Comimark LY531

Comimark AD620 Microvolt Millivolt Signal Amplifier Module Instruction Manual

1. Introduction

The Comimark AD620 Microvolt Millivolt Signal Amplifier Module is designed for precise amplification of small voltage signals, ranging from microvolts to millivolts. This module features the AD620 instrumentation amplifier chip, offering a gain range of 1.5 to 1000. It includes capabilities for null point adjustment, negative voltage output, and noise filtering, ensuring high-fidelity signal amplification with minimal distortion.

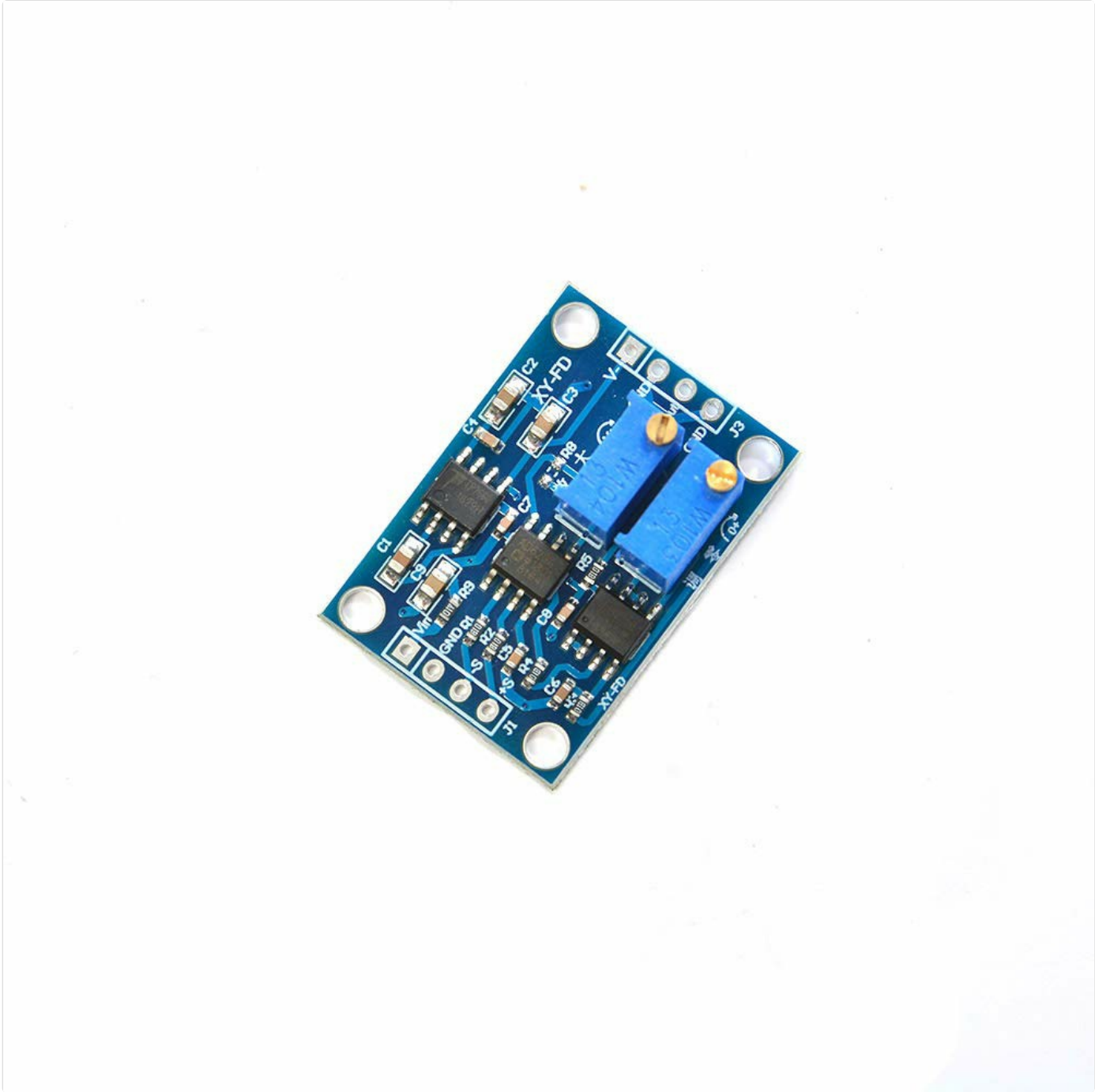


Image 1.1: Comimark AD620 Module Overview. This image shows the compact AD620 amplifier module placed on a light wooden surface, accompanied by small decorative elements, illustrating its small form factor.

2. Product Features

- Utilizes AD620 instrumentation amplifier chip.
- Adjustable gain from 1.5 to 1000.
- Supports null point adjustment.
- Provides negative voltage output capability.
- Incorporates noise filtering for low distortion.
- Ideal for small signal amplification applications.

3. Specifications

Parameter	Value

Input Voltage	DC 3-12V
Amplification Range	1.5-1000
Signal Input Voltage	100uV-300mV
Signal Output Range	+/-(Vin-2V)
Offset Voltage	50 µV
Input Bias Current	1.0 nA (max.)
Common Mode Rejection Ratio (CMRR)	100 dB
Offset Voltage Drift	0.6 µV/Celsius (max.)
Module Size (L*W)	32 x 22mm
Material	Metal
Number of Channels	3
Item Model Number	LY531

4. Setup

Follow these steps to set up your AD620 amplifier module:

1. **Power Supply Connection:** Connect a stable DC power source within the 3V to 12V range to the VCC and GND pins on the module. Ensure correct polarity to prevent damage.
2. **Signal Input:** Connect your microvolt or millivolt signal source to the input pins. The AD620 typically uses differential inputs (e.g., IN+ and IN-). Refer to the module's pinout for exact connections.
3. **Signal Output:** Connect your measurement device, oscilloscope, or the next stage of your circuit to the Vout pin of the module.
4. **Grounding:** Ensure all grounds (power supply, input signal, and output circuit) are properly connected to a common ground reference to minimize noise and ensure stable operation.



Image 4.1: Module Pinout and Components. This image provides an angled view of the AD620 module, clearly showing the input/output pins and the blue potentiometer used for gain adjustment.

5. Operating Instructions

Once the module is connected, you can begin operation:

1. **Gain Adjustment:** The module features a blue potentiometer for adjusting the amplification gain. Rotate the potentiometer clockwise or counter-clockwise to set the desired gain level, which can range from 1.5 to 1000.
2. **Null Point Adjustment:** If your application requires precise DC offset control, use the null point adjustment feature (if present and accessible) to compensate for any inherent DC offset in the input signal. This ensures the output is zero when the input is zero.
3. **Negative Voltage Output:** The module is capable of providing negative voltage output, which is beneficial when working with bipolar signals or applications requiring a negative voltage swing.

> **Important Note on Gain Adjustment:** For applications involving very small signals, such as those generated by strain gauges on load

cells, the default 100K Ohm gain potentiometer may not provide the necessary low resistance for achieving very high gains (e.g., 500-1000). In such specific cases, a lower value resistor or potentiometer (e.g., 100 Ohm) may be required. This component might need to be added in parallel or as a replacement for the existing gain adjustment component to achieve the precise high amplification levels needed.

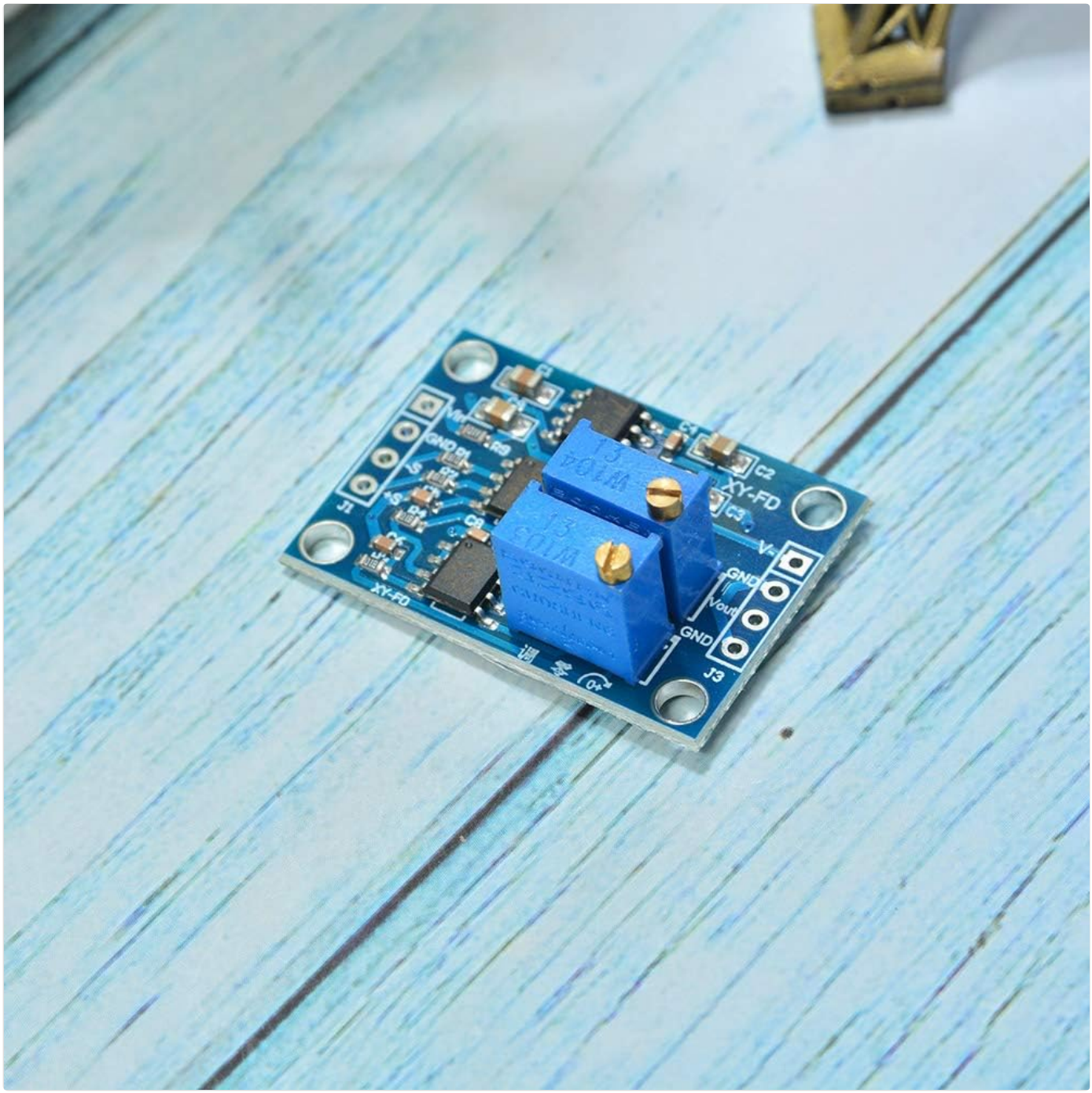


Image 5.1: Close-up of AD620 Chip and Potentiometer. This detailed image highlights the AD620 instrumentation amplifier chip and the blue potentiometer, which is crucial for adjusting the module's gain.

6. Maintenance

Proper maintenance ensures the longevity and reliable performance of your module:

- **Cleaning:** Keep the module clean and free from dust, dirt, and debris. Use a soft, dry, lint-free cloth for cleaning. Avoid using liquids or abrasive cleaners.
- **Storage:** When not in use, store the module in a dry, anti-static environment. Protect it from extreme temperatures and humidity.
- **Handling:** Handle the module with care to avoid physical damage to components or solder joints. Always use

proper anti-static precautions (e.g., anti-static wrist strap) when handling electronic components to prevent damage from electrostatic discharge (ESD).

7. Troubleshooting

If you encounter issues with your AD620 module, consider the following troubleshooting steps:

- **No Output or Incorrect Output:**
  - Verify all power supply connections and ensure the input voltage is within the specified 3-12V DC range.
  - Check input signal connections and confirm the signal is within the 100uV-300mV range.
  - Inspect all wiring for loose connections, shorts, or incorrect polarity.
  - Ensure the gain potentiometer is correctly adjusted. Refer to the "Operating Instructions" section for specific guidance on gain adjustment, especially for very small signals.
- **Excessive Noise in Output:**
  - Ensure proper grounding of the module, signal source, and receiving circuit to a common ground point.
  - Check for external electromagnetic interference (EMI) from nearby electronic devices or power lines.
  - Verify the quality of your power supply; a noisy power supply can introduce unwanted noise into the signal.
- **Module Not Functioning:**
  - Confirm that the module is receiving power.
  - Visually inspect the module for any signs of physical damage, burnt components, or poor solder joints.
  - If issues persist after checking these points, it may indicate a faulty module or a more complex system integration problem.

8. Warranty and Support

This Comimark product is covered by a standard manufacturer's warranty against defects in materials and workmanship. The warranty period typically begins from the date of purchase. For technical support, warranty claims, or further assistance with your AD620 Microvolt Millivolt Signal Amplifier Module, please contact your retailer or the manufacturer directly. Please retain your proof of purchase, such as a receipt or order confirmation, as it will be required for any warranty-related services.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Example: How do I reset this device or fix this error?

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