CentriVet™

GK Blood Glucose & Ketone Meter User's Manual

For animal use.

CentriVet™ GK Blood Glucose & Ketone Monitoring System

FOR ANIMAL USE. <u>NOT</u> FOR HUMAN USE.

Welcome and thank you for choosing the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System. The *CentriVet*™ GK Blood Glucose & Ketone Monitoring System will provide accurate blood glucose or β-ketone (β-hydroxybutyrate) results from fresh whole blood samples in just a few simple steps.

To ensure accurate results from the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System, please follow these guidelines:

- Read instructions before use.

- Use the code chip that accompanies each box of test strips with the appropriate animal species it is labeled for.

- Use only *CentriVet*™ Blood Glucose Test Strips with the *CentriVet*™ GK Blood Glucose & Ketone Meter to test the animal's blood glucose concentration.

- Use only *CentriVet*™ Blood Ketone Test Strips with the *CentriVet*™ GK Blood Glucose & Ketone Meter to test the animal's blood β-ketone concentration.

- For animal use. The *CentriVet*™ GK Blood Glucose & Ketone Monitoring System is intended to be used by veterinary professionals or under the guidance of a veterinary professional as an aid to monitor glucose and ketone levels in animals. Test only whole blood samples with the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System.

- Keep out of reach of children.

- Do not feed control solution to animal.

- Keep this User's Manual in a safe place, do not discard it.

- Use the *CentriVet*™ GK Blood Glucose & Ketone Meter according to the instruction. If not, the protection provided by the meter may be impaired.

By following the instructions outlined in this User's Manual, you will be able to use the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System to monitor blood glucose and β-ketone levels in your animal.

Table of Contents

Getting Started

Before testing, read the instructions carefully to learn about all the components of the *CentriVet™* GK Blood Glucose & Ketone Monitoring System. Some of the components may need to be purchased separately. Please check the list of contents on the outer box for details on which components are included with your purchase.

CentriVet™ GK Blood Glucose & Ketone Meter

CentriVet™ Blood Ketone Test Strips

CentriVet™ Ketone Code Chip

CentriVet™ Ketone Control Solution

CentriVet™ Blood Glucose Test Strips

CentriVet™ Glucose Code Chip

CentriVet™ Glucose Control Solution


Carrying Case

Component Descriptions

1. Meter: Reads the test strips and displays the blood glucose or β-ketone concentration.

2. Test Strips: Strips with a chemical reagent system used with the meter to measure glucose or β-ketone concentration in blood.

3. Code Chip: Automatically calibrates the meter with the code number and species of animal when inserted into the meter.

4. Control Solution: Verifies the proper operation of the monitoring system by checking the test strips and meter against a pre-calibrated control solution called Control Solution.

5. Carrying Case: Provides portability for blood glucose or β-ketone testing wherever you go.

6. User's Manual: Provides detailed instructions on using the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System.

7. Quick Reference Guide: Provides a brief overview of the *CentriVet*™ GK Blood Glucose & Ketone Monitoring System and testing procedures. This small guide can be kept in the carrying case.

8. Quick Start Guide: Provides a brief overview of the *CentriVet*™ GK Blood Glucose & Ketone Meter setup. This small guide can be kept in the carrying case.

9. Warranty Card: Should be completed and returned to the distributor to qualify for the 5-year meter warranty.

CentriVet™ **GK Blood Glucose & Ketone Meter**

The *CentriVet™* GK Blood Glucose & Ketone Meter is designed for use with the *CentriVet™* Blood Glucose Test Strips to test blood glucose in animals and for use with the *CentriVet™* Blood Ketone Test Strips to test blood β-ketone concentration in animals.

Use this diagram to become familiar with all the parts of the meter.

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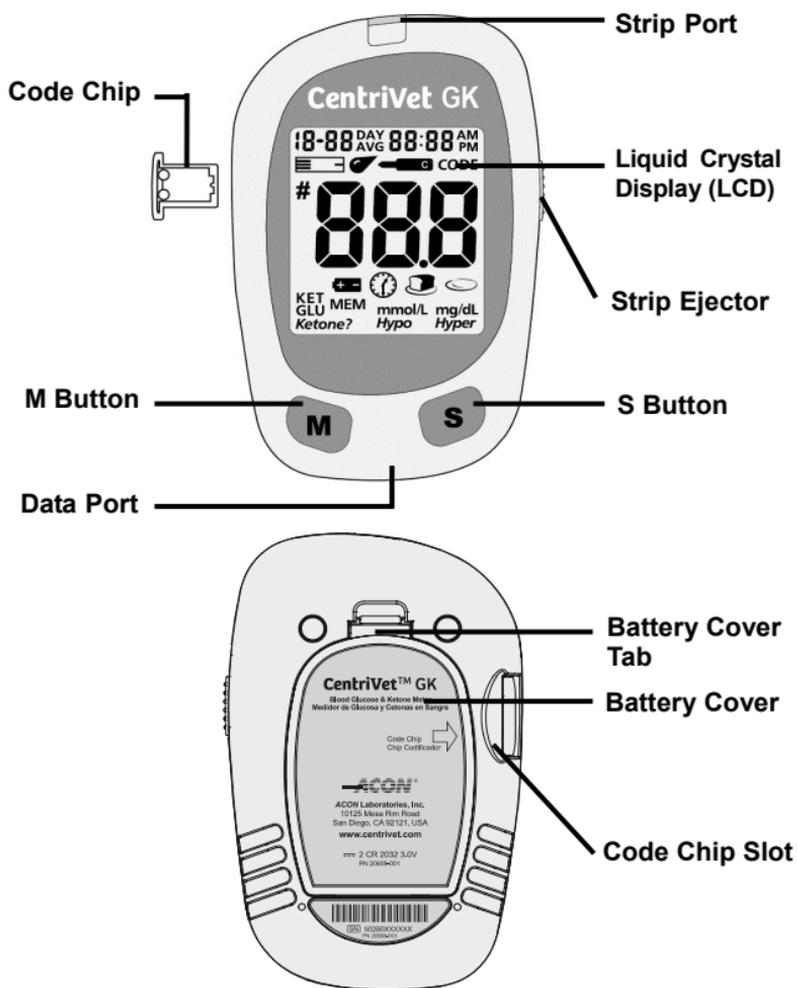
Liquid Crystal Display (LCD): Shows test results, and guides you through the testing process.

M Button: Recalls previous test results from the meter memory and performs other menu selection functions.

S Button: Selects meter settings and performs other menu selection functions.

Strip Port: Test strips are inserted into this area to perform a test.

Strip Ejector: Slide the ejector forward to discard the used test strip.

Note: Dispose of blood samples and materials carefully. Treat all blood samples as if they are infectious materials. Follow proper precautions and obey all local rules when disposing of blood samples and materials.

**Battery Cover:** Remove the battery cover to install two CR2032 coin cell batteries.

Battery Cover Tab: Press the battery cover tab to open battery cover.

Code Chip Slot: Insert the code chip.

Data Port: Sends information to a computer via an optional data transfer cable to view, analyze and print stored data in the meter. Please contact your distributor to see if this accessory is supported with your meter.

Meter Display
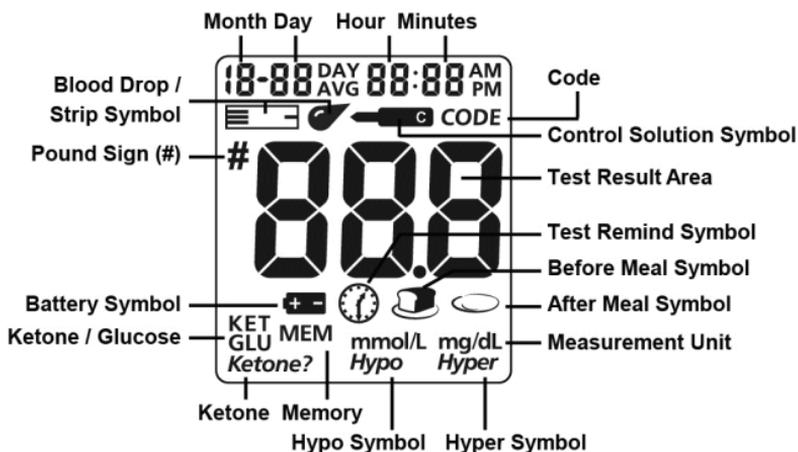
Blood Drop / Strip Symbol: Two symbols that appear at the same time to tell you when to apply the sample.

Pound Sign (#): Appears with the control solution test result or when you mark an invalid blood glucose test result to prevent it from being included in the average.

Battery Symbol: Warns when you should replace the battery.

Ketone / Glucose: "KET" indicates a code number of ketone test strips or a blood β-ketone test result. "GLU" indicates a code number of glucose test strips or a blood glucose test result. These two symbols will never appear at the same time.

Control Solution Symbol: Indicates a control test result. A pound sign (#) will also be displayed when control solution symbol appears.

Test Result Area: Indicates code number and test result.

Measurement Unit: Only one unit of blood glucose concentration will be displayed on the meter and cannot be adjusted.

Before Meal Symbol: Appears when before-meal test results are displayed.

After Meal Symbol: Appears when after-meal test results are displayed.

Test Remind Symbol: Appears to remind you to test.

Hyper Symbol: Appears when the blood glucose concentration is above the "Hyperglycemia" (high blood sugar) target level that you have set.

Hypo Symbol: Appears when the blood glucose concentration is below the "Hypoglycemia" (low blood sugar) target level that you have set.

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Ketone?: Appears when the blood glucose concentration is above 16.7 mmol/L (300 mg/dL). A ketone test is recommended when this symbol appears. Consult your veterinarian professional about testing for ketones in your animal.

Note: This symbol does not mean that the system has detected ketones. It simply recommends that a ketone test should be taken.

CODE: Appears with the code number of the test strips.

MEM: Shows a test result stored in memory.

Meter Use and Precautions

- The meter is pre-set to display blood glucose concentration in either millimoles per liter (mmol/L) or milligrams per deciliter (mg/dL) depending on which unit of measure is standard in your country. This unit of measure cannot be adjusted.

- The meter is pre-set to display blood β-ketone concentration only in millimoles per liter (mmol/L).

- Do not get water or other liquids inside the meter.

- Keep the strip port area clean.

- Keep the meter dry and avoid exposing it to extremes in temperature or humidity. Do not leave it in your car.

- Do not drop the meter or get it wet. If you do drop the meter or get it wet, check the meter by running a quality control test. Refer to **Quality Control Test** on page **29** for instructions.

- Do not take the meter apart. Taking the meter apart will void the warranty.

- Refer to the **Caring for the Meter** section on page **51** for details on cleaning the meter.

- Keep the meter and all associated parts out of reach of children.

Note: Follow proper precautions and all local regulations when disposing of the meter and used batteries.

All Glucose systems preventive warnings with regard to EMC

1. This instrument is tested for immunity to electrostatic discharge as specified in IEC 61000-4-2. However, use of this instrument in a dry environment, especially if synthetic materials are present (synthetic clothing, carpets, etc.) may cause damaging static discharges that may cause erroneous results.

2. This instrument complies with the emission and immunity requirements described in EN61326-1 and EN61326-2-6. Do not use this instrument in close proximity to sources of strong electromagnetic radiation. It may interfere with proper operation of the meter.

3. For professional use, the electromagnetic environment should be evaluated prior to operation of this device.

CentriVet™ Blood Glucose Test Strips

The *CentriVet™* Blood Glucose Test Strips work with the *CentriVet™* GK Blood Glucose & Ketone Meter to measure the glucose concentration in whole blood from your animal.

The *CentriVet™* Blood Glucose Test Strips are thin strips with a chemical reagent system. After the strip is inserted into the meter, blood is applied to the sample tip of the test strip. The blood is then automatically absorbed into the reaction cell. A reaction takes place, and a transient electrical current is formed. The blood glucose concentration is calculated based on the electrical current detected by the meter. The result is shown on the meter display. The meter is calibrated to display plasma-like concentration results.

Sample Tip
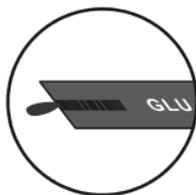Apply blood or control solution here.

Check Window
Check to confirm that a sufficient sample has been applied.

Contact Bars
Insert this end of the test strip into the meter until it stops.

IMPORTANT: Apply sample only to the sample tip of the test strip. Do not apply blood or control solution to the top of the test strip as this may result in an inaccurate reading.

Correct   **Incorrect**

Hold the blood sample to the sample tip of the test strip until the check window is completely full and until the meter begins to count down. If you applied the blood sample, but the meter does not start to count down, you may reapply a second

drop of blood within 3 seconds. If the check window does not fill and meter starts to countdown, then do not add more blood to the test strip. If you do then you may get an E-5 message or an inaccurat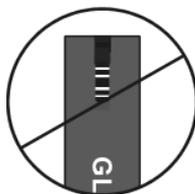e test result. In this case if the meter begins to countdown and check window does not fill, discard the strip and begin the test again with a fresh test strip.

| Correct | Incorrect |

Code Number

Each package of blood glucose test strips is printed with a code number (CODE) that starts with a "G", lot number (LOT), unopened expiration date (EXP) and control range (CTRL). On the code chip, the front side will include the code chip number, starting with a "G". On the top side of the code chip, a letter will denote which species of animal the code chip has been calibrated for. In the picture below, "B" specifies that this code chip is for testing bovine blood. This information can be found on the test strip box. Take special care to check that the correct code chip is being used with the appropriate species of animal.

Storage and handling

Please review the following storage and handling instructions:

- Store blood glucose test strips in a cool, dry place at 36-95°F (2-35ºC). Store them away from heat and direct sunlight.

- Do not freeze or refrigerate.

- Do not store or use test strips in a humid place such as a bathroom.

- Do not store the meter, the test strips or control solution near bleach or cleaners that contain bleach.

- Replace the cap on the test strip vial immediately after removing a test strip.

- The test strip should be used immediately after removing it from container.

- Do not use the test strips past the unopened expiration date printed on the label. Using test strips past the unopened expiration date may give incorrect test results.
  Note: The expiration date is printed in Year-Month format. 2016-01 means January, 2016.

Special instructions for blood glucose test strip in the vial

- Test strips should be stored in their tightly capped protective vial to keep them in good working condition.

- Do not store test strips outside their protective vial. Test strips must be stored in the original vial with the cap tightly closed.

- Do not transfer test strips to a new vial or any other container.

- Replace the cap on the test strip vial right away after removing a test strip.

- A new vial of blood glucose test strips may be used for 6 months after first being opened. Write the opened expiration date on the vial label after opening. Discard the vial 6 months after it is first opened. Usage after this period may result in inaccurate readings.

Blood Glucose Test Strip Precautions

- For animal use. Test strips are to be used outside the body for testing purposes.

- Do not use test strips that are torn, bent, or damaged in any way.

- Do not reuse test strips.

- Before running a blood glucose test, make sure that the code number on the

meter display matches the number shown on the blood glucose test strip vial and that the correct code chip is selected for the type of animal being tested.

- Keep the test strip vial away from children.
- Consult your veterinarian before making any changes in your animal's treatment plan based on the blood glucose test results.

See the *CentriVet™* Blood Glucose Test Strips insert for more details.

CentriVet™ **Glucose Control Solution**

The *CentriVet™* Glucose Control Solution can be used for a glucose quality control test.

CentriVet™ **Glucose Control Solution**

The *CentriVet™* Glucose Control Solution contains a known concentration of glucose. It is used to confirm that the meter and glucose test strips are working together properly and that you are performing the glucose test correctly. It is important to run a glucose quality control test regularly to make sure you are getting correct glucose test results for your animal.

You should run a glucose quality control test:

- Before you first use the meter to test blood glucose, to familiarize yourself with its operation.
- Before using a new box of blood glucose test strips.
- When you suspect that the meter or blood glucose test strips are not working properly.
- When you suspect that the blood glucose test results are inaccurate, or if they are inconsistent with the animal's physical behavior.
- When you suspect the meter is damaged.
- After cleaning the meter.
- At least once a week.

Refer to **Glucose Quality Control Test** on page **29** for instructions on running a glucose quality control test.

Storage and Handling

Please review the following storage and handling instructions:

- Store the glucose control solution at 36-86°F (2-30°C).

- Do not refrigerate or freeze.

- If the control solution is cold, do not use until it has warmed to room temperature.

- Use before the unopened expiration date that is shown on the bottle.
  Note: The expiration date is printed in Year-Month format. 2016-01 means January, 2016

- Each bottle of glucose control solution can be used for 6 months after first opened. Record the opened expiration date on the bottle label.

Glucose Control Solution Precautions

- For animal use. The glucose control solution is for testing only outside the body. Do not swallow, inject, or feed to animal.

- Shake well before using.

- Glucose control solution tests are specified to be accurate only when tested between 10 and 40°C (50-104°F).

- The control ranges shown on the blood glucose test strip vial are not recommended ranges for blood glucose levels. Blood glucose target ranges should be determined by a veterinary professional.

- Do not touch the test strip with the tip of the control solution bottle.

- Use the *CentriVet*™ Glucose Control Solution with *CentriVet*™ Blood Glucose Test Strips to perform a quality control test.

See the *CentriVet*™ Glucose Control Solution insert for more details.

CentriVet™ Blood Ketone Test Strips

The *CentriVet™* Blood Ketone Test Strips are thin strips with a chemical reagent system which can work with the *CentriVet™* GK Blood Glucose & Ketone Meter to measure the β-ketone concentration in whole blood. After the strip is inserted into the meter, blood is applied to the sample tip of the test strip. The blood is then automatically absorbed into the reaction cell. A reaction takes place, and a transient electrical current is formed. The blood β-ketone concentration is calculated based on the electrical current detected by the meter. The result is shown on the meter display. The meter is calibrated to display plasma-like concentration results.

Sample Tip
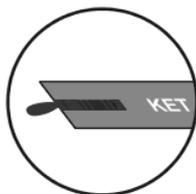Apply blood or control solution here.

Check Window
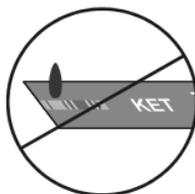Check to confirm that a sufficient sample has been applied.

Contact Bars
Insert this end of the test strip into the meter until it stops.

IMPORTANT: Apply sample only to the sample tip of the test strip. Do not apply blood or control solution to the top of the test strip as this may result in an inaccurate reading.


Correct

Incorrect

Hold the blood sample to the sample tip of the test strip until the check window is completely full and until the meter begins to count down. If you applied blood, but the meter does not start to count down, you may reapply a second drop of blood within 3 seconds. If the check window does not fill and meter starts to countdown,

do not add more blood to the test strip. If you do then you may get an E-5 message or an inaccurate test result. In this case if the meter begins to countdown and check window does not fill, discard the strip and begin the test again with a fresh test strip.

Correct   **Incorrect**
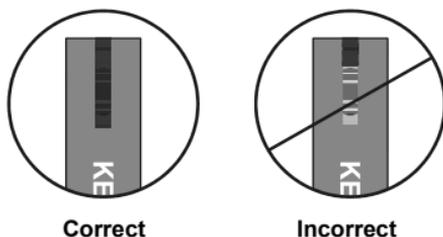
Code Number

Each package of *CentriVet*™ Blood Ketone Test Strips is printed with a code number (CODE) that starts with a "K", lot number (LOT), unopened expiration date (EXP) and control range (CTRL). On the code chip, the front side will include the code chip number, starting with a "K". On the top side of the code chip, a letter will denote which species of animal the code chip has been calibrated for. In the picture below, the "B" specifies that this code chip has been calibrated for bovine blood. This information is also on the test strip box. Take special care to check that the correct code chip is being for the right species of animal.

Storage and Handling

Please review the following storage and handling instructions:

- Store *CentriVet*™ Blood Ketone Test Strips in a cool, dry place, 41-86°F (5-30ºC). Store them away from heat and direct sunlight.

- Do not freeze or refrigerate.

- Do not store or use test strips in a humid place such as a bathroom.

- Do not store the meter, the test strips or control solution near bleach or cleaners that contain bleach.

- Replace the cap on the test strip vial immediately after removing a test strip.

- The test strip should be used immediately after removing it from container.

- Do not use the test strips past the unopened expiration date printed on the label. Using test strips past the unopened expiration date may give incorrect test results.
  Note: The expiration date is printed in Year-Month format. 2016-01 means January, 2016.

Special instructions for blood ketone test strip in the vial

- Test strips should be stored in their tightly capped protective vial to keep them in good working condition.

- Do not store test strips outside their protective vial. Test strips must be stored in the original vial with the cap tightly closed.

- Do not transfer test strips to a new vial or any other container.

- Replace the cap on the test strip vial right away after removing a test strip.

- A new vial of test strips may be used for 6 months after first being opened. Write the opened expiration date on the vial label after opening. Discard the vial 6 months after you first open it. Usage after this period may result in inaccurate readings.

Blood Ketone Test Strip Precautions

- For animal use. Test strips are to be used outside the body for testing purposes.

- Do not use test strips that are torn, bent, or damaged in any way.

- Do not reuse test strips.

- Before running a blood β-ketone test, make sure that the code number on the meter display matches the number shown on the test strip vial and that the

correct code chip is selected for the type of animal that you are testing.

- Keep the test strip vial away from children.

- Consult your veterinarian before making any changes in your animal's treatment plan based on the blood β-ketone test results.

See the *CentriVet™* Blood Ketone Test Strips insert for more details.

CentriVet™ Ketone Control Solution

The *CentriVet™* Ketone Control Solution contains a known concentration of β-ketone. It is used to confirm that the *CentriVet™* GK Blood Glucose & Ketone Meter and the *CentriVet™* Blood Ketone Test Strips are working together properly and that you are performing the test correctly. It is important to run a ketone quality control test to make sure the blood β-ketone test results are correct.

CentriVet™ Ketone Control Solution

You should run a ketone quality control test:

- Before you first use the meter to test blood β-ketone, to familiarize yourself with its operation.

- Before using a new box of *CentriVet™* Blood Ketone Test Strips.

- When you suspect that the *CentriVet™* GK Blood Glucose & Ketone Meter or the *CentriVet™* Blood Ketone Test Strips are not working properly.

- When you suspect that the blood β-ketone test results are inaccurate.

- When you suspect the meter is damaged.

- After cleaning the meter.

Refer to **Ketone Quality Control Test** on page **32** for instructions on running a ketone quality control test.

Storage and Handling

Please review the following storage and handling instructions:

- Store the *CentriVet™* Ketone Control Solution at 41-86°F (5-30°C).

- Do not refrigerate or freeze.

- If the control solution is cold, do not use until it has warmed to room temperature.

- Use before the unopened expiration date that is shown on the bottle.
  Note: The expiration date is printed in Year-Month format. 2016-01 means January, 2016.

- Each bottle of *CentriVet™* Ketone Control Solution can be used for 6 months after first opened. Record the opened expiration date on the bottle label.

Ketone Control Solution Precautions

- For animal use. The control solution is for testing only outside the body. Do not swallow, inject, or feed to animal.

- Shake well before using.

- The tests with *CentriVet™* Ketone Control Solution are specified to be accurate only when tested between 10 and 40°C (50-104°F).

- The control ranges shown on the test strip vial are not recommended ranges for blood β-ketone levels. Consult with your veterinarian professional for an appropriate blood β-ketone range for your animal.

- Do not touch the test strip with the tip of the control solution bottle.

- Use only the *CentriVet™* Ketone Control Solution with the *CentriVet™* Blood Ketone Test Strips to perform a ketone quality control test.

See the *CentriVet™* Ketone Control Solution insert for more details.

Installing the Battery

The battery may not be preinstalled in the meter. Two CR 2032 3.0V coin cell batteries are required. Please find the batteries in the carrying case and install them according to the following steps:

1. Turn over the meter to locate the battery cover. Press the battery cover tab on the top and lift the cover to open it.

2. Insert two new CR 2032 3.0V coin cell batteries on top of the plastic tape. Make sure it is aligned with the plus (+) side facing up in the battery carrier.
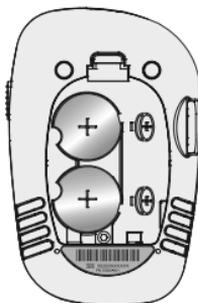
3. Close the battery cover and make sure that it snaps shut.

Meter Setup Before Testing

Before testing, the following steps should be followed:

Step 1 – Coding the Meter

Every time you change to a new box of test strips, you need to insert the code chip packed with the new box of test strips. Each code chip will have a set of letters and numbers printed on the code chip that make it unique to the test strips it was packaged with.

Coding the meter before using a new box of blood glucose test strips

1. Check that the letter printed on the front side of the code chip starts with a "G" followed by a code number. The "G" denotes that this code chip is to be used with the *CentriVet*™ Glucose Test Strips.

2. Check that the code number printed on the front side of the code chip matches the code number printed on the vial of test strips. If the two numbers are not the same, you may get inaccurate results. If the code number on the code chip does not match the number on the vial of strips with which it was packaged, please contact your local distributor immediately.

3. The letter printed on the top side of the code chip denotes the species of animal the code chip was designed and calibrated for. The *CentriVet*™ GK Blood Glucose and Ketone Monitoring System is uniquely designed to test blood glucose levels for different animal species. Make sure to use the correct code chip for the animal that you are testing. In the example below, the "B" signifies that this code chip is for testing bovine or cows.

4. With the meter turned off, insert the new glucose code chip into the code chip slot of the meter. It should easily snap into place. The code chip should remain in the meter, do not take it out until you change to another new box of test strips.
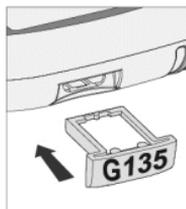
5. Turn the meter on by inserting a blood glucose test strip. You can see the code number and the "GLU" symbol appear on the center of the screen. The code will now be automatically stored in the meter.   If the code on the code chip does not match the code that is displayed on the screen, please contact your local distributor immediately.

Note: The most recently used glucose code will be stored in the meter as a default glucose code for the rest of the blood glucose tests, until a new code chip is inserted into the meter. If a blood glucose test strip is inserted and no glucose code is stored in memory, the display will flash "- - -" and "CODE".

Coding the meter before using a new box of blood ketone test strips

1. Check that the letter printed on the front side of the code chip starts with a "K" followed by a code number. The "K" denotes that this code chip is to be used with the *CentriVet*™ Ketone Test Strips.

2. Check that the code number printed on the front side of the code chip matches the code number printed on the vial of test strips. If the two numbers are not the same, you may get inaccurate results. If the code number on the code chip does not match the number on the vial of strips with which it was packaged, please contact your local distributor immediately.

3. The letter printed on the top side of the code chip denotes the species of animal the code chip was designed and calibrated for. The *CentriVet*™ GK Blood Glucose and Ketone Monitoring System is uniquely designed to test

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blood ketone levels for different animal types. Make sure to use the correct code chip for the animal that you are testing. In the example below, the "B" signifies that this code chip is for testing bovine or cows.

4. With the meter turned off, insert the new ketone code chip into the code chip slot of the meter. It should easily snap into place. The code chip should remain in the meter, do not take it out until you change to another new box of test strips.
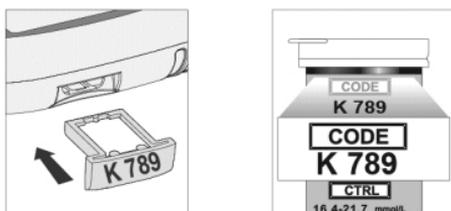
5. Turn the meter on by inserting a blood ketone test strip. You can see the code number and the "KET" symbol appear on the center of the screen. The code will now be automatically stored in the meter. If the code number on the ketone code chip does not match the number that is displayed on the screen, please contact your local distributor immediately.
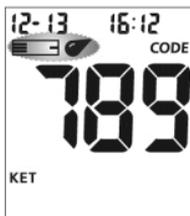
Note: The most recently used ketone code will be stored in the meter as a default ketone code for the rest of the blood β-ketone tests, until you insert a new ketone code chip into the meter.

6. If a blood ketone test strip is inserted and no ketone code is stored in memory, the display will flash "- - -" and "CODE".

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Step 2 – Adjusting the Meter Settings

Before using the meter for the first time, you will need to adjust the settings that are listed in detail below.

1. Meter Setup Mode: Press the S button for 2 seconds to enter the meter setup mode. The meter will automatically enter the setup mode when turned on for the first time.

2. Clock: Set the clock for either 12 or 24 hour mode. Press the M button to switch between the two settings. Then press the S button to save your choice and move on to setting the year, month, and date.
   *Note:* The clock needs to be reset after replacing the battery.
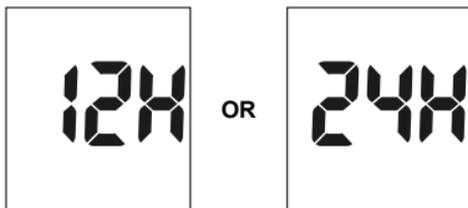
3. Date: The year will appear at the top of the display. Press the M button until the correct year is displayed. Once you have selected the correct year, press the S button to save your choice, proceeding to setting the month. Press the M button until the correct month is displayed. Then press the S button to save your choice, proceeding to setting the date. Press the M button until the correct date is displayed. Then press the S button to save your choice, proceeding to setting the time.

Year	Month	Date
20 13	12- 20 13	12- 13 20 13
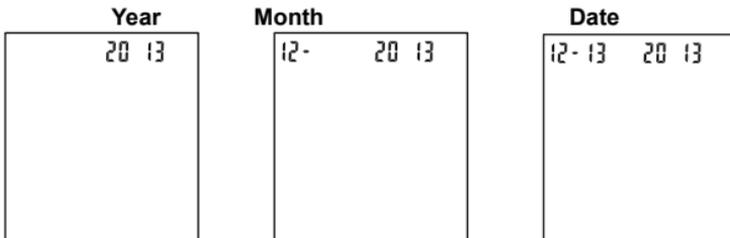
4. Time: The hour will appear at the top of the display. Adjust the hour with the M button until the correct hour is displayed. Press the S button to save your choice, proceeding to setting the minutes. Press the M button to change to the correct minute. Press the S button to save your choice, proceeding to setting the meal marker feature.

	Hour			**Hour**
12-13	04:	PM		12-13 16:

OR

	Minute			**Minute**
12-13	04:12 PM			12-13 16:12

OR
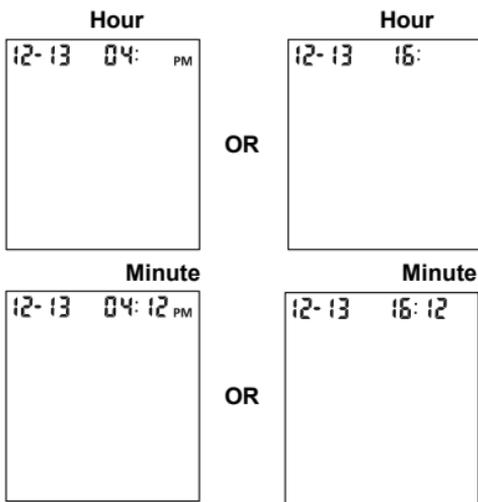
5. Meal Marker: The meter comes with the meal marker feature disabled. The user can enable or disable the meal marker option. The words "On" or "Off" will be displayed on the screen. The symbol of "before meal" and "after meal" will be displayed as shown below.

OR
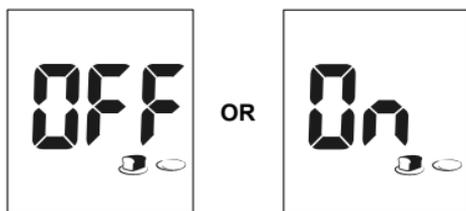
Press the M button to switch between turning the meal marker "On" and "Off". Press the S button to confirm your selection.

6. Audio Feature: The meter comes with the meter audio feature enabled. The meter will give one short beep when it is turned on, after sample detection, and when the result is ready. The meter will sound three short beeps to sound a warning when an error has occurred. Please check the error number on the display to confirm what kind of error has occurred.
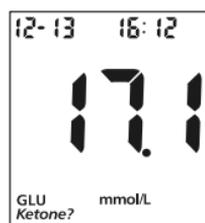
Press the M button to switch between turning the meter beep "On" and "Off". Press the S button to confirm your selection.

7. Ketone Indicator: The meter comes with the Ketone indicator feature disabled. Press the M button to switch between turning the Ketone indicator "On" and "Off". Press the S button to confirm your selection. When the Ketone indicator is enabled, if the test result is higher than 16.7 mmol/L (300 mg/dL), the symbol of "Ketone?" will appear on the display.
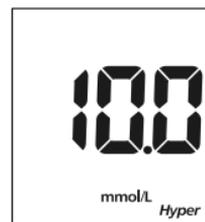

8. Hyper Indicator: The meter comes with the Hyper indicator feature disabled. Press the M button to switch between turning the Hyper indicator "On" and "Off". Press the S button to confirm your selection. When the Hyper indicator is "Off", pressing the S button will go to the next Hypo indicator set up. When the Hyper indicator is "On", pressing the S button will go to the Hyper indicator level set up. At the Hyper level set up, press the M button to adjust the Hyper level then press the S button to go to the Hypo indicator set up.
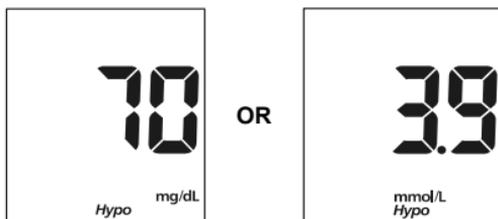

Note: The meter allows the hyperglycemia level to be as low as 6.7 mmol/L (120 mg/dL) or higher. The hyperglycemia level should be above the

hypoglycemia level. Consult your veterinary professional before determining what your animal's hyper blood glucose level is.

9. Hypo Indicator: The meter comes with the Hypo indicator feature disabled. Press the M button to switch between turning the Hypo indicator "On" and "Off". Press the S button to confirm your selection. When the Hypo indicator is "Off", pressing the S button will go to the Test Reminder set up. When the Hypo indicator is "On", pressing the S button will go to the Hypo indicator level set up. At the Hypo level set up, press the M button to adjust the Hypo level then press the S button to go to the Test Reminder set up.


Note: The meter allows the hypoglycemia level to be as high as 5.6 mmol/L (100 mg/dL). The hyperglycemia level should be above the hypoglycemia level. Consult your veterinary professional before determining what your animal's hypo blood glucose level is.

10. Test Reminder: Test reminder is a useful way to remind you when to test your animal. You can set 1 to 5 reminders per day. The meter is preset with the test reminder disabled. You must turn it on to use this feature.

- Press the M button to switch between turning the first Test Reminder "On" and "Off". Press the S button to confirm your selection. When the Test Reminder is "Off", pressing the S button will go to the setup of the second Test Reminder. When the Test Reminder is "On", pressing the S button will go to the setup of the time for the first Test Reminder. Press the M button to adjust the first Test Reminder time. (Time is adjusted by minutes.) Press the S button to confirm the first Test Reminder time and then go to the second Test Reminder set up.

- When the Test Reminder is "Off" during the second Test Reminder set up, pressing the S button will go to the setup of the third Test Reminder. When the Test Reminder is "On", pressing the S button will go to the setup of the time for the second Test Reminder. Press the M button to adjust the second Test Reminder time. (Time is adjusted by minutes.) Press the S button to confirm the second Test Reminder time and then go to the third Test Reminder set up.

- Repeat the same set up procedure for Test Reminder 3, 4 and 5.
- After finishing the fifth Test Reminder set up, it will then end the setup mode and power off the meter.

If one or more test reminders have been set, the reminder symbol will always appear on the LCD screen when the meter is turned on. The display sample is shown below.
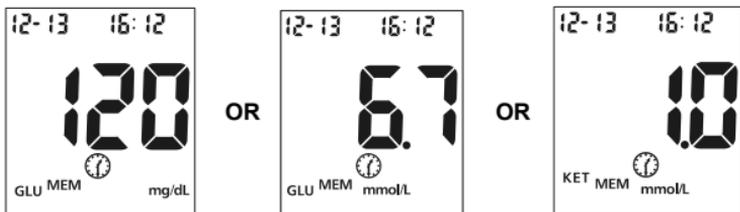
The meter beeps 5 times at the time you set, again two minutes later, and two minutes after that unless you insert a test strip or press any button. This function will still work with Audio feature turned off.

When the meter beeps at the time set by the Test Reminder feature, the date, time and strip symbol will be displayed. And the Test Reminder symbol will be flashed. The display sample is shown below.
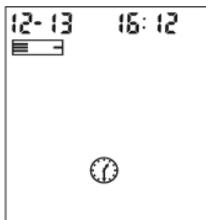
NOTE:
- The "Meal Marker", "Ketone Indicator" and "Hyper/Hypo Indicator" are only for indicating blood glucose test results.
- For any step of the setup, if the M button is pressed and held, it will allow a faster adjustment.
- The user can press and hold the S button for 2 seconds to stop the set up and turn off the meter during any step of the set up process, except when setting up the year, date and time for the first time after installing a new battery.

Performing a Quality Control Test

The quality control test confirms that the test strips and meter are working together properly, and that you are performing the test correctly.

Glucose Quality Control Test

The *CentriVet™* Glucose Control Solution can be used for a glucose quality control test.

You should run a glucose quality control test:

- Before you first use the meter to test blood glucose, to familiarize yourself with its operation.
- Before using a new box of glucose test strips.
- When you suspect that the meter or blood glucose test strips are not working properly.
- When you suspect that the blood glucose test results are inaccurate, or if they are inconsistent with your animal's behavior.
- When you suspect the meter is damaged.
- After cleaning the meter.
- At least once a week.

1. Insert a *CentriVet™* Blood Glucose test strip into the strip port, contact bars end first and facing up. (Insert the strip in as far as it will go without forcing.) This will turn on the meter and display all the display segments. If the audio option is on, the meter will beep, signaling the meter is turned on.
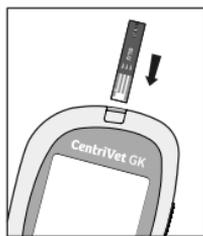
2. Check the display to confirm that all the display segments turn on (see display illustration above).

3. Following this display check, the system will enter the test mode. The display will show the date, time and the strip icon with the blood sample icon blinking.

The code number and the "GLU" symbol will be displayed in the center of the screen. Make sure that the code number that appears on the display matches the code number (CODE) on the blood glucose test strip vial. If not, make sure to locate and insert the code chip that came with the box of blood glucose test strips. Do not perform a blood glucose test if the codes still do not match. You will need a new package of blood glucose test strips to perform a test.

The blinking test strip and blood drop icon indicates that the test strip is inserted correctly.

Note: If the test strip has been inserted incorrectly, the meter will not turn on.

4. Press the M button to mark the test as a control solution test. The control solution symbol will appear on the display once the M button is pressed. Then a drop of glucose control solution can be added.
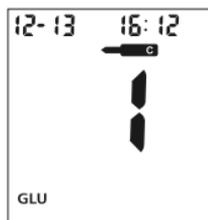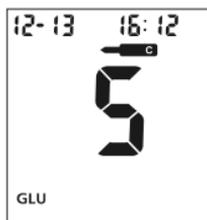

5. Shake the glucose control solution bottle well, then squeeze it gently and discard the first drop. If the tip clogs, tap the tip gently on a clean, hard surface, then shake again and use. Squeeze out a second small drop on a clean

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nonabsorbent surface. Touch the sample tip of the test strip to the control solution drop. If the audio option is turned on, the meter will beep indicating a test has been started.


Note:
- Do not apply control solution to the test strip directly from the bottle.
- If you applied the control solution sample but do not see the starting of the count down, you may reapply a second drop within 3 seconds.

6. Once a sufficient sample has been applied, then the meter display will count down from 5 to 1 and then display the blood glucose test result. The glucose control solution test results should be within the control range printed on the blood glucose test strip vial. This means that the blood glucose monitoring system is working properly and that you are performing the procedure correctly.

The blood glucose test results are displayed either in mmol/L or mg/dL depending on the unit of measure most common in your country.
Note: The glucose control solution range is the expected range for the glucose control solution test results. It is not a recommended range for a blood glucose level.

7. Slide the strip ejector to discard the test strip. The display should also show a pound sign (#) and "GLU" symbol indicating the test is a glucose control solution test. This shows that the number will not be counted in the 7, 14, 30, 60 and 90-day blood glucose averages. The pound sign (#) will also be displayed when reviewing the results stored in memory.
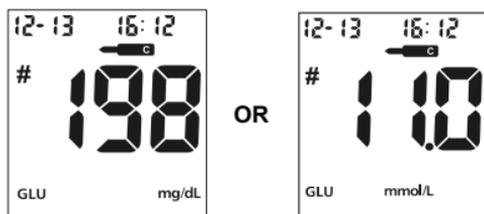
```
12-13   16:12        12-13   16:12
#  198        OR   #  110
GLU      mg/dL       GLU     mmol/L
```

If the result falls outside the indicated control range:

- Confirm you are matching the correct range. Control Solution results should be matched to the CTRL range printed on the test strip vial.
- Check the expiration date of the test strip and control solution. Make sure that the test strip vial and control solution bottle have not been opened for more than 6 months. Discard any test strips or control solution that has expired.
- Confirm the temperature in which you are testing is between 10 and 40°C (50-104°F).
- Make sure that the test strip vial and control solution bottle have been tightly capped.
- Confirm that you are using the same brand of the glucose control solution and the blood glucose test strips.
- Make sure the code number on the strip vial label matches the code number that appears on the meter display.
- Make sure that you followed the test procedure correctly.

After checking all of the conditions listed above, repeat the glucose quality control test with a new blood glucose test strip. If the results still fall outside of the control range shown on the test strip vial, the meter may be defective. Contact your local distributor for help.

Please contact your local distributor for information on ordering *CentriVet™* Glucose Control Solution kits.
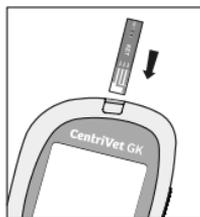

Ketone Quality Control Test

The *CentriVet™* Ketone Control Solution can be used for a ketone quality control test.
You should run a ketone quality control test:
- Before you first use the meter to test blood β-ketone, to familiarize yourself with its operation.
- Before using a new box of *CentriVet™* Blood Ketone Test Strips.
- When you suspect that the *CentriVet™* GK Blood Glucose & Ketone Meter or *CentriVet™* Blood Ketone Test Strips are not working properly.

- When you suspect that the blood β-ketone test results are inaccurate, or if they are inconsistent with the animal's behavior.
- When you suspect your meter is damaged.
- After cleaning the meter.

1. Insert a blood ketone test strip into the strip port, contact bars end first and facing up. (Insert the strip in as far as it will go without forcing.) This will turn on the meter and display all the display segments. If the audio option is on, the meter will beep, signaling the meter is turned on.

2. Check the display to confirm that all the display segments turn on (see display illustration above).

3. Following this display check, the system will enter the test mode. The display will show the date, time and the strip icon with the blood sample icon blinking. The code number and "KET" symbol will be displayed in the center of the screen. Make sure that the code number that appears on the display matches the code number (CODE) on the blood ketone test strip vial. If not, make sure to locate and insert the code chip that came with the box of blood ketone test strips. Do not perform a blood β-ketone test if the codes still do not match. You will need a new package of blood ketone test strips to perform a test.
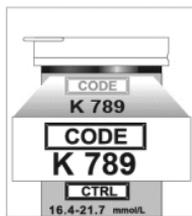
The blinking test strip and blood drop icon indicates that the test strip is inserted correctly.
Note: If the test strip has been inserted incorrectly, the meter will not turn on.

4. Press the M button to mark the test as a control solution test. Once the M button is pressed, the control solution symbol will appear on the display. Then a drop of ketone control solution can be added.

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5. Shake the ketone control solution bottle well, then squeeze it gently and discard the first drop. If the tip clogs, tap the tip gently on a clean, hard surface, then shake again and use. Squeeze out a second small drop on a clean nonabsorbent surface. Touch the sample tip of the test strip to the control solution drop. If the audio option is turned on, the meter will beep indicating a test has been started.


Note:
- Do not apply control solution to the test strip directly from the bottle.
- If you applied the control solution sample but do not see the starting of the count down, you may reapply a second drop within 3 seconds.

6. Once a sufficient sample has been applied, then the meter display will count down from 9 to 1 and then display the blood β-ketone test result. The ketone control solution test results should be within the β-ketone control range printed on the blood ketone test strip vial.This means that the meter and blood ketone test strips are working together properly and that you are performing the procedure correctly.
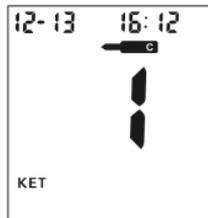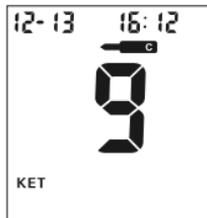
The blood β-ketone test results are displayed only in mmol/L.

Note: The ketone control solution range is the expected range for the ketone control solution results. It is not a recommended range for a blood β-ketone level.

7. Slide the strip ejector to discard the test strip. The display should also show a pound sign (#) indicating the test is a ketone control solution test. The pound sign (#) will also be displayed when reviewing the results stored in memory.
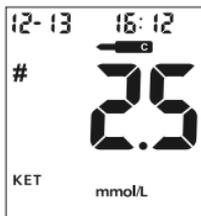
If the result falls outside the indicated control range:

- Confirm you are matching the correct range. Control Solution results should be matched to the CTRL range printed on the test strip vial.
- Check the expiration date of the test strip and control solution. Make sure that the test strip vial and control solution bottle have not been opened for more than 6 months. Discard any test strips or control solution that has expired.
- Confirm the temperature in which you are testing is between 10 and 40°C (50-104°F).
- Make sure that the test strip vial and control solution bottle have been tightly capped.
- Confirm that you are using the *CentriVet™* Ketone Control solution that was provided with your kit.
- Make sure the code number on the strip vial label matches the code number that appears on the meter display.
- Make sure that you followed the test procedure correctly.

After checking all of the conditions listed above, repeat the ketone quality control test with a new blood ketone test strip. If your results still fall outside of the control range shown on the test strip vial, the meter may be defective. Contact your local distributor for help.

Testing Your Animal's Blood Glucose

The following steps will show how to use the *CentriVet™* GK Blood Glucose & Ketone Meter and the *CentriVet™* Blood Glucose test strips to measure your animal's blood glucose concentration.

Animal Specimen Collection and Preparation

The method of collection is unique for each animal. When using the *CentriVet™* GK Blood Glucose & Ketone Monitoring System, consult with your veterinary professional on the appropriate method of collection.

- A small drop of fresh whole blood is needed to perform the blood glucose test. Do not use serum or plasma samples. The *CentriVet™* Glucose Test Strips are for testing fresh capillary or venous whole blood.

- Venous or arterial blood samples should be drawn by veterinary professionals or under the guidance of a veterinary professional. When collecting any type of sample, follow universal blood collection precautions and guidelines.

- Venous or arterial blood samples in heparin and EDTA anticoagulants/ preservatives may be used. Do not use anticoagulants such as iodoacetate, sodium citrate, or those containing fluoride.

- Always test the blood sample as close as possible to the time the sample is collected. Otherwise, the venous or arterial blood glucose measurement should be performed within 15 minutes of blood sample collection to minimize the effect of glycolysis.

- When whole blood in a test tube is used, care should be taken to uniformly distribute red cells throughout the tube before testing. Gently invert the capped tube several times. (Please note do not mix the blood sample in the tube too much.)

Please refer to the *CentriVet™* Blood Glucose Test Strips insert for more information.

Step 1 – Testing Blood Glucose

Note: **Insertion of a new test strip at any time will cause the meter to automatically enter the test mode.**

1. Insert a blood glucose test strip into the strip port, contact bars end first and facing up, to turn on the meter and display all the display segments. If the audio option is on, the meter will beep, signaling the meter is turned on.
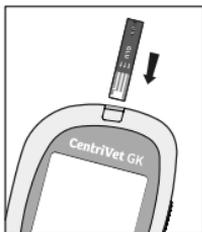
2. Check the display to confirm that all the display segments turn on (see display illustration).

3. Following this display check, the system will enter the test mode. The display will show the date, time, and the strip icon with the blood sample icon blinking. The code number and "GLU" will be displayed in the center of the screen.

Make sure that the code number appears on the display matches the code number (CODE) on the blood glucose test strip vial. If not, make sure to locate and insert the code chip that came with the box of blood glucose test strips. If the codes still do not match, do not perform a test. You will need a new package of blood glucose test strips to perform a blood glucose test.

Note: Check that the animal type letter on the top side of the code chip is appropriate for the species of animal that you are testing.

4. The blinking test strip and blood drop icon will indicate that the test strip is inserted correctly and a drop of blood can be added. The meter will not turn on if the test strip has been inserted incorrectly.

5. Touch the blood sample to the sample tip at the end of the test strip. If the audio option is turned on, the meter will also beep to indicate the measurement has started. If you applied a drop of blood but do not see the starting of the countdown, you may reapply a second drop of blood within 3 seconds.

   DO NOT:

   - Apply sample to the front or back of the test strip.
   - Smear the blood drop onto the test strip.

6. The meter will count down from 5 to 1 and then display the measurement results. The meter will also beep to indicate that measurement is complete. Then the blood glucose level will display on the screen, along with the "GLU" symbol, unit measurement, date, and time of the test.
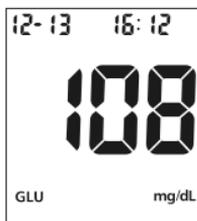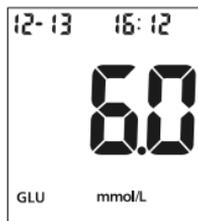
Blood glucose results are automatically stored in the memory. To mark invalid results and prevent them from being included in the 7, 14, 30, 60 and 90-day averages, press the M and S buttons together. A pound sign (#) will appear on the display to show that the blood glucose test result will not be included when calculating the 7, 14, 30, 60 and 90-day averages. If a blood glucose result is marked by accident, press the M button to unmark the result. After marking the invalid blood glucose result with a pound sign (#), press the S button to confirm the invalid blood glucose result.

When the meal marker feature is turned on and a blood glucose test result is displayed, mark the blood glucose result as "before meal", "after meal", or invalid.

- Press the M and S buttons together to display the "before meal marker" symbol, indicating the blood glucose result was taken before a meal.
- Press the M button again to display the "after meal marker" symbol, indicating the blood glucose result was taken after a meal.
- Press the M button again to display the pound sign (#), indicating an invalid blood glucose result.
- Press the M button again then none of the above markers will be displayed for the blood glucose result.
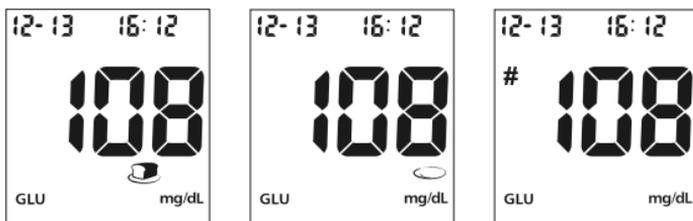
After deciding the selection, press the S button to confirm the selection for "before meal marker", "after meal marker", "invalid result pound sign" or none of these three symbols. If an invalid blood glucose result is marked, run the blood glucose test again with a new blood glucose test strip.

If an error message appears on the display, refer to the **Troubleshooting Guide** on page **55**. If a "HI" or "LO" appears on the display, refer to "HI" and "LO" messages below.

7. Slide the strip ejector forward to discard the used test strip.

Note: Dispose of blood samples and materials carefully. Treat all blood samples as if they are infectious materials. Follow proper precautions and obey all local rules when disposing of blood samples and materials.

"HI" and "LO" Messages

The meter can accurately measure blood glucose concentrations between 0.6 and 33.3 mmol/L (10-600 mg/dL). "HI" and "LO" messages indicate blood glucose results outside of this range.

If "HI" appears on the display, the measured blood glucose concentration value is above 33.3 mmol/L (600 mg/dL). The test should be retaken to ensure that no mistake was made in the procedure. If you are certain the meter is functioning properly and no mistakes were made in the procedure, and your animal's blood glucose is still consistently measured as "HI", it indicates severe hyperglycemia (high blood glucose). You should contact your veterinarian immediately.

If "LO" appears on the display, the measured blood glucose concentration value is below 0.6 mmol/L (10 mg/dL). The test should be retaken to ensure that no mistake was made in the procedure. If you are certain the meter is functioning properly and no mistakes were made in the procedure, and your animal's blood glucose is still consistently measured as "LO", it may indicate severe hypoglycemia (low blood glucose). You should contact your veterinarian immediately.
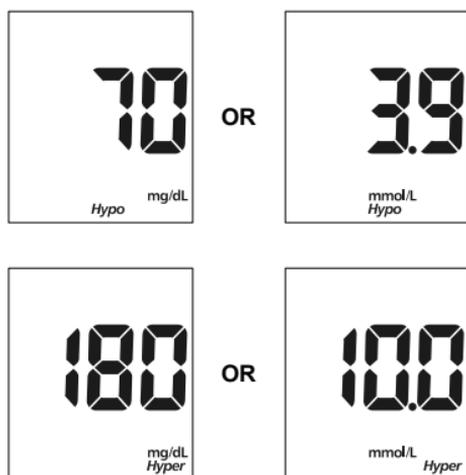

"Hypo" and "Hyper" Messages

Note: "Hypo" and "Hyper" Messages will only appear when testing blood glucose.

If "Hypo" appears on the display, the measured blood glucose concentration value is below the "Hypo" (low blood sugar) target level that you have set.

If "Hyper" appears on the display, the measured blood glucose concentration value is above the "Hyper" (high blood sugar) target level that you have set.

OR

"Ketone?" Message

Note: "Ketone?" Messages will only appear when testing blood glucose.

If "Ketone?" appears on the display, the measured blood glucose concentration value is above 16.7 mmol/L (300 mg/dL). A ketone test is recommended when the "Ketone?" symbol appears.

OR
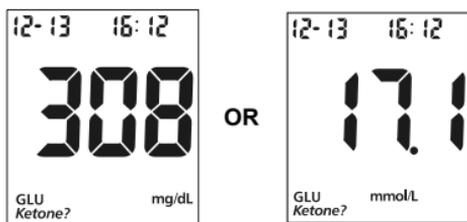
You can perform a ketone test with our *CentriVet*™ Blood Ketone Test Strips. Consult your local distributor for ordering the *CentriVet*™ Blood Ketone Test Strips kit.

Precautions and Limitations for Blood Glucose Testing

Please refer to the *CentriVet*™ Blood Glucose Test Strips insert for more information.

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Testing Your Animal's Blood Ketone

The following steps will show how to use the *CentriVet™* GK Blood Glucose & Ketone Meter and the *CentriVet™* Blood Ketone test strips to measure blood β-ketone concentration in your animal.

Animal Specimen Collection and Preparation

The method of collection is unique for each animal. When using the *CentriVet™* GK Blood Glucose & Ketone Monitoring System, consult with your veterinary professional on the appropriate method of collection.
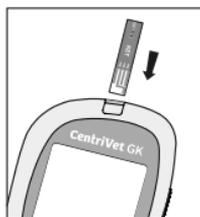
- A small drop of fresh whole blood is needed to perform the blood ketone test. Do not use serum or plasma samples. The *CentriVet™* Blood Ketone Test Strips are for testing fresh capillary and venous whole blood.

- Venous blood samples should be drawn only by veterinary professionals or under the guidance of a veterinary professional. When collecting sample, follow universal blood collection precautions and guidelines.

- Venous samples in heparin or EDTA anticoagulants/preservatives may be used. Do not use anticoagulants such as iodoacetate, sodium citrate, or those containing fluoride.

- Always test the blood sample as close as possible to the time the sample is collected.

- When whole blood in a test tube is used, care should be taken to uniformly distribute red cells throughout the tube before testing. Gently invert the capped tube several times. (Please note do not mix the blood sample in the tube too much.)

Please refer to the *CentriVet™* Blood Ketone Test Strips insert for more information.

Step 1 – Testing Blood Ketone

Note: **Insertion of a new blood ketone test strip at any time will cause the meter to automatically enter the test mode.**

1. Insert a blood ketone test strip into the strip port, contact bars end first and facing up, to turn on the meter and display all the display segments. If the audio option is on, the meter will beep, signaling the meter is turned on.

2. Check the display to confirm that all the display segments turn on (see display illustration).

3. Following this display check, the system will enter the test mode. The display will show the date, time and the strip icon with the blood sample icon blinking. The code number and "KET" symbol will be displayed in the center of the screen. Make sure that the code number appears on the display matches the code number (CODE) on the blood ketone test strip vial. If not, make sure to locate and insert the code chip that came with the box of blood ketone test strips. If the codes still do not match, do not perform a test. You will need a new package of blood ketone test strips to perform a blood ketone test.

   Note: Check that the animal type letter on the top side of the code chip is appropriate for the species of animal that you are testing.

4. The blinking test strip and blood drop icon will indicate that the test strip is inserted correctly and a drop of blood can be added. The meter will not turn on if the test strip has been inserted incorrectly.

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5. Touch the blood sample to the sample tip at the end of the test strip. If the audio option is turned on, the meter will also beep to indicate the measurement has started. If you applied a drop of blood but do not see the starting of the countdown, you may reapply a second drop of blood within 3 seconds.

    DO NOT:

    - Apply sample to the front or back of the test strip.
   - Smear the blood drop onto the test strip.

6. The meter will count down from 9 to 1 and then display the blood β-ketone test results. The meter will also beep to indicate that measurement is complete. Then the blood β-ketone level will display on the screen, along with the unit measurement, date, and time of the test. The test blood β-ketone results are automatically stored in the memory.
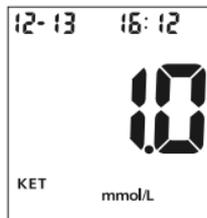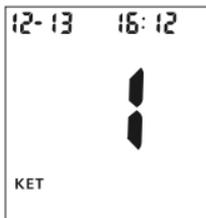
    If an error message appears on the display, refer to the **Troubleshooting Guide** on page **55**. If a "HI" appears on the display, refer to "HI" messages below.

7. Slide the strip ejector forward to discard the used test strip.

    Note: Dispose of blood samples and materials carefully. Treat all blood samples as if they are infectious materials. Follow proper precautions and obey all local rules when disposing of blood samples and materials.
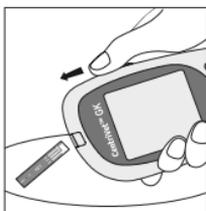
"HI" Message

The meter can accurately measure blood β-ketone concentrations between 0 and 8.0 mmol/L. "HI" message indicate results outside of this range.

If "HI" appears on the display, the measured β-ketone concentration value is above 8.0 mmol/L. The test should be retaken to ensure that no mistake was made in the procedure. If you are certain the meter is functioning properly and no mistakes were made in the procedure, and the animal's blood β-ketone is still consistently measured as "HI", you should contact your veterinarian immediately.
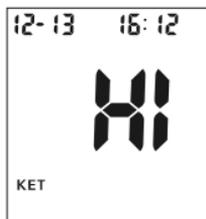
Precautions and Limitations for Blood Ketone Testing

- Do not use the meter in any manner not specified by the manufacturer. Otherwise, the protection provided by the meter may be impaired.

- The *CentriVet™* Blood Ketone Test Strips are for testing fresh capillary and venous whole blood. Do not use with serum or plasma samples.

- The *CentriVet™* GK Blood Glucose & Ketone Monitoring System is indicated for professional veterinary use and over the counter sale. You may use the *CentriVet™* Blood Ketone Test Strips to test capillary and venous blood samples from animals. Use of anticoagulants such as iodoacetate, or those containing fluoride is not advised

- Very high or very low hematocrit levels can cause false blood ketone test results. Talk to your veterinarian to find out your animal's hematocrit level.

- Vitamin C (ascorbic acid) when occurring in blood at normal concentration level does not significantly affect results. Abnormally high levels of Vitamin C (ascorbic acid) or other reducing substances will produce falsely high blood ketone measurements.

- N-acetylcysteine when in blood at normal concentration level does not significantly affect results. N-acetylcysteine in the blood at abnormally high levels will cause interference and produce falsely high blood β-Ketone measurements. Do not use during or soon after N-acetylcysteine treatment.

- Fatty substances such as Triglycerides up to 166.7 mmol/L (3,000 mg/dL) or Cholesterol up to 27.8 mmol/L (500 mg/dL) have no major effect on blood ketone test results.

- The *CentriVet™* GK Blood Glucose & Ketone Monitoring System has been tested and shown to work properly up to 10,000 ft. (3,048 meters).

- Test results may be erroneous if the animal is severely dehydrated, or severely hypotensive, in shock or in a hyperglycaemic-hyperosmolar state.

- Dispose of blood samples and materials carefully. Treat all blood samples as if they are infectious materials. Follow proper precautions and obey all local regulations when disposing of blood samples and materials.

Please refer to the *CentriVet™* Blood Ketone Test Strips insert for more information.

Using the Meter Memory

The meter automatically stores up to 450 blood glucose and β-ketone test records. Each record includes the test result, result type, date and time. The oldest record will be erased to make room for a new one if there are already 450 records in memory.

The meter will also calculate the blood glucose average values of the blood glucose records from the last 7, 14, 30, 60 and 90 days.

Note: All the blood β-ketone test results are not calculated in the 7, 14, 30, 60 and 90-day averages. Only glucose test results are averaged.

Viewing Stored Records

To view stored records:

1. Press the M button to turn the meter on and enter memory mode. The most recent value with the result type "GLU" or "KET" and the symbol "MEM" will appear on the display.

12-13 16:12		12-13 16:12		12-13 16:12
108	**OR**	**6.0**	**OR**	**1.0**
GLU MEM mg/dL		GLU MEM mmol/L		KET MEM mmol/L

2. If you are using the meter for the very first time, the meter display will show three dashed lines (---), the symbol "MEM" and the unit of measure. This shows that no data have been stored in memory.

◆ ◆ ◆	**OR**	◆ ◆ ◆
MEM mg/dL		MEM mmol/L
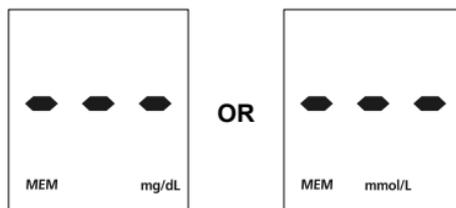
3. The date and time will be displayed together with the results stored in memory. A pound sign (#) in blood glucose test results indicates that the records will be omitted from the 7, 14, 30, 60 and 90-day blood glucose averages.

4. Press the M button to go through the stored records.

Press the S button to view the blood glucose averages. The words "DAY AVG" will appear on the screen.

Note: If you do not wish to view the average glucose measurements, you can press the S button again to turn off the display.

5. While in data average mode:

   ● If the meal marker feature is off, press the M button to switch between the general 7, 14, 30, 60 and 90-day blood glucose averages.

   ● If the meal marker feature is on, press the M button to switch between the general, pre-meal and post-meal 7, 14, 30, 60 and 90-day blood glucose averages. The meter will calculate the average that you selected. The number of records used in the DAY AVG will also appear in the display.

Note: Only blood glucose test results that have been marked as "before meal" or "after meal" are included in pre-meal and post-meal averages. All blood glucose results are included in the general 7, 14, 30, 60 and 90-day averages.
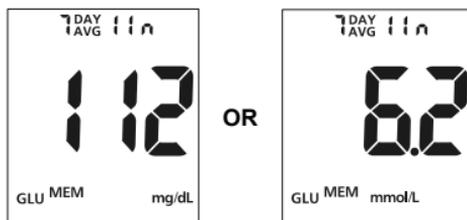
6. If there are fewer than 7, 14, 30, 60 and 90-days in memory, all the blood glucose readings without the pound sign (#) currently stored in memory will be averaged instead.

If you are using the meter for the very first time, no value will appear on the display. This means that no records have been stored in memory. If you have not marked any results as "before meal" or "after meal", no value will appear on the display for the pre-meal or post-meal averages. This means that no records have been stored as "before meal" or "after meal" in memory.

7. Press the S button to turn off the display.

Note: Results from quality control tests will not be included in the averages. When viewing results in memory, these values are marked with a pound sign (#) to show that they will not be included in the 7, 14, 30, 60 and 90-day blood glucose averages.

Clearing the Memory

Extreme caution should be used when clearing the memory. This is not a reversible operation. To clear the memory:

1. With the meter off, press and hold the M button for two seconds. This will turn on the meter and enter the delete mode.

2. Then press and hold both the M and S buttons for two seconds to clear the memory.

3. The display will show "MEM" and "---", the meter will clear its memory and turn itself off after a moment.
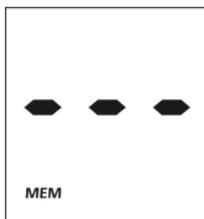

4. If you entered the delete mode but want to exit without deleting the recorded data, press the S button. This will turn the meter off without deleting any data.

Maintenance

Proper maintenance is recommended for best results.

Replacing the Battery

When the battery icon (🔋) is blinking, it means the battery is running low and you should replace the battery as soon as possible. An "E-6" error message will appear if the battery is too low to perform any more blood glucose tests. The meter will not function until the battery is replaced.
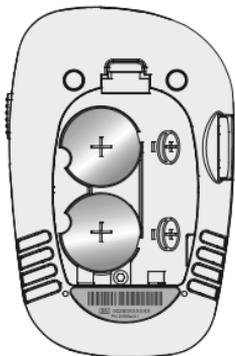
Instructions:

1. Make sure the meter is off before removing the battery.

2. Turn over the meter to locate the battery cover. Press the battery cover tab on the top and lift the cover to open the battery cover.

3. Remove and discard the old battery. Insert two new CR 2032 3.0V coin cell batteries on top of plastic tape. Make sure it is aligned with the plus (+) side facing up in the battery carrier.

4. Close the battery cover and make sure that it snaps shut.

5. Recheck and reset the clock setting as necessary after battery replacement to ensure time is set correctly. To set the meter clock, see **Meter Setup Before Testing** on page **21**.

Caring for the *CentriVet™* GK Blood Glucose & Ketone Monitoring System

Blood Glucose & Ketone Meter

Your *CentriVet™* GK Blood Glucose & Ketone Meter does not require special maintenance or cleaning. A cloth dampened with water and a mild detergent solution can be used to wipe the outside of the meter. Take care to avoid getting liquids, dirt, blood, or control solution into the meter through the strip or data ports. It is recommended that you store the meter in the carrying case after each use.

The *CentriVet™* GK Blood Glucose & Ketone Meter is a precision electronic instrument. Please handle it with care.

Comparing Meter and Laboratory Results

Your *CentriVet™* GK Blood Glucose & Ketone Monitoring System and laboratory results both report the glucose or β-ketone concentration in the serum or plasma component of blood. However, the results may differ somewhat due to normal variation. This is expected, but the difference under normal operating conditions should be no greater than 20%. See the test strip package inserts for typical accuracy and precision data.

Troubleshooting Guide

The meter has built-in messages to alert you of problems. When error messages appear, note the error number, turn off the meter and then follow these instructions.

Display	Causes	Solution
Meter fails to turn on	Battery may be damaged or not be charged	Replace battery.
	Meter is too cold	If meter has been exposed to or stored in cold conditions, wait 30 minutes to allow meter to reach room temperature then repeat test.
E-0	Power On self check error	Remove battery for 30 seconds and then put battery back and turn meter on again. If problem persists, please contact your local distributor.
E-1	Internal calibration check error	Turn off meter or remove test strip, and then turn on meter again to retest. If the problem persists, please contact your local distributor.
E-2	Test strip was removed during the test	Repeat the test and ensure test strip remains in place.
E-3	Sample was applied to the test strip too soon	Repeat test and apply sample after blood drop/test strip symbol appears.
E-4	Test strip is contaminated or used	Repeat test with a new test strip.
E-5	Insufficient sample	Repeat test and apply enough sample to fill the test strip check window.
	Sample application error due to late sample re-dosing	Repeat test and apply enough sample to fill the test strip check window within 3 seconds.
HI t	Temperature has exceeded the operating temperature of the system	Move to a cooler environment and repeat the test.
LOt	Temperature is below the operating temperature of the system	Move to a warmer environment and repeat the test.
[+-]	Battery is discharged but has enough power to run 20 more tests	Test results will still be accurate, but replace the battery as soon as possible.

Display	Causes	Solution
E-6	Battery has discharged and meter does not allow more tests until discharged battery is replacement with a new battery	Replace the battery and repeat the test.
CODE − − −	No code chip in the meter	Insert the code chip that accompanied the box of test strips.
E-7	Damaged code chip or the code chip was removed during a test	If the code chip is damaged, use a new code chip with the correct code number and run the test. If the code chip is removed during a test, confirm the code chip matches the test strip code and repeat the test.
E-8	Meter electronics failure	If the problem persists, please contact your local distributor.
E-9	Incorrect code chip inserted in the meter	Indicates an incorrect brand of code chip was inserted in the meter. Please make sure you use the *CentriVet™* Blood Glucose Test Strips to test glucose and use the *CentriVet™* Blood Ketone Test Strips to test β-ketone. If the problem persists, please contact your local distributor.
E 11	Strip testing error	Repeat test and apply enough sample to fill the test strip check window within 3 seconds. When repeat testing, do not touch the strip during meter counts down. Please make sure a fresh blood sample with intended hematocrit level is used. Please make sure blood sample is not contaminated. If the problem persists, please contact your local distributor.

Specifications

Feature	Specification
Meter Model Number	OGM-161
Measurement Range	Glucose: 0.6-33.3 mmol/L (10 - 600mg/dL) β-ketone: 0.0-8.0 mmol/L
Result Calibration	Plasma-equivalent, dependent on animal species
Sample	Please refer to the blood glucose and ketone test strip inserts
Minimum Sample Size	Glucose: 0.8 μL β-ketone: 1.2 μL
Test Time	Glucose: 5 seconds β-ketone: 10 seconds
On/Off Source	Two (2) CR 2032 3.0V coin cell batteries
Battery Life	Minimum of 3,000 measurements (without considering data transfer and test reminder alarm)
Measurement Unit	Glucose: The meter is pre-set to either mmol/L or mg/dL, depending on the standard of your country β-Ketone: The meter is pre-set to mmol/L
Memory	Up to 450 blood glucose and β-ketone records with result type, date and time
Automatic shutoff	2 minutes after last action
Meter Size	90.3 mm × 58.0 mm × 19.4 mm
Display Size	40.2 mm × 36.0 mm
Weight	64g (with battery installed)
Operating Temperature	5 - 45ºC (41-113 °F)
Operating Relative Humidity	10 – 90%
Hematocrit Range	Please refer to the test strip inserts
Data Port	9600 baud, 8 data bits, 1 stop bit, no parity

Warranty

Please complete the warranty card that came with this product and mail it to your local distributor to register your purchase.

If the meter fails to work for any reason other than obvious abuse within the first five (5) years from purchase, we will replace it with a new meter free of charge. For your records, also write the purchase date of your product here.

Date of purchase: _____

Note: This warranty applies only to the meter in the original purchase, and does not apply to the battery supplied with the meter.

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