L-Pet

Veterinary Lactate Meter

User Guide

PRAXISDIENST
Medical Supplies since 1953
Order here!

WOODLEY
EQUIPMENT COMPANY LTD.

LACTATE
Veterinary Monitoring System

FOR VETERINARY USE ONLY

Table of Contents

Introduction

All the information that will be needed to use and maintain the L-Pet Veterinary Lactate Meter is included in this manual. Please read it carefully before using the system.

The L-Pet Veterinary Lactate Meter provides important information concerning individual metabolism and oxygen debt.

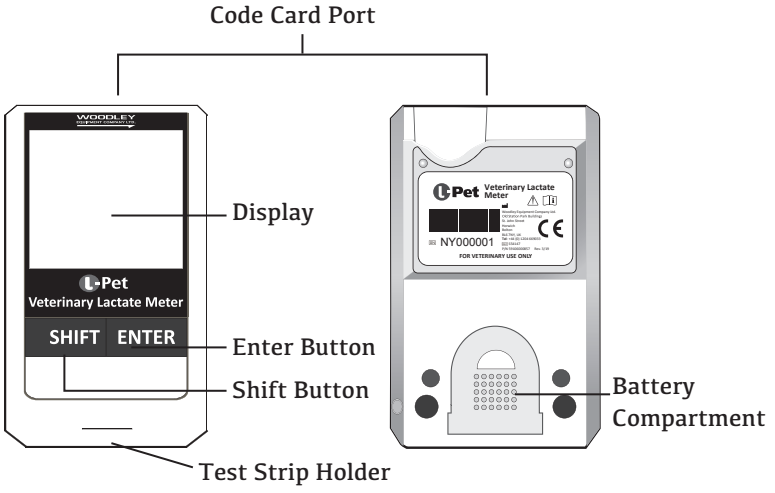
Lactate results can be used to detect local or systemic hypoperfusion and monitor response to therapy. There is also a strong correlation between lactate concentration and mortality. Due to its reliable and accurate result evaluation (in-vitro), the L-Pet Veterinary Lactate Meter is suitable for use in the support of the decision for further medical treatment of the patient. The L-Pet Veterinary Lactate Meter is designed for veterinary use only.

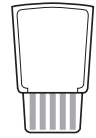
Contents of the System

The L-Pet system includes the following items:

- L-Pet Veterinary Lactate Meter
- L-Pet Blood Lactate Test Strips (5)
- Monitor Checker
- 3V Lithium Coin Cell Battery (CR2032)
- User Guide
- Lancing Device
- Lancets (28G)
- Wallet
- Code Card
- Log Book

In addition to the items above, the L-Pet Lactate Control Solution may also need to be purchased to check the system. Please contact your nearest authorised dealer when needed.





Code Card

Monitor Checker

Meter Components

LCD Screen ..... Displays information that guides users through testing and setup, and shows test result and error messages

Shift & Enter Button ..... Turn the Meter on and off. Control selection and steps of user-programmable setup in Function Mode.

Test Strip Holder ..... Insertion site for test strip. Located on the lower front side of the meter.

Battery Compartment .... Holds one 3V Lithium Coin Cell Battery to power the system. Located on the back of the meter.

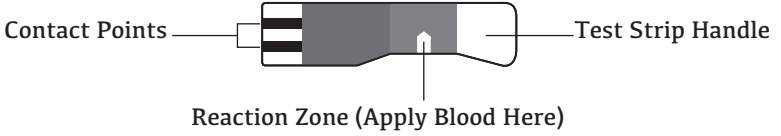
Monitor Checker ..... Used to confirm that the meter is functioning properly.

Code Card Port ..... Insertion site for a Code Card, located on the upper rear of the meter.

Code Card ..... Codes the meter for the test strips that have the same code when inserted into the code card port. Insert the code card with the code number facing up. One code card is packaged with each box of test strips.

L-Pet Blood Lactate Test Strip

Contact Points ..... Sense the position and orientation of the test strip
Test Strip Handle..... The area to be held when inserting the test strip.
Reaction Zone..... The area where the blood sample or control solution is applied.



⚠IMPORTANT:
L-Pet Blood Lactate Test Strips are contained in a moisture proof and light protected bottle. The test strips are sensitive to moisture and light so it is important that the bottle is kept well sealed before use. Replace the cap of the

test strip bottle tightly after a test strip is removed from the bottle. DO NOT leave test strips outside the bottle when not in use. When performing a blood test, insert the test strip with contact points facing up and towards the meter, then apply the blood sample. For additional information on the L-Pet Blood Lactate Test Strips, refer to the package insert.

Using the Meter for the First Time

Setting the Clock

PRAXISDIENST
Medical Supplies since 1953
Order here!

Step 1: Press any key to turn the meter on.

Step 2: The pre-set Year will flash on the screen. Press “SHIFT” to scroll through the years and press “ENTER” to confirm. Press and hold “SHIFT” for quick searching of the years. The meter provides calendar years from 2005 to 2099.

Step 3: The pre-set Month will flash on the screen. Press “SHIFT” to scroll through the months and press “ENTER” to confirm. Press and hold “SHIFT” for quick searching of the month.

Step 4: The pre-set Day will flash on the screen. Press “SHIFT” to scroll through the days and press “ENTER” to confirm. Press and hold “SHIFT” for quick searching of the day.

Step 5: The pre-set Hour will flash on the screen. The meter uses a 12-hour AM/PM clock. Press "SHIFT" to scroll through the hours and press "ENTER" to confirm. Press and hold "SHIFT" for quick searching of the hour.

Step 6: The pre-set Minute will flash on the screen. Press "SHIFT" to scroll through the minutes and press "ENTER" to confirm. Press and hold "SHIFT" for quick searching of the minute.

Step 7: Press the two buttons on the meter simultaneously to return to the Blood Test Mode during date or time setting.

Turning Beep Sound ON/OFF

Step 1: Press any key to turn on the meter.

Step 2: The LCD screen will show a 4-digit code number, unit of measurement, date & time and a symbol of a test strip.

Step 3: Press the two buttons on the meter simultaneously.

Step 4: A symbol of a head will flash on the screen. Press “SHIFT” to skip this selection.

Step 5: A symbol of a cable will flash on the screen. Press “SHIFT” to skip this selection.

Step 6: A symbol of a speaker will flash on the screen. Press “ENTER” to enter setup. Press “SHIFT” to turn the beep sound ON/OFF. The speaker with a wave ahead of it means ON, the speaker without the wave means OFF.

Step 7: Press the two buttons on the meter simultaneously to return to the Blood Test Mode.

Changing Unit of Measurement

Step 1: Press any key to turn on the meter.

Step 2: The LCD screen displays the Blood Test Mode which shows: 4-digit code number, unit of measurement, date & time and a symbol of a test strip.

Step 3: Press the two buttons on the Meter simultaneously to enter the Function Mode.

Step 4: A symbol of a head "  " will flash on the screen. Press "SHIFT" button to skip this selection.

Step 5: A symbol of a cable "  " will flash on the screen. Press "SHIFT" button to skip this selection.

Step 6: A symbol of a speaker "  " will flash on the screen. Press "SHIFT" button to skip this selection.

Step 7: A symbol of a clock "  " will flash on the screen. Press "SHIFT" to skip this selection.

Step 8: The pre-set unit of measurement will flash on the screen. Press "ENTER" button to enter setup. Press "SHIFT" button to change between mg/dL and mmol/L, and press the "ENTER" button to confirm. Then, the display will return to the Blood Test Mode.

Coding the Meter

⚠IMPORTANT:
After setting the date and time for the first time, the current code will appear on the screen every time the meter is turned on. Verify that the code on the screen matches the code number on the package of test strips before each use of the meter. The code needs to be set only once for each package of test strips. The meter will memorise the code until it is changed. If the code number on the meter screen doesn't match the code number on the test strip package, it will create an inaccurate blood lactate test result.

To code the meter with a code card, follow these steps.

Step 1: Locate the code card in the test strips package.

⚠NOTE:
There is a code card packaged in each box of test strips. The code card is designed specifically for use with the test strips in that particular package. The code card should have the same code number indicated on the package of test strips.

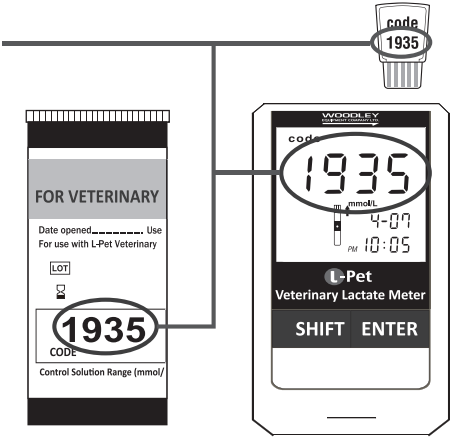
Step 2: Verify that the code number on the code card matches the code number on the test strip package.

Step 3: Insert the code card with the code number facing up firmly and completely into the code card port on the back of the meter.

Step 4: Press any button to power on the meter.

Step 5: A 4-digit code number will display on the screen. Verify the code number on the screen matches with the code card number and the number on the test strip package.

The code number displayed on the screen should match the code number on the grey code card and on the front of the test strips package.



⚠NOTE:
Recoding needs to be performed when opening a new package of test strips with a different code number.

Checking the System

There are two ways to check performance of the L-Pet Veterinary Lactate Meter. These checks are simple and very important to ensure accurate lactate readings.

1. The Monitor Checker confirms the meter is operating properly.
2. The control solutions confirm the meter and test strips are working together properly.

Monitor Checker Method:

It is recommended that the L-Pet Veterinary Lactate Meter is checked using this method when the meter is new and when the performance of the system needs to be confirmed.

To check the meter using a Monitor Checker, perform the following steps:

Step 1: Insert the monitor checker into the test strip holder (when the meter is either turned on or off), the L-Pet Veterinary Lactate Meter will now perform a series of self-tests.

Step 2: The meter display screen will show “OK” when self-testing is complete. Remove the Monitor Checker from the test strip holder and the screen will then display “Ctrl”.

Step 3: Press “ENTER” to exit checking the meter.

⚠NOTE:
If the screen displays “nt OK”, repeat the test. If “nt OK” continues to appear, contact the authorised dealer.

Control Solution Method:

The purpose of the control solution check is to validate the performance of the L-Pet Veterinary Lactate Meter using a standard solution with a known concentration of lactate. A control solution test that falls within the acceptable range indicates the user's technique is appropriate and both the meter and the test strip are functioning properly.

When to perform a control solution test -

- When the meter is used for the first time
- Whenever there is doubt that the meter or the test strips are not working properly
- If the meter has been dropped, stored below -20°C or above 50°C (stored below -4°F or above 122°F) or stored in humidity levels above 85%
- If the test strip bottle has been left open or has been exposed to temperatures below 4°C or above 30°C (below 39°F or above 86°F) and/or light or humidity levels above 85%
- If the readings appear to be abnormally high or low

⚠**IMPORTANT:**

- The acceptable range for the control solution is listed on the test strip label.
- Use only the L-Pet Lactate Control Solution and L-Pet Blood Lactate Test Strips.
- Always check the expiration date for both the L-Pet Lactate Control Solution and the L-Pet Blood Lactate Test Strips. **DO NOT** use if expired.
- If a control solution test result is not within the expected range that is printed on the test strip label, **DO NOT** use the system. Repeat the test until the result reports within the expected range. If the results continue to report outside the expected range, contact the authorised dealer.
- Apply a drop of control solution to a clean, dry, non-absorbent surface and touch the reaction zone of the test strip to the drop.
- DO NOT touch the test area with the tip of the control solution bottle.
- DO NOT apply a second drop of control solution to the test strip.
- DO NOT smear the control solution with the tip of the control solution bottle.
- Please refer to the control solution package insert for additional information.

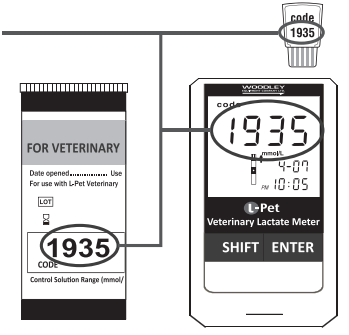
PRAXISDIENST
Medical Supplies since 1953
Order here!

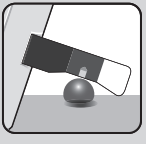
To perform a quality control test using the control solution, perform the following steps:

Step 1: Perform Monitor Checker method up to Step 2 (see P.16, Monitor Checker Method) and verify the code number on the screen is the same as the code number printed on the bottle.

Step 2: The screen will display "Ctrl", and then insert an L-Pet Blood Lactate Test Strip.

Step 3: The screen will flash a symbol of a liquid drop. Squeeze a drop "💧" of control solution onto a clean, dry, non-absorbent surface. Do not apply control solution to the test strip directly from the bottle.





Squeeze a drop of control solution onto a clean, dry, non-absorbent surface, then apply control solution to the edge of the test strip.

DO NOT apply control solution directly to the edge of the test strip.

Step 4: Apply a drop of control solution to the yellow reaction zone in the middle top of the test strip.
Step 5: The screen will show timing bars "----" that flash and then gradually diminish for countdown.
Step 6: After the timing bars disappear (approx. 45 seconds), the screen will show the test result. Compare the reading on the screen to the range indicated on the test strip label.
Step 7: Remove the test strip and discard it into clinical waste.
Step 8: The screen will display the blood test mode.
The test result of control solution will not be stored in memory.

⚠NOTE:
If the test result is not within the expected range, repeat the test until the result reports within the range. If the results continue to report outside of the expected range, please contact the authorised dealer.

Performing a Blood Lactate Test

Obtaining a Drop of Blood

⚠IMPORTANT:
When performing a blood lactate test, use a new sterile lancet or insulin syringe to obtain a blood sample.

If using a lancing device:

1. Unscrew the lancing device cap
2. Place the lancet into the lancing device
3. Twist and pull the protective lancet cover to expose the sterile needle tip
4. Screw on the lancing device cap. Select the skin penetration depth from shallow to deepest.
5. Pull the barrel back until you hear a 'click' sound.
6. Place the lancing device softly against the animal's paw or marginal ear vein. Press the trigger to obtain a blood droplet.

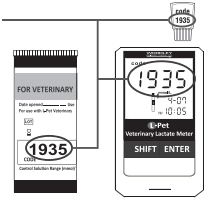
PERFORM THE TEST WITH THE METER

How to Perform a Test

⚠IMPORTANT:
Always use the L-Pet Blood Lactate Test Strips with the L-Pet Veterinary Lactate Meter.

Step 1: Follow the instructions on page 13 "Coding the Meter".

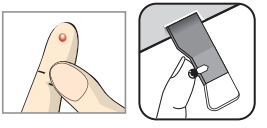
⚠NOTE:
If the screen shows “Code ---", or if the CODE number on the screen does not match the CODE number on the test strip package, refer to page 13 for details of (re)coding the meter.



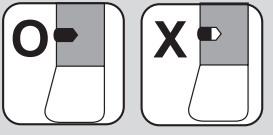
Step 2: The meter will self-test the environment temperature.
If the temperature is out of range, the screen will show a thermometer symbol.
If the temperature is within the testing range of 10°C – 40°C (50°F – 104°F), the screen will show a blood drop symbol which indicates that blood ”” can be applied.

⚠NOTE:
If the temperature is out of operating range, the meter needs to be moved to an area that is within the meter's operating range of 10°C – 40°C (50°F – 104°F). Measurement outside the temperature range will affect the accuracy of the test result.

Step 3: Obtain a drop of whole blood and apply to the absorbent area at the curved edge of the test strip.



⚠NOTE:
- DO NOT touch the target area of the test strip
- DO NOT smear the blood drop onto the target area
- DO NOT add or apply a second drop of blood as this may cause an incorrect result to report
- DO NOT proceed testing if the yellow test window is not filled with blood as an insufficient blood sample may cause an inaccurate test result to report



Step 4: The screen will show timing bars "----" which will flash and gradually diminish for countdown.

Step 5: After the timing bars disappear (approx. 45 seconds), the screen will display the test result.

- The test result is automatically stored in memory
- Record test result in the personal Log Book.

Step 6: Remove the used test strip and dispose in clinical waste. The LCD screen on the meter will show the code number and a flashing arrow next to the test strip icon, indicating the meter is ready for another test.

Step 7: If more tests are to be performed, repeat steps 1 to 5.

⚠NOTE:
Any tests performed outside the reportable temperature range of 10-40°C (50°F – 104°F) will display the test result with a flashing symbol of a thermometer.

⚠IMPORTANT:
⊗ Do not reuse test strips, lancets or syringes. Used test strips, lancets and syringes should be treated as biological waste and disposed of appropriately.

Understanding the Test Result

Normal Range: <2.5 mmol/L (<23 mg/dL)
Mild Lactate Shock: 2.5-5.0 mmol/L (23-45 mg/dL)
Moderate Lactate Shock: 5.0-7.0 mmol/L (45-63 mg/dL)
Severe Lactate Shock: >7.0 mmol/L (>63 mg/dL)

Using the Meter Memory

The L-Pet Veterinary Lactate Meter automatically stores up to 300 test results with date and time. When more than 300 test results have been performed, the oldest result will be deleted from memory each time a new result is added. When the test results are recalled from memory, the most recent result is displayed first.

To view the results from memory:

Step 1: Press any key to turn on the meter and press two buttons on the meter simultaneously.

Step 2: A symbol of a head will flash on the screen. Press "ENTER" to view the latest result (with date and time) in memory. Continue to press "SHIFT" to view the previous results.

Step 3: Press "SHIFT" and "ENTER" simultaneously to exit viewing memory.

Setting Time After First Use

Step 1: Press any key to turn on the meter.

Step 2: After the LCD screen shows a code number, unit of measurement, date & time, and a symbol of a test strip, press the two buttons on the meter simultaneously to enter Function Mode.

Step 3: A symbol of a head "  " will flash on the screen. Press “SHIFT” to skip this selection.

Step 4: A symbol of a cable "  " will flash on the screen. Press “SHIFT” to skip this selection.

Step 5: A symbol of a speaker "  " will flash on the screen. Press “SHIFT” to skip this selection.

Step 6: A symbol of a clock "  " will flash on the screen. Press “ENTER” to enter setup of the date & time in the order of Year-Month-Day and then Hour-Minute.

Step 7: The Year will flash on the screen. Press “SHIFT” to scroll through the years and press “ENTER” to confirm. Press and hold “SHIFT” for quick searching of the years. The meter provides calendar years from 2005 to 2099.

Step 8: The Month will flash on the screen. Press “SHIFT” to scroll through the days and press “ENTER” to confirm. Press and hold “SHIFT” for a quick search of the month.

Step 9: The Day will flash on the screen. Press “SHIFT” to scroll through the days and press “ENTER” to confirm. Press and hold “SHIFT” for a quick search of the day.

Step10:The Hour will flash on the screen. The meter uses AM/PM time clock. Press “SHIFT” to scroll through the hours and press “ENTER” to confirm. Press and hold “SHIFT” for a quick search of the hour.

Step 11:The Minute will flash on the screen. Press “SHIFT” to scroll through the minutes and press “ENTER” to enter the correct minute.

PRAXISDIENST
Medical Supplies since 1953
Order here!

Meter Maintenance

Follow these simple guidelines to keep the meter working to specification.

Precautions

- DO NOT take the meter apart. If there are technical problems or questions, please call an authorised dealer.
- Handle the meter with care – severe shock, such as dropping the meter, could damage the electronics.
- DO NOT try to clean the test strip holder.
- DO NOT contaminate the strip holder with blood or control solution.

Storage

- The meter is designed to be used within the temperature range between 10°C to 40°C 

(50°F to 104°F).
- Avoid leaving the meter in extremely hot or cold environments, such as near a heat source or in an extremely hot or cold car.
- Do not store or use the meter and test strips where they may be exposed to high humidity levels.

• Never immerse or hold the meter under running water.

Changing the Battery

The meter operates on one 3V Lithium Coin Cell Battery which should maintain at least 1000 blood tests. When the LCD screen displays a battery symbol, "[+ −]", this indicates the battery is low and should be replaced as soon as possible.

⚠NOTE:
To save battery power, the meter will turn off automatically after one minute of inactivity. All results stored in memory will be saved even if the meter shuts off automatically. Remove the battery if unused for a long time.

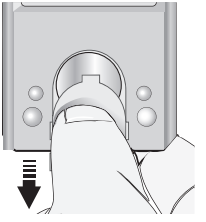
To replace the battery:
Step 1: Open the battery cover on the back of the meter.

Step 2: Remove the old battery from the battery compartment and replace with a

new one.

⚠NOTE: Dispose of used battery properly.

Step 3: Replace the battery cover.



⚠IMPORTANT:
You will need to reset time after replacing the battery. See page 28, 'Setting Time After First Use'.

Cleaning the Meter

To clean the outside of the meter, use a lint-free cloth dampened with soapy water or alcohol.

⚠NOTE:
DO NOT get water inside the meter. Never immerse the meter or hold it under running water. DO NOT use glass cleaners or household cleaners on the meter.

Troubleshooting

This section details the significant display screen messages and error codes you may encounter when using the L-Pet Veterinary Lactate Meter.
If you have further questions after reviewing these messages, call your authorised dealer.

Message	Problem	What To Do
"Code- - - -"	The monitor has not been coded with a code card.	Insert the code card that is included in the test strip package into the code card port. Then, insert a test strip into the test strip holder.
"Code- - - -"	The code card has been damaged.	Insert a new code card from a new package of test strips, follow the procedures on page 13, 'Coding the Meter'. If the problem persists, call the authorised dealer.

Message	Problem	What To Do
	The battery in the meter is running out of power.	Replace the battery.
	The temperature is out of the meter's operating range of 10°C to 40°C (50°F to 104°F) .	The meter needs to be moved to an area that is within the meter's operating range of 10°C to 40°C  (50°F to 104°F) .
nt OK	Monitor Checker result fails. Used or defective test strip.	Repeat the test with a new test strip. If the problem persists, call the authorised dealer.

Message	Problem	What To Do
LO	The blood lactate result is lower than 0.7 mmol/L (6mg/dL)	Repeat the test to confirm the test result.
HI	The blood lactate result is higher than 22.2 mmol/L (200 mg/dL)	Repeat the test to confirm the test result.
Err	The meter is damaged.	Call the authorised dealer.

Product Warranty

The L-Pet Veterinary Lactate Meter is guaranteed to be free of defects in workmanship and materials under normal use for a period of 12 months from the date of purchase to the consumer.

The liability of Woodley Equipment Company Ltd is limited to repair or replacement and in no event shall Woodley Equipment Company Ltd be liable for any collateral or consequential damages or loss.

Instruments subjected to misuse, abuse, neglect, unauthorised repair or modification will be excluded from this warranty. This guarantee specifically excludes expendables and consumables. All warranty claims must be directed to the Woodley Equipment Company Ltd authorised dealer.

The warranty only applies to the original purchaser of the system.

Specifications

Meter Type:	L-Pet Veterinary Lactate Meter
Test Strips:	L-Pet Blood Lactate Test Strips
Test Range:	0.7-22.2 mmol/L (6-200 mg/dL)
Blood Source:	Fingertip capillary whole blood
Sample Volume:	Minimum 3μL
Reading Time:	45 seconds
Hematocrit Range:	35 - 50%
Memory:	300 sets with date & time
Operating Temperature:	10°C to 40°C (50°F to 104°F)
Relative Humidity:	Less than <85% (Storage, Operating and Transportation)
Storage / Transport Condition:	-20°C to 50°C (-4°F to 122°F) for meter; 4°C to 30°C (39°F to 86°F) for test strip
Power Supply:	3V Lithium coin cell battery (CR2032, powered internal)
Dimension:	90L x 55W x 20H (mm)
Weight:	63 g

Electromagnetic Compatibility:	This equipment complies with the EMC requirement of EN 60601-1-2
Classification according to IEC/EN 60601-1:	IPXO, not evaluated as AP/APG equipment, continuous operation.

Symbols Used in this Manual


Use-by date

Batch code

Temperature limit


Consult instructions for use


Caution


Keep away from sunlight


Keep dry


Do not re-use


Manufacturer

PRAXISDIENST
Medical Supplies since 1953
Order here!

WOODLEY
EQUIPMENT COMPANY LTD.

Woodley Equipment Company Ltd.
Old Station Park Buildings
St. John Street
Horwich
Bolton
BL6 7NY, UK
Tel: +44 (0) 1204 669033
Fax: +44 (0) 1204 669034