

# petMAP<sup>TM</sup> *graphic*

Blood Pressure Measurement Device



Developed by:

**RAMSEY  
MEDICAL INC**

Manufactured,  
Distributed and  
Serviced by:



- Digital display of systolic, diastolic, mean arterial pressure and heart rate.
- Real-time display of the oscillometric “envelope”.
- Graphical trend of measurement session values.
- Real-time calculation and display of the NSV.
- Tabular list of measurement session values.

[www.petmap.com](http://www.petmap.com)

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Patents Pending  
Ramsey Medical, Inc.

# **Blood Pressure Measurement in Animals**

Measuring accurate blood pressure (BP) on animals is not trivial, (it is much more difficult than in humans) and lots of experience and attention to every detail is important: limb selection, proper cuff size, snug fit of the cuff, position of animal so that no weight or pressure is on the measurement limb or cuff, a relaxed and still animal (let the owner hold it in a comfortable position), an experienced and VERY PATIENT measurement person and possibly a patient assistant as well. And, multiple BP measurements MUST be made during the BP measurement session.

Experts in the field of animal BP measurement stress the important elements of the blood pressure determination process are the skill, experience, and patience of the person measuring BP. The most important element taught is the patience of the person measuring the BP and their rapport with the animal.

Instructors teach that readings on at least 25-50 animals should be completed before practitioners consider themselves experienced and skilled in taking BP. The measurement process is an art, a skill, and a science all in one . . . when done well.

The best way to learn to use the petMAP is to practice taking readings on your finger. This will allow you to get comfortable with the device prior to using it on patients. Even after practice, it may take 10 - 25 minutes to get the 4-8 good readings (minimal animal motion during the reading and the determination completed in under 45-60 seconds) needed to accurately assess the animal's BP. The use of petMAP's unique "Nominal Session BP Value" (NSV) is recommended as the charted BP for the session since it eliminates "outliers" which can distort an ordinary average of the BP values and hence is a more robust measure of the animal's true pressure during the session.

Remember that research has shown that if an animal is upset or agitated due to handling or due to the measurement procedure itself, it will take 8-10 minutes, after the animal is calmed and relaxed, for the animal's blood pressure to return to normal. Measurements on an agitated animal are not an indication of their normal BP and are usually worthless clinically when diagnosing a hypertensive animal.

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## Explanation of Symbols

  Power/Page Button

 Multi-Function Button

# **petMAP™ New Technology for Better Accuracy**

The Ramsey Medical, Inc. petMAP is a battery powered veterinary blood pressure measuring device which has been optimized for accuracy through correlation to intra-arterial BP measurements in dogs and cats at three different cuff sites. Based on our development studies in dogs and cats, this optimization for both species and cuff site is necessary for improved accuracy and the best possible correlation with directly measured intra-arterial pressures, the “gold standard” for BP. This unique accuracy enhancing feature (PPO—petMAP Proprietary Optimization) is proprietary to Ramsey Medical, Inc., and is only available with petMAP and other Ramsey Medical BP measurement devices.

petMAP utilizes the oscillometric method which simplifies the measurement of blood pressure in companion animals. petMAP measures all of the blood pressure parameters (systolic, diastolic, mean arterial pressure, and heart rate), enabling accurate diagnosis and management of hypertension. The petMAP is also useful for monitoring BP and heart rate during surgical and dental procedures on animals under anesthesia.

petMAP provides another unique and proprietary feature, the “*Nominal Session BP*” (NSV) which enhances the veterinarian’s ability to accurately diagnose, trend, and manage hypertension in animals over time. All of the session readings are analyzed by the petMAP and a “*Nominal Session BP*” is displayed. This “*Nominal Session BP*” is not an average of the BP readings, but a substantially more robust statistical measure of the animal’s nominal BP during the BP session since it eliminates BP outliers.

## **Applications & Advantages**

The petMAP offers major advantages over previous veterinary blood pressure (BP) measuring devices and methods. It is small, fits comfortably in the hand, is quiet (so the animal remains calmer and less stressed, enhancing accuracy), and can be carried easily in a pocket.

The sensitivity of petMAP permits BP measurement in cats and dogs, as well as in larger and smaller animals. The accompanying CritterCuffs™ are specifically designed to be soft for animal comfort, and sensitive to enhance measurement accuracy. Additionally, PPO enhances the accuracy achieved by allowing the user to select the specific species (dog or cat) and the specific cuff site (forearm, tail, or hind foot). PPO is unique and significantly improves the correlation to direct intra-arterial pressure measurements. Also unique and proprietary to petMAP is the automatic computation of the “*Nominal Session BP*” (NSV) as the measurement session progresses.

Using petMAP, the BP can be measured in conscious or anesthetized animals. In conscious animals, the petMAP is less stressful to the animal as compared to the Doppler method since there is no need for clipping of fur, no application of ultrasonic coupling gel, and no need to position a transducer over the animal’s artery. Also, since petMAP is quiet, it does not alarm the animal like the unfamiliar sounds from the Doppler unit’s speaker box.

**In summary, the petMAP’s advantages over prior veterinary BP devices are many. In addition to improved accuracy with PPO and the automatic computation of the NSV, advantages are:**

Small size, hand held, easily carried in a pocket, battery powered using two ordinary and easily replaced AAA batteries and there is:

- No** clipping of fur . . . time consuming and frightens the animal.
- No** messy gel . . . required using Doppler . . . and is . . . messy.
- No** transducer to connect, position, hold, readjust, and break.
- No** speaker box to connect, position, and frighten the animal.
- No** speaker, alarms, or startup noises to disturb the animal.
- No** long, thick, and cumbersome hose to deal with.

# Features and Benefits

petMAP graphic is a technologically advanced oscillometric BP measurement device designed for use in the broadest range of patient sizes and blood pressures. Compare its features and benefits in the chart below:

Feature	Benefit
<p><b>petMAP</b> continuously uses <b>Dual Oscillation Channel Analysis</b> (DOCA) during each determination. High gain and low gain channels are analyzed simultaneously.</p>	<p>BP measurement reliability and sensitivity are enhanced across the broadest range of patient sizes. Feature requires no user setting or adjustment.</p>
<p><b>petMAP</b> has <b>PPO</b> (petMAP Proprietary Optimizations), allowing the user to specify the species (cat, dog) and measurement site (forearm, tail, hind foot).</p>	<p><b>PPO</b> improves the correlation to IntraArterial Pressures (IAP), the patient's true BP.</p>
<p>The <b>NSV</b> (Nominal Session Value) is automatically calculated and displayed after each reading during a session.</p>	<p><b>NSV</b> is a substantially more robust calculation than a simple average. <b>NSV</b> is most representative of the patient's BP during a multiple reading session, and is typically the charted value.</p>
<p><b>petMAP</b> graphic's integral screen displays the cuff pressure and the oscillation amplitudes during a determination (no computer required).</p>	<p>The user has the ability to visually assess the quality of each reading and terminate the determination, if appropriate. Severe motion artifact can be visualized as the reading progresses.</p>
<p>The last ten readings can be displayed as both a tabular list as well as a graphical chart. Values are "aged" from the time of power-up.</p>	<p>Individual determinations are available for charting. The user can view the graph and easily see if the values are consistent and whether the session can end.</p>
<p><b>petMAP</b> is compact, handheld and battery operated.</p>	<p><b>petMAP</b> is convenient for exam room use (hypertension screening), but can also be used for trauma, anesthesia, procedures and even house calls.</p>
<p><b>petMAP</b> includes 7 cuffs of various sizes (2.0 – 5.5cm).</p>	<p>The proper cuff size is critical to accurate BP measurement. <b>petMAP</b> provides the broadest cuff size range available.</p>

# Controls and Indicators



**Power/Page Button:** Button has three functions:

- 1) Turns the device **On**.
- 2) Once on, changes screen views from the measurement page to the graphic results page to the tabular results page.
- 3) Pressing and holding the Power/Page button for 4 seconds will turn petMAP **Off**. This is also possible by pressing both the Power/Page and Multi Function buttons simultaneously.

**Multi-Function Button:**

## 1) Species and Cuff Site selection:

Repeated quick presses and releases incrementally selects species (Cat or Dog) and cuff sites: forearm, hind foot, or tail. A setting for “none” is also available. Always setup for the appropriate species and site before measuring and recording the BP.

## 2) Changing Display Brightness:

Pressing and holding down the Multi- Function button adjusts the brightness of the display.



(Determination descriptor codes - used by remote support)

**Power ON Indicator:** Illuminates green when the unit is powered. (In order to conserve battery life, the petMAP will automatically shut off after 10 minutes of “no use”).

**Low Battery Indicator:** The low battery indicator may flash occasionally during a determination. This is a warning for battery replacement. When the light remains illuminated, battery replacement is required. Always replace both AAA batteries at the same time to ensure proper performance. Observe the proper orientation of the batteries, since the unit will not function, and may potentially be damaged, if the batteries are not inserted properly (See Section on Battery Considerations).

**Species & Cuff Site Settings:** Used to select and display the species (dog/cat) and cuff site (forearm, hind foot, tail). petMAP may be used in the optimized mode or the non-optimized mode as described below:

**Optimized Mode:** PPO for species and cuff site is unique to petMAP. This feature provides determination values with the best possible correlation to intra-arterial pressures. These petMAP settings are called the “Optimized” modes.

Previous generation BP measurement devices are not specifically optimized to better correlate with direct intra-arterial measurements in cats and dogs and for cuff site. Consequently, they will typically read lower BPs than the readings obtained with the petMAP, assuming that the petMAP is set appropriately for the species and the cuff site on which the BP measurement is being made.

**Non-Optimized Mode:** If a user is more comfortable with the lower readings because of what they have seen in the past with older generation devices, the petMAP can be set to display “non-optimized” values. This petMAP mode will correlate better with the lower readings the user is accustomed to seeing, but the values will not correlate as well with intra-arterial pressures.

This non-optimized mode should be used when:

1. The user wants values that better correlate to other oscillometric devices and/or Doppler values.
2. The use is measuring on a species other than a cat or a dog.

**Deflate Trigger:** When **locked in up position (valve closed)**, cuff is ready for inflation.

When **locked in down position (valve open)**, purges air from the cuff.

**Deflate Trigger**  
locked up (valve closed)



**Deflate Trigger**  
locked down (valve open)

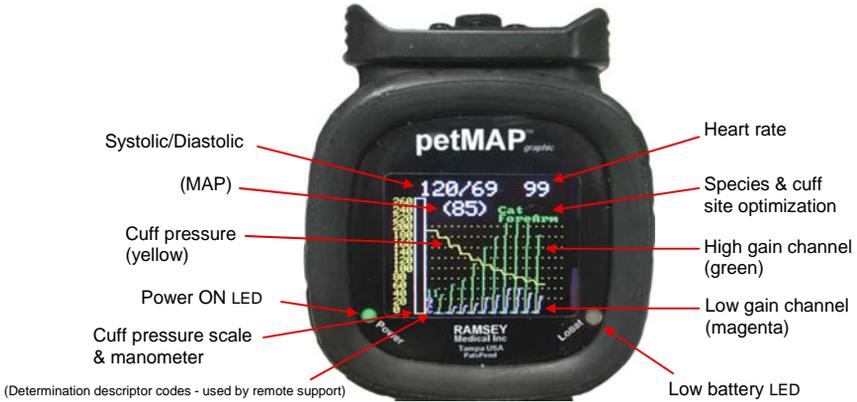


**Cuff Connector:** Attach cuff connector securely to device connector.

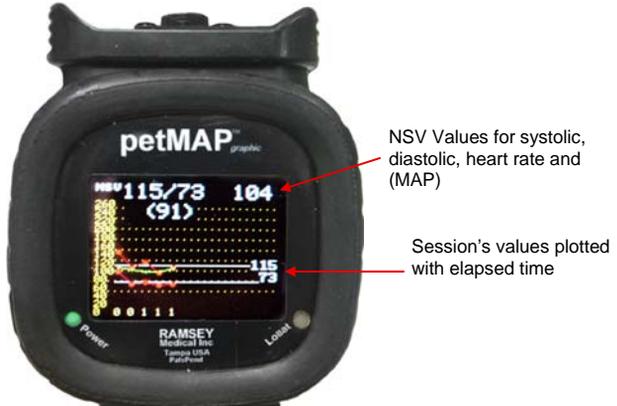


**Inflation Bulb:**  
Use to inflate cuff.

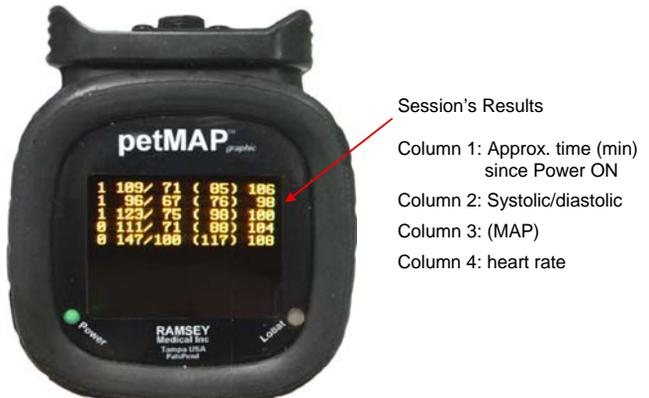




### Measurement Page



### Graphic Results Page



### Tabular Results Page

# General Information & Helpful Tips

Measuring blood pressure in companion animals requires:

1. A cooperative animal that is not moving
2. A patient, well trained veterinarian or technician
3. Accurate measuring equipment
4. The right size cuff properly applied to the limb.

Veterinarians who teach BP seminars point out the most important requirements are the skill, training, and patience of the person taking BP. Also, a calm animal is essential.

petMAP is specifically designed to allow the user to get good determinations while also calming the animal. Even so, many animals will require extra time and patience. If an animal is restless, giving them 8 to 10 minutes to calm down may help and should restore their BP to their usual level.

Accurate BP readings, even on a relaxed animal, require proper cuff size and a “snug-tight” fit. Use the “optimum” lines (see CritterCuff information).

If you have trouble getting good determinations, try:

1. Calming the animal so that they are not moving
2. Checking cuff size for “optimum” fit and snugness
3. Gathering more operator patience.

**Cold Animals:** If the animal is noticeably cold, it may require 5 to 6 attempts in order to achieve any BP reading.

**Trembling Animals:** It will be very difficult to get accurate BP readings on a trembling animal since the rhythmic motion of the cuff can mimic the rhythmic beat of the heart.

**IMPORTANT:** For accurate BP readings with petMAP, only Ramsey Medical, Inc. CritterCuffs and RamseyCuffs should be used.

**Improper cuff size and improper cuff fit will result in inaccurate (or no) BP readings.** petMAP requires a cuff whose width is approximately 42 - 50% of the circumference of the forearm, the hind foot, or the tail of the animal. The index line on the cuff should fall within the “optimum region” shown by the dotted lines on the cuff, but NEVER outside of the solid boundary lines. For proper fit, the cuff **must be snug**, but not painfully tight (see CritterCuff information).

# OPERATING INSTRUCTIONS:

1. The animal should be in a comfortable position; noise and stress should be minimized. Having the owner present and holding the pet is often the best way. There should be no weight bearing or pressure on the limb on which the cuff is being used. Do not attach cuff to petMAP yet.
2. Refer to “CrittterCuff™ Information” section to explain selection of proper Cuff Size and Cuff Fit. Place the appropriate size cuff on the animal at one of these sites:  
1. forearm 2. tail or 3. hind foot. To achieve the most accurate and consistent readings, it is recommended that the forearm or the base of the tail be used on cats (either works well). For dogs, the base of the tail is the preferred site, followed by the forearm. The hind foot is the least accurate and should only be used if the forearm and/or tail cannot be used.
3. The cuff should fit “snug tight”, tight enough to get all of the air out of the cuff and tight enough so that it will not fall off, but it should not be so tight that it hurts the animal or is so tight it functions as a tourniquet when not inflated. The proper size cuff for the limb chosen, and its “snug tight” application are absolutely essential if good results are to be achieved.



**Forearm cuff site**  
(Below elbow joint)



**Tail cuff site**  
(Approximately 1/2"  
from base of tail)



**Hind foot cuff site**  
(Between dewclaw and heel)

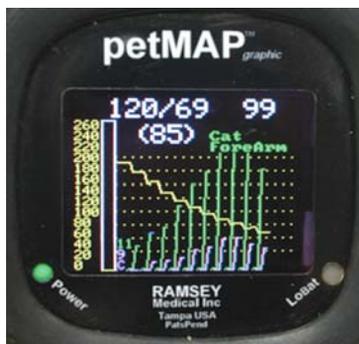
4. Turn the petMAP ON. If there is a “Nominal Session BP” (NSV) from the previous BP measurement session, it will be displayed until the cuff pressure is raised over 30 mmHg. At that time that NSBP will be erased and “forgotten forever” so make sure it has been recorded before starting a new BP session.

In addition, the user may view the previous session’s values on both the graphic display screen and the tabular display screen.

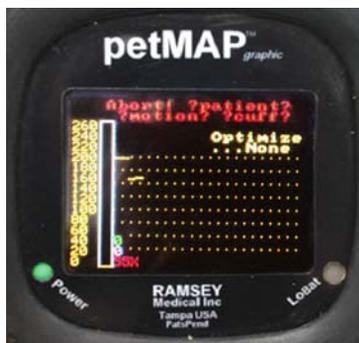
5. Press and release the Multi-Function button to select the proper species and site. If the user does not desire optimized readings, use “none”. (See Species & Cuff Site Settings, in the Controls and Indicators section).
6. Attach the cuff hose to the petMAP securely, and verify that the deflate trigger is in the closed (up) position.
7. Cuff Inflation: One steady firm (but gentle) squeeze of the inflation bulb will inflate most cuffs (be careful not to open the deflate trigger while inflating). As you increase cuff size more than one bulb inflation may be required. Inflate the cuff 35 – 40 mmHg higher than the expected systolic pressure. (Typically for older cats, utilize an initial inflation pressure of 200-220 mmHg and slightly lower for young cats and most dogs.) **DO NOT OVER-INFLATE.** Over-inflation (pressures beyond 260 mmHg) may cause damage to the petMAP and harm the animal.

- Automatic Deflate: After cuff inflation, leave the deflate trigger in the closed (up) position. The petMAP's internal electronic valve will automatically deflate the cuff pressure in a series of steps. The petMAP can be placed on the surface upon which the animal is resting so that the operator has both hands to pet and calm the animal during the determination. This will minimize animal movement.

The user may view the display to follow the progress of the readings. A good determination will appear as follows:



Please refer to the examples at the end of this section for further information about interpreting the display. If the user concludes that a determination is not progressing correctly (i.e. too much motion artifact), the user may terminate the reading by opening the deflate trigger. The user will then get the following screen display:



Once the animal is calm, the user may initiate another reading by closing the deflate trigger and squeezing the bulb.

9. When the BP determination is complete, the air is purged from the cuff automatically or by using the deflate trigger. The petMAP will display BP and Heart Rate as follows:



10. To obtain another reading, just re-inflate the cuff. This may be done from any of the display screens.
11. To view the session's values graphically, including the NSV, press the Power/Page button once. petMAP computes the NSV from a minimum of 2 readings and up to the last 10 in a session.

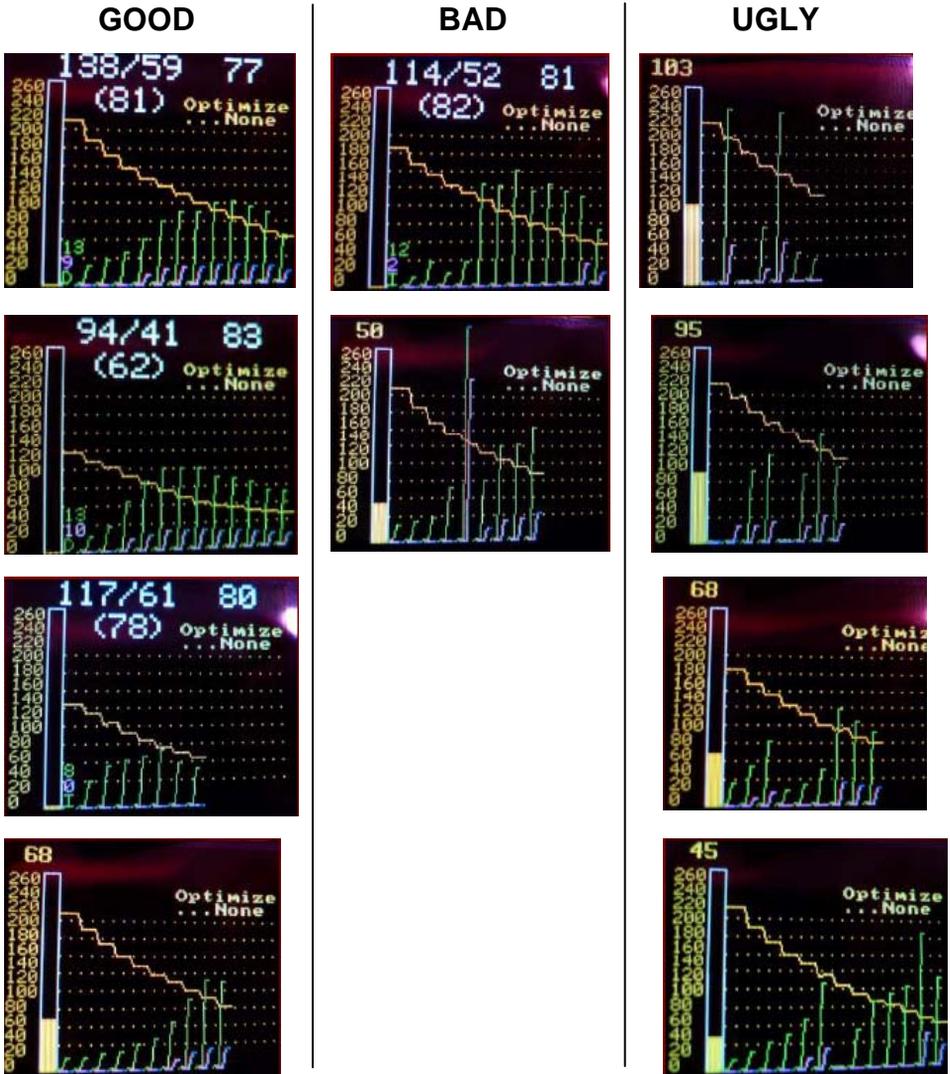


12. To view a tabular listing of the session values, push the Power/Page button again.



# The GOOD, the BAD, and the UGLY . . .

BP determinations that are showing ragged oscillometric envelopes like the BAD and the UGLY examples should be terminated while in process; the patient should be calibrated to reduce motion before a new determination is started.



**Addressing BP Measurement Difficulties:** Determine and correct the reason for the BP measurement difficulty. Often the problem is one or more of:

- 1) movement during the determination (calm the animal)
- 2) cuff is not proper size or snugness (check size/fit)
- 3) initial cuff inflation is too low (pump cuff higher)

Remember that measuring accurate BP on animals is not trivial and attention to every detail is important. For example, steps to improve the measurement process after a failure might include one or more of the following: (1) resize or tighten the cuff (2) reposition the animal so that there is no weight bearing on the limb on which the cuff is being used (3) calm the animal by petting it to reassure it until it is again relaxed and not moving, waiting 8-10 min for animal to re-establish its normal BP after calming it (4) change cuff to another site if repeated failures.

Experts in the field of animal BP measurement stress that the most important elements contributing to the success of the blood pressure measurement session are the skill, experience, and patience of the person measuring the pressure. They also suggest that it will typically take 10-25 minutes to get the 4-8 GOOD readings needed to accurately measure the animal's pressure. Remember, if the animal is upset, it will take 8-10 minutes for the animal's blood pressure to return to normal once the animal is calmed.

**CAUTION: Do not keep the cuff inflated on an animal for more than a minute. Animal distress, blood circulation interference, and even injury to the animal could potentially occur. Protracted determination times are generally caused by excessive animal movement and should be terminated by deflating the cuff fully and then starting again.**

# Blood Pressure Values in Cats and Dogs

Blood pressure (BP) is most accurately measured directly using an intra-arterial catheter. Knowing an animal's BP is often required for diagnosis and treatment. However, since intra-arterial pressures are often impossible or impractical to measure, a variety of indirect measurement devices (Doppler and oscillometric) have been developed to permit estimation of an animal's BP. It is important to note that the different methods and different brands of indirect BP devices will likely produce different BP values in the same animal, as each estimates blood pressure in a somewhat different way. Further, all indirect methods are dependent on the state of the animal and, to some extent, the experience and skill of the user.

petMAP has been designed to better correlate with intra-arterial pressure readings through its optimizations for species and cuff site. The result of this better correlation with intra-arterial readings is that petMAP's readings will almost always be 10-20% higher than Doppler or other oscillometric devices. If correlation of petMAP BP readings with other BP devices (other than direct intra-arterial readings) is desired by the user, petMAP should be used in the non-optimized mode (described in the Controls and Indicators section).

"Normal" BP in companion animals varies with the species, age of the animal, method used for BP determination, and the emotional state of the animal as a result of animal handling and other circumstances. "Normal" systolic values can range from 110 to 160 mmHg and most diastolic values range from 55 to 100 mmHg, if the animal is undisturbed and at rest. Normal BP is different for cats and dogs and can also vary by breed within species.

Hypertension is generally characterized as pressure >170/110 mmHg in relaxed animals; hypotension is pressure <90/50 mmHg in the awake animal. However, much of the BP data that has been used to establish these ranges has been

measured with indirect devices and, as previously mentioned, most of these devices (Doppler and oscillometric) underestimate the intra-arterial systolic pressure by 10-20%.

The study of hypertension and its treatment is an evolving subject in veterinary medicine. It is suggested that veterinarians refer to the literature, including the ACVIM Consensus Statements, published on this topic.

## Battery Considerations

In order to maximize battery life, petMAP is designed to turn the display completely OFF following a determination when the unit is motionless for more than 12 seconds. If the unit is not re-pressurized for a new determination within 10 minutes, petMAP will turn OFF. Battery life for petMAP will vary depending upon the type of batteries used and the number of determinations made.

Three types of AAA batteries may be used to power the petMAP:

- 1) disposable alkaline batteries (Energizer Alkaline and DuraCell Coppertop, for example)
- 2) rechargeable NiMH (nickel metal hydride) batteries (850 – 1000 mAh)
- 3) disposable lithium batteries.

NOTE: Disposable zinc-carbon (Heavy Duty/ General Purpose) batteries and NICAD batteries are not recommended.

Fresh alkaline batteries and fully charged NiMH batteries yield approximately equal battery lives; however, NiMH batteries are rechargeable and may be reused many times, making them **the most affordable long-term option**. Lithium batteries yield almost twice the life of alkaline batteries, but are approximately twice as expensive. Zinc-carbon batteries yield approximately one-third the life of alkaline batteries and, therefore, are not recommended for petMAP.

The LoBat (red LED) signal is activated well before the batteries are completely depleted. Up to one hour of continuous usage may remain on alkaline batteries once the

LoBat signal activates. However, if either lithium batteries or NiMH rechargeable batteries are being used, a much shorter period of continuous use following the LoBat signal is to be expected.

## Battery Replacement

Loosen the battery change screw and remove the battery cover. While observing polarity, replace the depleted batteries with fresh ones. To reinstall the cover:

- 1) press it firmly down against the battery compartment using two fingers (one on each side of the screw)
- 2) retighten the screw firmly (Do not over tighten)

- Always replace both batteries
- Do not mix types, brands, or models of batteries in petMAP
- Be certain the batteries are installed according to the polarity symbols marked on the battery compartment.

**Warning: Improper installation of batteries will prevent petMAP from working and may damage the device.**



Use new AAA batteries (Alkaline, Lithium, Nickel Metal Hydride (Rechargeable), no NICAD or “Heavy Duty”)

**WARNING: IMPROPER INSTALLATION OF BATTERIES WILL PREVENT THE petMAP FROM WORKING AND MAY CAUSE DAMAGE TO THE DEVICE!**

# CritterCuff™/RamseyCuff™ Information

The Ramsey Medical, Inc. CritterCuffs and larger RamseyCuffs are designed specifically to be used with the petMAP. Using any other brand of cuffs may result in inaccurate BP readings, or even a failure to function and is strongly discouraged for these reasons.

**It is important to have the proper size cuff and the proper snug fit. Improper size and a loose cuff application on the limb will result in inaccurate BP readings or even a failure to determine the BP.**

## CUFF SIZE

Choose a cuff whose width is approximately 42-50% of the circumference of the leg or tail of the animal. Best results and accuracy will be achieved by using a cuff size where the cuff's index line is in the "optimum region" marked on the cuff by dotted lines. If this is not possible, NEVER exceed the solid boundary lines!

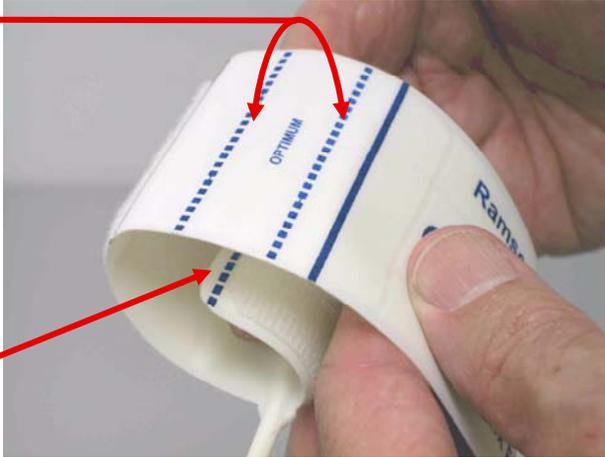
## CUFF FIT

The cuff should fit "snug tight", i.e., tight enough to get all of the air out of the cuff (attach cuff to animal BEFORE attaching the cuff hose to the petMAP), and tight enough so that it will not slip off of the limb. However, the cuff should not be so tight that it hurts the animal or is so tight it functions as a tourniquet when not inflated. *The proper size cuff for the limb chosen, and its "snug tight" application are absolutely essential if good results are to be achieved! Remember also to set petMAP for species and cuff site before use, but always before recording readings on the animal's chart.*



When wrapping the cuff around the animal's limb, the index line should fall between the two "OPTIMUM REGION" dotted lines, as shown, but NEVER out of the solid boundary lines.

**OPTIMUM  
REGION**



**INDEX  
LINE**

There are various sizes of CritterCuffs available to cover the range of limb sizes commonly encountered in companion animals. For accuracy of the reading, it is essential that the proper cuff be selected and applied snugly to the limb. Only CritterCuffs should be used with the petMAP since the cuff and unit form a system specifically designed for sensitive and accurate blood pressure measurement in companion animals. The "optimum region" is petMAP specific.

Seven CritterCuffs are packaged with each petMAP. Their sizes are: 5.5 cm, 4.5 cm, 4.0 cm, 3.5 cm, 3.0 cm, 2.5 cm, 2.0 cm

Larger cuff sizes are available. Call Customer Service for more information (800-231-6370 or 813-289-5555).

### **CUFF SIZE IS IMPORTANT!!**

The CritterCuffs may be used for dogs and cats on any of the three recommended positions: forearm, hind foot, or tail. For best accuracy and reliability, the size of cuff should be chosen so that the cuff's index line falls within the "optimum region" of the cuff indicated by the dotted lines when the cuff is snugly applied to the selected limb. In no circumstance should the cuff index line be outside the solid boundary lines.

# Maintenance

**Cleaning CritterCuffs:** Clean cuffs with a damp cloth or hand wash in warm water with mild detergent or soap; do not allow water to get into the cuff tube. Pat cuff dry initially on a towel, and air dry until fully dry and ready for use.

**Cleaning petMAP:** Clean with a cloth dampened with warm water or a mild bleach solution. Do not use alcohol or cleaning solutions which contain alcohol. Do not immerse in water or other liquids.

## Troubleshooting

***NOTE: At the first indication of any petMAP malfunction, the first attempt at resolving the problem should be to replace the batteries with known fresh batteries.***

***Difficulty obtaining consistent BP readings (greater than +/- 15 mmHg from reading to reading)***

1. Animal is moving. Calm animal until they are relaxed so determinations can be made during periods of non-movement.
2. Wrong size cuff used; use a cuff sized so that the index line is in the “optimum” region when snugly fitted to the limb.
3. Cuff not properly snug, i.e., not tight enough on initial placement. Tighten cuff on the limb.
4. Cuff is not in correct location on forearm, hind foot, or tail. Reposition cuff or move to another approved site and set petMAP using multi-function button.
5. Check LoBat light. Replace batteries if indicated.
6. Zero not set properly on power up. Make sure there is no pressure in the system when the petMAP is first powered up by opening the deflate trigger first and/or removing the cuff connector from the unit to assure atmospheric pressure, before turning Power ON.

***Unit will not turn on, or shuts off after powering up.***

1. Replace batteries.
2. If batteries do not fix problem, return unit for service.

***Cuff will not inflate.***

1. Check cuff connection.
2. Verify deflate trigger is in the up position (valve closed position).
3. Check cuff and hose for leaks or damage.

***Strange petMAP behavior.***

1. Replace batteries.
- If batteries do not fix problem, contact Customer Support.

# Specifications

## For Animal Use Only

### Method of BP Measurement:

Oscillometric. Accuracy optimized for species (dog/cat) and blood pressure cuff site (forearm, tail, hind foot).

### Parameters Measured:

Systolic, diastolic, mean arterial pressure (MAP), and heart rate (HR).

### Modes:

Semi-Automatic with auto deflate

### Blood Pressure Range:

30-260 mmHg

### Heart Rate Range:

40—240 BPM

### Power:

2 each AAA batteries (**Alkaline, Lithium, Nickel Metal Hydride (Rechargeable), no NICAD or “Heavy Duty”**)

### Battery Life:

Approximately 5 hrs. (300 readings with unit OFF between readings).

### Operating Environment:

Temperature: 10°C to 40°C (50°F to 104°F)

Humidity: 15% - 85%, non-condensing

Altitude: - 500 feet (152 meters) below sea level to +8,000 feet (2438 meters) above sea level

### Storage Temperature:

-20°C to 55°C (-4°F to 131°F)

### Dimensions:

2.75" D x 2.5" W x 5.2" L (7.0cm D x 6.35cm W x 13.2cm L)

### Weight with Batteries:

6.0 oz., (0.375 lbs), (0.17 kg)

## Warranty

The Ramsey Medical, Inc. **petMAP™** is covered by a one year warranty against defects in materials and workmanship. Damage resulting from inappropriate use or physical abuse is not covered by the warranty. Units returned for warranty service will be repaired or replaced at the discretion of Ramsey Medical, Inc.

## Repairs

Please include a complete description of the difficulty with all units returned for service.

All units returned for repairs (warranty and non-warranty) should be sent to:

CardioCommand, Inc.  
4920 W. Cypress St., Ste. 110  
Tampa, FL 33607

Phone: 800-231-6370  
813-289-5555 ext. 224  
Fax: 813-289-5454

The Ramsey Medical **petMAP** is distributed and supported in the USA by:

CardioCommand, Inc.  
4920 W. Cypress St., Ste. 110  
Tampa, FL 33607

**[www.cardiocommand.com](http://www.cardiocommand.com)**  
**800-231-6370 or 813-289-5555**

**petMAP** may also be purchased in both the USA and internationally from other selected distributors.

# Product Information

**petMAP™ System**  
**\*(includes 7 CritterCuffs**  
**sizes 2.0 - 5.5 cm)**

**1 Year Extended Service**  
**Warranty**

**CritterCuff, 2.0 \***

**CritterCuff, 2.5 \***

**CritterCuff, 3.0 \***

**CritterCuff, 3.5 \***

**CritterCuff, 4.0 \***

**CritterCuff, 4.5 \***

**CritterCuff, 5.5 \***

**CritterCuff, 6.5**

**CritterCuff, 8.0**

**RamseyCuff, 10.0**

**RamseyCuff, 13.0**

# **RAMSEY Medical, Inc.**

**Tampa, FL 33607  
USA**

petMAP, CritterCuff and RamseyCuff  
are registered trademarks of  
Ramsey Medical, Inc.  
Patents Pending

**Developed by: Ramsey Medical, Inc.**

**Manufactured, Distributed and Serviced  
by: CardioCommand, Inc.**

**4920 W. Cypress St.  
Suite 110  
Tampa, FL 33607**

**Phone: 800-231-6370  
813-289-5555  
Fax: 813-289-5454  
Website: [www.petmap.com](http://www.petmap.com)  
E-mail: [support@cardiocommand.com](mailto:support@cardiocommand.com)**

