

Platon XL

Scientific Calculator for
Visually Impaired People



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1: Introduction

Platon XL is a scientific calculator with extra large buttons and a huge display with big digits as well. With the backlit display and the speech output as optional functions, Platon XL is particularly suitable for visually impaired and blind people.

1.1: Quick Overview on the Functions of Platon XL

- Spoken functions with natural voice
- Extra large display with 10 digits of 2.5 cm (1 in) height
- Extra large buttons, size: 1.5 x 1.5 cm (0.6 x 0.6 in)
- Natural and common logarithm
- Trigonometric and hyperbolic functions
- Arithmetic, geometric, harmonic and root mean square value
- Calculations with parenthesis
- 10 memory spaces
- Reciprocal value
- Percentages
- Square, raise to higher power and extract roots
- Calculation of compound interest, cash values and annuities
- Conversion of currency and physical units
- Date and time with alarm clock function
- Volume control in 6 steps

1.2: XL Product Series

XL calculators are available in the following versions:

- Non talking, without backlit display
- Talking
- With backlit display
- Talking and with backlit display



Please note that for versions without speech output and without backlit display not all keys functions are available.



Consult instructions before use! Do not operate Platon XL without reading the instruction manual. Get acquainted with the device and all the accessories. Keep the instruction for reference reading and pass it on with the device.

2: Description and Scope of Delivery

Included in the delivery are the scientific calculator Platon XL, a set of batteries (4 x 1.5 V AA) and a printed user manual. A power supply unit and earphones can be ordered optionally.

Place the device on the 4 rubber bumpers in front of you, so that the end with the high position where you can feel the display is furthest away from you.

Upper side: All the keys can be found on the upper side. They are subdivided into 3 groups: The first group on the left side consists of 4 round keys. The second group, left from the middle, consists of 3 rows, each including 3 bigger, squared keys. The third group, to the right, consists of 4 rows, each including 4 squared keys.

Right side: On the right side of the device, there are three outlets. The one nearest to you is an earphone socket (earphones are optional and not included). Next to the display there are the other outlets, where the socket for an optional power supply (not included) is farthest away from you and the other one is a service outlet for our technicians.

Bottom side: On the bottom side of the device, you will find 4 rubber bumpers, the loudspeaker grill and the battery compartment.

3: Power Supply

Batteries: Platon XL operates with 4 1.5 Volt AA batteries. The battery compartment is situated on the bottom side of the device. To insert the batteries, turn over the device with the high position end showing to the right side. Right from the middle of the bottom side you can feel a little notch. This is where you can open the battery compartment. Please note that the lid opens to the right and is not completely removable! Put the 4 batteries in the compartment with the flat (negative) end of each battery contacting the coil. Close the lid until it locks in place.



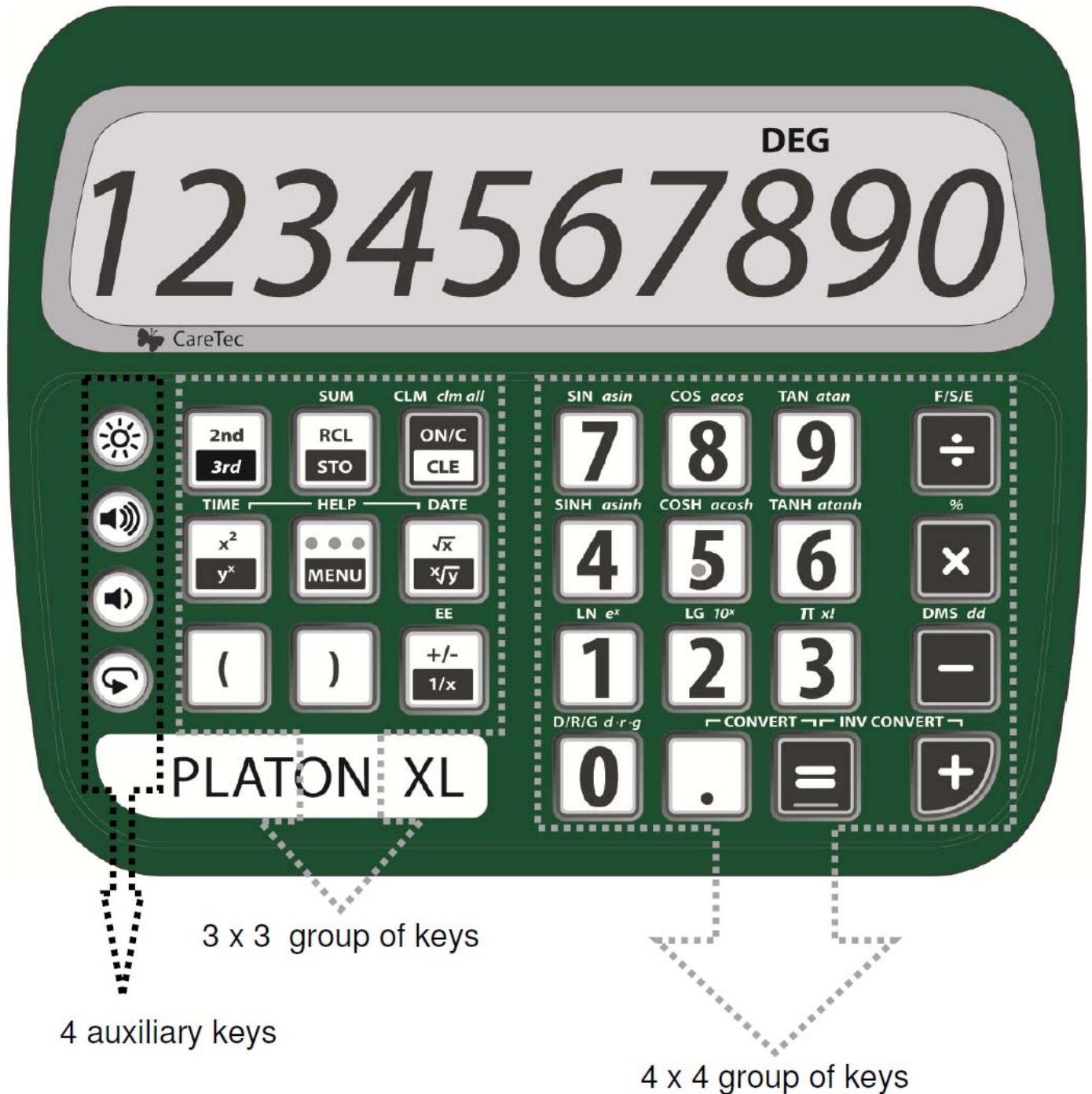
Caution: Replace the batteries as soon as the device announces “battery weak”.

Power Supply: Platon XL can also be operated with a power supply unit. The power supply unit is not included in the delivery and has to be ordered separately! The socket for the power supply unit is located next to the display: it's the front outlet on the right side of the device.

4: Keyboard Layout

The keyboard is subdivided into 3 groups: To the left there are 4 round keys, which we call now “auxiliary keys”. In the middle, next to the auxiliary keys, there is the 3 x 3 group. To the right, the 4 x 4 group is located. The 4 x 4 group consists of 4 rows with 4 squared keys, the 3 x 3 group consists of 3 rows with 3 squared keys. Each key of the left located 3 x 3 group operates two functions.

In the following, we describe each row top down and group to group from left to right.



4.1: Groups of Keys and Auxiliary Keys

The keyboard layout will be described with the keys listed in groups. In each group the functional description will move top down from left to right, where the keys straight under the display are in the row number 1.

In the 3 and 4 matrices groups you can start a function by:

- Press a key shortly
- Press and hold a key
- Press a key in level (layer) 2 or level 3

Use the shift key to change to level 2, 3 or back to base level. The shift-key is the left key in row 1 in the 3 x 3 group. A short press activates the second level (“shift 2”) of functions connected to the keys and pressing long activates the third level (“shift 3”). Press the shift key several times to switch between all the 3 levels. When entering base level a short beep signal is played.

4.1.1: The 4 Auxiliary Keys

With respect to the XL product series, there are several settings on the 4 auxiliary keys for different product types.

row 1	turn backlit display on/off help mode on/off (type without backlit display)
row 2	increase volume
row 3	decrease volume
row 4	repeat input

4.1.2: 3 x 3 Group (from left to right)

row 1, left key	short = change level	long = level 3
row 1, middle key	short = recall memory	long = save value
	level 2 = add value	
row 1, right key	short = delete/turn on	long = 1 step back
	level 2 = delete 1 memory	level 3 = delete all memories
row 2, left key	short = square	long = to the power of
	level 2 = announce time	
row 2, middle key	short = repeat/return	long = menu
	level 2 = statistic mode	

row 2, right key	short = square root	long = roots
	level 2 = announce date	
row 3, left key	short = left parenthesis	
row 3, middle key	short = right parenthesis	
row 3, right key	short = change sign	long = reciprocal value
	level 2 = 10 to the power of	

4.1.3: 4 x 4 Group (from left to right)

row 1, left key	digit 7	
	level 2 = sinus	level 3 = arcsine
row 1, column 2	digit 8	
	level 2 = cosine	level 3 = arccosine
row 1, column 3	digit 9	
	level 2 = tangent	level 3 = arctangent
row 1, right key	short = divided by	long = modulo
	level 2 = change display	

row 2, left key	digit 4	
	level 2 = hyperbolic sine	level 3 = area hyperbolic sine
row 2, column 2	digit 5	
	level 2 = hyperbolic cosine	level 3 = area hyperbolic cosine
row 2, column 3	digit 6	
	level 2 = hyperbolic tangent	level 3 = area hyperbolic tangent
row 2, right key	short = times	long = percent

row 3, left key	digit 1	
	level 2 = natural logarithm	level 3 = e to the power of x
row 3, column 2	digit 2	
	level 2 = common logarithm	level 3 = 10 to the power of x

row 3, column 3	digit 3	
	level 2 = Pi	level 3 = factorial
row 3, right key	minus	
	level 2 = convert to hours, minutes, seconds	level 3 = convert to decimal hours

row 4, left key	digit 0	
	level 2 = choice of angular dimension	level 3 = convert angular dimension
row 4, column 2	short = point	
	level 2 = number of decimal places	
row 4, column 3	equals	
row 4, right key	plus	

4.2: Basic Functions

4.2.1: Switch the Device On and Off

To switch the device on, quickly press the ON-key (3 x 3 group, top right). Platon XL will switch off automatically after a certain time without keystroke. To switch it off manually, press and hold all 3 keys of the first row in the 3 x 3 group until you hear a short jingle.

4.2.2: Menu Escape Function

To escape the menu, quickly press the ON-key (3 x 3 group, top right).

4.2.3: Delete Last Digit / Delete All

If you typed in a number incorrectly, you can always delete either the last digit or the whole number. To delete the last digit, press and hold the ON-key (3 x 3 group, top right). To delete the whole number, quickly press the ON-key.

4.2.4: Keylock

To activate or inactivate the keylock function, keep the 0-key and the plus-key pressed until you hear a short confirmation (4 x 4 group, row 4, left and right key).

4.2.5: Volume Control

With the speech output version, there are 6 volume levels to choose from. The volume level can also be set to 0. To increase the volume press the auxiliary key in

row 2. To decrease the volume press the auxiliary key in row 3. Another way to change the volume is in the 3 x 3 group: to increase the volume, shortly press the menu key (3 x 3 group, row 2, middle key) together with the right key of row 2. To decrease the volume press both, the menu key and the left key of row 2. Platon XL will announce the volume.



Caution: The volume level can also be set to 0. Platon XL then will give no announcements. This setting can be reseted by cutting of the power supply (e.g. exchange the batteries).

4.2.6: Time and Date

Platon XL offers a built-in clock. To hear the time, press the “to the power of”-key in level 2 (3 x 3 group in row 1, top left and than the left key in row 2). To hear the date, press the root-key in level 2 (3 x 3 group in row 1, top left and than the right key in row 2). Time and date are also available in standby mode of the device.

4.2.7: Repeat Function

By pressing the auxiliary key in row 4 or by pressing the menu key shortly (middle key in row 2 of the 3 x 3 group) the entire entry can be announced, even before the operation is finished.

4.2.8: Backlit Display (option)

With the backlit display version you could turn the light on and off by pressing the auxiliary key in row 1.

4.2.9: Help Mode

Pressing the keys square and root at the same time (3 x 3 group, row 2, left and right keys) leads you into the help mode. Here you are given a short note about the function of the key you are pressing. By pressing square and root again you may leave the help mode.

5: Calculations

Platon XL offers all standard arithmetic functions, as well as the possibility to calculate percentages, extract roots or raise to higher power. You can also use trigonometric functions, logarithms and hyperbolic functions.

The way of entering data is orientated in lines which means that you enter the whole calculation first, than press the equals-key and the whole line is calculated. With the equals-key you can repeat the result. With the repeat-function you can repeat the whole line. If you have mistyped accidentally you could delete the last digit or an operator and do correction. Numbers could be shown in scientific or in

technical formate. In addition you could set the number of digits as well as the places of roundings.

5.1: Standard Arithmetic Functions

The standard arithmetic functions include: to add, to deduct, to multiply and to divide. To conduct one of those standard functions, just type in the number followed by the function (4 x 4 group, the right keys in each of the rows 1 to 4) and the second number. To finish the arithmetic procedure, press the equals-key (4 x 4 group, row 4, column 3). The equals-key is designed in tactile with a short line.

Every key you enter, as well as the result of the calculation are announced in a clear voice. To repeat the result of the calculation, press the equals-key once again. If you accidentally type in a wrong number, just press and hold the ON-key (3 x 3 group, row 1, right key) to delete the last value. This is the way you can delete a whole operation step by step backwards.

5.2: Advanced Arithmetic Functions

Platon XL also offers the possibility to calculate percentages, extract square roots or square a given number.

5.2.1: Percentages

When calculating percentages the following approaches are most common:

Calculation	Example	Input
Percent	How much is 5% of 250?	250 x 5 %
Percentage	250 is 5% of how much?	250 / 5 %
Surcharge	How much is 250 plus a surcharge of 5%?	250 + 5 %
Rebate	How much is 250 minus a rebate of 5%?	250 – 5 %

To calculate for example, how much are 5% of 250, type 250, then press the multiplication-key (4 x 4 group, row 2, right key) followed by the digit 5. Finish the process by pressing the multiplication-key long. Platon XL will then announce the result.

5.2.2: Square and Raise to Higher Power

To square a given number, type in the value and **shortly** press the squared-key (3 x 3 group, row 2, left key) followed by the equals key.

To raise a given number to higher power type in the value, than **press and hold** the squared-key (3 x 3 group, row 2, left key). Now enter the value of the exponent and press the equals-key.

Example: If you wish to calculate 2 to the power of 3, press the digit-key for 2. Now press and hold the squared-key (3 x 3 group, row 2, left key), than enter the exponent with digit-key 3. The result will be given by pressing the equals-key. If you

just want to square number 2, press the squared-key shortly and you will get the result with the equals-key.

5.2.3: Roots

To extract a square root, type in the number and shortly press the square root key (3 x 3 group, row 2, right key) followed by the equals-key.

To extract any root, type in the number and press and hold the square root key (3 x 3 group, row 2, right key). Now enter the order of the root and press the equals-key. The order of the root does not have to be an integer.

Example: To calculate the third root out of 8 press digit key number 8, than press and hold the square root key (3 x 3 group, row 2, right key). Now enter digit number 3 for the root of third order, followed by the equals-key. Platon XL will give the result "2.2". To calculate the second root out of 8, press digit key number 8, than press the square root key shortly followed by the equals-key. The square root of 8 will be displayed.

5.2.4: Reciprocal Value

To calculate the reciprocal value, type in a number and press and hold the 'change sign' key (3 x 3 group, row 3, right key) followed by the equals key.

5.2.5: Π (Pi)

To calculate with the number Π (Pi), press digit key 3 in level 2 (3 x 3 group, row 1, left key and than in the 4 x 4 group row 3 column 3).

5.2.6: Change Sign

Press the "change sign" key shortly to change the sign of a value (3 x 3 group, row 3, right key).

5.3: Scientific Functions

As scientific functions Platon offers you trigonometric functions, logarithms and hyperbolic functions, as well as their inverse functions. With the 4 x 4 group keys in level 2 or level 3 you select the scientific functions. Use the shift key to change to level 2, 3 or back to base level. The shift-key is the left key in row 1 in the 3 x 3 group. A short press activates the second level ("shift 2") of functions connected to the keys and pressing long activates the third level ("shift 3"). Press the shift key several times to switch between all the 3 levels. When entering base level a short beep signal is played. To calculate with a scientific function, first enter a value then choose the function.

Example: Calculation of cosine(0). Enter number 0. Choose the function cosine. Press the equals-key to get the result "1".

Abbreviations for scientific functions are printed next to the keys on the case of Platon XL. Functions which are operated in layer 3 are printed in *italic*. For blind and visually impaired people all functions with the keyboard layout are listed below:

5.3.1: Sinus

level 2, row 1, left key in 4 x 4 group
and numerical key 7 in level 2 respectively

5.3.2: Cosine

level 2, row 1, column 2 in 4 x 4 group
and numerical key 8 in level 2 respectively

5.3.3: Tangent

level 2, row 1, column 3 in 4 x 4 group
and numerical key 9 in level 2 respectively

5.3.4: Arcsine

level 3, row 1, left key in 4 x 4 group
and numerical key 7 in level 3 respectively

5.3.5: Arccosine

level 3, row 1, column 2 in 4 x 4 group
and numerical key 8 in level 3 respectively

5.3.6: Arctangent

level 3, row 1, column 3 in 4 x 4 group
and numerical key 9 in level 3 respectively

5.3.7: Hyperbolic Sine

level 2, row 2, left key in 4 x 4 group
and numerical key 4 in level 2 respectively

5.3.8: Hyperbolic Cosine

level 2, row 2, column 2 in 4 x 4 group
and numerical key 5 in level 2 respectively

5.3.9: Hyperbolic Tangent

level 2, row 2, column 3 in 4 x 4 group
and numerical key 6 in level 2 respectively

5.3.10: Area Hyperbolic Sine

level 3, row 2, left key in 4 x 4 group
and numerical key 4 in level 3 respectively

5.3.11: Area Hyperbolic Cosine

level 3, row 2, column 2 in 4 x 4 group
and numerical key 5 in level 3 respectively

5.3.12: Area Hyperbolic Tangent

level 3, row 2, column 3 in 4 x 4 group
and numerical key 6 in level 3 respectively

5.3.13: Natural Logarithm

level 2, row 3, left key in 4 x 4 group
and numerical key 1 in level 2 respectively

5.3.14: Common Logarithm

level 2, row 3, column 2 in 4 x 4 group
and numerical key 2 in level 2 respectively

5.3.15: e to the Power of x

level 3, row 3, left key in 4 x 4 group
and numerical key 1 in level 3 respectively

5.3.16: 10 to the Power of x

level 3, row 3, column 2 in 4 x 4 group
and numerical key 2 in level 3 respectively

5.4: Conversions

Due to the default conversion settings, the conversion function enables you to quickly calculate e.g. how many miles 10 kilometers are. Press and hold the menu key (3 x 3 group, row 2, middle key) and choose “conversions” from the menu with the right or left key of the second row in 3 x 3 group. Press and hold the menu key again to enter the conversions submenu. By shortly pressing the left or right key again, you can now select the measurement unit you would like to work with. You can choose between the following units: currency (from US Dollar to Euro), temperature (from °C to °F), volume (from liters to gallon), length (from kilometers to miles), weight (from kilogram to pound) and customized conversion (for your very own conversion rate).

To choose for example “temperature”, shortly press the menu-key (middle key in row 2 in 3 x 3 group) and Platon XL will once again announce the conversion rate. You can now type in the number you like to convert, e.g. 30. To convert this number into degree Fahrenheit, press both the point-key and the equals-key (4 x 4 group, row 4, columns 2 and 3) and Platon XL will announce “degrees Celsius equals 86 degrees Fahrenheit”. To re-convert this result to degree Celsius, press both the equals-key and the plus-key (4 x 4 group, row 4, columns 3 and 4).

5.4.1: Currency Conversion

The default setting of the Platon XL provides the conversion from Euro to US Dollar and vice versa, with an exchange rate 1.373. You can easily adapt the exchange rate. To do so, choose the function “currency” from the conversions submenu and press and hold the menu-key (3 x 3 group, row 2, middle key). Type in the exchange rate you need and confirm by shortly pressing the menu-key again. Platon XL will now use this new exchange rate when converting currencies.

5.4.2: Custom Conversion

If the default settings do not offer the conversion you are looking for, you can set your individual conversion rate by choosing the function ‘custom conversion’. When the function is selected, press and hold the menu-key (3 x 3 group, row 2, middle key) and type in the conversion rate you need. Confirm by shortly pressing the middle key. You can now calculate with your individual conversion rate.

5.5: Financial Calculator

Platon XL also offers you commercial formulas to calculate compound interest, net present value or annuities. To activate the formulas, choose the function ‘financial calculator’ from the conversions submenu and press and hold the menu-key. Select a formula by shortly pressing the right or left key of the same row and confirm by pressing and holding the the menu key.

5.5.1: Compound Interest

This formula helps you to calculate an end capital on the basis of a certain initial capital and a given duration and percentage.

Example: You have a certain amount of money (initial capital) on your savings account. You know, that your bank offers you a certain interest rate (percent) and you decide to keep this amount of money on your account for e.g. 5 years (duration). After typing in all this information, Platon XL will announce how much money you will have on your savings account after those 5 years including the interest given by your bank.

After selecting the formula, Platon XL asks you to type in the initial capital. Do so and confirm by shortly pressing the menu key (3 x 3 group, row 2, middle key). Platon XL repeats the value and asks you to type in the percentage. Do so and confirm by shortly pressing the menu key again. Platon XL will repeat the percent

and ask you to type the duration. Do so and once again confirm by shortly pressing the menu key. Platon XL then will announce the end capital.

5.5.2: Net Present Value

This formula helps you to calculate the initial capital on the basis of a certain end capital you wish to have in the near future (including the interest).

Example: You know, you need a certain amount of money in the near future (end capital) and you know that your bank offers you a certain interest rate (percent). You decide to keep money on your savings account for e.g. 5 years (duration). After typing in all this information, Platon XL will calculate the net present value. This is the amount of money, you have to invest in order to reach said end capital.

After selecting the formula, Platon XL asks you to type in the end capital you wish to reach. Do so and confirm by shortly pressing the menu key (3 x 3 group, row 2, middle key). Platon XL repeats the value and asks you to type in the percentage. Do so and confirm by shortly pressing the menu-key again. Platon XL will repeat the percentage and ask you to type in the duration. Do so and once again confirm by shortly pressing the menu-key. Platon XL then will announce the net present value.

5.5.3: Annuity

The term annuity is used in finance theory to refer to any terminating stream of regular payments over a specified period of time.

Example: You obtain a credit from your bank (initial capital). You pay a certain percentage of interest for this credit (percent) and you also know that the credit is due within the following 20 years, that is 240 months (duration). After typing in all this information, Platon XL will calculate the monthly installments you have to pay in order to repay the credit.

After selecting the formula, Platon XL asks you to type in the initial capital. Do so and confirm by shortly pressing the menu-key (3 x 3 group, row 2, middle key). Platon XL repeats the value and asks you to type in the percentage. Do so and confirm by shortly pressing the menu-key again. Platon XL will repeat the percent and ask you to type in the duration. Do so and once again confirm by shortly pressing the menu-key. Platon XL will then announce the regular payment due.

5.5.4: Annuity Initial Capital

This formula offers you the vice versa calculation, that means, you can find out which credit amount you could afford.

Example: You know how much money you could afford each month to pay installments (annuity). You know the conditions of your bank, that is the interest rate (percent) as well as the time (duration). After typing in all this information,

Platon XL will calculate the credit you could afford to pay back with the amount monthly available.

After selecting the formula, Platon XL asks you to type in the annuity. Do so and confirm by shortly pressing the menu-key (3 x 3 group, row 2, middle key). Platon XL repeats the value and asks you to type in the percentage. Do so and confirm by shortly pressing the menu key again. Platon XL will repeat the percentage and ask you to type in the duration. Do so and once again confirm by shortly pressing the menu key. Platon XL then will announce the initial capital possible.

5.6: Memory Function

5.6.1: Save Values

In order to save numbers in memory, choose the function “save value” (press and hold the button in the middle of the first row in 3 x 3 group) and select a memory cell from number keys 1 to 9. This way the value is stored in the appropriate location (there are up to 9 different memory locations).

5.6.2: Select Stored Values

Use the function “recall memory” (short press on the middle button of the first row in 3 x 3 group) and then press the corresponding number key to select the value from a memory location (1 to 9).

5.6.3: Add Up Additional Values

With Platon XL you can add new values to stored values. To do so, use the memory key in level 2 and select a memory cell from number keys 1 to 9. The new value will be added to the stored value.

5.6.4: Delete Stored Values

In order to delete a stored value, press the ON-key (3 x 3 group, top right) in level 2 and then select the corresponding memory cell. In order to delete all stored values, press the ON-key in level 3. To write any new value in memory, just save the value to the appropriate memory location. You can also delete a stored value by saving the value ‘0’ to the appropriate memory location.

6: Statistics

Use the menu-key in level 2 to enter the statistic mode (3 x 3 group, top left key and then the tactile menu-key in the middle).

6.1: Keyboard Layout in Statistic Mode

In the statistic mode the keyboard layout for 3 x 3 group is:

row 1, left key	short = change level	long = level 3
row 1, right key	short = exit statistic mode	long = 1 step back
row 2, left key	short = arithmetic mean value	long = geometric mean value
row 2, middle key	level 2 = exit statistic mode	
row 2, right key	short = root mean square value	long = harmonic mean
row 3, left key	short = sum of all values	long = product of all values
row 3, middle key	short = standard deviation	long = number of all values
row 3, right key	short = sum of the squares	long = sum of reciprocal values

In 4 x 4 group there are the numerical keys, and the operator-keys minus and plus are set with the following functions:

row 3, right key	subtract a number	
row 4, right key	add a number	

6.2: Usage of the Statistic Functions

You could add and subtract numerical values to work with in statistic mode. Platon XL offers the following statistic functions:

- arithmetic mean value
- geometric mean value
- root mean square value
- harmonic mean
- standard deviation
- calculation of:
 - number of all values
 - sum of all values
 - sum of the squares
 - sum of reciprocal values
 - product of all values


Example: You want to work out the arithmetic mean and the standard deviation of a number of values.

1. Enter the statistic mode by pressing the menu key in level 2 (top left key, than the tactile middle key in the 3 x 3 group). In statistic mode the word “statistics” is announced and top right on the screen all the 3 angular dimension signs (DEG RAD GRAD) are shown.
2. Enter the number series (example 3 – 4 – 5):
 digit 3 and plus key (4 x 4 group, row 4, right key) – output “add value”;
 digit 4 and plus key – output “add value”;
 digit 5 and plus key – output “add value”.
3. Calculation of the arithmetic mean: square key (3 x 3 group, row 2, left key) – output “arithmetic mean” result “4”.
4. Calculation of the standard deviation: right parenthesis key (3 x 3 group, row 3, middle key) - output “standard deviation” result “0.816496581”.
5. In order to check whether all values have been entered, you have the possibility to ask Platon XL to tell you the number of entered values: Press and hold the right parenthesis key (3 x 3 group, row 3, middle key) – output “number of values” result “3”.

Exit the statistic mode with the menu key in level 2 (3 x 3 group, top left key and than the tactile middle key).

6.3: Help in Statistic Mode

Pressing the keys square and root at the same time (3 x 3 group, row 2, left and right keys) leads you into the help mode in statistic mode. Here you are given a short note about the function of the key you are pressing. By pressing square and root again you may leave the help mode.

	<p>Please note that you can't do any other calculations in the statistics mode.</p>
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6.4: Faculty

The faculty of a number can be calculated outside of the statistic mode: Enter a number and use the digit key for number 3 in level 3 (level 3 and than row 3, column 3 in the 4 x 4 group).

Example: To calculate the faculty of 5, press digit key 5 (4 x 4 group, row 2, column 2), than change to level 3 (3 x 3 group, top left, press long or twice) and press digit key 3 (4 x 4 group, row 3, column 3). Pressing equals (4 x 4 group, row 4, column 3) will give you the result “120”.

7: Menu

In the menu you can setup different function settings and start the commercial calculator and the conversions. Enter the menu by pressing the menu key long. The menu key is placed in the middle of the 3 x 3 group and marked with 3 tactile points. Any point from the menu will be announced (or shown on display in mute version devices). You can browse through the menu by shortly pressing the left or right key next to the menu key. To choose one of the menu functions, press and hold the menu key again. The same way you could navigate in each submenu.

Exit Menu

Press the ON-key (3 x 3 group, top right) to leave the menu or any submenu.

7.1: Structure of the Menu

Conversions

- Custom Conversions
- Currency
- Temperature
- Capacity
- Distance
- Weight

Financial Calculator

- Compound Interest
- Net Present Value
- Annuity
- Annuity (Initial Capital)

Settings

- Volume
- Number Announcement Format
 - Entire Number
 - Individual Units (Digit by Digit)
- Decimal Places
- Display Mode
 - Floating Decimal
 - Scientific
 - Engineering
- Angular Dimensions
 - Degree
 - Radian
 - Grad
- Clock
 - Alarm Clock
 - Time
 - Date

In Chapter 5 you find more information about the conversions and the financial calculator.

7.2: Submenu “Settings”

7.2.1: Volume

Here you can set the volume: There are 6 volume levels to choose from. The volume level can also be set to 0 (no announcements).

7.2.2: Number Announcement Format

This setting enables you to decide whether Platon XL should announce the result as an entire number (e.g. “Threehundredfive”) or in individual units (e.g. “Three” – “Zero” – “Five”). Press and hold the menu key to select the menu function. Choose the announcement format – “entire number” or “individual units” – and confirm by shortly pressing the menu key again.

7.2.3: Decimal Places

Platon XL offers the possibility to set the decimal places. That means the user can decide, how many units should be announced after the comma. The default setting is always the highest possible (= 9 units after the comma). To change this value, select the menu function “decimal places2 and set the preferred number by shortly pressing the left or right key of row 2 in the 3 x 3 group. The higher the number, the more units will be after the comma. Confirm the setting by shortly pressing the menu key again.

7.2.4: Display Mode

Entire numbers can be shown in 3 different ways: Standard setting is “floating decimal”, where numbers are shown as decimal numbers. If a number is too big to be displayed as an entire number, the display mode automatically switches to “scientific mode”, where numbers are shown with an exponentiation of base 10. In the ‘engineering mode’ the exponent is always an integer multiple of 3.

Choose the display format for the numbers:

- **Floating Decimal:** Numbers not fitting into the display (e.g. more than 10 digits) will be presented as decimal numbers (e.g. “12365.886”, “12 thousand 3 hundred and 65 point 8 8 6”). If a number with the 10 digits on the display can not be represented, Platon XL will automatically change the settings to scientific format.
- **Scientific:** Numbers will be represented with an exponentiation of base 10 (e.g. “325.22 E 56”, “3 point 2 5 2 2 to the power of 58”).

- **Engineering:** Numbers will always be presented with an exponentiation of base 10 and that exponentiation is shown as a multiple of 3. That is because of the technical units prefix representation is in steps of 10 to the power of 3:

Prefix	Abbreviation	Value	Exponential Representation
kilo	k	1 000	10^3
mega	M	1 000 000	10^6
giga	G	1 000 000 000	10^9
milli	m	0.001	10^{-3}
micro	μ	0.000 001	10^{-6}
nano	n	0.000 000 001	10^{-9}

You can also change the display mode settings through the division key in level 2 (top left in 3 x 3 group and than top right in 4 x 4 group).

7.2.5: Angular Dimensions

With this menu item the unit for calculations with trigonometric functions can be selected. There are the following options:

- **Degree:** this is the most common type. The full circle has got a radius of 360° . Display: DEG (english degree = german Grad)
- **Radian:** the radian is a unit of plane angle, equals to $180/\text{Pi}$. Often used in the technical area. A full circle conforms to 2 Pi rad . Display: RAD
- **Grad:** the grad is a unit of plane angle, equivalent to $1/400$ of a full circle. Display: GRAD (english grad = german Gon)

7.2.6: Clock: Setting of Time, Date and Alarm

In the submenu clock you can setup the actual time, the date and an alarm.

- **Alarm Clock:** Platon XL offers one alarm and up to 10 different jingles. To set the alarm, select the menu function as described above. Realize the necessary settings (hour, minutes and jingle) by shortly pressing the left or right key of row 2 in the 3 x 3 group and confirm each setting by shortly pressing the menu key again.
- **Time:** To set the correct time, select the menu function. Realize the necessary settings (hour and minutes) by shortly pressing the left or right key of row 2 in the 3 x 3 group and confirm each setting by shortly pressing the menu key again.
- **Date:** To set the correct date, select the menu function. Realize the necessary settings (year, month, day) by shortly pressing the left or right key of row 2 in the 3 x 3 group and confirm each setting by shortly pressing the menu key again.

To hear the time, press the ‘to the power of’-key in level 2 (3 x 3 group in row 1, top left and than the left key in row 2), To hear the date, press the root-key in level 2 (3

x 3 group in row 1, top left and than the right key in row 2). Time and date are also available in standby mode of the device.

8: Safety Instructions

Do not expose the device to extreme humidity, heat, cold, dust or dirt.


When exposed to splash water, wipe the device off. If water enters the device, remove the batteries and make sure the device is dry.

When not using the device for a longer period, remove the batteries, so they can not damage the device by leaking.

Make sure the batteries are inserted in the correct way.

9: Cleaning the Device

To clean the device, use a lightly moistened cloth only!

	CAUTION: No liquid should enter the device! Avoid strong acid or scrubbing cleansers. Do not scrub the surface with rough sponges, as they could damage the case of the device.
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10: Technical Data

Dimensions:	Length: 210 mm (8.3 inches) Width: 170 mm (6.7 inches) Height: 45 mm (1.8 inches)
Weight:	487 g (1.07 pounds) including batteries
Power Supply:	4 x 1.5 V AA batteries optional: power supply (not included in delivery!)
Included in Delivery:	Platon XL 4 x 1.5V AA batteries printed user's manual optional: power supply unit

11: Guarantee and Service

From date of purchase, we issue the following term of guarantee:


twenty four (24) months on the device itself, twelve (12) months on accessories (e.g. power supply units, earphones etc.), six (6) months on wearing parts (e.g. rechargeable batteries, hand cuffs, battery lids etc.), no guarantee on external data mediums (e.g. CDs, memory cards etc.) and batteries.

Under this guarantee, CareTec shall repair a unit that is found to be defective, free of charge, or, at its option, replace it by a reconditioned one. In no event shall


CareTec be liable for indirect, special or consequential damages. The exposure of the device to liquids, strong electromagnetic fields, moisture, and heat, as well as a dropping of the device, or an opening of the case itself, causes a loss of guarantee. In case of problems please contact CareTec or your local distributor before returning the device without any apparent reason. We will then inform you about the necessary procedures. The device may only be opened by authorized technicians! CareTec reserves the right to make changes and improvements to its products without further notice.

12: Disposal

12.1: Disposal of Electronic Devices

	This product must be disposed of separately from household waste at specially designated collection and recycling points.
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12.2: Battery Disposal

	Please dispose used batteries only at specially designated collection points, never through regular house garbage!
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Pb-Cd-Hg These signs can be found on contaminant-laden batteries.
Pb = containing lead, Cd = containing cadmium, Hg = containing mercury

13: Manufacturer

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