

# Precision *Xtra*<sup>®</sup>

Blood Glucose & Ketone Monitoring System

## User's Manual



## Definition of Symbols

These symbols are associated with your meter.

	Batch code		This packaging is capable of being recycled
	Catalog number		Manufacturer
	Caution		Sterilized using irradiation (lancets only)
	Consult instructions for use		Temperature limitation
	Date of manufacture		Use by
	Do not drink		Serial Number
	Do not reuse		The batteries in this product should be removed and disposed in accordance with local regulations for separate collection of spent batteries.
	<i>In vitro</i> diagnostic medical device		

# Table of Contents

## Welcome

1

---

### 1 Important Things to Know about Your Precision Xtra Blood Glucose and Ketone Monitoring System

3

Intended Use

3

How Your Precision Xtra

Blood Glucose and Ketone Monitoring System Works

4

Precision Xtra Kit Contents

5

Getting to Know Your Meter's Features

6

---

### 2 Setting Up Your Precision Xtra Meter

9

Buttons to Use

9

Setup Options

9

How to Set the Beeper, Date, Time, & View

Measurement Units

10

Set Beeper

10

Set Time

11

Set Date

12

Set Time Format

14

Set Date Format

14

Blood Glucose Measurement Units

15

---

### 3 Monitoring Your Blood Glucose

16

What You Will Need

16

Important Information about Monitoring

Your Blood Glucose

16

How to Monitor Your Blood Glucose

17

Understanding Your Result

22

---

### 4 Monitoring Your Blood Ketone

25

What You Will Need

25

Important Information about Monitoring

Your Blood Ketone

25

How to Monitor Your Blood Ketone

27

Understanding Your Result

31

<b>5</b>	<b>Doing A Control Solution Test</b>	<b>34</b>
	Why Do A Control Solution Test?	34
	When Is Doing A Control Solution Test Recommended?	34
	Important Information about Control Solution Testing	34
	What You Will Need	35
	How to Do Control Solution Testing	35
	Understanding Your Result	39
<b>6</b>	<b>Reviewing &amp; Using Your Results</b>	<b>40</b>
	What Can Your Meter Show You?	40
	How to See Results in Memory	41
	How to See Averages	43
	Transferring Your Results to a Computer	44
<b>7</b>	<b>Understanding &amp; Troubleshooting Error Messages</b>	<b>45</b>
	What An Error Message Means & What You Need to Do	45
<b>8</b>	<b>Your Meter's Specifications &amp; Limitations</b>	<b>49</b>
	Important Information about Using Blood Samples from the Forearm, Upper Arm, or Base of the Thumb	51
<b>9</b>	<b>Caring For Your Meter</b>	<b>52</b>
	Cleaning Your Meter	52
	Replacing Your Meter's Battery	52
	<b>References</b>	<b>55</b>

## **Welcome**

Thank you for choosing the Precision Xtra® Blood Glucose and Ketone Monitoring System.

Important steps for using the System are inside this manual. Please read it carefully.

Your new Precision Xtra Blood Glucose and Ketone Monitoring System is an important tool that can help you better manage your diabetes. The System measures both blood glucose (sugar) and blood ketone. Blood glucose and blood ketone results can help you understand your diabetes and what happens with:

- Food
- Exercise
- Stress and illness
- Diabetes medications

Always monitor your blood glucose and blood ketone according to your healthcare professional's recommendations.

In the United States, call Customer Service at 1-800-527-3339 with any questions you may have about the Precision Xtra Blood Glucose and Ketone Monitoring System. We are available Monday through Friday, 8AM to 8PM Eastern Standard Time. If you cannot reach Customer Service, contact your healthcare professional.

Outside the United States, please contact your local Abbott Diabetes Care Inc. office or distributor.

Please read the following items before using your Precision Xtra Blood Glucose and Ketone Monitoring System:

- User's manual
- Blood glucose test strip instructions for use
- Blood ketone test strip instructions for use
- Lancing device instructions for use and other information
- Warranty card

**IMPORTANT:**

Any user's manual text shown in a shaded box like this one is important information. Please pay special attention to these boxes.

## Important Things to Know about Your Precision Xtra® Blood Glucose and Ketone Monitoring System

Questions?  
Call Customer Service:  
1-800-527-3339

### ► Intended Use

#### Your Precision Xtra System:

- Is indicated for home (lay user) or professional use in the management of patients with diabetes.
- Is for self testing or healthcare professional use outside the body (*in vitro* diagnostic use).
- Is for monitoring glucose in fresh whole blood (for example, from the fingertip).
- Is for monitoring ketone in fresh whole blood from the fingertip only.
- Measures  $\beta$ -hydroxybutyrate (ketone), the most important of the three ketone bodies circulating in the bloodstream.
- Use only **Precision Xtra®** Blood Glucose Test Strips and **Precision Xtra®** Blood  $\beta$ -Ketone Test Strips. Other test strips may produce inaccurate results.
- Please refer to your test strip instructions for use for important information about sample types that may be used with these test strips.



## Healthcare Professionals:

Please refer to the test strip instructions for use for more information about sample types.

## Potential Infection Risk:

Healthcare professionals performing blood tests with this system on multiple patients must always wear gloves and should follow the infection control policies and procedures approved by their facility.

Read the instructions in this user's manual. Failure to follow instructions will cause incorrect results. Practice the testing procedures before using the meter. Follow your healthcare professional's advice when testing blood glucose levels and blood ketone levels.

Observe caution when using around children. Small parts may constitute a choking hazard.

## ► **How Your Precision Xtra Blood Glucose and Ketone Monitoring System Works**

When you insert a test strip into your meter, the Apply Sample message shows on your meter's display window. When a blood sample or control solution sample is applied to the test strip, the glucose or ketone reacts with the chemicals on the test strip. This reaction produces a small electrical current that is measured. The result shows on your meter's display window.

► **Precision Xtra Kit Contents**

**Precision Xtra Meter**

**Precision Xtra User's Manual**

– Contains system information and directions.

**Carrying Case**

– Use this to store and carry your meter and other monitoring supplies.

**Your kit may also contain:**

**Logbook**

– Use this to record your test results, activities, and medications.

**Lancing Device, Lancets, Instructions for Use and Other Information.**

**Blood Glucose Test Strips and Instructions for Use.**

**Items not included:**

**MediSense Control Solutions**

**Blood Ketone Test Strips and Instructions for Use  
Data Management System**

## ► Getting to Know Your Meter's Features

### Display Window

This shows:

- Blood glucose and blood ketone results.
- Previous test results and error messages.
- Blood glucose averages.

### **IMPORTANT:**



Each time you turn your meter on, a full display shows. This is called a Display Check. Look at the Display Check each time it appears on your meter's display window, especially before you check your blood glucose or blood ketone. The Display Check shows on the display window briefly.

Display Check

**Do not** use the meter if the meter Display Check does not exactly match the picture here (for example, if you see a "3" instead of an "8"). The meter may show an incorrect result when you use it. Please call Customer Service for assistance.



**IMPORTANT:**

Avoid getting dust, dirt, blood, control solution, water, or any other substance in the test strip port.

**Strip Port**

This is where you insert:

- A blood glucose test strip.
- A blood ketone test strip.
- Data cable (not included) for uploading results to a computer.

**Mode Button**

Use this button to:

- Turn meter ON and OFF.
- Access meter setup options.
- Access and save meter settings.
- Access previous results and averages.

**▶ Forward Button****◀ Back Button**

Use these buttons to:

- Review and select meter settings.
- Review results and averages.



## **Backlight Button**

Use this button to:

- Turn backlight ON and OFF.

## **Battery Compartment**

This is where the battery is installed.

- If your meter does not turn on, check that your battery is installed properly.
- For new battery installation, see Chapter 9.

## Setting Up Your Precision Xtra Meter

*Questions?  
Call Customer Service:  
1-800-527-3339*

Setting Up  
Your Meter

### ▶ Buttons to Use

- ① Mode Button
- ▶ Forward Button
- ◀ Back Button



### ▶ Setup Options

#### Set Beeper

If the beeper is set ON, it will beep when:

- The test countdown starts.
- The test countdown finishes.

#### Set Time, Set Date

**IMPORTANT:** Please check that the correct time and date is set before you use the meter for the first time. This will help you keep records of when you monitor and will help you and your healthcare professional make informed decisions about your care.

**You must set the time and date to review averages.**

You may need to re-set the time and date:

- After you replace the battery.
- When you travel between time zones or when the time zone you are in changes.

In "Set Date", you set the year, month, and day.

#### Set Time Format

In "Set Time Format", you choose how the time shows on the meter's display window.

## **Set Date Format**

In "Set Date Format", you choose how the month and day show on the meter's display window.

## **Measurement Units**

*Blood glucose measurement units are factory-set in mg/dL.*

*Blood ketone measurement units are in mmol/L only.*

### ► **How to Set the Beeper, Date, Time, & View Measurement Units**

**Before you start, please note:** "Press and Hold" means that you press the button in for at least 2 seconds. "Press and Release" means that you press the button and let it go quickly.

Press and Hold the ⓘ button to turn the meter off and save your settings at any time. The meter automatically turns off after 30 seconds of no action.

If you like the setting that you see on your meter and do not want to change it, Press and Release the ⓘ button to move to the next setup option.

### **Set Beeper**

The ✓ means the beeper is ON.

The X means the beeper is OFF.



Beeper ON



Beeper OFF

- 1 To turn your meter ON, Press and Hold the **(I)** button.

**The beeper ON message shows on the display window. The musical notes flash on and off, and the meter beeps.**



- 2 To change the beeper setting, Press and Release the **◀** button or the **▶** button once.



- 3 Press and Release the **(I)** button to save the beeper setting and to move to Set Time (Hour).



## **Set Time**

### **Hour:**

The Hour flashes on and off.

- 1 Press and Release the **▶** button to move the hour forward.
- 2 If you go past the correct hour, Press and Release the **◀** button to move the hour back.
- 3 Press and Release the **(I)** button to save the hour and to move to Set Minutes.



## Minutes:

The Minutes flash on and off.

- 1 Press and Release the ► button to move the minutes forward.
- 2 If you go past the correct minute, Press and Release the ◀ button to move the minutes back.
- 3 Press and Release the ⓘ button to save the minutes and to move to Set Date.



## Set Date

### Year:

The Year flashes on and off.

- 1 Press and Release the ► button to move the year forward.
- 2 If you go past the correct year, Press and Release the ◀ button to move the year back.
- 3 Press and Release the ⓘ button to save the year and to move to Set Month.



**Month:**

The Month flashes on and off.

- 1 Press and Release the ► button to move the month forward.
- 2 If you go past the correct month, Press and Release the ◀ button to move the month back.
- 3 Press and Release the ⓘ button to save the month and to move to Set Day.

**Day:**

The Day flashes on and off.

- 1 Press and Release the ► button to move the day forward.
- 2 If you go past the correct day, Press and Release the ◀ button to move the day back.
- 3 Press and Release the ⓘ button to save the day and to move to Set Time Format.



## Set Time Format

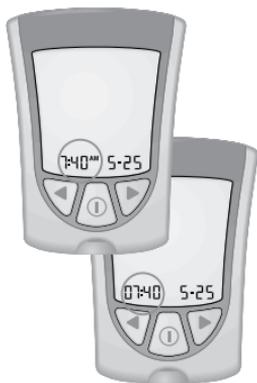
You have two choices:

**Choice #1:** For the 12-hour format, AM or PM shows.

**Choice #2:** For the 24-hour format, AM or PM does not show.

- 1 To change the Time Format, Press and Release the ◀ button or the ▶ button once.
- 2 Press and Release the ⓘ button to save the Time Format and to move to Set Date Format.

Choice #1



Choice #2

Setting Up  
Your Meter

## Set Date Format

You have two choices:

**Choice #1:** For the month-day format, "-" shows with the date.

**Example:** "May 25" shows as "5-25".

**Choice #2:** For the day.month format, "." shows with the date.

**Example:** "25 May" shows as "25.5".

- 1 To change the Date Format, Press and Release the ◀ button or the ▶ button once.
- 2 Press and Release the ⓘ button to save the Date Format and to move to Measurement Units.

Choice #1



Choice #2

## **Blood Glucose Measurement Units**

Consult your healthcare professional if you have any questions about the blood glucose measurement units.

This screen shows the blood glucose measurement units (mg/dL).



Press and Release the  button to return to Set Beeper.

Press and Hold the  button to turn your meter off.



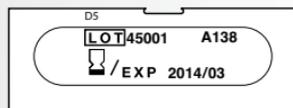
**You have successfully set up your meter.**

**Questions?****Call Customer Service:****1-800-527-3339****► What You Will Need**

- Precision Xtra blood glucose test strip with its instructions for use
- Precision Xtra meter
- Lancing device and a new, sterile lancet

**► Important Information about Monitoring Your Blood Glucose**

- **Do not** use out-of-date test strips. Check the expiration date printed on the test strip box and on each test strip foil packet. If only the month and year are printed on the test strip, then the expiration date is the last day of that month.
- Use the test strip **immediately** when you take it out of its foil packet.
- **Do not** use a wet, bent, scratched, or damaged test strip.
- **Do not** use the test strip if its foil packet has a puncture or tear in it.
- Before you monitor your blood glucose allow your meter and test strip to reach the recommended operating temperature range of the test strip. The test strip operating temperature range is in the “What else do I need to know?” section of the blood glucose test strip instructions for use.
- Read the lancing device instructions for use.

**Example:****Expiration date****March 31, 2014**

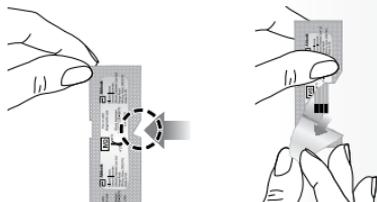
## ► How to Monitor Your Blood Glucose

### Getting Started

- 1 Prepare your lancing device.
- 2 Wash your hands and the test site using warm soapy water and dry them completely.



- 3 Open the foil test strip packet at the notch and tear down to remove the test strip.



- 4 With the contact bars (3 black lines) facing up, insert the test strip into the strip port.



- 5 Push the test strip in until it stops.  
**The meter turns on automatically.**

**These items show on the display window, one after the other:**

- Display Check – Remember to make sure that all items in the picture here show on the display window. (See Chapter 1 for more information about the Display Check.)



- Time, month, and day (if set)

If date and time are not set, dashes will show instead of numbers.



- **LOT 45001** and the Apply Sample symbols  and , indicating that the meter is ready for you to apply blood to the blood glucose test strip.



**Note: LOT 45001** must match the LOT number for the box of blood glucose test strips you are using.

## **Obtaining A Blood Drop**

Use your lancing device to obtain a blood drop.

### **Recommendations for Obtaining a Blood Drop**

- To obtain a sample from an alternative site (forearm, upper arm, or base of the thumb), use an appropriate alternative site lancing device. Results from alternative sites are subject to limitation.
- Before you obtain a blood sample from the fingertip, forearm, upper arm, or base of the thumb, make sure the sample site is clean, dry, and warm. To warm the sample site, wash it in warm water, rub the skin vigorously for a few seconds, or apply a warm pad to it.
- Hang your arm down before pricking your finger or the base of the thumb to help blood flow.
- To obtain a blood sample from the arm, use a fleshy area away from bone. Avoid areas where there is a lot of hair.
- Apply the blood sample to the test strip immediately.



Fingertip sampling



Forearm sampling



Upper arm sampling



Base of thumb  
sampling

**Note:** See page 51 for important information about alternative site testing.

## Lancets and Lancing Device

- Lancets are for one-time use only. Use a new lancet each time you monitor.
- Discard your used lancet properly. Put it in an empty puncture-resistant container, such as a plastic milk carton or detergent bottle.
- Never share your lancing device or lancet with another person.

## Applying the Blood Drop to the Test Strip

- 1 Touch the blood drop to the white area at the end of the test strip. The blood is drawn into the test strip.



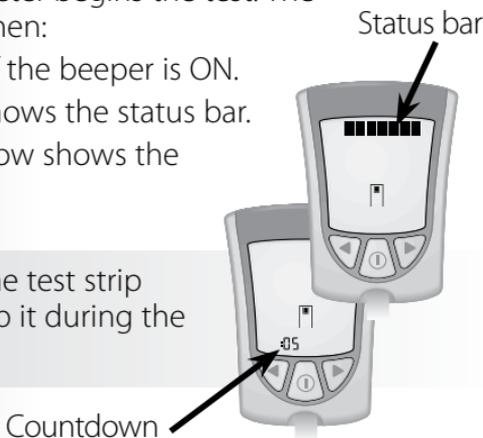
Monitoring  
Blood Glucose

**Note:** If the meter shuts off before you apply blood to the test strip, remove the test strip from the meter and try again.

- 2 Continue to touch the blood drop to the end of the test strip until the meter begins the test. The meter begins the test when:

- You hear the beeper, if the beeper is ON.
- The display window shows the status bar.
- Then the display window shows the countdown.

**Note: Do not** remove the test strip from the meter or disturb it during the countdown.



**IMPORTANT:** If the countdown does not start:

**What It Means:**

You might not have applied enough blood to the test strip.

**What to Do:**

- Apply a second drop of blood to the test strip. Refer to your test strip instructions for use for the number of seconds you have to apply a second drop.
- If the countdown still does not start, or if the number of seconds you have to apply a second drop have passed, discard the test strip, turn off your meter, and try again with a new test strip.

Correct



3 At the end of the countdown:

- If the beeper is ON, listen for the beeper.
- The blood glucose result shows on the display window.
- The result is stored in your meter's memory. You may also write the result in your logbook.



## Shutting Off Your Meter

- 1 Removing the test strip from the strip port turns off the meter. You can use the opened foil packet to remove and discard your used test strip.
- 2 Discard the test strip properly.



**Note:** You may also turn the meter off by Pressing and Holding the  button. If you do not turn your meter off or pull the test strip out, the meter shuts off automatically after 60 seconds.

## ► Understanding Your Result

### "LO" Result



### What It Means:

Your meter has determined that your blood glucose result is lower than 20 mg/dL or there may be a problem with the test strip.

### What to Do:

Monitor your blood glucose again with a new test strip. If **LO** shows on the display window again, contact your healthcare professional **immediately**.



### Result 300 mg/dL or Higher

When your blood glucose result is 300 mg/dL or higher, **KETONES?** flashes on and off on the display window.



## **What to Do:**

If you check your ketones as part of your diabetes management program, it is recommended that you check your blood ketone.

## **"HI" Result**

### **What It Means:**

Your meter has determined that your blood glucose result is higher than 500 mg/dL or there may be a problem with the test strip.

### **What to Do:**

Monitor your blood glucose again with a new test strip.

If **HI** shows on the display window again, contact your healthcare professional **immediately**.

If you check your ketones as part of your diabetes management program, it is recommended that you check your blood ketone.



## **"E-3" Result**

### **What It Means:**

Your blood glucose may be too low to be read by the system, or there may be a problem with the test strip.

### **What to Do:**

Monitor your blood glucose again with a new test strip. If **E-3** shows on the display window again, contact your healthcare professional **immediately**.



## **"E-4" Result**

### **What It Means:**

Your blood glucose may be too high to be read by the system, or there may be a problem with the test strip.

### **What to Do:**

Monitor your blood glucose again with a new test strip. If **E-4** shows on the display window again, contact your healthcare professional **immediately**.



### **IMPORTANT:**

It is recommended that you repeat the blood glucose test with a new test strip when:

- **LO** shows on the display window.
- You obtain a low blood glucose result, but you do not have symptoms of low blood glucose.
- Your meter displays a blood glucose result that is unusually low, lower than 50 mg/dL.
- **HI** shows on the display window.
- You obtain a high blood glucose result, but you do not have symptoms of high blood glucose.
- Your meter displays a result that is unusually high, higher than 300 mg/dL.
- You question your result.
- Your meter displays an error message (For example, E-4).

### **IMPORTANT:**

A result that is incorrect may have a serious medical outcome. Consult your healthcare professional before changing your diabetes medication program.

## Monitoring Your Blood Ketone

**Questions?**  
**Call Customer Service:**  
**1-800-527-3339**

### **It is important to check your ketones when:**

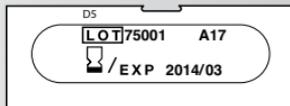
- You have an illness.
- Your blood glucose is higher than 300 mg/dL.
- You are experiencing unusual blood glucose results.
- You and your healthcare professional determine that it is necessary.

### ► **What You Will Need**

- Precision Xtra blood ketone test strip with its instructions for use.
- Precision Xtra meter.
- Lancing device and a new, sterile lancet.

### ► **Important Information about Monitoring Your Blood Ketone**

- For more detailed information about your blood ketone test strip, please refer to its instructions for use before monitoring.
- **Do not** use out-of-date test strips. Check the expiration date printed on the test strip box and on each test strip foil packet.
- **Do not** put urine on the blood ketone test strip.
- Use the test strip immediately when you take it out of its foil packet.



**Example:**  
**Expiration date**  
**March 31, 2014**

- **Do not** use a wet, bent, scratched, or damaged test strip.
- **Do not** use the test strip if its foil packet has a puncture or tear in it.
- Use each test strip only once.
- Before you monitor your blood ketone allow your meter and test strip to reach the recommended operating temperature range of the test strip. The test strip operating temperature range is in the “What else do I need to know?” section of your blood ketone test strip instructions for use.
- Read the lancing device instructions for use.

## ► How to Monitor Your Blood Ketone

### Getting Started

- 1 Prepare your lancing device.
- 2 Wash your hands using warm soapy water and dry them completely.
- 3 Remove the test strip from its foil packet.



**Note:** See page 17 for instructions on how to open your foil test strip packet.

- 4 Insert the three black lines at the end of the test strip into the strip port.
- 5 Push the test strip in until it stops.

**The meter turns on automatically**

**These items show on the display window, one after the other:**

- Display Check – Remember to make sure that all items in the picture here show on the display window. (See Chapter 1 for more information about the Display Check.)



- Time, month, and day (if set)

If date and time are not set, dashes will show instead of numbers.



- **CODE 75001** and the Apply Sample symbols 

**Note: CODE 75001** must match the LOT number for the box of blood ketone test strips you are using.



- **KETONE** and the Apply Sample symbols , indicating that the meter is ready for you to apply blood to the blood ketone test strip.



### **Obtaining A Blood Drop**

Use your lancing device to obtain a blood drop.

**IMPORTANT:** Blood ketone test strips have not been evaluated for alternative site monitoring. **Use only fingertip blood samples for blood ketone monitoring.**



Fingertip sampling

### **Recommendations for Obtaining A Blood Drop**

- Before you obtain a blood sample from the fingertip, make sure the sample site is clean, dry, and warm. To warm the sample site, wash it in warm water or rub the skin vigorously for a few seconds.

Monitoring  
Blood Ketone

- Hang your arm down before pricking your fingertip to help blood flow.
- Apply the blood sample to the test strip immediately.

### Lancets and Lancing Device

- Lancets are for one-time use only. Use a new lancet each time you monitor.
- Discard your used lancet properly. Put it in an empty puncture-resistant container, such as a plastic milk carton or detergent bottle.
- Never share your lancing device or lancet with another person.

### Applying the Blood Drop to the Test Strip

- 1 Touch the blood drop to the white area at the end of the test strip. The blood is drawn into the test strip.



**Note:** If the meter shuts off before you apply blood to the test strip, remove the test strip from the meter and try again.

- 2 Continue to touch the blood drop to the end of the test strip until the meter begins the test. The meter begins the test when:

- You hear the beeper, if the beeper is ON.
- The display window shows the status bar.
- Then the display window shows the countdown.



**Note: Do not** remove the test strip from the meter or disturb it during the countdown.

**IMPORTANT:** If the countdown does not start:

### **What It Means:**

You might not have applied enough blood to the test strip.

### **What to Do:**

- Apply a second drop of blood to the test strip. Refer to your test strip instructions for use for the number of seconds you have to apply a second drop.
- If the countdown still does not start, or if the number of seconds you have to apply a second drop have passed, discard the test strip, turn off your meter, and try again with a new test strip.



Countdown

3 At the end of the countdown:

- If the beeper is ON, listen for the beeper.
- The blood ketone result shows on the display window with the word **KETONE**.
- The result is stored in your meter's memory as a blood ketone result. You may also write the result in your logbook.



### **Shutting Off Your Meter**

- 1 Removing the test strip from the strip port turns off the meter. You can use the opened foil packet to remove and discard your used test strip.



2 Discard the test strip properly.

**Note:** You may also turn the meter off by Pressing and Holding the ⓘ button. If you do not turn your meter off or pull the test strip out, the meter shuts off automatically after 60 seconds.



### ► Understanding Your Result

Blood ketone is expected to be lower than 0.6 mmol/L.<sup>2</sup> Blood ketone may be higher when a person is ill, is fasting, exercises vigorously, or if blood glucose levels are not controlled.<sup>1-3</sup>

#### **When:**

- Blood ketone result is between 0.6 and 1.5 mmol/L and blood glucose result is higher than 300 mg/dL:

#### **What It Means:**

A problem requiring medical assistance may be occurring.

#### **What to Do:**

Contact your healthcare professional. Follow his or her instructions for sick day management.

## **When:**

- Blood ketone result is higher than 1.5 mmol/L and blood glucose result is higher than 300 mg/dL:

## **What It Means:**

You may be at risk of developing diabetic ketoacidosis (DKA).<sup>2-6</sup>

## **What to Do:**

Contact your healthcare professional **immediately**.

## **"HI" Result**

### **What It Means:**

Your meter has determined that your blood ketone result is higher than 8.0 mmol/L, or there may be a problem with the test strip.

### **What to Do:**

Monitor your blood ketone again with a new test strip. If **HI** shows on the display window again, contact your healthcare professional **immediately**.



Monitoring  
Blood Ketone

## **"E-4" Result**

### **What It Means:**

There may be a problem with the test strip.

### **What to Do:**

Monitor your blood ketone again with a new test strip. If **E-4** shows on the display window again, contact your healthcare professional **immediately**.



**IMPORTANT:** It is recommended that you repeat the blood ketone test with a new blood ketone test strip when:

- **HI** appears on the display
- Your result is unusually high
- You question your result
- Your blood ketone result is 0.0 mmol/L, but your blood glucose is higher than 300 mg/dL

**IMPORTANT:** A result that is incorrect may have a serious medical outcome. Consult your healthcare professional before changing your diabetes medication program.

**Questions?**

**Call Customer Service:**

**1-800-527-3339**

## Doing A Control Solution Test

### ► Why Do A Control Solution Test?

The control solution test tells you that your meter and test strips are working correctly. A control solution test is similar to when you monitor your blood glucose or blood ketone, except you use a MediSense Control Solution.

**You do not use a drop of blood in a control solution test.**



### ► When Is Doing A Control Solution Test Recommended?

- When using your meter for the first time.
- To make sure that your meter and test strips are working properly.
- When opening a new box of test strips.

### ► Important Information about Control Solution Testing

- For more detailed information on how to obtain control solutions, please contact Customer Service.
- For more detailed information about control solutions, read the control solution instructions for use.
- MediSense Control Solutions may be used for glucose or ketone control solution testing.

Control  
Solution Testing

- **Do not** use the control solution if the expiration date has passed. Check the expiration date printed on the control solution bottle.
- When you open a control solution bottle for the first time, count forward 90 days and write this date on the control solution bottle using a pen that won't smear or wipe off. Throw away any remaining solution after this date.
- The results obtained from control testing do not reflect your personal blood glucose or blood ketone levels in any way.
- **Do not** swallow the control solution.
- **Do not** inject the control solution or use the control solution as eye drops.

### ► **What You Will Need**

- Precision Xtra Meter
- Precision Xtra Blood Glucose or Blood  $\beta$ -Ketone Test Strip and its instructions for use
- MediSense Control Solutions and instructions for use

### ► **How to Do Control Solution Testing**

#### **Getting Started**

1 Wash your hands using warm soapy water and dry them completely.



2 Remove the test strip from its foil packet.

**Note:** See page 17 for instructions on how to open your foil test strip packet.

3 Insert the three black lines at the end of the test strip into the strip port.



4 Push the test strip in until it stops.

**The meter turns on automatically.**

**These items show on the display window, one after the other:**

- Display Check – Remember to make sure that all items in the picture here show on the display window (See Chapter 1 for more information about the Display Check).



- Time, month, and day (if set)

If date and time are not set, dashes will show instead of numbers.



- **LOT 45001** and the Apply Sample symbols  and .



**Note: CODE 75001** and  followed by **KETONE** and  will appear if performing a ketone control solution test.

**Note:** The **LOT/CODE** number shown on the display window must match the LOT number for the box of test strips you are using.

- 5 To mark the test as a control solution test, Press and Release the  button once.  shows on the display window.



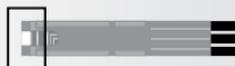
**IMPORTANT:** If you do not mark the test as a control solution test, it will be saved in your meter's memory as one of your personal blood glucose or blood ketone results. This could affect your blood glucose averages.

### **Applying Control Solution to the Test Strip**

- 1 Turn the control solution bottle upside down three to four times to mix the solution.

- 2 Remove the cap.

- 3 Apply a drop of control solution to the white area at the end of the test strip. The control solution is drawn into the test strip.



- 4 Continue to touch the control solution drop to the test strip until the meter begins the test.

The meter begins the test when:

- You hear the beeper, if the beeper is ON.
- The display window shows the status bar.
- Then the display window shows the countdown.



**Note: Do not** remove the test strip from the meter or disturb it during the countdown.

If the countdown does not start, remove and discard the used test strip, turn off your meter, and try again with a new test strip.

- 5 At the end of the countdown:
- If the beeper is ON, listen for the beeper.
  - The control solution result shows on the display window.

Glucose



**Note:** If you are doing a ketone control solution test, **KETONE** will also show with the result.

- The result is stored in your meter's memory as a control solution result. In your logbook, record the result as a control solution result.

Ketone



Control  
Solution Testing

## **Shutting Off Your Meter**

- 1 Removing the test strip from the strip port turns off the meter. You can use the opened foil packet to remove and discard your used test strip.
- 2 Discard the test strip properly.



**Note:** You may also turn the meter off by Pressing and Holding the  button. If you do not turn your meter off or pull the test strip out, the meter shuts off automatically after 60 seconds.



## **► Understanding Your Result**

Compare the control result to the "Expected Results for Use with MediSense Control Solutions" range printed on:

- The blood glucose test strip instructions for use, for glucose control solution testing.
- The blood ketone test strip instructions for use, for ketone control solution testing.

**If the control solution result falls within the range:**

### **What It Means**

Your meter and test strips are working correctly.

**If the control solution result does not fall within the range:**

### **What It Means**

Your meter and test strips may not be working correctly.

### **What to Do**

Repeat the test with a new test strip and ensure the control solution testing instructions are followed completely. If the result is still not within the printed range, contact Customer Service.

**Questions?**

**Call Customer Service:**

**1-800-527-3339**

## Reviewing & Using Your Results

### ► What Can Your Meter Show You?

#### Memory

Your Precision Xtra meter has a memory that stores up to 450 events. This is a combination of control solution results, your personal blood glucose and blood ketone results, and other meter information.

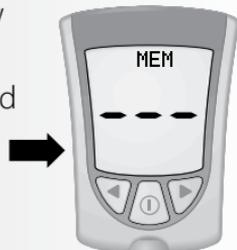
You can review up to 450 of your most recent events on your meter's display window.

#### Glucose Averages

You can view the average of all your blood glucose results from the last 7, 14, or 30 days. If you marked your control solution tests, the averages do not include control solution results. (For more information on marking control solution tests, see Chapter 5.)

#### **IMPORTANT:**

- To review blood glucose averages, you **must** set the date and time before monitoring.
- If you **do not** mark control solution tests, this may affect your glucose averages.
- Blood glucose averages **do not** include blood ketone results, glucose control solution results, ketone control solution results, or results that do not show the time, month, and day.
- When there are no previous results or blood glucose averages to review, the display window shows three dashes.



## ► How to See Results in Memory

1 Begin with your meter turned off. Make sure there is nothing in the strip port.

2 Press and Release the  button.

- The Display Check shows on the display window.
- Then your most recent result shows with its units on the meter's display window, along with the time, month, and day that you got the result. (To set the correct date and time, follow the steps in Chapter 2.)



A blood glucose result in Memory will show with the letters **MEM.**



Blood Glucose  
result in Memory

A blood ketone result in Memory will show with the letters **KET MEM.**



Blood Ketone  
result in Memory

A control solution result in Memory shows with a control solution bottle, as long as you marked the test as a control solution test.



Glucose control solution result in Memory



Ketone control solution result in Memory

- 3 To review previous results, Press and Release the ◀ button once per result.



- 4 When you reach the last result in Memory, the display window shows three dashes.



- 5 To return to a result you previously reviewed, Press and Release the ▶ button once per result.



## ► How to See Averages

### IMPORTANT:

- Results that show as **LO** during blood glucose monitoring are included as 20 mg/dL in blood glucose averages.
- Results that show as **HI** during blood glucose monitoring are included as 500 mg/dL in blood glucose averages.

- 1 While in Memory, Press and Release the  button at any time to see the 7-Day average of your blood glucose results.



**Note:** **n** means how many tests were performed within the 7-, 14-, or 30-Day average period.

- 2 Press and Release the  button once to see the 14-Day average of your blood glucose results.



- 3 Press and Release the  button again to see the 30-Day average of your blood glucose results. If you Press and Release the  button again, the display window shows the 7-Day average.



- 4 Press and Release the **I** button at any time to return to Memory.



- 5 Press and Hold the **I** button to turn off your meter. Otherwise, the meter turns off after 30 seconds.



### ► **Transferring Your Results to a Computer**

Download of test results to a computer requires a compatible data management system. For more information, please go to our website or contact Customer Service.



Reviewing Results

## Understanding & Troubleshooting Error Messages

*Questions?  
Call Customer Service:  
1-800-527-3339*

There are times when error messages may show on your meter's display window.

In the next few pages, we describe the error messages that may show on your meter's display window, what they mean, and what you need to do.

### Message

### What It Means

### What You Need to Do



Temperature is too hot or too cold for the system to work properly.

- **Move your meter and test strips to a location where the temperature is appropriate and monitor again with a new test strip. You may have to wait for your meter to adjust to the new temperature. Refer to your test strip instructions for use for the appropriate operating temperature range.**
- **If the error message appears again, contact Customer Service.**

## Message

## What It Means

## What You Need to Do



Meter error.

- Turn the meter off, then repeat previous monitoring steps.
- If the error message appears again, contact Customer Service.



Blood glucose result may be too low to be read by the system.

**OR**

There may be a problem with the blood glucose or blood ketone test strip.

- Review the monitoring instructions.
- Monitor again with a new test strip.
- If the error message appears again, contact your healthcare professional immediately.



Blood glucose result may be too high to be read by the system.

**OR**

There may be a problem with the blood glucose or blood ketone test strip.

- Monitor again with a new test strip.
- If the error message appears again, contact your healthcare professional immediately.

## Message

## What It Means

## What You Need to Do



Blood applied to test strip too soon.

- **Review the monitoring instructions.**
- **Monitor again with a new test strip.**
- **If the error message appears again, contact Customer Service.**



Meter Error.

- **Monitor again using a test strip designed for use with Precision Xtra.**
- **If the error message appears again, contact Customer Service.**



No coding required.

**OR**

Test strip may be damaged, used or the meter does not recognize it.

- **Monitor again using a test strip designed for use with Precision Xtra.**
- **If the error message appears again, contact Customer Service.**

## Message

## What It Means

## What You Need to Do



Meter error.

- Remove test strip, turn meter off, and try to monitor again.
- If the error message appears again, contact Customer Service.



Meter error.

- Remove test strip, turn meter off, and try to monitor again.
- If the error message appears again, contact Customer Service.

## Your Meter's Specifications & Limitations

**Questions?  
Call Customer Service:  
1-800-527-3339**



<b>Size</b>	Length: 7.47 cm Width: 5.33 cm 4.32 cm Thickness: 1.63 cm
<b>Weight</b>	40-46 grams
<b>Power Source</b>	One CR 2032 Lithium (coin cell) battery
<b>Battery Life</b>	Approximately 1,000 tests
<b>Memory</b>	Up to 450 events including control solution results, personal blood glucose and blood ketone results, and other meter information
<b>Storage Temperature</b>	Meter: -25° to 55°C (-13° to 131°F) Test Strips: See test strip instructions for use Control Solution: See control solution instructions for use
<b>Blood Glucose Assay Range</b>	See blood glucose test strip instructions for use
<b>Blood Ketone Assay Range</b>	See blood ketone test strip instructions for use
<b>Control Solution Range</b>	See blood glucose or blood ketone test strip instructions for use
<b>System Altitude</b>	Clinical testing demonstrates that altitudes up to 2195 meters (7200 feet) above sea level do not affect results

<b>Functions</b>	<ul style="list-style-type: none"><li>- Blood glucose monitoring</li><li>- Blood ketone monitoring</li><li>- Memory: 450 events</li><li>- Glucose averaging: 7-Day, 14-Day, and 30-Day Averages</li><li>- Control solution marking and testing</li><li>- Backlight: If ON – Stays ON during countdown; turns OFF 30 seconds after result is displayed. If OFF – Stays OFF during countdown; stays OFF during data upload</li><li>- Beeper: If ON – Beeps when countdown starts and finishes</li></ul>
<b>Data Port</b>	Yes
<b>Meter Operating Range</b> Temperature: Relative Humidity:	10° to 50°C (50° to 122°F) 10% to 90%, non-condensing
<b>System Operating Range</b> Temperature: Relative Humidity:	The system operating range is the operating range of the test strip you are using. See "What else do I need to know?" section in test strip instructions for use 10% to 90%, non-condensing

## ► Important Information about Using Blood Samples from the Forearm, Upper Arm, or Base of the Thumb:

- Contact your healthcare professional before you begin using any one of these alternative sites to test your blood glucose.
- Sampling from any one of these alternative sites may cause minor bruising and may leave marks that go away in a short time.
- There may be times when alternative site results are different from fingertip results. This happens when blood glucose levels change rapidly (for example, after you eat a meal, after you take insulin, or during or after exercise).
- Use alternative sites to monitor your blood glucose before, or more than two hours after, you eat a meal, take insulin, or exercise.
- **Do not** use blood samples from alternative sites when:
  1. You think your blood glucose is low or changing rapidly,
  2. You have been diagnosed with hypoglycemic unawareness,
  3. The results from alternative sites do not match the way you feel,
  4. It is within two hours of eating a meal, taking insulin, or exercising, or
  5. You monitor your blood ketone.

**Questions?****Call Customer Service:****1-800-527-3339****Caring For Your Meter****► Cleaning Your Meter**

Store your meter in its carrying case. Avoid getting dirt, dust, blood, control solution, or liquid in the meter test strip port. Clean the outside of the meter using a damp cloth and mild soap.

**Healthcare professionals:** Acceptable cleaning solutions include:

- 70% isopropyl alcohol, or
- A mixture of 1 part ammonia, 9 parts water, or
- A mixture of 1 part household bleach, 9 parts water

**IMPORTANT:**

**Do not** try to clean the strip port.

**Do not** pour liquid into the strip port or onto the buttons.

**Do not** immerse the meter in water or any other liquid.

**► Replacing Your Meter's Battery**

When your meter needs its batteries replaced, the display window shows one of two things:

**This means the battery is low.** You may still use your meter and the results will be accurate. However, the backlight is not useable. It is recommended that you replace the battery at this time.



**This means the battery must be replaced.**

The meter is not useable. The meter turns off automatically.

**IMPORTANT:**

**Do not** remove the old battery until you have a new battery to install. It may be necessary to reset the time and date once you install a new battery.

## How to Replace Your Meter's Battery

- 1 Gently push the battery cover in and up with your thumb.



- 2 Lift the battery cover out of the meter.



- 3 To remove the battery, push the battery upward to release the battery.



- 4 Insert a new CR 2032 Lithium (coin cell) battery with the plus sign (+) facing up.



5 Place the notches on the battery cover into the appropriate moulded areas.



6 Gently push the battery cover in and down until you hear a click.



7 Press and Hold the **(i)** button to turn your meter on. If your meter does not turn on, review the battery installation steps and reinstall the battery.



8 Check the date and time on your meter. You may need to reset the date and time. (See Chapter 2, Setting Up Your Precision Xtra Meter).

9 Be sure to discard the old battery in compliance with your local government's regulations.

## References

1. Schade DS, Eaton RP. Metabolic and clinical significance of ketosis. *Special Topics in Endocrinology and Metabolism* 1982; 4:1–27.
2. Wiggam MI, O’Kane MJ, Harper R, Atkinson AB, Hadden DR, Trimble ER, Bell PM. Treatment of diabetic ketoacidosis using normalization of blood 3-hydroxybutyrate concentration as the endpoint of emergency management. *Diabetes Care* 1997; 20:1347–52.
3. Harano Y, Kosugi K, Hyosu T, Suzuki M, Hidaka H, Kashiwagi A, Uno S, Shigeta Y. Ketone bodies as markers for Type 1 (insulin-dependent) diabetes and their value in the monitoring of diabetes control. *Diabetologia* 1984; 26:343–8.
4. Ubukata E. Diurnal variation of blood ketone bodies in insulin-dependent diabetes mellitus and non-insulin-dependent diabetes mellitus patients: The relationship to serum C-peptide immunoreactivity and free insulin. *Ann Nutr Metab* 1990; 34:333–42.
5. Luzi L, Barrett EJ, Groop LC, Ferrannini E, DeFronzo RA. Metabolic effects of low-dose insulin therapy on glucose metabolism in diabetic ketoacidosis. *Diabetes* 1988; 37:1470–77.
6. Hale PJ, Crase J, Natrass M. Metabolic effects of bicarbonate in the treatment of diabetic ketoacidosis. *Br Med J* 1984; 289; 1035–8.

**Manufacturer:**

Abbott Diabetes Care Inc.  
1360 South Loop Road  
Alameda CA 94502 USA

**Customer Service available Monday through Friday, 8AM to 8PM Eastern Standard Time at 1-800-527-3339 or visit us online at: [AbbottDiabetesCare.com](http://AbbottDiabetesCare.com)**

For *in vitro* diagnostic use.

MediSense, Precision and Precision Xtra are trademarks of the Abbott Group of Companies in various jurisdictions.  
© 2008-2016 Abbott