



D500

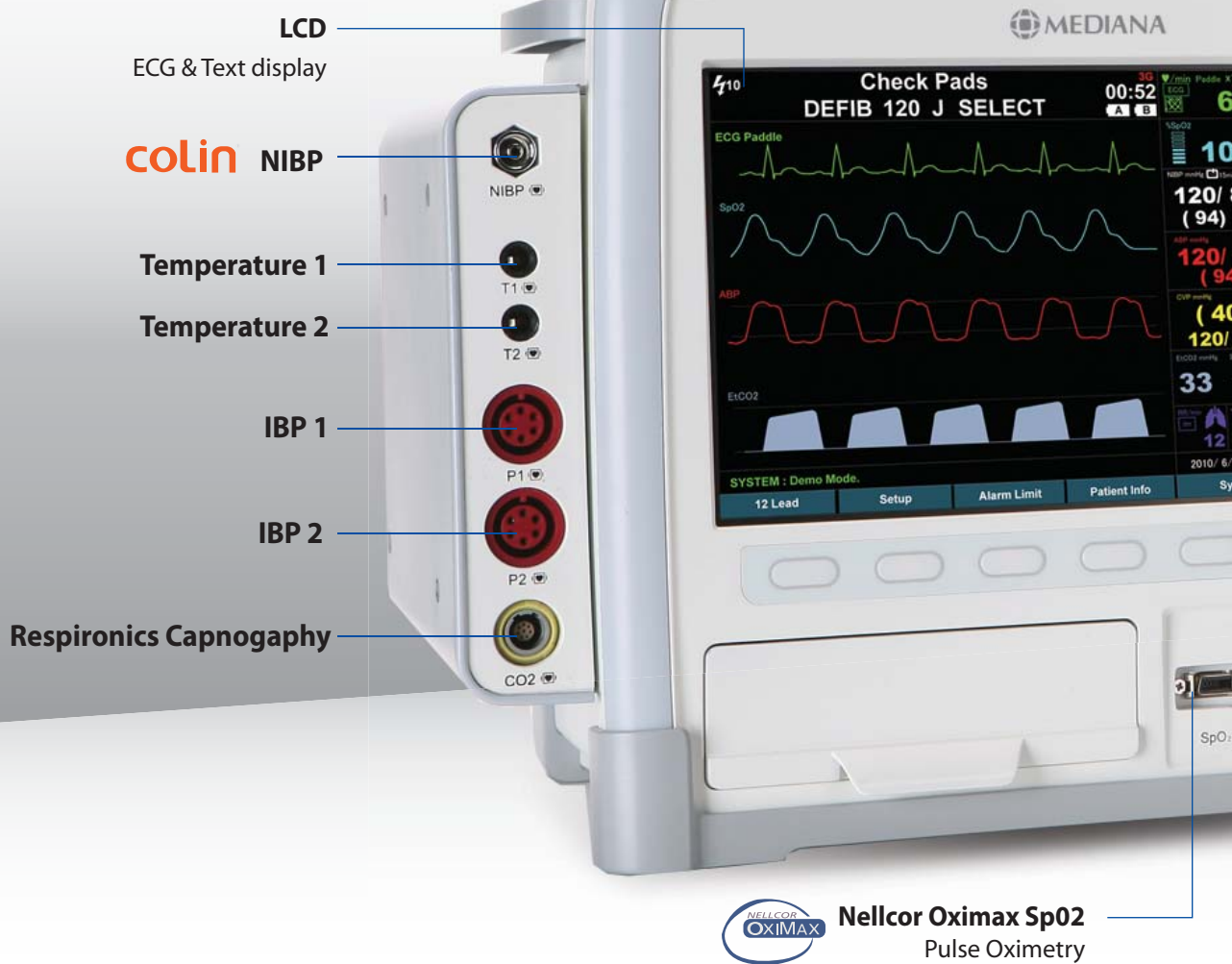
Defibrillator/Monitor



Saving Lives Everyday!

D500

Defibrillator/Monitor



LCD
ECG & Text display

colin NIBP

Temperature 1

Temperature 2

IBP 1

IBP 2

Respironics Capnography



Nellcor Oximax SpO2
Pulse Oximetry

Biphasic Defibrillation, Pacing and Complete Monitoring in one Portable Device.

- Multifunctional Defibrillator/Monitor
- Manual and AED Operation
- Non-invasive Pacing Mode
- Advanced Biphasic Technology
- Defibrillation with Paddles
- 12 Lead ECG Monitoring



Rechargeable Battery



Defibrillation Mode Selector

Manual / AED / Pacing / Monitor mode

Shock Button

Flashing button indicates ready for shock delivery.
Push the button to deliver shock.

Non-Invasive Pacing

SD card

Review data stored & software upgrade



12 Lead ECG Glasgow Algorithm

Paddle



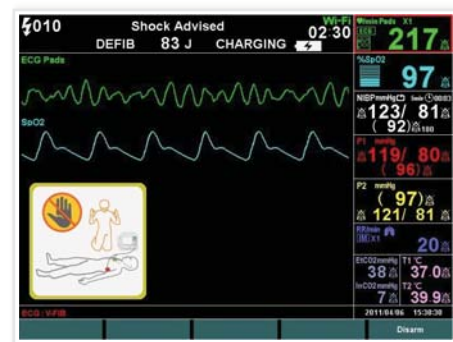
D500 Defibrillator. Quality you can trust.

Monitoring-12 Lead ECG Display



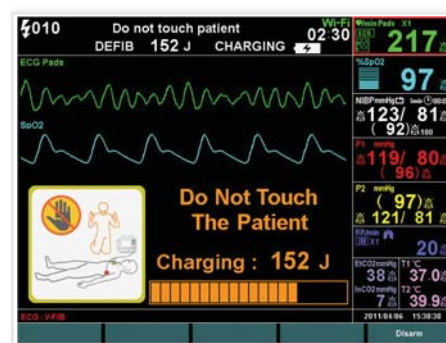
Full range of monitoring options available, including 3/5/12 Lead ECG (Glasgow University), Mediana or Nellcor SpO2, Omron NIBP, IBP, Temp and Respiration EtCO2.

AED



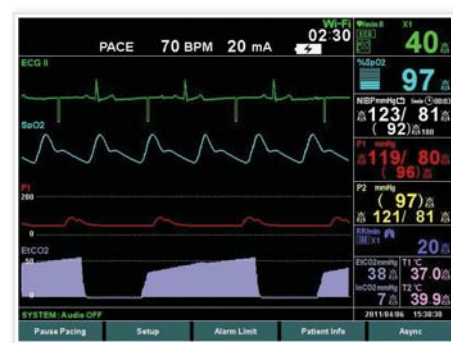
Semi-Automatic AED mode with easy to follow step-by-step visual and audio instructions.

Manual Defibrillation



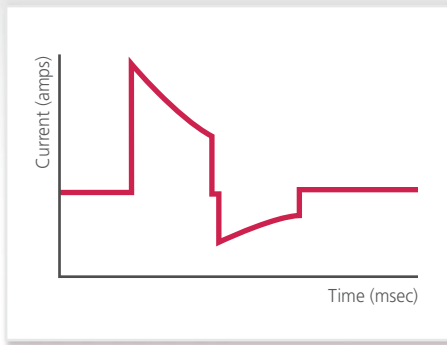
Biphasic Manual Defibrillation with maximum Energy level of 360 J. With Synchronous Cardioversion.

Non-Invasive Pacing



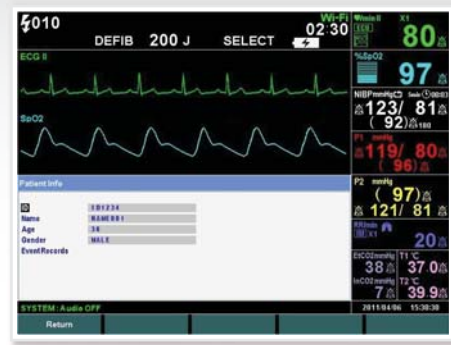
Demand and Non-Demand Pacing modes with Pacing rates adjustable from 30 to 180 ppm.

● **Biphasic Waveform**



Most effective Biphasic Truncated Exponential Waveform with impedance compensation. (25 to 175 Ohm)

● **Data Storage**



Powerful memory for saving of numerical data and ECG, EtCO2 and IBP waveforms. Saves data for up-to 100 patients and 250 events.

● **Dual Battery**



Dual Battery system with Automatic Switching. Each battery supports a minimum of 100 shocks and 5 hours operating time.

● **Integrated Thermal Printer**

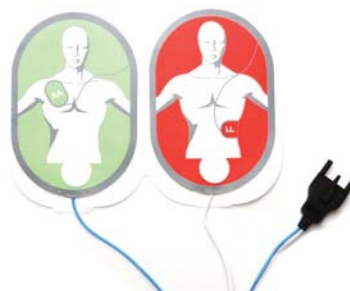


Device features an integrated Printer with 80 mm Paper Width that can print up to 3 Channels and Report / Patient information.

● **Paddles**



● **Pads**



● **ECG Cables**



Display

Screen Size 170.0*128 (mm) (8.4 in diagonally across the TFT-LCD screen)
 Screen Type/Color Liquid Crystal Display (LCD) Color
 Resolution 800*600 pixel

Controls

Standard Knob; Mode key (Off, AED, Manual, Pacing); 12 soft buttons (Shock, Select Energy, Charge, Analyze, NIBP, REC, LEAD, Alarm Off, Size, Display, bpm, mA); 5 soft key

Alarms

| | |
|--------------------|----------------------------------|
| Categories | Patient Status and System Status |
| Priorities | Low, Medium and High Priorities |
| Notification | Audible and Visual |
| Setting | Default and Individual |
| Alarm Volume Level | 45 to 84 dB |

Physical Characteristics and Printer

Instrument

| | |
|---|---|
| Dimensions | 348*256*332 (mm) (W*H*D) including a handle and paddles excluding options and accessories |
| Weight | Approx. 7.45 kg including paddles excluding optional configurations and accessories |
| Degree of Protection against Electric Shock | |
| ECG: | Type CF with defibrillation protection |
| Respiration: | Type CF with defibrillation protection |
| SpO2: | Type CF with defibrillation protection |
| Temperature: | Type CF with defibrillation protection |
| EtCO2 | Type CF with defibrillation protection |
| Mode of Operation | Continuous |

Printer

| | |
|--------------------|-----------------|
| Type | Thermal |
| Weight | 190g |
| Number of Channels | 1 to 3 channels |
| Paper Width | 80 mm |
| Printer Speed | 25 mm/s |

Electrical

Instrument

Power Requirement AC Mains 100 to 240 V, 50/60 Hz, 60 to 160 VA

Battery (Option)

| | |
|----------------|---|
| Type | Li-ion battery |
| Voltage | 10.8V / 7200mAh |
| Discharge | A minimum of 100 shocks at 200 Joules (per battery) |
| Operating Time | 5 hours (per battery) At the following condition: no printing, no external communication, no audible alarm sound and room temperature: 25°C |
| Recharge | 7 hours with D500 turned on/off |
| Dual Battery | Automatic Switching |

Environmental Conditions

Operation

| | |
|------------------|-------------------------------------|
| Temperature | 0 to 40°C (32 to 104°F) |
| Humidity | 15 to 95% RH, non-condensing |
| Altitude | -170 to 4,877 m (-557 to 16,000 ft) |
| Water Resistance | IP34 |

Transport and Storage (in shipping container)

| | |
|-------------|------------------------------------|
| Temperature | -20°C to 50°C (-4°F to 122°F) |
| Humidity | 15 to 95% RH, non-condensing |
| Altitude | -304 to 6,096m (1,000 to 20,000ft) |

Defibrillator

| | |
|--------------------------|--------------------------------|
| Biphasic Waveform | Biphasic Truncated Exponential |
| Resuscitation Guidelines | Selectable AHA/ERC |

Manual Mode

| | |
|---------------------------|--|
| Shock Energy Level | External Paddles: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50, 75, 100, 150, 175, 200, 300, 360J |
| Automatic Discharge Time | 60 seconds |
| Charging Time | Battery: 6 seconds (200J), 10 seconds (360J) AC power input: 10 seconds (200J), 15 seconds (360J) |
| Synchronous Cardioversion | Energy transfer begins within 60msec of the QRS peak |

AED Mode

1 ch ECG measurement

| | |
|-------------------|---------------|
| Lead | Lead II |
| Patient Impedance | 25 to 175 Ohm |
| Heart Rate | 20 to 300 bpm |

Delivered Energy

The D500 delivers shocks to load impedances from 25 to 175 Ohms. The duration of each pulse of the waveform is dynamically adjusted based on delivered charge, in order to compensate for patient impedance variation, as shown below;

| Load resistance (Ohm) | Delivered energy (Joule) |
|-----------------------|--------------------------|
| 25 | 195 |
| 50 | 190 |
| 75 | 185 |
| 100 | 195 |
| 125 | 190 |
| 150 | 185 |
| 175 | 180 |

Pacer

| | |
|----------------|----------------------|
| Pacing Mode | Demand or non-demand |
| Pacing rate | 30 ppm to 180 ppm |
| Resolution | 2 ppm |
| Accuracy | ± 1.5 ppm |
| Output current | 0 mA to 140 mA |
| Resolution | 2 mA |
| Accuracy | ± 5% or 5 mA |
| QRS Marker | in the demand mode |

ECG

Heart Rate

| | |
|------------------|------------------|
| Measurement Rate | 0, 20 to 300 bpm |
| Resolution | 1 bpm |
| Accuracy | ±5 bpm |

ECG (Electrocardiograph)

| | |
|--------------------|---|
| Leads | 3 / 5 / 12 Lea Lead I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6, Paddles, Pads |
| Lead Off Detection | Detected and displayed |
| Pads Off Detection | Detected and displayed |
| Pacer Detection | Detected pacer pulses of ±2mV to ±700mV with pulse widths of 0.1 to 2msec and rise times 10% of width not to exceed 100msec |

Input;

| | |
|---------------------|-----------------------|
| Input Impedance | 5 M Ohm or more |
| Input Dynamic Range | ±5mV AC, ±300mV DC |
| Voltage Range | ±0.5mV ~ ±5mV |
| Signal Width | 40 to 120 ms (Q to S) |

Output (Frequency Response);

| | |
|----------------------------------|---|
| Monitoring mode | 0.4 to 40 Hz |
| Diagnostic mode | 0.05 to 150 Hz |
| Low-extended mode | 0.05 to 40 Hz |
| Filter mode | 1 to 21 Hz |
| ECG size | Auto, 5.0, 10.0, 15.0, 20.0, 30.0 mm/mV |
| Display Sweep Speeds | 25.0 mm/sec |
| Display Sensitivity | 10 mm/mV |
| Pacing Pulse Detection | On, Off |
| Electrode Disconnect Alarm | Display and/or sound |
| Common Mode Rejection (CMRR) | 80 dB or more |
| Defibrillator Discharge Recovery | less than 5 sec per IEC 60601-2-27 |
| Defibrillation Protection | Protected |

Interpretive Algorithm

12-Lead Interpretive Algorithm University of Glasgow 12-Lead ECG Analysis Program

Respiration

IM Respiration

Technique Impedance Pneumography
Range 0,3 to 120 breaths/min
Resolution 1 breaths/min
Leads RA to LA
Base impedance 500 to 2000 ohm
Delta impedance 0.5 to 3 ohm
Lead Off Condition Detected and displayed
Defibrillator Protection Protected

AW Respiration

Technique Non-dispersive Infrared Spectroscopy
Range 0 to 120 breaths/min
Accuracy ± 1 breaths/min
Display Sweep Speeds 12.5 mm/sec

NIBP

Pulse Rate

| | | |
|------------------|-----------------|---------------|
| Pulse Rate Range | Adult/Pediatric | 40 to 200 bpm |
| | Neonatal | 40 to 240 bpm |

Resolution 5 bpm

NIBP (Non-Invasive Blood Pressure)

Technique Oscillometric Measurement

Measurement Modes Off, cont, 1, 2.5, 3, 5, 10, 15, 30, 60, 90 minutes

| | | |
|-------------------|-----------------|---------------|
| Measurement Range | Adult/Pediatric | |
| | SYS | 60 to 250mmHg |
| | MAP | 45 to 235mmHg |
| | DIA | 40 to 200mmHg |

Neonatal

| | |
|-----|---------------|
| SYS | 40 to 120mmHg |
| MAP | 30 to 100mmHg |
| DIA | 20 to 90mmHg |

NIBP Accuracy Mean error and standard deviation per ANSI/AAMI SP10:2002+A1:2003+A2:2006

| | | |
|------------------------|-----------------|---------------|
| Pressure Display Range | Adult/Pediatric | 0 to 300 mmHg |
| | Neonatal | 0 to 150 mmHg |

| | | |
|---------------------------|-----------------|---------------|
| Pressure Display Accuracy | Adult/Pediatric | ± 10 mmHg |
| | Neonatal | ± 5 mmHg |

| | | |
|-------------------------------|-----------------|---|
| Initial Cuff Inflate Pressure | Adult/Pediatric | 120, 140, 160, 180, 200, 220, 240, 260, 280mmHg |
| | Neonatal | 80, 90, 100, 110, 120, 130, 140 mmHg |

| | | |
|--------------------------|------------------|----------|
| Automatic Cuff Protector | Adult/Pediatric: | 300 mmHg |
| | Neonatal: | 150 mmHg |

| | |
|--------------------------|------------------|
| Defibrillator Protection | Protected |
| Measurement Speed | About 20 seconds |

IBP

Pulse Rate

| | |
|-----------------------|---------------|
| Pulse Rate Range | 20 to 250 bpm |
| Pulse Rate Resolution | 1 bpm |

IBP (Invasive Blood Pressure)

| | |
|---------------------|---|
| Parameter Displayed | P1, ABP P2, CVP, PAP, LAP |
| Measurement Range | -50 mmHg to 300 mmHg 20 bpm to 250 bpm |

| | |
|--------------------------------|---|
| Resolution | 1 mmHg |
| Input Sensitivity | 5 μ V/V/mmHg |
| Transducer Volume Displacement | 0.1 mm ³ /100 mmHg |
| Zero Calibration Range | ± 100 mmHg |
| Frequency Response | 25 Hz |
| Wave Size | 0 to 20, 0 to 50, 0 to 100, 0 to 200, 0 to 300, Auto Size |

| | |
|--------------------------|-----------|
| Display Sweep Speeds | 25.0 mm/s |
| Defibrillator Protection | Protected |

SpO2

%Saturation

| | |
|------------------------------|-------------------------------------|
| Range | 0% to 100% |
| Perfusion Range | 0.03% to 20 % |
| Accuracy Adults ¹ | 70% to 100% ± 2 digits |
| Neonate | 70% to 100% ± 2 digits |
| Low Perfusion ² | 70% to 100% ± 2 digits |
| Display Sweep Speeds | 12.5mm/sec, 25.0mm/sec & 50.0mm/sec |
| C-Lock | |

Pulse Rate

| | |
|-------------------------|---|
| Pulse Rate Range | 25 to 240 bpm |
| Resolution | 1 bpm |
| Accuracy | No motion: ± 3 bpm Motion: ± 5 bpm |
| Asystole Detection Time | ± 8 sec |
| Delay | ± 10 sec |
| Response Time | ± 20 sec |

- Adult specifications are shown for OXIMAX MAX-A and MAX-N sensors with the D500. Neonate specifications are shown for OXIMAX MAX-N sensors with the D500. Saturation accuracy will vary by sensor type.
- Specification applies to the D500 performance. Reading accuracy in the presence using signals supplied by a patient simulator. SpO2 and pulse rate values were varied across the monitoring range including weak signal conditions and compared to the known true saturation and pulse rate of the input signals.

Capnography

| | |
|-------------------|--|
| Display | EtCO ₂ , InCO ₂ |
| Range | 0 to 150 mmHg |
| Accuracy | 0 to 40 mmHg ± 2 mmHg of reading 41 to 70 mmHg $\pm 5\%$ of reading 71 to 100 mmHg $\pm 8\%$ of reading 101 to 150 mmHg $\pm 10\%$ of reading |
| Display Accuracy | ± 2 mmHg |
| Response Time | Mainstream: Less than 60ms Sidestream: Less than 3sec |
| Gas Compensation | User selective at O ₂ > 60% and N ₂ O > 50% |
| Warm Up time | 2 minutes maximum |
| Sound Noise Level | Less than 41dB when ambient sound pressure level is 22dB |
| Sweep Speeds | 6.25mm/sec, 12.5 mm/sec and 25.0 mm/sec |

Temperature

| | |
|---------------------|--|
| Probe Types | Thermistor probe |
| Parameter displayed | TEMP1, TEMP2 |
| Range | 15°C to 45°C (59°F to 113°F) |
| Display Accuracy | $\pm 0.1^\circ\text{C}$ (25°C to 45°C) or $\pm 0.2^\circ\text{F}$ (77°F to 113°F) $\pm 0.2^\circ\text{C}$ (15°C to less than 25°C) Or $\pm 0.4^\circ\text{C}$ (59°F to less than 77°F) |

Event

| | |
|------------------|---|
| Date | 12 lead, Events |
| Memory | Saves total 100 data (12 lead) Total 250 date (events) Saves date and time Saves alarm condition Saves HR/PR, NIBP, SpO ₂ , Temp, IBP1, IBP2, EtCO ₂ numeric data Saves ECG, EtCO ₂ , 2 channel IBP waveform data |
| Removable Memory | SD Card/USB |

Optional Items

Non-invasive Blood Pressure with cuffs and cuff hoses
SpO₂ (Nellcor) with DS-100A and DOC-10
12 Lead ECG with Interpretation from the University of Glasgow
Continuous Temperature Monitoring
EtCO₂, selectable either Mainstream or Sidestream from Respironics
Invasive Blood Pressure Monitoring (2 lines)
Wi-Fi/3G Communication module
Wireless LAN data transmission
Additional Battery



Our mission is to save lives by developing, manufacturing and selling state-of-the-art medical technology.

Our ultimate goal is to earn the trust of our customers by using our imagination and skills to continuously offer better medical solutions.



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