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DollaTek 1R-9999999R

DollaTek 1R-9999999R Seven Decade Programmable Resistor Board User Manual

INTRODUCTION

This manual provides detailed instructions for the DollaTek 1R-9999999R Seven Decade Programmable Resistor Board. This device is a cost-effective and flexible solution for setting resistance values from 1 Ohm to 9,999,999 Ohms with 1 Ohm precision. It is ideal for educational experiments, electronic engineering design, and testing applications.

PRODUCT OVERVIEW

The DollaTek Seven Decade Programmable Resistor Board is designed based on the principle of series resistance. It features seven decades, allowing for precise adjustment of resistance values. Each decade is controlled by jumpers, enabling users to select specific resistance increments. The board utilizes 1/2 Watt, +/- 1% tolerance SMD resistors and is constructed on a high-quality FR4 fiberglass PCB.

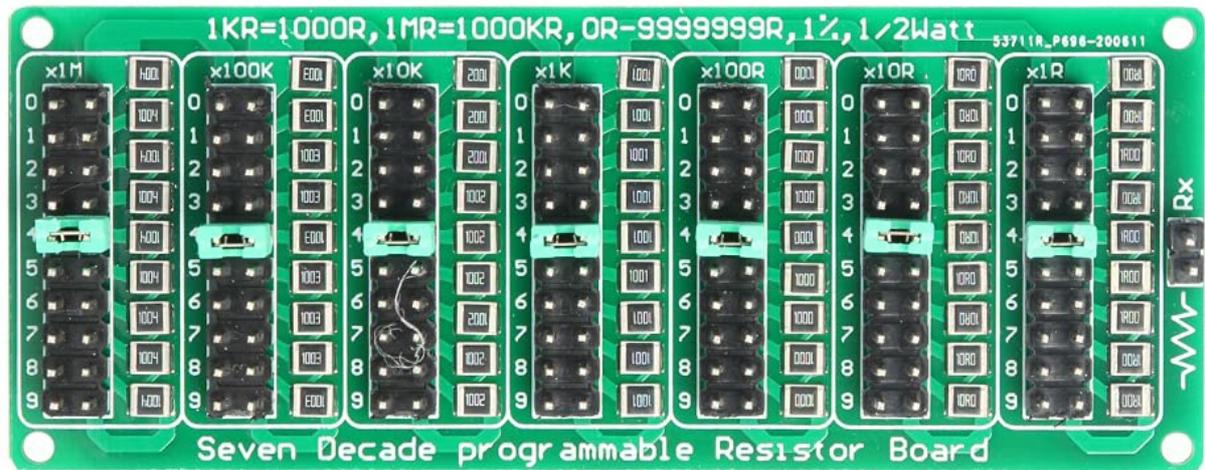


Figure 1: Top-down view of the DollaTek Seven Decade Programmable Resistor Board, showing the seven decades of jumpers.

FEATURES

- **Wide Resistance Range:** Programmable resistance from 1 Ohm to 9,999,999 Ohms.
- **Fine Precision:** 1 Ohm step increment for accurate adjustments.
- **High Accuracy:** Utilizes 1/2 Watt +/- 1% tolerance SMD resistors.
- **Durable Construction:** Built on a high-quality FR4 fiberglass PCB.
- **Maximum Working Voltage:** 200V.
- **Included Components:** Comes with 7 spare jumper caps.

SETUP

The DollaTek Programmable Resistor Board is designed for straightforward integration into electronic circuits. No complex assembly is required. Simply connect the board to your circuit using appropriate wiring or connectors to the two main terminals on the right side of the board, labeled with a resistor symbol.

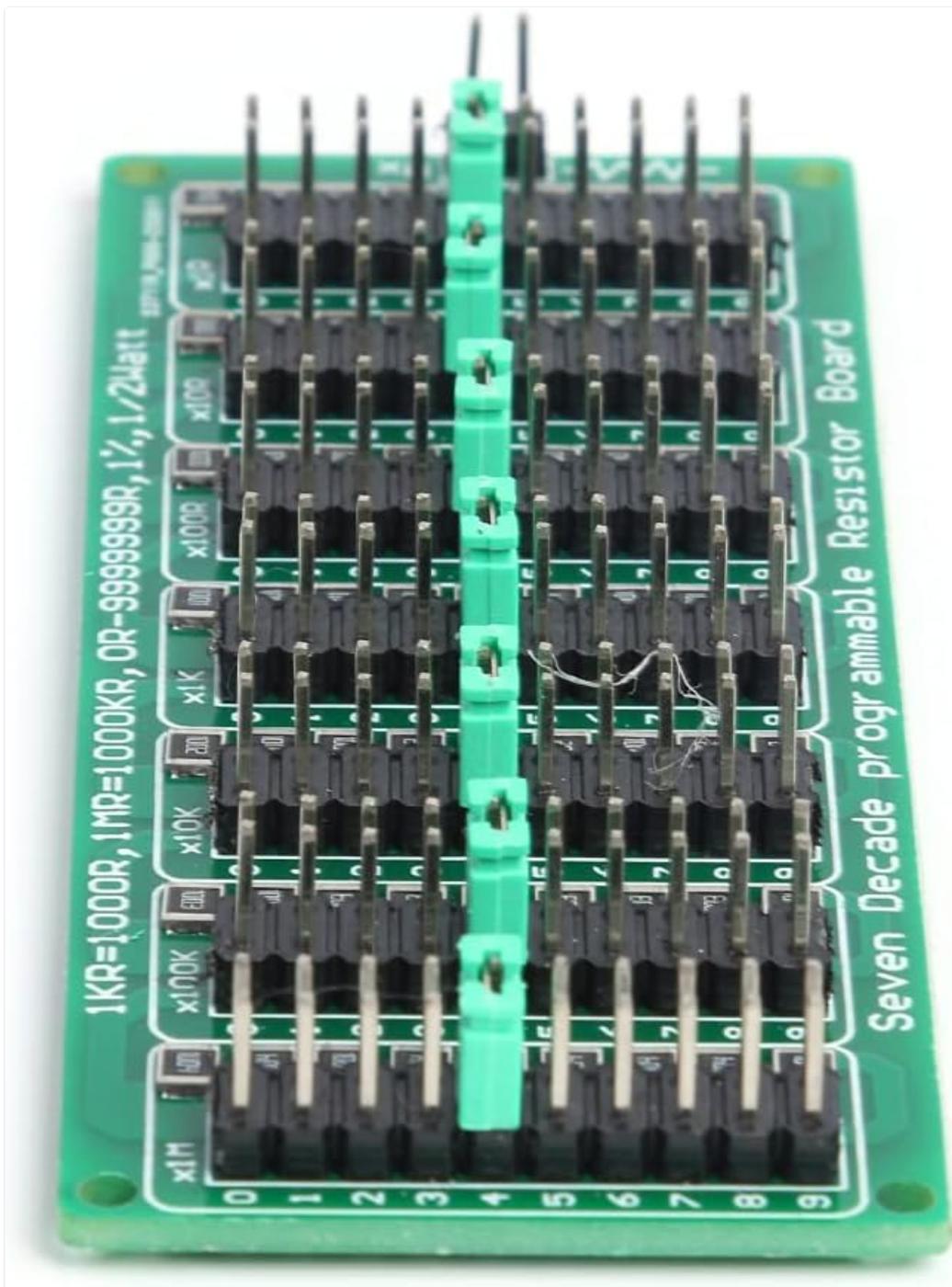


Figure 2: Side view illustrating the connection terminals on the right side of the board.

Ensure that the power supply and voltage levels of your circuit do not exceed the maximum working voltage of 200V for the resistor board.

OPERATING INSTRUCTIONS

The resistance value is set by placing jumper caps on the pins corresponding to the desired resistance for each decade. The board has seven decades, each representing a power of ten (1 Ohm, 10 Ohms, 100 Ohms, 1 kOhm, 10 kOhms, 100 kOhms, 1 MOhm). Each decade has 10 positions (0-9) to select the multiplier for that decade.

Setting Resistance Values:

- 1. Identify Decades:** The board is labeled with resistance values for each column of pins (e.g., x1M, x100K, x10K, x1K, x100, x10, x1).
- 2. Select Multiplier:** For each decade, place a single jumper cap on the pin corresponding to the digit you wish to set for that decade (0 through 9). For example, to set 5 Ohms in the 'x1' decade, place a jumper on the pin

labeled '5' in that column.

3. **Combine Decades:** The total resistance is the sum of the values selected in each decade. For instance, to achieve 123 Ohms:
 - Place a jumper on '1' in the 'x100' decade.
 - Place a jumper on '2' in the 'x10' decade.
 - Place a jumper on '3' in the 'x1' decade.
4. **Example:** To set a resistance of 47,500 Ohms (47.5 kOhms):
 - 'x10K' decade: Jumper on '4' (40,000 Ohms)
 - 'x1K' decade: Jumper on '7' (7,000 Ohms)
 - 'x100' decade: Jumper on '5' (500 Ohms)
 - 'x10' decade: Jumper on '0' (0 Ohms)
 - 'x1' decade: Jumper on '0' (0 Ohms)

The remaining decades (x1M, x100K) would also have jumpers on '0'.

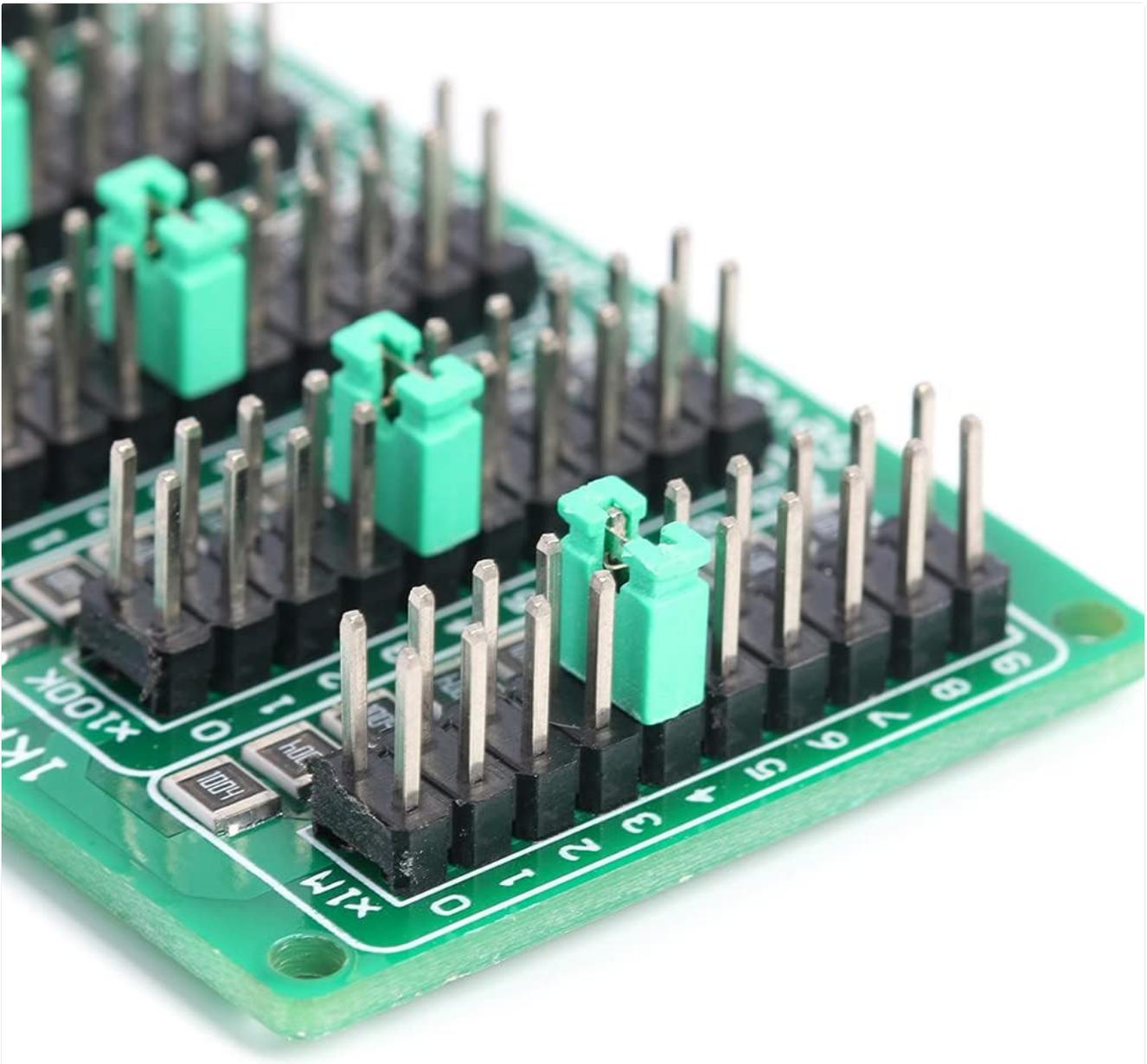


Figure 3: Close-up of the jumper caps, demonstrating how to select resistance values for each decade.

Always ensure only one jumper is placed per decade column to avoid short circuits or incorrect resistance readings. The total resistance is the sum of the selected values across all seven decades.

MAINTENANCE

The DollaTek Programmable Resistor Board requires minimal maintenance. Follow these guidelines to ensure its longevity and accurate performance:

- **Storage:** Store the board in a dry, dust-free environment, away from direct sunlight and extreme temperatures.
- **Cleaning:** If necessary, gently clean the board with a soft, dry cloth. Avoid using liquids or abrasive cleaners.
- **Jumper Care:** Handle jumper caps carefully to prevent bending or damaging the pins. Ensure jumpers are firmly seated for reliable contact.
- **Inspection:** Periodically inspect the board for any visible damage, loose components, or corrosion.

TROUBLESHOOTING

If you encounter issues with your DollaTek Programmable Resistor Board, consider the following:

- **Incorrect Resistance Reading:**
 - Verify that only one jumper cap is placed in each decade column. Multiple jumpers in one column will lead to incorrect values.
 - Ensure all jumper caps are securely seated on the pins.
 - Check your multimeter or measurement device for proper calibration and connection.
- **No Resistance Reading:**
 - Confirm that the board is correctly connected to your circuit's measurement points.
 - Ensure there are no open circuits in your wiring or connections to the board.
- **Board Damage:**
 - Avoid exceeding the maximum working voltage of 200V. Overvoltage can damage the resistors.
 - Do not apply excessive force when inserting or removing jumper caps.

SPECIFICATIONS

Feature	Detail
Resistance Range	1 Ohm to 9,999,999 Ohms
Step Increment	1 Ohm
Resistance Tolerance	+/- 1%
Rated Power	1/2 Watt
Max. Working Voltage	200V
PCB Material	FR4 Fiberglass
Dimensions (Approx.)	90mm x 35mm x 10mm (Length x Width x Height)
Model Number	1R - 9999999R
UPC	742548979423

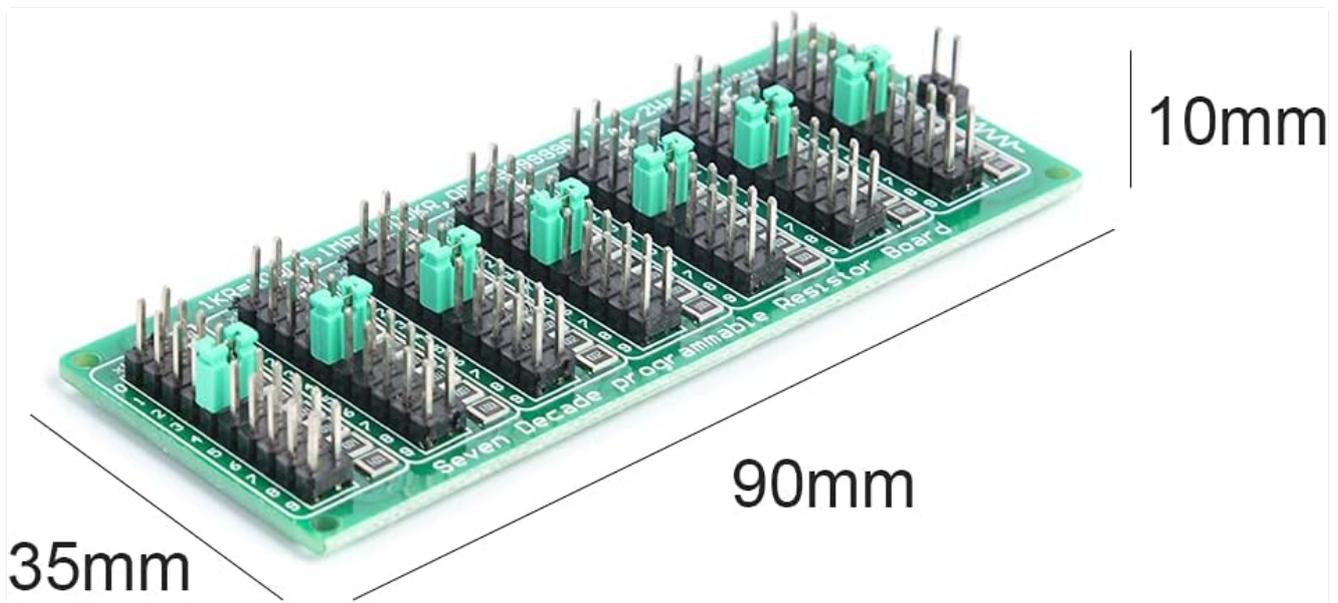


Figure 4: Approximate dimensions of the resistor board.

WARRANTY INFORMATION

Specific warranty details for the DollaTek 1R-9999999R Seven Decade Programmable Resistor Board are not provided in the product information. Please refer to the retailer's return policy or contact the manufacturer directly for warranty inquiries.

SUPPORT

For technical support or further assistance, please contact DollaTek customer service through their official website or the platform where the product was purchased. Ensure you have your product model number (1R - 9999999R) and purchase details available when seeking support.