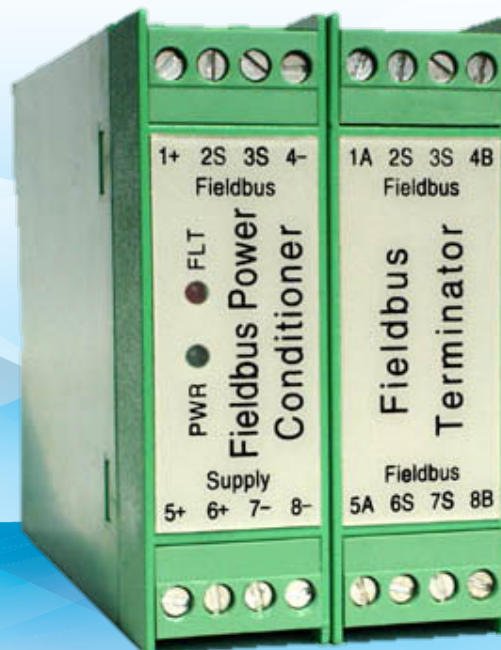




NCS-BP105 Fieldbus Power Conditioner
NCS-BT105 Fieldbus Terminator
User Manual



Warning

1. It is forbidden for users to disassemble components by themselves.
2. Please check whether the power supply voltage of the gateway is in accordance with the power supply voltage requirement in the user manual.

Version: V1.0

Disclaimers

The contents of this manual have been checked to confirm the consistency of the hardware and software described. Since errors cannot be completely excluded, absolute consistency cannot be guaranteed. However, we will periodically check the data in this manual and make the necessary corrections in subsequent versions. Any suggestions for improvements are welcome.

Microcyber Corporation 2024

Technical data is subject to change at any time.

Company Profile

Microcyber Corporation is a high-tech enterprise initiated and founded by Shenyang Institute of Automation, Chinese Academy of Sciences, mainly engaged in networked control system, industrial communication and instrumentation, development, production and application. Microcyber Corporation has undertaken a number of national science and technology projects such as the National Science and Technology Major Project, National High Technology Research and Development Program (863 Program), Smart Manufacturing Equipment Development Project, etc. It is the unit for the construction of National Engineering Research Center for Networked Control System.

Microcyber Corporation successfully developed the first internationally certified fieldbus protocol master stack, the first nationally certified fieldbus instrument, the first domestic safety instrument certified by TÜV Germany, and co-hosted with other units the formulation of the first domestic industrial Ethernet protocol standard EPA and the first industrial wireless communication protocol standard WIA-PA, which became an IEC international standard.

Our products and technologies have won two National Science and Technology Progress Awards, one National Science and Technology Invention Award, one First Prize of Science and Technology Progress of Chinese Academy of Sciences, one First Prize of Science and Technology Progress of Liaoning Province, and our products have been exported worldwide. We have successfully completed more than 200 large-scale automation projects.

Microcyber Corporation is a member of FCG organization; a member of PNO.

Microcyber Corporation has successfully passed ISO9001:2008 quality management system certification and ISO/TS16949 quality system certification for the automotive industry. Excellent R&D team, rich experience in automation engineering design and implementation, industry-leading products, large market network and excellent corporate culture have laid a solid foundation for the company's start-up and sustainable development.

Carrying employees' ideals, creating customer value and promoting corporate development.

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1 Overview

The **fieldbus power conditioner** (hereinafter referred to as the **bus power**) is suitable for Foundation Fieldbus and Profibus PA fieldbus control systems, providing power to bus powered devices. The bus power conditioner adopts active impedance control method, which can greatly improve the load capacity compared to simple passive solutions; At the same time, it provides uniform impedance characteristics and, when combined with terminator, it can reproduce perfect bus signals. There are two LEDs on the bus power panel for power indication and overcurrent indication, which facilitates maintenance. The bus power conditioner integrates a terminal matching device internally. The bus power conditioner supports two redundant power inputs, which can further improve the reliability of the system.

The **fieldbus terminator** (hereinafter referred to as the **bus terminator**) is used in conjunction with the bus power conditioner, installed at the end of the bus, to achieve impedance matching of signals and complete the conversion of current signals to voltage signals. When the bus junction box used in the bus supports terminal matching function, there is no need to install a fieldbus terminator separately for the bus.

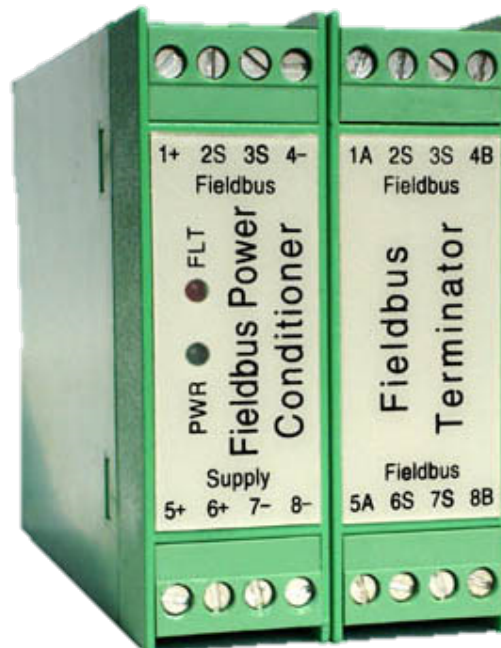


Figure 1.1 Fieldbus power conditioner and terminator

1.1 Feature

- Bus power conditioner, suitable for fieldbus that complies with IEC 61158-2 standard
- Compliant with FF-831 bus power testing specifications
- Overcurrent protection and indication
- Integrated terminator
- Active impedance control method

- Servo voltage output mode, capable of meeting long-distance power supply requirements
- Anti strong electromagnetic interference, protecting bus device

1.2 Overall Dimensions

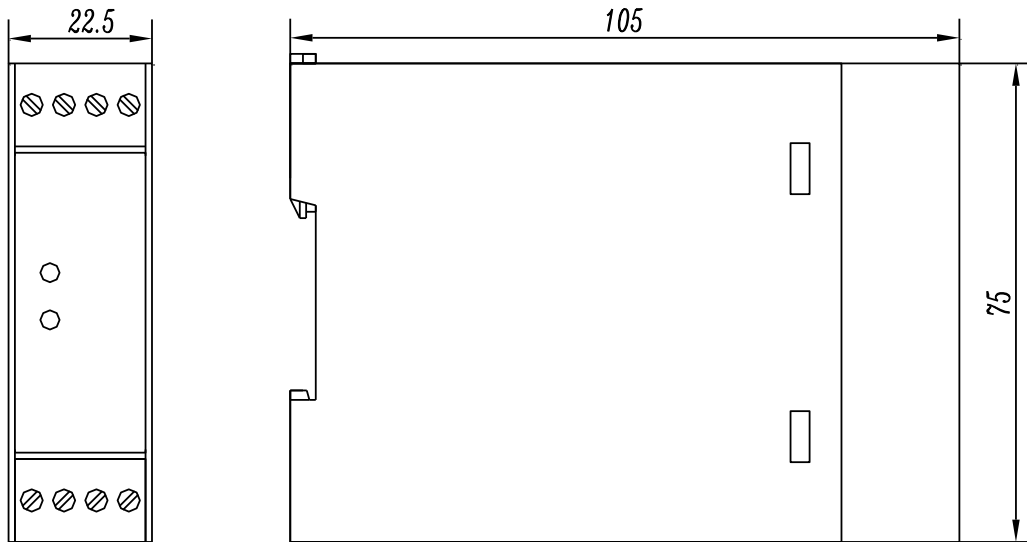


Figure 1.2 Dimension

Note: The external dimensions of the bus power conditioner and bus terminal are consistent.

2 Installation

2.1 DIN rail installation

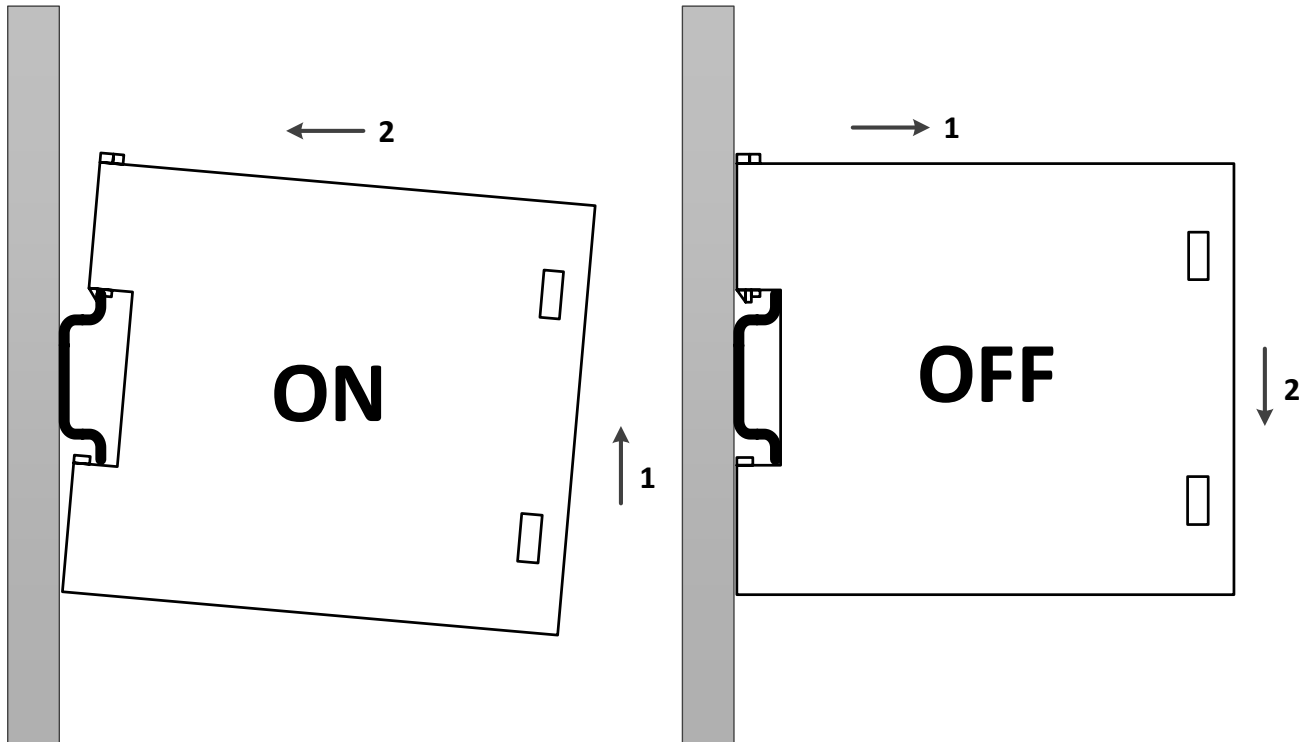


Figure 2.1 Schematic diagram of DIN rail installation for bus power conditioner and terminator

2.2 Interface of bus power and bus terminator

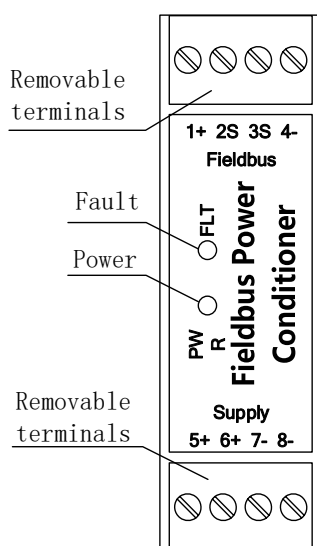


Figure 2.2 Schematic diagram of bus power panel

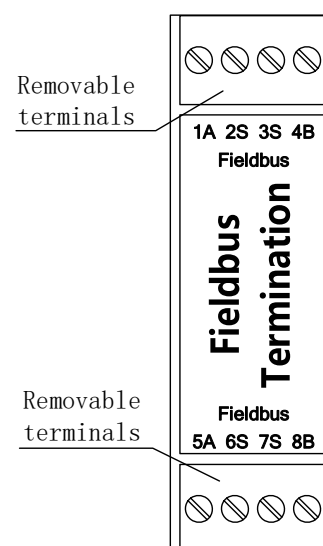


Figure 2.3 Schematic diagram of bus terminator panel

2.2.1 Interface of bus power

2.2.1.1 Removable terminals

5+	External power supply 1 positive input terminal
6+	External power supply 2 positive input terminal
7-, 8-	External power supply 1, 2 negative input terminals, 7-, 8- internally connected
1+	Bus positive output terminal
4-	Bus negative output terminal
2S、3S	Grounding, connected internally for 2S and 3S

2.2.1.2 Fault indicator light

Used for fault detection, such as output short circuit or output overload.

2.2.1.3 Power indicator light

Used to indicate whether the device is powered on normally.

2.2.2 Interface of bus terminator

2.2.2.1 Removable terminals

A	Connect to one end of the bus, non-polar
B	Connect to the other end of the bus, non-polar
S	Connect shielded wire

3 Working Methods

3.1 Working mode of bus power conditioner

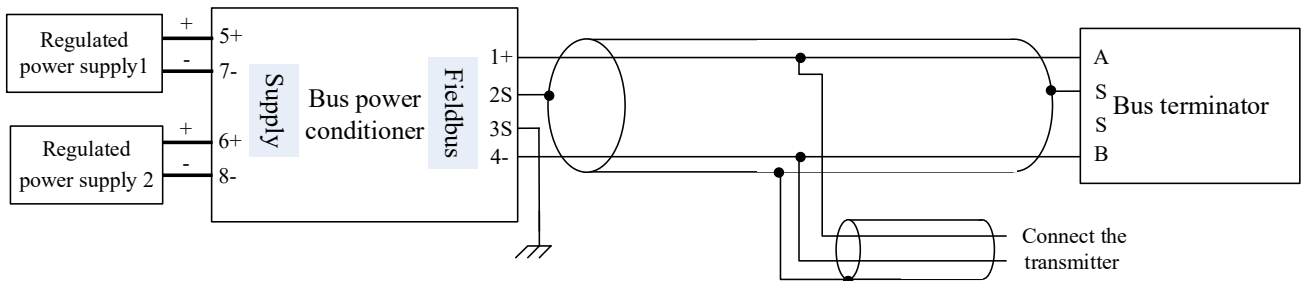


Figure 3.1 Bus power connection (note: the built-in terminal matching device of the bus power is valid)

Note 1: The input and output of this bus power conditioner are non isolated. In order to ensure reliability during long-distance communication, it is required that the output of the power supply be isolated from the ground. For ordinary regulated power supplies, as long as the output terminal is not grounded, this requirement can be met. In addition, the regulated power supply for the bus power conditioner should be dedicated and avoid supplying power to other devices as much as possible. At the same time, do not use the same regulated power supply to power buses from different network segments. If the regulated power supply has multiple isolated outputs, the unused output power supply can supply power to other devices or separately supply power to bus power supplies that are not in the same network segment. If the above conditions cannot be met, please choose an isolated bus power conditioner product.

Note 2: When the bus junction box used in the bus supports terminal matching function, there is no need to install a fieldbus terminator device separately for the bus.

4 Maintenance

- Basic maintenance

LED indicator light	Color	Normal status	Abnormal state	Correction method
Power	Green	On	Off	Check the polarity and connection of the power supply
				Contact technical support
Fault	Red	Off	On	Check if the output is overloaded
				Check if the output is short circuited
				Contact technical support

- If the indicator light is completely normal, but the bus still cannot work properly, please refer to the interface definition and working mode.
- Daily maintenance is limited to cleaning device.
- Fault repair: If a fault is found, please return to the factory for repair.

5 Technical Specifications

5.1 Basic Parameters

Input voltage	15V~34V (requires input power supply to be isolated from the ground)
Output pressure drop	2~6V, depending on the load
Rated output current	330mA
Overcurrent protection	>400mA
Working temperature	-30 ~ 70 °C
Humidity range	0 ~ 85% RH
Vibration	IEC 60068-2-2:1995 Vibration (sine): frequency 10-200Hz; The number of sweep cycles for each axis is 10; Amplitude 10m/s ² or 0.35mm
EMC	IEC-61326-1
Protection level	IP20

5.2 Physical Properties

Housing material	Engineering plastic
Housing size	75mmX23mmX105mm
Weight	100g
Installation method	DIN rail



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