

FSP160

User Manual

Table of Contents

Fieldbus Spur Protector FSP160	1
Section 1 Overview	1
Section 2 Specifications	2
Section 3 Usage	3
3.1 Structure Diagram	3
3.2 Terminal Resistance	3
3.3 LED Indicators	3
3.4 Wiring	4
Section 4 Application	5
4.1 Segment Wiring Example	5
4.2 Field Junction Box	6
4.3 Application Notes	7
4.4 Troubleshooting	7
Section 5 Revision	8

Fieldbus Spur Protector FSP160

Section 1 Overview

Fieldbus Spur Protector FSP160 is the wiring module of Foundation™ fieldbus H1 and Profibus PA bus. The TRUNK terminal of FSP160 links bus trunk cable, and has anti-reverse connection and over-voltage protection function. 12 branch terminals link bus branch cables of instruments. Each branch has protection function from over-current and short-circuit. The bus terminal resistance is integrated inside the module, and can be enabled/disabled by configuring short-circuit block.

Section 2 Specifications

Table 2-1 Specifications

Items		Specifications
Installation Requirement		35mm DIN Guide Rail
Cable Specification		(0.14~2.5) mm ²
Maximum Articulated Quantity of Single Segment		Maximum 12 Instruments
Power Supply		Bus Power Supply
Range of Input Voltage		(10.4~32) V
Maximum Current from the Trunk Input to the Output		≤4.5A
Maximum Pressure Drop from the Trunk Input to the Output		≤0.3V@4.5A
Quiescent Current		≤0.8mA
Voltage Drop from Bus to Branch		≤1.3V
Branch Rated Current		≤38mA
Branch Short-circuit Protection Current		50mA
Temperature	Operation Temperature	(-40~75) °C
	Storage Temperature	(-45~80) °C
Explosion-proof Mark		Ex nA IIC T4 Gc

Section 3 Usage

3.1 Structure Diagram

The structure diagram of fieldbus spur protector FSP160 is shown in Figure 3-1 and the installation size is (219×90) mm. It is installed in 35mm DIN guide rail.

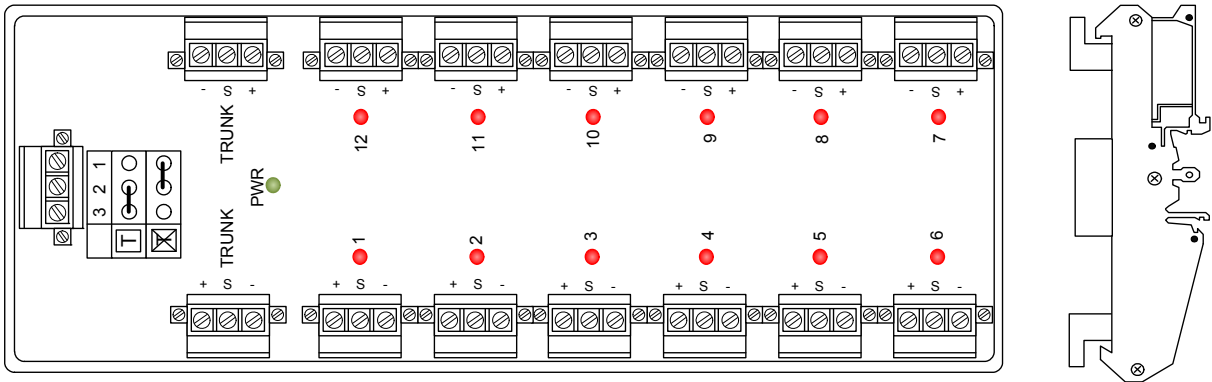


Figure 3-1 Structure Diagram of FSP160

3.2 Terminal Resistance

Enable/disable terminal resistance by configuring the 3 terminals in left of Figure 3-1, the instruction is shown below.

Table 3-1 Terminal Resistance Configuration

Diagram	Instruction	Wiring
	Enable Terminal Resistance	Short-circuit Block Links 2 and 3
	Disable Terminal Resistance	Short-circuit Block Links 1 and 2

3.3 LED Indicators

Table 3-2 Indicator Light of FSP160

Indicators	Status	Instruction
PWR	ON (Green)	Normal
	OFF	Serious Fault
1~12	ON (Red)	Corresponding Branch Short-circuit
	OFF	Normal

3.4 Wiring

FSP160 contains 3 groups of wiring terminal:

- One group is used for enable/disable terminal resistance. Please refer to 3.2 Terminal Resistance.
- One group connects to field instrument and the identifiers are 1~12, which mean that 12 field instruments can be connected at most.
- One group is used to connect to trunk bus cable and the identifier is TRUNK. If there are 2 FSP160 in bus, one of them is used as cascade.

The terminal wiring instruction is shown in Table 3-3.

Table 3-3 Terminal Wiring Instruction

Terminal	Identifier	Instruction
TRUNK	+	Fieldbus Positive Pole
	S	Fieldbus Shield Layer
	-	Fieldbus Negative Pole
1~12	+	Fieldbus Positive Pole
	S	Fieldbus Shield Layer
	-	Fieldbus Negative Pole

Section 4 Application

4.1 Segment Wiring Example

As shown in Figure 4-1, take FF interface connection module AM712-P as an example to introduce wiring method of fieldbus spur protector FSP160. The figure below is just for reference.

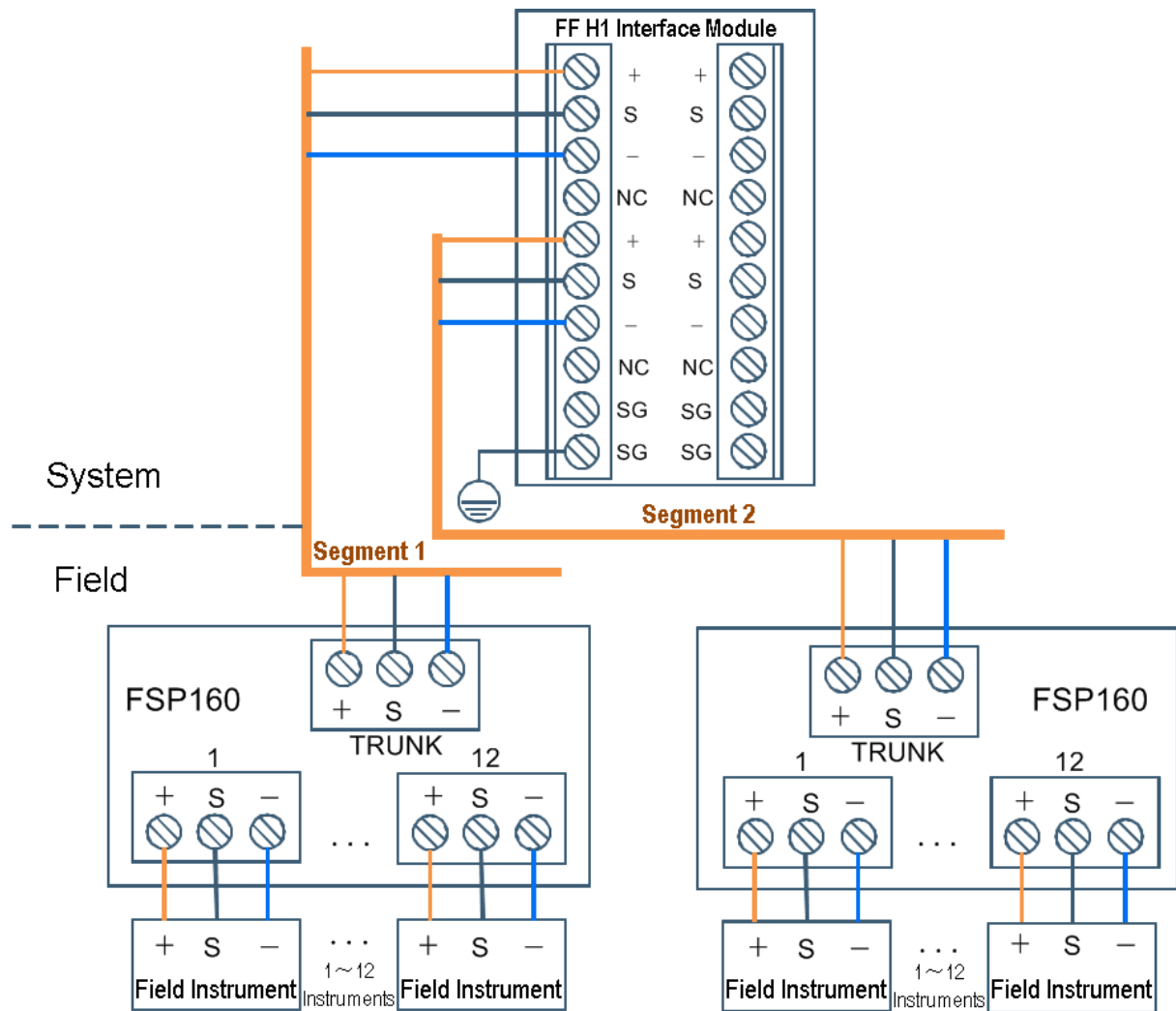


Figure 4-1 Fieldbus Spur Protector FSP160



Warning:

Fieldbus instrument can't connect to TRUNK, which doesn't have protection function from over-current, low-voltage, overvoltage and short-circuit.

4.2 Field Junction Box

In engineering applications with explosion-proof requirements, the fieldbus spur protector should be installed in the explosion-proof field junction box, and the installation should be carried out in strict accordance with the general assembly drawing. This type of junction box has passed the explosion-proof certification when used with the protector. The junction box brand is MECANO, model is 34.003316. The dimensional is as follows.

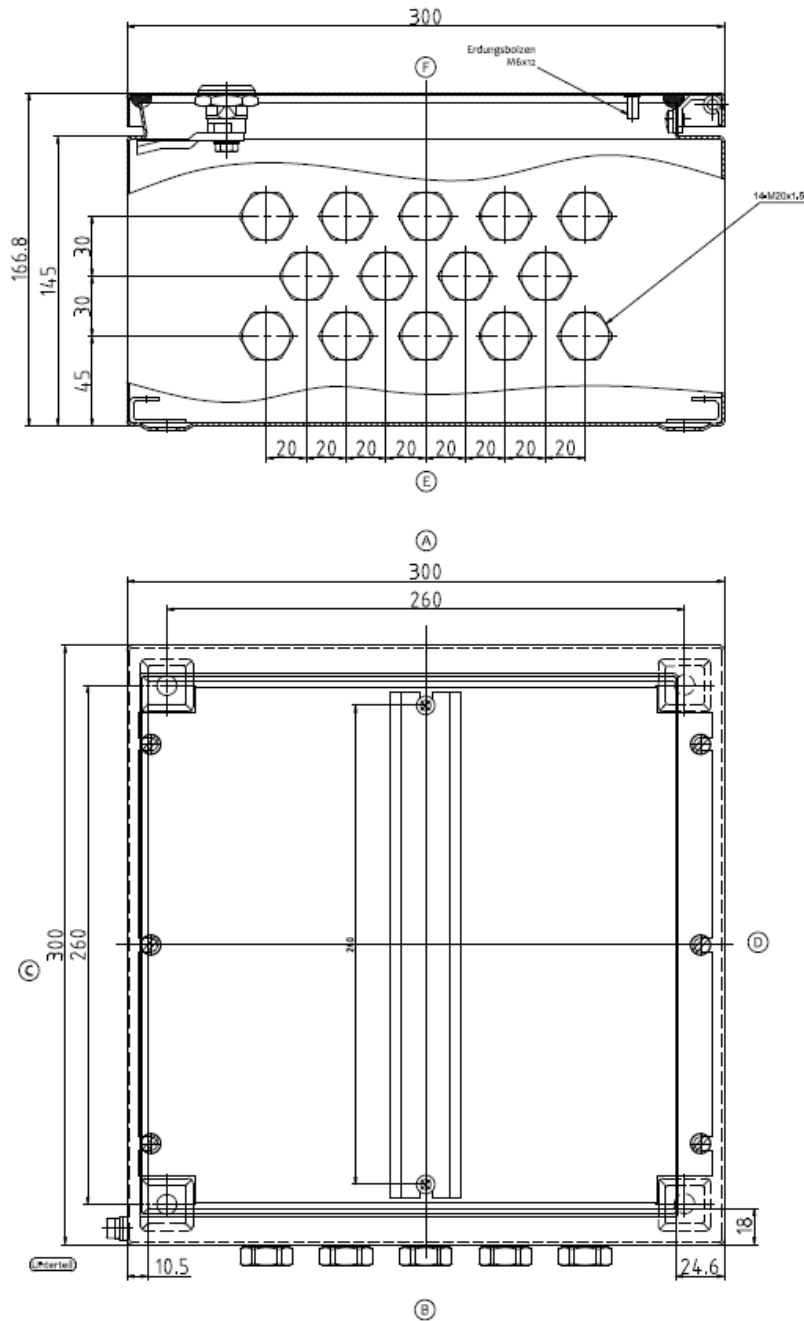


Figure 4-2 Dimensional of Field Junction Box (Unit: mm)

The diagram of FSP160 installed in field junction box is as follows.

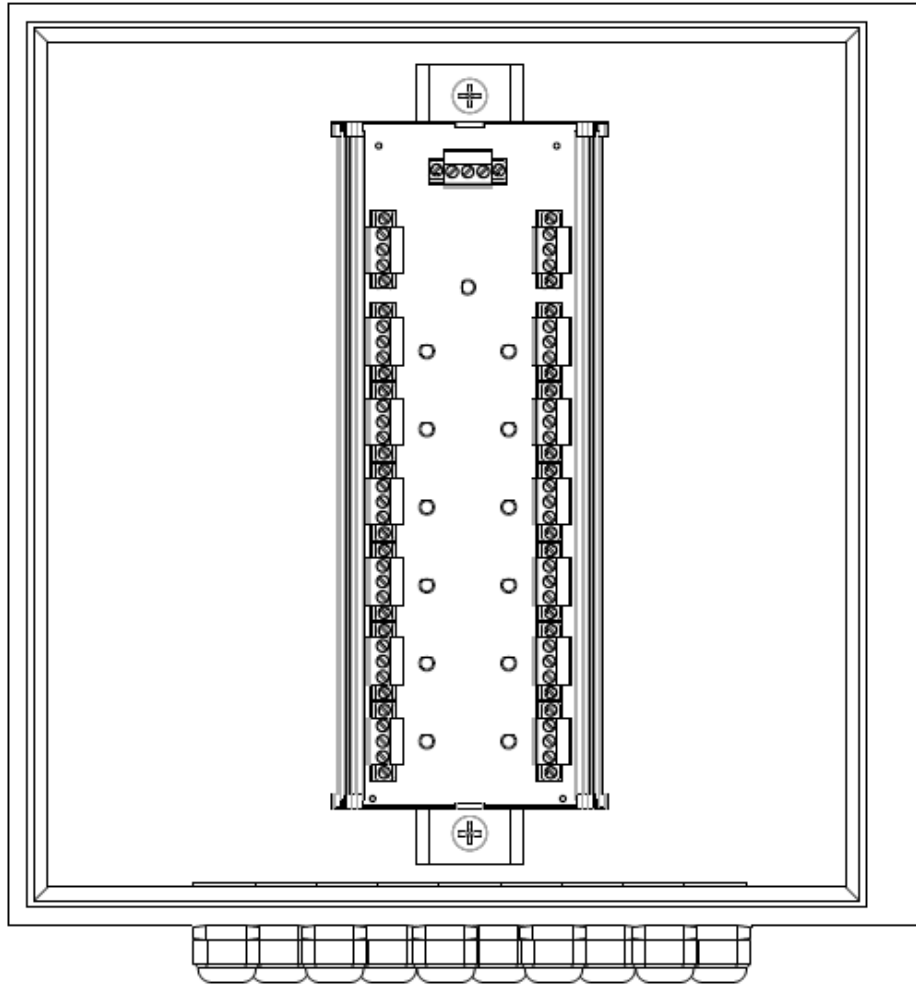


Figure 4-3 Installation Diagram

4.3 Application Notes

- Fieldbus spur protector FSP160 is installed in the end of bus normally and allows cascade, in which case the terminal resistance cannot be enabled.
- TRUNK + of FSP160 must connect to FF power adjuster +, and TRUNK – must connect to FF power adjuster -. Reverse connection is not supported.

4.4 Troubleshooting

- If none indicator is ON, power supply may be abnormal. Please check whether the power and wiring are correct or not.
- If indicators 1~12 are ON (red), corresponding branches are short-circuit.

Section 5 Revision

Table 5-1 Retrofit List of the Version

Document Version	Applicable Product Version	Remarks
V1.0 (20151110)	FSP160 V10.00.00 and later version	
V1.1 (20210324)	FSP160 V13.00.00 and later version	Add information about explosion-proof Modify the overview and specification