

Monitoring & Critical Care

Midmark Animal Health Products



Cardell® – the name you trust for veterinary monitoring.

A line of monitoring
solutions that delivers
unmatched performance in
exam, treatment and surgery.



The Cardell® Family of Monitors



From diagnostic to multiparameter monitoring, Cardell® technology is designed to quickly provide accurate and consistent readings. Advanced motion artifact suppression technology is designed to help eliminate errors caused by shivering, panting or other movement common with animals. Readings are displayed in 15-20 seconds, designed to provide critical information needed to get ahead of potential issues with your patient's health.

Trusted

- Preferred by top teaching schools and used at every U.S. veterinary school
- Used worldwide at thousands of veterinary schools and practices
- Used by the world's leading referral and emergency practices
- Validated in published, peer-reviewed studies on cats, dogs and more

Supported

- Full-time clinical support team
- RACE certified provider of monitoring education
- Leading provider to monitoring wet labs at national/regional conferences
- Demo equipment available

Recommended

"The Cardell® Monitor has proven to be an effective tool because it is easy to use and delivers reliable readings, even on cats, kittens and puppies."

Lorraine K. Jarboe, DVM, DABVP

2010 President, American Association of Feline Practitioners

"I have tried many of the monitors on the market today, and I went with Cardell® because it accomplished the goals that we needed. It is accurate, simple to use, and our technicians really love it."

Fred Metzger, DVM, DABVP

Owner Metzger Animal Hospital, State College, PA

"We need patient monitors that are reliable workhorses that we can count on at all times, in all situations. Cardell® Monitors pull all of the best technologies together in a family of monitors that are used throughout our hospitals."

Neil Shaw, DVM, DACVIM

Medical Director, Blue Pearl Vet

No other blood pressure monitor manufactured today has as many peer-reviewed, published studies comparing its accuracy and reliability to direct invasive blood pressure, the gold standard. Following are two studies that have validated the Cardell® non-invasive blood pressure for reliability and accuracy for use on animals versus direct pressure.

Sawyer DC, Guikema AH, Siegel EM. Evaluation of a new oscillometric blood pressure monitor in isoflurane-anesthetized dogs. *Vet Anaesth Analg.* 2004 Jan;31(1):27-39.

Pedersen KM, Butler MA, Ersboll AK, Pedersen HD. Evaluation of an oscillometric blood pressure monitor for use in anesthetized cats. *J Am Vet Med Assoc.* 2002 Sep 1;221(5):546-50.



With its touch screen technology, veterinary specific algorithms, and updated interface, the Cardell® Touch multiparameter monitor is designed to make anesthetic procedures safer and more efficient.



Cardell® Touch

Designed to be more versatile and easier to use than its predecessors, the Cardell® Touch can help veterinary professionals improve patient care and efficiency by simplifying every step of the procedure, from patient setup and alarm adjustment, to data export and analysis.

Above all, an anesthesia monitor should be safe, reliable and user-friendly. The Cardell® Touch is designed to be both highly advanced and easy to use. With veterinary-specific algorithms and exclusive Cardell® Blood Pressure Technology, the Touch is the latest innovation from the most trusted name in veterinary vital signs monitoring.

Distinctive features:

- 10.5" touch screen designed to make patient set up faster and easier
- Redesigned menus and improved controls for intuitive navigation
- Smaller, lighter form factor to allow for easy transportation
- USB port for downloading patient data
- Customizable alarm settings for up to three users
- World Class Cardell® BP, Nellcor® SpO₂
- Upgrade to CO₂ monitoring at any time by adding a Respironics SideStream® or mainstream CO₂ module
- Invasive Blood Pressure and Phasein™ multigas available
- Enhanced ECG data export capabilities
- Optional integrated 3-channel graphical printer
- 2-year warranty

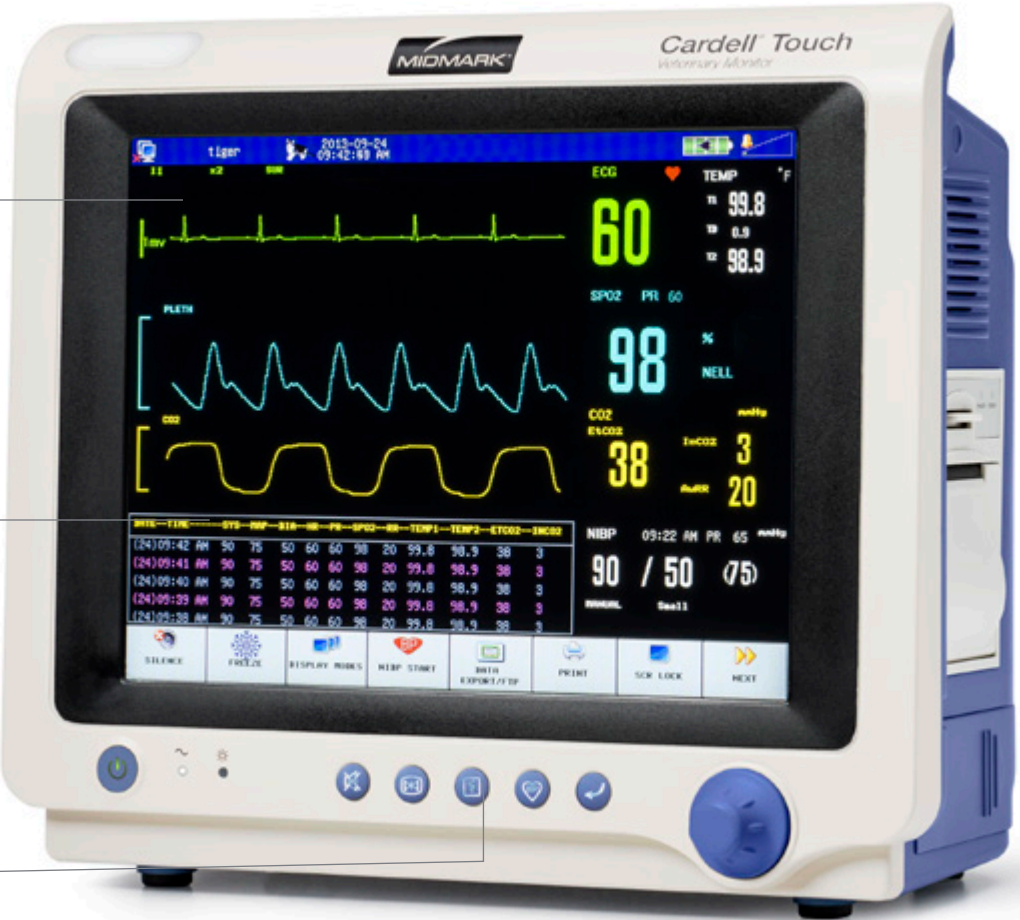


Cardell® Touch
on a Matrx VMS® Plus

Smaller, lighter form factor designed for easier transportation without sacrificing visibility

Customizable alarm settings for up to three users

Simple patient set-up with intuitive 10.5" touch screen or traditional-style buttons



Optional integrated 3-channel printer, prints waveforms or tabular readings with manual, alarm-triggered and timed printing options

Add CO₂ or Multigas at any time.

Monitoring CO₂ can alert you to trouble with your patient within two breaths.



Masimo® IRMA™
Durable, accurate mainstream CO₂ or multigas probe with fast initialization time

Masimo® ISA™
Sidestream CO₂ or multigas module with enhanced water removal system.



Upgrade your Cardell® Touch to monitor CO₂ multigas at any time.

Diagnostic Monitoring

Cardell® 9401/9402

Designed to be compact, lightweight and durable, with an intuitive interface to make our monitors easier to use. And they're designed to fit anywhere you need them: on a narrow shelf, hanging on a cage or IV stand, or in a carry bag for ultimate mobility.

Popular uses:

- All areas including exam, treatment, surgery, recovery
- Monitoring patients as they move around your hospital
- Mobile practices and field monitoring purposes

9401/9402 features:

- Provides systolic, diastolic, mean arterial pressure and heart rate in seconds
- Screening mode automatically calculates average of last five readings
- Pulse rate range from 20 to 300 beats/minute
- Set auto measurement from 1-90 minutes
- AC or rechargeable battery (4 hours) – works on 100 volt to 240 volt
- Stores 99 minutes of readings or the last 5 hours
- High and low alarm setting for all parameters
- 13 cuffs in 7 different sizes included
- 3-year warranty; 1 year on battery pack

9402 features:

- Nellcor® all-digital OxiMax® SpO₂ technology designed to provide superior accuracy and works in low perfusion and during patient motion
- A reflectance SpO₂ sensor (MaxFast-1) is available for use on the base of the tail during dental procedures



Cardell® 9401



Cardell® 9402

Accessories

Each of our monitors come with the accessories needed to allow for full monitoring capability, including cuffs, probes, sensors and connecting cables appropriate for the parameters chosen. They have been carefully selected to allow optimum performance on animals. Several optional accessories are also available. Consider stocking key accessories should they require replacement due to accident or normal wear and tear.

Purchase accessories directly from the Animal Health store at:
midmarkanimalhealth.com/store



Cardell® BP Kit
Seven cuff sizes ranging from 2 – 10 cm in width, made from a soft, hypoallergenic material and a complimentary Cardell® Cuff Selector.



CO₂ Sampling Tubes and Adapters
Available in two sizes to help minimize dead space. Sidestream sample lines have built-in filters for moisture management without messy water traps.



Nellcor® V-SAT Pulse Oximeter Sensors
Durable non-slip clips in two sizes. Can be applied to the tongue, lip, ear, toe-webbing, prepuce or vulva. Ten foot extension cable is also available.



ECG Cables and Lead Wires
Paired with copper clips, designed to be malleable and ultra-conductive. Includes electrode gel to help sustain readings.



YSI Temp Probes
Designed to be durable and deliver accurate readings from either end of the patient. Large probe is included with the Cardell® Touch.



Esophageal ECG Probe
Combines 3-lead ECG, temperature and respiration into one probe, compatible with the Cardell® Touch.



MAXFAST-1 Reflectance Sensor
Can be applied to the tail (wrap included), designed for head and neck surgery or dental procedures.



9400 Series Travel Case
Custom-designed nylon bag with access flaps for all connections. Buttons can be pressed through the viewing window for self-contained monitoring, protected from the elements.



Stand and Mounting Options
Rolling stands and other mounting options available, designed to help protect your investment and allow for easy movement. All rolling stands feature a storage basket.

Criteria	Doppler	Cardell®
Measures systolic blood pressure	✓	✓
Measures diastolic blood pressure		✓
Measures MAP		✓
Measures pulse rate		✓
Has automated cycle		✓
Has user-selectable alarms		✓
Detects artifacts		✓
Efficient and user-friendly		✓
Noise will NOT interfere		✓
Patient acceptance		✓
Simple measurement process		✓
Mode of operation	Measures individual pulse wave, momentary situation	Average all pulse waves over 10-15 seconds
Prep of measurement site	Shear & apply gel	NONE
Canine measurements	Can be learned with some practice	Easy to learn
Feline measurements	Can be learned with some practice	Can be learned with some practice

Specifications

	9401/9402	Cardell® Touch
Non-invasive Blood Pressure (NIBP)	Cardell® NIBP	Cardell® NIBP
Pulse Oximetry (SpO ₂)	Nellcor® Oximax® 9402	Nellcor® Oximax®
CO ₂ (End Tidal Carbon Dioxide)	No	Optional (add anytime) Masimo® IRMA™ mainstream or ISA™ sidestream
ECG	SpO ₂ Pulse Rate (9402)	3-Lead Standard, 5-Lead Optional
HR/PR	9401/9402 (PR)	HR/PR
Temperature	No	2-Channel YSI
Respiration/Method	No	Indirect: Impedance Direct: EtCO ₂ (optional)
Invasive Blood Pressure	No	2-Channel (optional)
Anesthetic Gases	No	Masimo® Phasein™ Multigas mainstream or sidestream (optional) CO ₂ , N ₂ O, ISO, SEV, ENF, DES, HAL
Display	LED Numeric	10.5" LCD Resistive Touch Screen
Printer	No	Integrated (optional)
Waveform Display	N/A	4-Channel Standard, 6-8 Channels Optional
ECG Vector Waveform Display	N/A	2-Channel
ECG Recall	N/A	12 Minutes
ECG Gain	N/A	Auto, x ^{1/4} , x ^{1/2} , x1, x2, x4
HR/PR Range	30 – 300 bpm	15 - 300 bpm
NIBP Modes	Manual, Auto, Screening	Manual, Auto, Stat
Graphical Trends	N/A	120 Hours
Tabular Trends	480	600
Parameter Alarms	User defined high/low	3 user-defined high/low with 4 defaults (cat, dog, horse, other)
Download to PC	No	USB stick
PC Download Capability	No	Automated Visualizer Software
Video Output	No	VGA
Weight	3 lb	9.1 lb
Battery Life	4 Hours	2 – 4 Hours
Voltage	100 – 240V	100 – 240V
Warranty on Monitor (years)	3	2

Blood Pressure - Cardell®	Pulse Oximetry (SpO ₂) - Nellcor®	CO ₂ - Mainstream	CO ₂ - Sidestream
Technique: Oscillometric Parameters: Systolic, diastolic, mean Automatic Cycle Times: 1, 2, 3, 4, 5, 10, 15, 30, 60 min. Determination Time: - Small cuff: 18 seconds typical @ 160 breaths per minute 120/80 - Large cuff: 26 seconds typical @ 75 breaths per minute 120/80 Max time allowed: 150 sec. Initial Inflation: 150 mmHg Range: 20-265 mmHg Motion Artifact Suppression: Yes	Oxygen Sat. Range: 0-100% SpO₂ Accuracy: 70-100% = ±2% Pulse Rate Range: 20-300 BPM Probe: Digital lingual sensor w/ small and large clips Optional Probe: Max-Fast® reflectance ECG Heart Rate Range: 20-300 BPM Lead Selection: I, II, III, aVR, aVL, aVF, V Lead Fault Alarm: Audible, Visual ECG Cable/Leadwire: 3 or 5 lead Sweep Speed: 12.5/25/50 mm/sec. ECG Calibration: 1mV	Brand: Masimo® IRMA™ Initialization: <10 seconds Zeroing: <1 second CO₂ Accuracy: 0-15 vol% +/- (0.2 vol% +2% of reading) Respiration Rate Range: 0-150 breaths per minute Routine Calibration: None Durability: 100 × 6 ft drop test Airway adapter volume: Regular (<6 mL), Small (<1 mL)	Brand: Masimo® ISA™ Initialization: Auto zero <3 seconds, full initialization <10 seconds CO₂ Accuracy: 0-15 vol% +/- (0.2 vol% +2% of reading) Respiration Rate Range: 0-150 breaths per minute Water Removal System: Nomoline Sampling line Routine Calibration: None Airway adapter volume: Regular (<6 mL), Small (<1 mL)



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