



SPiR!T[®]
HEALTHCARE

i.sens

Owner's Booklet

CareSens[™] **N**

Blood Glucose Monitoring System

SPiR!T[®]
HEALTHCARE

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No
Coding



Easy & Accurate Testing

0.5 μ L



Very Small Sample

(● : actual size shown)

5 Sec



Rapid Test Result



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- 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.

Welcome to the CareSens **N** Blood Glucose Monitoring System

Thank you for choosing the CareSens **N** Blood Glucose Monitoring System. The system provides you with safe, convenient and less painful 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 μ L) blood sample.

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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:

Intended use













The **CareSens N** Blood Glucose Monitoring System is used for the quantitative measurement of glucose level in capillary whole blood as an aid in monitoring diabetes management effectively at home or in clinical settings.

CareSens N Blood Glucose Monitoring System should be used only for self-testing outside the body (*in vitro* diagnostic use only).

CareSens N Blood Glucose Monitoring System should not be used for the diagnosis of diabetes or for testing newborns.

Testing sites include the traditional fingertip testing along with alternative site testing on forearms and palms.

The following chart explains the symbols you'll find in the **CareSens N** Owner's Booklet, product packaging, and product inserts.

	For <i>in vitro</i> diagnostic use
	This product fulfills the requirements for Directive 98/79/EC on <i>in vitro</i> diagnostic medical devices
	Cautions for safety and optimum product use
	Consult instruction for use
	Manufacturer
	Authorised representative
	Do not reuse
	Batch code
	Do not discard this product with other household-type waste
	Serial number
	Use by (unopened or opened test strip vial)
	Temperature limitations

Important Information:

- The **CareSens N** Blood Glucose Monitoring System is intended for self-testing outside the body (*in vitro* diagnostic use) only.
- Glucose in blood samples reacts with the chemical in the test strip to produce a small electrical current.
- The **CareSens N** Blood Glucose Meter detects this electrical current and measures the amount of glucose in the blood sample.
- The **CareSens N** Blood Glucose Meter is designed to minimise code related errors in monitoring by using the no-coding function.
- The **CareSens N** Blood Glucose Meter should be used only with the **CareSens N** Blood Glucose Test Strips distributed by UK Spirit Healthcare Ltd.
- An abnormally high or low red blood cell count (haematocrit level over 65% or below 15%) may produce inaccurate results.
- If your test result is below 3.3 mmol/L or above 13.3 mmol/L, consult a healthcare professional immediately.
- Alternative site and fingertip test results may differ significantly due to rapid change in the blood glucose level after meal, insulin injection, or exercise.
- Inaccurate results may occur in severely hypotensive individuals or patients in shock. Inaccurate low results may occur for individuals experiencing a hyperglycaemic-hyperosmolar state, with or without ketosis. Critically ill patients should not be tested with blood glucose meters.
- Inaccurate results may occur in patients undergoing oxygen therapy.

If you need assistance, please contact Spirit Healthcare Customer Support at 0800 881 5423 for more information.

Specifications

Product specifications

Measurement range	1.1-33.3 mmol/L
Sample size	Minimum 0.5 µL
Test time	5 seconds
Sample type	Fresh capillary whole blood
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	93 X 47 X 15 mm
Weight	51.5 g (with batteries)

Operating ranges

Temperature	5-50°C (41-122°F)
Relative humidity	10-90%
Haematocrit	15-65%

Storage Conditions


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

CareSens **N** Blood Glucose Monitoring System

Components

- ▶ **CareSens **N** Blood Glucose Meter**
 - ▶ **CareSens **N** Blood Glucose Test Strips**
- For Box Meters
 - ▶ CareLance (Lancing Device)
 - ▶ Lancets
 - ▶ Owner's Booklet
 - ▶ Quick Reference Guide
 - ▶ Logbook
 - ▶ Carrying Case
 - ▶ Batteries
- Before using the meter, check the battery compartment and insert batteries if empty.
 - Please contact Spirit Healthcare at 0800 881 5423 if any component is missing or damaged.
 - The data transmission cable can be ordered separately and software downloaded from the Spirit website www.spirit-healthcare.co.uk. Please contact Spirit Healthcare at 0800 881 5423.

Inserting or Replacing the Batteries

The **CareSens N** 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 completely.

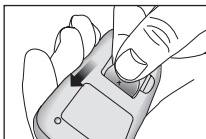
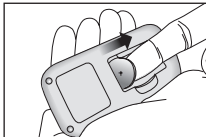
Step 1

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



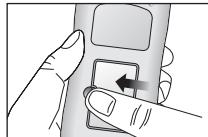
Step 2

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 up and make sure the batteries are firm in place.



Step 3

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



• Note :

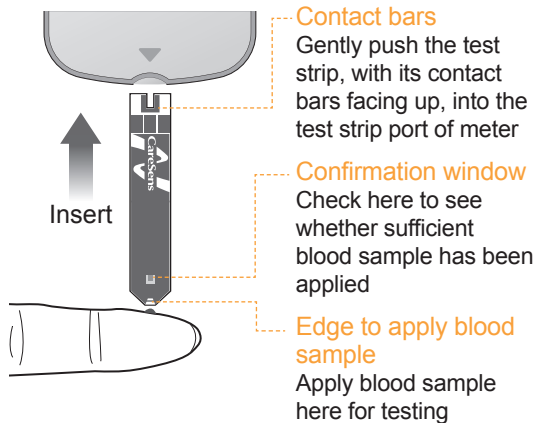
Removing the meter batteries will not affect your stored results. However you may need to reset your meter settings. See pages 20 -23.

• Note :

Batteries can be ordered free from Spirit Healthcare call 0800 881 5423.

CareSens **N** Blood Glucose Test Strip

The CareSens **N** 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!

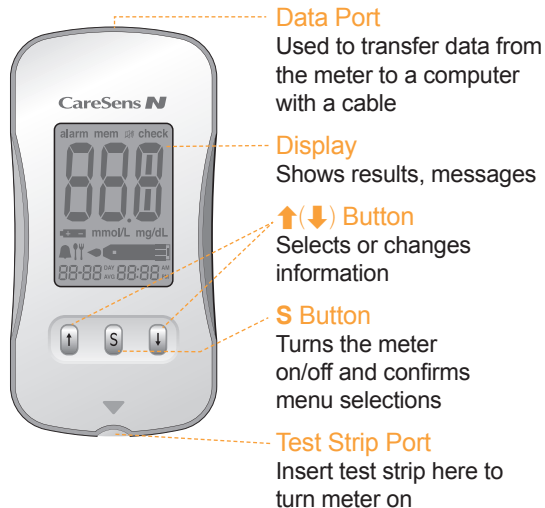
- The CareSens **N** Test Strips should be used only with fresh capillary whole blood samples.
- Do not reuse test strips.
- Do not use test strips past the expiration date.
- Test strips in new, unopened vials and test strips in vials that have been opened can be used up until the expiration date printed 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 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.

CareSens **N** Blood Glucose Meter

- 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 **N** Test Strip** package insert.

• Caution :

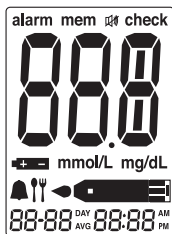
Keep the meter and testing supplies away from young children.
 The test strip vial contains drying agents that are harmful if inhaled or swallowed and may cause skin or eye irritation.








• Note:

The cable for data transmission to PC can be ordered separately. Please contact Spirit Healthcare at 0800 881 5423.

CareSens **N** Blood Glucose Meter Display



alarm	appears when the time alarm has been set
mem	appears when test results stored in the memory are displayed
	appears only when the sound is set to OFF
check	appears when the control solution test results are displayed
888	test results displaying panel (Decimal point appears when the blood glucose measuring unit is set to mmol/L)
	indicates meter battery is running low and needs to be replaced

mmol/L mg/dL	unit for measuring blood glucose
	appears when the post-meal alarm has been set
	appears during post-meal testing and when post-meal test results are displayed
	indicates meter is ready for the application of a drop of blood or control solution
88:88 DAY 88:88 PM	Day Month Hour Minute

Your meter has been preset and locked to display results in mmol/L (millimoles of glucose per litre) and it cannot be changed to mg/dL by the user.

Setting Up Your System

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

Press **↑** or **↓** to reach the accurate value.
 Press and hold **↓** to scroll faster.

Adjusting the Date and Time

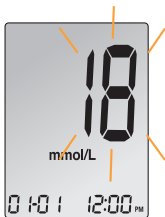
Step 1 Entering the SET Mode

Press and hold the **S** button for 3 seconds to switch on the meter. After all the segments flash across the screen, the 'SET' character will be displayed on the screen. Press the **S** button again to progress to setting the year.



Step 2 Setting the Year

Press and release **↑** or **↓** to adjust until the correct year appears. Press and hold **↓** button to scroll through the numbers quickly. After setting the year, press the **S** button to confirm your selection and progress to setting the month.



Step 3 Setting the Month

A number indicating the month will be blinking on the left corner of the screen. Press **↑** or **↓** until the correct month appears. Press the **S** button to confirm your selection and progress to setting the date.



Step 4 Setting the Date

Press **↑** or **↓** until the screen displays the correct date. Press the **S** button to confirm the date and progress to setting the time.



Step 5 Setting the Time

The meter can be set in the AM/ PM 12-hour or the 24-hour clock format. Press **↑** or **↓** 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 progress to setting the hour.



Step 6 Setting the Hour

Press **↑** or **↓** until the correct hour appears. After the hour is set, press the **S** button to progress to setting the minute.



Step 7 Setting the Minute

Press **↑** or **↓** until the correct minute appears. After setting the minute, press the **S** button to progress to setting the sound.



Setting the Sound On/OFF

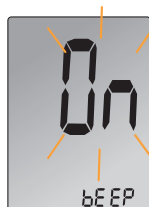
Step 8

On pressing **↑** or **↓**, the screen will display the On or OFF. Press the **S** button to confirm the selection. The meter will beep in the following instances if set to On.


- When you push the **S** 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.

To confirm all settings, press and hold the **S** button and the screen will switch off.



• Note :

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

At any stage, press the **S** button for 3 seconds to exit SET mode and turn off the meter.

Press and hold **↓** to quickly scroll through the numbers.

Checking the System

You may check your meter and test strips using the **CareSens** Control Solution (control A and/or B).

The **CareSens** Control Solution contains a known amount of glucose and is used to check that the meter and the test strips are working properly.

The test strip vials have **CareSens** Control Solution ranges printed on their labels. Compare the result displayed on the meter to the **CareSens** 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 page 26 to 30.



• Notes :


- Use only the **CareSens** Control Solution.
- Check the expiration dates printed on the bottle. When you first open a control solution bottle, record the discard date (date

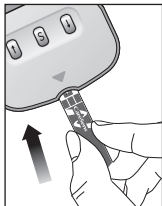
opened plus three (3) months) in the space provided on the label.

- Make sure your meter, test strips, and control solution are at room temperature before testing. Control solution tests must be done at room temperature of 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 of 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 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

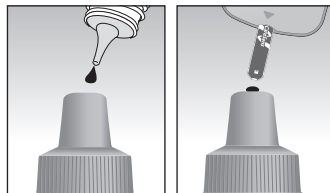
Insert a test strip into the meter's test strip port, with the contact bars facing upwards. Gently push the test strip into the port until the meter beeps. Be careful not to bend the strip while pushing it in. The  symbol will be displayed on the screen.




Step 2

Shake the CareSens Control Solution 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.

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.

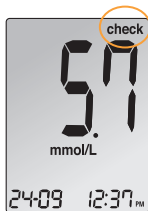


• Note :

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

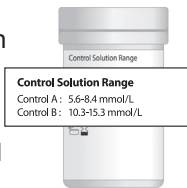
Step 3

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 till the 'check' symbol appears on the display. When the 'check' symbol is displayed, the result is stored in the meter's memory but it will not be 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 range printed on the test strip vial is for the **CareSens** Control Solution only. It does 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"> • When the control solution bottle was not shaken well, • When the meter, test strip, or the control solution were exposed to high or low temperatures, • When the first drop of the control solution was not discarded or the tip of the vial was not wiped clean, • When the meter is not functioning properly. 	Repeat the control solution test by referring to the "Notes" on pages 24-25.
<ul style="list-style-type: none"> • When the control solution is past the expiration date printed on the bottle, 	Discard the used control solution and repeat the

- | | |
|--|--|
| <ul style="list-style-type: none"> • When the control solution is past its discard date (the date the bottle was opened plus three months), • When the control solution is contaminated. | test using a new bottle of control solution. |
|--|--|

If results continue to fall outside the range printed on the test strip vial, the **CareSens N** Test Strip and meter may not be working properly. Do not use your system and contact your authorised i-SENS sales representative.

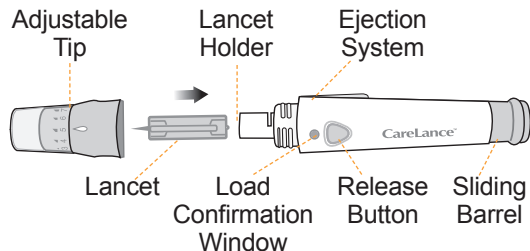
• **Note :**

CareSens Control Solution can be obtained separately from Spirit Healthcare on 0800 881 5423.

Using the Lancing Device

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

You may use CareLance contained in the **CareSens N** Blood Glucose Monitoring System or any other medically approved lancing device.



- The lancing device should not be used by more than one individual. Ensure the lancing device is not shared among different users.
- 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

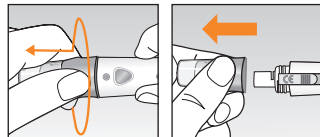
Step 1

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



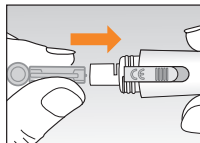
Step 2

Unscrew and remove the lancing device tip.



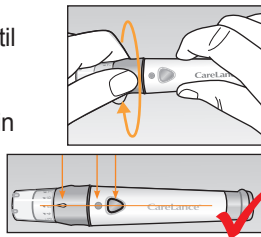
Step 3

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.



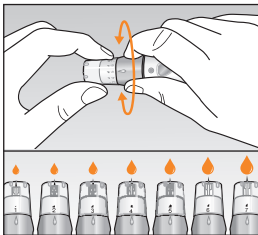
Step 4

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



Step 5

Select a desired depth of one-to-seven (1-7) on the lancing device's adjustable tip. Choose a depth by rotating the top portion of the adjustable tip until the setting number matches the arrow.

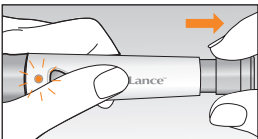


• Note :

- 1 = least penetration of lancet into the skin.
- 7 = most penetration of lancet into the skin.

Step 6

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



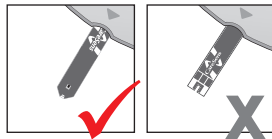
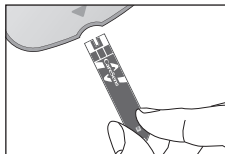
• Note :

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 may appear on the screen.



Flagging Post-meal Test Results

The CareSens **N** 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 8

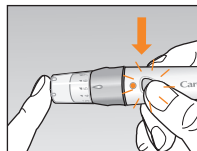
If you want to attach a post-meal flag() to a test result, press and hold  for 3 seconds after inserting the test strip. The post-meal flag() and the  symbol will appear on the screen. The test result will also be displayed with the post-meal flag(). If you do not want to save the result as a post-meal test, move on to step 9 after step 7.



Applying Blood Sample


Step 9

Obtain a blood sample using the lancing device. Place the device against the pad of the finger as shown in the diagram. Press the release button.

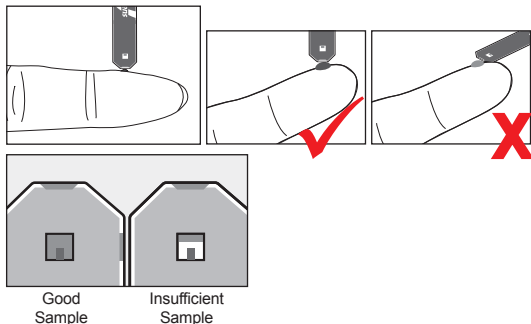


Remove the device from the finger. Wait a few seconds for a blood drop to form. A minimum volume of 0.5 microlitre is needed to fill the confirmation window. (Actual size of 0.5 µL : ●)



Step 10

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 that the application of blood sample to the test strip be performed virtually vertical to the sample site as shown in the diagram below.



• **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 apply blood sample after  symbol appears on the screen.

Step 11

Apply the blood sample to the narrow end of the test strip until you hear a 'beep'. At this time, the display segments will rotate clockwise on the meter display implying that the blood sample is being inserted.

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.

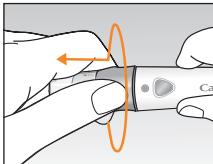
If the test strip is removed after the test result is displayed, the meter will automatically switch off after 3 seconds. Discard used test strips safely in appropriate containers.



Discarding Used Lancets

Step 1

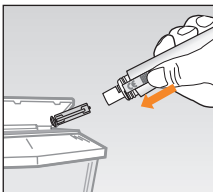
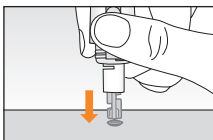
Unscrew lancing device tip.



Step 2

Place protective cover on lancet.

Pull out the sliding barrel and simultaneously push the lancet ejector forward with the thumb to dispose of the used lancet in a proper biohazard container.



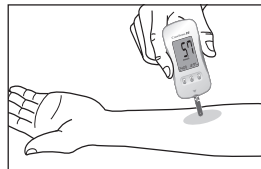
• Caution :

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

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 is 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 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)

Select clean, soft and fleshy sample site area free of visible veins and hair and away from bones. Gently massage sample site to help blood circulation to minimise 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 µL, 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 alternative sites (forearms and palms). The capillary whole blood of the fingertips reflects changes in glucose levels more rapidly than in alternative 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 sleeping

Situations Requiring Fingertip Test

When the glucose levels are unstable

- During the two hours after a meal or exercise
- When sick or when glucose levels seem quite lower than test value
- When hypoglycaemia is not well recognised
- 2 hours after an insulin injection

AST Precautions

- Do not ignore the symptoms of hyperglycaemia or hypoglycaemia.
- 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 one's treatment method.
- The amount glucose in alternative sites differs from person to person.
- Before using AST, please consult your healthcare professionals.

• **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 for drawing if you suffer from hypoglycaemia or have experienced hypoglycaemic shock or symptoms.

• **Note :**

If the sample drop of blood runs or spreads due to contact with hair or with lines on your skin, do not use that sample.
Try puncturing again in a smoother area.

HI and Lo Messages

HI Message

The meter displays results between 1.1-33.3 mmol/L. 'HI' appears when the blood glucose level is greater than 33.3 mmol/L and indicates severe hyperglycaemia (much higher than normal glucose levels).

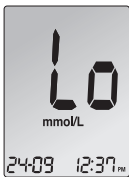
If 'HI' is displayed again upon retesting, please contact your healthcare professional immediately.



Lo Message

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

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



• **Note :**

Please contact Spirit Healthcare Customer Support at 0800 881 5423 if such messages are displayed even if you do not have hyperglycaemia or hypoglycaemia.

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 : 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 N** meter can be transferred from the meter to a computer using Data management software and cable. 'Pc' is displayed when the data cable connects the meter with computer.

For more information, please contact Spirit Healthcare Customer Support at 0800 881 5423 or visit www.spirit-healthcare.co.uk.



Meter Memory

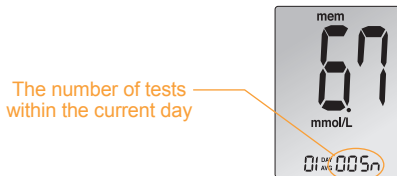
The **CareSens N** meter can save up to 1,000 glucose test results with time and date. If the memory is full, the oldest test result will be deleted and the latest test result will be stored.

The **CareSens N** meter calculates and displays the averages of total test results, pre-meal test (Pr) results, and post-meal test (\Uparrow) results from the last 1, 7, 14, 30 and 90 days.

Viewing Averages Stored in the Meter's Memory

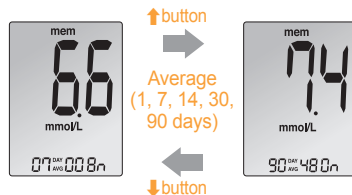
Step 1

Press the \uparrow or **S** 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.



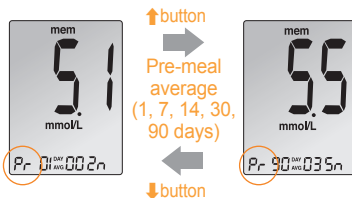
Step 2

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



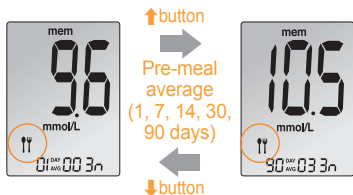
Step 3

Repeatedly press the \uparrow 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

Press the **↑** to view 1, 7, 14, 30 and 90 day average values and the number of tests performed for the last test period.



Step 5

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

• Note :

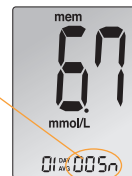
The control solution test results saved with 'check' are not included in the averages.

Viewing Test Results Stored in the Meter's Memory

Step 1

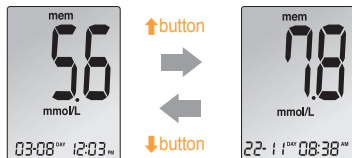
Press the **↑** or **S** button to turn the meter on. The current date and time will be displayed on the bottom of the screen for 2 seconds, followed by the 1 day average value and the number of the test results saved within the current day.

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 **↑** to return to the result seen previously.
 After checking the stored test result, press the **S** button to turn off the meter.



• **Note :**

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

• **Note :**

When the meter turns on, the 1 day average saved in the meter's memory will be displayed on the screen along with the number of the test results saved within the current day. Press and hold the **↓** to scroll through the test results or the averages.

Setting the Alarm Function

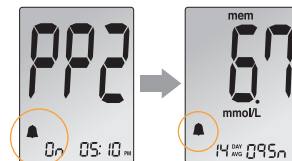
Four types of alarms can be set in the **CareSens N** meter: one post-meal alarm (PP2 alarm) and three time set alarms (alarm 1-3). The PP2 alarm goes off 2 hours after setting the alarm.

The alarms ring for 15 seconds and can be silenced by pressing **↑**, **↓** or the **S** button or by inserting a test strip.

Setting the Post-meal Alarm (PP2 alarm)

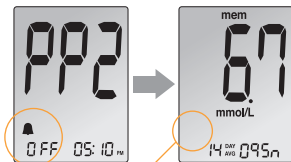
Step 1 Setting the PP2 alarm On

Without inserting a test strip, press and hold **↑** for 3 seconds to set the post-meal alarm. 'PP2', the **▲** symbol and 'On' will be displayed. The screen will then automatically change to the memory check mode. At this time, the **▲** symbol, 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. 'PP2', the **🔔** symbol and 'OFF' will appear on the screen. Then the screen will change automatically to the memory check mode without the **🔔** symbol displayed.



🔔 symbol disappears

Setting the Time Alarms (alarm 1-3)

Step 1

Without inserting a test strip, press **↑** and the **S** button simultaneously for 3 seconds to enter the time alarm mode. The 'alarm 1' will be displayed while the 'OFF' blinks on the screen.



Step 2

On pressing **↓**, the 'alarm 1' is set and the 'On' is displayed on the screen. Press **↓** again to cancel the 'alarm 1' and the 'OFF' will blink on the screen.



Step 3

Press **↑** to adjust the time of the 'alarm 1'. A number representing the time will blink on the screen. Press **↓** to set the time. Press **↓** to end.



Step 4

On pressing **↑**, the number indicating the minute will start blinking. Press **↓** to set the accurate minute.



Step 5

Press the **S** button to finish and to enter the 'alarm 2' mode. Repeat steps 2 to 5 to set the remaining time alarms (alarm 2-3).



Step 6

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

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, acetone, or any household and industrial cleaners that may cause irreparable damage to the meter.

• Caution

- Do not expose the meter to direct sunlight or heat 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 shocks.
- Do not try to fix or alter the meter in any way.
- Keep the meter in a cool and airy place.
- 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 the meter and testing supplies in the portable case to prevent loss.

Understanding Error Messages

	<p>A used test strip was inserted.</p> <ul style="list-style-type: none"> • Repeat the test with a new test strip.
	<p>The blood or control solution sample was applied before the  symbol appeared.</p> <ul style="list-style-type: none"> • Repeat the test with a new test strip and wait until the  symbol appears before applying the blood or control solution sample.
	<p>The temperature during the test was above or below the operating range.</p> <ul style="list-style-type: none"> • Move to an area where the temperature is within the operating range (5-50°C/ 41-122°F) and repeat the test after the meter and test strips have reached a temperature within the operating range.

	<p>The blood sample has abnormally high viscosity or insufficient volume.</p> <ul style="list-style-type: none"> • Repeat the test after inserting a new test strip.
	<p>This error message may appear when the wrong blood glucose test strip is used instead of CareSens N blood glucose test strip.</p> <ul style="list-style-type: none"> • Repeat the test with a CareSens N test strip.
	<p>There is a problem with the meter.</p> <ul style="list-style-type: none"> • Do not use the meter. Contact Spirit Healthcare Customer Support at 0800 881 5423.
	<p>An electronic error occurred during the test.</p> <ul style="list-style-type: none"> • Repeat the test with a new test strip. If the error message persists, contact your authorised i-SENS sales representative.

• **Note** : If the error messages persist, contact Spirit Healthcare Customer Support at 0800 881 5423.

General Troubleshooting

Problem	Troubleshooting
The display is blank even after inserting a test strip.	<ul style="list-style-type: none"> • 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. • Check if the appropriate test strip was used. • Check whether the batteries are inserted with the '+' side facing up. • Replace the batteries.
The test does not start even after applying the blood sample on the strip.	<ul style="list-style-type: none"> • Check if the confirmation window is filled adequately. • Repeat the test after inserting a new test strip.

Problem	Troubleshooting
The test result doesn't match the way you feel.	<ul style="list-style-type: none"> • Repeat the test after inserting a new test strip. • Check the expiration date of the test strip. • Perform control solution test.

• **Note :**

If the problem is not resolved, please contact Spirit Healthcare Customer Support at 0800 881 5423.

Performance Characteristics

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

Accuracy: The accuracy of the **CareSens N** BGM System (Model GM505PAD, GM505PBD, GM505PCD) was assessed by comparing blood glucose results obtained by patients with those obtained using a YSI Model 2300 Glucose Analyser, a laboratory instrument. The following results were obtained by diabetic patients at clinic centers.

Slope	0.946
y-intercept	0.37 mmol/L
Correlation coefficient(r)	0.994
Number of samples	600
Range tested	1.6-27.1 mmol/L

System accuracy results for glucose concentration < 5.55 mmol/L

Within \pm 0.28 mmol/L	100/186 (53.8%)
Within \pm 0.56 mmol/L	169/186 (90.9%)
Within \pm 0.83 mmol/L	180/186 (96.8%)

System accuracy results for glucose concentration \geq 5.55 mmol/L

Within \pm 5%	266/414 (64.3%)
Within \pm 10%	395/414 (95.4%)
Within \pm 15%	409/414 (98.8%)

System accuracy results for glucose concentrations between 1.6 mmol/L and 27.1 mmol/L

Within \pm 0.83 mmol/L and Within \pm 15 %
589/600 (98.2%)

Precision: The precision studies were performed in a laboratory using **CareSens N** BGM Systems.

Within Run Precision		
Blood avg.	2.1 mmol/L	SD = 0.1 mmol/L
Blood avg.	3.2 mmol/L	SD = 0.1 mmol/L
Blood avg.	6.7 mmol/L	CV = 3.6%
Blood avg.	9.7 mmol/L	CV = 2.8%
Blood avg.	16.8 mmol/L	CV = 3.2%

Total Precision		
Control avg.	2.2 mmol/L	SD = 0.1 mmol/L
Control avg.	6.7 mmol/L	CV = 3.5%
Control avg.	17.7 mmol/L	CV = 2.6%

This study shows that there could be variation of up to 3.6%.

Packed Cell Volume (Haematocrit)

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

Range (mmol/L)	Average of difference (Hct 15-65%)
1.7 to 2.8	-0.2-0.1 mmol/L
5.3 to 8.0	-1.5-7.1 %
15.5 to 23.3	-5.4-1.1 %

Interferences

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

NO	Interferent	Difference Averages	
		Interval1 (2.8-5.5 mmol/L)	Interval 2 (13.9-19.4 mmol/L)
1	Acetaminophen	-0.1 mmol/L	-3.3%
2	Ascorbic acid	0.4 mmol/L	-0.9%
3	Bilirubin (unconjugated)	-0.01 mmol/L	1.4%
4	Ceftriaxone	0.1 mmol/L	2.4%
5	Cholesterol	-0.1 mmol/L	-1.8%
6	Creatinine	0.01 mmol/L	0.7%
7	Dopamine	0.1 mmol/L	0.4%
8	EDTA	0.1 mmol/L	1.4%
9	Galactose	-0.1 mmol/L	-0.1%
10	Gentisic acid	-0.1 mmol/L	-4.4%
11	Glutathione(Red)	-0.2 mmol/L	0.6%
12	Hemoglobin	-0.01 mmol/L	-0.5%
13	Heparin	0.1 mmol/L	2.8%
14	Hydrocortisone	0.02 mmol/L	1.9%
15	Ibuprofen	-0.1 mmol/L	2.8%
16	Icodextrin	-0.2 mmol/L	-0.5%
17	L-Dopa	0.04 mmol/L	0.5%

NO	Interferent	Difference Averages	
		Interval1 (2.8-5.5 mmol/L)	Interval 2 (13.9-19.4 mmol/L)
18	Maltose	-0.4 mmol/L	-1.1%
19	Mannitol	0.1 mmol/L	-0.7%
20	Methyldopa	-0.03 mmol/L	0.2%
21	Pralidoxime Iodide	0.0 mmol/L	1.4%
22	Salicylate	0.1 mmol/L	-0.1%
23	Tolazamide	-0.3 mmol/L	-2.8%
24	Tolbutamide	-0.3 mmol/L	-7.3%
25	Triglycerides	-0.1 mmol/L	4.7%
26	Uric acid	-0.1 mmol/L	0.5%
27	Xylose	-0.04 mmol/L	-1.0%

User Performance Evaluation

A study evaluating glucose values from fingertip capillary blood samples obtained by 100 lay persons showed the following results:

100% within ± 0.83 mmol/L of the medical laboratory values at glucose concentrations below 5.55 mmol/L and 99.1% within $\pm 15\%$ of the medical laboratory values at glucose concentrations at or above 5.55 mmol/L.

Warranty Information

Manufacturer's Warranty

i-SENS, Inc. warrants that the 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 i-SENS 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, 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 to Spirit Healthcare. Please contact Customer Support on 0800 881 5423 for further information.

