

Walfront WALFRONTi1zh84cdtw-12

Walfront DC-DC Boost Converter Module Instruction Manual

Model: WALFRONTi1zh84cdtw-12

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1. INTRODUCTION

This instruction manual provides essential information for the safe and efficient use of the Walfront DC-DC Boost Converter Module. Please read this manual thoroughly before installation and operation to ensure proper functionality and to prevent damage to the module or connected devices.

The Walfront DC-DC Boost Converter Module is a compact step-up voltage regulator designed to convert a lower DC input voltage to a higher, stable DC output voltage. It is suitable for various applications requiring a boosted power supply.

2. KEY FEATURES

- **High Efficiency:** Operating frequency of 1MHz with up to 93% efficiency.
- **Protection Features:** Includes over-current, over-voltage, short-circuit, and over-temperature protection.
- **Wide Input Voltage Range:** Accepts DC 2.6V to 5.5V.
- **Selectable Output Voltages:** Provides DC 5V, 6V, 9V, or 12V (optional, depending on model configuration).
- **Compact Design:** Small form factor for integration into various projects.

3. SETUP AND INSTALLATION

3.1 Component Identification

Familiarize yourself with the module's components and pin assignments.

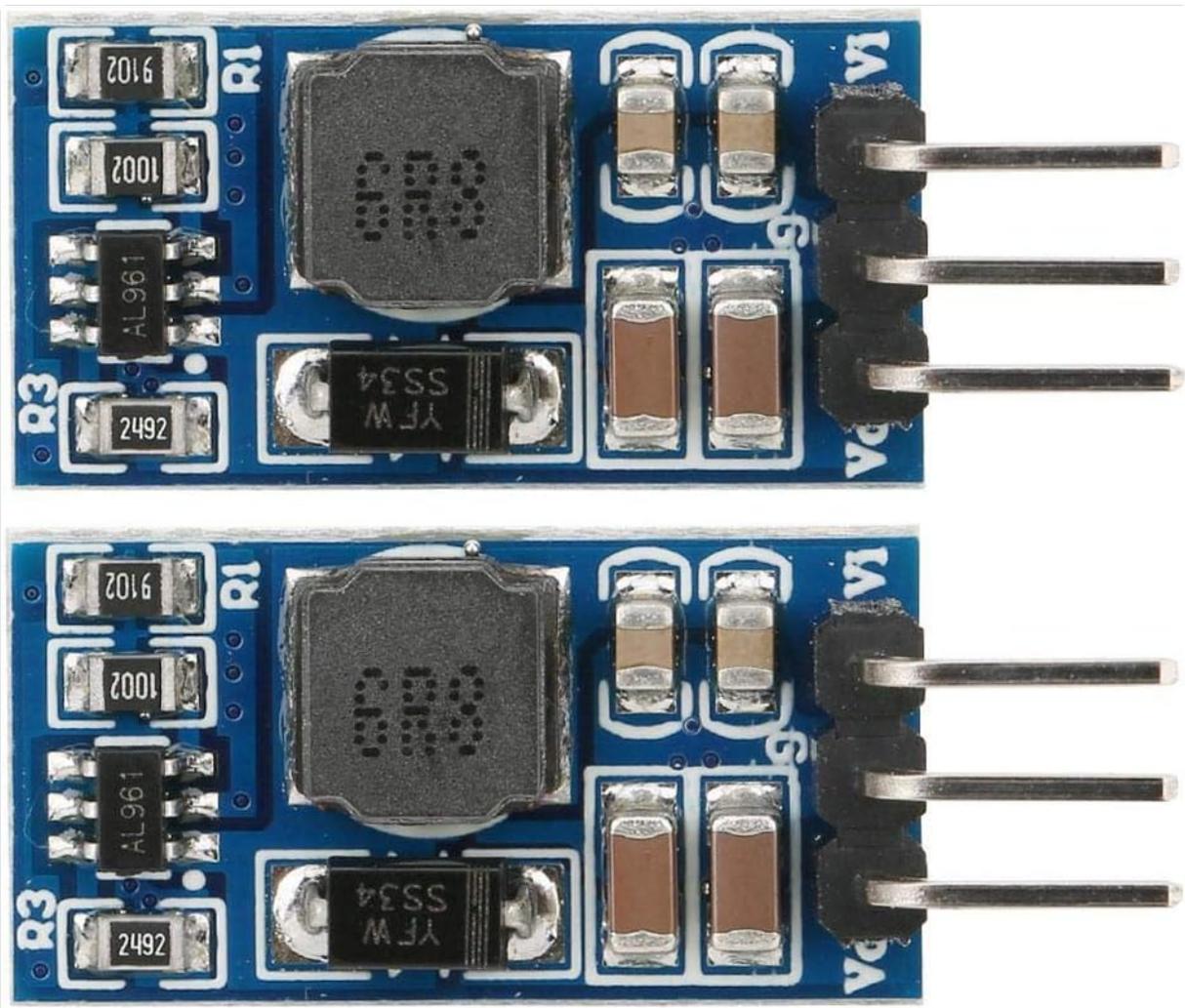


Figure 1: Top view of two Walfront DC-DC Boost Converter Modules. Each module features an inductor, various capacitors, and integrated circuits on a blue PCB. Pins for connection are visible on the right side.

With over current protection, over voltage protection,
short circuit protection and over temperature protection

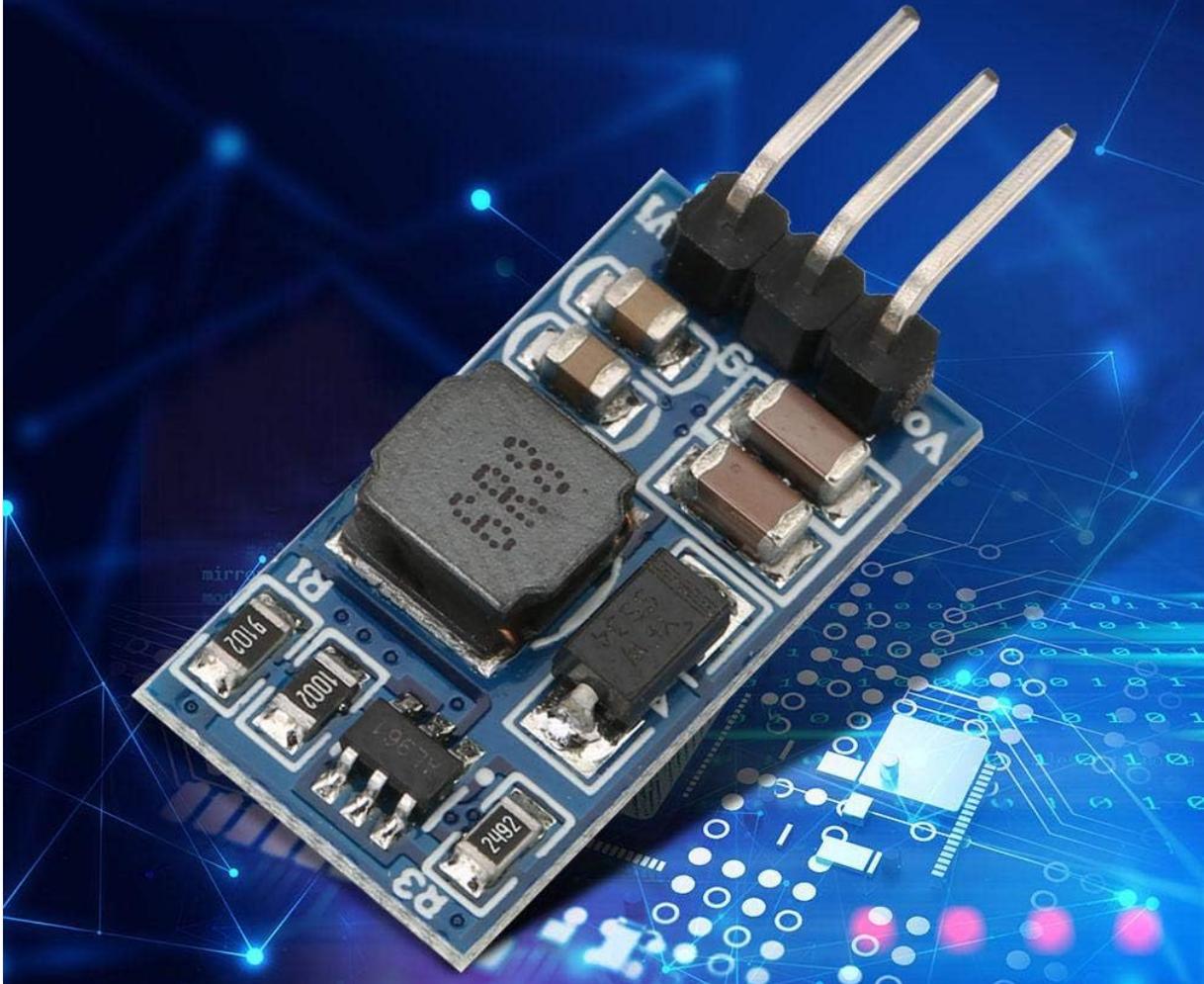


Figure 2: Angled view of the Walfront DC-DC Boost Converter Module, showcasing its compact dimensions and the arrangement of its surface-mount components.

3.2 Pin Description

- **Vi:** Input positive (+) voltage. Connect your DC power source here.
- **GND:** Input and Output negative (-) / Ground. This is the common ground for both input and output.
- **Vo:** Output positive (+) voltage. Connect your load requiring the boosted voltage here.

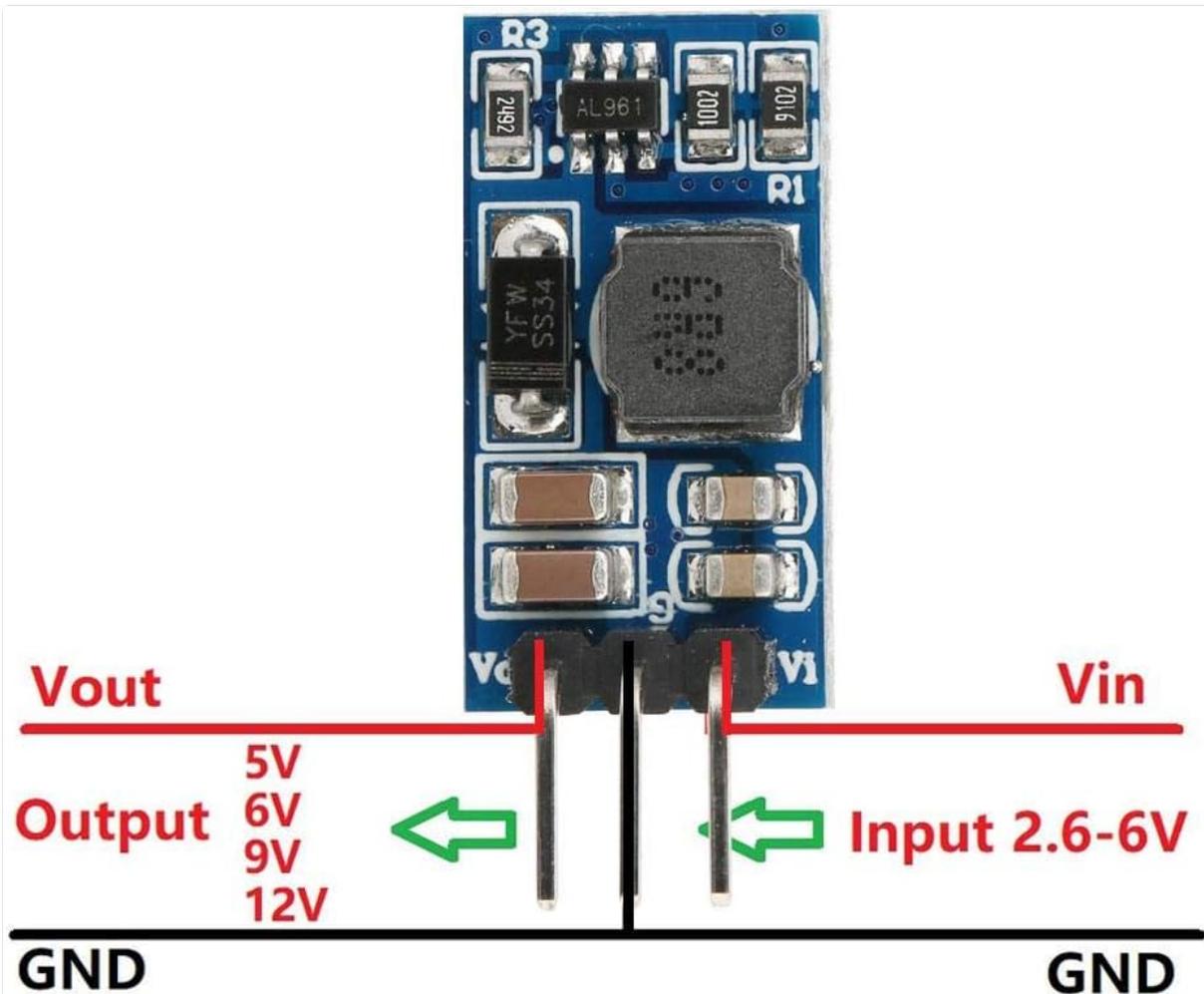


Figure 3: Connection diagram for the boost converter module. It illustrates the input (Vin) and output (Vout) voltage pins, along with the common ground (GND) connection. Input voltage range is 2.6-6V, and output options are 5V, 6V, 9V, 12V.

3.3 Output Voltage Selection (for adjustable models)

Some models allow for output voltage selection via solder pads or external resistors. The specific model (WALFRONT11zh84cdtw-12) is listed as 6V, with other options available. If your module has selectable output pads, ensure the correct pad is soldered or configured for your desired output voltage (5V, 6V, 9V, 12V).



Figure 4: Bottom view of the module, displaying solder pads labeled for 5V, 6V, 9V, and 12V output selection. A red mark indicates the 6V selection for this specific module.

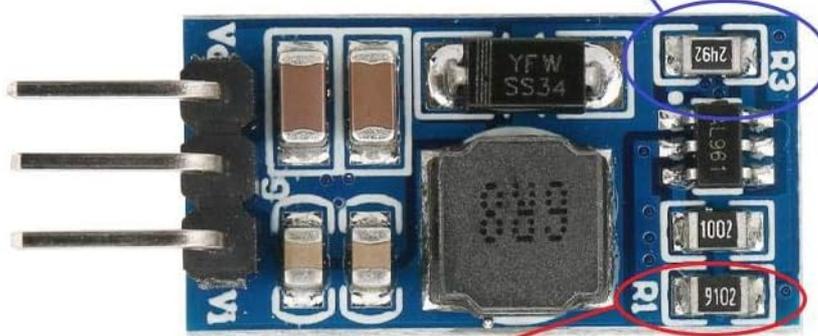
For models where output voltage is set by an external resistor (R1), refer to the following formula and table:

$$R1(K\Omega) = 10 * (Vout / 0.6 - 1)$$

Current Limit Program :

R3 resistor programs peak switch current. The resistor value should be between 10k and 100k. The current limit will be set from 2.5A to 0.5A.

$$I_{in} = 48000/R3$$



R1 sets the output voltage

$$R1(K\Omega) = 10 * (V_{out} / 0.6 - 1)$$

R1	Vout
52.3K	3.7V
60.4K	4.2V
75K	5V
91K	6V
115K	7.5V
140K	9V
158K	10V
191K	12V

Figure 5: Diagram showing the location of resistor R1 for output voltage setting and R3 for current limit programming. A table provides example R1 values for different output voltages (3.7V, 4.2V, 5V, 6V, 7.5V, 9V, 10V, 12V).

3.4 Current Limit Programming

The R3 resistor programs the peak switch current. The resistor value should be between 10kΩ and 100kΩ. The current limit will be set from 2.5A to 0.5A according to the formula:

$$I_{in} = 48000 / R3$$

Where I_{in} is the input current limit in Amperes and R3 is the resistance in Ohms.

4. OPERATION

4.1 Connecting Power

1. Ensure your input power source is within the specified range of DC 2.6V to 5.5V.
2. Connect the positive terminal of your input power source to the **Vi** pin.
3. Connect the negative terminal (ground) of your input power source to the **GND** pin.

4.2 Connecting Load

1. Connect the positive terminal of your load to the **Vo** pin.
2. Connect the negative terminal (ground) of your load to the **GND** pin.
3. Verify that your load's voltage requirement matches the output voltage configured on the module.

4.3 Performance Considerations

The module's efficiency can reach up to 93%, but typical efficiency ranges from 84% to 91%. Performance may vary based on input voltage, output voltage, and load current. Refer to the specifications for detailed performance data.

Example performance data for 6V output:

Input Voltage	Input Current	Output Voltage	Output Current
2.6V	1.35A	6V	0.48A
3V	1.63A	6V	0.67A
3.3V	1.76A	6V	0.80A
3.7V	1.74A	6V	0.90A
4.2V	1.65A	6V	1.00A
5V	1.62A	6V	1.20A

Table 1: Typical performance data for 6V output. Measurement results are for reference only.

5. MAINTENANCE

The Walfront DC-DC Boost Converter Module is designed for reliable operation and generally requires minimal maintenance.

- **Cleaning:** Keep the module free from dust and debris. If cleaning is necessary, use a soft, dry brush or compressed air. Do not use liquids or solvents.
- **Inspection:** Periodically inspect the module for any signs of physical damage, loose connections, or discoloration of components.
- **Environmental Conditions:** Ensure the module operates within its specified temperature range (-40°C to +85°C) and avoid excessive humidity.

6. TROUBLESHOOTING

If you encounter issues with your DC-DC Boost Converter Module, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No output voltage.	<ul style="list-style-type: none"> Incorrect input voltage. Loose or incorrect wiring. Overload or short circuit on output. Module damage. 	<ul style="list-style-type: none"> Verify input voltage is within 2.6V-5.5V. Check all connections for proper polarity and secure contact. Disconnect load and test module. Reduce load current if it exceeds module's capacity. If module is damaged, replace it.
Output voltage is incorrect.	<ul style="list-style-type: none"> Incorrect output voltage selection. Input voltage too low or unstable. Excessive load. 	<ul style="list-style-type: none"> Ensure correct solder pad is selected or R1 resistor value is appropriate for desired output. Verify stable input voltage within the specified range. Reduce load to within the module's maximum output current.
Module gets excessively hot.	<ul style="list-style-type: none"> Overload condition. Poor ventilation. Short circuit. 	<ul style="list-style-type: none"> Reduce load current. Ensure adequate airflow around the module. Check for any short circuits on the output.

7. SPECIFICATIONS

Parameter	Value
Model Number	WALFRONTi1zh84cdtw-12
Input Voltage (Vi)	DC 2.6V ~ 5.5V
Output Voltage (Vo)	DC 5V / 6V / 9V / 12V (Optional, 6V for this model)
Maximum Output Current (6V)	1200mA (1.2A)
Working Frequency	1MHz
Efficiency	Up to 93% (typically 84%-91%)
Quiescent Current	190µA
Current Limit Program	0.5A - 2.5A (Default 1.8A)
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-65°C ~ +150°C
Dimensions (approx., no Pin)	21 x 11 x 4mm (0.8 x 0.4 x 0.2in)
Weight (approx., with Pin)	1.5g
Protection Features	Over-current, Over-voltage, Short-circuit, Over-temperature

8. WARRANTY INFORMATION

Specific warranty details for Walfront products may vary. Please refer to the retailer's return policy or contact Walfront customer support for information regarding warranty coverage and terms.

As per Amazon's buybox winner information, a return policy of 30 days for refund/replacement is typically available.

9. CUSTOMER SUPPORT

For technical assistance, product inquiries, or support, please contact Walfront customer service through their official channels or the retailer from whom the product was purchased.

You can visit the Walfront Store on Amazon for more information: [Walfront Amazon Store](#)