

NSPM12-S Communication Bus Surge Suppressor

Instruction Manual



Catalogue

1 Regarding the manual	1
1.1 Introduction	1
2 Technical Specifications	1
3 Product structure diagram	2
4 Interface Description	2
5 Internal Circuit Diagram	3
6 Important Notes	5
Version Information	6

1 Regarding the manual

1.1 Introduction

NSPM12-S is a compact and highly protected communication bus surge suppressor designed for CAN and RS485 communication interfaces. It can be used in various signal transmission systems to suppress interference signals such as lightning strikes, surges, and overvoltages, protecting the signal ports of equipment and is suitable for industrial communication devices with high requirements for space and protection performance.

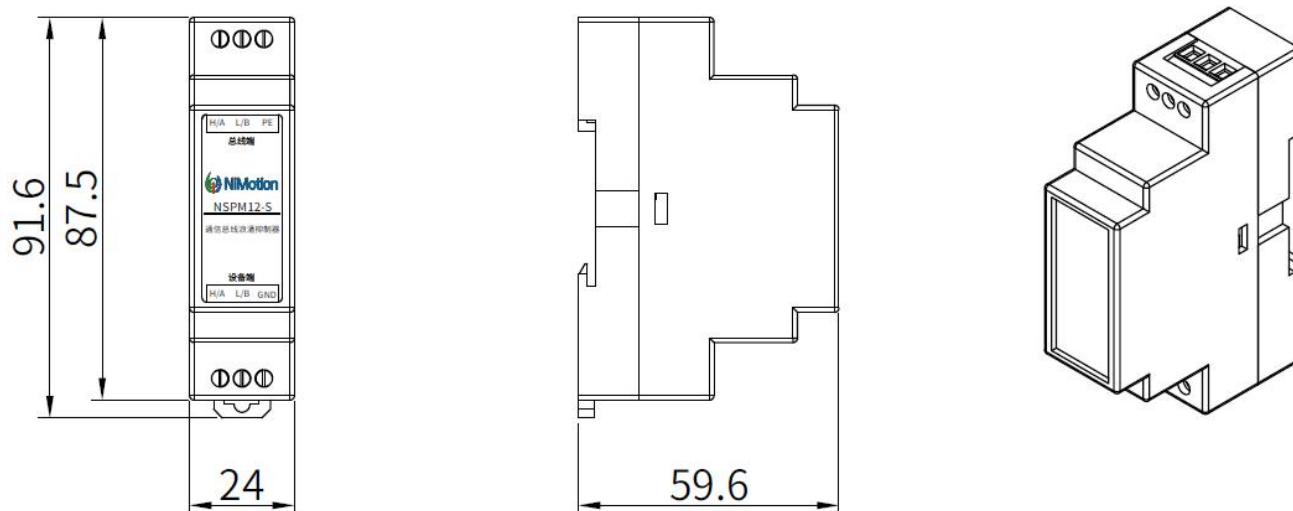
2 Technical Specifications

Table 1

Hardware Specifications	
Dimensions of the shape	91.6 × 24 × 59.6mm
Installation method	35mm Standard guide rail installation
Weight	40g
Shell material	Plastic
Input power supply	
Power supply voltage	Maximum 12VDC
Input voltage	CE: The power supply complies with the safety standards of IEC 60950 and IEC 61558-2-4.
Transmission rate	Maximum 10Mbps
Rated current	50mA
Maximum impact current	500A(Common mode)
Terminal resistance	120Ω (Configurable)
Capacitance between pins	Approximately 90pF to 160pF (specifically depending on the pin combination)
Environment	
Working temperature	-40~+80°C
Storage temperature	-40~+80°C
Humidity	5% to 85% relative humidity (RH); no condensation
Impact	6G, half-sine wave, 11 ms – compliant with IEC 60068-2-27
Vibration	1G, compliant with IEC 60068-2-6

3 Product structure diagram

Unit of measurement: mm



Picture 1

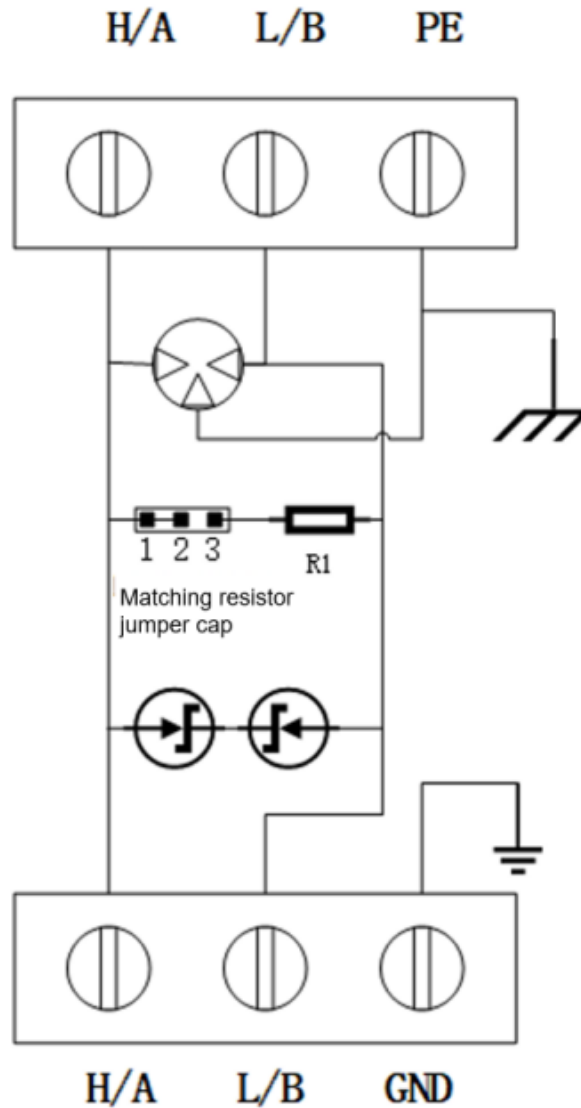
4 Interface Description

Pin function allocation is as follows:

Table 2

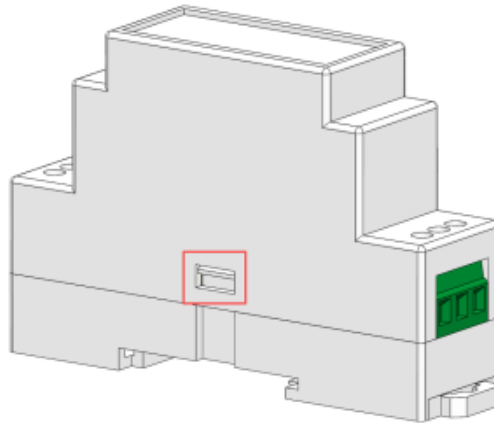
Terminal	Pin	Function
Bus end	H/A	CAN High /RS485+
	L/B	CAN Low/RS485-
	PE	Conservation area
Device end	H/A	CAN High /RS485+
	L/B	CAN Low/RS485-
	GND	CAN/RS485 Reference site

5 Internal Circuit Diagram

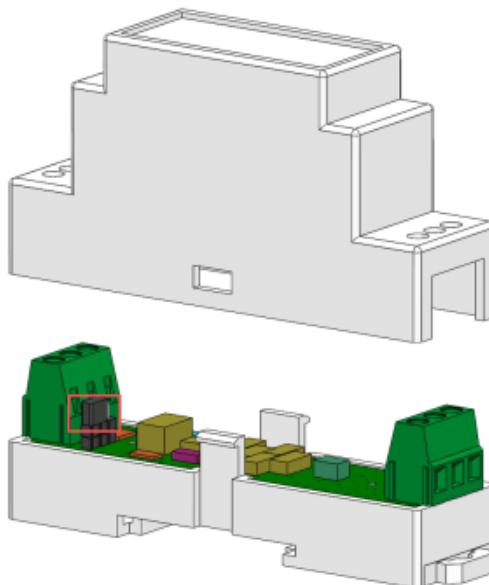


Picture 2

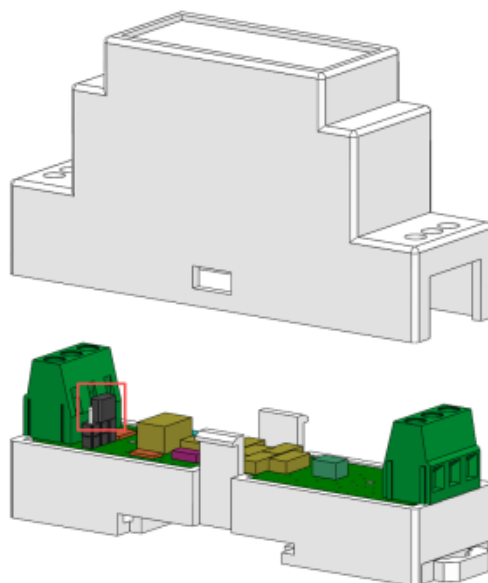
The matching resistor jumper cap is used to select whether to connect a 120Ω matching resistor to the bus terminal. The jumper cap is defaultly short-circuited between pins 1 and 2, at which point the 120Ω matching resistor is not connected to the bus, and the matching resistor remains disconnected from the bus. When it is necessary to connect the 120Ω matching resistor, the jumper cap should be modified to be short-circuited to pins 2 and 3, so that the 120Ω matching resistor is connected to the bus terminal. The specific operation for configuring the 120Ω matching resistor is shown in the following figure.



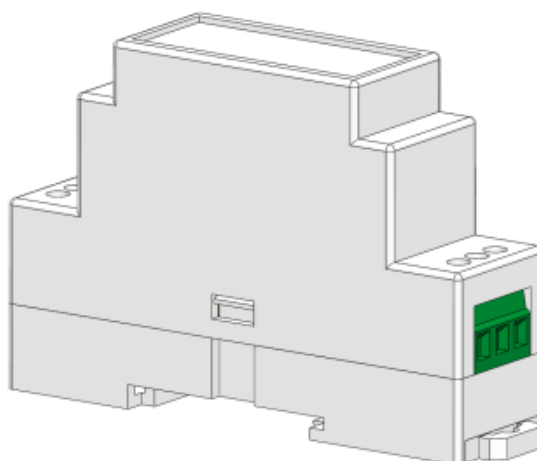
Picture 3 Remove the outer casing



Picture 4 The jumper cap is normally fastened to the 1st and 2nd pins.



Picture 5 Fasten the jumper cap onto the 2nd and 3rd pins.



Picture6 Fasten the outer shell

6 Important Notes

Due to the presence of junction capacitance between the pins of the communication bus surge suppressor and the series resistors inside the chip, it is necessary to determine whether to add a communication bus surge suppressor based on the specific communication environment of the application during the bus application process.

Version Information

Manual Version	date	Revision record
A	2026.9.18	Create



Email: nimotion-al@nimotion.com

Beijing NiMotion Control Technology Co.,Ltd.