

## **FNIRSI® SG-003A Signal Generator Adjustable 4-20mA 0-24V – Product Description**

The **FNIRSI® SG-003A Signal Generator** is a highly versatile, compact, and precise electronic testing device designed for professionals, engineers, and hobbyists working in the field of industrial automation, instrumentation, and control systems. This multifunction signal generator is capable of producing adjustable **current (4–20mA)**, **voltage (0–24V)**, and **PWM signals**, making it an indispensable tool for testing sensors, actuators, controllers, and other devices that rely on standard industrial signal protocols.

With the SG-003A, users gain complete control over output signals, enabling accurate simulation of field conditions and seamless troubleshooting of control systems. Its robust design, intuitive interface, and reliable performance make it an ideal choice for engineers, technicians, students, and DIY electronics enthusiasts.

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### **Precise Adjustable Current and Voltage Output**

The SG-003A excels at producing **accurate and stable 4–20mA current signals** and **0–24V voltage signals**, two of the most widely used standards in industrial automation. This flexibility allows engineers to simulate real-world sensor inputs, test control loops, or verify the performance of programmable logic controllers (PLCs) and other industrial instruments. The generator ensures that devices respond correctly under varying signal levels, making system calibration and troubleshooting faster and more reliable.

- **Current Output:** Adjustable 4–20mA for simulating standard industrial current loops
  - **Voltage Output:** Adjustable 0–24V for device testing and verification
  - **High Stability:** Maintains output even under changing load conditions
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### **PWM (Pulse Width Modulation) Signal Generation**

The SG-003A also supports **PWM signal generation**, allowing users to simulate analog signals through digital pulse modulation. PWM capability is essential for testing motor controllers, servo drives, and LED dimmers. Users can adjust frequency and duty cycle precisely, making it possible to replicate real-world operating conditions in laboratory or field environments.

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### **User-Friendly Digital Interface**

Equipped with a **clear digital display**, the SG-003A allows users to monitor output signals in real-time. The intuitive interface simplifies operation, with easy-to-use controls for adjusting current, voltage, and PWM parameters. Engineers and technicians can quickly configure the device without extensive training, reducing setup time and improving efficiency in testing or maintenance tasks.

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### **Compact, Portable, and Durable Design**

Designed for portability, the SG-003A is compact and lightweight, fitting easily on a workbench or in a field toolkit. Despite its small size, it is built with high-quality materials for long-term durability. Its robust design ensures reliable operation under daily industrial use or in educational laboratories.

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### **Versatile Applications**

The FNIRSI SG-003A is suitable for a wide range of applications in industrial, educational, and DIY environments:

- **Industrial Automation:** Test PLCs, controllers, and sensors using standard 4–20mA and 0–24V signals
- **Process Control:** Simulate field instruments for calibration and troubleshooting
- **PWM Testing:** Evaluate motor controllers, actuators, and servo systems
- **Educational Labs:** Teach students about industrial signals, current loops, and PWM technology
- **Electronics Prototyping:** Integrate into DIY projects for precise signal simulation

This versatility makes the SG-003A an essential tool for engineers, technicians, and hobbyists seeking precise, reliable, and portable signal generation capabilities.

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### **Safety and Reliability**

Safety and reliability are key features of the SG-003A. The device includes **over-current protection** and **short-circuit protection**, ensuring that both the signal generator and the devices under test remain safe during operation. Its stable output and robust build provide confidence during critical testing and calibration tasks.

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## Key Features Summary

- Adjustable 4–20mA current output for industrial signal testing
- Adjustable 0–24V voltage output
- PWM signal generation with variable frequency and duty cycle
- High-precision, stable output under varying loads
- User-friendly digital display and intuitive controls
- Compact, portable, and durable design
- Over-current and short-circuit protection for safe operation
- Ideal for industrial automation, process control, electronics labs, and DIY projects