructions, USB 2.0, Multilanguage.
  - Commands: Defibrillator and AED - Energy discharge via AED pads or internal electrodes by means of a button on the panel.
- Sequency:**
  - Adult: 150 - 200 - 200 J.
  - Child: 50 - 50 - 50 J.
  - Measured by patient impedance.
- Analysis time:**
  - Maximum 12 s.
- USB:**
  - USB 2.0 for transfer of the electrocardiogram stored in AED mode to a compatible PC.
- SoftDEA:**
  - Software for viewing the data transferred to the PC.

## EXTERNAL PACEMAKER (OPTIONAL)

- Waveform:**
  - Single-phase rectangular pulse.
  - There is a continuous display of the pacing mode, the selected current and the selected pacing rate.
- Modes:**
  - Demand or fixed.
  - QRS marker in demand mode.
- Amplitude:**
  - From 10 mA to 200 mA (resolution of 1 mA), accuracy 10%.
- Pulse width:**
  - 20 ms (tolerance of 10%).

- Frequency:**
  - From 30 PPM to 180 PPM (increments of 5 PPM), accuracy ± 2%.
- Refractory period:**
  - 240 ms (from 90 to 180 PPM).
- Maximum output voltage:**
  - 350 V.

## NIBP (OPTIONAL)

- Operating principle:**
  - Oscillometric.
  - Cuff pressure : 0 - 300 mmHg.
  - Cuff inflation time < 10 s.
- Automatic mode:**
  - 1, 2, 3, 4, 5, 10, 15, 30, 60 and 90 minutes.
- Manual mode:**
  - One measurement.
- Measurement interval:**
  - One measurement.
- Adult range:**
  - Systolic: 40 to 260 mmHg.
  - Mean: 26 to 220 mmHg.
  - Diastolic: 20 to 200 mmHg.
- Pediatric range:**
  - Systolic: 40 to 160 mmHg.
  - Mean: 26 to 133 mmHg.
  - Diastolic: 20 to 120 mmHg.
- Neonate range:**
  - Systolic: 40 to 130 mmHg.
  - Mean: 26 to 110 mmHg.
  - Diastolic: 20 to 100 mmHg.
- Overpressure limit by software:**
  - Adult: 290 mmHg max.
  - Neonate: 145 mmHg max.
- Overpressure protection by hardware:**
  - Adult: 300 ± mmHg.
  - Neonate: 150 ± mmHg.
- Resolution:**
  - 1 mmHg.

## CPR Maestro (OPTIONAL)

- Accessory for cardiopulmonary resuscitation:**
  - Feedback of the thoracic compressions.

## DISPLAY

- Battery level indicator:**
  - Yes.
- Size:**
  - 128.2 mm x 170.9 mm.
- Diagonal:**
  - 8.4".
- Type:**
  - Color LCD TFT.
- Resolution:**
  - 640 x 480 pixels (VGA).
- Scan speed:**
  - 12.5, 25 and 50 mm/s.
- Indicators:**
  - Alarm messages.
  - Heart rate.
  - Systole blinker.
  - Alarm limits.

## ECG (supports up to 12 simultaneous derivations when equipped with optional module)

- Inputs:**
  - 3 or 5 lead ECG cable (DI, DII, DIII, aVL, aVR, aVF and V).
  - 10 lead ECG cable (DI, DII, DIII, aVL, aVR, aVF and V1 to 6 - optional).
  - Lead selection shown on screen.
  - Analysis time: less than 15 s.
  - ECG by multifunctional pads multifunctional.
  - Systole blinker.
  - Heart rate.
  - Freeze function.
  - External pads.
  - Multifunctional pads.
- Range:**
  - 15 to 350 BPM.
- Precision:**
  - ± 1 BPM from 15 to 350 BPM.
- Rejection in common mode:**
  - Higher than 90 dB, measurement in compliance with the AAMI standards for heart monitors (EC 13).

- Sensitivity:**
  - 5, 10, 15, 20, 30 and 40 mm/mV.
- Trace speed:**
  - 12.5, 25 and 50 mm/s.
- AC line filter:**
  - 60 Hz or 50 Hz.
- ECG response frequency:**
  - Diagnostic mode: 0.05 - 100 Hz.
  - Monitor mode: 1-40 Hz.
  - Muscle artifact filter.
- Patient insulation (defibrillation proof):**
  - ECG: CF type.
  - SpO<sub>2</sub>: CF type.
- Loose electrode:**
  - Identified and shown with low level alarm.
- Time to re-establish the ECG baseline after defibrillation:**
  - ≤ 3 seconds.

## - SpO<sub>2</sub> (OPTIONAL)

- SpO<sub>2</sub> range:**
  - 0 to 100%.
  - Alarm to low oxygenation.
- Pulse range:**
  - 30 to 300 BPM.
- SpO<sub>2</sub> precision:**
  - ± 2% from 70 to 100%.
  - ± 3% from 50 to 69%.
- Pulse precision:**
  - ± 2 BPM.
- Scan speed:**
  - 12.5, 25 e 50 mm/s.

## CAPNOGRAPHY (OPTIONAL)

- CO<sub>2</sub> measurement interval:**
  - 0' - 99 mmHg.
- Precision:**
  - ± 2 mmHg (0 - 38 mmHg).
  - ± 5% + 0.08%. For each 1 mmHg above 38 mmHg (39 - 99mmHg).
- Consumption:**
  - 1.5 W.
- Compensation:**
  - BTPS, N<sub>2</sub>O, O<sub>2</sub>.

## PRINTER (OPTIONAL)

- CO<sub>2</sub> measurement interval:**
  - Prints up to three simultaneous derivations or SpO<sub>2</sub>, date and time.
- Tipo:**
  - Thermal.
  - Resolution: 203 dpi.
  - 3 independent channels
  - Manual and automatic printer modes.
  - Automatic mode prints ECG trace before and after alarm/defibrillation conditions.
- Weight:**
  - 0.4 Kg (GSI), 0.104 Kg (Bixolon).
- Speed:**
  - 12.5, 25 or 50 mm/s (GSI).
  - 25 or 50 mm/s (Bixolon).
- Sensitivity:**
  - 5, 10, 15, 20, 30 and 40 mm/mV.
- Paper size:**
  - 58 mm (width) x 15 m (maximum length).
- Print-out:**
  - ECG trace.
  - SpO<sub>2</sub> waveform.
  - Date.
  - Time.
  - Energy selected.
  - Energy delivered.

## ALARMS

- Infocenter:**
  - Physiological messages.
  - Technical messages.

## STANDARDS:

- NBR IEC 60601-1
- NBR IEC 60601-1-2
- NBR IEC 60601-1-4
- NBR IEC 60601-1-6
- NBR IEC 60601-1-8
- NBR IEC 60601-2-4
- NBR IEC 60601-2-27
- NBR IEC 60601-2-30
- NBR IEC 60601-2-49 or equivalent IECs.

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Some items are optional. Please verify availability.



Applicable to specific settings.

**ANVISA 10242950009**

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