

arkray

# GLUCOCARD® Shine

BLOOD GLUCOSE MONITORING SYSTEM



## User Manual

For single user / home use only

# Table of Contents

## Information

|  |    |
|--|----|
| Important Information:Read this First!           | 4  |
| Important Health-Related Information             | 5  |
| Specifications                                   | 6  |
| GLUCOCARD® Shine Blood Glucose Monitoring System | 7  |
| Inserting or Replacing the Batteries             | 8  |
| GLUCOCARD® Shine Blood Glucose Test Strip        | 9  |
| GLUCOCARD Shine Blood Glucose Meter              | 11 |
| GLUCOCARD Shine Blood Glucose Meter Display      | 12 |

## Preparation

|   |    |
|---|----|
| Setting up Your System                      | 13 |
| Adjusting the Date and Time                 | 13 |
| Setting the Sound On/OFF                    | 15 |
| Turn on the Strip Expiration Date Indicator | 16 |
| Turn on the Hypoglycemia (HYPO) Indicator   | 17 |
| Checking the System                         | 18 |
| Control Solution Testing                    | 19 |
| Comparing the Control Solution Test Results | 21 |

## Testing

|                                    |    |
|------------------------------------|----|
| Using the Lancing Device           | 22 |
| Preparing the Lancing Device       | 23 |
| Preparing the Meter and Test Strip | 25 |
| Flagging Post-meal Test Results    | 25 |
| Applying Blood Sample              | 26 |
| Discarding Used Lancets            | 28 |
| Alternative Site Testing           | 29 |
| HI and Lo Messages                 | 32 |
| Target Blood Glucose Ranges        | 33 |
| Transferring Test Results          | 33 |

## Additional Functions

|   |    |
|---|----|
| Meter Memory                                | 34 |
| Viewing Averages                            | 34 |
| Viewing Test Results                        | 36 |
| Setting the Post-meal Alarm (PP2 alarm)     | 37 |
| Setting the Strip Expiration Date Indicator | 38 |

## Maintenance

|  |    |
|--|----|
| Caring for Your System                 | 39 |
| Understanding Error and Other Messages | 44 |
| General Troubleshooting                | 46 |
| Performance Characteristics            | 47 |
| Warranty Information                   | 50 |

## Important Information: Read this First!

To receive safe and optimum system benefits, please read the entire manual contents before using the system. Please note the following instructions:

- Do not use the system for the diagnosis or screening of diabetes.
- Use only fresh capillary whole blood samples for testing.
- Alternative site and fingertip test results may differ significantly due to rapid changes in the glucose level after eating, insulin injection or exercise.

### **Intended use:**

The GLUCOCARD Shine Blood Glucose Monitoring System is intended for the quantitative measurement of glucose in fresh capillary whole blood samples drawn from the fingertips and alternative sites such as the forearm, palm, thigh, and calf. Alternative site testing should be used only during steady-state blood glucose conditions. The GLUCOCARD Shine Blood Glucose Monitoring System is intended for self testing outside the body (*in vitro*) by people with diabetes at home as an aid to monitor the effectiveness of diabetes control. The system is intended to be used by a single person and should not be shared. It is not intended for use on neonates and is not for the diagnosis or screening of diabetes.

The GLUCOCARD Shine Blood Glucose Test Strips are for use with the GLUCOCARD Shine Blood Glucose Meter to quantitatively measure glucose in fresh capillary whole blood samples drawn from the fingertips and alternative sites.

The GLUCOCARD® Shine Control Solutions are for use with the GLUCOCARD Shine Meter and GLUCOCARD Shine Test Strips to check that the meter and the test strips are working together properly and that the test is performing correctly.

# Important Health-Related Information

---

- The GLUCOCARD Shine Blood Glucose Monitoring System is intended for *in vitro* (outside the body) diagnostic use only and for the quantitative measurement of glucose in capillary whole blood.
- The GLUCOCARD Shine Blood Glucose Monitoring System is intended for use by a single user only. Do not share the meter and lancing device with another person.
- The GLUCOCARD Shine Blood Glucose Meter is designed to minimize code related errors in monitoring by using the no-coding function.
- The glucose in the blood sample mixes with special chemicals on the test strip to produce a small electrical current. The GLUCOCARD Shine Meter converts this electrical current to glucose concentration.
- The GLUCOCARD Shine Blood Glucose Meter should be used only with the GLUCOCARD Shine Test Strip.
- An abnormally high or low red blood cell count (hematocrit level over 60% or below 20%) may produce inaccurate results.
- Inaccurate results may occur in severely hypotensive (having low blood pressure) individuals or patients in shock. Inaccurate low results may occur for individuals experiencing a hyperglycemic (high blood sugar) or hyperosmolar state, with or without ketosis. Critically ill patients should not be tested with blood glucose meters.
- All parts of the kit are considered biohazardous and can potentially transmit infectious diseases, even after you have performed pre-cleaning and disinfection.

The GLUCOCARD Shine Blood Glucose Monitoring System is waived under CLIA document number CR?????. To obtain further information about this waiver, visit the FDA website at <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfclia/search.cfm>

- For questions or concerns, contact Customer Service: 800.566.8558, 24 hours a day, 7 days a week, US and Canada. At all other times or in case of emergency, please contact your healthcare professional or emergency medical response.

## Specifications

### • Product specifications

|                   |   |
|-------------------|---|
| Measurement range | 20-600 mg/dL  |
| Sample size       | Minimum 0.5 µL  |
| Test time         | 5 seconds   |
| Sample type       | Fresh capillary whole blood                           |
| Calibration       | Plasma-equivalent                                     |
| Assay method      | Electrochemical                                       |
| Battery life      | 1,000 tests   |
| Power             | Two 3.0 V lithium batteries (disposable, type CR2032) |
| Memory            | 500 test results                                      |
| Size              | 3.74 x 1.30 x 0.75 in                                 |
| Weight            | 1.45 oz (with batteries)                              |

### • Operating ranges

|                   |                    |
|-------------------|--------------------|
| Temperature       | 50-104°F (10-40°C) |
| Relative humidity | 10-90%             |
| Hematocrit        | 20-60%             |

# GLUCOCARD Shine Blood Glucose Monitoring System

## Components

**GLUCOCARD Shine BGM System includes the following items:**

- \* GLUCOCARD Shine Blood Glucose Meter
- \* User's Manual
- \* Quick Reference Guide
- \* Batteries

**GLUCOCARD Shine BGM System may include the following items:**

- \* GLUCOCARD Shine Blood Glucose Test Strips
  - \* Lancing Device
  - \* Lancets
  - \* Logbook
  - \* Carrying Case
- Check all the components after opening the GLUCOCARD Shine Blood Glucose Monitoring System package.
  - The GLUCOCARD Shine Control Solutions (Level 1 and 2) are necessary but not included. The GLUCOCARD Shine Control Solutions and the cable for the data transmission to a PC can be ordered separately. Please contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

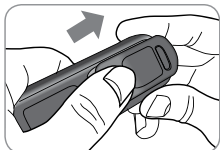
**Caution:** The meter and lancing device are only intended for a single user. Do not share them with anyone including other family members. Never use on multiple users.

# Inserting or Replacing the Batteries

The GLUCOCARD Shine Meter uses two 3.0 V lithium batteries. Before using the meter, check the battery compartment and insert batteries if empty. When the **+ -** symbol appears on the display for the first time, the batteries should be replaced as soon as possible. The test results might not be saved if the batteries run out.

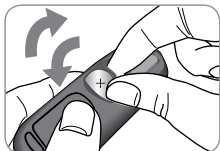
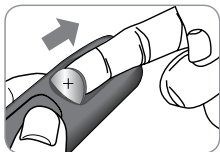
## Step 1

Make sure the meter is turned off. Press down and slide off the battery compartment cover.



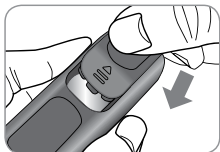
## Step 2

Remove the used batteries one at a time. Slip your index finger under the battery to lift and pull out as shown. Insert two new batteries with the + side facing up and make sure the batteries are inserted firmly in place.



## Step 3

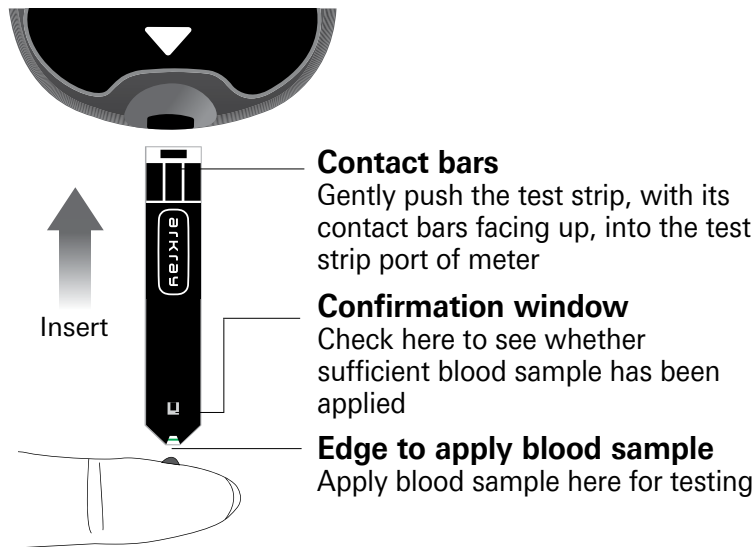
Place the cover on the battery compartment. Push down until you hear the tab click into place.



**Note:** Removing the meter batteries will not affect your stored result. However, you may need to reset your meter settings. See pages 13-17.

# GLUCOCARD Shine Blood Glucose Test Strip

The GLUCOCARD Shine Blood Glucose Monitoring System measures blood glucose quickly and accurately. It automatically absorbs the small blood sample applied to the narrow edge of the strip.



## Important Safety Instruction

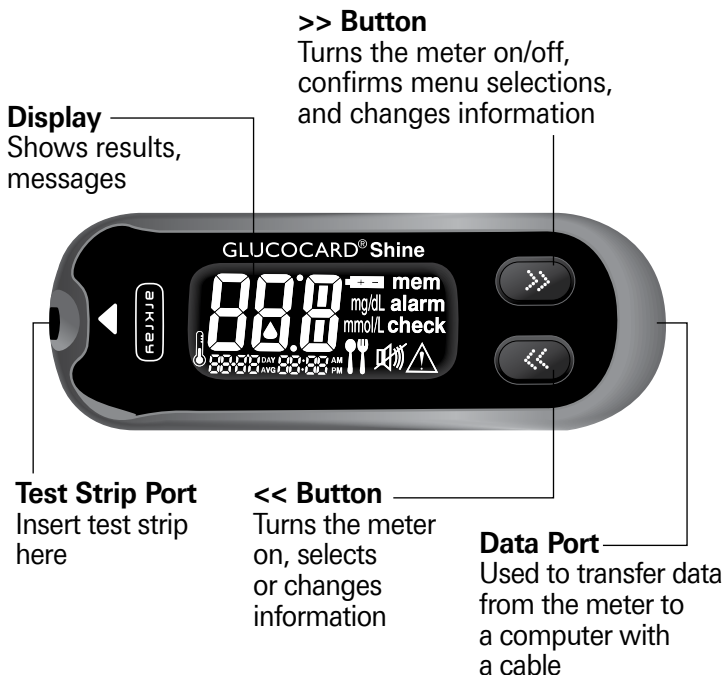
- All components that come into contact with blood samples should be considered to be biohazards capable of transmitting viral diseases, even after disinfection.
- Do not share your meter or lancing device with another person.



- The GLUCOCARD Shine Test Strip should be used only with fresh capillary whole blood samples.
- Do not reuse test strips.
- Do not use GLUCOCARD Shine Test Strips beyond the expiration date. This may cause inaccurate results.
- Test strips in new, unopened vials and test strips in vials that have been opened can be used until the expiration date printed on the test strip box and vial label if the test strips are used and stored according to its storage and handling methods.
- Store test strips in a cool and dry place at a temperature of 34-86°F (1-30°C).
- Keep test strips away from direct sunlight or heat and do not freeze.
- Store test strips only in their original vial.
- Close the vial tightly after taking out a test strip and use the test strip immediately.
- Handle test strips only with clean, dry hands.
- Do not bend, cut, or alter test strips in any way.
- For detailed storage and usage information, refer to the GLUCOCARD Shine Test Strip package insert.
- Keep the meter and testing supplies away from young children.

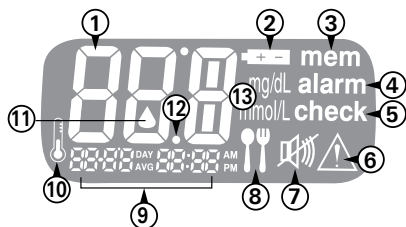
**Note:** You can get more safety information at FDA Public Health Notification (<http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/ucm224025.htm>) or at CDC Clinical Reminder (<http://www.cdc.gov/injectionsafety/Fingerstick-DevicesBGM.html>).

# GLUCOCARD Shine Blood Glucose Meter



**Note:** The cable for data transmission to a PC can be ordered separately. Please contact Customer Service, 800.566.8558.

# GLUCOCARD Shine Blood Glucose Meter Display



- ① **Test results:** test results displaying panel
- ② **Battery symbol:** indicates meter battery is running low and needs to be replaced
- ③ **mem:** appears when test results stored in the memory are displayed
- ④ **alarm:** appears when the post-meal alarm has been set
- ⑤ **check:** appears when test results have not been saved
- ⑥ **Hypoglycemia symbol:** appears when the test result is below the hypoglycemic level
- ⑦ **Mute symbol:** appears only when the sound is set to OFF
- ⑧ **Post-meal test flag:** appears during post-meal testing and when post-meal test results are displayed
- ⑨ **Month / Day / Hour / Minute**
- ⑩ **Temperature symbol:** displays recorded temperature when blood glucose levels are tested
- ⑪ **Blood insertion symbol:** indicates meter is ready for the application of a drop of blood or control solution
- ⑫ **Decimal point:** appears when the blood glucose measuring unit is set to mmol/L
- ⑬ **mg/dL, mmol/L:** unit for measuring blood glucose

**Note:** The unit of measurement is fixed in mg/dL and it cannot be changed to mmol/L by the user.

# Setting up Your System

Press and hold the >> button for 3 seconds to enter the set mode. After all settings are finished, press and hold the >> button for 3 seconds to turn off the meter.

Press << to reach the accurate value. Press and hold << to scroll faster.

## Adjusting the Date and Time

### Step 1 Entering the SET Mode

Press and hold the >> button for 3 seconds to enter the set mode. After all the segments flash across the screen, "SET" is displayed on the screen.

Press the >> button again to set the year.



### Step 2 Setting the Year

Press and release << to adjust until the correct year appears. After setting the year, press the >> button to confirm your selection and set the month.



### Step 3 Setting the Month

A number indicating the month will blink on the left corner of the screen. Press << until the correct month appears. Press the >> button to confirm your selection and set the day.



## Step 4 Setting the Date

Press << until the screen displays the correct day. Press the >> button to confirm the date and set the time.



## Step 5 Setting the Time Format

The meter can be set in the AM/PM (12-hour) or the 24-hour clock format. Press << to select a format. AM/PM is not displayed in the 24-hour format. After selecting the format, press the >> button to set the hour.



## Step 6 Setting the Hour

Press << until the correct hour appears. After the hour is set, press the >> button to set the minute.



## Step 7 Setting the Minute

Press << until the correct minute appears. After setting the minute, press the >> button to set the sound.



## Setting the Sound On/OFF

### Step 8


On pressing <<, the screen will display the "On" or "OFF". Press the >> button to confirm the selection and move to the next mode.

The meter will beep in the following instances, if set to On.

- When you push the >> button or << button to turn on the meter
- When the test strip is inserted in the meter
- When the blood sample is absorbed into the test strip and the test starts
- When the test result is displayed
- When you push the << button to set the post-meal (PP2) alarm
- When it is time for a preset blood glucose test



If the sound is set to OFF, none of the sound functions will work.

**Note:** When the sound is set to OFF, the  symbol appears on the display.

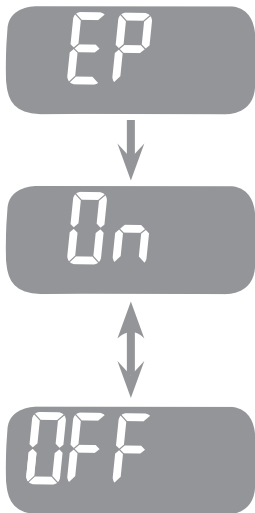
## Turn on the Strip Expiration Date Indicator

### Step 9

This mode allows you to turn the strip expiration date indicator on or off.

When "EP" blinks on the screen, press <<. The screen will display "On" or "OFF". Press the >> button to confirm the setting and move to the next mode.

This mode turns the function on or off only. See page 38 to set the strip expiration date.




**Note:** If the pre-set expiration date expires, the meter will display the following. For example, in the case when the expiration date is set to October of 2014, the meter displays "EP" at the start of November of 2014.



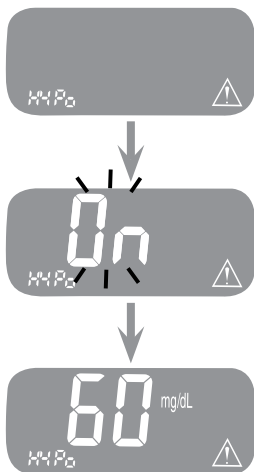
## Turn on the Hypoglycemia (HYPO) Indicator

### Step 10

This mode allows you to turn the hypoglycemia indicator (possible low blood sugar) on or off and to select the desired level for the indicator. You will be alerted any time your test result is lower than the selected level.

When "Hypo" is displayed (along with the hypoglycemia symbol ) , press <<. The screen will display "On" or "OFF". Press the >> button when "On" appears to set the desired level.

Then press << until the desired hypoglycemic level (between 20 and 60 mg/dL) is being displayed. Then press the >> button to confirm the level.



If you do not want to set the indicator, press the >> button while the screen displays "no". The screen will then return to step 2 (See page 13).

When you are done setting all the modes, turn the meter off by pressing and holding the >> button for 3 seconds.

**Note:** If the test result is lower than the pre-set hypoglycemia level, the meter will display the following.



**Caution:** Before the HYPO indicator is set, ask your doctor or diabetes nurse to help you decide what your hypoglycemia level will be.



# Checking the System



You should check your meter and test strips using the GLUCOCARD Shine Control Solutions (Control Level 1 and 2). The GLUCOCARD Shine Control Solutions contain known amounts of glucose and are used to check that the meter and the test strips are working properly. The test strip vials have GLUCOCARD Shine Control Solution ranges printed on their labels. Compare the result displayed on the meter to the GLUCOCARD Shine Control Solution range printed on the test strip vial. Before using a new meter or a new vial of test strips, you should conduct a control solution test following the procedure on pages 19-20 with two different levels of solutions (Control Level 1 and 2).

## Notes:

- GLUCOCARD Shine Meter and GLUCOCARD Shine Test Strips only can be used with GLUCOCARD Shine Control Solutions.
- Check the expiration dates printed on the bottle. When you first open a control solution bottle, record the discard date (date opened plus three (3) months) in the space provided on the label.
- Make sure your meter, test strips and control solutions are at room temperature before testing. Control solution tests must be done at room temperature 68-77°F (20-25°C).
- Before using the control solution, shake the bottle, discard the first 1 or 2 drops and wipe the tip clean.
- Close the control solution bottle tightly and store at a temperature of 46-86°F (8-30°C).

## You should do a control solution test:

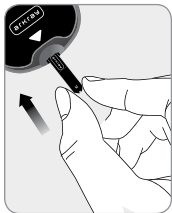
- When you want to practice the test procedure using the control solution instead of blood;
- When using the meter for the first time;

- Whenever you open a new vial of test strips;
- If the meter or test strips do not function properly;
- If your symptoms are inconsistent with the blood glucose test results and you feel that the meter or test strips are not working properly;
- If you drop or damage the meter;
- When using the meter for blood glucose test after any disinfection procedure.

## Control Solution Testing

### Step 1

Insert a test strip into the meter's test strip port, with the contact bars facing upwards. Gently push the test strip into the test strip port until the meter beeps. Be careful not to bend the strip while pushing it in. The ▲ symbol will be displayed on the screen.




### Step 2

Shake the GLUCOCARD Shine Control Solution bottle before each test. Remove the cap and squeeze the bottle to discard the first 1 or 2 drops.

Then wipe the tip with a clean tissue or cloth. After the ▲ symbol appears on the display, apply the solution to the narrow edge of the test strip until the meter beeps. Make sure the confirmation window fills completely.



**Note:** The meter will switch off, if the control solution sample is not applied within 2 minutes of the  symbol appearing on the screen. If the meter turns off, remove the strip, reinsert, and start from step 1.

### Step 3

A test result will appear after the meter counts down from 5 to 1. After your control solution result appears on the display, press << for 3 seconds until the 'check' symbol appears on the display.

When the 'check' symbol is displayed, the result is not stored in the meter's memory and is not included in the averages.



### Step 4

Compare the result displayed on the meter to the range printed on the test strip vial. The result should fall within that range. Used strips should be discarded safely in disposable containers.



**Caution:** The ranges printed on the test strip vial are for the GLUCOCARD Shine Control Solutions only. They do not have any connection to your blood glucose level.

## Comparing the Control Solution Test Results

The test result of each control solution should be within the range printed on the label of test strip vial. Repeat the control solution test if the test result falls outside of this range. Out of range results may occur due to the following factors:

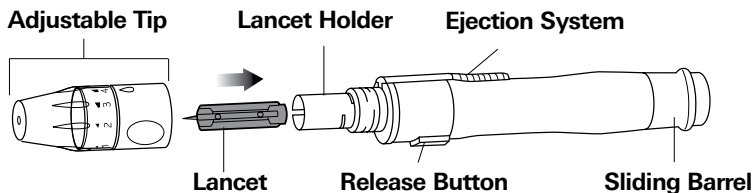
| Situations  | Actions   |
|---|---|
| <ul style="list-style-type: none"><li>• When the control solution bottle was not shaken well.</li><li>• When the meter, test strip, or the control solution were exposed to high or low temperatures.</li><li>• When the first drop of the control solution was not discarded or the tip of the bottle was not wiped clean.</li><li>• When the meter is not functioning properly.</li></ul> | Repeat the control solution test by referring to the "Notes" on page 18.                      |
| <ul style="list-style-type: none"><li>• When the control solution is past the expiration date printed on the bottle.</li><li>• When the control solution is past its discard date (the date the bottle was opened plus three (3) months).</li><li>• When the control solution is contaminated.</li></ul>  | Discard the used control solution and repeat the test using a new bottle of control solution. |

**Caution:** If results continue to fall outside the range printed on the test strip vial, the Test Strip and Meter may not be working properly. Do not use your system and contact Customer Service, 800.566.8558.

**Note:** The GLUCOCARD Shine Control Solution can be purchased separately. Contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

# Using the Lancing Device

You will need a lancing device in order to collect a blood sample. You may use the lancing device contained in the GLUCOCARD Shine Blood Glucose Monitoring System or any other medically approved lancing device.



- The lancing device is for use by a single user only and should not be shared with anyone including other family members.

## **CAUTION: To reduce the chance of infection**

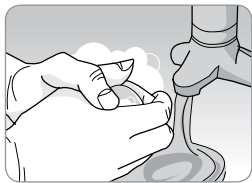
- All components that come into contact with blood samples should be considered to be biohazards capable of transmitting viral diseases, even after disinfection.
- Do not use a lancet that has been used by another person and never share your meter and lancing device with anyone.
- Wash your hands thoroughly with soap and water after handling your meter, lancing device, or test strips.
- Keep your meter and lancing device clean. See the pre-cleaning and disinfection section on page 40.

**Note:** Repeated puncturing at the same sample site may cause pain or skin calluses (thick hard skin). Choose a different site each time you test.

## Preparing the Lancing Device

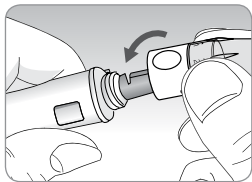
### Step 1

Wash hands and the site from where the blood sample will be drawn thoroughly with warm soapy water. Rinse and dry.



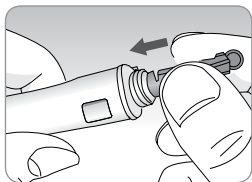
### Step 2

Unscrew and remove the adjustable tip.



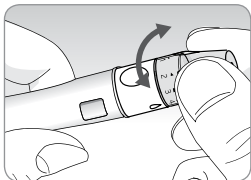
### Step 3

Insert a new disposable lancet firmly into the lancet holder. Twist off the protective cover of the lancet and set it aside, then replace the adjustable tip. Keep the protective cover to replace on top of the used lancet after testing.



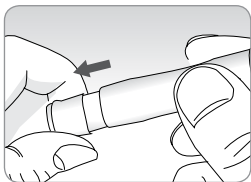
## Step 4

The lancing device has five puncture depth settings, numbered 1 through 5. The smaller numbers are for a shallower puncture, and the larger numbers are for a deeper puncture. Choose a depth of penetration by rotating the top portion of the adjustable tip until the setting number matches the arrow.



## Step 5

Cock the lancing device by holding the body in one hand and pulling on the sleeve with the other hand until the device clicks.

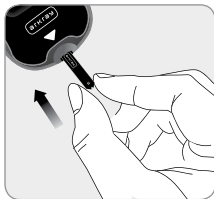


**Note:** The skin depth to retrieve samples will vary for various people at different sample sites. The lancing device's adjustable tip allows the best depth of skin penetration for an adequate sample size. A beginning setting of three (3) is recommended.

## Preparing the Meter and Test Strip

### Step 6

With the contact bars facing up, insert a test strip into the meter's test strip port. Push the strip gently into the strip port until the power automatically turns on and the ▲ symbol appears.



### Flagging Post-meal Test Results

The GLUCOCARD Shine Meter allows you to flag a result of a post-meal test with 🍴 symbol. The post-meal test flag (🍴) can be attached just before applying the blood sample. Once you attach the post-meal flag (🍴) to the test results, it cannot be deleted.

### Step 7

If you want to attach a post-meal flag (🍴) to a test result, press and hold << for 3 seconds after inserting the test strip. The post-meal flag (🍴) and the ▲ symbol will appear on the screen.

The test result will also be displayed with the post-meal flag (🍴).

If you do not want to save the result as a post-meal test, move on to the step 8 after the step 6.

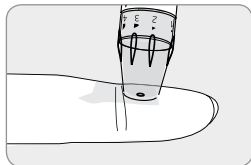




## Applying the Blood Sample

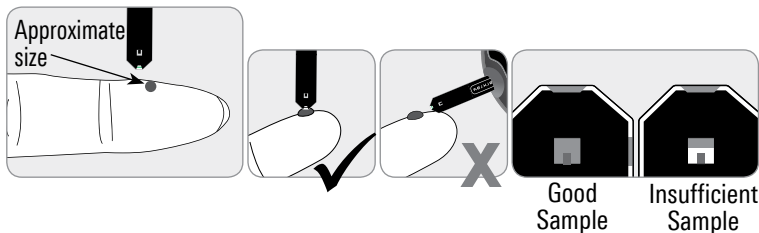
### Step 8

Obtain a blood sample using the lancing device. Place the device against the pad of the finger. The best puncture sites are on the middle or ring fingers. Press the release button. Remove the device from the finger. Wait a few seconds for a blood drop to form. A minimum volume of 0.5 microliter is needed to fill the confirmation window.



### Step 9

After the ▲ symbol appears on the screen, apply the blood sample to the narrow end of the test strip until the meter beeps. If the blood sample does not fill the confirmation window completely, an Er4 message may appear because of abnormal viscosity or insufficient volume. If an Er4 message appears, retest with a new test strip.



**Note:** The meter will switch off if the blood sample is not applied within 2 minutes of the ▲ symbol appearing on the screen. If the meter turns off, remove the strip, reinsert it, and apply the blood sample after ▲ symbol appears on the screen.

## Step 10

The test result will appear after the meter counts down from “5” to “1”. The result will be automatically stored in the meter’s memory.

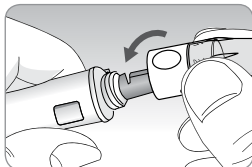
If the test strip is removed after the test result is displayed, the meter will automatically switch off after 3 seconds. Discard used test strip safely in a disposable container.



## Discarding Used Lancets

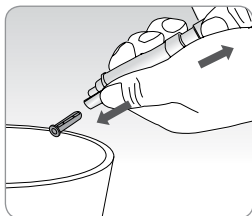
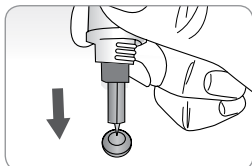
### Step 1

Unscrew the lancing device tip.



### Step 2

Place the protective cover on the lancet. Push the lancet ejector forward with the thumb and simultaneously pull out the sliding barrel to dispose of the used lancet in a proper biohazard container.



### Caution:

- Check for damages before using the lancet. If they have been damaged, please discard it and use other lancet.
- The lancet is very sharp. Please keep away from children.
- Keep the lancets in a cool and dry place.

**Caution:** The lancet is for single use only. Never share or reuse a lancet. Always dispose of lancets properly.

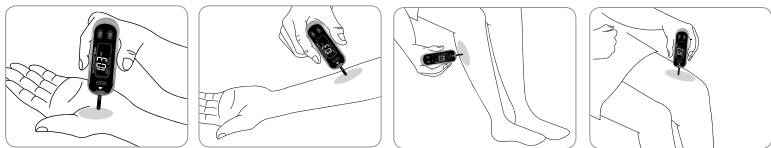
# Alternative Site Testing

## What is AST (Alternative Site Testing)?

Usually, when someone tests their glucose, they take the blood sample from the tip of the finger. However, since there are many nerve endings distributed there, it can be quite painful. When doing a glucose test, using different parts of the body, such as the forearms, palms, thighs, and calves, can reduce the pain during testing.

This method of testing with different parts of the body is called Alternative Site Testing. While AST may reduce the pain during testing, it may not be simple for everyone and the following precautions should be observed during testing.

### Alternative Sites for Testing



### Alternative Site Blood Sampling (forearm, palm, thigh, calf)

Select a clean, soft and fleshy sample site area free of visible veins and hair and away from bones. Gently massage the sample site to help blood circulation to minimize result differences between fingertip and alternative site sampling. Firmly press and hold the lancing device against site. Wait until the skin surface under the lancing device changes color. Then press the release button while continuing to apply pressure. Keep holding the lancing device against your skin until sufficient (at least 0.5  $\mu$ L) blood is drawn. Carefully lift the lancing device away from your skin.

**Caution:** AST results should never be used to calibrate Continuous Glucose Monitoring Systems nor entered into an insulin dosing calculator or pump for dosing recommendations.

## Things to know when using AST

Please understand the following before testing at sites other than the fingertip (forearms, palms, thighs, and calves). The capillary whole blood of the fingertips shows changes in glucose levels more rapidly than from alternative sites. Therefore, the test results from the fingertip testing and AST may differ. This is because things such as lifestyle and ingested food having an effect on glucose levels.

### Acceptable situations for AST

- Fasting period.
- Before a meal.

### Situations requiring fingertip test

- When the glucose levels are rapidly increasing, such as during the two (2) hours after a meal or exercise.
- When sick or when glucose levels seem quite lower than test value.
- When hypoglycemia is not well recognized.
- When insulin has the biggest effect.
- Two (2) hours after an insulin injection.

## AST Precautions

- Do not ignore the symptoms of hyperglycemia or hypoglycemia.
- When the results of the test do not reflect the way you feel, retest using the fingertip. If the fingertip result still does not reflect the way you feel, please consult your healthcare professional.
- Do not rely on AST results for changing your treatment method.
- The amount of glucose in alternative sites differs from person to person.
- Before using AST, please consult your healthcare professional.

**Note:** Results from alternative site and fingertip samples may differ from each other, as there is a time lag for the glucose levels to reach the same value. Use a fingertip sample if you suffer from hypoglycemia or have experienced hypoglycemic shock or symptoms.

**Note:** If the sample drop of blood runs or spreads due to contact with hair or with a line in your palm, do not use that sample. Try puncturing again in a smoother area.

# HI and Lo Messages

## HI Message

The meter displays results between 20-600 mg/dL. “HI” appears when the blood glucose level is greater than 600 mg/dL and indicates severe hyperglycemia (much higher than normal glucose levels).




If “HI” is displayed again on retesting, please contact your healthcare professional immediately.

## Lo Message

“Lo” appears when the result is less than 20 mg/dL and indicates severe hypoglycemia (very low glucose levels). If “Lo” is displayed again on retesting, please contact your healthcare professional immediately.



\* When the hypoglycemia indicator is on,  symbol also appears.



**Note:** If messages for hyperglycemia or hypoglycemia are displayed even if you do not have those conditions, please contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

# Target Blood Glucose Ranges

## Reminders

*Time of day*

*Your target ranges*

*from your healthcare professional*

**Before breakfast**

**Before lunch or dinner**

**1 hour after meals**

**2 hours after meals**

**Between 2 a.m. and 4 a.m.**

**Expected Values :** The range of a normal fasting\* blood glucose level for non-diabetic adults is between 70-99 mg/dL. Two (2) hours after a meal, the range of a normal blood glucose level for non-diabetic adults is between 100-139 mg/dL.

\*Fasting is defined as no caloric intake for at least eight (8) hours.

## Reference

American Diabetes Association. "Standards of Medical Care in Diabetes – 2012." *Diabetes Care*. January 2012; 35(1):S11-S63.

## Transferring Test Results

Test results stored in GLUCOCARD Shine meter can be transferred from the meter to a computer using PC care software and cable. The 'Pc' is displayed when the data cable connects the meter with computer.

For more information, contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.





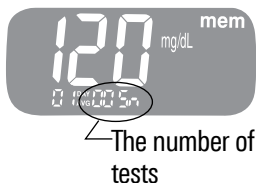
# Meter Memory

The GLUCOCARD Shine meter can save up to 500 glucose test results with time and date. If the memory is full, the oldest test result will be deleted and the latest test result will be stored. The GLUCOCARD Shine meter calculates and displays the averages of total test results, pre-meal test (Pr) results, and post-meal test (¶) results from the last 1, 7, 14, 30 and 90 days.

## Viewing Averages

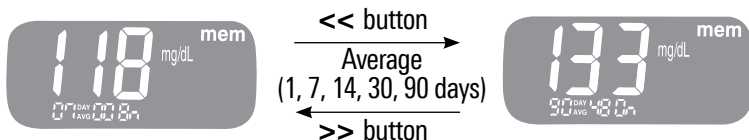
### Step 1

Press the << or >> button to turn the meter on. The current date and time will be displayed on the bottom of the screen for 2 seconds, followed by the 1 day average value and the number of the test results saved within the current day.



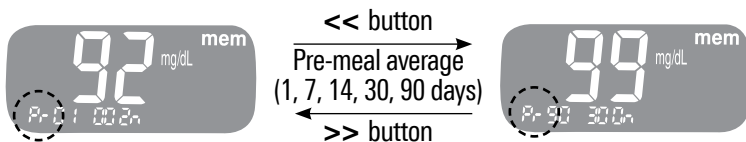
### Step 2 Viewing Averages

Press the << to view 7-, 14-, 30- and 90-day average values and the number of tests performed for the last test period.



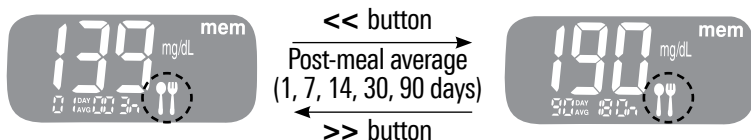
### Step 3 Viewing Pre-meal Averages

Repeatedly press the << to view 1-, 7-, 14-, 30- and 90-day average value and the number of tests performed pre-meals with the 'Pr' symbol for the last test period.



### Step 4 Viewing Post-meal Averages

On pressing the << again, 1-, 7-, 14-, 30- and 90-day average value and the number of tests performed post-meals for the last test period will appear on the screen. Hold the >> button to turn off the meter.

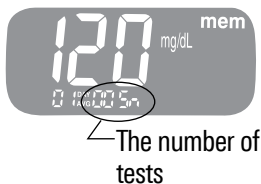


Use the >> button to scroll back through the averages seen previously.

## Viewing Test Results

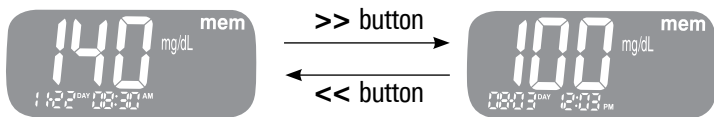
### Step 1

Press << or the >> button to turn the meter on. The current date and time will be displayed on the bottom of the screen for 2 seconds, followed by the 1 day average value and the number of the test results saved within the current day.



### Step 2

Use the >> button to scroll through the test results, starting from the most recent and ending with the oldest. Press the << to return to the result seen previously. The test date and the recorded temperature will display alternately. After checking the stored test result, hold the >> button to turn off the meter.



## Setting the Post-meal Alarm (PP2 Alarm)

The PP2 alarm goes off 2 hours after setting the alarm. The alarms ring for 15 seconds and can be silenced by pressing << or the >> button or by inserting a test strip.

### Step 1 Setting the PP2 alarm On

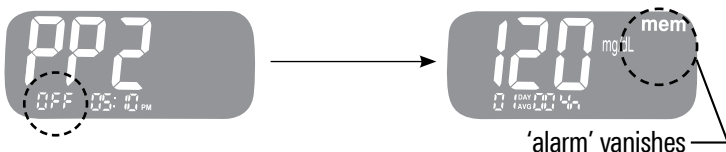
Without inserting a test strip, press and hold << for 3 seconds to set the post-meal alarm. The “PP2”, the “alarm” and then the “On” will be displayed.

The screen will then automatically change to the memory check mode. At this time, the “alarm”, indicating that the PP2 alarm has been set, will be displayed on the screen.



### Step 2 Setting the PP2 alarm OFF

To turn off the PP2 alarm, press and hold << for 3 seconds. The “PP2” and the “OFF” will appear on the screen. Then the screen will change automatically to the memory check mode without the “alarm” being displayed.



# Setting the Strip Expiration Date Indicator

The test strip expiration date indicator can be set in the GLUCOCARD Shine meter. The strip expiration date is printed on the test strip vial.

At any stage, if the >> button is pressed for 3 seconds, the meter will be turned off.

To turn on the indicator function, see page 16 to view how to turn on the indicator.

## Step 1 Enter the Expiration Date Setting

Press and hold the << and >> button at the same time for 3 seconds to enter the expiration date settings. After all segments flash across the screen, "EP" will be displayed on the screen. Press the >> button to change the date.

**Note:** The strip expiration date is printed on the test strip vial.

## Step 2 Setting the Year

A number indicating the year will blink in the left corner of the screen. Press the << button until the correct year appears.

Press the >> button to confirm the year and set the month.



## Step 3 Setting the Month

A number indicating the month will blink in the left corner of the screen.

Press the << button until the correct month appears. After finishing the setting, press and hold the >> button for 3 seconds to turn off the meter.



# Caring for Your System

- To minimize the risk of transmission of blood-borne pathogens, the pre-cleaning and disinfection procedure should be performed as recommended in the instructions below.
- Wash your hands thoroughly with soap and water after handling the meter, lancing device, or test strips.
- If the meter is being operated by a second person who is providing testing assistance to the user, the meter and lancing device should be disinfected prior to use by the second person.

## Pre-cleaning and Disinfection:

The pre-cleaning procedure is needed to clean dirt as well as blood and other body fluids on the exterior of the meter and lancing device before performing the disinfection procedure. The disinfection procedure is needed to prevent transmission of blood-borne pathogens.


- For the meter and lancing device, this pre-cleaning and disinfection procedure should be performed **once per week**.

### Note:

The life span of a GLUCOCARD Shine meter is 5 years. We recommend disinfecting both the meter and lancing device at least once per week. We have validated a total of 260 cleaning and disinfecting cycles (260 pre-cleaning and 260 disinfection cycles) to represent weekly cleaning and disinfecting over the use life of your meter and lancing device.

1 pre-cleaning and 1 disinfection cycles per week \* 52 weeks per year \* 5 years = 260 pre-cleaning and 260 disinfection cycles

- We have validated **Clorox Germicidal Wipes** with 0.55% sodium hypochlorite as the active ingredient for disinfecting the GLUCOCARD Shine Meter and lancing device. It has been shown to be safe for use with the meter and lancing device. This disinfectant is available commercially in towelette form. In addition to GLUCOCARD Shine BGMS instruction, **please read the instructions provided by the manufacturer of Clorox Germicidal Wipes before using it.**

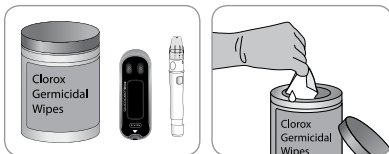
|                         |   |   |
|-------------------------|---|---|
| Name                    | Clorox® Germicidal Wipes  |   |
| Manufacturer            | <b>Clorox Professional Products Company</b><br>[Phone] 1 800 537 1415<br>[Website] <a href="http://www.cloroxprofessional.com">www.cloroxprofessional.com</a> |  |
| EPA registration number | 67619-12  |   |
| Active ingredients      | Sodium Hypochlorite: 0.55%  |   |

### Note:

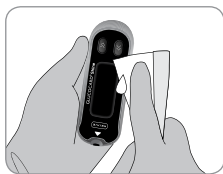
The disinfectant products can be purchased online retailers (e.g. Amazon) or by telephone at the manufacturer. To find out where to purchase the disinfectant product, please contact the manufacturer or visit their website as listed above.

## Pre-cleaning and Disinfection Procedures:

- ① Open the cap of the Clorox Germicidal Wipes container and pull out 1 towelette and close the cap.



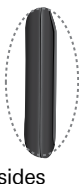
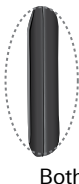
- ② Wipe the entire surface of the meter 3 times horizontally and 3 times vertically using one towelette to pre-clean blood and other body fluids.



Front

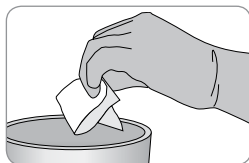


Back



Both sides

- ③ Dispose of the used towelette in a trash bin.

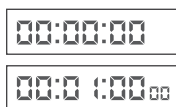


- ④ Pull out 1 new towelette and wipe the entire surface of the meter 3 times horizontally and 3 times vertically using a new towelette to remove blood-borne pathogens.



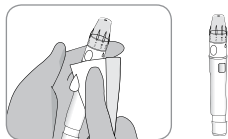
- ⑤ Dispose of the used towelette in a trash bin.

- ⑥ Allow exteriors to remain wet for 1 minute, then wipe the meter using a dry cloth.





- ⑦ Repeat the same procedure for the lancing device (step ① to step ⑥).



- \* After the pre-cleaning and disinfection procedure, the control solution should be tested to confirm that the meter works properly before using the meter. Control solution tests should be performed with two different levels of solutions (Control Level 1 and 2). Verify that the test results are within the range printed on the test strip vial. See pages 19-20 for how to do a control solution test.**

**Note:** If any of the following deterioration signs appear after pre-cleaning or disinfecting, please stop using the system and contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

- When the inscriptions on the exterior of the meter (or lancing device) have been removed.
- When the color of the meter (or lancing device) has changed or faded.
- When cracks or roughness develop on the meter (or lancing device).
- When a part of the segment on the meter display does not flash.
- When control solution test results do not fall within the stated range on the test strip vial.

**Caution:**






- Do Not use other cleaners or disinfectants because other chemicals have not been validated and may damage the meter.
- Do Not get fluids inside the meter through the test strip port, data transmission port or battery compartment. Never immerse the meter or hold it under running water because this will damage the meter.

**Caution : Storage and Handling**

- Do not expose the meter to direct sunlight or heat for extended periods of time.
- Do not let dirt, dust, blood, or water enter into the meter's test strip port.
- Do not drop the meter or subject it to strong shocks.
- Do not try to fix or alter the meter in any way.
- Keep the meter in a cool and airy place.
- Keep the meter away from strong electromagnetic field sources such as cell phones and microwave ovens.
- The GLUCOCARD Shine Meter should be used only with GLUCOCARD Shine Test Strips.
- Store all meter components in the carrying case to prevent loss.

**Note:** You can get additional information or technical assistance by calling our Customer Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada

## Understanding Error and Other Messages

|  |   |
|--|---|
|    | <p>A used test strip was inserted.</p> <p>&gt; Remove the strip and reinsert a new test strip.</p>  |
|    | <p>The blood or control solution sample was applied before the ▲ symbol appeared.</p> <p>&gt; Repeat the test with a new test strip and wait until the ▲ symbol appears before applying the blood or control solution sample.</p> |
|    | <p>The blood sample has abnormally high viscosity or insufficient volume.</p> <p>&gt; Repeat the test using a new test strip.</p>   |
|    | <p>This error message may appear when the wrong blood glucose test strip is used instead of GLUCOCARD Shine blood glucose test strip.</p> <p>&gt; Repeat the test with a GLUCOCARD Shine test strip.</p>                          |
|  | <p>There is a problem with the meter.</p> <p>&gt; Do not use the meter. Contact Customer Service at 800.566.8559, 24 hours a day, 7 days a week, US and Canada.</p>   |



The temperature during the test was above the operating range.

> Move to an area where the temperature is within the operating range (10-40°C/50-104°F) and repeat the test after the meter and test strips have reached a temperature within the operating range.



The temperature during the test was below the operating range.

> Move to an area where the temperature is within the operating range (10-40°C/50-104°F) and repeat the test after the meter and test strips have reached a temperature within the operating range.

**Note:** If the error messages persist, please contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

# General Troubleshooting

| Problem  | Troubleshooting  |
|--|--|
| The display is blank even after inserting a test strip.                    | <ul style="list-style-type: none"><li>• Check whether the test strip is inserted with the contact bars facing up. Check if the strip has been inserted completely into the test strip port.</li><li>• Check if the appropriate test strip was used.</li><li>• Check whether the batteries are inserted with the '+' side facing up.</li><li>• Replace the batteries.</li></ul> |
| The test does not start even after applying the blood sample on the strip. | <ul style="list-style-type: none"><li>• Check if the confirmation window is filled completely.</li><li>• Repeat the test after inserting a new test strip.</li></ul>   |
| The test result doesn't match the way you feel.                            | <ul style="list-style-type: none"><li>• Repeat the test after inserting a new test strip.</li><li>• Check the expiration date of the test strip.</li><li>• Check the meter.</li></ul>  |

**Note:** If the problem is not resolved, please contact Customer Service, 800.566.8558, 24 hours a day, 7 days a week, US and Canada.

## Performance Characteristics

The performance of GLUCOCARD Shine Blood Glucose Monitoring System has been evaluated in laboratory and clinical tests.

**ACCURACY:** The GLUCOCARD Shine BGM System is calibrated to yield results equivalent to plasma glucose concentrations. The accuracy of the GLUCOCARD Shine System was tested by comparing blood glucose results obtained by patients with those obtained using a YSI Model 2300 Glucose Analyzer, a lab instrument. The results below were obtained by diabetic patients at clinic centers.

|                            | Obtained by healthcare professionals | Obtained by lay users |
|----------------------------|--------------------------------------|-----------------------|
| Slope                      | 1.023                                | 1.006                 |
| Y-intercept                | -2.07 mg/dL                          | -0.41 mg/dL           |
| Correlation coefficient(r) | 0.996                                | 0.994                 |
| Number of sample           | 100                                  | 100                   |
| Range tested               | 66-321 mg/dL                         | 66-321 mg/dL          |

Accuracy results for glucose concentration < 75 mg/dL

| Within $\pm$ 5 mg/dL | Within $\pm$ 10 mg/dL | Within $\pm$ 15 mg/dL |
|----------------------|-----------------------|-----------------------|
| 5/5 (100%)           | 5/5 (100%)            | 5/5 (100%)            |

Accuracy results for glucose concentration  $\geq$  75 mg/dL

| Within $\pm$ 5% | Within $\pm$ 10% | Within $\pm$ 15% | Within $\pm$ 20% |
|-----------------|------------------|------------------|------------------|
| 79/95 (83.2%)   | 94/95 (98.9%)    | 95/95 (100%)     | 95/95 (100%)     |

**Precision:** Precision studies were performed in a laboratory using the GLUCOCARD Shine System.

*Within Run Precision*

|            |           |                |
|------------|-----------|----------------|
| *Bloodavg. | 39 mg/dL  | SD = 1.9 mg/dL |
| *Bloodavg. | 82 mg/dL  | SD = 2.7 mg/dL |
| *Bloodavg. | 145 mg/dL | CV = 2.9%      |
| *Bloodavg. | 179 mg/dL | CV = 3.9%      |
| *Bloodavg. | 341 mg/dL | CV = 2.5%      |

*Total Precision*

|              |           |                |
|--------------|-----------|----------------|
| *Controlavg. | 32 mg/dL  | SD = 1.7 mg/dL |
| *Controlavg. | 121 mg/dL | CV = 3.6%      |
| *Controlavg. | 354 mg/dL | CV = 4.3%      |

This study shows that there could be variation of up to 4.3%.

## Alternative Sites Testing Evaluation

- Comparison of results using various AST sites with the results of YSI measurements

Alternative site test results for glucose concentration < 75 mg/dL

|           | Within $\pm$ 5 mg/dL | Within $\pm$ 10 mg/dL | Within $\pm$ 15 mg/dL |
|-----------|----------------------|-----------------------|-----------------------|
| Fingertip | 5/5 (100%)           | 5/5 (100%)            | 5/5 (100%)            |
| Forearm   | 5/5 (100%)           | 5/5 (100%)            | 5/5 (100%)            |
| Palm      | 5/5 (100%)           | 5/5 (100%)            | 5/5 (100%)            |
| Thigh     | 4/5 (80%)            | 5/5 (100%)            | 5/5 (100%)            |
| Calf      | 3/5 (60%)            | 5/5 (100%)            | 5/5 (100%)            |

## Alternative site test results for glucose concentration $\geq 75$ mg/dL

|           | Within $\pm 5\%$ | Within $\pm 10\%$ | Within $\pm 15\%$ | Within $\pm 20\%$ |
|-----------|------------------|-------------------|-------------------|-------------------|
| Fingertip | 95/95 (100%)     | 95/95 (100%)      | 95/95 (100%)      | 95/95 (100%)      |
| Forearm   | 69/95 (72.6%)    | 91/95 (95.8%)     | 94/95 (98.9%)     | 95/95 (100%)      |
| Palm      | 61/95 (64.2%)    | 87/95 (91.6%)     | 93/95 (97.9%)     | 95/95 (100%)      |
| Thigh     | 56/95 (58.9%)    | 86/95 (90.5%)     | 86/95 (90.5%)     | 95/95 (100%)      |
| Calf      | 57/95 (60%)      | 87/95 (91.6%)     | 93/95 (97.9%)     | 95/95 (100%)      |



# Warranty Information

---

## **Manufacturer's Warranty**

ARKRAY USA, Inc. warrants that the GLUCOCARD Shine Meter shall be free of defects in material and workmanship in normal use for a period of five (5) years. The meter must have been subjected to normal use. The warranty does not cover improper handling, tampering, use, or service of the meter. Any claim must be made within the warranty period.

The ARKRAY USA, Inc. company will, at its discretion, repair or replace a defective meter or meter part that is covered by this warranty. As a matter of warranty policy, ARKRAY USA, Inc. will not reimburse the consumer's purchase price.

## **Obtaining Warranty Service**

To obtain warranty service, you must return the defective meter or meter part along with proof of purchase to ARKRAY USA, Inc.

## Welcome to the GLUCOCARD® Shine Blood Glucose Monitoring System

Thank you for choosing the GLUCOCARD® Shine Blood Glucose Monitoring System. The system provides you with safe, fast, and convenient blood glucose *in vitro* (i.e., outside the body) diagnostic monitoring. You can obtain accurate results in just 5 seconds with a small (0.5 µL) blood sample.

*Manufactured for:*

**ARKRAY USA, INC.**

Minneapolis, MN 55439 USA

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

Contact Customer Service:

**800.566.8558**

24 hours a day, 7 days a week, USA and Canada

At all other times or in case of emergency,  
please contact your healthcare professional or  
emergency medical response.

© 2014 ARKRAY USA, Inc.

P/N 5146099

PGK7E0150 Rev010/2014