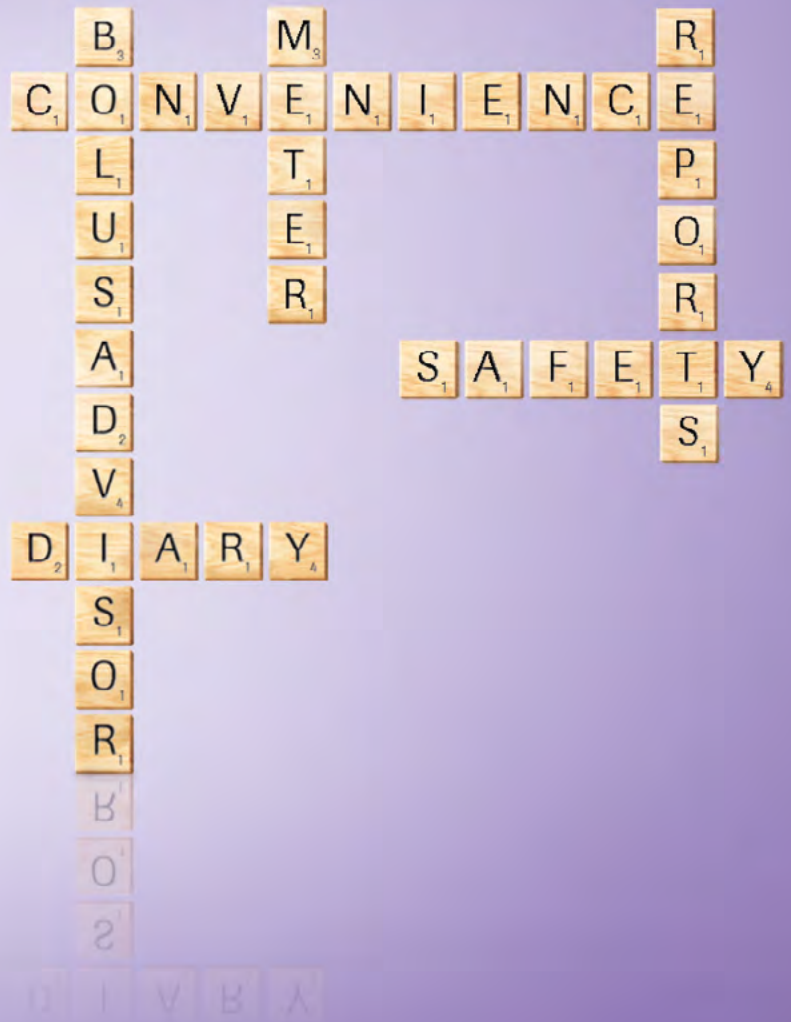


# Training Handbook mmol/L

Accu-Chek® Aviva Combo blood glucose monitoring system



Dear User,

Congratulations on choosing the Accu-Chek® Aviva Combo meter! Your new meter will help you to manage your diabetes easily, quickly and discreetly.

This Handbook is provided as part of your training on the new Accu-Chek Aviva Combo meter.

It will help you to set up your meter, so that it quickly becomes part of your daily life.

*Roche Diabetes Care*

- ! This document is not intended to replace training by a qualified diabetes instructor, or the Owner's Booklets (Instructions for use) provided with your new meter.

Before starting therapy with your Accu-Chek Aviva Combo meter, please consult your Accu-Chek Aviva Combo meter Owner's booklets for detailed information regarding warnings and precautions related to their use.



In this Handbook the term "meter" always refers to the Accu-Chek Aviva Combo meter.



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# 1 Your Accu-Chek Aviva Combo meter

## 1.1 Summary of functions and features

### Features



Convenient blood glucose (bG) testing.



Test results in five seconds.



Provide Bolus Advice.



Small sample size that allows testing from the fingertip.



Unreliable test results are detected automatically.



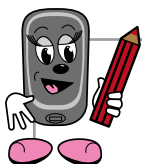
Keep record of events related to your diabetes management, for example bG test results, bolus and basal insulin delivery, carbohydrate intake, health events.



A variety of Reminders that help to remember tasks of your diabetes self-management.

## 1.2 Button functions

Infrared (IR) Window













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Key	Name	Function
	Power On/Off	<ul style="list-style-type: none"> <li>• turn the meter on and off</li> </ul>
	Backlight	<ul style="list-style-type: none"> <li>• adjust the backlight level (low, medium high)</li> </ul>
	Left arrow	<ul style="list-style-type: none"> <li>• move through screens</li> <li>• scroll left in an information screen</li> </ul>
	Right arrow	<ul style="list-style-type: none"> <li>• move through screens</li> <li>• scroll right in an information screen</li> </ul>
	Up arrow	<ul style="list-style-type: none"> <li>• move through menus, functions and information screen</li> <li>• scroll up in an information screen</li> <li>• increase a value in a setting screen</li> </ul>
	Down arrow	<ul style="list-style-type: none"> <li>• move through menus, functions and information screen</li> <li>• scroll down in an information screen</li> <li>• reduce a value in a setting screen</li> </ul>

Key	Name	Function
	Enter	<ul style="list-style-type: none"> <li>• select a menu or option</li> <li>• save changes</li> <li>• exit</li> </ul>
	Left soft button	<ul style="list-style-type: none"> <li>• select a menu on the display above the button</li> </ul>
	Right soft button	<ul style="list-style-type: none"> <li>• select a menu on the display above the button</li> </ul>
	Press and hold simultaneously	<ul style="list-style-type: none"> <li>• enables Keylock / disables Keylock</li> </ul>



## 2 Getting Bolus Advice from your meter

The Bolus Advice function on your meter will provide you with recommendations on the amount of insulin for food intake and for correcting bG levels that are not within your Target Range. In the following chapter you will learn how to program all your individual settings for the bolus advice calculation and how to use Bolus Advice in your day-to-day life.

### 2.1 About Bolus Advice

The Bolus Advice function of your meter provides you with bolus recommendations based on your:

- Current bG test result
- Expected food intake
- Current health or activity
- Individual settings, such as Carb Ratio, Insulin Sensitivity, and other settings that will be explained later in this chapter.

When you have programmed these settings, you will only need to:

- Measure your bG level
- Enter the amount of carbs you are currently planning to eat
- Enter your current health or activity state

Your meter will then calculate the required amount of insulin based on your personal settings. You can adjust the calculated dose as appropriate. After confirmation, administer the insulin using your pen or syringe.

If you are interested in details of the calculation for the recommended bolus, please refer to Appendix A, B, and C.

## 2.2 Setting up Bolus Advice

Before you can start setting up the Bolus Advice function, you need to discuss the required setting parameters with your healthcare professional. The following settings are necessary:

### Time Block settings



#### Time Blocks ...

split the day into periods, to facilitate the programming of those settings that change throughout the day, such as Insulin Sensitivity and Carb Ratio. You only need to set the end-time of a Time Block, as this is also the starting time of the following Time Block. Five Time Blocks are set up by default, but you can set up up to eight if necessary. The following parameters can be set up separately for each Time Block.



#### Target Range ...

is the range of your blood glucose, consisting of a lower and an upper bG value that is considered to be acceptable as long as you are fasting (in the morning or before a meal). The target bG will be calculated automatically as the average between the upper and lower bG values.

### **Carb Ratio ...**

is the amount of insulin you need for one unit of carbohydrates. You must program the Carb Ratio for each Time Block you wish to set up.

### **Insulin Sensitivity ...**

is the amount of insulin you need to lower your bG level by a given amount. You may know this as the “correction factor”. You must program this for each Time Block you wish to set up.

## **Health Event settings**

### **Health Events ...**

are percentages that allow you to adjust the calculated insulin amount to allow for individual needs and health status; for example, when you are planning physical activity (subtract percentages) or you are ill (add percentages). You can set percentages for:

- Exercise 1
- Exercise 2
- Stress
- Illness
- Premenstrual

You cannot adjust Fasting.

## Advice Option settings



### Meal Rise ...

is an increase in your bG level that is acceptable after a meal. After a meal, the Meal Rise is added to your bG target. After a meal, the bG target value plus the Meal rise value is accepted without a correction bolus, as long as Acting time and Offset time are effective (see the explanations below).



### Snack Size ...

is the amount of carbohydrates that is not to be counted as a regular meal. A bolus will be recommended but no Meal Rise is triggered.



### Acting Time ...

is the time during which a bolus is effective. The Acting Time starts afresh for each new bolus.



### Offset Time ...

is the expected time taken for your bG level to fall after you inject a bolus. The Offset Time starts afresh for each new bolus.

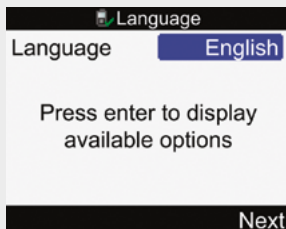



1



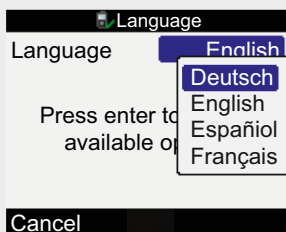
Press ① until the meter powers up.  
The Accu-Chek screen appears for a few seconds.


2



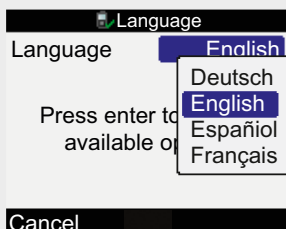
The Language screen appears. If you wish to keep the default language, press  to select Next and continue with step 6.



3



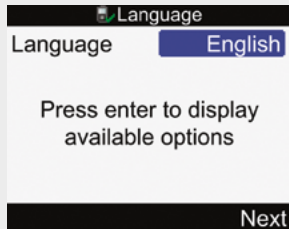
Otherwise press  to display the language options.

4



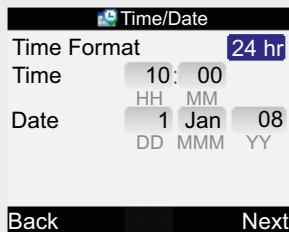
Press  or  to select the language.

5



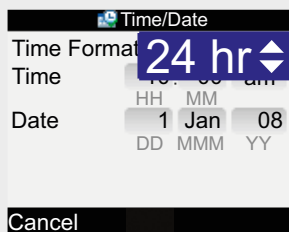
Press to save the setting.  
Press to select Save.

6



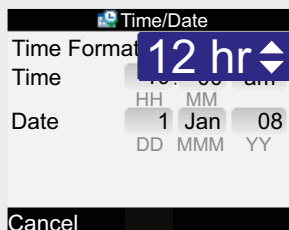
The Time/Date screen appears. If you wish to keep the default time, press to select Next and continue with step 12.

7



Otherwise press to change Time Format.

8



Press or to select 12 hr or 24 hr Time Format.  
Press to save the changes.

9

The screenshot shows the 'Time/Date' menu. The 'Time' field is highlighted with a blue box containing the number '8'. Below it, the 'Date' field shows '1 Jan 08'. The 'Time Format' is set to '12 hr'. At the bottom, there is a 'Cancel' button.

Press to change the hour.

10

The screenshot shows the 'Time/Date' menu. The 'Time' field is highlighted with a blue box containing the number '10'. Below it, the 'Date' field shows '1 Jan 08'. The 'Time Format' is set to '12 hr'. At the bottom, there is a 'Cancel' button.

Press or to select the hour and to save.

11

The screenshot shows the 'Time/Date' menu. The 'Time' field is highlighted with a blue box containing '10: 30 am'. Below it, the 'Date' field shows '2 Feb 08'. The 'Time Format' is set to '12 hr'. At the bottom, there are 'Back' and 'Next' buttons.

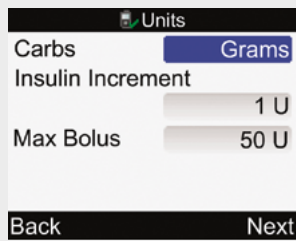
Continue using , , and to set

- Minutes
- AM or PM if needed
- Day
- Month
- Year

Press to select Next.




12



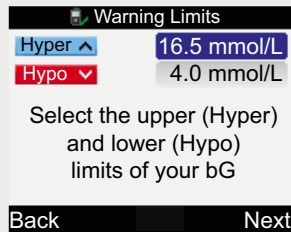
The Units screen appears.

Use , ,  and  to set

- the units for carbohydrates
- the Insulin Increment
- the Max Bolus

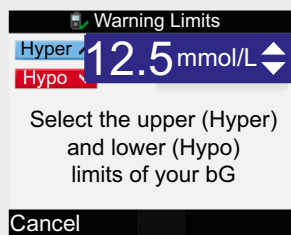
Press  to select Next





13



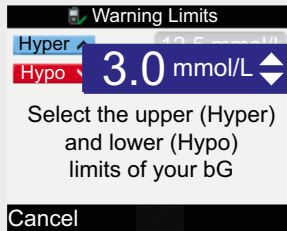
The Warning Limits screen appears.

14



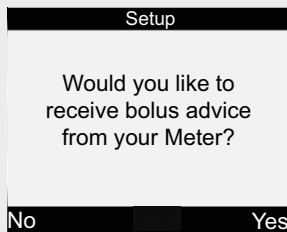
Use , ,  and  to set the Hyper- (High bG) Warning Limit.

16



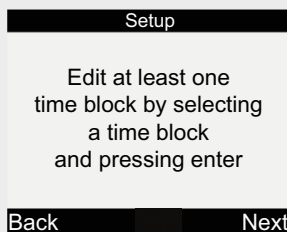
Use , , and to set the Hypo- (Low bG) Warning Limit.  
Press to select Next.

17



The Setup screen "Would you like to receive bolus advice from your meter?" appears.  
Press to select Yes.

18



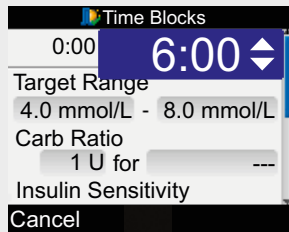
The Setup screen "Edit at least one time block by selecting a time block and pressing enter" appears.  
Press to select Next.

19



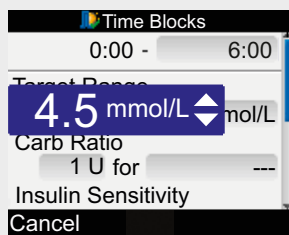
The Time Blocks screen appears.  
Press to enter the first Time Block.

20



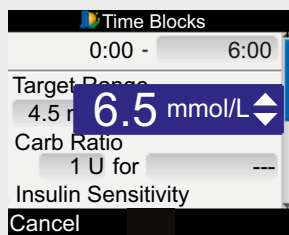
The first Time Blocks screen appears.  
 Press to enter the end time box.  
 Press or to select the end time.  
 Press to save the setting and move to the lower target limit box.

21



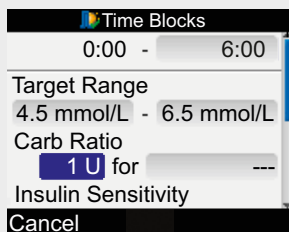
Press to enter.  
 Press or to select your lower target limit.  
 Press to save and move to the upper target limit box.

22



Press to enter.  
 Press or to select your upper target limit.  
 Press to save and move to the insulin for carb box.

23



Press to enter.  
 Press or to enter the insulin amount.  
 Press to save and move to the carb box.

24

Time Blocks

Target Range  
4.5 mmol/L - 6.5 mmol/L

Carb Ratio  
1 U for 12 g

Insulin Sensitivity  
1 U for ---

Cancel Save

Press to enter.

Press or to select the amount of carbs covered by the amount of insulin.

Press to save and move to the insulin for bG box.

Press to enter.

Press or to select the insulin amount.

Press to save and move to the bG box.

25

Time Blocks

Target Range  
4.5 mmol/L - 6.5 mmol/L

Carb Ratio  
1 U for 12 g

Insulin Sensitivity  
1 U for 2.5 mmol/L

Cancel Save

Press to enter.

Press or to select the decrease in bG expected for the insulin amount.

Press to enter.

Press to save and exit to the Time Blocks screen.

26

Time Blocks

Start	End
0:00	6:00
6:00	11:00
11:00	17:00
17:00	21:30
21:30	0:00

Back Next

Press or to move to the next Time Block.

Press to enter.

The settings from the first Time Block will be copied to all other Time Blocks.

Press to select Next.

27

Repeat steps 20 to 26 accordingly to setup all Time Blocks as necessary.

Press to select Next.

28

Health Events	
Exercise 1	0%
Exercise 2	0%
Stress	0%
Illness	0%
Premenstrual	0%
Back	Next

The Health Events screen appears.  
Press to enter the Exercise 1 box.

29

Health Events	
Exercise 1	-15%
Exercise 2	0%
Stress	0%
Illness	0%
Premenstrual	0%
Cancel	

Press or to select the percentage as needed.  
Press to save.

30

Health Events	
Exercise 1	-15%
Exercise 2	-20%
Stress	+10%
Illness	+50%
Premenstrual	+10%
Back	Next

Press or to move to the next Health Event you wish to setup.

31

Use , , and to setup all Health Events as needed.  
Press to select next.

32

Advice Options

Meal Rise 5.5 mmol/L

Snack Size ---

Acting Time 4:00

Offset Time 1:00  
HH MM

Back

The Advice Options screen appears.

33

Advice Options

Meal Rise 3.0 mmol/L

Snack Size ---

Acting Time 4:00

Offset Time 1:00  
HH MM

Cancel

Press to enter the Meal Rise box.  
 Press or to select the meal rise level.  
 Press to save and move to the Snack Size box.

34

Advice Options

Meal Rise 2.0 mmol/L

Snack Size 7 g

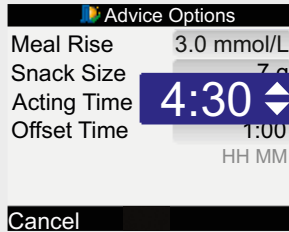
Acting Time 4:00

Offset Time 1:00  
HH MM

Cancel

Press to enter.  
 Press or to select the Snack Size.  
 Press to save and move to the Acting Time box.

35

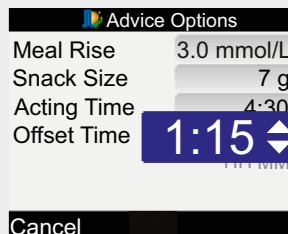


Press to enter.

Press or to select the Acting Time.

Press to save and move to the Offset Time box.

36



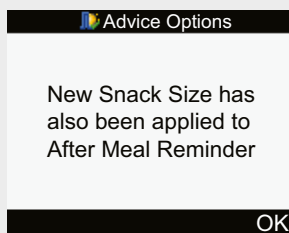
Press to enter.

Press or to select the Offset Time.

Press to save.

Press to save all settings and select Next.

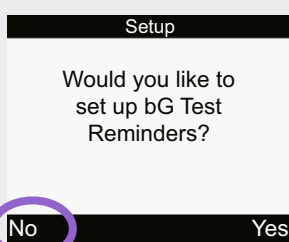
37



You receive the message that the new setting will be applied to the After Meal Reminder Snack Size.

Press to select OK.

38

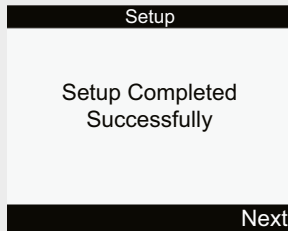



The screen "Would you like to set up bG Test Reminders?" appears.

Press to **select No**.

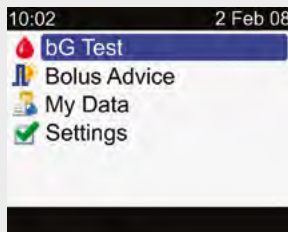


39



The Setup Wizard is complete.  
Press  to select Next and enter the main menu.

40



Switch of the meter.  
Now you can continue with coding your meter.



Before you can test your bG level with your meter you must code it with the code chip accompanying the test strip container. You should also perform a control test.





## 3 Measuring your blood glucose (bG) level

### 3.1 Running a control test

You need:

- a new test strip
- a control solution level 1 or 2. The control level is printed on the bottle label.

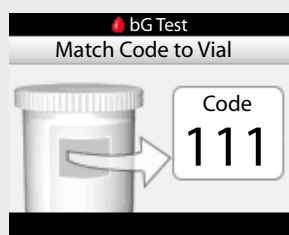


1



Place your meter on a flat surface (for example, a table) and insert the test strip into the Test Strip Slot in the direction of the arrow. The meter turns on.

2



The "Match Code to Vial" screen appears. Make sure the code number on the screen matches the code number on the test strip container.

3



The "Apply Sample" screen appears and a beep indicates that the strip is ready for testing.

4.



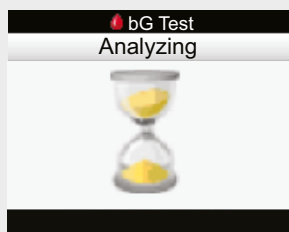
Remove the cap from the control solution bottle and wipe the tip with a tissue.

5



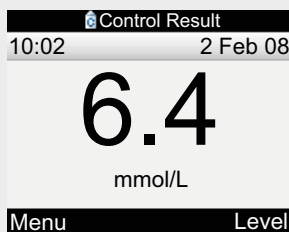
Squeeze the bottle until a tiny drop forms at the tip. Apply the drop to the front edge of the yellow window of the test strip.

6




The “Analyzing” screen appears as soon as you have applied enough solution. Wipe the tip of the control solution bottle and then put the cap on the bottle tightly.

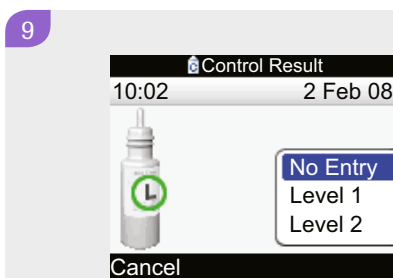
7






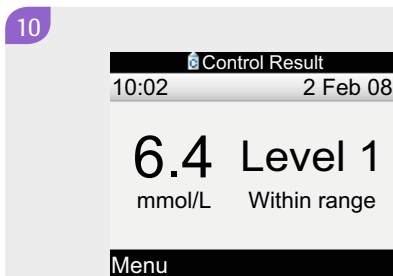
The “Control Result” screen appears.



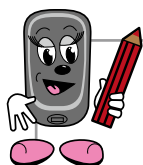
Compare the result to the acceptable range shown on the label of the test strip container. Press  to display the Control Level screen.



Press  or  to select the control solution level. Press  to confirm.



When the control test result is within range, the test strips and meter are working properly. Remove and dispose of the test strip.




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## 3.2 Performing a blood glucose (bG) test

You need:

- your lancing device
- a new test strip

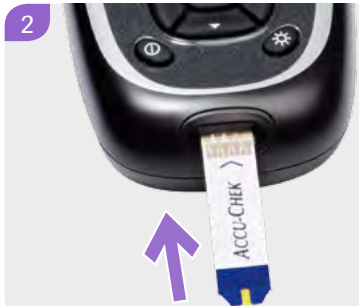


1



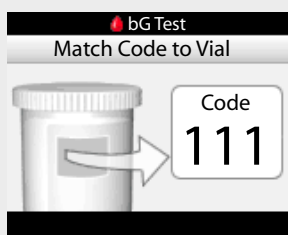
Prepare the lancing device according to the instructions provided. Wash and dry your hands.

2



Place your meter on a flat surface (for example, a table) and insert the test strip into the Test Strip Slot in the direction of the arrow. The meter turns on.

3



The “Match Code to Vial” screen appears. Make sure that the code number on the screen matches the code number on the test strip container.

4



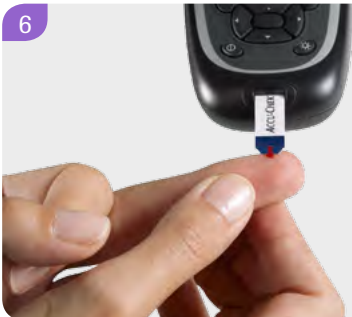
The “Apply Sample” screen appears and a beep indicates that the strip is ready for testing.

5



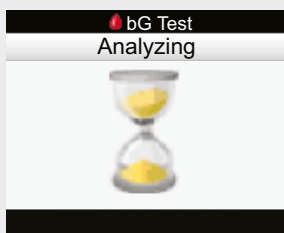
Prick your finger with your lancing device.

6



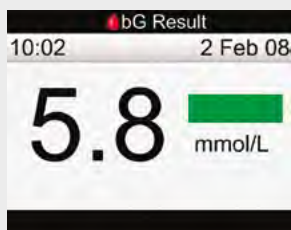
Gently squeeze your finger to get a blood drop. Apply the blood drop to the front edge of the yellow window of the test strip.

7



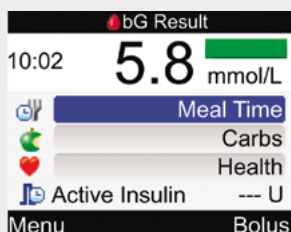
The “Analyzing” screen appears as soon as you have applied enough blood.

8



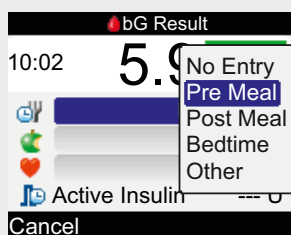
Your bG Result appears on the display.

9



About three seconds later the detailed "bG Result" screen appears. Here you can enter information about meal time, the carbs you are planning to eat and you current health or activity state.

10



Press  $\triangle$  or  $\nabla$  to move to the Meal Time box (or Carbs/Health accordingly), and press  $\bigcirc$  to enter.

Press  $\triangle$  or  $\nabla$  to select a value.

Press  $\bigcirc$  to save the value. If you enter values for carbs and health here, they are adopted to the Bolus Advice screen.






Press  $\text{Bolus}$  to select Bolus and move to the Bolus Advice screen.



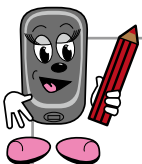
In the next section you will learn how to get Bolus Advice after a bG test.

## Understanding your bG result

The coloured bar on the bG Result screen indicates the meaning of your bG result:

If the bar is	Your bG level is
 Hyper Blue	above Hyper Warning Limit. It is highly recommended that you check for ketones and measure your bG level frequently.
 Blue	above your Target Range but below Hyper Warning Limit.
 Green	within your Target Range.
 Yellow	below your Target Range but above your Hypo Warning Limit.
 Hypo Red	below your Hypo Warning Limit. It is highly recommended that you eat an appropriate amount of fast acting carbs immediately.

Discuss appropriate action for each of the situations with your health care professional.



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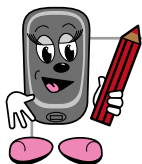
### 3.3 Using Bolus Advice

Bolus Advice can only provide a reliable bolus recommendation, when a current bG test result is available. Therefore it is highly recommended that you always use Bolus Advice by starting with a bG test. When you use Bolus Advice without a current bG test result, you will be prompted with a warning if the last bG Test result dates back for more than five minutes.

#### Taking Bolus Advice from a bG Test

To take bolus advice from a bG test, you need:

- your lancing device
- a new test strip



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1



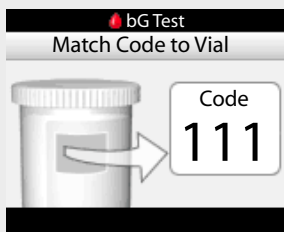
Prepare the lancing device according to the instructions provided. Wash and dry your hands.

2



Place your meter on a flat surface (for example, a table) and insert the test strip into the Test Strip slot in the direction of the arrow. The meter turns on.

3



The “Match Code to Vial” screen appears. Make sure the code number on the screen matches the code number on the test strip container.

4



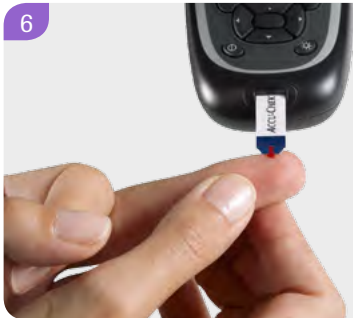
The “Apply Sample” screen appears and a beep indicates that the strip is ready for testing.

5



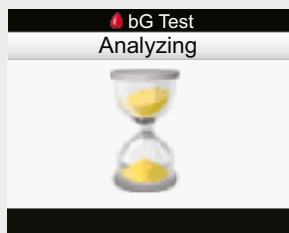
Prick your finger with your lancing device. Gently squeeze your finger to get a blood drop.

6



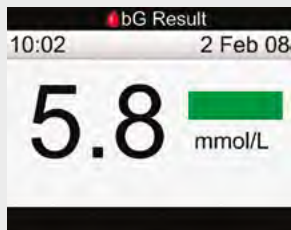
Touch the blood drop against the front edge of the yellow window of the test strip.

7



The "Analyzing" screen appears as soon as you have applied enough blood.

8



Your result appears on the display.

9

About three seconds later, a detailed “bG Result” screen appears. Here you can add information about the Meal Time, planned food intake or your state of health, for statistical reasons, where appropriate.

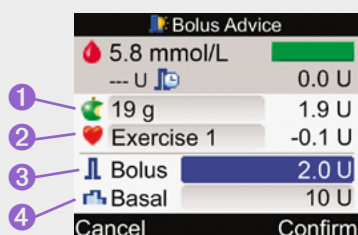


If you use the bG result for Bolus Advice, you cannot change entries later on. Therefore it is recommended that you add information about Meal Time here.

10

Press  $\triangle$  or  $\nabla$  to move to the Meal box (or Carbs/Health accordingly), and press  $\bigcirc$  to enter.  
 Press  $\triangle$  or  $\nabla$  to select a value.  
 Press  $\bigcirc$  to save the value. If you enter values for carbs and health here, they are adopted to the Bolus Advice screen.  
 Press  $\text{Bolus}$  to select Bolus and move to the Bolus Advice screen.

11



- 1 Press to enter the carbs Box.  
Press or to select the amount of carbohydrates you are planning to eat.
- 2 Press to save and move to the Health box, and press to enter.

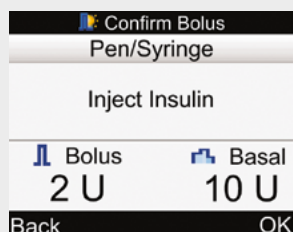
Press or to select your current state of health, as appropriate.

- 3 Press to save and move to the Bolus Amount box.

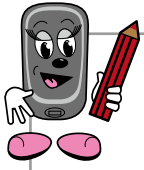
If you need to change the recommended bolus amount, use , , and to change the bolus amount and move to the Basal box.

- 4 Otherwise, press to move to the Basal box directly.  
Press .  
Press or to set the basal insulin amount.  
Press to save.

12



Press to confirm and move to the Confirm Bolus screen. Press to select OK.  
Use your pen or syringe to administer the insulin accordingly.



A series of horizontal lines for writing, spanning the width of the page.

## 4 Managing your data

Careful analysis of your bG data is an effective way for you and your healthcare professional to control and manage your diabetes.

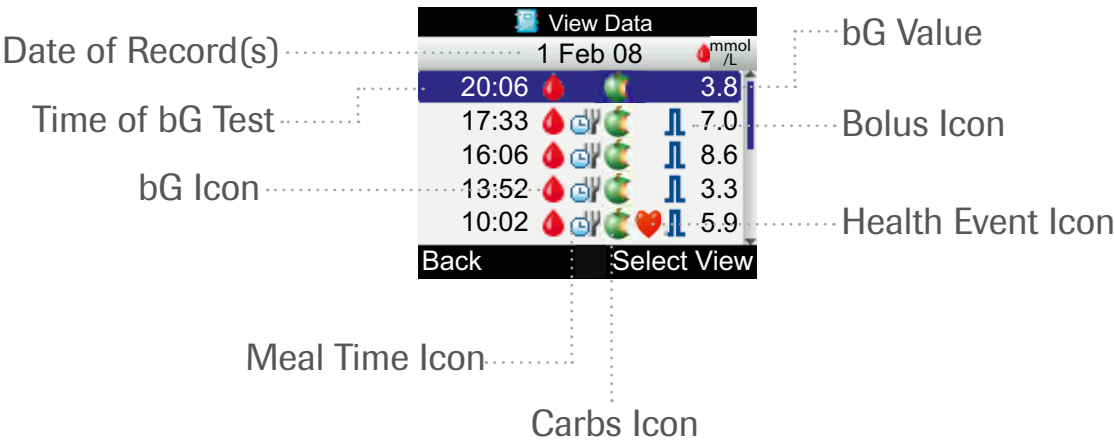
Your meter automatically stores up to 1000 diary records with their time and date. You can review up to 250 diary records on your meter, or up to 1000 diary records using compatible software. These records are stored from the newest to the oldest. It is very important to set the correct time and date, to ensure that you and your healthcare professional can accurately interpret your blood glucose results and that the bolus advice uses the appropriate settings of the current time block.






Each diary record can contain:

- Date and time
- bG test result
- Meal time (events)
- Carbs
- Health Event
- Bolus amount

You can display filtered or sorted diary data in graphical or table format. Your meter generates reports, such as bG averages with standard deviations, for the time period you choose (for example, the past 7 days or the past 30 days). Graphs can be a good way to view your bG results. Your meter can display a line graph to depict bG record trends, a graph showing result ranges for daily or weekly, and a pie chart with different colours to illustrate the amount of test results within, above, or below your bG Target Range.

The following table depicts the icons used to display your data:

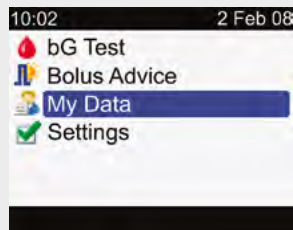


Icon	Icon Name	Description
	bG Test	<ul style="list-style-type: none"> <li>Icon is displayed when information exists for this diary record regarding a blood glucose test.</li> </ul>
	Meal Time	<ul style="list-style-type: none"> <li>Icon is displayed when information exists for this diary record regarding Meal Time.</li> </ul>
	Carbs	<ul style="list-style-type: none"> <li>Icon is displayed when information exists for this diary record regarding carbs.</li> </ul>
	Health Event	<ul style="list-style-type: none"> <li>Icon is displayed when information exists for this diary record regarding Health Events.</li> </ul>
	Bolus	<ul style="list-style-type: none"> <li>A Bolus has been deliverd.</li> </ul>



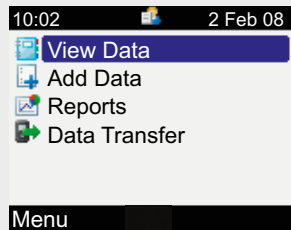
## Viewing your data

1



From main menu press  $\triangle$  or  $\nabla$  to select My Data. Press  $\bigcirc$  to enter.

2



The Data screen is displayed and View Data is highlighted. Press  $\bigcirc$  to enter.

3

View Data		1 Feb 08	mmol/L
20:06	3.8		
17:33	7.0		
16:06	8.6		
13:52	3.3		
10:02	5.9		

The View Data screen appears. Press  $\triangle$  or  $\nabla$  to view other records (the screen scrolls if there are additional records).




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4

View Data	
1 Feb 08	
20:06	bG Value
17:33	Bolus
16:06	Carbs
13:52	
10:02	1.8
Back	

The screen shows the bG test results in the right column by default, but you can also view bolus or carb data.



Press  to select Select View.

Press  or  to select carbs or bolus.

Press  to enter.

5

View Data	
1 Feb 08	
20:06	
17:33	2.4
16:06	2.2
13:52	0.7
10:02	1.8
Back	Select View



To view the details of a specific record press  or  to move the record.

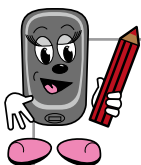
Press  to enter.

6

View Detail	
10:02	2 Feb 08
bG Value	3.8 mmol/L
Meal Time	
Carbs	60 g
Health	
Bolus	
Basal	
Back	Modify

The View Detail screen is displayed.

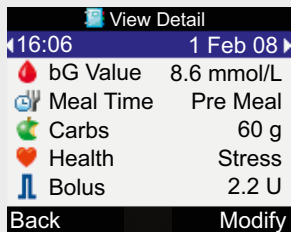
Press  to view the previous or  to view next (newer) record.



## Editing your data

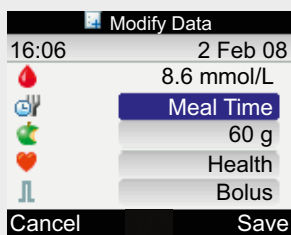
You can also use this function to add information on your Basal insulin. You are in the View Detail screen in step 6 of the previous procedure.

1



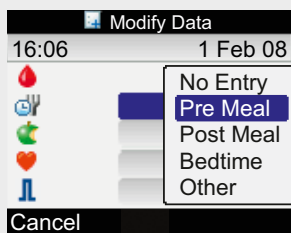
Press to select Modify.

2



Press or to select the field you wish to edit, and press to enter.

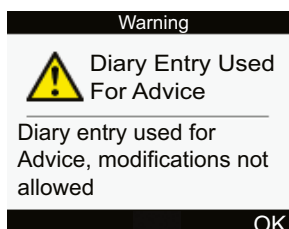
3



Press or to change the entry, and to save the change.

4

Edit the other fields accordingly, as necessary. Press to save the changes and exit.



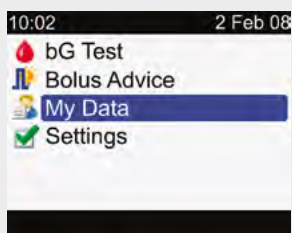
You cannot go back and edit data that have been used with Bolus Advice!



## Adding data

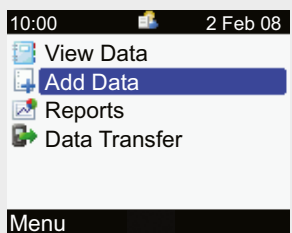
You can add data to a diary record for Carbs, Health, Basal, and Bolus, but not for bG Test results.

1



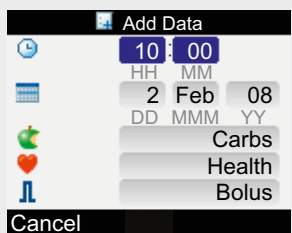
From the main menu, press  $\triangle$  or  $\nabla$  to select My Data.  
Press  $\odot$  to enter.

2



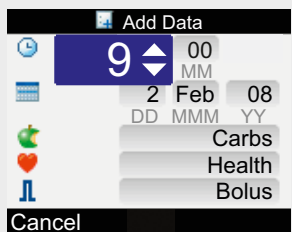
Press  $\nabla$  to move to Add Data.  
Press  $\odot$  to enter.

3



Press  $\triangle$  or  $\nabla$  to select a field.  
Press  $\odot$  to enter.

4



Press  $\triangle$  or  $\nabla$  to edit the entry.  
Press  $\odot$  to confirm.

5

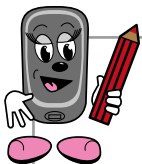
The screenshot shows the 'Add Data' screen with the following fields: Time (9:20), Date (2 Feb 08), Amount (45 g), and Type (Health Bolus). The 'Cancel' button is at the bottom left.

Use and to edit other entries accordingly.

6

The screenshot shows the 'Add Data' screen with the following fields: Time (9:20), Date (2 Feb 08), Amount (45 g), and Type (Health Bolus). The 'Save' button is now visible at the bottom right.

Press to save and return to the My Data screen.




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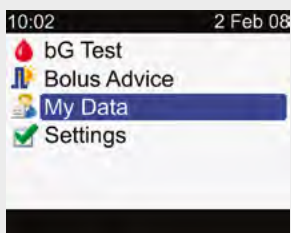


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## Reporting data

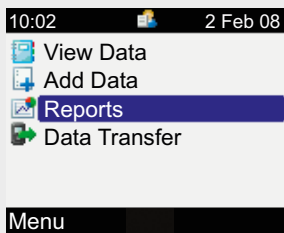
In this menu you can view many different statistics for your bG test results, such as bG averages and standard deviations. Standard deviation is a statistical expression that indicates how far the individual test results are scattered around the average.

1



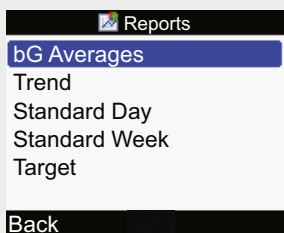
From main menu, press  $\triangle$  or  $\nabla$  to select My Data.  
Press  $\odot$  to enter.

2



The My Data screen appears.  
Press  $\nabla$  to select Reports.  
Press  $\odot$  to enter.

3

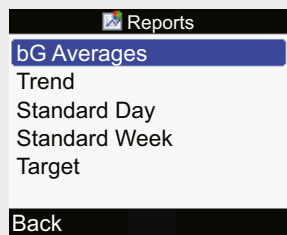



The Reports screen appears.

## bG Averages ...


shows you averages and standard deviations for your bG test results for the categories Overall, Pre Meal, Post Meal, Bedtime and Others. Test results without Meal time entry only occur in the Overall category. You can choose whether the averages and standard deviations include the results of the last 7, 14, 30, 60 or 90 days.



1




From the Reports screen, press  to enter bG Averages.


2

Last 7 days			
	 mmol/L	SD	Tests
Overall	9.1	4.5	37
Pre Meal	7.6	3.7	13
Post Meal	11.2	6.9	5
Bedtime	3.1		1
Other	9.7	2.8	2
Back			

The bG Average screen appears. Press  or  to select the period of time included in the calculation.

3

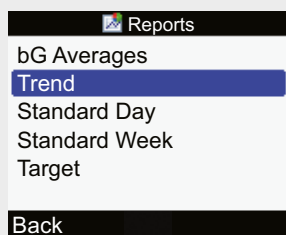
Last 30 days			
	 mmol/L	SD	Tests
Overall	8.8	4.3	144
Pre Meal	7.4	4.0	98
Post Meal	12.3	6.4	32
Bedtime	4.8	3.0	8
Other	9.9	3.1	4
Back			


Press  to select Back and return to the Reports screen.

## Trend ...

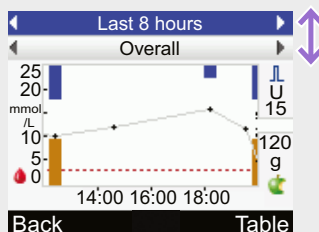
combines your bG test results for the categories Overall, Pre Meal, Post Meal, Bedtime and Others with the entries for Carbs and insulin. You can view them either as a table or as a graphic. You can choose whether the results of the last 8, 24 or 48 hours or 7 days are included.

1



From the Reports screen, press ▼ to select Trend. Press  to enter.

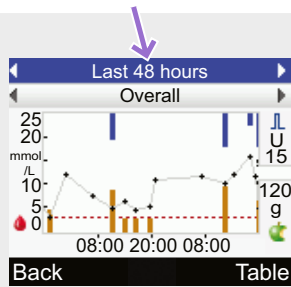
2



The Trend screen appears. Press ▲ or ▼ to switch between the selection of the included period of time and the Meal Time field.

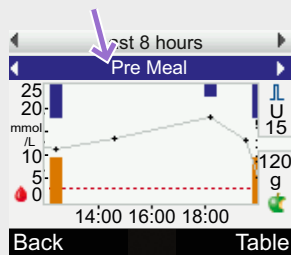


3



When the time field is highlighted (8, 24 or 48 hours or 7 days), press ◀ or ▶ to select the included period of time.


4




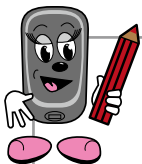
When the Meal Time field is highlighted, press ◀ or ▶ to select the Meal Time category you wish to view.

5

Last 8 hours			
Overall			
2 Feb 08	mmol/L	g	U
20:06	3.8	66	
17:33	7.0	60	2.4
16:06	8.6	20	2.2
13:52	3.6	60	0.7

Press  to switch between Graph view and Table view.

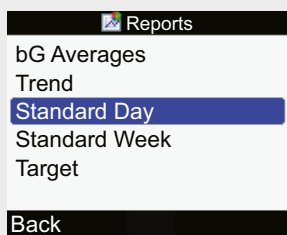
Press  to select Back and return to the Reports screen.



## Standard Day ...

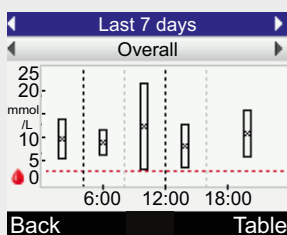
shows you averages and standard deviations for your bG test results for the categories Overall, Pre Meal, Post Meal, Bedtime and Other calculated for each Time Block of your Bolus Advice/Time Block setting. You can view them either as table or as graphic. You can choose whether the averages and standard deviations include the results of the last 7, 14, 30, 60 or 90 days.

1



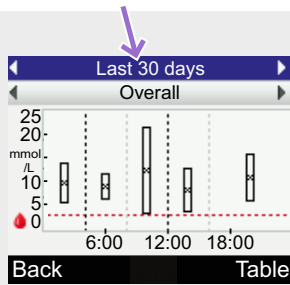
From Reports screen press  $\triangle$  or  $\nabla$  to select Standard Day.  
Press  $\bigcirc$  to enter.

2



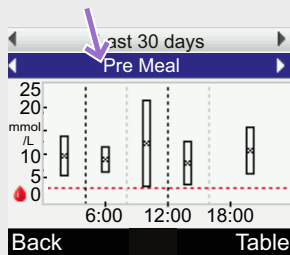
The Standard Day screen appears.  
Press  $\triangle$  or  $\nabla$  to toggle between selection of included period of time and Meal Time field.

3



When the time field is highlighted (7, 14, 30, 60 or 90 days), press ◀ or ▶ to select the included period of time.


4




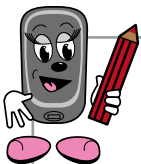
When the Meal Time field is highlighted, press ◀ or ▶ to select the Meal Time category you wish to view.

5

Last 7 days			
Overall			
	mmol/L	SD	Tests
0:00 - 4:00	8.7	3.7	3
4:00 - 8:00	8.0	2.7	4
8:00 - 12:00	11.1	8.0	4
12:00 - 16:00	7.4	4.1	9

Press  to switch between Graph view and Table view.

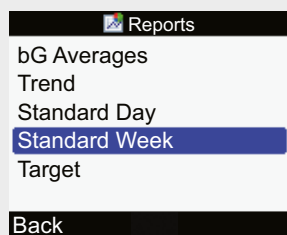
Press  to select Back and return to the Reports screen.



## Standard Week ...

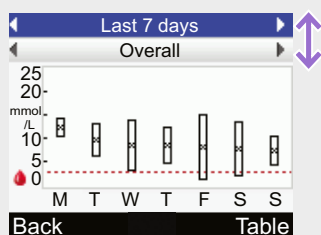
shows you averages and standard deviations for your bG test results for the categories Overall, Pre Meal, Post Meal, Bedtime and Other, calculated for each day of the week. You can view them either as a table or as a graphic. You can choose whether the averages and standard deviations include the results of the last 7, 14, 30, 60 or 90 days.

1



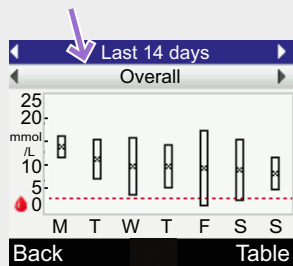
From the Reports screen, press  $\triangle$  or  $\nabla$  to select Standard Week.  
Press  $\bigcirc$  to enter.

2



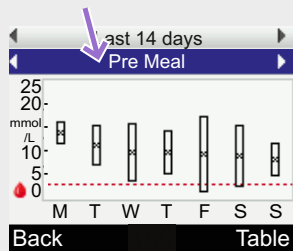
The Standard Week screen appears.  
Press  $\triangle$  or  $\nabla$  to toggle between the selection of included period of time and Meal Time field.

3



When the time field is highlighted (7, 14, 30, 60 or 90 days), press ◀ or ▶ to select the included period of time.


4




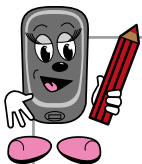
When the Meal Time field is highlighted, press ◀ or ▶ to select the Meal Time category you wish to view.

5

Last 7 days			
Overall			
	mmol/L	SD	Tests
Monday	12.4	2.2	5
Tuesday	10.0	3.9	5
Wednesday	8.7	5.5	5
Thursday	8.8	4.1	5

Press  to switch between Graph view and Table view.

Press  to select Back and return to the Reports screen.



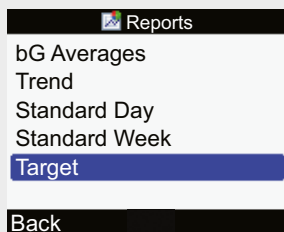
## Target ...

shows you percentages for your bG test results for the categories Overall, Pre Meal, Post Meal, Bedtime and Other, that are

- above your Target Range  
(between upper and lower bG target limit)
- within your Target Range  
(between upper and lower bG target limit)
- below your Target Range  
(between upper and lower bG target limit)
- below your Hypo Warning Limit.

You can view them either as a table or as a pie chart. You can choose whether the percentages include the results of the last 7, 14, 30, 60 or 90 days.

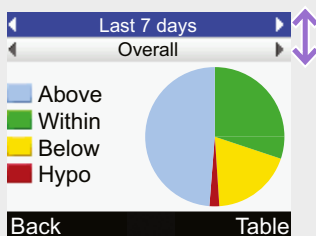
1



From the Reports screen, press  $\triangle$  or  $\nabla$  to select Target.

Press  $\bigcirc$  to enter.

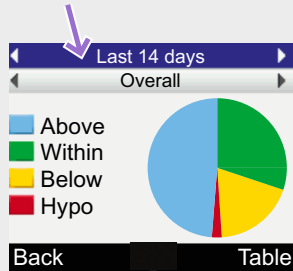
2



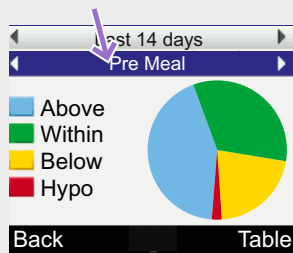
The Target screen appears.

Press  $\triangle$  or  $\nabla$  to switch between the selection of included period of time and Meal Time field.

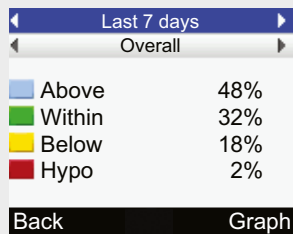
3





4

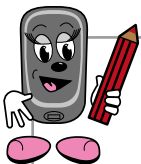


5



Press  to toggle between Graph view and Table view.

Press  to select Back and return to the Reports screen.




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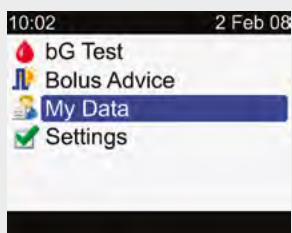
## 4.1 Transferring data to a Computer

1



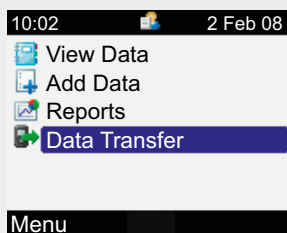
Position the infra-red window of your meter opposite the infra-red cable of the computer, and prepare the computer for data transfer (for detailed instructions, see the instructions provided with the according software on your computer.)

2



From main menu on the meter press  $\triangle$  or  $\nabla$  to select My Data.  
Press  $\bigcirc$  to enter.

3



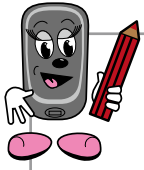
Press  $\triangle$  or  $\nabla$  to move to Data Transfer.  
Press  $\bigcirc$  to enter.

4



The data transfer begins.  
When the data transfer is complete the Data Transfer Complete screen appears for three seconds and then the meter turns off.





A large rectangular area with horizontal lines for writing, spanning most of the page width and height.



## 5 Using Reminders

Managing your job, managing your family or managing school often require your full attention. The meter can assist you managing your diabetes. With reminders it helps you remembering a variety of diabetes related tasks. Three different types of reminders are available to accommodate for different requirements:



- bG Test Reminders ...** remind you to test your bG level in special situations:
- after a high bG test result (hyperglycaemia):  
After High bG
  - after a low bG test result (hypoglycaemia):  
After Low bG
  - after a meal: After Meal



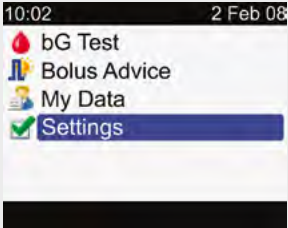
- Alarm Clock ...** You can set up to eight different alarm clock reminders per day.  
You can set them to remind you of:
- a bG Test
  - an injection
  - other events




- Date Reminders ...** remind you of events like:
- Dr. Visit sounds at a special date
  - Lab Test sounds at a special date

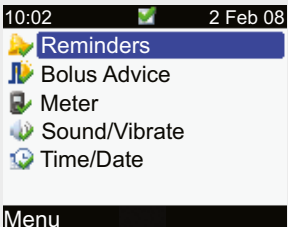
To set Reminders


1

A screenshot of a handheld device's main menu. The status bar at the top shows '10:02' and '2 Feb 08'. The menu items are 'bG Test' (with a red drop icon), 'Bolus Advice' (with a blue 'b' icon), 'My Data' (with a person icon), and 'Settings' (with a green checkmark icon). 'Settings' is highlighted with a blue background.

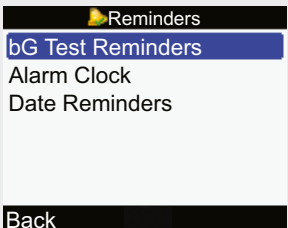
From main menu, press  $\triangle$  or  $\nabla$  to select Settings.  
Press  to enter.

2

A screenshot of the 'Settings' screen. The status bar shows '10:02' and '2 Feb 08'. The menu items are 'Reminders' (with a yellow bell icon), 'Bolus Advice' (with a blue 'b' icon), 'Meter' (with a green meter icon), 'Sound/Vibrate' (with a speaker icon), and 'Time/Date' (with a clock icon). 'Reminders' is highlighted with a blue background. A 'Menu' button is at the bottom.

The Settings screen appears.  
Press  to enter Reminders.

3

A screenshot of the 'Reminders' screen. The status bar shows 'Reminders' with a yellow bell icon. The menu items are 'bG Test Reminders' (with a blue 'b' icon), 'Alarm Clock', and 'Date Reminders'. 'bG Test Reminders' is highlighted with a blue background. A 'Back' button is at the bottom.

The Reminders screen appears.





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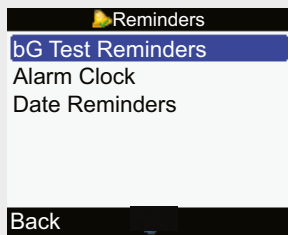
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

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## bG Test Reminders – After High bG

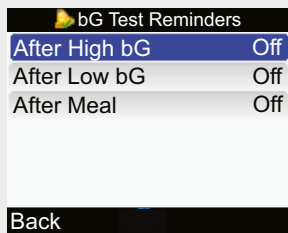
This reminder will turn on the meter. You can dismiss it by pressing . You can reschedule (snooze) it to occur in 15 minutes by pressing .

1



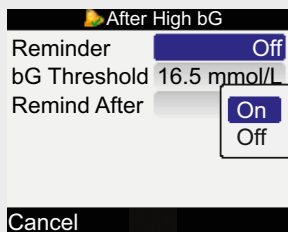
From the Reminders screen press  or  to select bG Test Reminders. Press  to enter.





2



The bG Test Reminders screen appears. Press  to enter After High bG.

3



The After High bG screen appears. Press  to enter Reminder. Press  or  to select On or Off as needed. Press  to confirm and move to the bG Threshold box. The Hyper Warning Limit is set as bG threshold for triggering the reminder by default.

4

After High bG

Reminder ☐ On

bG Threshold 16.5 mmol/L

Remind After 0:15 HH MM

Cancel

To change the bG threshold press . Press or to select the bG value as needed. Press to confirm and move to the Remind After box.

5

After High bG

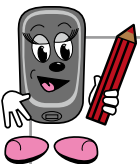
Reminder ☐ On

bG Threshold 16.5 mmol/L



Remind After 1:30 HH MM

Cancel

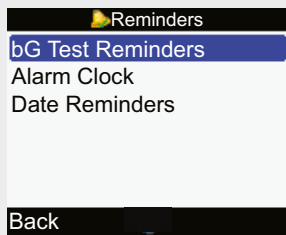
Press to enter. Press or to change the period after which the reminder sounds as needed. Press to confirm. Press to save and return to the bG Test Reminders screen.






## bG Test Reminders – After Low bG

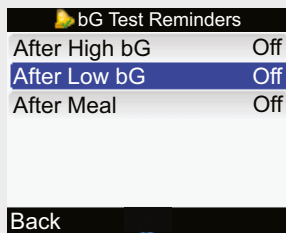
This reminder turns on the meter. You can dismiss it by pressing . You can re-schedule (snooze) it to occur in five minutes by pressing .




1



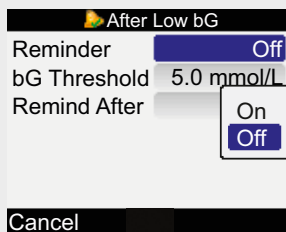
From the Reminders screen press  or  to select bG Test Reminders. Press  to enter.





2



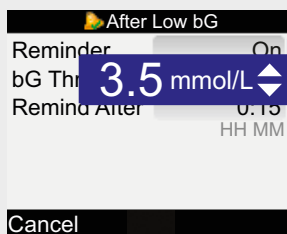
The bG Test Reminders screen appears. Press  or  to select After Low bG. Press  to enter.

3



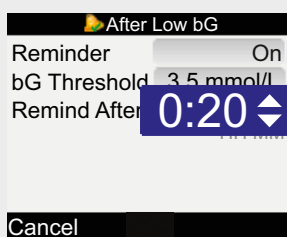
The After Low bG screen appears. Press  to enter Reminder. Press  or  to select On or Off as needed. Press  to confirm and move to the bG Threshold box. The Hypo Warning Limit is set as bG threshold for triggering the reminder by default.

4

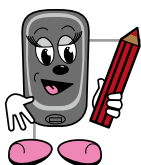


To change the bG Threshold press . Press or to select the bG value as needed. Press to confirm and move to the Remind After box.

5



Press to enter. Press or to change the period after which the reminder sounds as needed. Press to confirm. Press to save and return to the bG Test Reminders screen.




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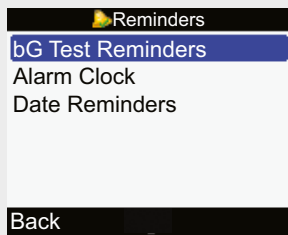
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




## bG Test Reminders – After Meal

This reminder will turn on the meter. You can dismiss it by pressing . You can reschedule (snooze) it to occur in five minutes by pressing .




1



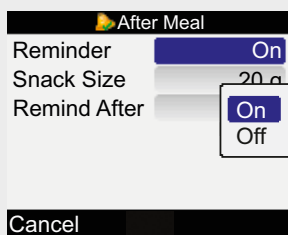
From the Reminders screen press  or  to select bG Test Reminders. Press  to enter.





2



The bG Test Reminders screen appears. Press  or  to select After Meal. Press  to enter.

3



The After Meal screen appears. Press  to enter Reminder. Press  or  to select On or Off as needed. Press  to confirm and move to the Snack Size box.



The Snack Size is the same as entered in the Bolus Advice Options. If you change it here it will also be changed in the Bolus Advice settings.

4

After Meal

Reminder On

Snack Size 10 g

Remind After 2:00  
HH MM

Cancel

Press to enter.

Press or to select appropriate Snack Size as needed.

Press to confirm and move to the Remind After box.

5

After Meal

Reminder On

Snack Size 20 g

Remind After 1:30  
HH MM

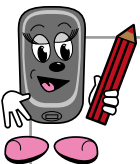
Cancel

Press to enter.

Press or to select an appropriate period of time as needed.

Press to confirm.

Press to save and return to the bG Test Reminders screen.




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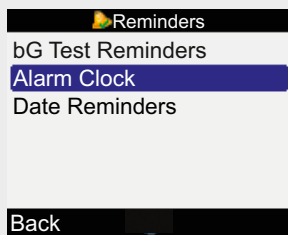


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## Alarm Clock

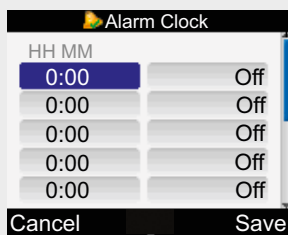
This reminder turns on the meter. You can dismiss it by pressing . You can re-schedule (snooze) it to occur in 15 minutes by pressing .

1



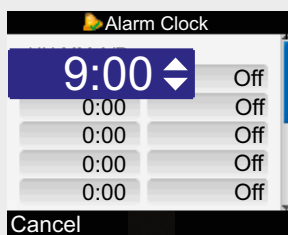
From the Reminders screen, press or to select Alarm Clock. Press to enter.

2



The Alarm Clock screen appears. Press or to move to the alarm clock you wish to change. Press to enter the time box.

3



Press or to select the appropriate time for the alarm. Press to confirm and move to the Off or purpose box.

4

HH MM	bG Test
9:00	bG Test
0:00	Off
0:00	bG Test
0:00	Other
0:00	Off

Cancel

Press to enter.

Press or to select Off, bG Test, Injection or Other as needed.

Press to confirm.

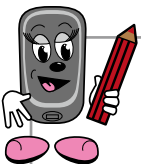
5

HH MM	bG Test
9:00	bG Test
0:00	Off
0:00	Off
0:00	Off
0:00	Off

Cancel Save

Where appropriate, repeat steps 2 to 4 to set more Alarm Clocks accordingly.

Press to save and return to the Reminders screen.




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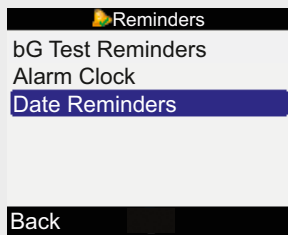





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## Date Reminders – Dr. Visit

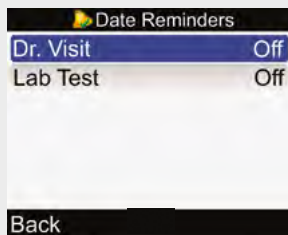
This reminder does not turn on the meter, but sounds as soon as you turn on the meter on the selected day. You can dismiss it by pressing .




1



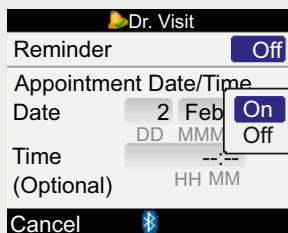
From the Reminders screen, press  or  to select Date Reminders.  
Press  to enter.





2



The Date Reminder screen appears.  
Press  or  to move to Dr. Visit.  
Press  to enter.

3



The Dr. Visit screen appears.  
Press  to enter the Reminder box.  
Press  or  to select On or Off.  
Press  to confirm an move to the Date line.

4

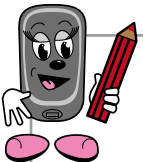
Press to enter the day box.  
 Press or to select the day.  
 Press to confirm and enter the month box.  
 Press or to select the month.  
 Press to confirm and enter the year box.  
 Press or to select the year.

5


Press to confirm and move to the Time box.  
 Press to enter.

6

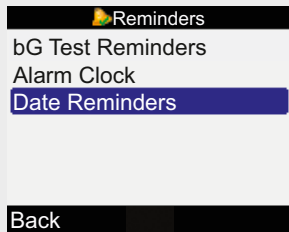
Press or to select the time.  
 Press to confirm.  
 Press to save and return to the Date Reminders screen.






## Date Reminders – Lab Test

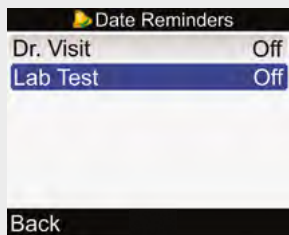
This reminder does not turn on the meter, but sounds as soon as you turn on the meter on the selected day. You can dismiss it by pressing .




1



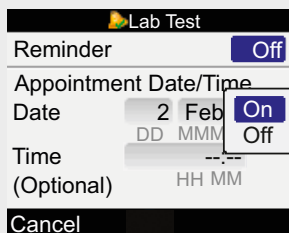
From the Reminders screen press  or  to select Date Reminders.  
Press  to enter.





2



The Date Reminder screen appears.  
Press  or  to move to Lab Test.  
Press  to enter.

3



The Lab Test screen appears.  
Press  to enter the Reminder box.  
Press  or  to select On or Off.  
Press  to confirm and move to the Date line.

4

Lab Test

Reminder ☐ On

Appointment Date/Time

Date 12 Mar 08  
DD MMM YY

Time  
(Optional) HH MM

Cancel Save

Press  to enter the day box.  
 Press  or  to select the day.  
 Press  to confirm and enter the month box.  
 Press  or  to select the month.  
 Press  to confirm and enter the year box.  
 Press  or  to select the year.

5

Lab Test

Reminder ☐ On

Appointment Date/Time

Date 12 Mar 08  
DD MMM YY

Time  
(Optional) HH MM

Cancel Save

Press  to confirm and move to the Time box.  
 Press  to enter.

6

Lab Test

Reminder ☐ On

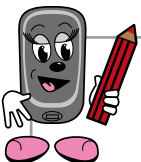
Appointment Date/Time

Date 12 Mar 08  
DD MMM YY

Time 8:30  
(Optional) HH MM

Cancel Save

Press  or  to select the time.  
 Press  to confirm.  
 Press  to save and return to the Date Reminders screen.

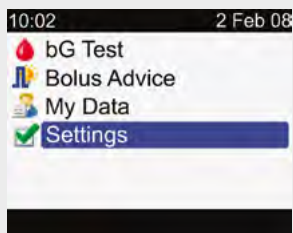






## 6 Changing your meter Settings

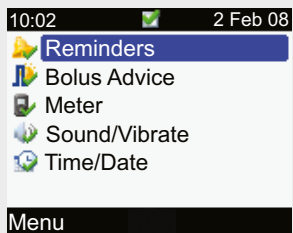
As your life or health situation may change, you may need to change some of the values in your meter settings. Discuss with your healthcare professional before you change settings.

1






From main menu press  or  to move to Settings.

2



Press  to enter. The Settings screen appears.

3

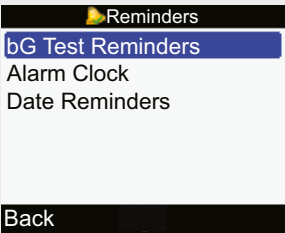
Use ,  and  to edit the particular setting as needed.

4

Where appropriate, press  to save and exit.

**You will find the particular settings as follows:**

**Reminders**



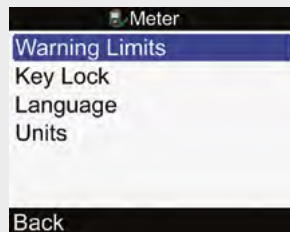
- › bG Test Reminders →
  - › After High bG
  - › After Low bG
  - › After Meal
- › Alarm Clock → Alarm Clock 1–8
- › Date Reminders →
  - › Dr. Visit
  - › Lab Test

**Bolus Advice**



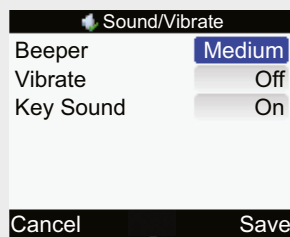
- › Time Blocks →
  - › End
  - › Target Range
  - › Carb Ratio
  - › Insulin Sensitivity
- › Health Events →
  - › Exercise 1
  - › Exercise 2
  - › Stress
  - › Illness
  - › Premenstrual
- › Advice Options →
  - › Meal Rise
  - › Snack Size
  - › Acting Time
  - › Offset Time

## Meter



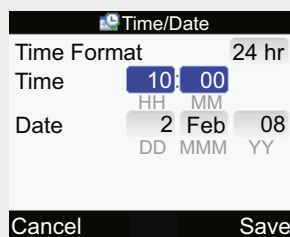
- › Warning Limits →
  - › Hyper (high)
  - › Hypo (low)
- › Key Lock → › ON/OFF
- › Language
- › Units →
  - › Grams, BE, KE, CC
  - › Insulin Increment
  - › Max Bolus

## Sound / Vibrate



- › Beeper → › Off, low, medium, high
- › Vibrate → › ON/OFF
- › Key Sound → › ON/OFF

## Time / Date



- › Time Format
- › Time
- › Date



## Appendix A



**Calculating a correct bolus is a tricky business.**

If you had to work it out yourself,  
here's what you would have to do.

### Sweety's Recipe for a Ready-to-Use Insulin Bolus

#### Ingredients

- A fresh amount of carbohydrates
- Your current insulin-to-Carb Ratio
- A fresh blood glucose (bG) test result
- Your current bG target level
- Your current insulin sensitivity (also called your correction factor)
- The correct time
- An insulin dose adjustment for exercise, stress, illness or premenstruation (add as needed)
- Insulin

### Tools

- A watch or clock
- A meter
- A test strip
- A lancing device
- An insulin pen or syringe

### Instructions

1. Check the time and multiply the carbohydrates by your current insulin-to-Carb Ratio.

The carbohydrates must be fresh and must not have been used for a previous bolus.

2. Put the result aside. This is your meal bolus.
3. Perform a bG test to get a fresh (new) bG test result.

Make sure the result is less than five minutes old and has not been used for a previous bolus.





4. Take away your current bG target level from your bG test result.
5. Multiply the answer by your current insulin sensitivity level (check the time). This gives you the correction bolus.
6. Add the correction bolus to the meal bolus that you prepared earlier. (If the result is less than 0, you do not need to inject insulin at the moment.)
7. Add or take away the health percentage for exercise, stress, illness or premenstruation as required.
8. Inject the resulting amount of insulin using your pen or syringe.

Note: Do not re-use the carb amount or bG test result for a second bolus as this could lead to double dosage and hypoglycaemia.



Thankfully, calculating a correct bolus with the new Accu-Chek Aviva Combo meter is so much easier.

### Ingredients

- A fresh amount of carbohydrates
- A fresh bG test result
- A health percentage for exercise, stress, illness or premenstruation (add as needed)

Your Accu-Chek Aviva Combo meter automatically considers the current time, your insulin-to-Carb Ratio for the current time, your current Insulin Sensitivity (also called the correction factor) and the percentages for exercise, stress, illness or premenstruation as you entered them in the Set-up Wizard.

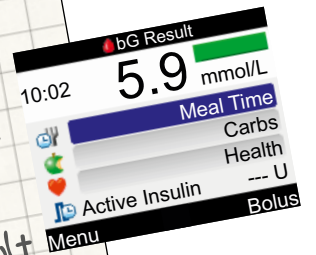


### Tools

- Your Accu-Chek Aviva Combo meter
- A test strip
- A lancing device
- Your insulin pen or syringe

### Instructions

1. Perform a bG test using your new Accu-Chek Combo meter.
2. Access Bolus Advice from the bG Test Result screen.
3. In Bolus Advice, enter the amount of carbs you are planning to consume and any information about Health Events as required. Bolus Advice will do the calculation for you.
4. Administer the insulin using your pen or syringe.



Your Accu-Chek Aviva Combo meter will automatically ensure that neither a carb amount nor a bG test result is re-used for a second bolus!

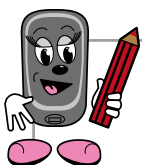
For further details see Appendix B and C: Bolus Advice Calculation.



## Where to find the Bolus Advice settings on the meter

Manual calculation	On your meter
Time dependence of parameters (circadian rhythm)	<b>Time Blocks:</b> In Settings › Bolus Advice › Time Blocks
Insulin-to-carbohydrate ratio	<b>Carb Ratio:</b> Within each Time Block (in Settings › Bolus Advice › Time Blocks)
Insulin Sensitivity / correction factor	<b>Insulin Sensitivity:</b> Within each Time Block (in Settings › Bolus Advice › Time Blocks)
bG target level	<b>Target Range:</b> Within each Time Block (in Settings › Bolus Advice › Time Blocks) The target value is calculated automatically as midway between the upper and lower target limits.
Insulin dose adjustment for exercise, stress, illness or premenstruation	<b>Health:</b> In the bG Test Result screen or in Bolus Advice. Select the value in Settings › Bolus Advice › Health Events.

Manual calculation	On your meter
Prevention of double dosage after meal	<b>Meal Rise:</b> In connection with Acting Time and Offset Time (in Settings › Bolus Advice › Advice Options).
Prevention of double dosage after a high bG test result	<b>Offset Time</b> and <b>Acting Time</b> after a correction bolus.




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## Appendix B: Bolus Advice Calculations

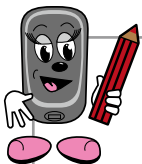
In this section you will learn how Bolus Advice recommendations are calculated. To make sure that the recommendations meet your needs, you must give the Bolus Advice feature on your meter some extra information, as well as the basic blood glucose (bG) and carbohydrate values. As a safety measure, Bolus Advice will not work without this information.

Your healthcare professional will give you the information that you need for the Bolus Advice feature.

### Carbohydrate Units

Choosing how your carbohydrates will be measured is important. In this way, Bolus Advice can give you an accurate result. You just select what carbohydrate units Bolus Advice will use to make its calculations. You can choose between:

- Grams
- BE ( $\approx 12$  g)
- KE ( $\approx 10$  g)
- CC ( $\approx 15$  g)



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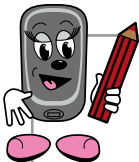
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**Time Blocks**

Your insulin needs may vary depending on the time of day, so using the same values and factors throughout the day would probably not suit your metabolism or lifestyle. This could also lead to incorrect doses of insulin.

Time Blocks	
Start	End
0:00	5:30
5:30	11:00
11:00	17:00
17:00	21:30
21:30	0:00
Back	

The screen above shows the Time Blocks feature within Bolus Advice. Time Blocks consider your time dependent requirements when calculating your insulin dose at different times of the day. You can program up to eight Time Blocks, depending on your lifestyle. For example, your insulin needs in the morning or evening may not be the same as those in the afternoon or at night, so you can program these different periods as Time Blocks. There are no pre-defined Time Blocks that you should follow. You can choose when a Time Block ends to suit your lifestyle.



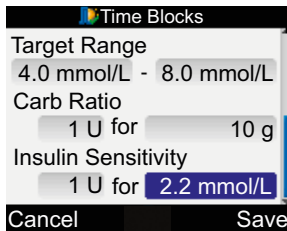
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Within Time Blocks you will find the following settings:



The screenshot shows a 'Time Blocks' settings window. It contains three main settings: 'Target Range' set to '4.0 mmol/L - 8.0 mmol/L', 'Carb Ratio' set to '1 U for 10 g', and 'Insulin Sensitivity' set to '1 U for 2.2 mmol/L'. At the bottom are 'Cancel' and 'Save' buttons.

Setting	Value
Target Range	4.0 mmol/L - 8.0 mmol/L
Carb Ratio	1 U for 10 g
Insulin Sensitivity	1 U for 2.2 mmol/L

### Target Range

Your bG results should be between the lower and upper values of the Target Range as long as you are fasting (in the morning or before a meal). The target bG will be calculated automatically as the average between the upper and lower bG values.

### Carb Ratio

The Carb (carbohydrate) Ratio defines how much insulin is needed to compensate for a certain amount of carbohydrates.

### Insulin Sensitivity

The Insulin Sensitivity (correction factor) shows how sensitive you are to a dose of insulin. This is how much your bG drops in response to a certain amount of insulin.

You can define all of these values separately for each Time Block. The Bolus Advice calculation automatically takes these values into account for the time of day.

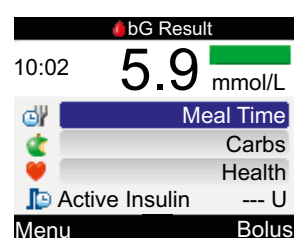


**Without a meal – that means, when you do not enter Carbs – these are the Calculations**

If your bG level is ...		... the Bolus calculation is
hyper ↑	above Hyper Warning	$(bG - \text{Target } bG) \times \text{Insulin Sensitivity}$ Additional recommendation to measure BG more frequently and check for ketones.
	between Upper Target Limit and Hyper Warning	$(bG - \text{Target } bG) \times \text{Insulin Sensitivity}$ .
	between Upper and Lower Target Limit	No correction bolus necessary.
	between lower Target Limit and Hypo Warning	No correction bolus recommended.
hypo ↓	below Hypo Warning	Hypo Warning! Recommendation to eat fast acting carbs. Bolus Advice function not accessible!



Remember the colored bar in the bG test-result screen tells where your current bG level is compared to your target bG.





## Before a meal – that means, when you enter Carbs – these are the Calculations

The Meal bolus will always be calculated as:

$$\text{carbs} \times \text{insulin-to-carb-ratio}$$

If your bG level is ...		... the Bolus calculation is
hyper ↑	above Hyper Warning	$(\text{bG} - \text{Target bG}) \times \text{Insulin Sensitivity} + \text{Meal bolus}$ . Additional recommendation to measure bG more frequently and check for ketones.
	between Upper Target Limit and Hyper Warning	$(\text{bG} - \text{Target bG}) \times \text{Insulin Sensitivity} + \text{Meal bolus}$ .
	between Upper and Lower Target Limit	$(\text{bG} - \text{Target bG}) \times \text{Insulin Sensitivity} + \text{Meal bolus}$ . Note that correction bolus can be negative.
	between lower Target Limit and Hypo Warning	$(\text{bG} - \text{Target bG}) \times \text{Insulin Sensitivity} + \text{Meal bolus}$ . Note that correction bolus is negative.
hypo ↓	below Hypo Warning	Hypo Warning! Recommendation to eat fast acting carbs. Bolus Advice function not accessible!

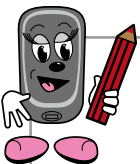
## Health Events

If your routine was always the same from one day to the next, then Time Blocks would provide enough information to calculate the correct boluses. However, sometimes your daily routine may be different and your insulin needs will then change.

Health Events	
Exercise 1	-10%
Exercise 2	-20%
Stress	0%
Illness	+20%
Premenstrual	0%
Cancel	Save

You can use Health Events to take into account various activities or events that increase or decrease your insulin needs. You can choose different Health Events depending on how you are feeling or what you are doing. For example, sport or physical activity could decrease your insulin needs, whereas illness or the menstrual cycle could increase your insulin needs.

Many of these activities or events do not occur at regular intervals, and Time Blocks cannot take them into account. With Health Events, you can program how much extra insulin (as a percentage of your usual bolus) you may need. For example, when exercising, your insulin requirement may be 25% lower. You and your healthcare professional should discuss what percentage to program for each Health Event.



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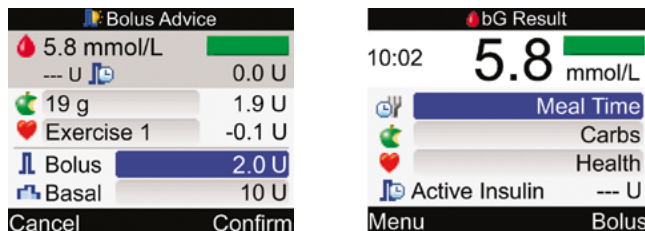
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When one of the programmed Health Events occurs in your daily life, you can choose the Health Event on your meter so that Bolus Advice can calculate the correct insulin dose. You can program five different Health Events:

- Exercise 1
- Exercise 2
- Stress
- Illness
- Premenstrual

The Bolus Advice screen and the bG Result screen call these *Health* with the -icon.



Within Health on the Bolus Advice and bG Result screen you can also select Fasting. However, you cannot adjust Fasting by percentage and it does not scale advice calculations.

### Advice Options – Meal Rise, Snack Size, Acting Time, and Offset Time

Advice Options help to make sure that Bolus Advice does not recommend a second bolus for a blood sugar event, such as a meal or a high bG level, that has already been covered by a previous bolus.

Time Blocks	
Start	End
0:00	5:30
5:30	11:00
11:00	17:00
17:00	21:30
21:30	0:00
Back	

## Meal Rise

After a meal, bG levels usually increase by a noticeable amount, even in people without diabetes. Depending on the type of meal, your bG can reach a maximum about an hour after your meal and return to its original level after another one to two hours. This is a normal process, so Bolus Advice takes this into account using Meal Rise.

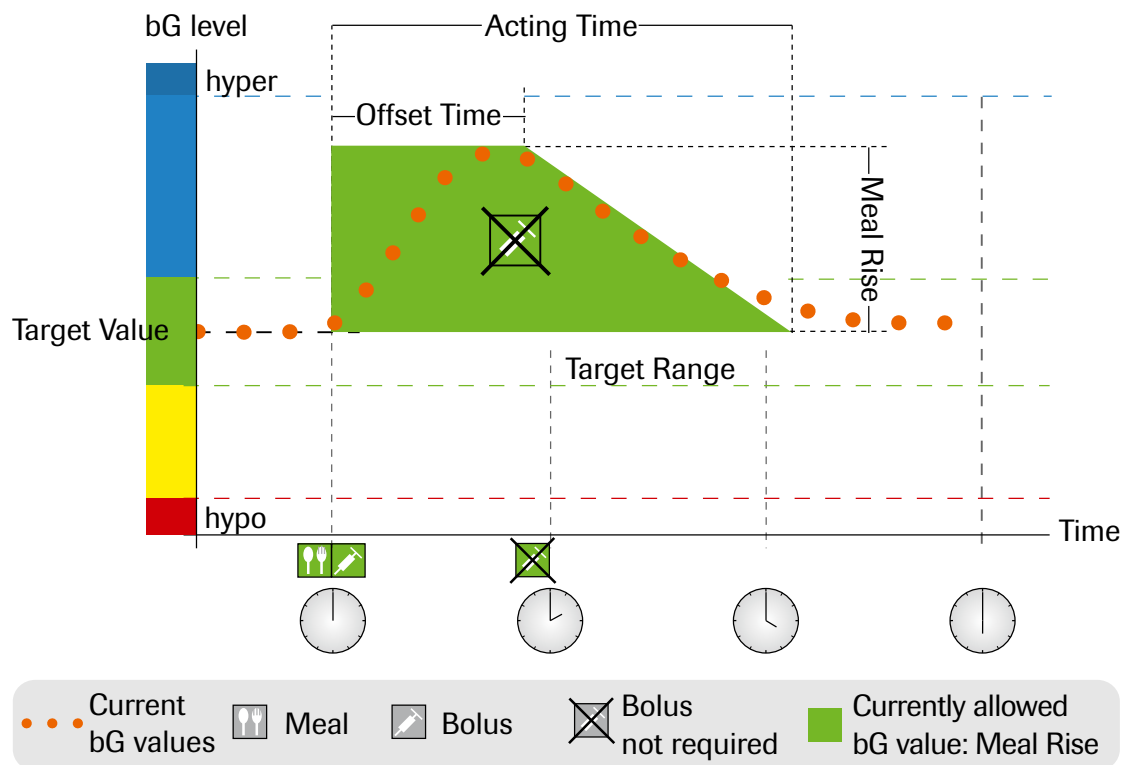


Fig. 1: Meal Rise

The dotted line shows how your bG level typically changes after a meal bolus. Bolus Advice tolerates an increased bG level within the Meal Rise range (green) without calculating an extra correction bolus. Each time you tell Bolus Advice that you have consumed more carbohydrates than the Snack Size, the Meal Rise entry is added to the bG target value. How long the Meal Rise lasts (the width of the green area) is determined by the Offset Time and the Acting Time.

### Snack Size

The Snack Size defines a certain amount of carbohydrates for which a meal bolus is calculated, but no Meal Rise is triggered. No bG level above the Target Range or currently allowed bG is tolerated for this amount of carbohydrates, so Bolus Advice will calculate a correction bolus for any increase in bG after a snack.

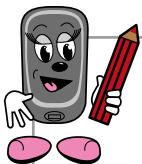
### Acting Time

The Acting Time is the time for which the insulin delivered as a bolus is still effective. It is the whole time for which an increase in bG after a meal bolus or a correction bolus is taken into account. Bolus Advice will not recommend a correction bolus for this time if your current bG level is less than the bG level covered by the previous bolus (Meal Rise or a corrected high bG).

To choose the correct value for the Acting Time, you and your healthcare professional should think about the following:

- Whether you use rapid-acting insulin analogue or fast-acting regular human insulin (the Acting Time should be longer for regular insulin)
- Your average bolus amount (the larger your average bolus amount, the longer the Acting Time should be)

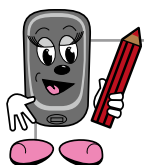
You can program the Acting Time from 1½ to 8 hours.



## Offset Time

The Offset Time is the time taken for the bolus to take effect. After the Offset Time, your bG level should decrease because of the insulin, and at the end of the Acting Time it should return to the target level.

The Offset Time must be at least 45 minutes, and the maximum value will be limited by the Acting Time that you choose.



## Example

The following example explains the effect of the Offset Time and Acting Time:

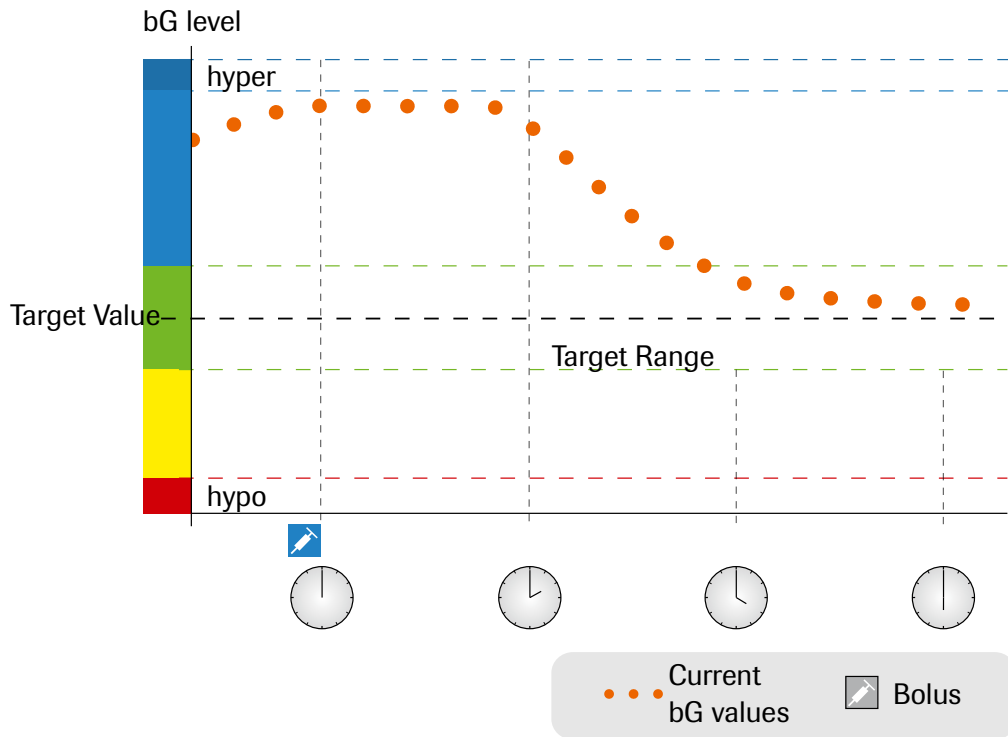


Fig.2: Example blood-sugar curve (bG-level)

You calculate and administer a correction bolus at 12 o'clock. The insulin needs time to become effective, so your bG value (dotted line) may not be significantly reduced, even by 2 o'clock. (If you had not administered the correction bolus, your bG might even have increased.) You measure your bG at 2 o'clock and it is nearly the same as at 12 o'clock. Between 2 o'clock and 4 o'clock the effect of the correction bolus, which is still active, will decrease your bG level to a value within the Target Range.

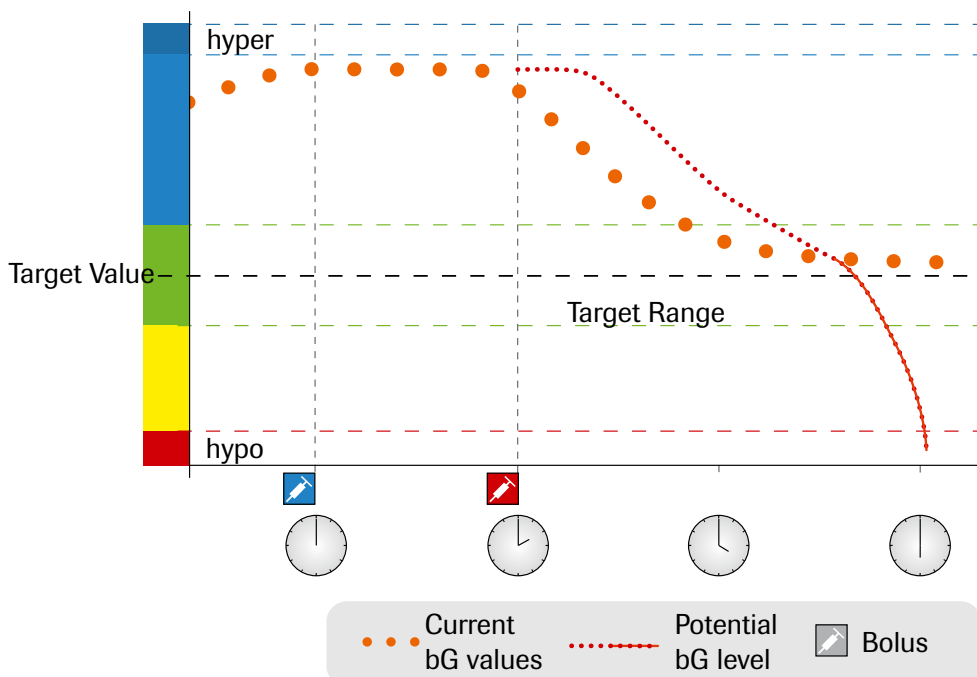


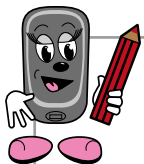
Fig.3: Example blood-sugar curve – double dosage

However, at 2 o'clock, if Bolus Advice took only your current bG value into consideration, it would ignore the ongoing effect of your correction bolus. It would then recommend an additional bolus to compensate for the raised bG value. Where the effect of the two boluses overlap it could lead to a hypoglycemia (red line), because you would have had two boluses for the same blood-sugar excursion. Therefore, Bolus Advice always compares your bG result with the currently allowed bG value, and not just with the target value for the current Time Block.



The currently allowed bG value considers the following factors:

- The upper limit of the Target Range for your current Time Block
- Excursions beyond the Target Value that have had a correction bolus that is still active (Acting Time)
- bG values that were tolerated as a Meal Rise and which have had a meal bolus that is still active (Acting Time)
- The expected reduction of your bG level due to the effect of insulin during the Acting Time (the decrease between the end of Offset Time and end of Acting Time)



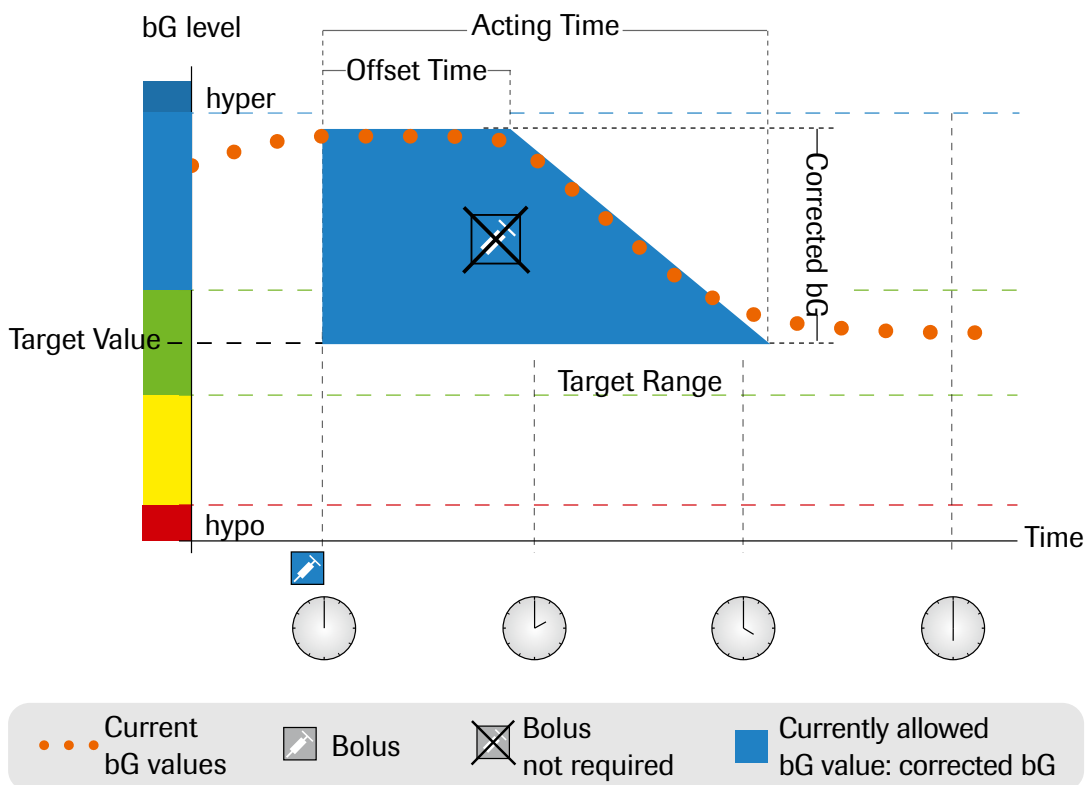


Fig.4: Corrected high bG

The above diagram shows an example of the effect of this rule. The first correction bolus at 12 o'clock remains active during the Acting Time (the width of the blue area). If a measured value at 2 o'clock falls within the currently allowed bG value (height of the blue area), no new correction bolus is calculated.

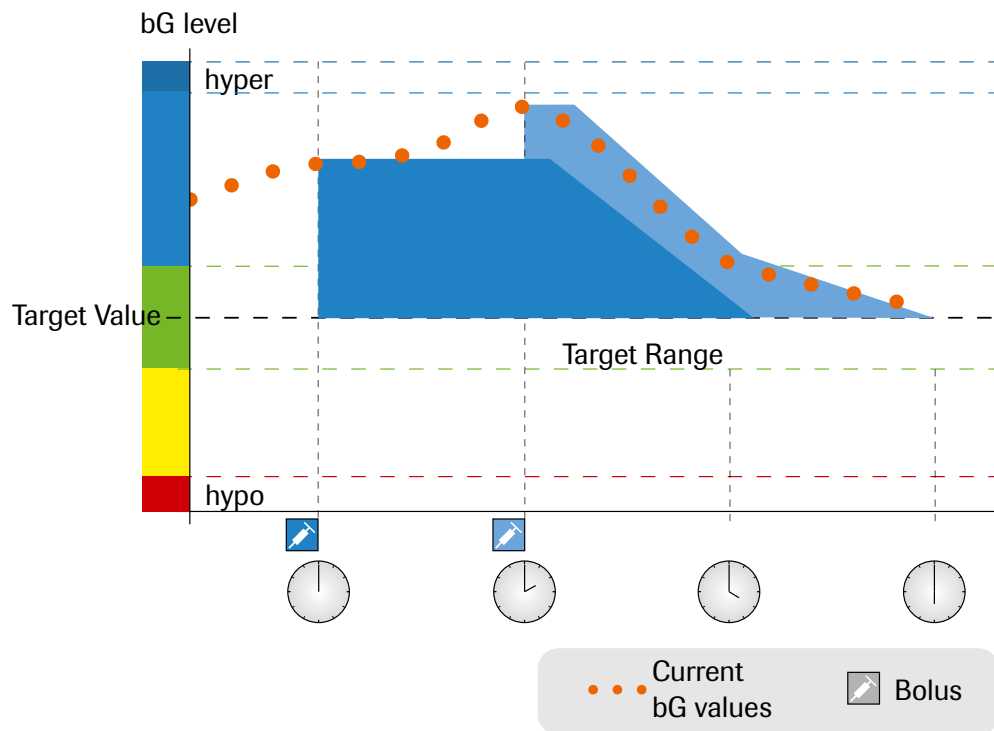
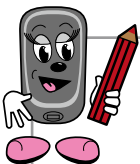


Fig.5: Subsequent boluses

Where the measured value is greater than the currently allowed bG value, the newly calculated bolus (light-blue) only considers the difference between the current bG value (dotted line) and the currently allowed bG value (the height of the blue area). During the Acting Time of the first correction bolus (the width of the blue area), only the currently allowed bG value is used to calculate the second bolus.




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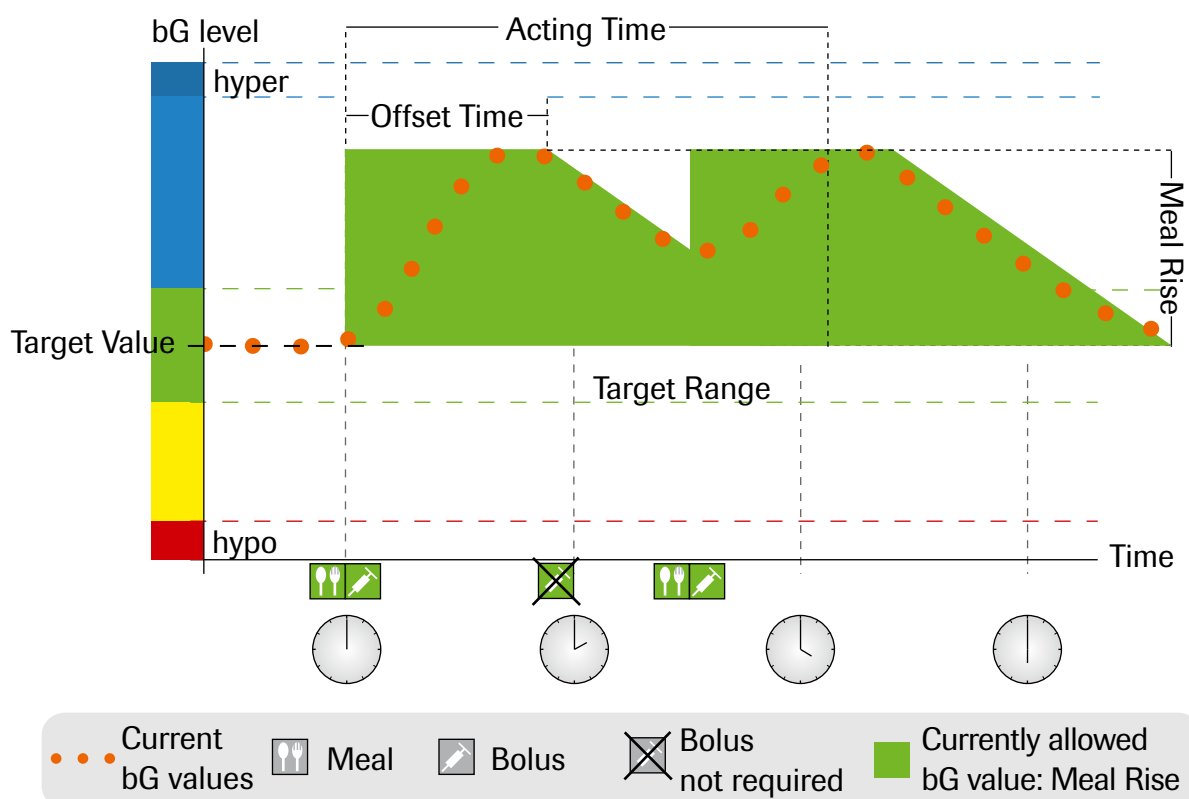


Fig. 6: Subsequent meal boluses

### Subsequent meals

If you eat several meals in a row, the Meal Rise will not add up, but start afresh for each new meal bolus.

## Appendix C

### The Mathematical Basis for Bolus Calculations

Below is a list of the most important formulas and principles that Bolus Advice uses to calculate your bolus. It is difficult to accurately calculate a bolus yourself using these formulas (remembering to include the Acting Time and Offset Time of your most recent boluses). This is why Bolus Advice is so useful. It will save you a lot of time and avoids the risk of mistakes in your calculations.

### Carbohydrates

This calculation is required when the bG result falls below the Hypo Warning Limit. It is based on the other values defined for the current Time Block, and the result recommends how much carbohydrate you should consume.



The words written in orange in the formula refer to the setting that you find on the meter screen.

$$\text{Carbohydrates} = (\text{Target Range mean value} - \text{Current bG}) \times \frac{\text{Insulin}}{\Delta \text{ bG}} \times \frac{\text{Carbohydrates}}{\text{Insulin}}$$

according to block definition
from Insulin Sensitivity
from Carb Ratio

### Meal bolus

$$\text{Meal bolus} = \text{Carbohydrate intake} \times \frac{\text{Insulin}}{\text{Carbohydrates}}$$

from Carb Ratio

## Currently Allowed bG Value

The currently allowed bG Value considers all blood sugar excursions, that have already been treated by a meal- and/or correction- bolus. For all bG test results below the currently allowed bG value no correction will be recommended. The currently allowed bG value is calculated as follows:

$$\text{Currently allowed} = \text{Target Range mean value} + \text{Meal rise} + \sum \text{blood glucose range covered by correction bolus}$$

according to block definition      currently acting correction boluses

When no Meal Rise or correction bolus Acting Time is in effect, the value for these in the formula is 0.

## Correction Bolus

Generally, a correction bolus is only calculated if your current bG value is above the hypo bG warning limit and outside of the Target Range. Additionally, it must be above the currently allowed bG value. Only correction boluses greater than 0 will trigger an Acting Time.

$$\text{Correction bolus} = (\text{current bG} - \text{currently allowed bG}) \times \frac{\text{Insulin}}{\Delta \text{bG}}$$

from Insulin Sensitivity

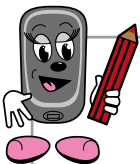
The size of the correction bolus depends on the following:

- If your bG is higher than the currently allowed bG, then:  
Correction bolus = (current bG – currently allowed bG value) × Insulin Sensitivity
- If the current bG is higher than the Hypo Warning Limit, and the current bG is lower than Target Range lower limit, then the correction bolus that is subtracted from the meal bolus is:  
Correction bolus = (current bG – Target Range average value) × Insulin Sensitivity

### **Correction Bolus with Carbohydrate Intake**

Whenever you tell Bolus Advice that you have consumed carbohydrates, the related meal bolus is always offset against any correction bolus (even negative). When you eat a meal, Bolus Advice also calculates the correction bolus for bG results that are within the Target Range; more specifically, if your current bG result is below the Target Range average value, or if your current bG is above the currently allowed bG value.

Boluses that are calculated to be less than 0 are just displayed as 0.





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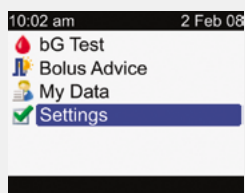
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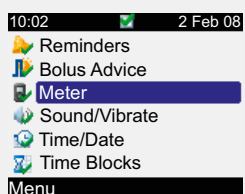
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## Changing your Meter Settings


1. From main menu press  or  to move to Settings.



2. Press  to enter. The Settings screen appears.



3. Use ,  and  to edit the particular setting as needed.

4. Where appropriate, press  to save and exit.

## List of Meter Settings

 <b>Reminders</b>	› bG Test Reminders	› After High bG › After Low bG › After Meal
	› Alarm Clock	› hh:mm (×8)
	› Date Reminders	› Dr. Visit › Lab Test
 <b>Bolus Advice</b>	› Time Blocks	› End › Target Range › Carb Ratio › Insulin Sensitivity
	› Health Events	› Exercise 1 › Exercise 2 › Stress › Illness › Premenstrual
	› Advice Options	› Meal Rise › Snack Size › Acting Time › Offset Time
 <b>Meter</b>	› Warning Limits	› Hyper (high) › Hypo (low)
	› Key Lock	› ON/OFF
	› Language	
 <b>Sound/Vibrate</b>	› Units	› Grams, BE, KE, CC › Max Bolus › Insulin increment
	› Beeper	
	› Vibrate	
 <b>Time/Date</b>	› Key Sound	
	› Time Format	
	› Time	
	› Date	



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