

**Walfront ADE-1, ADE-6, ADE-25**

# Walfront ADE-1 / ADE-6 / ADE-25 Passive Mixer Module User Manual

Model: ADE-1, ADE-6, ADE-25 | Brand: Walfront

## 1. INTRODUCTION AND OVERVIEW

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This manual provides essential information for the proper installation, operation, and maintenance of your Walfront ADE-1, ADE-6, or ADE-25 Passive Mixer Module. These modules are designed for efficient frequency conversion in various RF applications, particularly in VHF/UHF ranges.

The passive mixers feature a compact and lightweight design, making them suitable for integration into various electronic systems. They are characterized by low conversion loss and excellent L-R isolation, ensuring reliable performance in signal processing.

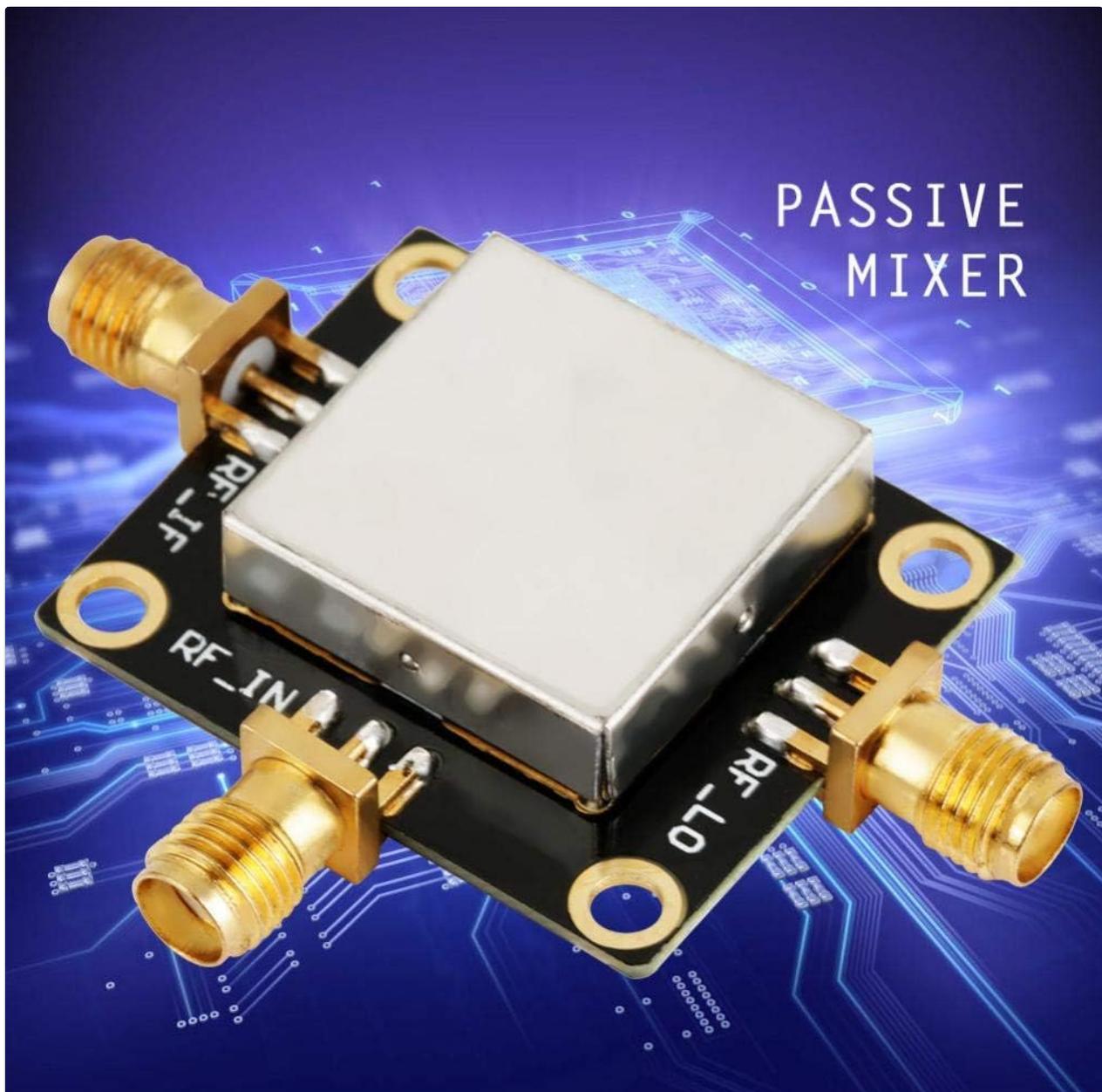


Figure 1: Walfront Passive Mixer Module with gold SMA connectors.

The mixer is typically positioned after a low noise amplifier (LNA) to directly process the amplified RF signal, facilitating efficient frequency mixing.

## 2. SETUP AND CONNECTIONS

The Walfront Passive Mixer Module requires careful connection to ensure optimal performance. The module features three primary ports: RF\_IN (Radio Frequency Input), RF\_LO (Local Oscillator Input), and RF\_IF (Intermediate Frequency Output).

1. **Identify Ports:** Locate the RF\_IN, RF\_LO, and RF\_IF labels on the module's PCB.
2. **Connect RF Input:** Connect your RF signal source to the RF\_IN port.
3. **Connect Local Oscillator:** Connect your Local Oscillator signal to the RF\_LO port.
4. **Connect IF Output:** Connect your desired load or subsequent processing stage to the RF\_IF port.



Figure 2: Top view of the mixer module, indicating RF\_IF, RF\_LO, and RF\_IN ports.

Ensure all connections are secure and use appropriate coaxial cables and connectors (e.g., SMA) to minimize signal loss and interference.

### 3. OPERATING INSTRUCTIONS

The passive mixer module operates by combining two input signals (RF\_IN and RF\_LO) to produce an output signal (RF\_IF) at a new frequency. This process is fundamental in various communication and measurement systems.

#### 3.1 Frequency Ranges and Conversion Loss

The specific operating characteristics vary by model:

- **ADE-1:** RF/LO frequency range 0.5-500MHz, Conversion loss approximately 5.0dB.
- **ADE-6:** RF/LO frequency range 0.05-250MHz, Conversion loss approximately 4.6dB.
- **ADE-25:** RF/LO frequency range 5MHz-2500MHz, Conversion loss approximately 7.0dB.

The maximum RF power handling for these modules is 50mW, and the IF current is 40mA. Always ensure that input power levels do not exceed these specifications to prevent damage to the module.

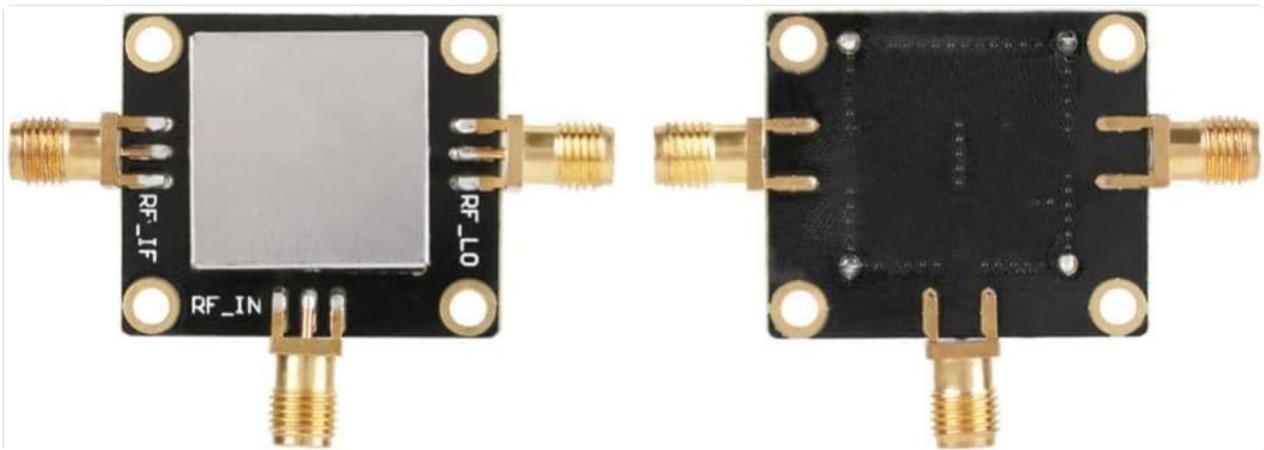


Figure 3: Close-up view of an SMA connector on the mixer module.

## 3.2 Environmental Conditions

The module is designed to operate within a temperature range of  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$  and can be stored between  $-55^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ . Avoid exposing the module to extreme temperatures or humidity outside these ranges.

## 4. MAINTENANCE

The Walfront Passive Mixer Module is a robust electronic component designed for long-term reliability. Minimal maintenance is required.

- **Cleaning:** If necessary, gently clean the exterior of the module with a dry, soft cloth. Avoid using liquid cleaners or solvents, which could damage the components.
- **Inspection:** Periodically inspect the connectors for any signs of wear, corrosion, or damage. Ensure all connections remain tight.
- **Storage:** When not in use, store the module in a dry, static-free environment, ideally in its original packaging or an anti-static bag.

Do not attempt to open the sealed metal casing of the module, as this may compromise its performance and void any potential warranty.

## 5. TROUBLESHOOTING

If you encounter issues with your passive mixer module, consider the following troubleshooting steps:

- **No Output Signal:**
  - Verify that both RF\_IN and RF\_LO signals are present and within the specified frequency and power ranges.
  - Check all cable connections for tightness and continuity.
  - Ensure the power levels of the input signals are sufficient but do not exceed the 50mW maximum.
- **Incorrect Output Frequency or Amplitude:**
  - Confirm the frequencies of your RF\_IN and RF\_LO signals are correct for the desired IF output.
  - Check for impedance mismatches at the input or output ports.
  - Ensure the module is operating within its specified frequency range (e.g., ADE-1 for 0.5-500MHz).
- **Module Overheating:**

- Reduce input power levels if they are close to or exceeding the 50mW maximum.
- Ensure adequate ventilation around the module, although passive mixers typically generate minimal heat.

If problems persist after performing these checks, contact your supplier or a qualified electronics technician for further assistance.

## 6. SPECIFICATIONS

Detailed specifications for the Walfront Passive Mixer Modules:

Specification	Value
RF Power (Max)	50mW
IF Current (Max)	40mA
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Weight	9g (approx. 0.02 Kilograms / 0.704 ounces)
Product Dimensions	3.15 x 2.76 x 2.36 inches
Number of Channels	1
Power Source	Passive (no external power required for mixing function)

### 6.1 Model-Specific Frequency and Conversion Loss

Model	RF/LO Frequency Range	Conversion Loss (Typical)
ADE-1	0.5-500MHz	5.0dB
ADE-6	0.05-250MHz	4.6dB
ADE-25	5MHz-2500MHz	7.0dB

## 7. WARRANTY AND SUPPORT

For warranty information and customer support, please refer to the documentation provided at the time of purchase or contact the seller directly. Walfront products are designed for quality and reliability.

You can visit the official Walfront store for more information and product inquiries: [Walfront Store on Amazon](#).