

## Owner's Booklet

# CareSens™ PRO

Blood Glucose Monitoring System

- GDH-FAD Based Test Strips for Capillary and Venous Blood Samples
- 2.5" Large, Backlit Display
- Strip Ejector for Easy Ejection of Used Test Strips



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## Welcome to the CareSens™ PRO Blood Glucose Monitoring System

Thank you for choosing the CareSens™ PRO 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 (0.4 µL) blood sample.

- No part of this document may be reproduced in any form or by any means without the prior written consent of i-SENS.
- The information in this manual is correct at the time of printing. However, i-SENS reserves the right to make any necessary changes at any time without notice as our policy is one of continuous improvement.

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## Important Information: Read This First!


For optimum safety and benefits, please read the entire manual contents before using the system.


### Intended use:

CareSens PRO Blood Glucose Monitoring System is used for the quantitative measurement of the glucose level in capillary whole blood as an aid in monitoring diabetes management effectively at home or in clinical settings. Fresh venous whole blood drawn by healthcare professionals can be used also. CareSens PRO Blood Glucose Monitoring System should be used only for self-testing outside the body (*in vitro* diagnostic use only). CareSens PRO Blood Glucose Monitoring System should not be used for the diagnosis of diabetes. Testing sites include the traditional fingertip testing along with alternate site testing on forearm and palm.

### Meaning of Symbols Used:

 For *in vitro* diagnostic use

 This product fulfills the requirements for Directive 98/79/EC on *in vitro* diagnostic medical devices.

 Cautions for safety and optimum product use

 Do not discard this product with other household-type waste

 Use by  Authorised representative

 Do not reuse  Batch code

 Consult instructions for use  Manufacturer

 Temperature limitation  Serial number

- Glucose in blood samples reacts with the chemical in the test strip to produce a small electrical current. The CareSens PRO meter detects this electrical current and measures the amount of glucose in the blood sample.
- The CareSens PRO Blood Glucose Meter is designed to minimise code related errors in monitoring by using the no-coding function.
- The CareSens PRO Blood Glucose Meter should be used only with the CareSens PRO Test Strips.
- An abnormally high or low red blood cell count (hematocrit level over 65% or below 15%) may produce inaccurate results.
- If your blood glucose test result is below 60 mg/dL (3.3 mmol/L) or above 240 mg/dL (13.3 mmol/L), consult a healthcare professional immediately.
- Inaccurate blood glucose results may occur in severely hypotensive individuals or patients in shock. Inaccurate low blood glucose results may occur for individuals experiencing a hyperglycemic- hyperosmolar state, with or without ketosis. Critically ill patients should not be tested with blood glucose meters.
- Do not use during or within 24 hours of receiving xylose absorption testing as it may cause inaccurate results.

*If you need assistance, please contact your authorised i-SENS sales representative or visit [www.i-sens.com](http://www.i-sens.com) for more information.*

## Specifications

### Product specification

Measurement range	20-600 mg/dL (1.1-33.3 mmol/L)
Sample size	Minimum 0.4 µL
Test time	5 seconds
Sample type	Fresh capillary whole blood Fresh venous whole blood (healthcare professionals only)
Calibration	Plasma-equivalent
Assay method	Electrochemical
Battery life	3,000 tests
Power	Two 3.0 V lithium batteries (disposable, type CR2032)
Memory	1,000 test results
Size	106 x 58 x 17 (mm)
Weight	71.8 g (with batteries)

### Operating ranges

Temperature	5-45°C (41-113°F)
Hematocrit	15-65%
Relative humidity	10-90%

### Storage Conditions

Meter (with batteries)	0-50°C (32-122°F)
Test strip	1-30°C (34-86°F)

## CareSens PRO Blood Glucose Monitoring System

### CareSens PRO System includes the following items:

- \* CareSens PRO Blood Glucose Meter
- \* Owner's Booklet
- \* Batteries

### Optional items:

- \* CareSens PRO Blood Glucose Test Strips
- \* Quick Reference Guide
- \* Lancets
- \* Lancing Device
- \* Logbook
- \* Carrying Case

- Check all the components after opening the CareSens PRO Blood Glucose Monitoring System package. The exact contents are listed on the main box.
- The cable for data management software can be ordered separately. Please contact your authorised i-SENS sales representative.

## Inserting or Replacing the Batteries

The CareSens PRO 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 while the meter is in use, the batteries should be replaced as soon as possible. The test results may not be saved if the batteries run out.

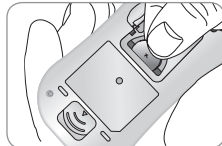
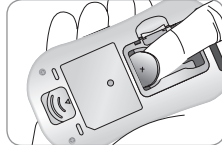
### Step 1

Make sure the meter is turned off. Push the cover in the direction of the arrow to open the battery compartment.



### 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 upwards and make sure the batteries are inserted firmly.



### Step 3

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



### Note:

Removing the meter batteries will not affect your stored results. However you may need to reset your meter settings. See page 14.

## Caring for Your System

Use a soft cloth or tissue to wipe the meter exterior. If necessary, dip the soft cloth or tissue in a small amount of alcohol.

Do not use organic solvents such as benzene or acetone, or household and industrial cleaners that may cause irreparable damage to the meter.

### Caution:

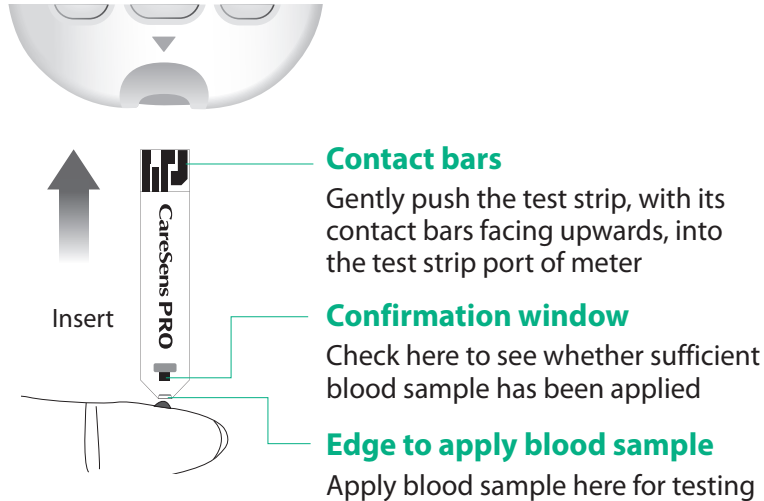
- Do not expose the meter to direct sunlight, heat, or excessive humidity for an extended period of time.
- Do not let dirt, dust, blood, or water enter into the meter's test strip port.
- Do not drop the meter or submit it to strong shock.
- Do not try to fix or alter the meter in any way.
- Strong electromagnetic radiation may interfere with the proper operation of this device. Keep the device away from sources of strong electromagnetic radiation, especially when measuring your blood glucose.
- Store all the meter components in the carrying case to prevent loss and help keep the meter clean.

### Disposal of the meter

If you need to throw your meter away, you should follow existing policies and procedures of your own country or region. For information about correct disposal, please contact your local council or authority. If you need assistance, contact your authorised i-SENS sales representative or visit [www.i-sens.com](http://www.i-sens.com).

# CareSens PRO Blood Glucose Test Strip

The CareSens PRO 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.



## Warning!

- The CareSens PRO Test Strip should be used with fresh capillary whole blood samples, or with fresh venous whole blood if drawn by healthcare professionals.
- Fresh venous whole blood specimens containing the anticoagulants EDTA and Heparin are acceptable. Iodoacetate or fluoride/oxalate are not recommended.

- Do not reuse test strips.
- Do not use test strips past the expiration or discard date.
- Use test strips within eighteen (18) months of opening the vial. Record the discard date (the date the vial was opened plus eighteen (18) months) on the vial label.
- Store test strips in a cool and dry place at a temperature between 1-30°C (34-86°F).
- 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 for testing and use the strip immediately.
- Handle test strips only with clean and dry hands.
- Do not bend, cut, or alter test strips in any way.
- For detailed storage and usage information, refer to the CareSens PRO test strip package insert.

## Caution:

- Keep the meter and testing supplies away from young children.
- Drying agents in the vial cap may be harmful if inhaled or swallowed and may cause skin or eye irritation.

## CareSens PRO Meter

### Data Port

Used to transfer data from the meter to a computer with a cable

### ◀▶ Button

Turns the meter on, selects or changes information

### Test Strip Port

Insert test strip here



### Display

Shows results, messages

### S Button

Turns the meter on/off, confirms menu selections, and changes information



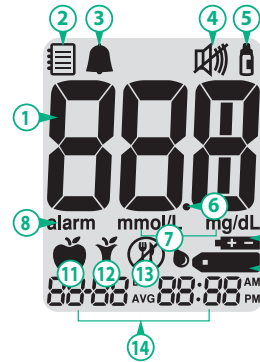
### Test Strip Ejector

Slide down to discard the used strips

### Note:

- The cable for data management software can be ordered separately. Please contact your authorised i-SENS sales representative.
- The unit of measurement is fixed and it cannot be changed by the user.

## CareSens PRO Meter Display



### ① Test results

② **Memory recall mode**: appears when test results stored in the memory are displayed

③ **PP2 alarm**: appears when the post-meal alarm has been set

④ **Mute symbol**: appears only when the sound is set to OFF

⑤ **Control Solution flag**: indicates that the meter is in Control Solution Test Mode and appears when the control solution test results are saved or displayed

### ⑥ Decimal point

⑦ **mmol/L, mg/dL**: unit for blood glucose

⑧ **alarm**: appears when the time alarm has been set

⑨ **Battery symbol**: indicates meter battery is running low and needs to be replaced

⑩ **Blood insertion symbol**: indicates meter is ready for the application of a drop of blood or control solution

⑪ **Pre-meal test flag**: used for tests done before eating

⑫ **Post-meal test flag**: used for tests done after eating

⑬ **Fasting test flag**: used for tests done after fasting for at least 8 hours

### ⑭ Month/Day/Hour/Minute

### Note:

It is recommended to check if the display screen on the meter matches the illustration above every time the meter turns on. Do not use the meter if the display screen does not exactly match the illustration as the meter may show incorrect results.

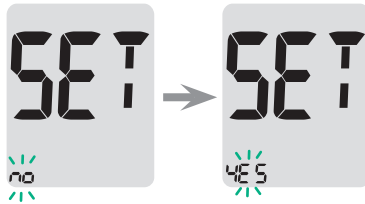


## Setting Up Your System

Press and hold the **S** button for 3 seconds to enter SET mode. After all settings are finished, press and hold the **S** button for 3 seconds to turn off the meter. Press the ◀ or ▶ button to change values. Press and hold the ◀ or ▶ button to scroll faster.

### Step 1 Entering SET Mode

Press and hold the **S** button for 3 seconds to enter SET mode. After all the segments flash across the screen, 'SET' will show up. Press the ◀ or ▶ button to select 'YES' and press the **S** button to go to the next step.



## Adjusting the Date and Time

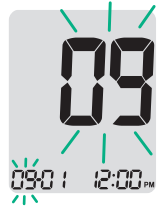
### Step 2 Setting the Year

Press the ◀ or ▶ button to adjust until the correct year appears. When the present year appears, press the **S** button to confirm your selection and to go to the next step.



### Step 3 Setting the Month

A number indicating the month will blink on the screen. Press the ◀ or ▶ button until the correct month appears. Press the **S** button to confirm your selection and to go to the next step.



### Step 4 Setting the Date

Press the ◀ or ▶ button until the screen displays the correct date. Press the **S** button to confirm the date and to go to the next step.



### Step 5 Setting the Time Format

The meter can be set in the AM/PM 12-hour or the 24-hour clock format. Press the ◀ or ▶ button to select a format. The AM•PM symbol is not displayed in the 24-hour format. After selecting the format, press the **S** button to go to the next step.



### Step 6 Setting the Hour

Press the ◀ or ▶ button until the correct hour appears.

After the hour is set, press the **S** button to go to the next step.



### Step 7 Setting the Minute

Press the ◀ or ▶ button until the correct minute appears.

After setting the minute, press the **S** button to go to the next step.



### Setting the Sound On/OFF

#### Step 8

On pressing the ◀ or ▶ button, the screen will display 'On' or 'OFF'. Press the **S** button to confirm the selection.


The meter will beep in the following instances if the sound is set to On:

- When you press a 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 press and hold the ◀ button to set the post-meal (PP2) alarm,
- When it is time for a pre-set blood glucose test.



If the sound is set to OFF, none of the sound functions will work. After setting the sound, press the **S** button to go to the next step.

#### Note:

The  symbol is displayed only when the sound is set to OFF.

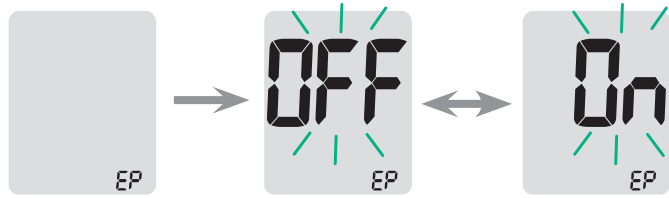
## Turning on the Strip Expiration Date Indicator

### Step 9

This setting allows you to turn the strip expiration date indicator on or off. This setting turns the function on or off only. See page 20 to set the strip expiration date.

When 'EP' appears on the screen, press the ◀ or ▶ button. The screen will display 'On' or 'OFF'. Press the **S** button to confirm the setting.

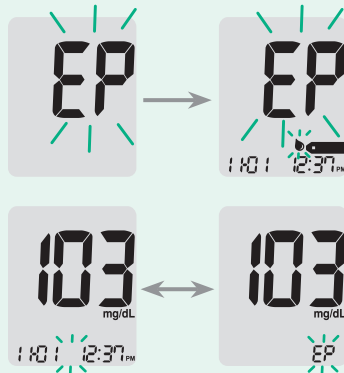
If you do not want to set the indicator, press the **S** button while the screen displays 'OFF'.



### Note:

If the pre-set expiration date is reached, the meter will display 'EP' when the test strip is inserted and when the test result is displayed right after the test.

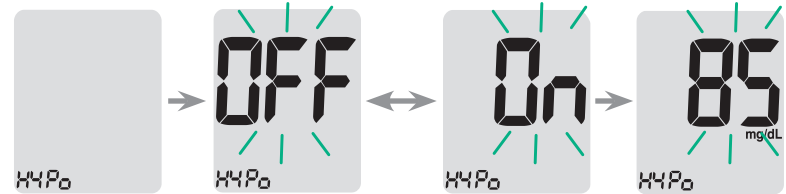
If the expiration date is set to October of 2020, the meter will display 'EP' at the beginning of November, 2020.



## Setting the Hypoglycemia (HYPO) Indicator

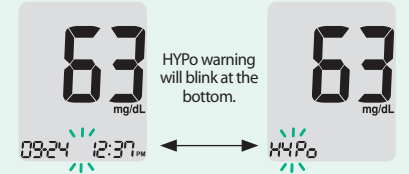
### Step 10

This setting 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. On pressing the ◀ or ▶ button, the screen will display 'On' or 'OFF'. Press the **S** button when 'On' appears to enter the setting. Press the ◀ or ▶ button until the desired hypoglycemia level between 20 and 90mg/dL (1.1–5.0 mmol/L) appears. Press the **S** button to confirm the hypoglycemia level and go to the next step.



### Note:

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



### Caution:

Ask your healthcare professional to help you decide what your hypoglycemia level is before setting your level.

## Setting the Strip Expiration Date Indicator

### Step 1 Entering the Expiration Date Setting

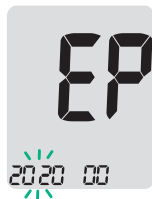
Press and hold the ◀ and ▶ buttons at the same time for 3 seconds to enter the expiration date settings. After all segments flash across the screen, 'EP' will show up.

#### Note:

The strip expiration date is printed on the test strip vial.

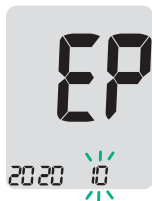
### Step 2 Setting the Year

A number indicating the year will blink at the bottom left corner of the screen. Press the ◀ or ▶ button until the correct year appears. Press the **S** button to confirm the year and set the month.



### Step 3 Setting the Month

A number indicating the month will blink at the bottom of the screen. Press the ◀ or ▶ button until the correct month appears. Press and hold the **S** button for 3 seconds to confirm the month and turn off the meter.



## Checking the System



You may check your meter and test strips using the CareSens PRO Control Solution (Control L and/or H). The CareSens PRO Control Solution contains a known amount of glucose and is used to check that the meter and the test strips are working properly. The CareSens PRO test strip vials have CareSens PRO Control Solution ranges printed on their labels. Compare the result displayed on the meter to the control solution range printed on the test strip vial. Before using a new meter or a new vial of test strips, you may conduct a control solution test following the procedure on pages 22–24.

#### Notes:


- Use only the CareSens PRO Control Solutions.
- Check the expiration date printed on the bottle. When you first open a CareSens PRO 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 solution are at room temperature before testing. Control solution tests must be done at room temperature (20-25°C/68-77°F).
- Before using the control solution, shake the bottle, discard the first few drops and wipe the tip clean.
- Close the control solution bottle tightly and store at a temperature between 8-30°C (46-86°F).

### You may 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 or a new box 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.



## Control Solution Testing

### Step 1 Inserting Test Strip

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




### Step 2 Activating Control Solution Test Mode


Press and hold the  button for 3 seconds to activate the Control Solution Test Mode. This will also flag the control solution test result. To undo the control solution flag, press and hold the  button for another 3 seconds.



### Step 3 Applying Control Solution to Test Strip

Shake the bottle before each test. Remove the cap and squeeze the bottle to discard the first drop. Then wipe the tip with a clean tissue or cloth. Dispense a drop of control solution onto a clean non-absorbent surface. It helps to squeeze a drop onto the top of the cap as shown. 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.

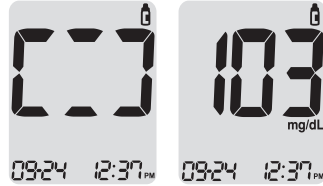


**Note:** The meter may switch off if the control solution sample is not applied within 2 minutes of the  symbol appearing on the screen. If the meter turns off, remove the strip, reinsert, and start from step 1.

#### Step 4 Waiting for the Result

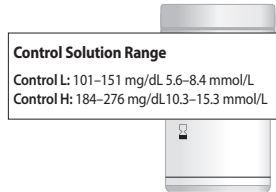
The display segments will rotate clockwise and a test result will appear after the meter counts down from 5 to 1.

The test result with control solution flag is stored in the memory but not included in the averages.



#### Step 5 Comparing the Result

Compare the result displayed on the meter to the range printed on the test strip vial. The result should fall within the range.



**Caution:** The range printed on the test strip vial is for the Control Solution only. It has nothing to do with your blood glucose level.

**Note:** The CareSens PRO Control Solution can be purchased separately. Please contact your authorised i-SENS sales representative.

#### Comparing the Control Solution Test Results

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

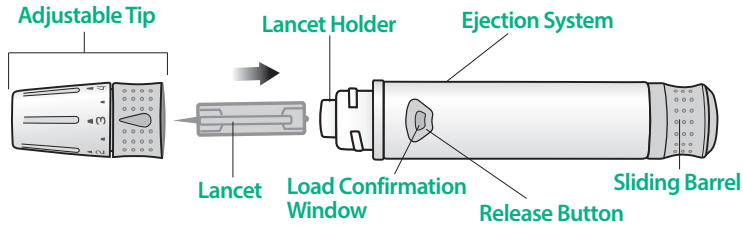
Situations	Do This
<ul style="list-style-type: none"><li>• When the control solution bottle was not shaken well,</li><li>• When the meter, test strip, or the control solution were exposed to high or low temperatures,</li><li>• When the first drop of the control solution was not discarded or the tip of 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 21.
<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,</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.

If results continue to fall outside the range, the test strip and meter may not be working properly. Do not use your system and contact i-SENS sales representative.

# Using the Lancing Device

You will need a lancing device in order to collect a blood sample.

You may use the lancing device that is included in the CareSens PRO 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.
- Use a soft cloth or tissue to wipe the lancing device. If necessary, a small amount of alcohol on a soft cloth or tissue may be used.

## Caution:

To avoid infection when drawing a sample, do not use a lancet more than once, and:

- Do not use a lancet that has been used by others.
- Always use a new sterile lancet.
- Keep the lancing device clean.

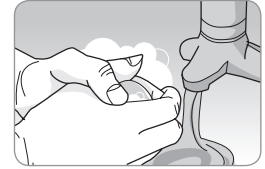
## Note:

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

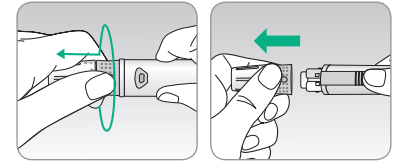
### Step 1

Wash hands and sample site with soap and warm water. Rinse and dry thoroughly.



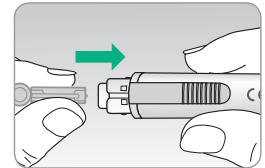
### Step 2

Unscrew and remove the lancing device tip.



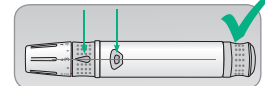
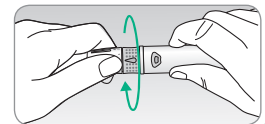
### Step 3

Firmly insert a new lancet into the lancet holder. Hold the lancet firmly. Gently twist to pull off protective disk. Save disk to recap lancet after use. Replace lancing device tip.



### Step 4

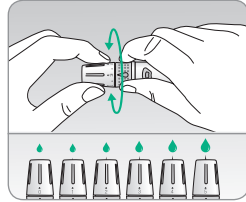
Turn the adjustable tip until it is aligned with the load confirmation window and release button as shown in the diagram.



# Blood Glucose Testing

## Step 5

The lancing device has six puncture depth settings (0 for a shallow puncture, 5 for a deeper puncture). Choose a depth by rotating the top portion of the adjustable tip until the desired number aligns with the arrow.

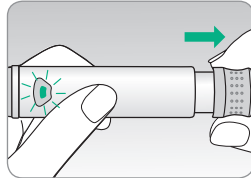


### Note:

0 = a shallow puncture for softer skin  
5 = a deeper puncture for thick or calloused skin

## Step 6


To cock the lancing device, hold the body of lancing device in one hand and pull the sliding barrel with the other hand. The device is loaded when you feel a click and the load confirmation window turns red.

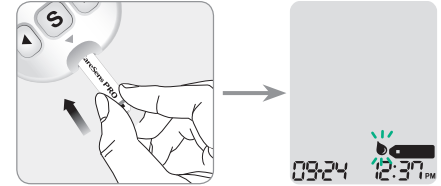


**Note:** The skin depth to get blood samples will vary for various people at different sample sites. The lancing device's adjustable tip allows the best depth of skin penetration to get an adequate sample size.

## Preparing the Meter and Test Strip


### Step 7

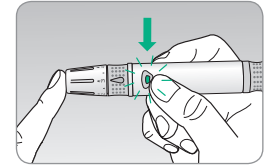
Insert a test strip with the contact bars facing upwards into the meter's test strip port. Push the strip in gently until the meter beeps. Be careful not to bend the test strip. The  symbol will appear on the screen.



## Applying 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. You need a minimum volume of 0.4 microliter for blood glucose test with CareSens PRO test strip. (Actual size of 0.4  $\mu\text{L}$ : )

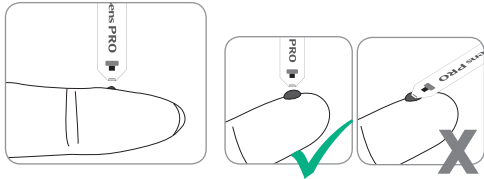




## Step 9

After the  symbol appears on the screen, apply the blood sample to the narrow end of the test strip till the meter beeps. If the confirmation window is not filled in time because of abnormal viscosity (thickness and stickiness) or insufficient volume, the Er4 message may appear.

It is recommended to place the test strip vertically into the blood sample site as shown below.




### Caution:

Do not allow any foreign substances, such as dirt, blood, or water, enter into the meter. The meter may be damaged or may malfunction. Follow the warning information provided below to prevent possible damage to the meter.

- Do not apply the blood sample directly to the test strip port.
- Do not apply the blood sample to the test strip while holding the meter in a way that the tip of the test strip faces upwards. The blood sample may run down the surface of the test strip and flow into the test strip port.
- Do not store your meter in unsanitary or contaminated sites.

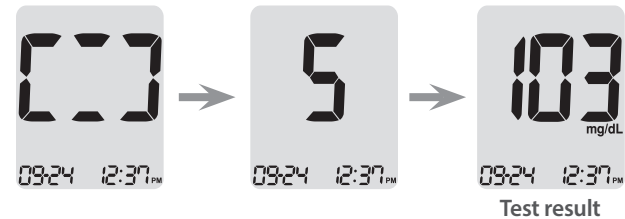
### Note:

The meter may 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 and reinsert it, and start from Step 7.

## Step 10

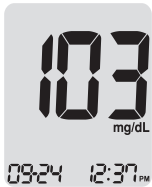
At this time, the display segments will rotate clockwise while the blood is going in.

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 strips safely in disposable containers.



## Step 11

You can attach a flag to a blood glucose test result to indicate particular situations while the strip is still in the meter. When the result is displayed right after a test, press ◀ or ▶ button to select a pre-meal flag (🍏), a post-meal flag (🍷), or a fasting flag (ⓧ). When you remove the test strip while the desired flag is blinking, the test result is stored with the flag. If you do not want to add any flags on the test result, remove the strip after the test result is displayed.



No flag



Pre-meal flag



Post-meal flag

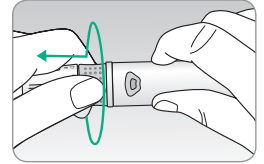


Fasting flag

## Discarding Used Lancets

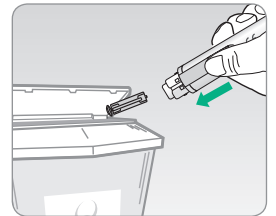
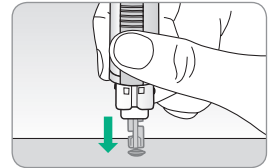
### Step 1

Unscrew the lancing device tip.



### Step 2

Stick the lancet into the saved protective disk. Push the lancet ejector forward with the thumb to dispose of the used lancet in a proper biohazard container.



### Caution:

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

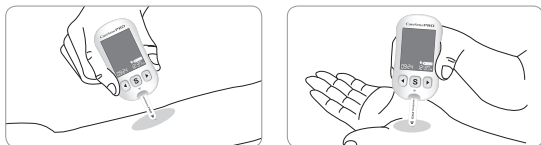
## Alternate Site Testing

**Before using AST, please consult your healthcare professional.**

### What is AST (Alternate Site Testing)?

Usually, we take the blood sample from the tip of the finger. However, since there are many nerve endings in the fingertip, it can be quite painful. When doing a glucose test, using different parts of the body such as the forearms and palms can reduce the pain during testing. This method of testing with different parts of the body is called Alternate 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.

#### Alternate Sites for Testing



### Alternate Site Blood Sampling (forearm and palm)

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 minimise result differences between fingertip and alternate 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 0.4  $\mu$ L, actual size: ●) blood is drawn. Carefully lift the lancing device away from your skin.

### Things to Know When Using AST

Please read the following before testing at alternate sites (forearms and palms).

The capillary whole blood of the fingertips reflects changes in glucose levels more rapidly than in alternate sites. The test results from the fingertip testing and AST may differ due to factors such as lifestyle and ingested food which affect glucose levels.

#### Acceptable Situations for AST

When your blood glucose levels are stable

- Fasting period
- Before a meal
- Before going to bed

#### Situations Requiring Fingertip Test

When your blood glucose levels are unstable

- During 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 recognised
- When insulin has the biggest effect
- During two (2) hours after an insulin injection

## HI and Lo Messages

### AST Precautions

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

### Note:

- Results from alternate sites 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 for testing if you suffer from hypoglycemia or have experienced hypoglycemic shock or symptoms.
- 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 Message

The meter displays blood glucose results between 20–600 mg/dL (1.1–33.3 mmol/L). 'HI' appears when the blood glucose level is greater than 600 mg/dL (33.3 mmol/L) and indicates severe hyperglycemia (much higher than normal glucose levels).



If 'HI' is displayed again upon retesting, please contact your healthcare professional immediately.

### Lo Message

'Lo' appears when a blood glucose test result is less than 20 mg/dL (1.1 mmol/L) and indicates severe hypoglycemia (very low glucose levels).



If 'Lo' is displayed again upon retesting, please contact your healthcare professional immediately.

### Note:

Please contact your authorised i-SENS sales representative if such messages are displayed even though you do not have hyperglycemia or hypoglycemia.

## Target Blood Glucose Ranges

Reminders	Your target ranges from your healthcare professional
Time of day	
<b>Before breakfast</b>	
<b>Before lunch or dinner</b>	
<b>1 hour after meals</b>	
<b>2 hours after meals</b>	
<b>Between 2 a.m. and 4 a.m.</b>	

**Expected Values :** Normal blood glucose levels for an adult without diabetes are below 100 mg/dL (5.5 mmol/L) before meals and fasting\* and are less than 140 mg/dL (7.8 mmol/L) two hours after meals.

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

### Reference

American Diabetes Association (Standards of Medical Care in Diabetes - 2017. *Diabetes Care*, January 2017, vol. 40, Supplement 1, S11-S24)

## Transferring Test Results

Test results stored in CareSens PRO meter can be transferred from the meter to a computer using SmartLog software and cable. The meter screen displays 'Pc' when it is connected to the computer using the data cable. For more information, contact your authorised i-SENS sales representative or visit [www.i-sens.com](http://www.i-sens.com).



## Meter Memory

The CareSens PRO meter can save up to 1,000 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 meter calculates and displays the averages of total test results, pre-meal (🍏) test results, post-meal test (🍷), and fasting test results (🌙) from the last 1, 7, 14, 30 and 90 days.

## Viewing Averages Stored in Memory

### Step 1

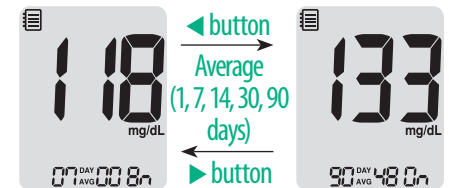
Press any button to turn the meter on. The current date and time will be displayed at the bottom of the screen followed by the 1 day average value and the number of the test results saved within the current day.



The number of tests within the current day

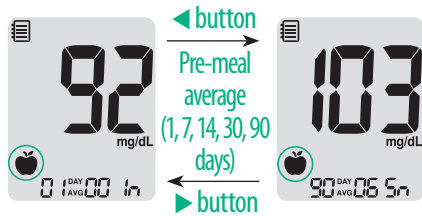
### Step 2 Viewing Averages

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



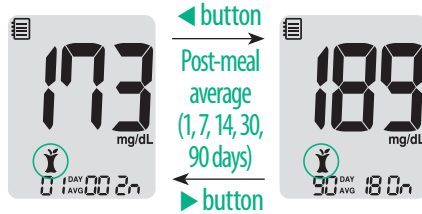
### Step 3 Viewing Pre-meal Averages

Repeatedly press the ◀ button to view 1, 7, 14, 30 and 90-day average values and the number of tests performed pre-meals with the 🍏 symbol for the last test period.



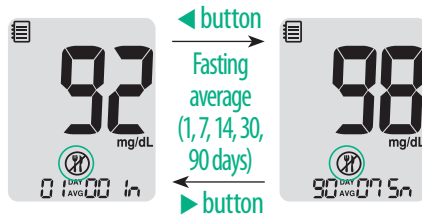
### Step 4 Viewing Post-meal Averages

Press the ◀ button to view 1, 7, 14, 30 and 90-day average values and the number of tests performed post-meals with the 🍷 symbol for the last test period.



### Step 5 Viewing Fasting Averages

Press the ◀ button to view 1, 7, 14, 30 and 90-day average values and the number of tests performed during fasting with the 🕒 symbol for the last test period.



### Step 6

Use the ▶ button to scroll back through the averages seen previously.  
Press the **S** button to turn off the meter.

#### Note:

The control solution test results saved with 🧪 symbol are not included in the averages.

## Setting the Alarm Function

### Viewing Test Results Stored in Memory

#### Step 1

Press any button to turn the meter on. The current date and time will be displayed on the bottom of the screen followed by the 1 day average value and the number of the test results saved within the current day.



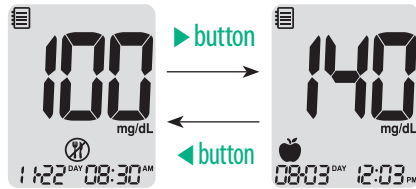
The number of tests within the current day

#### Step 2



Use the ► button to scroll through the test results, starting from the most recent and ending with the oldest.

Press the ◀ button to return to the results seen previously.

After checking the stored test results, press the **S** button to turn off the meter.



#### Note:

The control solution test results saved with the  symbol will be displayed with the  symbol when you review the stored test results.

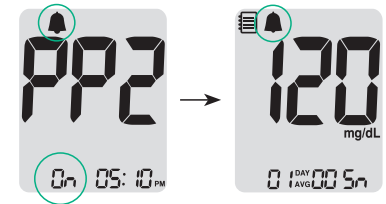
Four types of alarms can be set in the CareSens PRO Meter: one post-meal alarm (PP2 alarm) and three time set alarms (alarm1-3). The PP2 alarm activates 2 hours after setting the alarm. The alarms ring for 15 seconds and can be silenced by pressing any button or by inserting a test strip.

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

#### Step 1 Turning the PP2 alarm On

Without inserting a test strip, press and hold the ◀ button for 3 seconds to set the post-meal alarm.

'PP2', the bell (🔔) symbol and 'On' will be displayed. The screen will then automatically change to the memory recall mode. At this time, the bell (🔔) symbol, indicating that the PP2 alarm has been set, will be displayed on the screen.

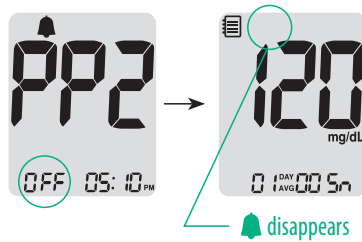


#### Note:

The PP2 alarm will automatically turn off if the meter's time setting is adjusted to more than two hours before or just past the currently activated PP2 alarm time.

## Step 2 Turning the PP2 alarm OFF

To turn off the PP2 alarm, press and hold the ◀ button for 3 seconds. 'PP2', the bell (🔔) symbol and 'OFF' will appear on the screen. Then the screen will change automatically to memory recall mode without the bell (🔔) symbol displayed.



## Setting the Time Alarms (alarm 1-3)

### Step 1

Without inserting a test strip, press the ◀ and S buttons simultaneously for 3 seconds to enter the time alarm setting. 'alarm1' will be displayed while 'OFF' blinks on the screen.



### Step 2

On pressing the ▶ button, 'alarm1' is set and 'On' is displayed on the screen. Press the ▶ button again to cancel 'alarm1'. 'OFF' will blink on the screen.



### Step 3

Press the ◀ button while 'On' blinks to adjust the time of 'alarm1'. A number indicating the hour will blink on the screen. Press the ▶ button to set the hour.





## Understanding Error Messages

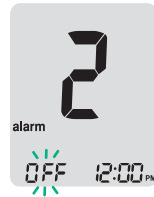
### Step 4

On pressing the ◀ button, the number indicating the minute will start blinking. Press the ▶ button to set the minute.



### Step 5

Press the **S** button to finish and to go to 'alarm2' mode. Repeat steps 2 to 4 to set the remaining time alarms (alarm2–3).





### Step 6

Press the **S** button for 3 seconds to finish and turn the meter off.

A digital display showing the error code 'Er 1'.

A used test strip was inserted.  
> Repeat the test with a new test strip.

A digital display showing the error code 'Er 2'.

The blood or control solution sample was applied before the  symbol appeared.  
> Repeat the test with a new test strip and wait until the  symbol appears before applying the blood or control solution sample.




A digital display showing the error code 'Er 3'.

The temperature during the test was above or below the operating range.  
> Move to an area where the temperature is within the operating range (5-45°C) and repeat the test after the meter and test strips have reached a temperature within the operating range.

A digital display showing the error code 'Er 4'.

The blood sample has abnormally high viscosity or insufficient volume.  
> Repeat the test with a new test strip.

## General Troubleshooting

	<p>This error message may appear when the wrong blood glucose test strip is used instead of the CareSens PRO test strip.</p> <p>&gt; Repeat the test with a CareSens PRO test strip.</p>
	<p>There is a problem with the meter.</p> <p>&gt; Do not use the meter. Contact your authorised i-SENS sales representative.</p>
	<p>An electronic error occurred during the test.</p> <p>&gt; Repeat the test with a new test strip. If the error message persists, contact your authorised i-SENS sales representative.</p>

### Note:

If the error messages persist, contact your authorised i-SENS sales representative.

Problem	Troubleshooting
<p>The display is blank even after inserting a test strip.</p>	<ul style="list-style-type: none"> <li>• Check whether the test strip is inserted with the contact bars facing upwards. 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 upwards.</li> <li>• Replace the batteries.</li> </ul>
<p>The test does not start even after applying the blood sample on the strip.</p>	<ul style="list-style-type: none"> <li>• Check if the confirmation window is filled completely.</li> <li>• Repeat the test with a new test strip.</li> </ul>
<p>The test result does not match the way you feel.</p>	<ul style="list-style-type: none"> <li>• Repeat the test with a new test strip.</li> <li>• Check the expiration or discard date of the test strip.</li> <li>• Perform control solution test.</li> </ul>

### Note:

If the problem is not resolved, please contact your authorised i-SENS sales representative.

## Performance Characteristics

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

**Accuracy:** The accuracy of the CareSens PRO Blood Glucose Monitoring System (Model: GM01HAA) was assessed by comparing blood glucose results obtained by patients with those obtained using a YSI Model 2300 Glucose Analyzer, a laboratory instrument.

The following results were obtained by diabetic patients at clinic centers.

Slope	0.9871
y-intercept	9.504 mg/dL (0.528 mmol/L)
Correlation coefficient (r)	0.9926
Number of sample	600
Range tested	32.4–606 mg/dL (1.8–33.7 mmol/L)

System accuracy results for glucose concentration < 100 mg/dL (5.55 mmol/L)

Within ± 5 mg/dL (Within ± 0.28 mmol/L)	Within ± 10 mg/dL (Within ± 0.56 mmol/L)	Within ± 15 mg/dL (Within ± 0.83 mmol/L)
89/150 (59.3%)	140/150 (93.3%)	150/150 (100%)

System accuracy results for glucose concentration ≥ 100 mg/dL (5.55 mmol/L)

Within ± 5%	Within ± 10%	Within ± 15%
180/450 (40.0%)	352/450 (78.2%)	442/450 (98.2%)

System accuracy results for glucose concentrations between 32.4 mg/dL (1.8 mmol/L) and 606 mg/dL (33.7 mmol/L)

Within ± 15 mg/dL (Within ± 0.83 mmol/L) and Within ± 15%
592/600 (98.7%)

**Precision:** The precision studies were performed in a laboratory using CareSens PRO Blood Glucose Monitoring Systems.

<i>Within Run Precision</i>		
Blood avg.	41 mg/dL (2.3 mmol/L)	SD = 2.2 mg/dL (0.1 mmol/L)
Blood avg.	73 mg/dL (4.1 mmol/L)	SD = 2.3 mg/dL (0.1 mmol/L)
Blood avg.	124 mg/dL (6.9 mmol/L)	CV = 3.2%
Blood avg.	182 mg/dL (10.1 mmol/L)	CV = 3.0%
Blood avg.	316 mg/dL (17.6 mmol/L)	CV = 2.2%

<i>Total Precision</i>		
Control avg.	35 mg/dL (1.8 mmol/L)	SD = 1.9 mg/dL (0.1 mmol/L)
Control avg.	112 mg/dL (6.9 mmol/L)	CV = 3.4%
Control avg.	319 mg/dL (19.4 mmol/L)	CV = 3.7%

This study shows that there could be variation of up to 3.7%

### Packed Cell Volume (Hematocrit)

The hematocrit levels (15–65%) were tested to evaluate the effect of hematocrit level on measurement of glucose concentration.

Range (mg/dL (mmol/L))	Average of difference (Hct 15–65%)
30 to 50 (1.7 to 2.8)	-3.3–1.7 mg/dL (-0.2–0.1 mmol/L)
96 to 144 (5.3 to 8.0)	-3.6–1.7%
280 to 420 (15.5 to 23.3)	-8.9–6.2%

## Interferences

The effect of various interfering substances was evaluated in whole blood samples on glucose measurements.

NO	Interferent	Difference Averages	
		Interval 1 50–100 mg/dL (2.8–5.5 mmol/L)	Interval 2 250–350 mg/dL (13.9–19.4 mmol/L)
1	Ascorbic acid	-2.3 mg/dL	0.0%
2	Bilirubin	1.1 mg/dL	1.3%
3	EDTA	1.6 mg/dL	1.4%
4	Fructose	1.8 mg/dL	-0.3%
5	Galactose	-2.4 mg/dL	-0.2%
6	Heparin	-0.8 mg/dL	-0.8%
7	Maltose	-2.1 mg/dL	-1.4%
8	Maltotriose	-0.3 mg/dL	-0.1%
9	Maltotetraose	0.4 mg/dL	-0.7%
10	Mannose	-1.1 mg/dL	3.5%
11	Xylose	33.8 mg/dL	8.9%
12	2-deoxyglucose	2.4 mg/dL	0.2%
13	Acetaminophen	-0.9 mg/dL	2.7%
14	Cholesterol	0.7 mg/dL	-0.3%
15	Creatinine	0.2 mg/dL	-1.9%
16	D,L-arabinose	1.4 mg/dL	3.1%
17	Dopamine	0.4 mg/dL	-0.3%
18	Gentisic acid	0.8 mg/dL	2.7%
19	Glucosamine	-1.1 mg/dL	-2.7%

NO	Interferent	Difference Averages	
		Interval 1 50–100 mg/dL (2.8–5.5 mmol/L)	Interval 2 250–350 mg/dL (13.9–19.4 mmol/L)
20	Glutathione (Red)	-1.0 mg/dL	-0.8%
21	Hemoglobin	-5.6 mg/dL	-2.8%
22	Ibuprofen	1.7 mg/dL	-0.9%
23	Icodextrin	-2.8 mg/dL	-0.4%
24	L-DOPA	-2.4 mg/dL	0.0%
25	Methyl-DOPA	-0.9 mg/dL	-1.4%
26	Sodium salicylate	1.0 mg/dL	3.7%
27	Sucrose	-0.3 mg/dL	-1.1%
28	Tolazamide	-0.3 mg/dL	0.5%
29	Tolbutamide	1.8 mg/dL	3.5%
30	Triglyceride	-0.5 mg/dL	0.5%
31	Uric acid	-0.5 mg/dL	-0.6%
32	PAM	-1.8 mg/dL	1.6%

Compounds of xylose  $\geq 9.69$  mg/dL (0.54 mmol/L) at glucose concentrations of 50–100 mg/dL (2.8–5.6 mmol/L) may cause overestimation of blood glucose results.

### User Performance Evaluation

A study evaluating glucose values from fingertip capillary blood samples obtained by 100 lay persons showed the following results: 97.1% within  $\pm 15$  mg/dL ( $\pm 0.83$  mmol/L) of the medical laboratory values at glucose concentrations below 100 mg/dL (5.55 mmol/L), and 99% within  $\pm 15\%$  of the medical laboratory values at glucose concentrations at or above 100 mg/dL (5.55 mmol/L).

## Warranty Information

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### **Manufacturer's Warranty**

i-SENS, Inc. warrants that the CareSens PRO 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.

i-SENS 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, i-SENS 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 your nearest i-SENS sales or customer service representative.