*This document contains confidential information intended only for the individual or entity named. If you are not the intended recipient, please notify the sender immediately and delete this document from your system. Any unauthorized use, disclosure, or distribution is prohibited.*

*Solvista*

*Version 1.0*

*The Smart Calculator*

*User Manual*

Smart Wave Technologies official website

*https://SmartTechnologies.lk*

Smart Wave Technologies official email

*smartwavetechnologies@gmail.com*

Contact No.

*+94 701960880*

**Contents**

1. Welcome note
2. Introduction
3. Features
4. Getting Started
   1. Unboxing
   2. Charging the Battery
   3. Turning on the Device
5. Main Menu Overview
   1. Scientific Calculator
   2. Graphing Calculator
   3. Write to Solve
   4. Take a Photo to Solve
   5. Simultaneous Solver
   6. PDF Reader
   7. Controls
   8. Matrix Calculator
6. Using the Smart Calculator
   1. Scientific Calculator
   2. Graphing Calculator
   3. Write to Solve
   4. Take a Photo to Solve
   5. Simultaneous Solver
   6. PDF Reader
   7. Controls
   8. Matrix Calculator
7. Troubleshooting
8. Safety Information
9. Storage
10. Warranty and Support

**1. Welcome Note**

Welcome to the future of calculation! Thank you for choosing our Smart Calculator. This innovative device is designed to provide a seamless and powerful mathematical experience, combining the capabilities of various calculators into one touch screen interface. We hope this device will enhance your productivity and make your mathematical tasks easier and more enjoyable.

**2. Introduction**

Welcome to the user manual for the Smart Calculator. This device is designed to provide a comprehensive solution for all your mathematical needs, combining the functionality of a scientific calculator, graphing calculator, and more, all in one touch screen interface.

One of the standout features of this Smart Calculator is its ability to solve handwritten problems by taking a photo. This special feature is particularly useful during exams or any situation where retyping problems into a calculator can be time-consuming. Simply take a photo of the handwritten mathematical expression, and the calculator will scan and solve it, displaying the answer instantly. This feature ensures that you can work more efficiently and focus on solving problems rather than inputting data.

**2. Features**

- 5-inch touch screen display

- Powered by Raspberry Pi zero

- Multiple calculators in one device

- Scientific Calculator

- Graphing Calculator

- Write to Solve

- Take a Photo to Solve

- Simultaneous Solver

- PDF Reader

- Controls

- Matrix Calculator

- Integrated camera for photo-based solving

- Rechargeable battery

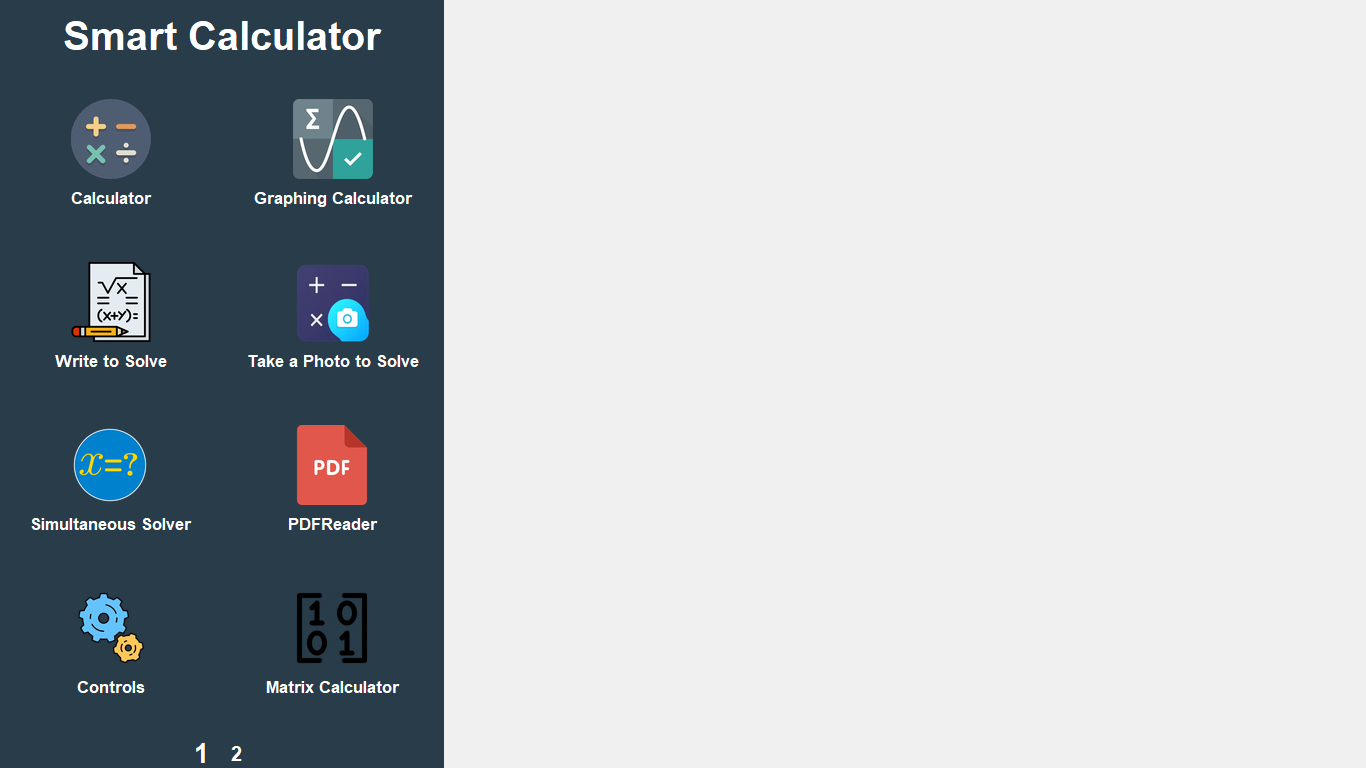
- Easy-to-use touch interface

-The display updates dynamically to show the current input, helping you verify the correctness of the expressions before saving it.

**3. Getting Started**

* Unboxing
* Carefully unbox your Smart Calculator.
* Ensure all components are present: Smart Calculator, charger, and user manual.
* Charging the Battery
* Plug the charger into the charging port of the device.
* Connect the charger to a power outlet.
* Charge the device fully before first use.
* Turning on the Device
* Press and hold the switch button until the screen lights up.
* The main window will display with the following options: Scientific Calculator, Graphing Calculator, Write to Solve, Take a Photo to Solve, Simultaneous Solver, PDF Reader, Controls, and Matrix Calculator.

**4. Main Menu Overview**

Start menu

Can access to the following functions by just pressing on the icons,

* Scientific Calculator- Access a full range of scientific functions.
* Graphing Calculator- Plot graphs for various functions and analyze them.
* Write to Solve - Write any mathematical expression using the pen on the display.
  + The device scans and solves the expression.
* Take a Photo to Solve - Use the back camera to take a photo of any mathematical expression.
  + Preview the expression before capturing.
  + The device scans and solves the expression.
* Simultaneous Solver - Solve systems of linear equations.
* PDF Reader - Open and read PDF documents.
* Controls - Solve systems of Transfer functions.
* Matrix Calculator - Perform various matrix calculations.

**5. Using the Smart Calculator**

5.1 Scientific Calculator

ss

1. Select "Scientific Calculator" from the start menu.
2. Use the on-screen buttons to enter your expression.
3. Press "=" to get the result.
4. Use the ‘Back’ button if you want to go to the start menu again

5.2 Graphing Calculator

ss

1. Select "Graphing Calculator" from the start menu.
2. Enter the function you want to graph.
3. Use ‘plot’ to graph to view the graph and it will pop up in another window.

ss

1. Use ‘close’ to close the graph widow and then ‘Back’ to return to the start menu.

5.3 Write to Solve

1. Select "Write to Solve" from the main menu.
2. Use the pen to write your mathematical expression on the screen.
3. Use ‘calculate’ to solve it.
4. If needed to plot a written graph go to ‘mode’ and use ‘plot’.
5. If needed to solve the written simultaneous equations go to ‘mode’ and use ‘simultaneous equations’.
6. If needed to solve written matrices go to ‘mode’ and use ‘Matrix’.

5.4 Take a Photo to Solve

1. Select "Take a Photo to Solve" from the main menu.
2. Position the camera over the mathematical expression.
3. Preview the expression on the screen.
4. Use ‘capture’ and the device will solve the expression.

5.5 Simultaneous Solver

1. Select "Simultaneous Solver" from the main menu.
2. Select ‘Add Equations’ it will pop up a key pad which you can use to add the equations.
3. Use ‘Add’ to add the equation and the equation will be displayed on the display and you can again use ‘Add Equations’ to add more equations.
4. Use ‘Solve Equations’ after adding all the equations and it will solve it and display the values.
5. Use the ‘Back’ button if you want to return to the start menu again.

5.6 PDF Reader

1. Select "PDF Reader" from the main menu.
2. Use ‘Open PDF’ to open the reading material.
3. Browse and open PDF documents stored on the device.
4. You can use the navigation buttons as necessary.
5. Use the ‘Back’ button if you want to return to the start menu again.

5.7 Controls

1. Select "Controls" from the main menu.
2. Press the ‘Edit Numerator button’, A new window will open with a virtual keypad.
3. Use the keypad to input the numerator of your transfer function.
4. Press ‘Add’ to save the input or ‘Back’ to cancel.
5. Press the ‘**Edit Denominator**’ button and repeat the above steps to add the denominator
6. Once you have entered the numerator and denominator, the transfer function will be displayed on the main screen.
7. Press the **Bode Plot** button to generate a Bode plot of the transfer function. The plot will display the magnitude and phase response of the system. You can analyze the frequency response of the transfer function using this plot.
8. Press ‘**Close’** to return to the main controls screen.
9. Press the Nyquist Plot button to generate a Nyquist plot of the transfer function. The plot will display the real and imaginary parts of the system's frequency response.You can analyze the stability and performance of the control system using this plot.
10. Press **Close** to return to the main controls screen.
11. Press the **Back** button at any time to return to the main menu.

5.8 Matrix Calculator

1. Select "Matrix Calculator" from the main menu.
2. Use “Add Matrix’ and it will pop up another window to add the dimensions.
3. Select the specific number of rows and columns and select a name for the matrix ( MatA, MatB, MarC….) and select “Next”.
4. That will pop up another window with spaces with the entered dimensions to add your matrix.
5. After adding the numbers press ‘Add Matrix’
6. And if you want add more matrices use “Add Matrix” again and repeat.
7. After adding matrices from the ‘Matrix Operations’ window type the desired expressions in the entry box and use ‘=’ to solve it.
8. The device will perform the calculation.
9. Use the ‘Back’ button if you want to return to the start menu again.

**6. Troubleshooting**

- If the device does not turn on, ensure it is fully charged.

- If the touch screen is unresponsive, restart the device.

- Ensure that all the expressions are entered correctly before attempting to generate plots.

- For any other issues, refer to the support section of this manual.

**7. Safety Information**

- Do not expose the device to extreme temperatures.

- Avoid contact with water or other liquids.

- Handle the device with care to prevent damage.

**8. Warranty and Support**

For warranty information and support, please visit our website or contact customer service.

---