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SOLVISTA

Version 1.0

The Smart Calculator

User Manual

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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.

3. Features

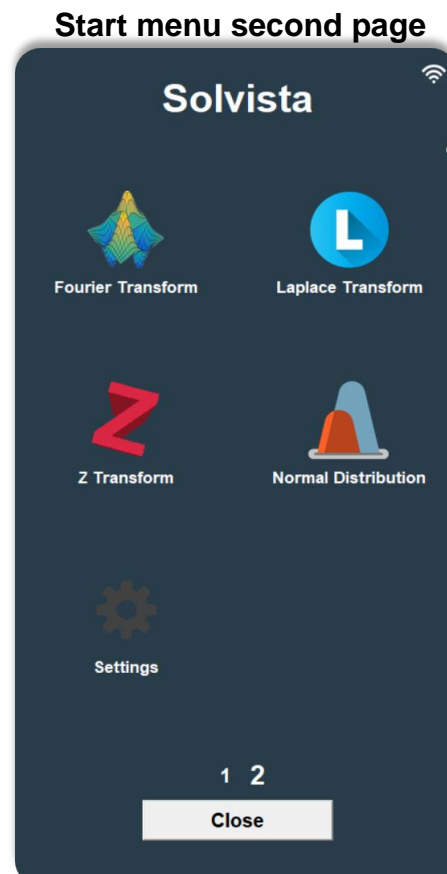
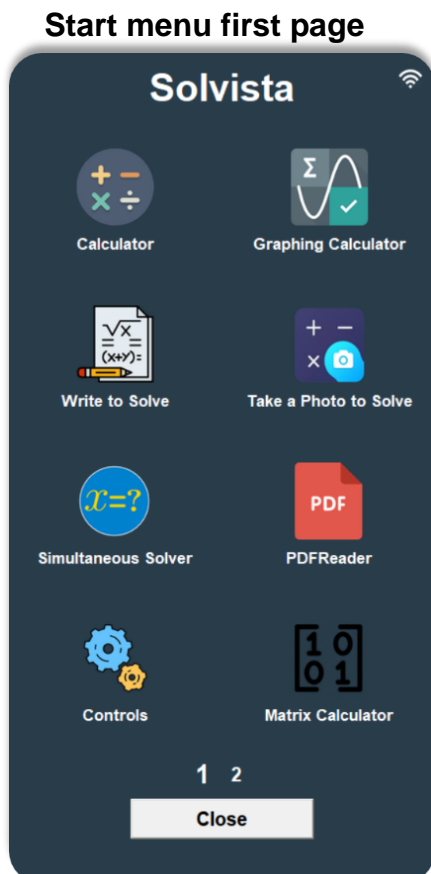
- 5-inch touch screen display with included pen
- Multiple calculators in one device
 - Scientific Calculator
 - Graphing Calculator
 - Write to Solve
 - Take a Photo to Solve
 - Simultaneous Solver
 - PDF Reader
 - Controls
 - Matrix Calculator
 - Laplace transform
 - Fourier transform
 - Z transform
 - Normal distribution
- 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.

4. Getting Started

- **Unboxing**
 - ✓ Carefully unbox your Smart Calculator.
 - ✓ Ensure all components are present: Smart Calculator, pen, 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 the switch button at the side which will light up the screen.
 - ✓ The first page of 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.
 - ✓ The second page will display Fourier transform, Laplace transform, z transform and settings options.

5. Main Menu Overview



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 with included options.
- **Matrix Calculator** - Perform various matrix calculations.
- **Laplace transform** – Compute Laplace transformation
- **Z transform** – compute z transformation
- **Settings** – Allow to change Wi-Fi settings

6. Using the Smart Calculator

6.1 Scientific Calculator

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



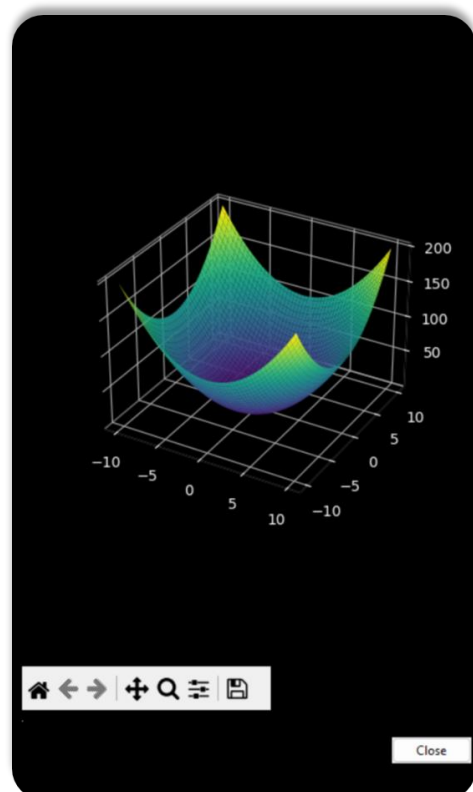
6.2 Graphing Calculator



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.

4. From the options indicated in this window,

- First button resets the graph to the original view
- Second and third arrow buttons views the previous state or next state of the graph after adjusting by the given options
- Fourth button can move the graph along the axes as you wish
- Fifth button is the zoom option and it can select a rectangular part of the plot and zoom that part

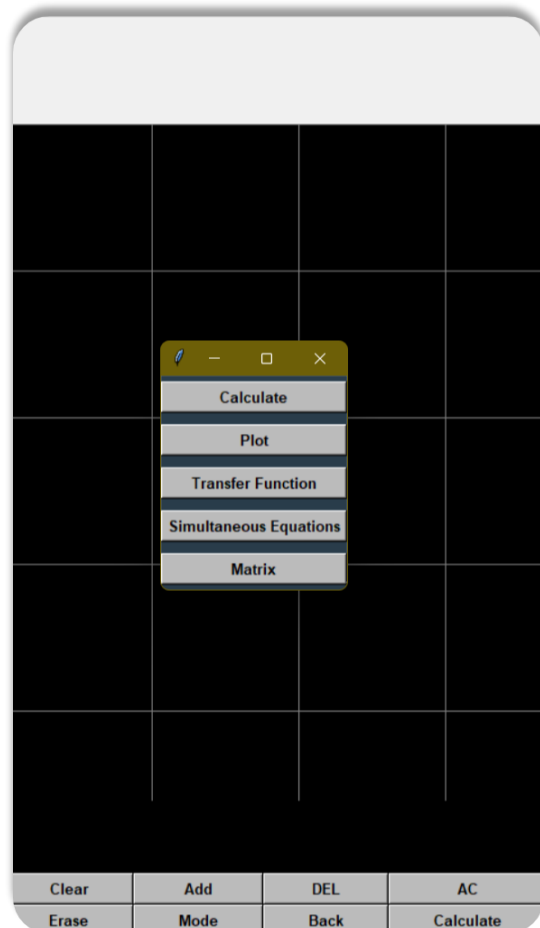
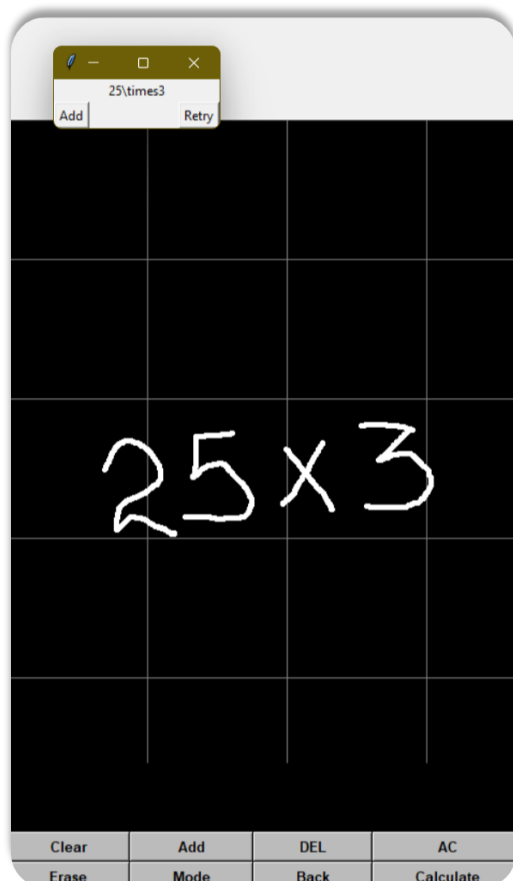


- Sixth button configures subplots parameters which can adjust or expand/compress the plot.
- The last button can save the graph

5. Use 'close' to close the graph window and then 'Back' to return to the start menu.

6.3 Write to Solve

1. Select "Write to Solve" from the main menu.
2. First press the 'mode' option which will pop up a small window like above which can select the function you want to use. The selected option will appear at the bottom right corner of the page.
3. Then use the pen to write your mathematical expression on the screen.



4. Next press 'Add' and it will display the written expression in a small window as follows. You can preview whether the written expression has appeared correct and add it again or retry.
5. After adding again the answer will appear in the display box at the top. If needed to plot a written graph go to

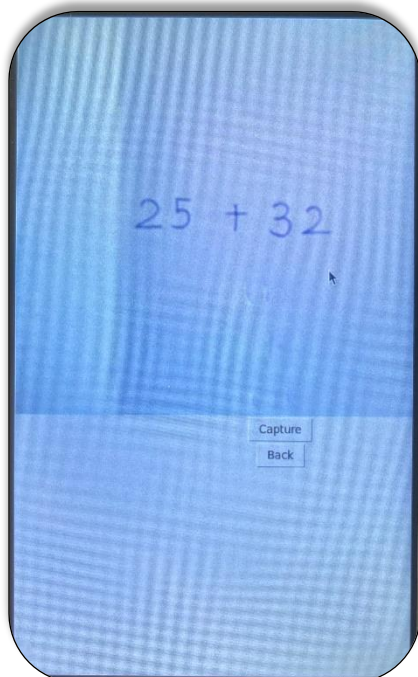
'mode' and use 'plot' and repeat the process, after adding a window will

pop up and display the graph

6. If needed to solve the written simultaneous equations go to 'mode' and use 'simultaneous equations'.
7. If needed to solve written matrices go to 'mode' and use 'Matrix'.

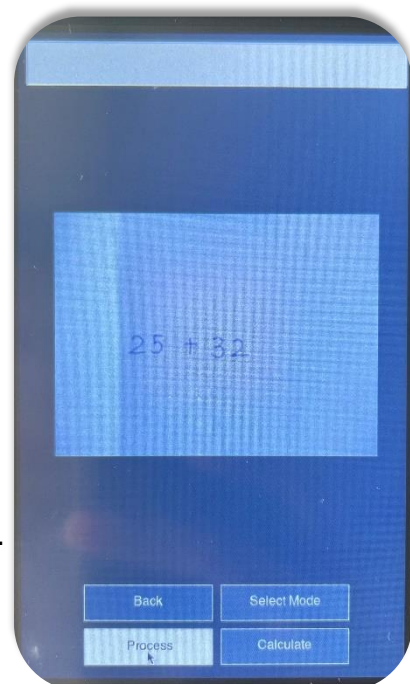
6.4 Take a Photo to Solve

1. Select "Take a Photo to Solve" from the main menu.



2. Position the camera over the mathematical expression and press capture.

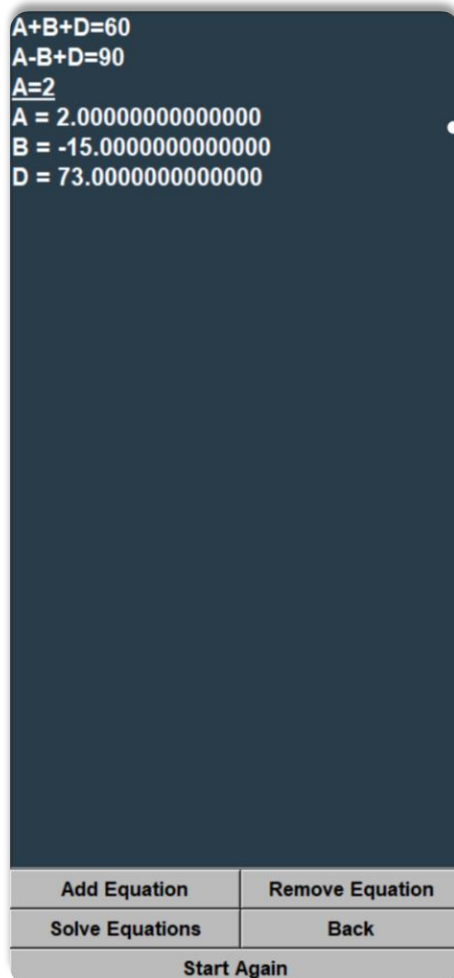
3. Preview the expression on the screen.



4. Use 'process' to scan the expression.
5. Then the expression will appear in the display box.
6. Then if it is correct press 'calculate' and the answer will appear in the box.
7. And you can use the 'Select Mode' just as the 'Mode' method in 'Write to Solve'.

6.5 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. And you can select and remove any equations by 'Remove Equation' if necessary.



5. Use 'Solve Equations' after adding all the equations and it will solve it and display the values.

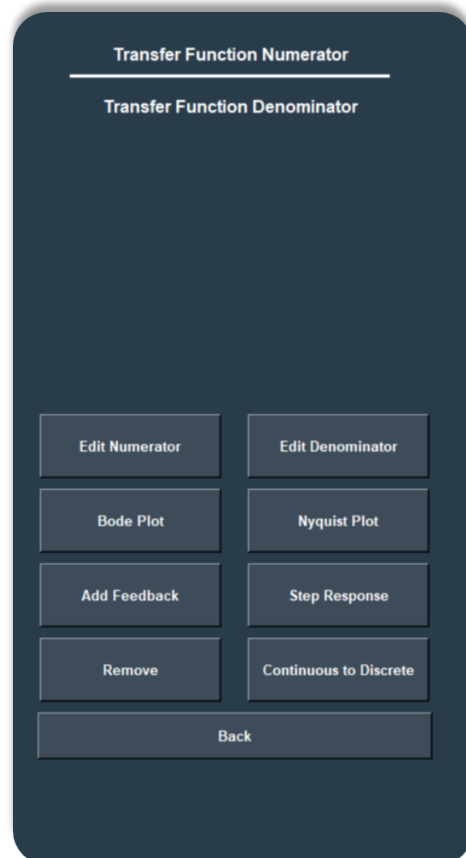
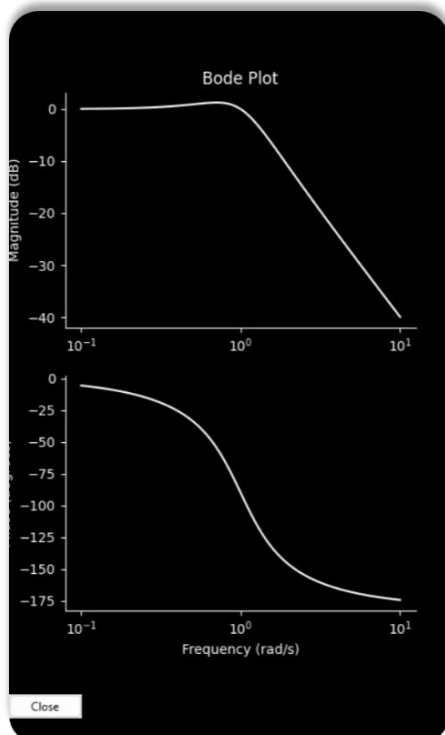
6. Use the 'Back' button if you want to return to the start menu again or use 'Start again' to clear all the equations.

6.6 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.

6.7 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.

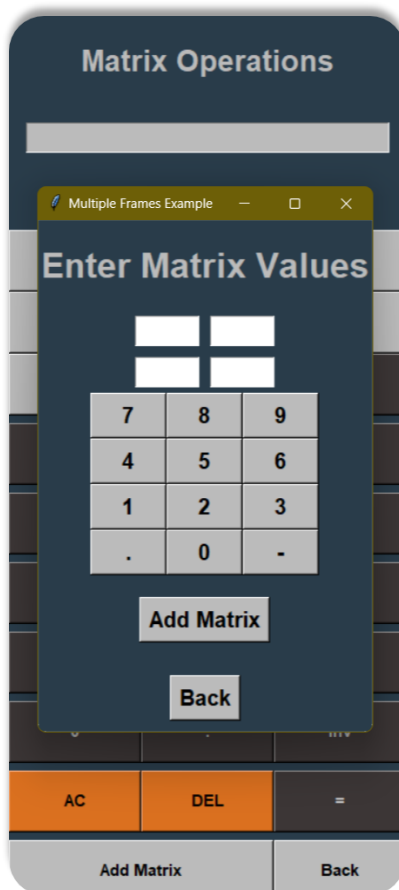
8. Press 'Close' to return to the main controls screen.

8. 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.
9. Press step response to generate a step response of the transfer function.
10. Press 'Close' to return to the main controls screen.
11. Press add feedback and add a feedback. It will automatically update the transfer function.
12. Press the 'continuous to discrete' which will pop up a new window opens to input the sampling period and select the conversion method. Select the desired conversion method: Forward Euler, Backward Euler, or Tustin and click "Set" to apply the conversion. The transfer function is updated to its discrete equivalent.
13. Press the 'Remove' to remove the transfer function and 'Back' button at any time to return to the main menu.

6.8 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". That will pop up another window with spaces with the entered dimensions to add your matrix. After adding the numbers press 'Add Matrix'

The screenshot shows a mobile application interface titled "Matrix Operations". Below the title bar, there is a status bar with the text "Multiple Frames Example" and standard Android window controls. The main screen is titled "Enter Matrix Dimensions". It contains three input fields: "Rows:" with a value of "2", "Columns:" with a value of "2", and "Select Matrix:" with a dropdown menu showing "MatA". Below these fields are three buttons: "Next", "Write and add", and "Back". At the bottom of the screen, there is a numeric keypad with buttons for "AC", "DEL", and "=", and two larger buttons labeled "Add Matrix" and "Back".



4. Or you can use write to add which will pop up a blackboard and you can write and add the matrix there.

5. And if you want add more matrices use “Add Matrix” again and repeat.

6. After adding matrices from the ‘Matrix Operations’ window type the desired expressions in the entry box and use ‘=’ to solve it.

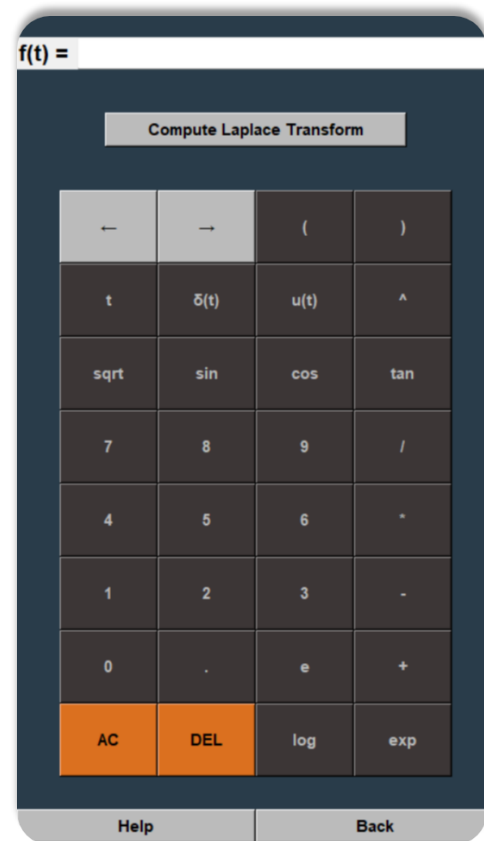
7. The device will perform the calculation.

8. Use the ‘Back’ button if you want to return to the start menu again.



6.9 Laplace Transform

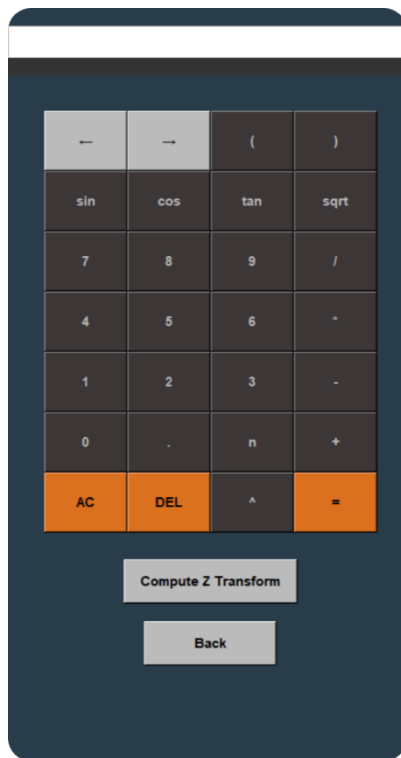
1. Select "Laplace Transform " from the second page of the start menu.
2. Use the on-screen buttons to enter your expression.
3. Press "Compute Laplace Transform" to get the result.
4. Use the 'Back' button if you want to go to the start menu again



6.10 Fourier Transform

1. Select "Laplace Transform " from the second page of the start menu
2. Use the on-screen buttons to enter your expression.
3. Press " Transform" to get the result.
4. Use the 'Back' button if you want to go to the start menu again

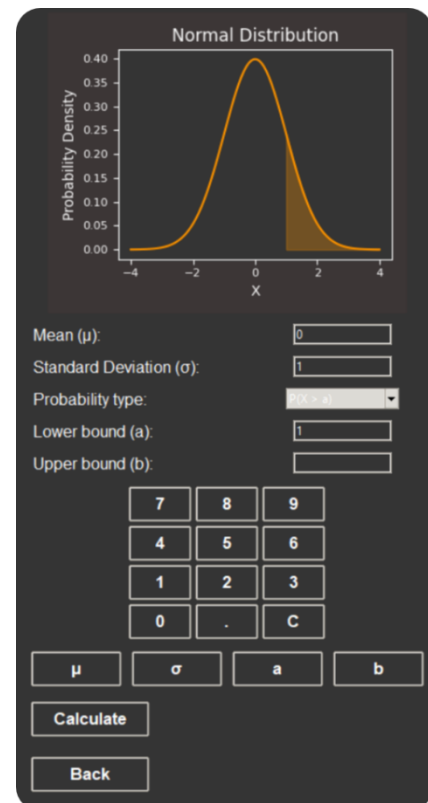
6.11 Z Transform



1. Select "Z Transform " from the second page of the start men
2. Use the on-screen buttons to enter your expression.
3. Press " Compute Z Transform" to get the result.
4. Use the 'Back' button if you want to go to the start menu again

6.12 Normal distribution

1. Input the fields. Enter the mean value in the "Mean (μ)" field. The default value is 0. Enter the standard deviation value in the "Standard Deviation (σ)" field. The default value is 1.
2. Choose the desired probability type from the dropdown menu: $P(X > a)$, $P(X < a)$, $P(a < X < b)$
3. Enter the lower bound value in the "Lower bound (a)" field. The default value is 1. If $P(a < X < b)$ is selected, enter the upper bound value in the "Upper bound (b)" field. The default value is 2.
4. Use the on-screen keypad to enter values into the active input field. Click on the desired input field button (Mean, Std Dev, Lower, Upper) before entering the value.



5. Click the "Calculate" button to compute the probability based on the entered values and selected probability type. The result will be displayed below the "Calculate" button. The graph of the normal distribution will be displayed at the top of the frame, showing the probability density function and shaded area representing the probability.
6. Use the 'Back' button if you want to go to the start menu again

6.12 Settings

You can change the existing wifi network to another from this option.

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

Warranty period is 2 years. Please store this card in a secure location for future reference. company reserves the right to request this document before accepting repair requests. This does not affect or limit your mandatory statutory rights. For more information and support, please visit our website or contact customer service.