

# Monitoring & Critical Care

Midmark Animal Health Products



# Cardell® – the name you trust for veterinary monitoring.

Monitoring solutions that deliver 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

- #1 Validated veterinary-specific blood pressure monitoring
- Preferred by top teaching schools and veterinary practices worldwide
- Used by the world's leading referral and emergency practices
- Validated and 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® SpO<sub>2</sub>
- Upgrade to CO<sub>2</sub> monitoring at any time by adding a Masimo® SideStream® or mainstream CO<sub>2</sub> module
- Invasive Blood Pressure and Phasein™ multigas available
- Enhanced ECG data export capabilities
- Optional integrated 3-channel graphical printer
- 2-year warranty



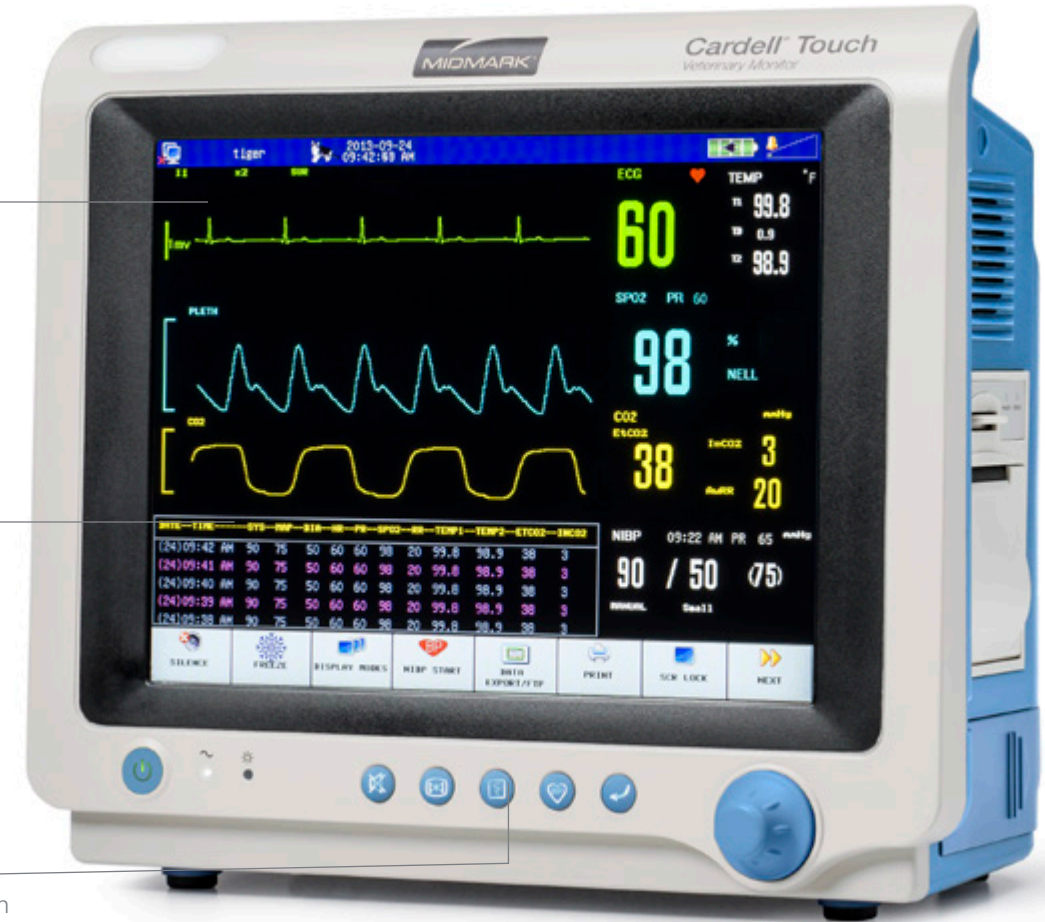
Cardell® Touch  
on a Matrix VMS® Plus

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 CO<sub>2</sub> or Multigas at any time.

Monitoring CO<sub>2</sub> can alert you to trouble with your patient within two breaths.



**Masimo® IRMA™**  
Durable, accurate mainstream CO<sub>2</sub> or multigas probe with fast initialization time

**Masimo® ISA™**  
Sidestream CO<sub>2</sub> or multigas module with enhanced water removal system.



Upgrade your Cardell® Touch to monitor CO<sub>2</sub> multigas at any time.

# Diagnostic Monitoring

## Cardell® Insight

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

Bright 7" touchscreen display with anti-glare coating for better viewing from any angle

3 animal specific alarm settings provide quicker patient set up

Fixed touch selection provides quick and easy access to most used functions

10 hour battery life with 5 minute auto mode for blood pressure allows for increased mobility



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

## 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](http://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.



**CO<sub>2</sub> 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.



**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.

## Specifications

	Cardell® Touch	Cardell® Insight
Non-invasive Blood Pressure (NIBP)	Cardell® Max IQ Vet NIBP	Cardell® Max IQ Vet NIBP
Pulse Oximetry (SpO <sub>2</sub> )	Nellcor® Oximax®	Nellcor® Oximax® (8015)
CO <sub>2</sub> (End Tidal Carbon Dioxide)	Optional (add anytime) Masimo® IRMA™ mainstream or ISA™ sidestream	—
ECG	3-Lead Standard, 5-Lead Optional	
HR/PR	HR/PR	PR
Temperature	2-Channel YSI	—
Respiration/Method	Indirect: Impedance Direct: EtCO <sub>2</sub> (optional)	—
Invasive Blood Pressure	2-Channel (optional)	—
Anesthetic Gases	Masimo® Phasein™ Multigas mainstream or sidestream (optional) CO <sub>2</sub> , N <sub>2</sub> O, ISO, SEV, ENF, DES, HAL	—
Display	10.5" LCD Resistive Touch Screen	7" LCD Resistive Touch Screen
Printer	Integrated (optional)	—
Waveform Display	4-Channel Standard, 6–8 Channels Optional	SpO <sub>2</sub> (8015)
ECG Vector Waveform Display	2-Channel	—
ECG Recall	12 Minutes	—
ECG Gain	Auto, x <sup>1/4</sup> , x <sup>1/2</sup> , x1, x2, x4	—
HR/PR Range	15 - 300 bpm	PR 30 - 240
NIBP Modes	Manual, Auto, Stat	Manual, Auto, Stat
Graphical Trends	120 Hours	—
Tabular Trends	600	72 Hours
Parameter Alarms	3 user-defined high/low with 4 defaults (cat, dog, horse, other)	3 defaults (cat, dog, horse)
Download to PC	USB stick	USB stick
PC Download Capability	Automated Visualizer Software	—
Video Output	VGA	—
Weight	9.1 lb	4.3 lb
Battery Life	2 – 4 Hours	10 Hours (5 min auto mode)
Voltage	100 – 240V	100 – 240V
Warranty on Monitor (years)	2	2

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

Better Patient Care. Better Business.™

   [midmarkanimalhealth.com](http://midmarkanimalhealth.com)

Midmark Corporation, Dayton, OH.

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Because we care.