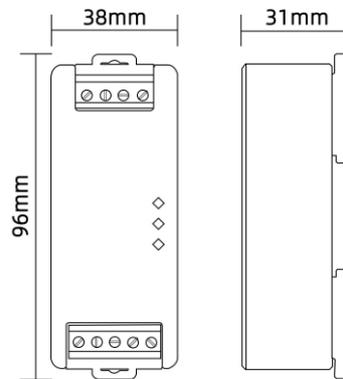


## SPS9□□□-ND Series Signal Transmitter User Manual



### I. Precautions

- Do not operate this product beyond its design limits under any circumstances.
- The power supply for this product is 24V DC. Strictly prohibit the use of 220V AC power.
- This product should be installed in a safe location. The shell's maximum withstand temperature is +85°C.
- When used in environments with strong magnetic interference, Shielded cable is recommended for signal lines.
- Strictly prohibit unauthorized disassembly, modification, or repair of this product.
- Pay attention to the wiring method of this product to ensure correct Wiring and avoid damaging the product.
- Read this manual carefully before installation and use. If you have any questions, please contact our technical support personnel or refer to relevant technical guidance videos.
- Our company is not responsible for damage to components other than this product during use.
- Please download the latest electronic version of the documentation. The content of this manual is for reference only. We continuously improve the user experience, and technical parameters are subject to change without notice.



### II. Product Dimensions

- Product dimensions: **96mm (L) X 38mm (W) X 31mm (H)**
- Industrial-grade flame-retardant plastic shell, standard DIN35 rail mounting.

### III. Operating Environment

- Do not expose this product to excessively high or low temperatures.
- The surrounding environment must be free from strong vibration, impact, and electromagnetic interference such as large currents and sparks.
- The operating environment must not contain harmful substances that cause severe corrosion to metal or plastic components. Do not use or store the product in harsh environments, otherwise it will affect the electrical performance of the product.
- Operating Temperature: -40°C ~ +80°C Relative Humidity: 10% ~ 90%RH (non-condensing)

### IV. After-Sales Service

We are committed to providing you with comprehensive after-sales service and warranty policy. The product warranty period is three years. During the warranty period, if the product fails due to non-human factors, we will provide free repair or replacement service. Damage caused by violation of operating regulations and requirements will require payment of parts cost and repair fee. After the warranty period expires, we continue to provide technical support and assistance. During this period, replacement parts are provided at cost price.

### V. Application Fields



Automation Equipment



Medical Electronics



Remote Monitoring



Process Control

## · Product Introduction

SPS Series Signal Isolators are meticulously engineered based on a new-generation embedded system design. Utilizing high-speed optocoupler isolation, they convert input voltage/current signals into isolated, linear voltage/current outputs. The transmitter module's output signal rapidly tracks changes in the input signal, making it widely applicable in power, railway, telecommunications, PLC measurement and control systems, and various automation control systems.

SPS9□□□-ND Series Digital High-Speed DC Signal Transmitters feature internal electrical isolation among the power supply, input, and output circuits. Equipped with TI-specific high-speed ADC chips, the modules employ an advanced Successive Approximation Register (SAR) high-precision analog-to-digital converter with a resolution of up to 16 bits and a measurement accuracy better than 0.05%. These transmitters offer high precision, high isolation, high speed, and low drift, effectively addressing common-mode interference, electrical isolation, and signal standardization during high-speed transmission of sensor, transmitter, or instrument signals. They are particularly suitable for high-speed transient waveform acquisition, harmonic analysis, rapid monitoring, and alarm applications.

This product requires an independent power supply and is mounted on a standard 35mm DIN rail, offering simple on-site installation and flexible use, adapting to a variety of field applications.

## · Technical Parameters

Basic Parameters	
Power Supply	DC12~36V(DC24V recommended)
Power Consumption	<1.5W
Transmission Accuracy	±0.05%FS (+25° C)
Temperature Drift	≤200ppm/° C
Response Time	≤1mS
Nonlinearity	Nonlinearity: 0.075% max. at 5V
Isolation Voltage	3000VDC
Power Supply Protection	Reverse Power Voltage <-40V
Dielectric Strength	1500VAC/1 minute (power, input, output)
Insulation Resistance	≥100M Ω (power, input, output)
Electromagnetic Compatibility	Complies with GB/T18268.1 (IEC61326-1)
Input Terminal	
Input Range	DC 0–1000 V Input Range: Refer to product naming
Input Impedance	≥1MΩ
Sampling Resolution	16bit ADC, TI dedicated chip
Sample Rate	10kSPS
Input Overload Capacity	1.2 times the nominal value of the measured voltage
Output Terminal	
Output Signal	0-5V
	0-10V
	4-20mA
	0-20mA
Load Capacity	Voltage output: $R_L \geq 2\text{ k}\Omega$
	Current output: $R_L \leq 500\ \Omega$
Output Ripple	≤ 10 mV (with 250 Ω load)
Environmental Conditions	
Operating Temperature	-40°C~+80°C
Storage Temperature	-40°C~+85°C
Relative Humidity	10%~90%RH (non-condensing)
Atmospheric Pressure	80kPa~106kPa

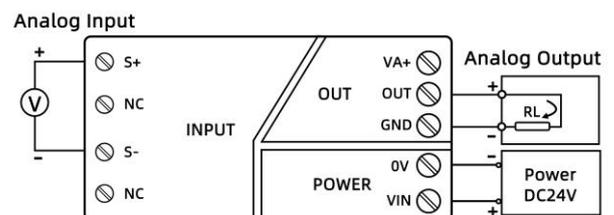
## · Terminal Description

Terminal Mark	Function Description
VIN	Power Supply Positive Terminal (DC12-36V Input)
0V	Power Supply Negative Terminal
GND	Voltage Output Negative
OUT	Voltage Output Positive or Current Output Negative
VA+	Current Output Positive
S+	Input Signal Positive
NC	No pin
S-	Input Common Negative
NC	No pin

## · Indicator Description

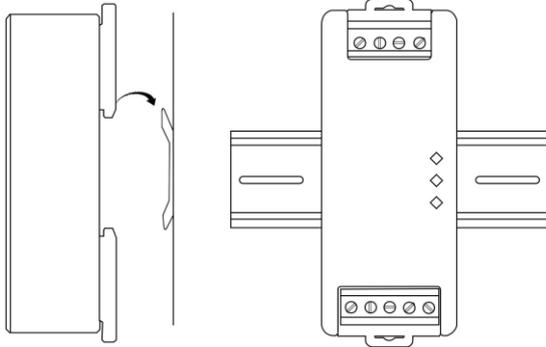
Indicator Mark	Function Description
PWR	Power Indicator
SYS	Input signal status indicator, flashes when no signal
COMM	RS485 communication indicator, flashing when sending data

## · Wiring and indication

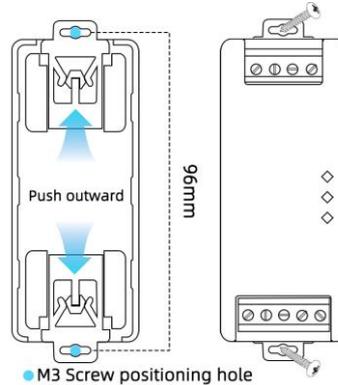


### • Installation Instructions

This module uses the DIN35mm rail mounting method. The rail should comply with the installation dimension specifications for the TH35-7.5 type rail according to the national standard GB/T19334-2003. Users can easily install or remove the module on the rail. Installation must be stable and secure. This module also supports screw mounting without a rail.



- Installation method of guide rail -



- Screw installation method -

### • Product Naming Rules

SPS9010-ND20L: Single-channel DC signal transmitter, input 0-10V, output 0-5V, transmission accuracy 0.05% F.S., N-shaped form factor, DC12-36V power supply.

SPS	9	01	0	N	D	2	0	L
Product Type	Input Signal	Channel Configuration	Output Signal	Product Form Factor	Transfer Accuracy	Isolation Rating	Input Range	Power Supply
Signal isolation transmission module	1 DC Voltage 2 DC Current 3 Shunt 4 AC Voltage 5 AC Current 6 Resistance 7 Temperature 9 Other Types	01 1-input 1-output 02 1-input 2-output 03 2-input 2-output	0 0-5V 1 0-10V 2 4-20mA 3 0-20mA 9 Other Types	N Form Factor K Form Factor M Form Factor W Form Factor F Form Factor R Form Factor Y Form Factor Q Form Factor	A 0.5%FS B 0.2%FS C 0.1%FS D 0.05%FS	0 None 1 1500V 2 3000V 9 Other	0 0-5V 1 0-10V 2 4-20mA 3 0-20mA 4 0-100V 5 0-250V 6 0-500V 7 0-1000V 9 Other Signals	L DC12-36V H AC220V C +12V D +24V Z Passive