



# MCAFD4 Active Fieldbus Distributor User Manual



## Warning

1. Please don't take off/install components at random.
2. Please check if the power meets the power request in the User Manual.

**Version: V2.1**

### **Disclaimer of Liability**

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

**Microcyber Corporation 2019**

The technical data may change at any time.

## About Us

**Microcyber Corporation** established as a high-tech enterprise by the Shenyang Institute of Automation Chinese Academy of Sciences, mainly engages in advanced industrial control systems, equipments, instruments and chips for industrial process automation control solutions in the research, development, production and application. Microcyber undertakes a number of national scientific and technical key task and “863” project, and has Liaoning Province networked control systems engineering research center. ◦

Microcyber successfully developed the first domestic fieldbus protocol main stack that passed international certification, the first fieldbus instrument that passed national certification, and the first domestic security instrument that passed German TÜV certification. Formulated the first domestic industrial Ethernet protocol standard EPA and the first industrial wireless communication protocol standard WIA-PA, and became the IEC international standard. ◦

The products and technologies of Microcyber have won two second prizes of national science and technology progress, 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. The products are exported to developed countries such as Europe and America. Top enterprises in the industry such as Emerson in USA, Rotork in UK and Bifold in UK have adopted key technologies or key departments of Microcyber in their products and successfully completed more than 200 large-scale automation projects. ◦

Microcyber is the FF member, the HART member and the Profibus National Organization (PNO) member.

Microcyber passes the Authentication of ISO 9001:2008 Quality System, and automotive industry ISO / TS16949 quality system certification. Excellent R & D team, rich automation engineering design and implementation experience, industry-leading products, huge market network, excellent corporate culture, all have laid a solid foundation for the company's entrepreneurship and sustainable development.

Carrying the ideals of employees, creating customer value and promoting enterprise development.

### Overview

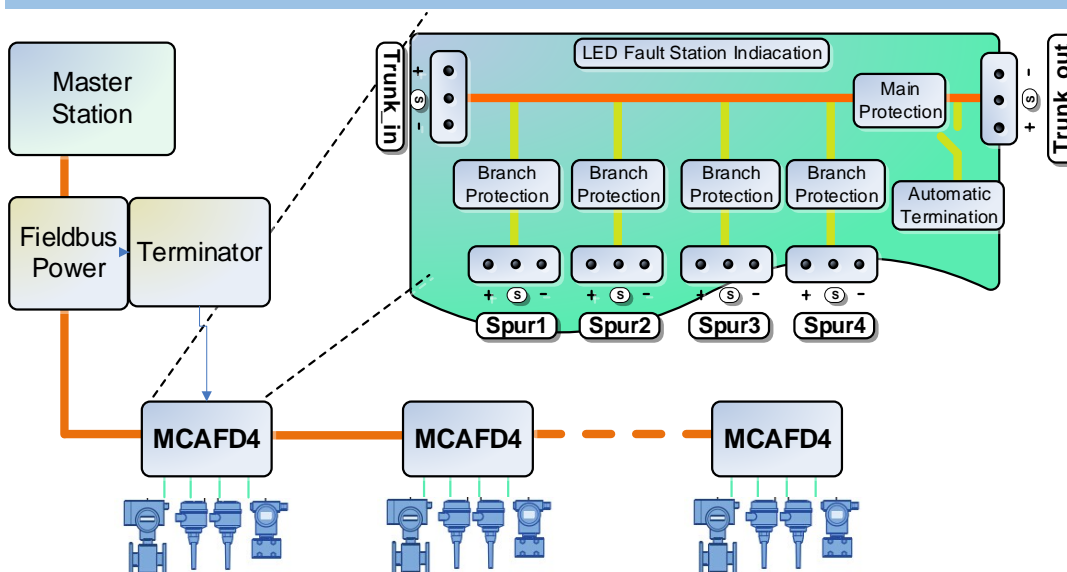
MCAFD4 Active Fieldbus Distributor is suitable for the FF H1 and PROFIBUS PA fieldbus application. Through the distributor, field devices use the topology of the main-branch to connect the system. Each distributor has four branches. There's built-in automatic bus terminal. LED status indicator can rapidly diagnosis main line and branch line short circuit state, isolate the fault section automatically. Multiple protection function of the distributor can ensure the safe operation of the system.



### Feature

- Short-circuit, overload protection for main line and branch line
- Suitable for FOUNDATION Fieldbus H1 and PROFIBUS PA
- LED indicator fault diagnosis
- Automatic bus terminal
- Reverse connection protection
- Automatic isolating fault port
- Protection class IP67

### System Wiring Diagram



## Technical Index

### Power Consumption

- |                        |        |
|------------------------|--------|
| ➤ No-load current loss | <10mA  |
| ➤ Power consumption    | <180mW |

### Main Line

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| ➤ Number of electrical connectors | 2                               |
| ➤ Electrical connectors           | M16*1.5                         |
| ➤ Cable diameter                  | 4~9mm                           |
| ➤ Terminals                       | Screw type PCB terminal (3-pin) |
| ➤ Bus input voltage               | 10~32VDC                        |
| ➤ Main line max. output current   | 1A                              |
| ➤ Main line voltage drop          | <0.3V                           |
| ➤ Automatic bus termination       | √                               |

### Branch Line

- |                                    |                                 |
|------------------------------------|---------------------------------|
| ➤ Number of electrical connectors  | 4                               |
| ➤ Num.of connectable field devices | 4                               |
| ➤ Electrical connectors            | M16*1.5                         |
| ➤ Cable diameter                   | 4~9mm                           |
| ➤ Terminals                        | Screw type PCB terminal (3-pin) |
| ➤ Branch output voltage            | 9~31VDC                         |
| ➤ Branch max.output current        | 60mA                            |
| ➤ Short-circuit protection current | <300uA                          |
| ➤ Main and branch pressure drop    | <1V                             |

### Interface

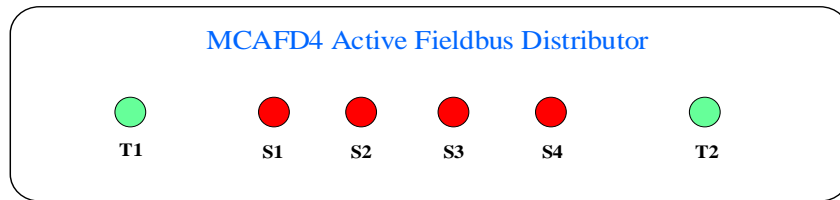
- |                          |   |
|--------------------------|---|
| ➤ PROFIBUS PA            | √ |
| ➤ FOUNDATION Fieldbus H1 | √ |

### Environment Characteristics

- |                            |                                     |
|----------------------------|-------------------------------------|
| ➤ Operation temperature    | -40℃~+85℃                           |
| ➤ Storage temperature      | -40℃~+85℃                           |
| ➤ Relative humidity        | 5%RH~95%RH                          |
| ➤ Protection degree        | IP67                                |
| ➤ Dimension W x H x D (mm) | 125*57*80 (No electrical connector) |
| ➤ Weight                   | 600g                                |

## Installation & Wiring

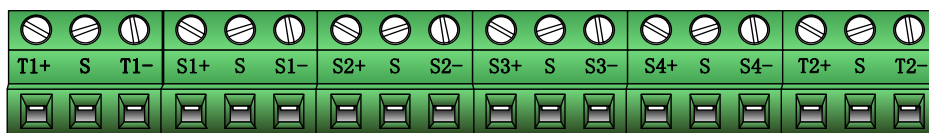
### LED indicating of MCAFD4 Active Fieldbus Distributor



Port	LED Indication	Meaning	Solution
T1-T2	Green	Main connection is normal Bus terminal is inactive ( T2 Green )	—
	Red	Main short-circuit fault	Trouble shooting
	Light off	Main line no access Main line inversely access Bus terminal is activated ( T2 off )	Correct wiring

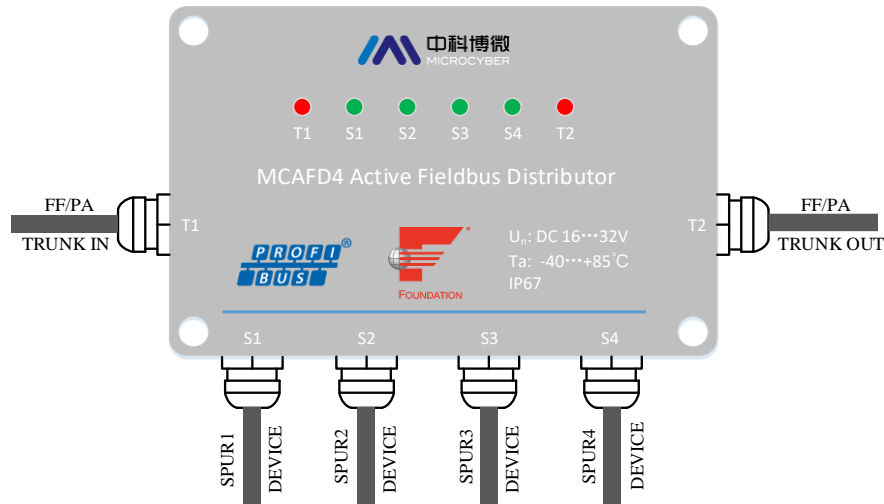
Port	LED display	Meaning	Solution
S1-S4	Green	Branch connection is normal	—
	Red	Branch short-circuit fault	Trouble shooting
	Light off	Main line access Main line inversely access	Correct wiring

### Terminal distribution of MCAFD4 Active Fieldbus Distributor



Connection	Terminal	Allocation
T1-T2	+	Data correction
	S	Shielded wire
	-	Data line negative
S1-S4	+	Data line positive
	S	Shielded wire
	-	Data line negative

## Terminal distribution of MCAFD4 Active Fieldbus Distributor



1. Connect bus through T1 & T2, T1 for bus input, T2 for bus output, and connect fieldbus devices by branch S1 to S4.
2. Open cover of active fieldbus distributor, and install the distributor to the flat surface or on the guide rail, to ensure 60 mm space connection on the rear left of and below the distributor.
3. Unscrew the electrical connector, run the fieldbus cable through the electrical connector gland, and twist the cable onto the corresponding terminal, to ensure correct polarity of the connection.
4. Close the active fieldbus distributor cover, tighten the fixing screw.
5. Use seal plug to seal unused cable entry gland, so as to ensure the IP67 protection class.



Microcyber Corporation

[Http://www.microcyber.cn/en](http://www.microcyber.cn/en)

Add: 17-8 Wensu Street, Hunnan New District, Shenyang,  
China 110179

Tel: 0086-24-31217278 / 31217280

Fax: 0086-24-31217293

Email: [sales@microcyber.cn](mailto:sales@microcyber.cn)