User Manual

Platon

Speaking Scientific Calculator

EN - US

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1: INTRODUCTION

Platon is a **scientific calculator with integrated speech output**, designed to combine ease of use with advanced functionality. In addition to standard arithmetic operations, it offers a wide range of **scientific, statistical, financial, and conversion functions**—all in one compact and convenient device.

Important Safety Notice

Read the instruction manual carefully before using Platon. Do not operate the device without first becoming familiar with its functions and accessories. Keep this manual for future reference, and always provide it if the device is passed on to another user.

2: DESCRIPTION OF THE DEVICE

The case is long and flat with a shape similar to a remote control. On the surface are various keys, as well as the noticeable, flat display. Put the device in front of you so that the end with the display is furthest away from you.

Upper Side

All the keys can be found on the upper side. They are subdivided into 2 groups. The first group (nearest to you) consists of 4 rows, each including 4 small, square keys. The second group consists of 3 rows, each including 3 bigger, rectangular keys.

Right Side

On the right side of the device, there are two outlets. The one farther away is a service outlet for our technicians. The one nearer to you is an earphone socket (earphones are also optional and not included).

Bottom Side

On the bottom side of the device, you will find four little rubber feet, the loudspeaker grill, and the battery compartment.

3: POWER SUPPLY

Batteries

Platon operates on **2 × AAA NiMH rechargeable batteries**. The battery compartment is located on the bottom of the device.

Inserting the batteries

1. Turn the device over so the display ends point away from you.
2. Locate the small notch between the two upper rubber feet—this is the latch for the battery compartment.
3. Open the compartment lid. The lid is hinged and does not come off completely.
4. Insert two AAA NiMH rechargeable batteries. In each slot, place the flat (negative) end against the coil spring.
5. Close the lid until it clicks into place.

Notes:

- Use only NiMH rechargeable batteries.
- Do not mix old and new batteries.
- Always observe the polarity markings.
- If the device won't be used for a long time, remove the batteries and store them safely.

Power Supply (USB-C)

Platon can also be powered and charged via a USB-C power supply (not included; must be ordered separately).

- The USB-C port is located on the right side of the device.
- When connected, the installed NiMH batteries are charged automatically.

Important:

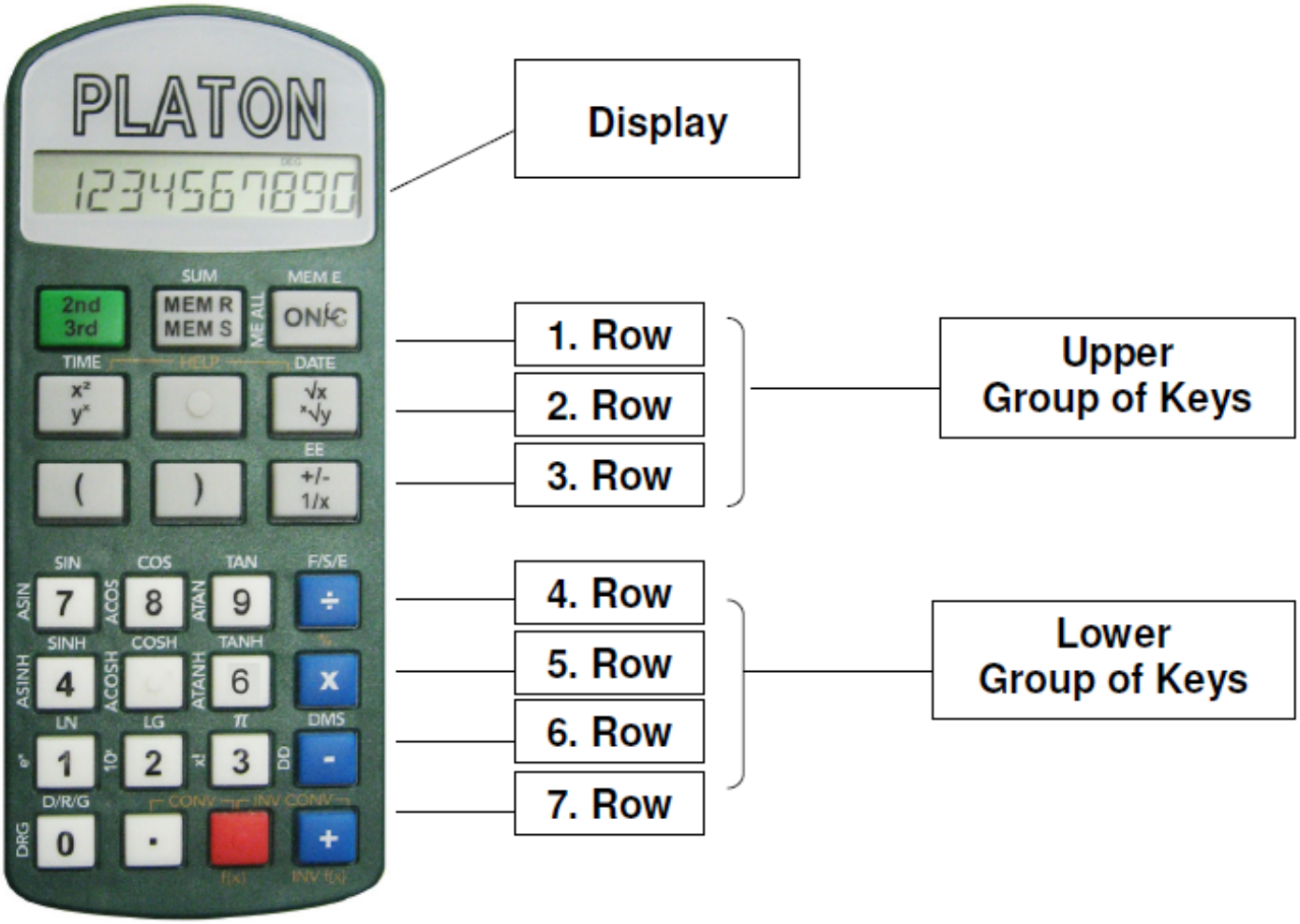
- **Do not use non-rechargeable (alkaline)** batteries with USB-C power.
- Connecting external power while alkaline batteries are installed can damage the device or cause leakage.

4: KEYBOARD LAYOUT

The keyboard is divided into **two groups**:

- **Upper group: 3 rows × 3** large rectangular keys.
  Each key provides **two functions** (depending on context or press length/combination; see Chapter 4.2 for key combinations).
- **Lower group: 4 rows × 4** small square keys.

Reading order: In the descriptions that follow, rows are presented **from top to bottom**, and within each row, keys are listed **from left to right**.



2nd and 3rd Function Layers

The 2nd and 3rd functions are **printed around the keys**. Use the **[2nd/3rd]** modifier (row 1, column 1) to access them.

- **Activate 2nd layer:** Short-press **[2nd/3rd]**, then press the desired key. *Example:* On key **[7]**, the **2nd** function is **sine (SIN)**.
- **Activate 3rd layer:** twice Short-press **[2nd/3rd]** or Long-press **[2nd/3rd]**, then press the desired key.
  Example: On key **[7]**, the **3rd** function is **arcsine (ASIN)**.

4.1: Description of Keys in Calculator Mode

Key		Layer 1		Layer 2	Layer 3
Row	Column	Short-press *quick tap*	Long-press *press and hold*	Short-press	Short-press
1	1	2nd functions [**2nd/3rd**]	3rd functions [**2nd/3rd**]	-	-
	2	Recall Memory [**MEM R**]	Save value [**MEM S**]	Add value [**SUM**]	-
	3	Clears display [**ON/C**]	Backspace / Turn on	Delete Memory Position [**MEM E**]	Delete All Memories [**ME ALL**]
2	1	Square [$\mathbf{x^2}$]	To the Power of [$\mathbf{y^x}$]	Announce Time [**TIME**]	-
	2	Read Display *(with tactile mark)*	Menu *(with tactile mark)* [**MENU**]	Statistic Mode	-
	3	Square Root [$\sqrt{\mathbf{x}}$]	Roots [$\sqrt[\mathbf{x}]{\mathbf{y}}$]	Announce Date	-
3	1	Left Parenthesis [**(**]	-	-	-
	2	Right Parenthesis [**)**]	-	-	-
	3	Algebraic Sign [**+/-**]	Reciprocal value [**1/x**]	Exponent [**EE**]	-
4	1	Digit 7 [**7**]	Digit 7 [**7**]	Sinus [**SIN**]	Arcus Sinus [**ASIN**]
	2	Digit 8 [**8**]	Digit 8 [**8**]	Cosine [**COS**]	Arcus Cosine [**ACOS**]
	3	Digit 9 [**9**]	Digit 9 [**9**]	Tangent [**TAN**]	Arcus Tangent [**ATAN**]
	4	Division [**÷**]	Modulo	Change Display [**F/S/E**]	-
5	1	Digit 4 [**4**]	Digit 4 [**4**]	Hyperbolic Sine [**SINH**]	Area Hyperbolic Sine [**ASINH**]
	2	Digit 5 *(with tactile mark)* [**5**]	Digit 5 *(with tactile mark)* [**5**]	Hyperbolic Cosine [**COSH**]	Area Hyperbolic Cosine [**ACOSH**]
	3	Digit 6 [**6**]	Digit 6 [**6**]	Hyperbolic Tangent [**TANH**]	Area Hyperbolic Tangent [**ATANH**]

	4	Times [**×**]	Percent [**%**]	-	-
6	**1**	Digit 1 [**1**]	Digit 1 [**1**]	Natural Logarithm [**LN**]	e to the power of [$\mathbf{e^x}$]
	2	Digit 2 [**2**]	Digit 2 [**2**]	Common logarithm [**LG**]	10 to the power of [$\mathbf{10^x}$]
	3	Digit 3 [**3**]	Digit 3 [**3**]	Pi [**π**]	Factorial [**x!**]
	4	Minus [**-**]	Algebraic sign (in front of Digit)	DD to DMS [**DMS**]	DMS to DD [**DD**]
7	**1**	Digit 0 [**0**]	Triple 0 [**000**]	Angle Units [**D/R/G**]	Convert Degree
	2	Point [**.**]	Negate	-	-
	3	Equals, execute calculation		-	-
	4	Plus [**+**]		-	-

Memory

Platon provides **10 memory locations (0–9)** for storing values.

Save a value to memory

1. **Long-press** the **top-row center key** [**MEM S**] to activate **Save Value**.
2. Press a **number key (0–9)** to choose the memory cell.
   → The current value is stored in that cell (any existing value is replaced).

Recall a stored value

1. **Short-press** the **top-row center key** [**MEM R**]to activate **Recall Memory**.
2. Press the **number key (0–9)** of the desired memory cell.
   → The stored value is loaded.

Delete stored values

Delete one memory cell

1. **Short-press Shift** once to select 2nd function.
2. **Short-press** the **top-row right key** [**ON/C**].
3. Press the **number key (0–9)** of the cell you want to clear.

Delete all memory cells

1. Short-press Shift twice to select 3rd function.
2. Short-press the top-row right key [**ON/C**] to confirm.
   → All memory locations (0–9) are cleared.

Caution: Deletions are irreversible.

4.2: General Key Combinations

The following key combinations work in all modes, including **Statistic Mode**. Press the keys **simultaneously**.

Short press = quick tap. *Long press* = press and hold.

- **Square [x²] + Square Root [√], short press:** Enter **Help Mode** (see Chapter 6.3 “Help Mode”).
- **Square [x²] + Square Root [√], long press:** Display/announce the software version.
- **Menu + Square [x²], short press:** Volume **down**.
- **Menu + Square Root [√], short press:** Volume **up**.
- **Open Bracket [(] + Close Bracket [)], short press:** Speech rate **slower**.
- **Close Bracket [)] + Plus/Minus [±], short press:** Speech rate **faster**.
- **Open Bracket [(] + Plus/Minus [±], long press:** Restore speech rate to **default**.

4.3: Statistic Mode — Keys Overview

Enter **Statistic Mode** by pressing **[2nd]** followed by **[Menu]**.
In this mode, **basic calculations are disabled**; only the **statistical functions** described in this chapter are available.
The keys actions and combinations listed below apply **only within Statistic Mode**.

Keys		Layer 1		Layer 2	Layer 3
Row	Column	Short-press	Long-press	Short-press	Short-press
1	1	2nd functions	3rd functions	-	-
	2	-	-	-	-
	3	Exit statistic mode	1 Step back	-	-
2	1	Arithmetic mean value	Geometric mean value	Announce Time	-
	2	-	-	End statistic mode	-
	3	Root mean square value	Harmonic mean	Announce Date	-
3	1	Sum of all values	Product of all values	-	-
	2	Standard deviation	Number of all values	-	-
	3	Sum of squares of all values	Sum of reciprocal values	-	-
4	1	Digit 7	Digit 7	-	-
	2	Digit 8	Digit 8	-	-
	3	Digit 9	Digit 9	-	-
	4	-	-	-	-
5	1	Digit 4	Digit 4	-	-
	2	Digit 5	Digit 5	-	-
	3	Digit 6	Digit 6	-	-
	4	Factorial	-	-	-
6	1	Digit 1	Digit 1	-	-
	2	Digit 2	Digit 2	-	-
	3	Digit 3	Digit 3	-	-
	4	Subtract a number	-	-	-
7	1	Digit 0	Digit 0	-	-
	2	Point	-	-	-
	3	Repeat result	-	-	-
	4	Add a number	-	-	-

4.4: Turn Platon ON/OFF

- **Power on:** Press and hold **[ON/C]** (right key on the **top row**) until the **startup melody** plays.
- **Automatic standby (OFF):** After a period of inactivity, Platon enters **standby** and displays the **time**.
- **Manual standby (OFF):** Press and hold **all three keys on the top row simultaneously** until the **shutdown melody** plays.

4.5: Exiting a menu manually

Short-press [ON/C] (top row, right key) to escape the menu and return to the calculation mode.

4.6: Volume

- **Increase:** Short-press **Menu key [MENU] + Square Root [√]** simultaneously; repeat to raise the volume.
  (2nd row: center + right key)
- **Decrease:** Short-press **Square [x²] + Menu key [MENU]** simultaneously; repeat to lower the volume.
  (2nd row: left + center)
- Each volume change is **announced**.

4.7: Speech Rate

- **Slower: Short press [( ] + [ )]** simultaneously.
  (3rd row: left + center)
- **Faster: Short press [ )] + [±]** simultaneously.
  (3rd row: center + right)
- **Reset to default: Short-press [( ] + [±]** simultaneously until the confirmation tone.
  (3rd row: left + right)

Note: Changes to speech rate are announced in **25% steps**, from **–50%** up to **+200%**.

5: CALCULATIONS

With **Platon** you can perform:

- Basic arithmetic operations (addition, subtraction, multiplication, division)
- Percentage calculations

- Square and root extractions
- Trigonometric functions
- Logarithms (natural and common)
- Hyperbolic functions

Entering calculations

Platon uses a **line-oriented input method**: you enter the entire expression first, then short-press the **equals key** [**=**](7th row, 3rd column) to calculate. Standard arithmetic rules apply, meaning multiplications and divisions are carried out before additions and subtractions. For more complex expressions, you can use parentheses.

Feedback and results

- Every entry and result is announced aloud.
- To repeat the result, press the equals key [**=**] as often as you like.
- If you make a mistake when entering a number, you can correct it by long-pressing the delete key [**ON/C**] (1st row, right key) to remove the last digit or entry.

Number Display Modes

Platon can show numbers in three different formats:

- **Decimal (floating point)**
  - This is the default mode. Numbers are displayed in standard decimal form.
  - If the value becomes too large or too small to fit on the display, Platon automatically switches to **Scientific** (exponential notation) (power of 10).
- **Scientific**
  - Numbers are always shown with an exponent, regardless of their size.
  - This format is commonly used in mathematics and science.
- **Technical**
  - Similar to scientific notation, but the exponent is always a multiple of three.
  - This makes it easier to work with units such as kilo, mega, or milli.

  Decimal places
  In all three modes, you can adjust the number of decimal places shown. The display will round numbers to the selected precision.

5.1: Basic Arithmetic Operations

The four basic arithmetic operations are addition [**+**], subtraction [**-**], multiplication [**×**], and division [**÷**].

To perform one of these operations:

1. Enter the first number.
2. Press the operator key (right key in rows 4–7).
3. Enter the second number.
4. Press the equals key [**=**] (row 7, second keyfrom the right).

5.2: Extended Arithmetic Operations

Platon also provides extended functions for:

- **Percentages** – automatic calculation of percentage values.
- **Squaring** – raising a number to the power of two.
- **Roots** – extracting square roots and higher roots.

These operations are available directly, without the need for additional steps or formulas.

5.2.1: Calculation of Percentages

When working with percentages, Platon can handle several common tasks automatically:

Calculation	Example	Input
Percent	How much is 5% of 250	250 x 5 %
Percentage	250 is 5% of how much	250 / 5 %
Surcharge	250 plus 5% surcharge	250 + 5 %
Discount	250 minus 5% discount	250 – 5 %

Example:

To calculate: *How much is 5% of 250?*

1. Enter **250**
2. Press the **times** key [**×**](5th row, right key)
3. Enter **5**
4. Press the **percent** key [**%**] (long-press on the times key)

Platon will immediately announce and display the correct result.

5.2.2: Squaring

To calculate the square of a number:

1. Enter the desired number.
2. Press the **square** key [**x^2**](row 2, left key).

3. Press the **equals** key [**=**] to display and hear the result.

5.2.3: Extracting Square Roots

To extract the square root of a number, enter the number, then press the square root [√**x**] (row 2, right key) and equals.

5.2.4: Reciprocal Value

To calculate the reciprocal of a number (1 ÷ number):

1. Enter the desired number.
2. Long-press the **arithmetic signs** key (row 3, right key).
3. Press the **equals** key to confirm.

The display and speech will show the reciprocal value.

5.2.5: Powers (Exponentiation)

To raise a number to a power:

1. Enter the base number.
2. Long-press the **square** key [$\mathbf{y^x}$](row 2, left key).
3. Enter the exponent (can be an integer or a decimal).
4. Press the **equals** key to calculate.

Example: To calculate 5^3, enter **5** → **long-press square** → **3** → **equals**, result: **125**.

5.2.6: Extracting Roots

With **Platon**, you can calculate not only square roots but also roots of any degree.

To extract a root:

1. Enter the number from which you want to extract the root.
2. Long-press the **square root** key (row 2, left key).
3. Enter the degree of the root (the exponent).
4. Press the **equals** key to calculate.

The root degree can also be a decimal value, not just an integer.

Examples:

- To calculate √25 (square root of 25): **25** → **square root** → **2** → **equals** → **5**
- To calculate $\sqrt[3]{27}$ (cube root of 27): **27** → **square root** → **3** → **equals** → **3**
- To calculate $\sqrt[4.5]{100}$: **100** → **square root** → **4.5** → **equals**

5.2.7: π (Pi)

To use the constant **π** in a calculation:

1. Short-press the **2nd function** key [**2nd**](1st row, left key).
2. Press the **3** key (row 6, 3rd column).

The value of π will be entered and can be used in your calculation.

5.3: Scientific Functions

Platon provides a wide range of **scientific functions**, including:

- **Trigonometric functions** (e.g., sine, cosine, tangent)
- **Logarithms** (natural and common)
- **Hyperbolic functions**

Each of these also has its **reciprocal (inverse) function**.

Example: Calculating a Natural logarithm

- Calculate **ln 22**
  - Enter 22
  - Press the 2nd function key [**2nd**](row 1, left key)
  - Press 1 key (row 6, column 1)
  - Press equals key [**=**]
  - Result: **3.091042453**

- Calculate $e^{1.8}$
  - Enter 1.8
  - Press the 2nd function key [**2nd**](row 1, left key) twice until Platon switches to the 3rd function level.
  - Press 1 key (row 6, column 1)
  - Press equals key [**=**]
  - Result: 6.049647464

5.4: Conversions

The **conversion** function allows you to quickly and easily switch between physical units using preset conversion factors. This makes it simple to calculate equivalent values without needing manual formulas.

5.4.1: Choice of Physical Units

You can easily select and use different unit conversions in Platon.

How to select a conversion:

1. Long-press the **Menu** key [**MENU**] (row 2, middle).

2. Navigate to the **Conversions** submenu using the **square** key [**x^2**](row 2, left) or the **square root** key [√**x**] (row 2, right).
3. Confirm your choice with a long press on the **Menu** key.
4. Choose the desired conversion type with the **square** or **square root** keys.
5. Confirm your selection by long-pressing the **Menu** key again.

Available conversions:

- **Custom conversion**
  - Allows you to define your own factor.
  - After selecting *Custom Conversion* (long-press **Menu**), Platon will announce “Custom conversion.”
  - Enter your conversion factor (e.g., 2.54 for centimeters → inches).
  - Confirm with a short press on **Menu** or **Equals**. The factor is announced.
- **Currency**
  - Since exchange rates change frequently, you can update this rate in the same way as with *Custom Conversion*.
- **Temperature**
  - Celsius ↔ Fahrenheit
    - °C = (°F – 32) ÷ 1.8
    - °F = (°C × 1.8) + 32
- **Volume**
  - Liters ↔ US gallons
    - 1 L = 0.264172052 US gal
    - 1 US gal = 3.785411789 L
- **Length**
  - Kilometers ↔ Miles
    - 1 km = 0.621371192 mi
    - 1 mi = 1.609344001 km
- **Weight**
  - Kilograms ↔ Pounds
    - 1 kg = 2.204622622 lb
    - 1 lb = 0.453592370 kg

5.4.2: Executing a Conversion

- **Preset the conversion rate** as described in the previous chapter.
- Enter the number you wish to convert.
- Short-press the **point** [**.**] (row 7, 2nd column) and **equals** [**=**] (row 7, 3rd column) keys simultaneously to perform the conversion.
- To **revert the result** (convert back), press the **equals** [**=**] and **plus** [**+**] (row 7, 3rd column) keys simultaneously.

5.5: Financial Calculator

Platon provides several **financial functions**, including:

- **Compound interest**
- **Present (cash) value**
- **Annuities**

Accessing the financial calculator:

1. Long-press the **Menu** key.
2. Use the **square** (row 2, left) or **square root** (row 2, right) keys to navigate to *Financial Calculator*.
3. Confirm your choice with a short press on the **Menu** key.

5.5.1: Compound Interest

The **compound interest calculation** helps you answer the question:
"What will my final capital be after a certain period of time, given an initial amount and an interest rate?"

Steps:

1. After selecting the *Compound Interest* formula (long-press **Menu**), Platon will prompt you for the **initial capital**.
    - Enter the amount and confirm with a short press on **Menu**.
2. Enter the **interest rate** (in percent) and confirm.
3. Enter the **duration in years** and confirm.
4. Platon announces the **final amount**, which includes:
    - Initial capital
    - Earned interest
    - Compound interest at maturity

Formula used:

$$\text{Final Capital} = \text{Initial Capital} \times \left(1 + \frac{Interest\ Rate}{100}\right)^{Duration}$$

5.5.2: Present Value

The **present value** is the current worth of a future payment (or series of payments), discounted to account for the time value of money and factors such as investment risk. In simple terms, it answers the question:
"How much starting capital is needed today to reach a certain final capital after a set time at a given interest rate?"

Steps:

1. After selecting the *Present Value* formula, Platon will prompt you for the **final capital**.
    - Enter the amount and confirm with a short press on **Menu**.

2. Enter the **interest rate** (in percent) and confirm.
3. Enter the **duration in years** and confirm.
4. Platon announces the required **initial capital** (present value).

Formula used:

$$Present\ value = \frac{Final\ Capital}{\left(1 + \frac{Interest\ Rate}{100}\right)^{Duration}}$$

5.5.3: Monthly Mortgage Payment

The **monthly mortgage payment** function allows you to calculate the fixed installment you must pay each month in order to repay a loan (such as a mortgage). The result takes into account the loan amount, the annual interest rate, and the repayment period in years.

In simple terms, it answers the question:
"How much will I have to pay each month to repay my mortgage or loan?"

Steps:

1. After selecting the *Monthly Mortgage Payment* formula, Platon will prompt you for the **loan amount (principal)**.
    - Enter the amount and confirm with a short press on **Menu**.
2. Enter the **annual interest rate** (in percent) and confirm.
3. Enter the **duration in years** and confirm.
4. Platon calculates and announces the **fixed monthly installment** you will have to pay for the entire repayment period.

Formula used:

$$Monthly\ payment = P \times \frac{r \times (1 + r)^n}{(1 + r)^n - 1}$$

Where:

- P = Loan amount (principal)
- r = Monthly interest rate (annual rate ÷ 12 ÷ 100)
- n = Total number of months (years × 12)

Example:
Loan amount: €100,000
Interest rate: 6% annually
Duration: 20 years (240 months)

Result: **€716.43 monthly payment**

5.5.4: Mortgage Principal

The **mortgage principal** function helps you determine the amount of money originally borrowed (the loan amount), based on a known monthly payment, interest rate, and repayment period.

In simple terms, it answers the question:
"If I can afford to pay a certain amount each month, how much money could I borrow?"

Steps:

1. After selecting the *Mortgage Principal* formula, Platon will prompt you for the **monthly payment**.
    - Enter the amount and confirm with a short press on **Menu**.
2. Enter the **annual interest rate** (in percent) and confirm.
3. Enter the **duration in years** and confirm.
4. Platon calculates and announces the **loan principal** (the original mortgage amount).

Formula used:

$$Loan\ principal\ (amount\ borrowed) = Monthly\ payment \times \frac{(1+r)^n - 1}{r(1+r)^n}$$

Where:

- r = Monthly interest rate (annual rate ÷ 12 ÷ 100)
- n = Total number of months (years × 12)

Example:

Monthly payment..... €716.43
Interest rate ..... 6% annually
Duration..... 20 years (240 months)
Result.....**€100,000 loan principal**

6. STATISTICS FUNCTIONS

To access the statistics functions, you first need to switch Platon into **Statistics Mode**.

How to enter Statistics Mode:

1. Press the **2nd function** [**2nd**] key (row 1, left key) to reach 2nd function mode.
2. Then press the **middle tactile Menu** key (row 2, middle key).

Platon is now in **Statistics Mode**, and you can begin entering or analyzing statistical data.

6.1. Keyboard Layout in Statistics Mode

In **Statistics Mode**, the keys in the 3 × 3 block are assigned as follows:

Key		Short-press	Long-press
Row	Column		
1	1	2nd function	3rd function
	3	Exit Statistics mode	Backspace
2	1	Arithmetical Mean	Geometric Mean
	2	2nd function: Statistics mode Cancel	
	3	Root Mean Square	Harmonic Mean
3	1	Sum of values	Product of values
	2	Standard deviation	Number of values
	3	Sum of squares	Sum of reciprocal values

The 4 × 4 block contains the number keys, the decimal comma, and the **equals** key, along with the **plus** and **minus** operator keys, arranged as follows:

Key		Short-press	Long-press
Row	Column		
6	4	Subtract a number [**-**]	
7	4	Add a number [**+**]	

6.2. Application of Statistics Functions

In **Statistics Mode**, you can enter values and perform a wide range of statistical calculations. Values can be **added** or **subtracted**, and Platon provides the following functions:

Statistical Functions:

- Arithmetic Mean
- Geometric Mean
- Quadratic (Square) Mean
- Harmonic Mean
- Standard Deviation

Calculated Parameters:

- Number of entered values
- Sum of values
- Sum of squares of values
- Sum of reciprocals of values
- Product of values

Example: Arithmetic Mean and Standard Deviation

Suppose you want to calculate the **arithmetic mean** and **standard deviation** of a series of measurements (3, 4, 5):

1. **Enter Statistics Mode**
    - Press the **2nd function** key [**2nd**] (row 1, left) and then press the **Menu** key (row 2, middle).
    - Announcement: *“Statistics”*.
    - The display shows **DEG RAD GRAD** in the top right to indicate Statistics Mode is active.

2. **Enter the Data Series**
    - Input **3**, then press the **plus** key (4 × 4 block, row 4, right).
        - Announcement: *“Value added”*.
    - Input **4**, press the plus key → *“Value added”*.
    - Input **5**, press the plus key → *“Value added”*.

3. **Calculate the Arithmetic Mean**
    - Press the **Square** key (3 × 3 block, row 2, left).
    - Announcement: *“Arithmetic mean”*.
    - Result: **4**.

4. **Calculate Standard Deviation**
    - Press the **Bracket open/close** key (3 × 3 block, row 3, middle).
    - Announcement: *“Standard deviation”*.
    - Result: **0.816496581**.
5. **Check Number of Values**
    - Long-press the same **Bracket key** (3 × 3 block, row 3, middle).
    - Announcement: *“Number of values”*.
    - Result: **3**.
6. **Exit Statistics Mode**
    - Press the **2nd function** key, then the **Menu** key again.

ⓘ	**Note:** • Please note that in Statistics Mode no other calculations are possible.

6.3. Help Mode

You can activate **Help Mode** by simultaneously pressing the **Square** and **Square Root** keys (3 × 3 block, row 2 left and right).

In this mode, Platon briefly explains the function of the **last pressed key**. This feature is particularly useful in **Statistics Mode**, where it can be difficult to recall each key’s assignment.

To exit Help Mode, press the **Square** and **Square Root** keys again simultaneously.

Note: A **long press** on these two keys displays the **software version**.

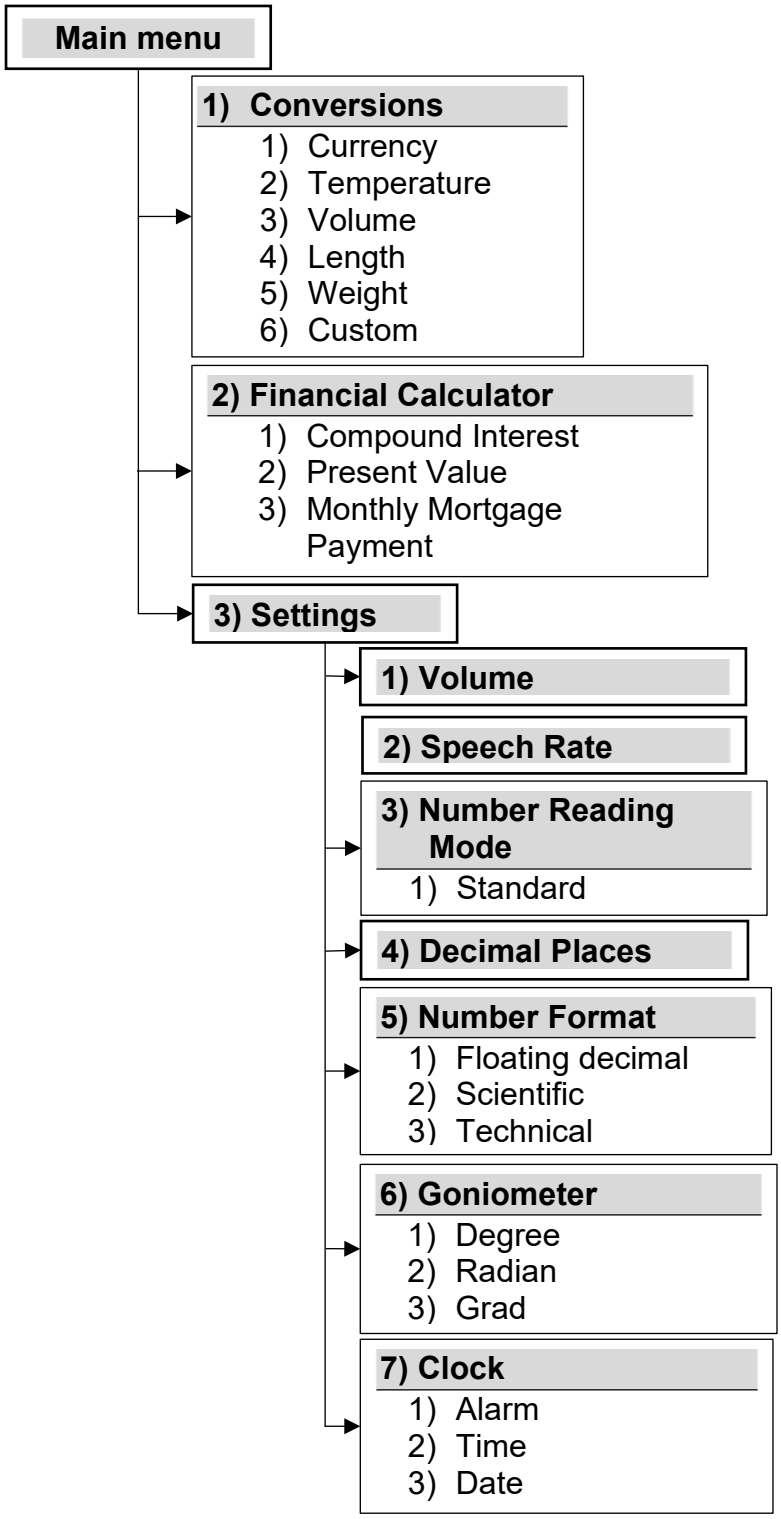
7: MENU

The **Menu** allows you to adjust settings and select functions.

How to enter the Menu:

1. Hold down the **Menu** key (row 2, middle key with a tactile dot).
    - Platon will announce: *“Menu”*.
2. Use the **left** [$\mathbf{x^2}$] (row 2, leftmost key) and **right** [$\sqrt{\mathbf{x}}$] (row 2, rightmost) keys (in the same row) to navigate through the available menu items.
3. Confirm your selection by holding down the **Menu** key again.

7.1 Menu Structure



7.2 Menu Quick Selection

In Platon, each menu item has an assigned number, allowing direct navigation using the number keys.

How to use:

1. Hold down the **Menu** key (row 2, middle key with a tactile dot).
    - Platon will announce: *“Conversion”*.
2. Press the corresponding **number key** to select a main submenu (see Chapter 7.1, Menu Structure, for the number assignments).
3. Continue pressing the corresponding **number keys** to reach the desired menu item.

Example of use:

Changing **Volume** to level 7

1. Long-press the **Menu** key until Platon announces “*Conversion*”.
2. Press **3**, Platon announces: “Volume”.
3. Press **1** to open the Volume settings. Platon announces current volume settings, e.g., “*Volume 3*”
4. Press **7** to select volume level 7. Platon announces “*Volume 7*”
5. Long-press the **Menu** key to confirm.

7.3: Volume

This menu item allows you to adjust the **speaker volume**.

- There are **10 levels** available: **1–10**.
- **Levels 1–10**: Increasing volume from quiet to maximum.

With this menu item, the volume can be adjusted. There are 10 volume levels (1-10).

7.4: Speech Rate

This menu item allows you to adjust the **speech rate** of Platon’s voice output.

- The rate can be changed in **25% steps**, ranging from **–50% (slower)** to **+200% (faster)**.

7.5: Number Reading Mode

This menu item lets you choose how Platon announces calculation results:

- **Whole number format** – e.g., *305 → “three hundred five”*

- **Digit-by-digit format** – e.g., *305 → "three–zero–five"*

How to set Number Reading Mode:

1. Confirm the menu item *Number Reading Mode* by holding down the **Menu** key (row 2, middle).
2. Use the **left** or **right** key to select your preferred option (whole number or digit-by-digit).
3. Confirm your choice by holding down the **Menu** key again.

7.6: Decimal place

This menu item allows you to limit how many **decimal places** are displayed and announced.

- If the setting is, for example, **10**, Platon will show and announce up to 10 decimal places.
- Any unnecessary trailing zeros at the end of a number will automatically be removed.

7.7: Display mode

This menu item allows you to choose how numbers are displayed and announced. Platon offers three formats:

- **Floating Decimal**
  - Default format.
  - Numbers are shown as regular decimals (e.g., *12365.886* → "twelve thousand, three hundred sixty-five point eight eight six").
  - If a number cannot be shown within 10 digits on the display, Platon automatically switches to **Scientific format** (exponential notation).
  - Example: *1237.65313* is announced as *"one thousand, two hundred thirty-seven point six five three multiplied by ten raised to the power of thirteen."*

- **Scientific**
  - Numbers are always displayed in exponential notation with base 10.
  - Example: *345.22E–65* → "three hundred forty-five point two two multiplied by ten raised to the power of minus sixty-five."

- **Technical**
  - Similar to Scientific mode, but the exponent is always a multiple of 3.
  - This aligns with **SI prefixes**, which describe very large or very small values:

Name	Abbreviation	Value	Exponential
kilo	k	1,000	10^3
mega	M	1,000,000	10^6

Name	Abbreviation	Value	Exponential
giga	G	1,000,000,000	10^{9}
milli	m	0.001	10^{-3}
micro	µ	0.000001	10^{-6}
nano	n	0.000000001	10^{-9}

Shortcut:
You can also switch display modes using the key **2nd function (row 1, column 1) + Division key** [÷] (row 4, column 4).

7.8: Goniometer

This menu item allows you to select the **angle unit** used for trigonometric functions. Platon offers three options:

- **Degree (°)**
  - The most common unit.
  - A full circle is **360°**.
- **Radian (rad)**
  - A mathematical unit of plane angle.
  - Defined as 180° = π radians.
  - A full circle corresponds to **2π radians**.
  - Commonly used in technical and scientific fields.
- **Gon (grad)**
  - A unit of plane angle where a full circle is divided into **400 gons**.
  - 1 gon = 0.9°.

7.9: Clock

With this menu item, you can **adjust the time and date** as well as **set the alarm clock**.

7.9.1: Alarm Clock

You can set an alarm and choose from a variety of ringtones.

Steps:

1. Select the menu item *Alarm Clock* by holding down the **Menu** key (row 2, middle).
2. Use the **left** and **right** keys to **enable Alarm**
3. Use the **left** and **right** keys to set the **hour**.

4. Confirm with a **short-press** on the **Menu** key.
5. Use the **left** and **right** keys to set the **minutes**.
6. Use the **left** and **right** keys to scroll through the available ringtones.
7. Confirm your choice by holding down the **Menu** key again.

Snooze Function

When the alarm sounds, you can temporarily silence it using the Snooze function. This allows you to pause the alarm for a chosen number of minutes before it rings again.

To set the snooze time:

- While the alarm is ringing, **press a number key (0–9)** on the keypad.
- The pressed number determines how many minutes the alarm will be postponed:
  - **1** = Snooze for **1 minute**
  - **2** = Snooze for **2 minutes**
  - …
  - **9** = Snooze for **9 minutes**
  - **0** = Snooze for **10 minutes**

After the selected snooze time has passed, the alarm will sound again. You can repeat the snooze process as many times as needed.

Note: The alarm can be stopped at any time by **pressing and holding the Menu** button. If **no button** is pressed, the alarm will automatically stop after **3 minutes** of continuous ringing.

7.9.2: Time

This option allows you to set the current time.

Steps:

1. Select the menu item *Time* by holding down the **Menu** key.
2. Use the **left** and **right** keys to set the **hour**.
3. Confirm with a short press on the **Menu** key.
4. Use the **left** and **right** keys to set the **minutes**.
5. Confirm again with a short press on the **Menu** key.

7.9.3: Date

This option allows you to set the current date.

Steps:

1. Select the menu item *Date* by holding down the **Menu** key.
2. Use the **left** and **right** keys to set the **year**.
3. Confirm with a short press on the **Menu** key.
4. Set the **month** in the same way and confirm.
5. Finally, set the **day** and confirm again.

8: SAFETY INSTRUCTIONS

- Do not expose the device to extreme humidity, heat, cold, dust, or dirt.
- If the device comes into contact with splashing water, wipe it off immediately. If water enters the device, remove the batteries and allow the unit to dry completely before use.
- If you do not plan to use the device for an extended period, remove the batteries to prevent damage from leakage.
- Always ensure that the batteries are inserted correctly, following the polarity markings inside the battery compartment.

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.

10: TECHNICAL DATA

Size:	l x w x h: ca. 154mm x 64mm x (13-21mm)
Weight:	130 g (incl. batteries)
Power supply:	2 units 1,5V AAA micro-batteries 1 adapter (**not** included in the contents)
Scope of delivery:	Platon calculator, flip case, 2 x 1,5V AAA micro-batteries, Instructions in black print

11: GUARANTEE AND SERVICE

From the date of purchase, we issue to the original purchaser of this product a guarantee of:

- twenty-four (24) months on the device itself,
- twelve (12) months on the accessories (e.g. power supply, earphones etc.),
- six (6) months on wear parts (e.g. battery, case etc.)

Please note that we do not issue any guarantee on batteries!
During the guarantee periods mentioned above, the product will be either repaired or replaced free of charge. In no event shall CareTec be liable for indirect, special or consequential damages. The exposure of the device to liquids, strong electromagnetic fields, heat as well as dropping the device or opening the case causes immediate 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 any changes or improvements to its products without further notice.

12: LEGAL NOTICE ON THE DISPOSAL OF ELECTRONIC DEVICES

12.1: Disposal of used Electronic Devices

	This product must be disposed of separately from household waste at specially designated collection and recycling points. For further information please contact your local authorities.

12.2: Recycling Batteries

	Batteries must not be disposed of in household waste. As a consumer you are legally obligated to bring your old batteries to public collecting points (in your community or any shop that provides these batteries).

Pb-Cd-Hg These signs can be found on contaminant-laden batteries.
Pb = containing lead
Cd = containing cadmium
Hg = containing mercury

13: SYMBOLS USED

	Caution
	Note
	Dispose of separately from household waste
	Manufacturer

14: MANUFACTURER

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