DF20-C-CC-FB
Adapter
User Manual

V1.0.3

2024.9.29

Version update notes:

date	Version	describe
2024/8/9	V1.0.0	Initial release
2024/8/26	V1.0.1	New modules: DF20-M-2CNT-PIL-5 and DF20-M-2CNT-PIL-4
2024/9/24	V1.0.2	New modules: DF20-M-2CNT-EL-5, DF20-M-2CNT-EL-4, DF20-M-2PWM, DF20-M-1COM-232/485/422
2024/9/29	V1.0.3	Improve the wiring diagram of DF20-M-2CNT-EL-5 and DF20-M-2CNT-EL-4

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1Product Overview

- The distributed remote IO system consists of a network adapter module and an expansion IO module.
- The network adapter module is responsible for fieldbus communication and realizes communication connection with the master station controller.

Select the corresponding bus module according to the communication interface of the system. The mainstream industrial communication protocols include EtherCAT, ProfiNET, Profibus-DP, Modbus/TCP, EtherNet/IP,CC-Link IEFBwait.

- The expansion IO module is responsible for connecting to the input and output sensors on site. The input IO module collects various signals on site and transmits them through the internal

The controller reads and processes the data from the adapter through the field bus, and then writes the output data to the network adapter. The network adapter then writes the output data to the output IO module through the internal bus, thereby realizing the control of the device.

- The expansion IO modules are divided into 9 categories: digital input module, digital output module, digital input and output mixed module, analog

Analog input module, analog output module, temperature input module, pressure sensor input module, pulse counting module, auxiliary module, etc.

- The network adapter and the expansion IO module can be freely combined according to the needs of the site. Distributed

IO modules can achieve lower cost requirements.

- This manual is mainly aimed atCC-Link IEFBThis chapter explains how to use the distributed IO series.

1.1 Product Features

- Occupies fewer nodes, one node has oneDF20-C-CC-FBadapter,The adapter can be expanded to a maximum of 32 IO modules.
- Flexible configuration, multiple types of IO modules can be combined arbitrarily.
- Easy to use, each IO has an independent functional module, which can be directly loaded into the configuration system according to the actual topology structure, making configuration easy.

Easy to get started.

- The extended IO module has rich functions. The IO module includes digital quantity, analog quantity, temperature, pressure, pulse and other types, which can be flexibly combined and expanded.
- Can be used in different occasions. Strong compatibility, the adapter communication interface complies withCC-Link IEFBCommunication standards, supportFX5UMainstreamCC-Link IEFBMain station.
- Support module parameter configuration.
- Supports error diagnosis, the adapter is marked with an error indicator light, and each module also supports a fault alarm function, making detection and maintenance simple and convenient.

1.2 Product Installation and Removal

- When the module is installed, the DIN rail lock at the bottom of the module can be safely and reliably installed on the 35 mm DIN rail. In addition, there is a DIN rail lock on the left side of the adapter.

A manual clip is used to lock the guide rail. When installing the module, you need to align it with the notch, push the module toward the DIN clip in the direction of the arrow, and place the module on the DIN guide rail.

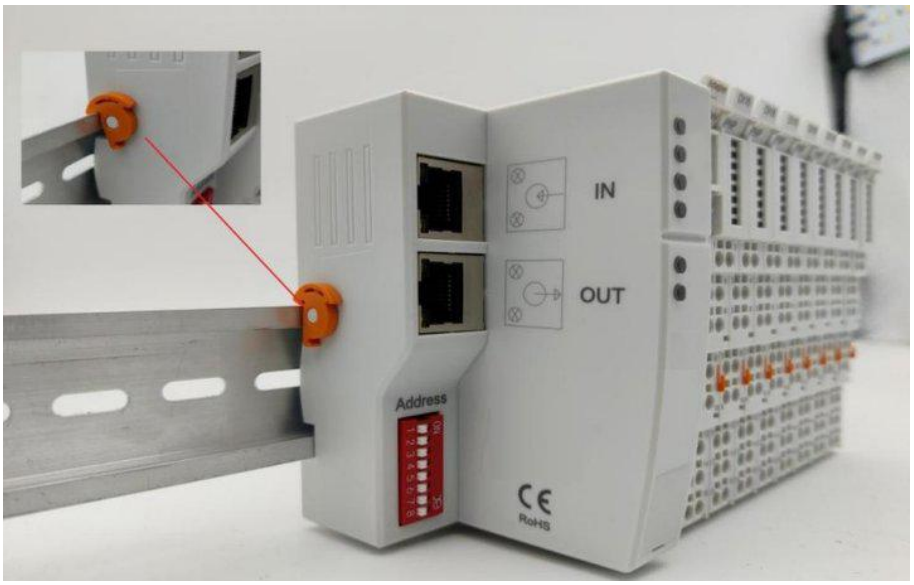


Figure 1-1

- When disassembling a module, first remove all signal cables or power cables from the module, then pull the latch in the direction of the arrow (the yellow part in the figure below).

When removing the adapter module, you also need to open the rail lock counterclockwise.

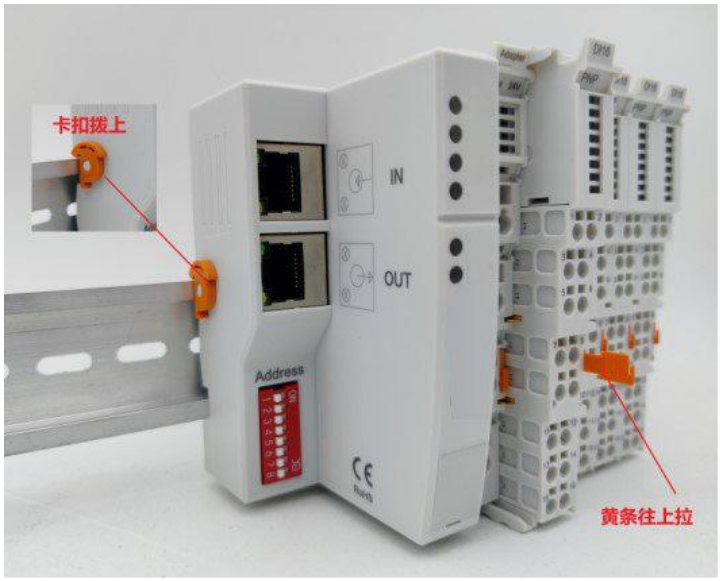


Figure 1-2

1.3 Product installation dimensions

- Adapter module installation dimensions: 100mm × 48mm × 67mm
- IO module installation size: 100mm × 12mm × 67mm/100mm ×twenty fourmm × 67mm

1.4 Grounding protection

- There is a metal spring on the back of the module, which is used to effectively ground the rail. The metal spring and the grounding PE of the adapter module are connected internally.

Yes.

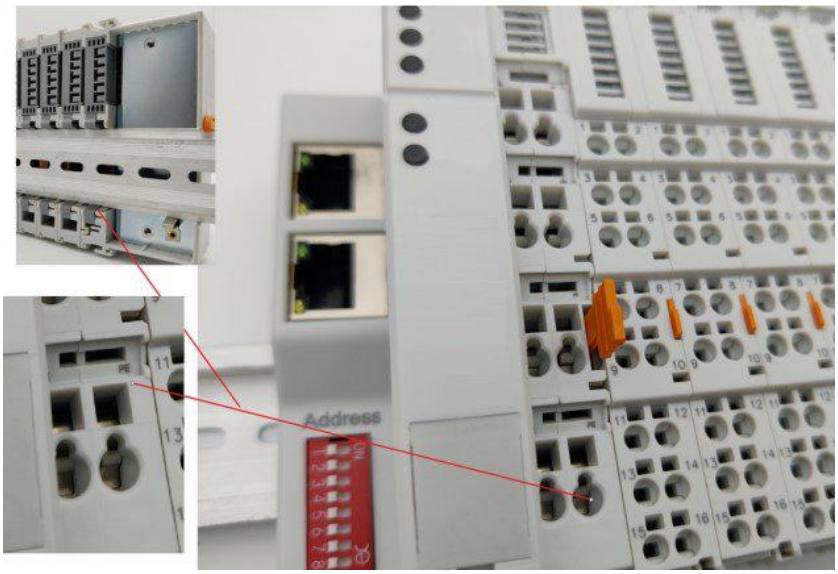


Figure 1-3

2 Network adapters

DF20-C-CC-FB network adapter supports standard CC-Link IEFB device communication. The adapter has two RJ45 network ports and supports FX5UWaiting for the LordflowCC-Link IEFBMain station.It takes up little space, has high speed, convenient wiring and simple configuration.

2.1 Adapter Technical Parameters

Adapter technical parameters	
Product Model	DF20-C-CC-FB
Bus protocol	CC-Link IEFB
Number of slaves	According to the master station settings
Data transmission	Category 5 twisted pair
Transmission	100m (station distance)

Bus speed	100Mbps	
Bus interface	2*RJ45	
System Power	Power Input	24V DC (18~36V)
	Power Output	5V DC/2A
Common power	24V DC (±20%)/8A	
Slave Error	support	
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating	-25～75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5～95%RH (no condensation)	
Dimensions	100mm × 48mm × 67mm	
Pollution degree	Class 2, in accordance with IEC 61131-2	
Corrosion resistance	Compliant with IEC 60068-2-42 and IEC	
Operating altitude	0～2000m	

2.2 Adapter Wiring Diagram

- The figure shows the adapter wiring diagram. Users need to connect two sets of isolated 24V power supplies to the system power supply according to the wiring diagram.

Input ports (SYS_24V port and SYS_0V port) and common power input ports (Filed_24V port and Filed_0V port). There are two groups of common power input ports, and it is recommended that users connect all of them. In addition, a group of safety ground wires and network communication cables need to be connected.

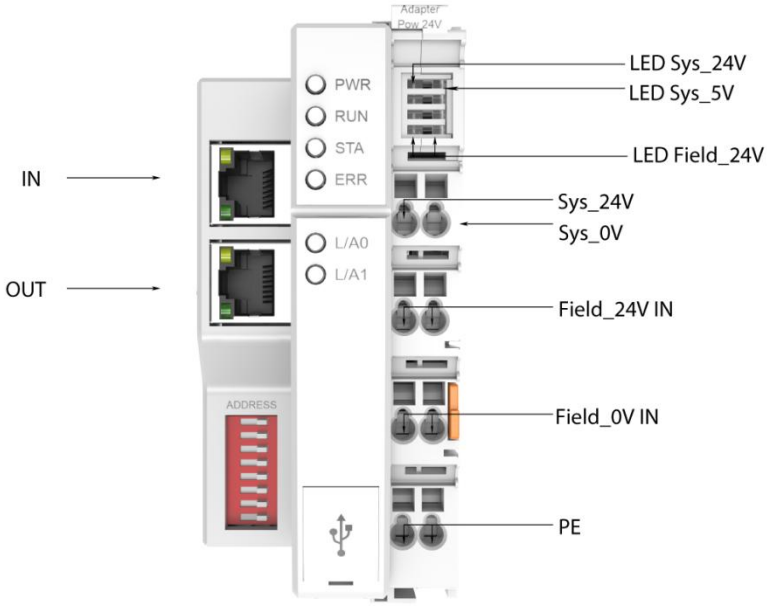
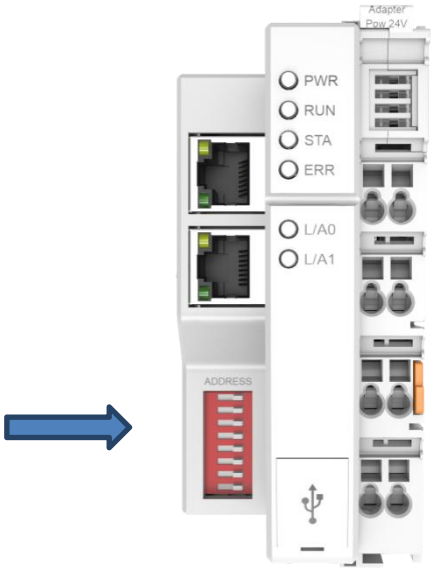


Figure 2-1

2.3Adapter LED indicator

serial number	Indicator Lights	illustrate	color	state	meaning
1	PWR	Control power supply	green	Bright	Control power supply is normal
				Destroy	Control power supply is not connected or is faulty
2	RUN	Bus Status	green	Bright	Bus configuration successful
				Destroy	Bus configuration failed
3	STA	Module communication	green	Flash	Module communication is normal
				Off/Still on	Module has no communication
4	ERR	Module failure	red	Bright	Module failure (specific failure information can be queried in PLC)
				Destroy	The module works fine
5	L/A0	Network port 1 link and status	green	Bright	Network connection is normal
				Flash	Network communication work
				Destroy	Network link abnormality
6	L/A1	Network port 2 link and status	green	Bright	Network connection is normal
				Flash	Network communication work
				Destroy	Network link abnormality

2.4Adapter dip switch



- As shown in the figure,DF20-C-CC-FBThe adapter module has a set of dip switches, which have 8 positions: position 1, position 2, position 3,

Bit 4, bit 5, bit 6, bit 7, bit 8, each bit represents a value. Pushing them to the ON position represents 1, 2, 4, 8, 16, 32, 64, 128 respectively. The sum of the values represented by the bits turned to ON is the address code of the machine.

- Address 11 is: 1(bit 1) + 2(bit 2) + 8(bit 4) = 11, and address 30 is: 2(bit 2) + 4(bit 3) + 8(bit 4) + 16(bit 5) = 30;

All the dials are turned down to represent 0.

- The dip switch can be used to set the last byte of the IP address of the adapter module, that is, the D segment of the IP address A:B:C:D.

The ABC segment can be obtained bysoftwareto configure.

- When the DIP switch is set to 0 or 255, the ABCD segments of the adapter IP address are all used.softwareConfiguration information

When the dip switch is set to 254, the adapter IP address is fixed to 192.168.3.254. Therefore, when the IP address is lost, forgotten or in other abnormal situations, you can turn the dip switch to 254 and use 192.168.3.254 AddressVia softwareReconfigure the network information of the adapter.

3 Expansion IO Module

- The expansion IO modules are divided into 9 categories: digital input module, digital output module, digital input and output mixed module, analog

Input module, analog output module, temperature input module, pressure sensor input module, encoder/pulse counting module, auxiliary module, etc. Multiple types of IO modules can be combined arbitrarily.

3.1 support IO module list

model	Product Description
DF20-M-8DI-N	8-channel digital input module, NPN
DF20-M-8DI-P	8-channel digital input module, PNP
DF20-M-16DI-N	16-channel digital input module, NPN
DF20-M-16DI-P	16-channel digital input module, PNP
DF20-M-32DI-N	32Channel digital input module, NPN
DF20-M-32DI-P	32Channel digital input module,PNP
DF20-M-4DO-R	4-channel relay output module
DF20-M-8DO-N	8-channel digital output module, NPN
DF20-M-8DO-P	8-channel digital output module, PNP
DF20-M-16DO-N	16-channel digital output module, NPN
DF20-M-16DO-P	16-channel digital output module, PNP
DF20-M-32DO-N	32Channel digital inputoutModule, NPN
DF20-M-32DO-P	32Channel digital inputoutModules,PNP
DF20-M-8DIO-N	8 channelsDigital output and8 channelsInput Mixing Module, NPN
DF20-M-8DIO-P	8 channelsDigital output and8 channelsInput Mixing Module, PNP
DF20-M-4AI-U-0	4-channel analog input module, -10V~+10V
DF20-M-4AI-U-1	4-channel analog input module, 0~+10V
DF20-M-4AI-I-2	4-channel analog input module, 0~20mA
DF20-M-4AI-I-3	4-channel analog input module, 4~20mA
DF20-M-4AI-U-4	4-channel analog input module,±10V/0~10V/2~10V/±5V/0~5V/1~5V
DF20-M-8AI-U-4	8Channel analog input module,±10V/0~10V/2~10V/±5V/0~5V/1~5V
DF20-M-4AI-I-5	4-channel analog input module, 0~20mA/4~20mA
DF20-M-8AI-I-5	8Channel analog input module, 0~20mA/4~20mA
DF20-M-2LC-S-5	2-channel pressure sensor input module

DF20-M-2RTD-PT	2-channel RTD sensor input module
DF20-M-4RTD-PT	4Channel RTD Sensor Input Module
DF20-M-4TC-KETJ	4-channel Thermocouple Sensor Input Module
DF20-M-8TC-KETJ	8Channel Thermocouple Sensor Input Module
DF20-M-4AO-U-0	4-channel analog output module, -10V~+10V
DF20-M-4AO-U-1	4-channel analog output module, 0~+10V
DF20-M-4AO-I-2	4-channel analog output module, 0~20mA
DF20-M-4AO-I-3	4-channel analog output module, 4~20mA
DF20-M-4AO-U-4	4-channel analog output module, ±10V/0~10V/2~10V/±5V/0~5V/1~5V
DF20-M-8AO-U-4	8Channel analog output module, ±10V/0~10V/2~10V/±5V/0~5V/1~5V
DF20-M-4AO-I-5	4Channel analog output module, 0~20mA/4~20mA
DF20-M-8AO-I-5	8-channel analog output module,0~20mA/4~20mA
DF20-M-1CNT-EL-5	Single channel encoder counter module, 5V
DF20-M-1CNT-EL-4	Single channel encoder counter module, 24V
DF20-M-2CNT-PIL-5	2-channel pulse counting module, 5V
DF20-M-2CNT-PIL-4	2-channel pulse counting module, 24V
DF20-M-2CNT-EL-5	2-channel encoder/pulse counting module, 5V
DF20-M-2CNT-EL-4	2-channel encoder/pulse counting module, 24V
DF20-M-2PWM	2-channel pulse output module, 5V
DF20-M-1COM-232/485/422	1 channelRS485/RS232/RS422Serial PortCommunication module
DF20-M-DC-UD-5	Power Module

- IO data allocation instructions

model	Uplink process data	Downlink process data
DF20-C-CC-FB	1 Word (RWr): Diagnostic input	/
DF20-M-8DI-N	8 bits (RX): 8-channel input data	/
DF20-M-8DI-P	8 bits (RX): 8-channel input data	/
DF20-M-16DI-N	16 bits (RX): 16 channels input	/
DF20-M-16DI-P	16 bits (RX): 16 channels input	/
DF20-M-32DI-N	32 bits (RX): 32 channel input	/
DF20-M-32DI-P	32 bits (RX): 32 channel input	/
DF20-M-4DO-R	/	8 bits (RY): 4-channel output data, the lower
DF20-M-8DO-N	/	8 bits: (RY): 8-channel output data
DF20-M-8DO-P	/	8 bits: (RY): 8-channel output data
DF20-M-16DO-N	/	16 bits: (RY): 16 channels output data
DF20-M-16DO-P	/	16 bits: (RY): 16 channels output data
DF20-M-32DO-N	/	32 bits: (RY): 32 channels output data

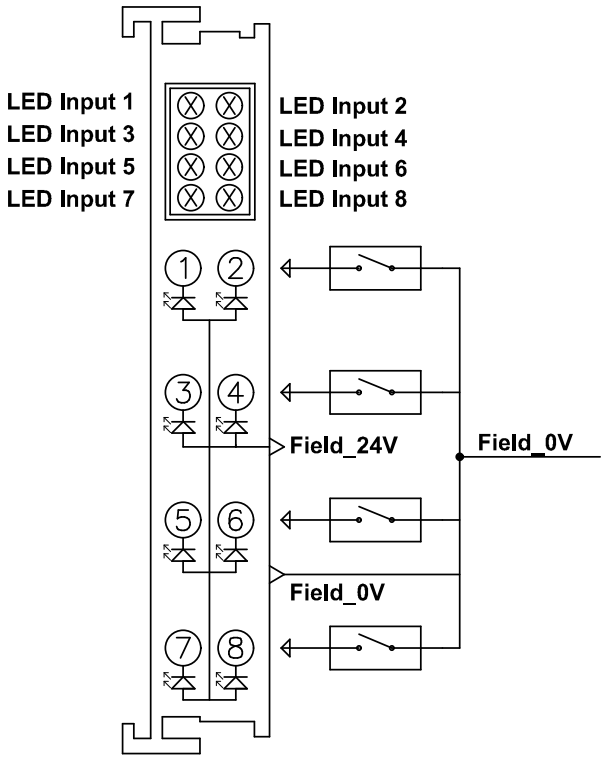
DF20-M-32DO-P	/	32 bits: (RY): 32 channels output data
DF20-M-8DIO-N	8 bits: (RX): 8-channel output	8 bits: (RY): 8-channel output data
DF20-M-8DIO-P	8 bits: (RX): 8-channel output	8 bits: (RY): 8-channel output data
DF20-M-4AI-U-0	4 words (RWr): 4-channel input	/
DF20-M-4AI-U-1	4 words (RWr): 4-channel input	/
DF20-M-4AI-I-2	4 words (RWr): 4-channel input	/
DF20-M-4AI-I-3	4 words (RWr): 4-channel input	/
DF20-M-4AI-U-4	4 words (RWr): 4-channel input	/
DF20-M-8AI-U-4	8 words (RWr): 8-channel input	/
DF20-M-4AI-I-5	4 words (RWr): 4-channel input	/
DF20-M-8AI-I-5	8 words (RWr): 8-channel input	/
DF20-M-2LC-S-5	2 words: (RWr): 2 channel input	/
DF20-M-2RTD-PT	2 words: (RWr): 2 channel input	/
DF20-M-4RTD-PT	4 words: (RWr): 4 channel input	/
DF20-M-4TC-KETJ	4 words: (RWr): 4 channel input	4 words (RWw): 4-channel output data
DF20-M-8TC-KETJ	8 words: (RWr): 8 channel input	8 words (RWw): 8-channel output data
DF20-M-4AO-U-0	/	4 words (RWw): 4-channel output data
DF20-M-4AO-U-1	/	4 words (RWw): 4-channel output data
DF20-M-4AO-I-2	/	4 words (RWw): 4-channel output data
DF20-M-4AO-I-3	/	4 words (RWw): 4-channel output data
DF20-M-4AO-U-4	/	4 words (RWw): 4-channel output data
DF20-M-8AO-U-4	/	8 words (RWw): 8-channel output data
DF20-M-4AO-I-5	/	4 words (RWw): 4-channel output data
DF20-M-8AO-I-5	/	8 words (RWw): 8-channel output data
DF20-M-1CNT-EL-5	5 words: (RWr): module input	1 words (RWw): module command output
DF20-M-1CNT-EL-4	5 words: (RWr): module input	1 words (RWw): module command output
DF20-M-2CNT-PIL-5	10 words: (RWr): dual channel	6 words (RWw): dual channel module
DF20-M-2CNT-PIL-4	10 words: (RWr): dual channel	6 words (RWw): dual channel module
DF20-M-2CNT-EL-5	10 words: (RWr): dual channel	6 words (RWw): dual channel module
DF20-M-2CNT-EL-4	10 words: (RWr): dual channel	6 words (RWw): dual channel module
DF20-M-2PWM	6words: (RWr): dual-channel	8words (RWw): dual-channel module
DF20-M-1COM-232/485/42	twenty threewords: (RWr):	twenty threewords (RWw): dual channel

3.2 DF20-M-8DI-N:8-channel digital input moduleNPN Type

3.2.1 Technical parameters

Electrical parameters	
Input Channelsnumber	8
Input signal type	NPN
Input rated voltage	0V DC
logic“0Signal voltage	>11VDC
logic“1Signal voltage	<5V DC
Typical input current	3mA
System side current	15mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.2.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED Input No	Status and meaning	LED Input No	Status and meaning
LED Input1	On: Channel 1 input signal is valid	LED Input2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED Input3	On: Channel 3 input signal is valid	LED Input4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED Input5	On: Channel 5 input signal is valid	LED Input6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED Input7	On: Channel 7 input signal is valid	LED Input8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is		Off: Channel 8 input signal is

	invalid		invalid

3.2.3 Process data description

- Process data structure definition:

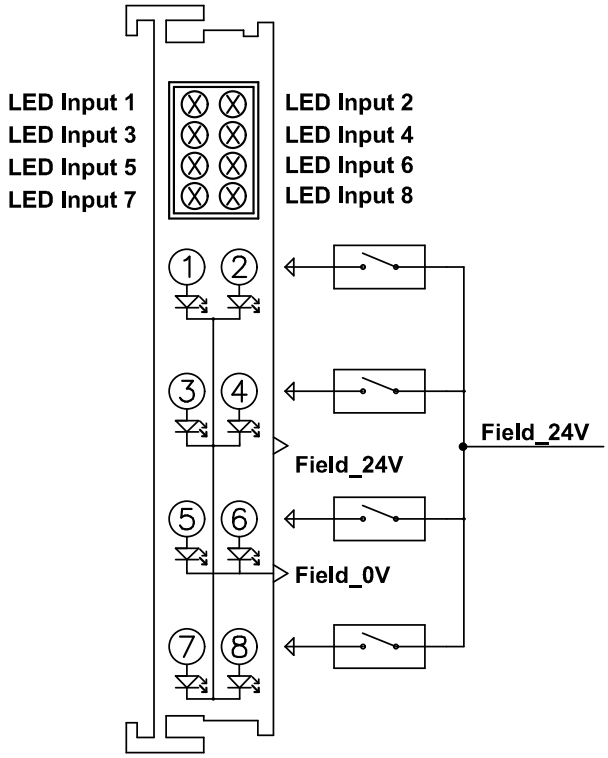
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DI-N	1	RX	/	/

3.3 DF20-M-8DI-P:8-channel digital input modulePNP Type

3.3.1 Technical parameters

Electrical parameters	
Input Channelsnumber	8
Input signal type	PNP
Input rated voltage	twenty fourV DC
logic“0Signal voltage	<5VDC
logic“1Signal voltage	>11VDC
Typical input current	3mA
System side current	15mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.3.2 Status indicator light and wiring diagram



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LED Input No	Status and meaning	LED Input No	Status and meaning
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	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED Input3	On: Channel 3 input signal is valid	LED Input4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED Input5	On: Channel 5 input signal is valid	LED Input6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid

LED Input7	On: Channel 7 input signal is valid	LED Input8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid

3.3.3 Process data description

- Process data structure definition:

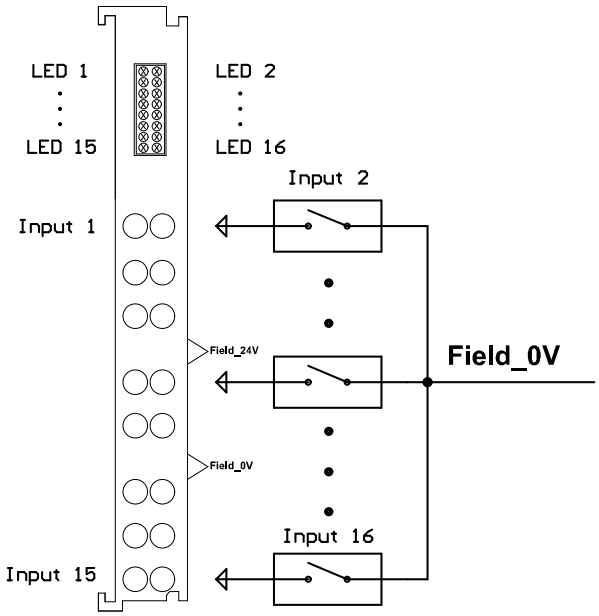
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DI-P	1	RX	/	/

3.4 DF20-M-16DI-N: 16Channel digital input moduleNPN Type

3.4.1 Technical parameters

Electrical parameters	
Input Channelsnumber	16
Input signal type	NPN
Input rated voltage	0V DC
logic“0”Signal voltage	>11VDC
logic“1”Signal voltage	<5V DC
Typical input current	3mA
System side current	30mA
Input filtering	Default 3ms, 0.2-40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.4.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid
LED9	On: Channel 9 input signal is valid	LED10	On: Channel 10 input signal is valid

	Off: Channel 9 input signal is invalid		Off: Channel 10 input signal is invalid
LED11	On: Channel 11 input signal is valid	LED12	On: Channel 12 input signal is valid
	Off: Channel 11 input signal is invalid		Off: Channel 12 input signal is invalid
LED13	On: Channel 13 input signal is valid	LED14	On: Channel 14 input signal is valid
	Off: Channel 13 input signal is invalid		Off: Channel 14 input signal is invalid
LED15	On: Channel 15 input signal is valid	LED16	On: Channel 16 input signal is valid
	Off: Channel 15 input signal is invalid		Off: Channel 16 input signal is invalid

3.4.3 Process data description

- Process data structure definition:

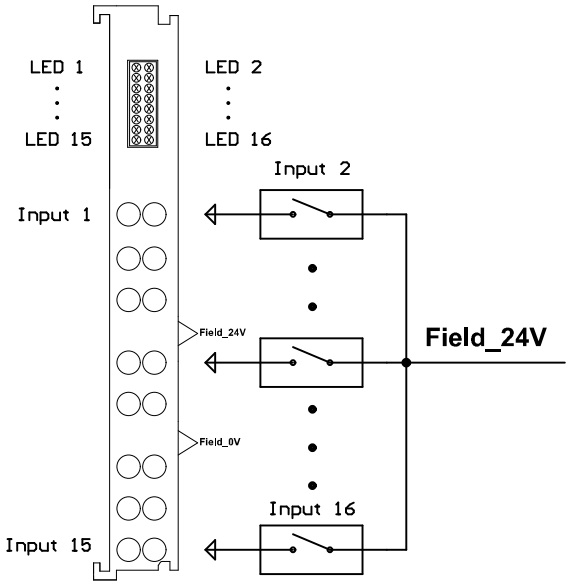
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-16DI-N	2	RX	/	/

3.5 DF20-M-16DI-P: 16Channel digital input modulePNP Type

3.5.1 Technical parameters

Electrical parameters	
Input Channelsnumber	16
Input signal type	PNP
Input rated voltage	twenty fourV DC
logic“0”Signal voltage	<5VDC
logic“1”Signal voltage	>11VDC
Typical input current	3mA
System side current	30mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.5.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid
LED9	On: Channel 9 input signal is	LED10	On: Channel 10 input signal

	valid		is valid
	Off: Channel 9 input signal is invalid		Off: Channel 10 input signal is invalid
LED11	On: Channel 11 input signal is valid	LED12	On: Channel 12 input signal is valid
	Off: Channel 11 input signal is invalid		Off: Channel 12 input signal is invalid
LED13	On: Channel 13 input signal is valid	LED14	On: Channel 14 input signal is valid
	Off: Channel 13 input signal is invalid		Off: Channel 14 input signal is invalid
LED15	On: Channel 15 input signal is valid	LED16	On: Channel 16 input signal is valid
	Off: Channel 15 input signal is invalid		Off: Channel 16 input signal is invalid

3.5.3 Process data description

- Process data structure definition:

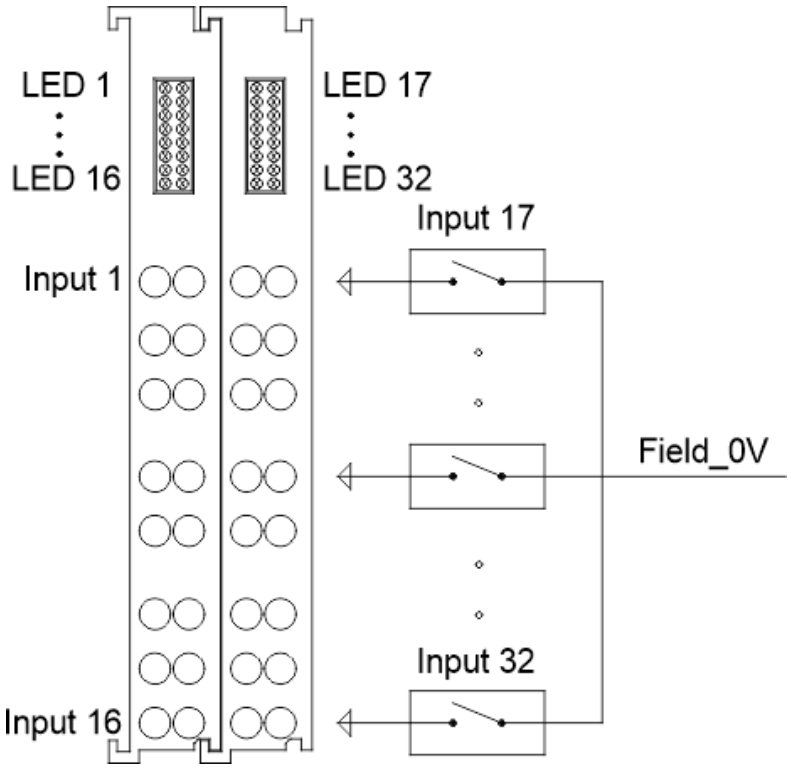
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-16DI-P	2	RX	/	/

3.6 DF20-M-32DI-N: 32Channel digital input moduleNPN Type

3.6.1 Technical parameters

Electrical parameters	
Number of input channels	32
Input signal type	NPN
Input rated voltage	0V DC
logic“0Signal voltage	>11VDC
logic“1Signal voltage	<5V DC
Typical input current	3mA
System side current	65mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85 °C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.6.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid

LED9	On: Channel 9 input signal is valid	LED10	On: Channel 10 input signal is valid
	Off: Channel 9 input signal is invalid		Off: Channel 10 input signal is invalid
LED11	On: Channel 11 input signal is valid	LED12	On: Channel 12 input signal is valid
	Off: Channel 11 input signal is invalid		Off: Channel 12 input signal is invalid
LED13	On: Channel 13 input signal is valid	LED14	On: Channel 14 input signal is valid
	Off: Channel 13 input signal is invalid		Off: Channel 14 input signal is invalid
LED15	On: Channel 15 input signal is valid	LED16	On: Channel 16 input signal is valid
	Off: Channel 15 input signal is invalid		Off: Channel 16 input signal is invalid
LED17	On: Channel 17 input signal is valid	LED18	On: Channel 18 input signal is valid
	Off: Channel 17 input signal is invalid		Off: Channel 18 input signal is invalid
LED19	On: Channel 19 input signal is valid	LED20	On: Channel 20 input signal is valid
	Off: Channel 19 input signal is invalid		Off: Channel 20 input signal is invalid
LED21	On: Channel 21 input signal is valid	LED22	On: Channel 22 input signal is valid
	Off: Channel 21 input signal is invalid		Off: Channel 22 input signal is invalid
LED23	On: Channel 23 input signal is valid	LED24	On: Channel 24 input signal is valid
	Off: Channel 23 input signal is invalid		Off: Channel 24 input signal is invalid

LED25	On: Channel 25 input signal is valid	LED26	On: Channel 26 input signal is valid
	Off: Channel 25 input signal is invalid		Off: Channel 26 input signal is invalid
LED27	On: Channel 27 input signal is valid	LED28	On: Channel 28 input signal is valid
	Off: Channel 27 input signal is invalid		Off: Channel 28 input signal is invalid
LED29	On: Channel 29 input signal is valid	LED30	On: Channel 30 input signal is valid
	Off: Channel 29 input signal is invalid		Off: Channel 30 input signal is invalid
LED31	On: Channel 31 input signal is valid	LED32	On: Channel 32 input signal is valid
	Off: Channel 31 input signal is invalid		Off: Channel 32 input signal is invalid

3.6.3 Process data description

- Process data structure definition:

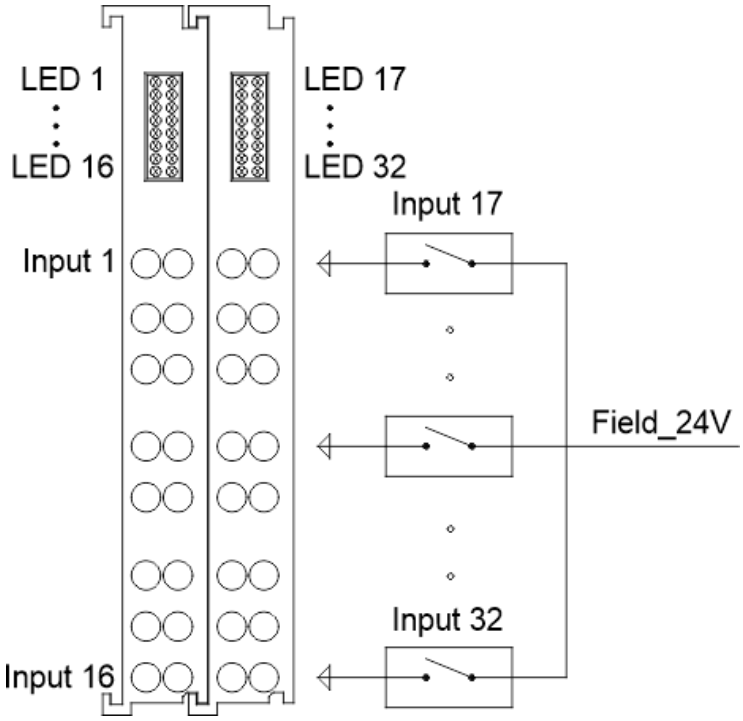
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-32DI-N	4	RX	/	/

3.7 DF20-M-32DI-P: 32Channel digital input modulePNP Type

3.7.1 Technical parameters

Electrical parameters	
Input Channelsnumber	32
Input signal type	PNP
Input rated voltage	twenty fourV DC
logic“0Signal voltage	<5VDC
logic“1Signal voltage	>11VDC
Typical input current	3mA
System side current	65mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.7.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid

LED9	On: Channel 9 input signal is valid	LED10	On: Channel 10 input signal is valid
	Off: Channel 9 input signal is invalid		Off: Channel 10 input signal is invalid
LED11	On: Channel 11 input signal is valid	LED12	On: Channel 12 input signal is valid
	Off: Channel 11 input signal is invalid		Off: Channel 12 input signal is invalid
LED13	On: Channel 13 input signal is valid	LED14	On: Channel 14 input signal is valid
	Off: Channel 13 input signal is invalid		Off: Channel 14 input signal is invalid
LED15	On: Channel 15 input signal is valid	LED16	On: Channel 16 input signal is valid
	Off: Channel 15 input signal is invalid		Off: Channel 16 input signal is invalid
LED17	On: Channel 17 input signal is valid	LED18	On: Channel 18 input signal is valid
	Off: Channel 17 input signal is invalid		Off: Channel 18 input signal is invalid
LED19	On: Channel 19 input signal is valid	LED20	On: Channel 20 input signal is valid
	Off: Channel 19 input signal is invalid		Off: Channel 20 input signal is invalid
LED21	On: Channel 21 input signal is valid	LED22	On: Channel 22 input signal is valid
	Off: Channel 21 input signal is invalid		Off: Channel 22 input signal is invalid
LED23	On: Channel 23 input signal is valid	LED24	On: Channel 24 input signal is valid
	Off: Channel 23 input signal is invalid		Off: Channel 24 input signal is invalid

LED25	On: Channel 25 input signal is valid	LED26	On: Channel 26 input signal is valid
	Off: Channel 25 input signal is invalid		Off: Channel 26 input signal is invalid
LED27	On: Channel 27 input signal is valid	LED28	On: Channel 28 input signal is valid
	Off: Channel 27 input signal is invalid		Off: Channel 28 input signal is invalid
LED29	On: Channel 29 input signal is valid	LED30	On: Channel 30 input signal is valid
	Off: Channel 29 input signal is invalid		Off: Channel 30 input signal is invalid
LED31	On: Channel 31 input signal is valid	LED32	On: Channel 32 input signal is valid
	Off: Channel 31 input signal is invalid		Off: Channel 32 input signal is invalid

3.7.3 Process data description

- Process data structure definition:

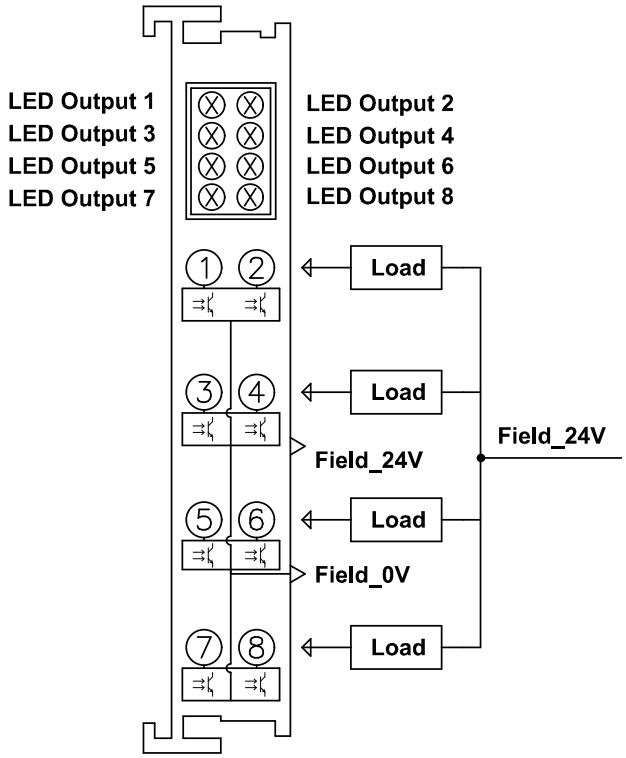
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-32DI-P	4	RX	/	/

3.8 DF20-M-8DO-N:8-channel digital inputoutModulesNPN Type

3.8.1 Technical parameters

Electrical parameters	
loseoutaislenumber	8
loseoutSignal Type	NPN
logic“0"SignalVoltage	High impedance
logic“1"SignalVoltage	0V DC
Maximum output current	0.5A/channel, 3A/module
System side current	50mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.8.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED 1	On: Channel 1 output is valid	LED 2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED 3	On: Channel 3 output is valid	LED 4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED 5	On: Channel 5 output is valid	LED 6	On: Channel 6 output is valid
	Off: Channel 3 output is invalid		Off: Channel 6 output is invalid
LED 7	On: Channel 7 output is valid	LED 8	On: Channel 8 output is valid
	Off: Channel 7 output is		Off: Channel 8 output is

	invalid		invalid

3.8.3 Process data description

- Process data structure definition:

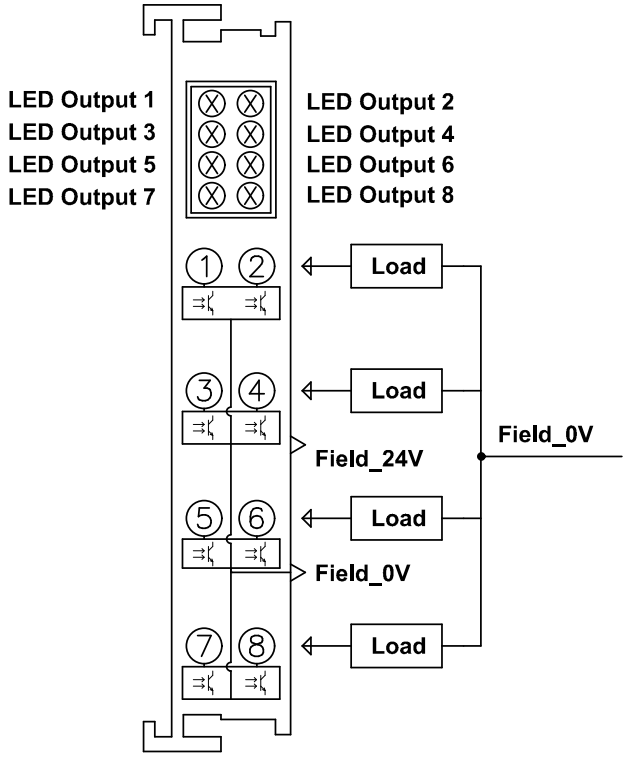
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DO-N	/	/	1	RY

3.9 DF20-M-8DO-P:8-channel digital inputoutModulesPNP Type

3.9.1 Technical parameters

Electrical parameters	
loseoutaislenumber	8
loseoutSignal Type	PNP
logic“0"SignalVoltage	High impedance
logic“1"SignalVoltage	twenty fourV DC
Maximum output current	0.5A/channel, 3A/module
System side current	50mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.9.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	LED No	Status and meaning
LED 1	On: Channel 1 output is valid	LED 2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED 3	On: Channel 3 output is valid	LED 4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED 5	On: Channel 5 output is valid	LED 6	On: Channel 6 output is valid
	Off: Channel 3 output is invalid		Off: Channel 6 output is invalid
LED 7	On: Channel 7 output is valid	LED 8	On: Channel 8 output is valid
	Off: Channel 7 output is invalid		Off: Channel 8 output is invalid

3.9.3 Process data description

➢ Process data structure definition:

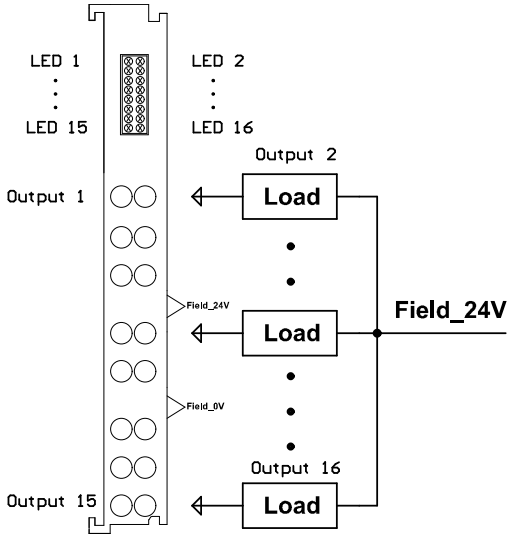
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DO-P	/	/	1	RY

3.10 DF20-M-16DO-N: 16Channel digital inputoutModulesNPN Type

3.10.1 Technical parameters

Electrical parameters	
loseoutaislenumber	16
loseoutSignal Type	NPN
logic“0”Signal voltage	High impedance
logic“1”Signal voltage	0V DC
Maximum output current	0.5A/channel, 6A/module
System side current	75mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.10.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 output is valid	LED2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED3	On: Channel 3 output is valid	LED4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED5	On: Channel 5 output is valid	LED6	On: Channel 6 output is valid
	Off: Channel 5 output is invalid		Off: Channel 6 output is invalid
LED7	On: Channel 7 output is valid	LED8	On: Channel 8 output is valid
	Off: Channel 7 output is invalid		Off: Channel 8 output is invalid
LED9	On: Channel 9 output is valid	LED10	On: Channel 10 output is valid
	Off: Channel 9 output is invalid		Off: Channel 10 output is invalid
LED11	On: Channel 11 output is valid	LED12	On: Channel 12 output is valid

	Off: Channel 11 output is invalid		Off: Channel 12 output is invalid
LED13	On: Channel 13 output is valid	LED14	On: Channel 14 output is valid
	Off: Channel 13 output is invalid		Off: Channel 14 output is invalid
LED15	On: Channel 15 output is valid	LED16	On: Channel 16 output is valid
	Off: Channel 15 output is invalid		Off: Channel 16 output is invalid

3.10.3 Process data description

- Process data structure definition:

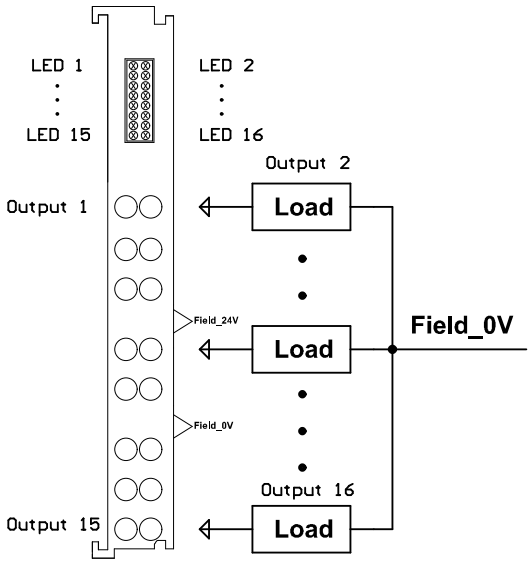
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-16DO-N	/	/	2	RY

3.11 DF20-M-16DO-P: 16Channel digital inputoutModulesPNP Type

3.11.1 Technical parameters

Electrical parameters	
loseoutaislenumber	16
loseoutSignal Type	PNP
logic“0”Signal voltage	High impedance
logic“1”Signal voltage	twenty fourV DC
Maximum output current	0.5A/channel, 6A/module
System side current	75mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85 °C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.11.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 output is valid	LED2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED3	On: Channel 3 output is valid	LED4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED5	On: Channel 5 output is valid	LED6	On: Channel 6 output is valid
	Off: Channel 5 output is invalid		Off: Channel 6 output is invalid
LED7	On: Channel 7 output is valid	LED8	On: Channel 8 output is valid
	Off: Channel 7 output is invalid		Off: Channel 8 output is invalid
LED9	On: Channel 9 output is valid	LED10	On: Channel 10 output is valid
	Off: Channel 9 output is invalid		Off: Channel 10 output is invalid
LED11	On: Channel 11 output is valid	LED12	On: Channel 12 output is valid

	Off: Channel 11 output is invalid		Off: Channel 12 output is invalid
LED13	On: Channel 13 output is valid	LED14	On: Channel 14 output is valid
	Off: Channel 13 output is invalid		Off: Channel 14 output is invalid
LED15	On: Channel 15 output is valid	LED16	On: Channel 16 output is valid
	Off: Channel 15 output is invalid		Off: Channel 16 output is invalid

3.11.3 Process data description

- Process data structure definition:

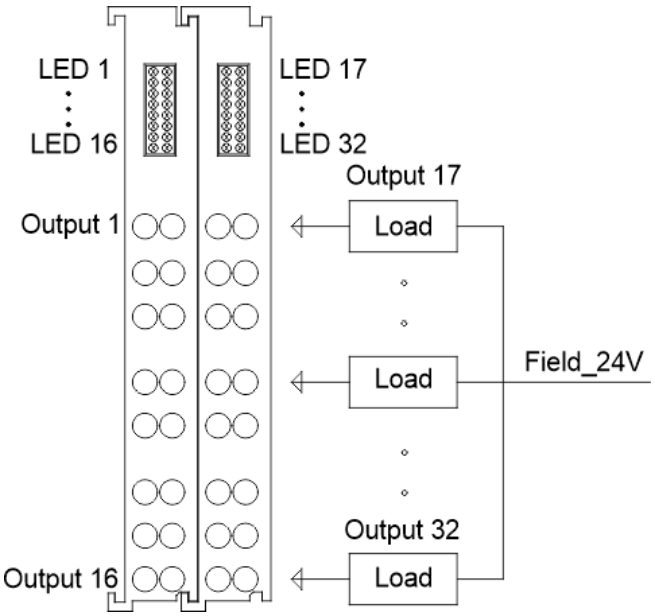
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-16DO-P	/	/	2	RY

3.12 DF20-M-32DO-N: 32Channel digital inputout Modules NPN Type

3.12.1 Technical parameters

Electrical parameters	
loseoutaislenumber	32
loseoutSignal Type	NPN
logic“0”Signal voltage	High impedance
logic“1”Signal voltage	0V DC
Maximum output current	0.5A/channel, 12A/module
System side current	130mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.12.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 output is valid	LED2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED3	On: Channel 3 output is valid	LED4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED5	On: Channel 5 output is valid	LED6	On: Channel 6 output is valid
	Off: Channel 5 output is invalid		Off: Channel 6 output is invalid
LED7	On: Channel 7 output is valid	LED8	On: Channel 8 output is valid
	Off: Channel 7 output is invalid		Off: Channel 8 output is invalid
LED9	On: Channel 9 output is valid	LED10	On: Channel 10 output is valid
	Off: Channel 9 output is invalid		Off: Channel 10 output is invalid
LED11	On: Channel 11 output is valid	LED12	On: Channel 12 output is valid

	Off: Channel 11 output is invalid		Off: Channel 12 output is invalid
LED13	On: Channel 13 output is valid	LED14	On: Channel 14 output is valid
	Off: Channel 13 output is invalid		Off: Channel 14 output is invalid
LED15	On: Channel 15 output is valid	LED16	On: Channel 16 output is valid
	Off: Channel 15 output is invalid		Off: Channel 16 output is invalid
LED17	On: Channel 17 output is valid	LED18	On: Channel 18 output is valid
	Off: Channel 17 output is invalid		Off: Channel 18 output is invalid
LED19	On: Channel 19 output is valid	LED20	On: Channel 20 output is valid
	Off: Channel 19 output is invalid		Off: Channel 20 output is invalid
LED21	On: Channel 21 output is valid	LED22	On: Channel 22 output is valid
	Off: Channel 21 output is invalid		Off: Channel 22 output is invalid
LED23	On: Channel 23 output is valid	LED24	On: Channel 24 output is valid
	Off: Channel 23 output is invalid		Off: Channel 24 output is invalid
LED25	On: Channel 25 output is valid	LED26	On: Channel 26 output is valid
	Off: Channel 25 output is invalid		Off: Channel 26 output is invalid
LED27	On: Channel 27 output is valid	LED28	On: Channel 28 output is valid

	Off: Channel 27 output is invalid		Off: Channel 28 output is invalid
LED29	On: Channel 29 output is valid	LED30	On: Channel 30 output is valid
	Off: Channel 29 output is invalid		Off: Channel 30 output is invalid
LED31	On: Channel 31 output is valid	LED32	On: Channel 32 output is valid
	Off: Channel 31 output is invalid		Off: Channel 32 output is invalid

3.12.3 Process data description

- Process data structure definition:

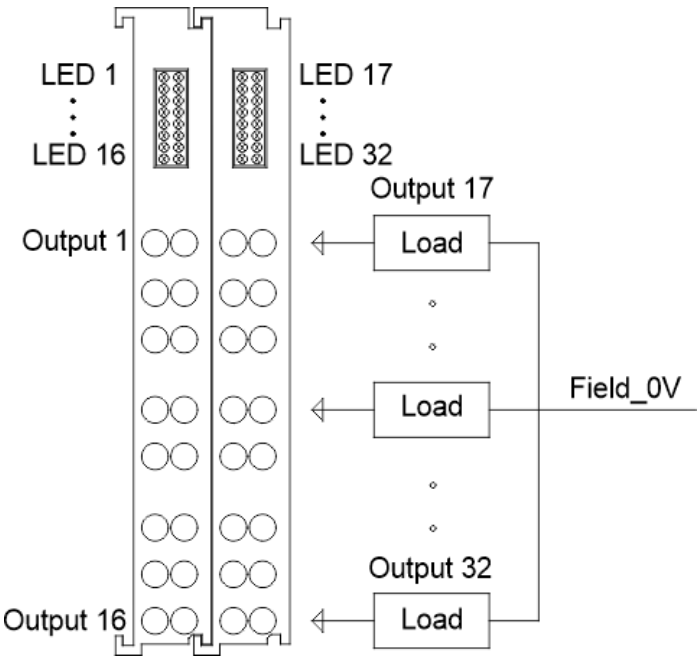
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-32DO-N	/	/	4	RY

3.13 DF20-M-32DO-P: 32Channel digital inputout Modules PNP Type

3.13.1 Technical parameters

Electrical parameters	
loseoutaislenumber	32
loseoutSignal Type	PNP
logic“0”Signal voltage	High impedance
logic“1”Signal voltage	twenty fourV DC
Maximum output current	0.5A/channel, 12A/module
System side current	130mA
Maximum short circuit	2A
Load Type	Sensibilityload, Resistiveload,lampload
Reverse voltage protection	support
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.13.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 output is valid	LED2	On: Channel 2 output is valid
	Off: Channel 1 output is invalid		Off: Channel 2 output is invalid
LED3	On: Channel 3 output is valid	LED4	On: Channel 4 output is valid
	Off: Channel 3 output is invalid		Off: Channel 4 output is invalid
LED5	On: Channel 5 output is valid	LED6	On: Channel 6 output is valid
	Off: Channel 5 output is invalid		Off: Channel 6 output is invalid
LED7	On: Channel 7 output is valid	LED8	On: Channel 8 output is valid
	Off: Channel 7 output is invalid		Off: Channel 8 output is invalid
LED9	On: Channel 9 output is valid	LED10	On: Channel 10 output is valid
	Off: Channel 9 output is invalid		Off: Channel 10 output is invalid
LED11	On: Channel 11 output is valid	LED12	On: Channel 12 output is valid

	Off: Channel 11 output is invalid		Off: Channel 12 output is invalid
LED13	On: Channel 13 output is valid	LED14	On: Channel 14 output is valid
	Off: Channel 13 output is invalid		Off: Channel 14 output is invalid
LED15	On: Channel 15 output is valid	LED16	On: Channel 16 output is valid
	Off: Channel 15 output is invalid		Off: Channel 16 output is invalid
LED17	On: Channel 17 output is valid	LED18	On: Channel 18 output is valid
	Off: Channel 17 output is invalid		Off: Channel 18 output is invalid
LED19	On: Channel 19 output is valid	LED20	On: Channel 20 output is valid
	Off: Channel 19 output is invalid		Off: Channel 20 output is invalid
LED21	On: Channel 21 output is valid	LED22	On: Channel 22 output is valid
	Off: Channel 21 output is invalid		Off: Channel 22 output is invalid
LED23	On: Channel 23 output is valid	LED24	On: Channel 24 output is valid
	Off: Channel 23 output is invalid		Off: Channel 24 output is invalid
LED25	On: Channel 25 output is valid	LED26	On: Channel 26 output is valid
	Off: Channel 25 output is invalid		Off: Channel 26 output is invalid
LED27	On: Channel 27 output is valid	LED28	On: Channel 28 output is valid

	Off: Channel 27 output is invalid		Off: Channel 28 output is invalid
LED29	On: Channel 29 output is valid	LED30	On: Channel 30 output is valid
	Off: Channel 29 output is invalid		Off: Channel 30 output is invalid
LED31	On: Channel 31 output is valid	LED32	On: Channel 32 output is valid
	Off: Channel 31 output is invalid		Off: Channel 32 output is invalid

3.13.3 Process data description

- Process data structure definition:

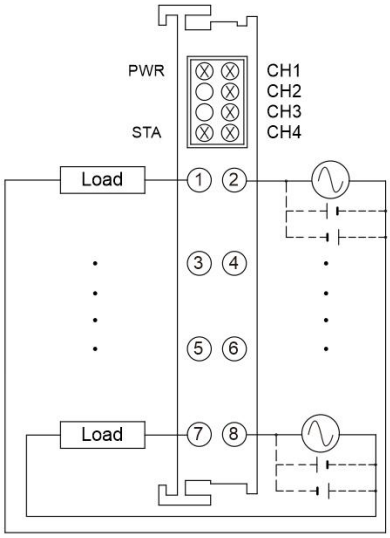
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-32DO-P	/	/	4	RY

3.14 DF20-M-4DO-R: 4-channel relay output module

3.14.1 Technical parameters

Electrical parameters	
Number of channels	4
Contact Type	NO contact
Maximum output current	5A/channel, 20A/module
System side current	20mA
Maximum switching voltage	250VAC/30VDC
Output Impedance	<200mΩ
Action time	≤15ms
Release time	≤15ms
Reverse circuit protection	support
Communication error diagnosis	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Complies with EN 61000-4
Protection level	IP20
Operating temperature	-25~75℃
storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Stripping length	8...9mm

3.14.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
PWR	Power light: When the power supply is normal, it will be green.
CH1	Channel 1 relay indicator light, off when disconnected, always on when closed
CH2	The 2nd channel relay indicator light is off when the circuit is open and always on when the circuit is closed.
CH3	The 3rd channel relay indicator light is off when the circuit is open and always on when the circuit is closed.
CH4	Channel 4 relay indicator light, off when open, always on when closed
STA	Status LED: Power-on stage: Green light is always on when powered on; Turns off after the internal bus initialization is completed.
	Operation phase: When the module is operating normally, it flashes green; When the module operates abnormally, the green light goes out.

3.14.3 Process data description

➢ Process data structure definition:

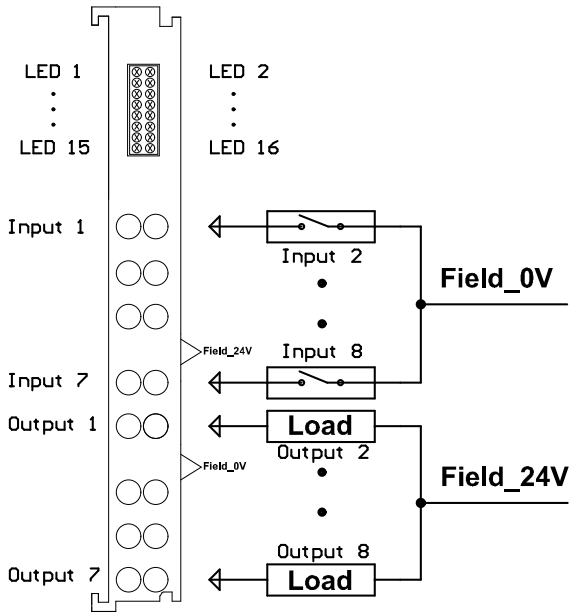
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4DO-R	/	/	1	RY

3.15 DF20-M-8DIO-N: 8Channel digital input8-channel digital outputModulesNPN

3.15.1 Technical parameters

Electrical parameters	
Input Channelsnumber	8
loseoutaislenumber	8
Input signal type	NPN
loseoutSignal Type	NPN
enterlogic“0”Signal voltage	>11VDC
logic“1”Signal voltage	<5V DC
Outputlogic“0”Signal voltage	High impedance
Outputlogic“1”Signal voltage	0V
System side current	50mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.15.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is		Off: Channel 8 input signal is

	invalid		invalid
LED9	On: Channel 9 output signal is valid	LED10	On: Channel 10 output signal is valid
	Off: Channel 9 output signal is invalid		Off: Channel 10 output signal is invalid
LED11	On: Channel 11 output signal is valid	LED12	On: Channel 12 output signal is valid
	Off: Channel 11 output signal is invalid		Off: Channel 12 output signal is invalid
LED13	On: Channel 13 output signal is valid	LED14	On: Channel 14 output signal is valid
	Off: Channel 13 output signal is invalid		Off: Channel 14 output signal is invalid
LED15	On: Channel 15 output signal is valid	LED16	On: Channel 16 output signal is valid
	Off: Channel 15 output signal is invalid		Off: Channel 16 output signal is invalid

3.15.3 Process data description

- Process data structure definition:

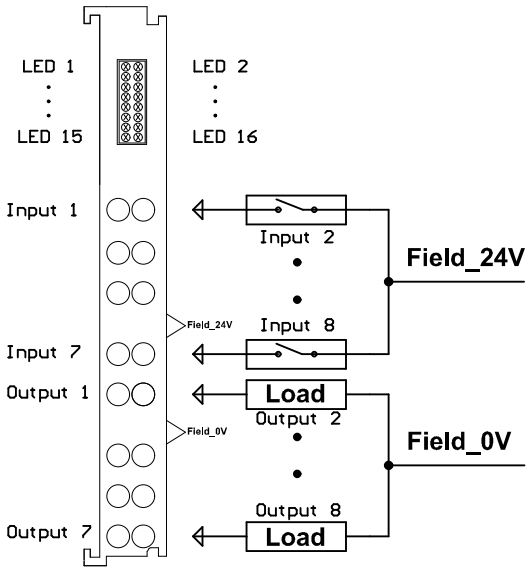
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DIO-N	1	RX	1	RY

3.16 DF20-M-8DIO-P: 8Channel digital input8-channel digital outputModulesPNP

3.16.1 Technical parameters

Electrical parameters	
Input Channelsnumber	8
loseoutaislenumber	8
Input signal type	PNP
loseoutSignal Type	PNP
enterlogic“0”Signal voltage	<5VDC
enterlogic“1”Signal voltage	>11VDC
Outputlogic“0”Signal voltage	High impedance
Outputlogic“1”Signal voltage	24V
System side current	50mA
Input filtering	Default 3ms, 0.2~40ms configurable
enterimpedance	>7.5kΩ
Module failure alarm	support
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	1.5mm²
Maximum crimping area of	AWG16
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28

3.16.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

led No	Status and meaning	led No	Status and meaning
LED1	On: Channel 1 input signal is valid	LED2	On: Channel 2 input signal is valid
	Off: Channel 1 input signal is invalid		Off: Channel 2 input signal is invalid
LED3	On: Channel 3 input signal is valid	LED4	On: Channel 4 input signal is valid
	Off: Channel 3 input signal is invalid		Off: Channel 4 input signal is invalid
LED5	On: Channel 5 input signal is valid	LED6	On: Channel 6 input signal is valid
	Off: Channel 5 input signal is invalid		Off: Channel 6 input signal is invalid
LED7	On: Channel 7 input signal is valid	LED8	On: Channel 8 input signal is valid
	Off: Channel 7 input signal is invalid		Off: Channel 8 input signal is invalid
LED9	On: Channel 9 output signal is valid	LED10	On: Channel 10 output signal is valid
	Off: Channel 9 output signal is		Off: Channel 10 output signal

	invalid		is invalid
LED11	On: Channel 11 output signal is valid	LED12	On: Channel 12 output signal is valid
	Off: Channel 11 output signal is invalid		Off: Channel 12 output signal is invalid
LED13	On: Channel 13 output signal is valid	LED14	On: Channel 14 output signal is valid
	Off: Channel 13 output signal is invalid		Off: Channel 14 output signal is invalid
LED15	On: Channel 15 output signal is valid	LED16	On: Channel 16 output signal is valid
	Off: Channel 15 output signal is invalid		Off: Channel 16 output signal is invalid

3.16.3 Process data description

- Process data structure definition:

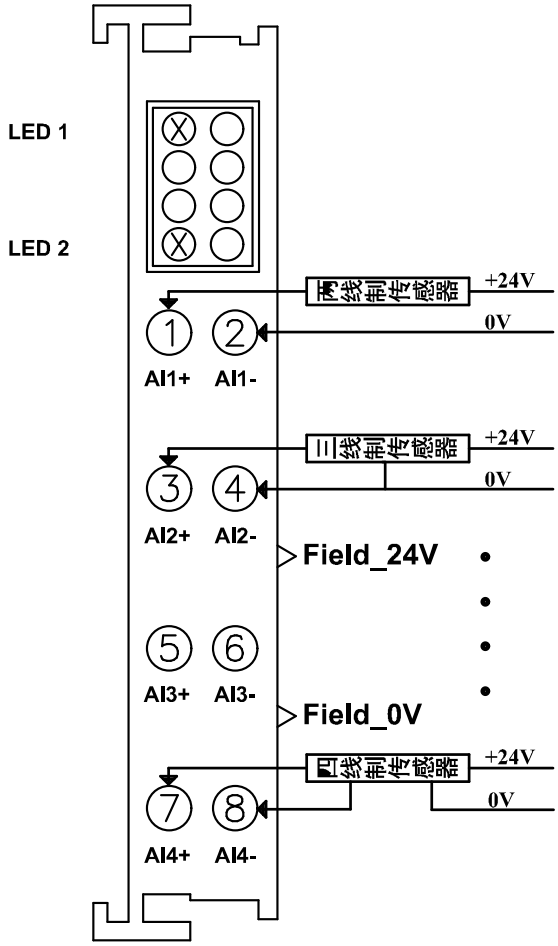
Module Model	Uplink process data length (Byte)		Downlink process data length (Byte)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8DIO-P	1	RX	1	RY

3.17 DF20-M-4AI-U-0:4aisleVoltage inputModules

3.17.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	±10V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	>500KΩ
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.17.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Operation process	Flashing: The module is working in normal sampling state

3.17.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AI-U-0	4	R	/	/

➢ **Data description:**

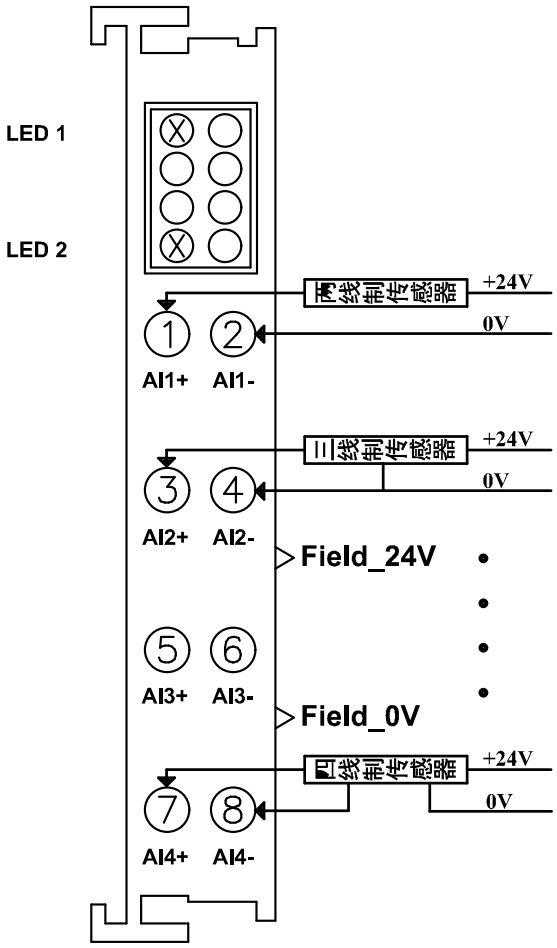
Signal	Voltage value	Decimal data	Hexadecimal data	scopeillustr	Conversion
±10V	>10V	27648	0x6C00	Overflow	
	10V	27648	0x6C00	Normal range	D =27648x U / 10 U = D x 10 /27648
	0V	0	0		
	-10V	-27648	0x9400		
	<-10V	-27648	0x9400	Underflow	

3.18 DF20-M-4AI-U-1:4aisleVoltage inputModules

3.18.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	0~10V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	>500KΩ
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.18.2Status indicator and wiring diagram



- The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	On: Module initialization error
	Off: Module initialization is normal
	Flashing: The module is working in normal sampling state

3.18.3Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AI-U-1	4	R	/	/

- **Data description:**

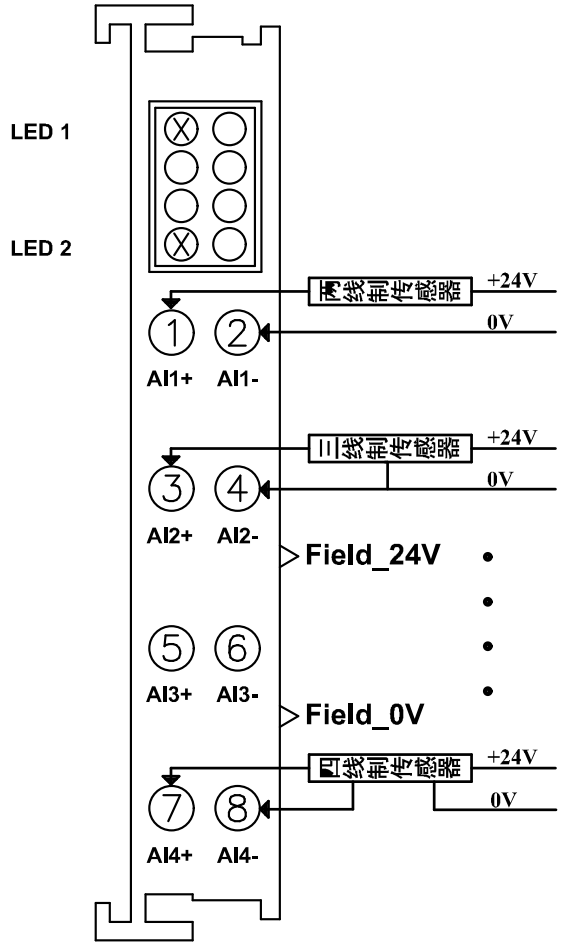
Signal range	Voltage value	Decimal data	Hexadecimal	scopeillustr	Conversion relationship
0~10V	>10V	27648	0x6C00	Overflow	
	10V	27648	0x6C00	Normal range	D =27648x U / 10 U = D x 10 /27648
	5V	13824	0x3600		
	0V	0	0		
	<0V	0	0	Underflow	

3.19DF20-M-4AI-I-2:4aisleCurrent inputModules

3.19.1Technical Parameters

Electrical parameters	
aislenumber	4
Signalscope	0~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	100Ω
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.19.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Operation process	Flashing: The module is working in normal sampling state

3.19.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AI-I-2	4	R	/	/

➢ **Data description:**

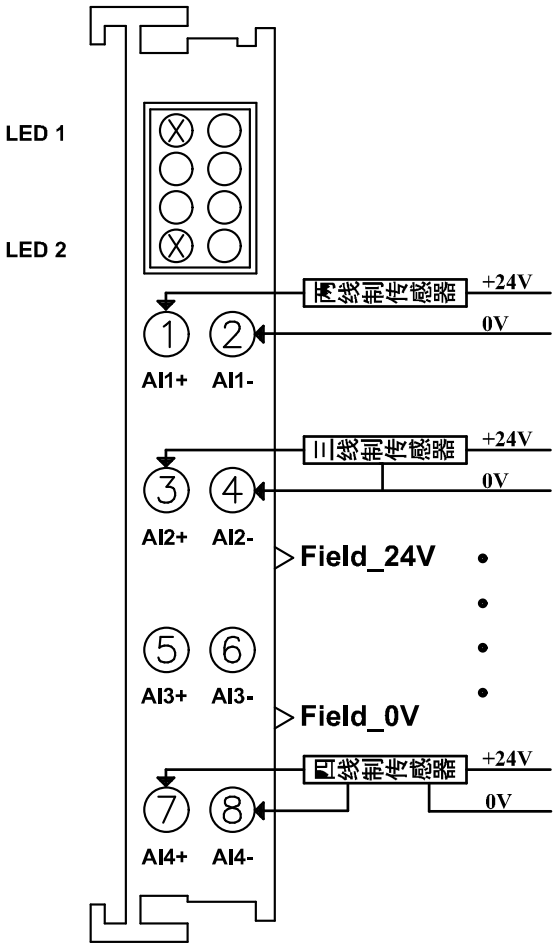
Signal range	Current value (I)	Decimal data	Hexadecimal data	scope	Conversion relationship
0~20 mA	>20mA	27648	0x6C00	Overflow	
	20mA	27648	0x6C00	Normal range	D =27648x I / 20 I = D x 20 /27648
	10mA	13824	0x3600		
	0	0	0		
	<0	0	0	Underflow	

3.20DF20-M-4AI-I-3:4aisleCurrent inputModules

3.20.1Technical Parameters

Electrical parameters	
aislenumber	4
Signalscope	4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	100Ω
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.20.2Status indicator and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Operation process	Flashing: The module is working in normal sampling state

3.20.3Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AI-I-3	4	R	/	/

- **Data description:**

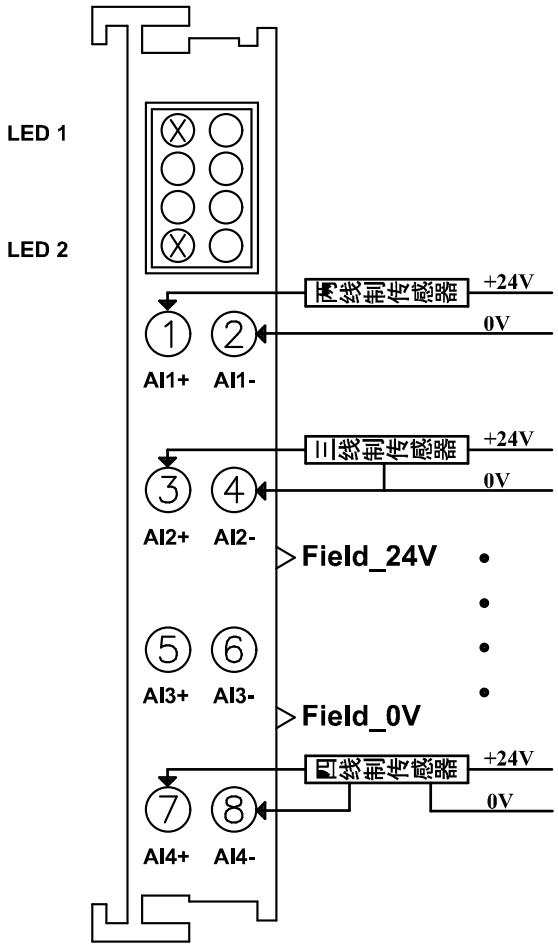
Signal range	Current value (I)	Decimal data	Hexadecimal data	scope	Conversion relationship
4 ~20 mA	>20mA	27648	0x6C00	Overflow	
	20mA	27648	0x6C00	Normal range	D =27648x (I – 4) / 16 I = D x 16 /27648+ 4
	12mA	13824	0x3600		
	4mA	0	0		
	<4mA	0	0	Underflow	

3.21DF20-M-4AI-U-4:4aisleVoltage inputModules

3.21.1Technical Parameters

Electrical parameters	
aislenumber	4
Signalscope	±10V/0~10V/2~10V/±5V/0~5V/1~5V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	>500KΩ
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.21.2Status indicator and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Operation process	Flashing: The module is working in normal sampling state

3.21.3Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AI-U-4	4	R	/	/

➢ Process Data Definition

Signal range	Voltage value	Decimal data	Hexadecimal	scopeillustr	Conversion relationship
±10V	>11.76V	32767	0x7FFF	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	11.76V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
	-5V	-13824	0xCA00		
	-10V	-27648	0x9400		
	-11.76V	-32511	0x8100	Lower limit	
	<-11.76V	-32768	0x8000	Underflow	
0~10V	>11.76V	32767	0x7FFF	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	11.76V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
2~10V	>11.41V	32767	0x7FFF	Overflow	D = 27648 x (U – 2) / 8 U = D x 8 / 27648 + 2
	11.41V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	6V	13824	0x3600		
	2V	0	0x0000		
	0.59 V	-4864	0xED00	Lower limit	
	<0.59 V	-32768	0x8000	Underflow	
±5V	>5.88V	32767	0x7FFF	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	5.88V	32511	0x7EFF	Upper limit	
	5V	27648	0x6C00	Normal range	
	2.5V	13824	0x3600		
	0V	0	0x0000		
	-2.5V	-13824	0xCA00		
	-5V	-27648	0x9400		
	-5.88V	-32511	0x8100	Lower limit	
	<-5.88V	-32768	0x8000	Underflow	
0~5V	>5.88V	32767	0x7FFF	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	5.88V	32511	0x7EFF	Upper limit	
	5V	27648	0x6C00	Normal range	
	2.5V	13824	0x3600		
	0V	0	0x0000		
1~5V	>5.7V	32767	0x7FFF	Overflow	D = 27648 x (U – 1) / 4

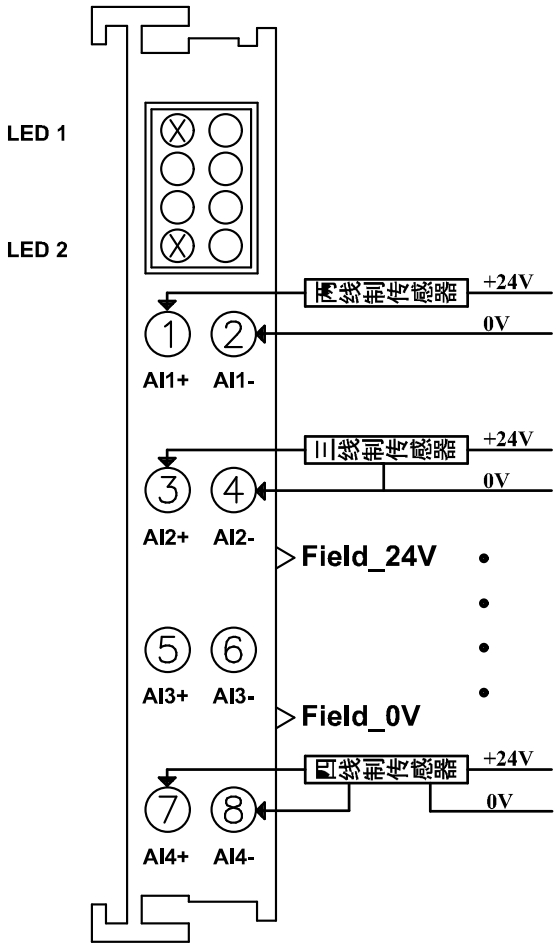
5.7V	32511	0x7EFF	Upper limit
5V	27648	0x6C00	Normal range
3V	13824	0x3600	
1V	0	0x0000	
0.3V	-4864	0xED00	Lower limit
<0.3V	-32768	0x8000	Underflow

3.22DF20-M-4AI-I-5:4aisleCurrent inputModules

3.22.1Technical Parameters

Electrical parameters	
aislenumber	4
Signalscope	0~20mA/4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	100Ω
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable, default 20Hz
System side current	120mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.22.2Status indicator and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Operation process	Flashing: The module is working in normal sampling state

3.22.3Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name

DF20-M-4AI-I-5	4	R	/	/

➢ Process Data Definition

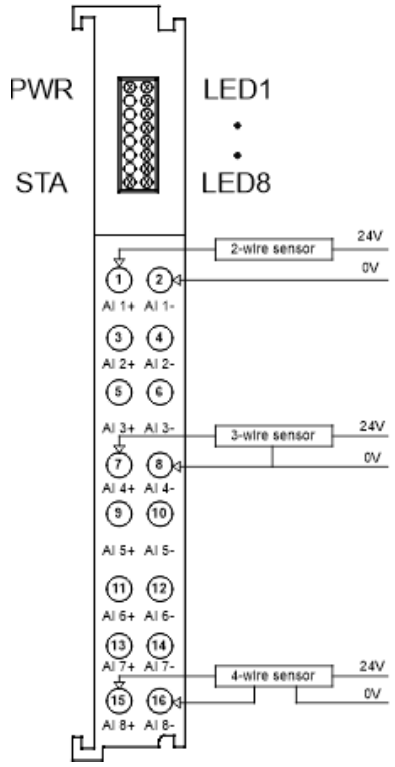
Signal range	Current value (I)	Decimal data	Hexadecimal data	scope	Conversion relationship
0 ~ 20 mA	>23.52 mA	32767	0x7FFF	Overflow	D = 27648 x I / 20 I = D x 20 / 27648
	23.52 mA	32511	0x7EFF	Upper limit	
	20 mA	27648	0x6C00	Normal range	
	10 mA	13824	0x3600		
	0 mA	0	0		
4 ~ 20 mA	>22.81 mA	32767	0x7FFF	Overflow	D = 27648 x (I – 4) / 16 I = D x 16 / 27648 + 4
	22.81 mA	32511	0x7EFF	Upper limit	
	20 mA	27648	0x6C00	Normal range	
	12 mA	13824	0x3600		
	4 mA	0	0		
	1.19 mA	-4864	0xED00	Lower limit	
	<1.19 mA	-32768	0x8000	Underflow	

3.23DF20-M-8AI-U-4:8aisleVoltage inputModules

3.23.1Technical Parameters

Electrical parameters	
aislenumber	8
Signalscope	±10V/0~10V/2~10V/±5V/0~5V/1~5V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	>500KΩ
Resolution/Accuracy	16bit/0.2%
Sampling frequency	50Hz~1000HzConfigurable, default 100Hz
System side current	20mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.23.2Status indicator and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
PWR	On: The module is powered normally	
	Off: Module power supply is abnormal	
STA	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal sampling state
LED1	Off: No signal input to the module	
	Flashing: The module has signal input	
LED2	Off: No signal input to the module	
	Flashing: The module has signal input	
LED3	Off: No signal input to the module	
	Flashing: The module has signal input	
LED4	Off: No signal input to the module	
	Flashing: The module has signal input	
LED5	Off: No signal input to the module	
	Flashing: The module has signal input	
LED6	Off: No signal input to the module	
	Flashing: The module has signal input	
LED7	Off: No signal input to the module	

	Flashing: The module has signal input
LED8	Off: No signal input to the module
	Flashing: The module has signal input

3.23.3Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8AI-U-4	8	RWR	/	/

➢ Process Data Definition

Signal range	Voltage value	Decimal data	Hexadecimal	scopeillustr	Conversion relationship
±10V	>11.76V	32767	0x7FFF	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	11.76V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
	-5V	-13824	0xCA00		
	-10V	-27648	0x9400		
	-11.76V	-32511	0x8100	Lower limit	
	<-11.76V	-32768	0x8000	Underflow	
0~10V	>11.76V	32767	0x7FFF	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	11.76V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	5V	13824	0x3600		
	0V	0	0x0000		
2~10V	>11.41V	32767	0x7FFF	Overflow	D = 27648 x (U – 2) / 8 U = D x 8 / 27648 + 2
	11.41V	32511	0x7EFF	Upper limit	
	10V	27648	0x6C00	Normal range	
	6V	13824	0x3600		
	2V	0	0x0000		
	0.59 V	-4864	0xED00	Lower limit	
	<0.59 V	-32768	0x8000	Underflow	
±5V	>5.88V	32767	0x7FFF	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	5.88V	32511	0x7EFF	Upper limit	
	5V	27648	0x6C00	Normal range	
	2.5V	13824	0x3600		
	0V	0	0x0000		
	-2.5V	-13824	0xCA00		
	-5V	-27648	0x9400		
	-5.88V	-32511	0x8100	Lower limit	
	<-5.88V	-32768	0x8000	Underflow	
0~5V	>5.88V	32767	0x7FFF	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	5.88V	32511	0x7EFF	Upper limit	

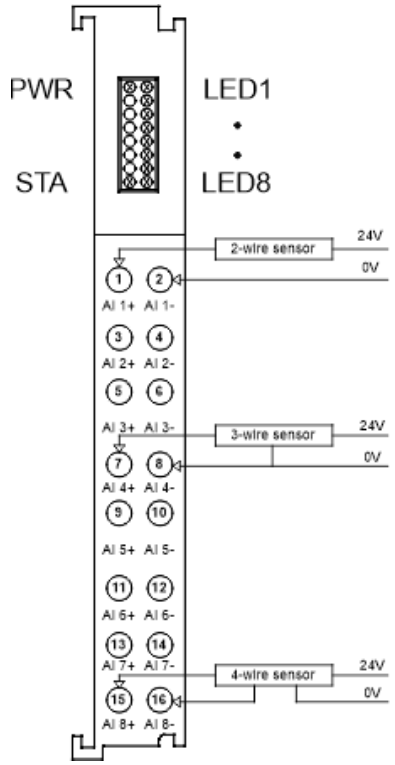
	5V	27648	0x6C00	Normal range	
	2.5V	13824	0x3600		
	0V	0	0x0000		
	>5.7V	32767	0x7FFF	Overflow	
	5.7V	32511	0x7EFF	Upper limit	
1~5V	5V	27648	0x6C00	Normal range	D = 27648 x (U – 1) / 4 U = D x 4 / 27648 + 1
	3V	13824	0x3600		
	1V	0	0x0000		
	0.3V	-4864	0xED00	Lower limit	
	<0.3V	-32768	0x8000	Underflow	

3.24 DF20-M-8AI-I-5:8aisleCurrent inputModules

3.24.1 Technical parameters

Electrical parameters	
aislenumber	8
Signalscope	0~20mA/4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Input Impedance	100Ω
Resolution/Accuracy	16bit/0.2%
Sampling frequency	50Hz~1000HzConfigurable, default 100Hz
System side current	20mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.24.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
PWR	On: The module is powered normally	
	Off: Module power supply is abnormal	
STA	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal sampling state
LED1	Off: No signal input to the module	
	Flashing: The module has signal input	
LED2	Off: No signal input to the module	
	Flashing: The module has signal input	
LED3	Off: No signal input to the module	
	Flashing: The module has signal input	
LED4	Off: No signal input to the module	

	Flashing: The module has signal input
LED5	Off: No signal input to the module
	Flashing: The module has signal input
LED6	Off: No signal input to the module
	Flashing: The module has signal input
LED7	Off: No signal input to the module
	Flashing: The module has signal input
LED8	Off: No signal input to the module
	Flashing: The module has signal input

3.24.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8AI-I-5	8	R	/	/

Process Data Definition

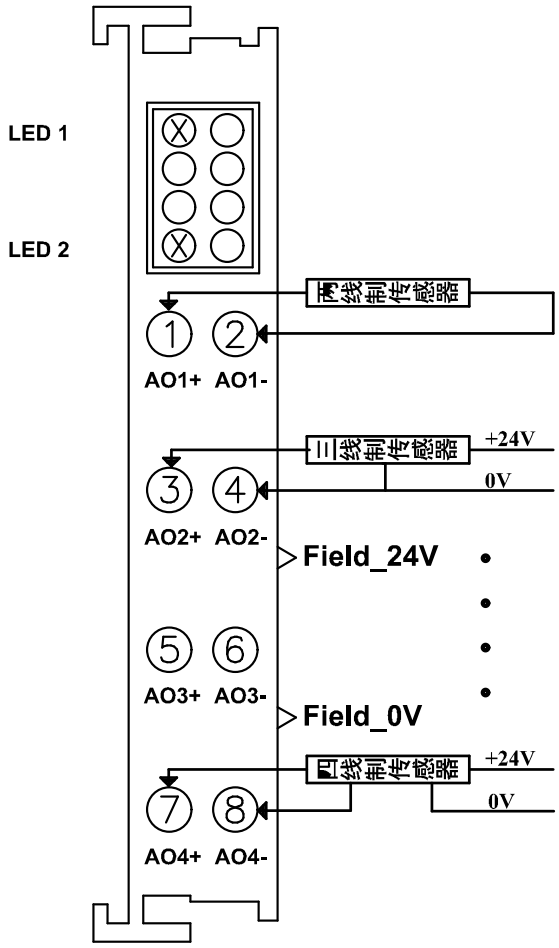
Signal range	Current value (I)	Decimal data	Hexadecimal data	scope	Conversion relationship
0 ~ 20 mA	>23.52 mA	32767	0x7FFF	Overflow	D = 27648 x I / 20 I = D x 20 / 27648
	23.52 mA	32511	0x7EFF	Upper limit	
	20 mA	27648	0x6C00	Normal range	
	10 mA	13824	0x3600		
	0 mA	0	0		
4 ~ 20 mA	>22.81 mA	32767	0x7FFF	Overflow	D = 27648 x (I – 4) / 16 I = D x 16 / 27648 + 4
	22.81 mA	32511	0x7EFF	Upper limit	
	20 mA	27648	0x6C00	Normal range	
	12 mA	13824	0x3600		
	4 mA	0	0		
	1.19 mA	-4864	0xED00	Lower limit	
	<1.19 mA	-32768	0x8000	Underflow	

3.25 DF20-M-4AO-U-0:4aisleVoltage outputModules

3.25.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	±10V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	>1KΩ
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	500mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.25.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.25.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-U-0	/	/	4	R

- Process data definition description:

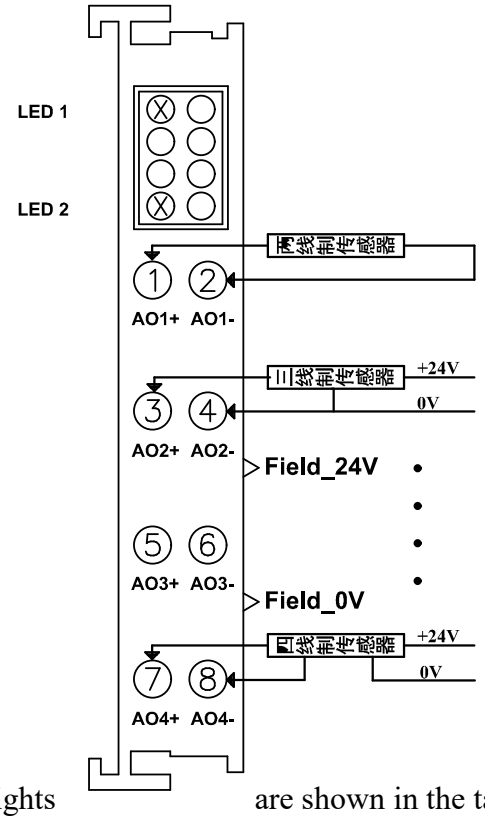
Signal range	Decimal data	Hexadecimal	Voltage	scopeillustr	Conversion relationship
±10V	27648	0x6C00	10V	Overflow	
	27648	0x6C00	10V	Normal range	D =27648x U / 10 U = D x 10 /27648
	0	0	0V		
	-27648	0x9400	-10V		
	<-27648	0x9400	-10V	Underflow	

3.26 DF20-M-4AO-U-1:4aisleVoltage outputModules

3.26.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	0~10V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	>1KΩ
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	500mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.26.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.26.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-U-1	/	/	4	R

➢ Process data definition description:

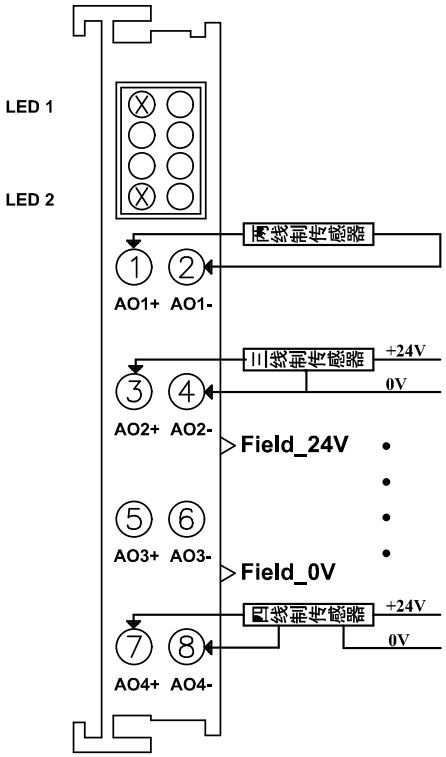
Signal range	Decimal data	Hexadecimal	Voltage value	scopeillustr	Conversion relationship
0~10V	>27648	>0x6C00	10V	Overflow	D =27648x U / 10 U = D x 10 /27648
	27648	0x6C00	10V	Normal range	
	13824	0x3600	5V		
	0	0	0V		
	<0	<0	0V	Underflow	

3.27 DF20-M-4AO-I-2:4aisleCurrent outputModules

3.27.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	0~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	<500Ω
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	600mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.27.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.27.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-I-2	/	/	4	R

- Process Data Definition

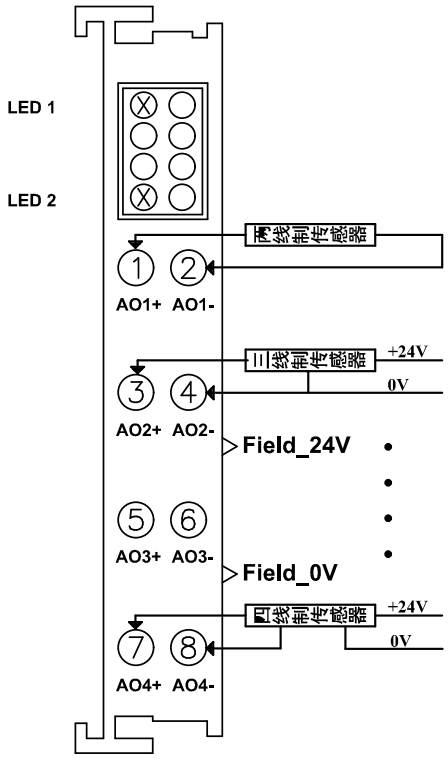
Signal range	Decimal data	Hexadecimal data	Current value (I)	scope	Conversion relationship
0 ~ 20 mA	>27648	>0x6C00	20mA	Overflow	
	27648	0x6C00	20mA	Normal range	D =27648x I / 20 I = D x 20 /27648
	13824	0x3600	10mA		
	0	0	0		
	<0	<0	0	Underflow	

3.28 DF20-M-4AO-I-3:4aisleCurrent outputModules

3.28.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	<500Ω
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	600mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.28.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.28.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-I-3	/	/	4	R

➢ Process Data Definition

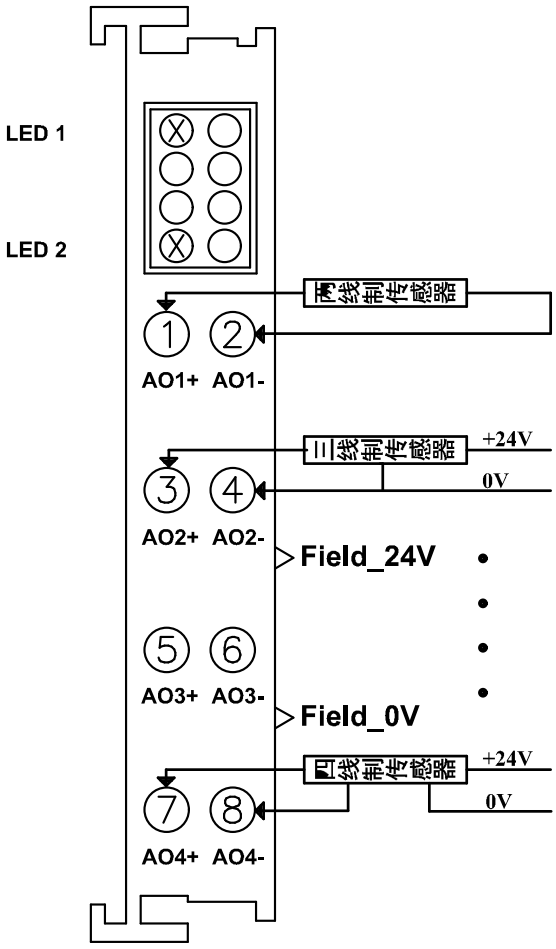
Signal range	Decimal data	Hexadecimal data	Current value (I)	scope	Conversion relationship
4 ~ 20 mA	>27648	>0x6C00	20mA	Overflow	
	27648	0x6C00	20mA	Normal range	D =27648x (I – 4) / 16 I = D x 16 /27648+ 4
	13824	0x3600	12mA		
	0	0	4mA		
	<0	<0	4mA	Underflow	

3.29 DF20-M-4AO-U-4:4aisleVoltage outputModules

3.29.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	±10V/0~10V/2~10V/±5V/0~5V/1~5V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	>1KΩ
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	500mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.29.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.29.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）	Downlink process data length (Word）

	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-U-4	/	/	4	R

➢ Process Data Definition

Signal range	Decimal data	Hexadecimal	Voltage value	scopeillustr	Conversion relationship
±10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	32511	0x7EFF	11.76V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	5V		
	0	0x0000	0V		
	-13824	0xCA00	-5V		
	-27648	0x9400	-10V		
	-32511	0x8100	-11.76V	Lower limit	
	<-32511	<0x8100	0V	Underflow	
0~10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	32511	0x7EFF	11.76V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	5V		
	0	0x0000	0V		
2~10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x (U – 2) / 8 U = D x 8 / 27648 + 2
	32511	0x7EFF	11.41V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	6V		
	0	0x0000	2V		
	-4864	0xED00	0.59 V	Lower limit	
	<-4864	<0xED00	0V	Underflow	
±5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	32511	0x7EFF	5.88V	Upper limit	
	27648	0x6C00	5V	Normal range	
	13824	0x3600	2.5V		
	0	0x0000	0V		
	-13824	0xCA00	-2.5V		
	-27648	0x9400	-5V		
	-32511	0x8100	-5.88V	Lower limit	
	<-32511	<0x8100	0V	Underflow	
0~5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	32511	0x7EFF	5.88V	Upper limit	
	27648	0x6C00	5V	Normal range	
	13824	0x3600	2.5V		
	0	0x0000	0V		
1~5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x (U – 1) / 4

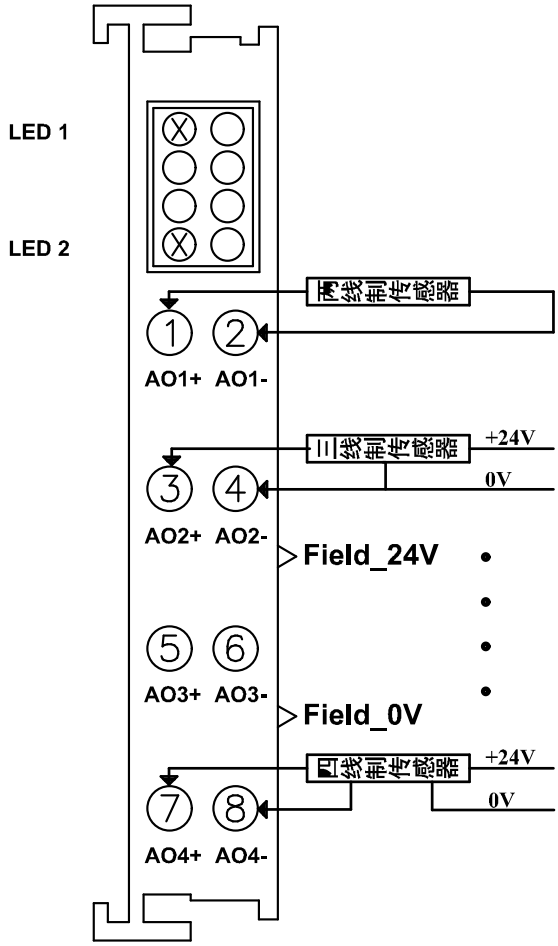
32511	0x7EFF	5.7V	Upper limit
27648	0x6C00	5V	Normal range
13824	0x3600	3V	
0	0x0000	1V	
-4864	0xED00	0.3V	Lower limit
<-4864	<0xED00	0V	Underflow

3.30 DF20-M-4AO-I-5:4aisleCurrent outputModules

3.30.1 Technical parameters

Electrical parameters	
aislenumber	4
Signalscope	0~20mA/4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	<500Ω
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	600mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.30.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal output state

3.30.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4AO-I-5	/	/	4	R

➢ Process Data Definition

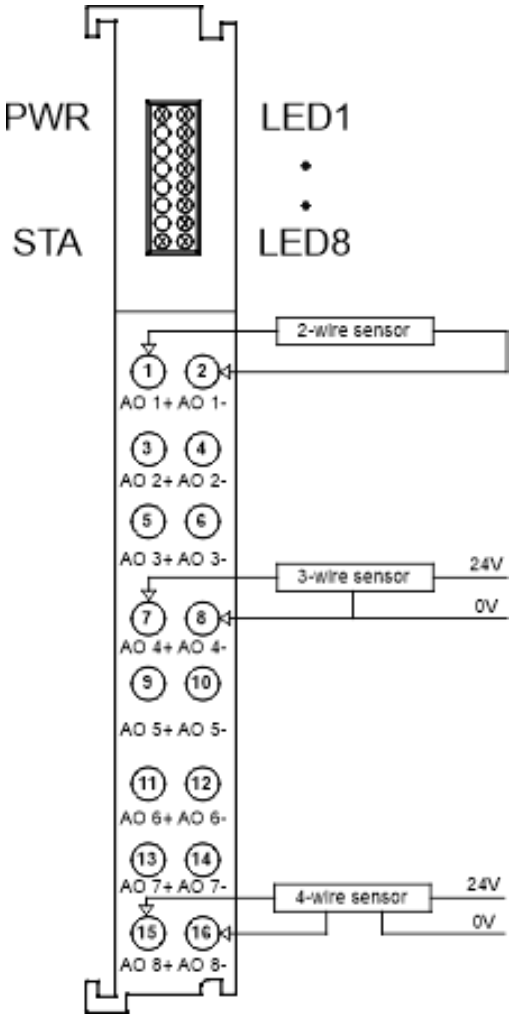
Signal range	Decimal data	Hexadecimal data	Current value (I)	scope	Conversion relationship
0 ~ 20 mA	>32511	>0x7EFF	0mA	Overflow	D = 27648 x I / 20 I = D x 20 / 27648
	32511	0x7EFF	23.52 mA	Upper limit	
	27648	0x6C00	20 mA	Normal range	
	13824	0x3600	10 mA		
	0	0	0 mA		
4 ~20 mA	>32511	>0x7EFF	0mA	Overflow	D = 27648 x (I – 4) / 16 I = D x 16 / 27648 + 4
	32511	0x7EFF	22.81 mA	Upper limit	
	27648	0x6C00	20 mA	Normal range	
	13824	0x3600	12 mA		
	0	0	4 mA		
	-4864	0xED00	1.19 mA	Lower limit	
	<-4864	<0xED00	0mA	Underflow	

3.31 DF20-M-8AO-U-4:8aisleVoltage outputModules

3.31.1 Technical parameters

Electrical parameters	
aislenumber	8
Signalscope	±10V/0~10V/2~10V/±5V/0~5V/1~5V
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	>1KΩ
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	35mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.31.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
PWR	On: The module is powered normally	
	Off: Module power supply is abnormal	
STA	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Output stage	Flashing: The module is working in normal output state
LED1	Off: The module has no signal output	
	Flashing: The module has signal output	
LED2	Off: The module has no signal output	
	Flashing: The module has signal output	
LED3	Off: The module has no signal output	
	Flashing: The module has signal output	

LED4	Off: The module has no signal output
	Flashing: The module has signal output
LED5	Off: The module has no signal output
	Flashing: The module has signal output
LED6	Off: The module has no signal output
	Flashing: The module has signal output
LED7	Off: The module has no signal output
	Flashing: The module has signal output
LED8	Off: The module has no signal output
	Flashing: The module has signal output

3.31.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8AO-U-4	/	/	8	R

➢ Process Data Definition

Signal range	Decimal data	Hexadecimal	Voltage value	scopeillustr	Conversion relationship
±10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	32511	0x7EFF	11.76V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	5V		
	0	0x0000	0V		
	-13824	0xCA00	-5V		
	-27648	0x9400	-10V		
	-32511	0x8100	-11.76V	Lower limit	
	<-32511	<0x8100	0V	Underflow	
0~10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 10 U = D x 10 / 27648
	32511	0x7EFF	11.76V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	5V		
	0	0x0000	0V		
2~10V	>32511	>0x7EFF	0V	Overflow	D = 27648 x (U – 2) / 8 U = D x 8 / 27648 + 2
	32511	0x7EFF	11.41V	Upper limit	
	27648	0x6C00	10V	Normal range	
	13824	0x3600	6V		

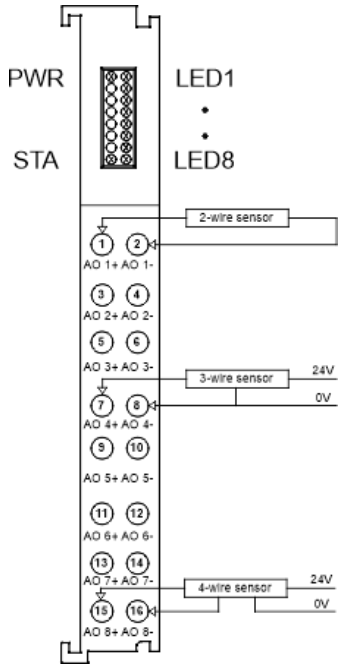
	0	0x0000	2V		
	-4864	0xED00	0.59 V	Lower limit	
	<-4864	<0xED00	0V	Underflow	
±5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	32511	0x7EFF	5.88V	Upper limit	
	27648	0x6C00	5V	Normal range	
	13824	0x3600	2.5V		
	0	0x0000	0V		
	-13824	0xCA00	-2.5V		
	-27648	0x9400	-5V		
	-32511	0x8100	-5.88V	Lower limit	
	<-32511	<0x8100	0V	Underflow	
0~5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x U / 5 U = D x 5 / 27648
	32511	0x7EFF	5.88V	Upper limit	
	27648	0x6C00	5V	Normal range	
	13824	0x3600	2.5V		
	0	0x0000	0V		
1~5V	>32511	>0x7EFF	0V	Overflow	D = 27648 x (U – 1) / 4 U = D x 4 / 27648 + 1
	32511	0x7EFF	5.7V	Upper limit	
	27648	0x6C00	5V	Normal range	
	13824	0x3600	3V		
	0	0x0000	1V		
	-4864	0xED00	0.3V	Lower limit	
	<-4864	<0xED00	0V	Underflow	

3.32 DF20-M-8AO-I-5:8aisleCurrent outputModules

3.32.1 Technical parameters

Electrical parameters	
aislenumber	8
Signalscope	0~20mA/4~20mA
Signal Type	Differential/Single-ended
Connection Type	2-wire
Load Capacity	<500Ω
Resolution/Accuracy	16bit/0.1%
Load Type	Resistive load/capacitive load
System side current	35mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.32.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning	
PWR	On: The module is powered normally	
	Off: Module power supply is abnormal	
STA	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Output stage	Flashing: The module is working in normal output state
LED1	Off: The module has no signal output	
	Flashing: The module has signal output	
LED2	Off: The module has no signal output	
	Flashing: The module has signal output	
LED3	Off: The module has no signal output	
	Flashing: The module has signal output	
LED4	Off: The module has no signal output	
	Flashing: The module has signal output	
LED5	Off: The module has no signal output	
	Flashing: The module has signal output	
LED6	Off: The module has no signal output	
	Flashing: The module has signal output	

LED7	Off: The module has no signal output
	Flashing: The module has signal output
LED8	Off: The module has no signal output
	Flashing: The module has signal output

3.32.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8AO-I-5	/	/	8	R

➢ Process Data Definition

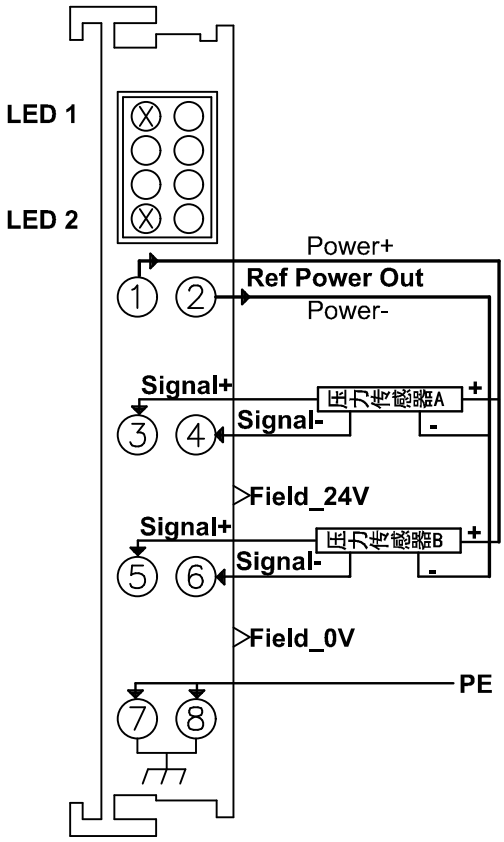
Signal range	Decimal data	Hexadecimal data	Current value (I)	scope	Conversion relationship
0 ~ 20 mA	>32511	>0x7EFF	0mA	Overflow	D = 27648 x I / 20 I = D x 20 / 27648
	32511	0x7EFF	23.52 mA	Upper limit	
	27648	0x6C00	20 mA	Normal range	
	13824	0x3600	10 mA		
	0	0	0 mA		
4 ~ 20 mA	>32511	>0x7EFF	0mA	Overflow	D = 27648 x (I – 4) / 16 I = D x 16 / 27648 + 4
	32511	0x7EFF	22.81 mA	Upper limit	
	27648	0x6C00	20 mA	Normal range	
	13824	0x3600	12 mA		
	0	0	4 mA		
	-4864	0xED00	1.19 mA	Lower limit	
	<-4864	<0xED00	0mA	Underflow	

3.33 DF20-M-2LC-S-5: 2aislePressure sensor inputModules

3.33.1 Technical parameters

Electrical parameters	
aislenumber	2
Signalscope	0~10mv
Signal Type	Differential/Single-ended
Connection Type	3-wire/4-wire
Excitation power output	5V DC
Resolution/Accuracy	16bit/0.2%
Sampling frequency	20Hz~300HzConfigurable
System side current	210mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.33.2 Status indicator light and wiring diagram



- The status indicator lights are shown in the table below:

LED No	Status and meaning	
LED1	On: The module is powered normally	
	Off: Module power supply is abnormal	
LED2	Initialization phase	On: Module initialization error
		Off: Module initialization is normal
	Sampling stage	Flashing: The module is working in normal input state

3.33.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2LC-S-5	2	R	/	/

- Process Data Definition

Signal range	Decimal data	Hexadecimal data	Voltage value（U）	Conversion relationship

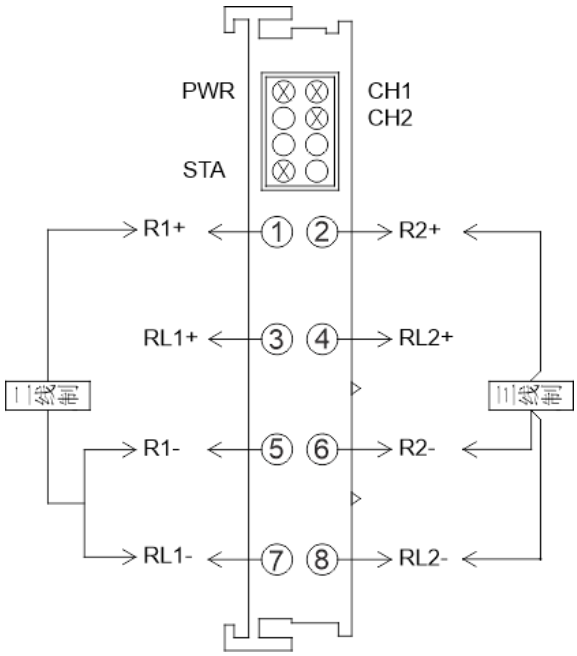
0~10mV	32767	0x7FFF	10 mV	D = 32767x U / 10 U = D x 10 / 32767
	16383	0x3FFF	5mV	
	0	0x0000	0 mV	

3.34 DF20-M-2RTD-PT: 2aisleThermal resistor sensor inputModules

3.34.1 Technical parameters

Electrical parameters	
Number of channels	2
Connection Type	2-wire/3-wire
Temperature resolution	Temperature value: 0.1℃/digit
Resistance value conversion formula (measurement resistance value)	Ractual = D/27648*R amount in:R is the current resistance value; R is the rated range value of the resistance.
Sampling frequency	Configurable
Sensor Type	PT100, PT200, PT500, PT1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu53, Cu100, KTY84-130, KTY84-150, KTY84-151, 40 Ohm, 80 Ohm, 150 Ohm, 300 Ohm, 500 Ohm, 1000 Ohm, 2000 Ohm, 4000 Ohm,KTY83-110,KTY83-120,KTY83-1twenty one,KTY83-1twenty two,KTY83-150.KTY83-151.
Disconnection detection	support
System side current	70mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40℃~+85℃
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.34.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.
CH1~CH2	Green off: disconnection
	Green flash: normal collection
	Green: Over limit

3.34.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2RTD-PT	2	R	/	/

➢ Definition of various sensor process data

PT100			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT200			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT500			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow

850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT1000			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni100			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni120			
temperature	Decimal	hexadecimal	Scope
>309	32767	0x7FFF	Overflow
309	3090	0x0C12	Normal range
-79	-790	0xFCEA	
<-79	-32767	0x8001	Underflow

Sensor not connected	-32768	0x8000	Disconnection detection

NI200			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni500			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni1000			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu10 type

temperature	Decimal	hexadecimal	Scope
>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	
<-59	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu50			
temperature	Decimal	hexadecimal	Scope
>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	
<-59	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu53			
temperature	Decimal	hexadecimal	Scope
>150	32767	0x7FFF	Overflow
150	1500	0x05DC	Normal range
-50	-500	0xFE0C	
<-50	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu100			
temperature	Decimal	hexadecimal	Scope
>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	

<-59	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_130			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_150			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_151			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

0-40ohm type			
Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>47.03ohm	32767	0x7FFF	Upper limit
47.03ohm	32511	0x7EFF	Overflow
40ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-80ohm type			
Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>94.07ohm	32767	0x7FFF	Upper limit
94.07ohm	32511	0x7EFF	Overflow
80ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-150ohm type			
Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>176.38ohm	32767	0x7FFF	Upper limit
176.38ohm	32511	0x7EFF	Overflow
150ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-300ohm type

Ohm value	Decimal	hexadecimal	Scope
>638.5ohm	-32768	0x8000	Beyond the limit
>352.77ohm	32767	0x7FFF	Upper limit
352.77ohm	32511	0x7EFF	Overflow
300ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection
0-500ohm type			
Ohm value	Decimal	hexadecimal	Scope
>638.5ohm	-32768	0x8000	Beyond the limit
>587.94ohm	32767	0x7FFF	Upper limit
587.94ohm	32511	0x7EFF	Overflow
500ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-1000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>1277ohm	-32768	0x8000	Beyond the limit
>1175.89ohm	32767	0x7FFF	Upper limit
1175.89ohm	32511	0x7EFF	Overflow
1000ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-2000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>2554ohm	-32768	0x8000	Beyond the limit

>2351.78ohm	32767	0x7FFF	Upper limit
2351.78ohm	32511	0x7EFF	Overflow
2000ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-4000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>5108ohm	-32768	0x8000	Beyond the limit
>4703.56ohm	32767	0x7FFF	Upper limit
4703.56ohm	32511	0x7EFF	Overflow
4000ohm	27648	0x6C00	Normal range
0ohm	0	0	
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-110			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-12Type 0			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-1twenty onetype			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	

<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-1twenty twotype			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-150type			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-151type			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

NTC-5Ktype			
temperature	Decimal	hexadecimal	Scope
>90	32767	0x7FFF	Overflow
90	900	0x0384	Normal range
-30	-300	0xFED4	
<-30	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

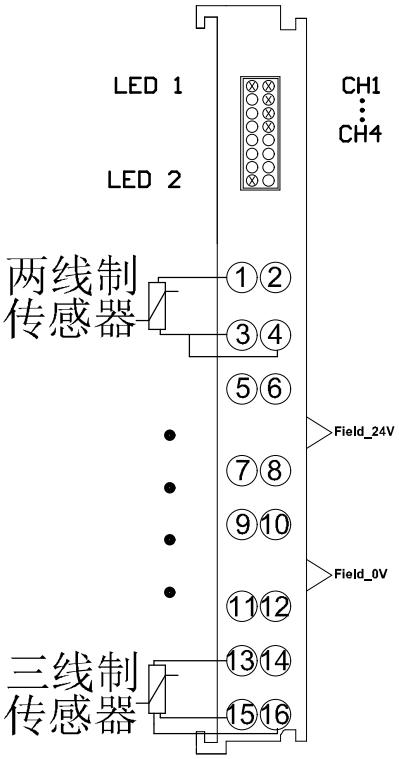
NTC-10Ktype			
temperature	Decimal	hexadecimal	Scope
>150	32767	0x7FFF	Overflow
150	1500	0x05DC	Normal range
25	250	0x00FA	
<25	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

3.35 DF20-M-4RTD-PT: 4aisleThermal resistor sensor inputModules

3.35.1 Technical parameters

Electrical parameters	
aislenumber	4
Connection Type	2-wire/3-wire
temperatureResolution(Tempe	Temperature value:0.1℃/each digit
Resistance value conversion formula (measurement resistance value)	Ractual = D/27648*R amount in:Ris the current resistance value;R amountis the rated range value of the resistance.
Sampling frequency	Configurable
Sensor Type	PT100, PT200, PT500, PT1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu53, Cu100, KTY84-130, KTY84-150, KTY84-151, 40 Ohm, 80 Ohm, 150 Ohm, 300 Ohm, 500 Ohm, 1000 Ohm, 2000 Ohm, 4000 Ohm,KTY83-110,KTY83-120,KTY83-1twenty one,KTY83-1twenty two,KTY83-150.KTY83-151.
Disconnection detection	support
System side current	70mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²

3.35.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
PWR	On: The module is powered normally
	Off: Module power supply is abnormal
L/A	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.
CH1~CH4	Green off: disconnection
	Green flash: normal collection
	Green: Over limit

3.35.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4RTD-PT	4	R	/	/

- Definition of various sensor process data

PT100			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT200			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT500			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range

-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

PT1000			
temperature	Decimal	hexadecimal	Scope
>850	32767	0x7FFF	Overflow
850	8500	0x2134	Normal range
-200	-2000	0xF830	
<-200	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni100			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni120			
temperature	Decimal	hexadecimal	Scope
>309	32767	0x7FFF	Overflow
309	3090	0x0C12	Normal range
-79	-790	0xFCEA	
<-79	-32767	0x8001	Underflow
Sensor not	-32768	0x8000	Disconnection

connected			detection

NI200			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni500			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Ni1000			
temperature	Decimal	hexadecimal	Scope
>250	32767	0x7FFF	Overflow
250	2500	0x09C4	Normal range
-60	-600	0xFDA8	
<-60	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu10 type			
temperature	Decimal	hexadecimal	Scope

>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	
<-59	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu50			
temperature	Decimal	hexadecimal	Scope
>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	
<-59	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu53			
temperature	Decimal	hexadecimal	Scope
>150	32767	0x7FFF	Overflow
150	1500	0x05DC	Normal range
-50	-500	0xFE0C	
<-50	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

Cu100			
temperature	Decimal	hexadecimal	Scope
>159	32767	0x7FFF	Overflow
159	1590	0x0636	Normal range
-59	-590	0xFDB2	
<-59	-32767	0x8001	Underflow

Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_130			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_150			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY84_151			
temperature	Decimal	hexadecimal	Scope
>280	32767	0x7FFF	Overflow
280	2800	0x0AF0	Normal range
-40	-400	0xFE70	
<-40	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

0-40ohm type

Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>47.03ohm	32767	0x7FFF	Upper limit
47.03ohm	32511	0x7EFF	Overflow
40ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-80ohm type			
Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>94.07ohm	32767	0x7FFF	Upper limit
94.07ohm	32511	0x7EFF	Overflow
80ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-150ohm type			
Ohm value	Decimal	hexadecimal	Scope
>319.25ohm	-32768	0x8000	Beyond the limit
>176.38ohm	32767	0x7FFF	Upper limit
176.38ohm	32511	0x7EFF	Overflow
150ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-300ohm type			
Ohm value	Decimal	hexadecimal	Scope

>638.5ohm	-32768	0x8000	Beyond the limit
>352.77ohm	32767	0x7FFF	Upper limit
352.77ohm	32511	0x7EFF	Overflow
300ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection
0-500ohm type			
Ohm value	Decimal	hexadecimal	Scope
>638.5ohm	-32768	0x8000	Beyond the limit
>587.94ohm	32767	0x7FFF	Upper limit
587.94ohm	32511	0x7EFF	Overflow
500ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-1000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>1277ohm	-32768	0x8000	Beyond the limit
>1175.89ohm	32767	0x7FFF	Upper limit
1175.89ohm	32511	0x7EFF	Overflow
1000ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-2000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>2554ohm	-32768	0x8000	Beyond the limit
>2351.78ohm	32767	0x7FFF	Upper limit

2351.78ohm	32511	0x7EFF	Overflow
2000ohm	27648	0x6C00	Normal range
0ohm	0	0x0000	
Sensor not connected	-32768	0x8000	Disconnection detection

0-4000ohm type			
Ohm value	Decimal	hexadecimal	Scope
>5108ohm	-32768	0x8000	Beyond the limit
>4703.56ohm	32767	0x7FFF	Upper limit
4703.56ohm	32511	0x7EFF	Overflow
4000ohm	27648	0x6C00	Normal range
0ohm	0	0	
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-110			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-12Type 0			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-1twenty onetype			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow

Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-1twenty twotype			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-150type			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

KTY83-151type			
temperature	Decimal	hexadecimal	Scope
>175	32767	0x7FFF	Overflow
175	1750	0x06D6	Normal range
-55	-550	0xFDDA	
<-55	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

NTC-5Ktype			
temperature	Decimal	hexadecimal	Scope
>90	32767	0x7FFF	Overflow
90	900	0x0384	Normal range
-30	-300	0xFED4	
<-30	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

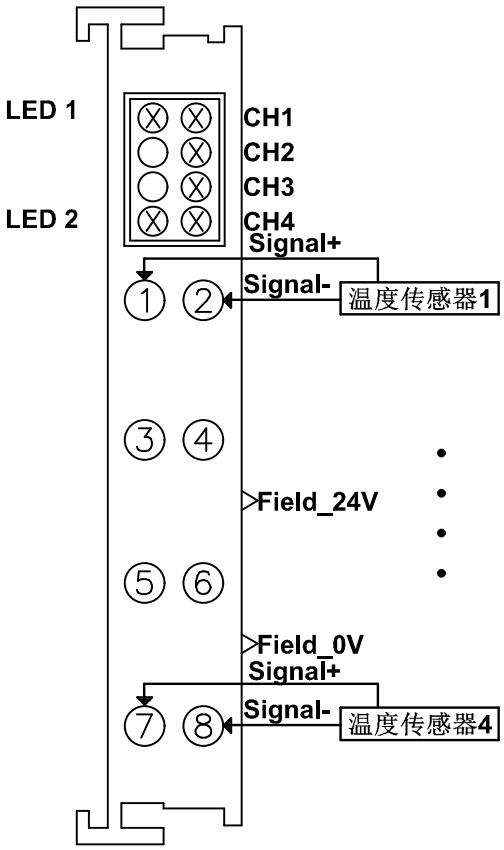
NTC-10Ktype			
temperature	Decimal	hexadecimal	Scope
>150	32767	0x7FFF	Overflow
150	1500	0x05DC	Normal range
25	250	0x00FA	
<25	-32767	0x8001	Underflow
Sensor not connected	-32768	0x8000	Disconnection detection

3.36 DF20-M-4TC-KETJ:4aisleThermocouple sensor inputModules

3.36.1 Technical parameters

Electrical parameters	
aislenumber	4
Connection Type	2-wire
temperatureResolution(Temper	Temperature value:0.1℃/each digit
Voltage conversion formula (measure mV voltage value)	$V_{Real = D}/32767*V_{Forehead}$ in:$V_{Reality}$is the current voltage value; $V_{Forehead}$is the rated range value of the sensor.
Sampling frequency	Configurable, default 4Hz
Sensor type/signal range	K, E, T, J, B, S, R, N, C, L, 15.625mV, 31.25mV, 62.5mV, 125mV, 250mV, 500mV, 1000mV, 2000mV
Disconnection detection	support
System side current	70mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.36.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
PWR	On: The module is powered normally
	Off: Module power supply is abnormal
L/A	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.
CH1~CH4	Green off: disconnection
	Green flash: normal collection
	Green: Over limit

3.36.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-4TC-KETJ	4	R	4	R

- Process Data Definition

K-Type			
temperature	Decimal	hexadecimal	Scope
>1370	32767	7FFF	Overflow
1370	13700	3584	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type E			
temperature	Decimal	hexadecimal	Scope
>1000	32767	7FFF	Overflow
1000	10000	2710	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

T-Type			
temperature	Decimal	hexadecimal	Scope
>400	32767	7FFF	Overflow
400	4000	FA0	Normal range

-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection
J-Type			
temperature	Decimal	hexadecimal	Scope
>1200	32767	7FFF	Overflow
1200	12000	2EE0	Normal range
-210	-2100	F7CC	
<-210	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type B			
temperature	Decimal	hexadecimal	Scope
>1820	32767	7FFF	Overflow
1820	18200	4718	Normal range
50	500	1F4	
<50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

S-Type			
temperature	Decimal	hexadecimal	Scope
>1760	32767	7FFF	Overflow
1760	17600	44C0	Normal range
-50	-500	FE0C	
<-50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

R-Type			
temperature	Decimal	hexadecimal	Scope
>1770	32767	7FFF	Overflow
1770	17700	4524	Normal range
-50	-500	FE0C	
<-50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

N-type			
temperature	Decimal	hexadecimal	Scope
>1300	32767	7FFF	Overflow
1300	13000	32C8	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type C			
temperature	Decimal	hexadecimal	Scope
>2320	32767	7FFF	Overflow
2320	23200	5AA0	Normal range
0	0	0	
<0	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

L-type			
temperature	Decimal	hexadecimal	Scope
>900	32767	7FFF	Overflow
900	9000	2328	Normal range

-200	-2000	F830	
<-200	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

±15.625mV			
mv value	Decimal	hexadecimal	Scope
15.625mV	32767	7FFF	Normal range
-15.625mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±62.5mV			
mv value	Decimal	hexadecimal	Scope
62.5mV	32767	7FFF	Normal range
-62.5mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±125mV			
mv value	Decimal	hexadecimal	Scope
125mV	32767	7FFF	Normal range
-125mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±250mV			
mv value	Decimal	hexadecimal	Scope
250mV	32767	7FFF	Normal range
-250mV	-32767	8001	
Sensor not	-32768	8000	Disconnection

connected			detection

±500mV			
mv value	Decimal	hexadecimal	Scope
500mV	32767	7FFF	Normal range
-500mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±1000mV			
mv value	Decimal	hexadecimal	Scope
1V	32767	7FFF	Normal range
-1V	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

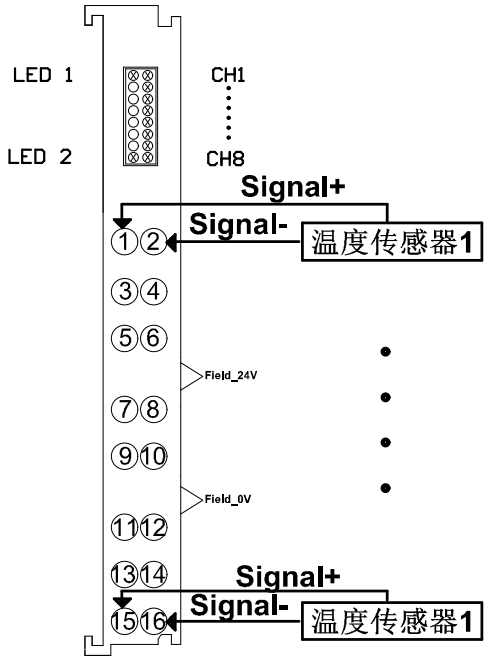
±2000mV			
mv value	Decimal	hexadecimal	Scope
2V	32767	7FFF	Normal range
-2V	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

3.37 DF20-M-8TC-KETJ: 8aisleThermocouple sensor inputModules

3.37.1 Technical parameters

Electrical parameters	
aislenumber	8
Connection Type	2-wire
temperatureResolution(Temper	Temperature value:0.1℃/each digit
Voltage conversion formula (measure mV voltage value)	$V_{Real = D}/32767*V_{Forehead}$ in:$V_{Reality}$is the current voltage value; $V_{Forehead}$is the rated range value of the sensor.
Filter time	Configurable, default 1800ms
Sensor type/signal range	K, E, T, J, B, S, R, N, C, L, 15.625mV, 31.25mV, 62.5mV, 125mV, 250mV, 500mV, 1000mV, 2000mV
Disconnection detection	support
System side current	80mA
Reverse circuit protection	support
Module failure alarm	support
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.37.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.
CH1~CH8	Green off: disconnection
	Green flash: normal collection
	Green: Over limit

3.37.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-8TC-KETJ	8	R	8	R

➢ Process Data Definition

K-Type			
temperature	Decimal	hexadecimal	Scope
>1370	32767	7FFF	Overflow
1370	13700	3584	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type E			
temperature	Decimal	hexadecimal	Scope
>1000	32767	7FFF	Overflow
1000	10000	2710	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

T-Type			
temperature	Decimal	hexadecimal	Scope
>400	32767	7FFF	Overflow
400	4000	FA0	Normal range
-270	-2700	F574	

<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

J-Type			
temperature	Decimal	hexadecimal	Scope
>1200	32767	7FFF	Overflow
1200	12000	2EE0	Normal range
-210	-2100	F7CC	
<-210	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type B			
temperature	Decimal	hexadecimal	Scope
>1820	32767	7FFF	Overflow
1820	18200	4718	Normal range
50	500	1F4	
<50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

S-Type			
temperature	Decimal	hexadecimal	Scope
>1760	32767	7FFF	Overflow
1760	17600	44C0	Normal range
-50	-500	FE0C	
<-50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

R-Type			
temperature	Decimal	hexadecimal	Scope
>1770	32767	7FFF	Overflow
1770	17700	4524	Normal range
-50	-500	FE0C	
<-50	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

N-type			
temperature	Decimal	hexadecimal	Scope
>1300	32767	7FFF	Overflow
1300	13000	32C8	Normal range
-270	-2700	F574	
<-270	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

Type C			
temperature	Decimal	hexadecimal	Scope
>2320	32767	7FFF	Overflow
2320	23200	5AA0	Normal range
0	0	0	
<0	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

L-type			
temperature	Decimal	hexadecimal	Scope
>900	32767	7FFF	Overflow
900	9000	2328	Normal range

-200	-2000	F830	
<-200	-32767	8001	Underflow
Sensor not connected	-32768	8000	Disconnection detection

±15.625mV			
mv value	Decimal	hexadecimal	Scope
15.625mV	32767	7FFF	Normal range
-15.625mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±62.5mV			
mv value	Decimal	hexadecimal	Scope
62.5mV	32767	7FFF	Normal range
-62.5mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±125mV			
mv value	Decimal	hexadecimal	Scope
125mV	32767	7FFF	Normal range
-125mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±250mV			
mv value	Decimal	hexadecimal	Scope
250mV	32767	7FFF	Normal range
-250mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±500mV			
mv value	Decimal	hexadecimal	Scope
500mV	32767	7FFF	Normal range
-500mV	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

±1000mV			
mv value	Decimal	hexadecimal	Scope
1V	32767	7FFF	Normal range
-1V	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

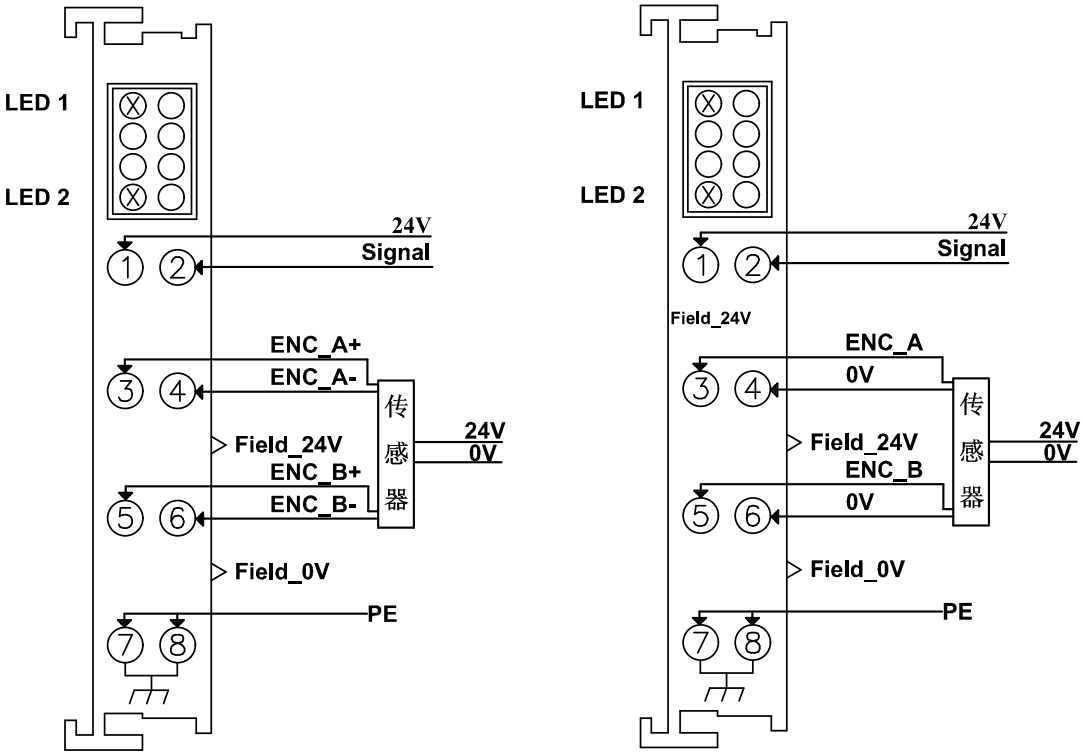
±2000mV			
mv value	Decimal	hexadecimal	Scope
2V	32767	7FFF	Normal range
-2V	-32767	8001	
Sensor not connected	-32768	8000	Disconnection detection

3.38 DF20-M-1CNT-EL-5: 1aisleEncoder inputModules5V signal

3.38.1 Technical parameters

Electrical parameters		
Input Channels	1 incremental encoder input	
	1 electronic probe input	
Input signal voltage	Encoder signal	5V
	Electron probe	24V
Encoder input parameters		
Signal Type	A+A-/B+B- differential signal or A/B signal	
Connection Type	2-wire/4-wire	
Counting range	–2147483648~2147483647	
Signal frequency	4x	
mostMaximum input	1MHz	
Resolution/Accuracy	32bit/±1 pulse	
Input Impedance	>500KΩ	
System side current	30mA	
Module failure alarm	support	
General parameters		
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating temperature	-25~75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5~95%RH (non-condensing)	
Installation	35mm rail mounting	
Dimensions	100mm × 12mm × 67mm	
Maximum crimping area of	2.5mm²	
Maximum crimping area of	AWG14	
Minimum crimping area of	0.2mm²	
Minimum crimping area for	AWG28	
Line length	8...9mm	

3.38.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.

3.38.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-1CNT-EL-5	5	R	1	R

- Process data description:

Output data meaning	
Output Data	
Byte0~Byte1	Output0x012BRepresents the start of counting,0x012CrepresentClear current count

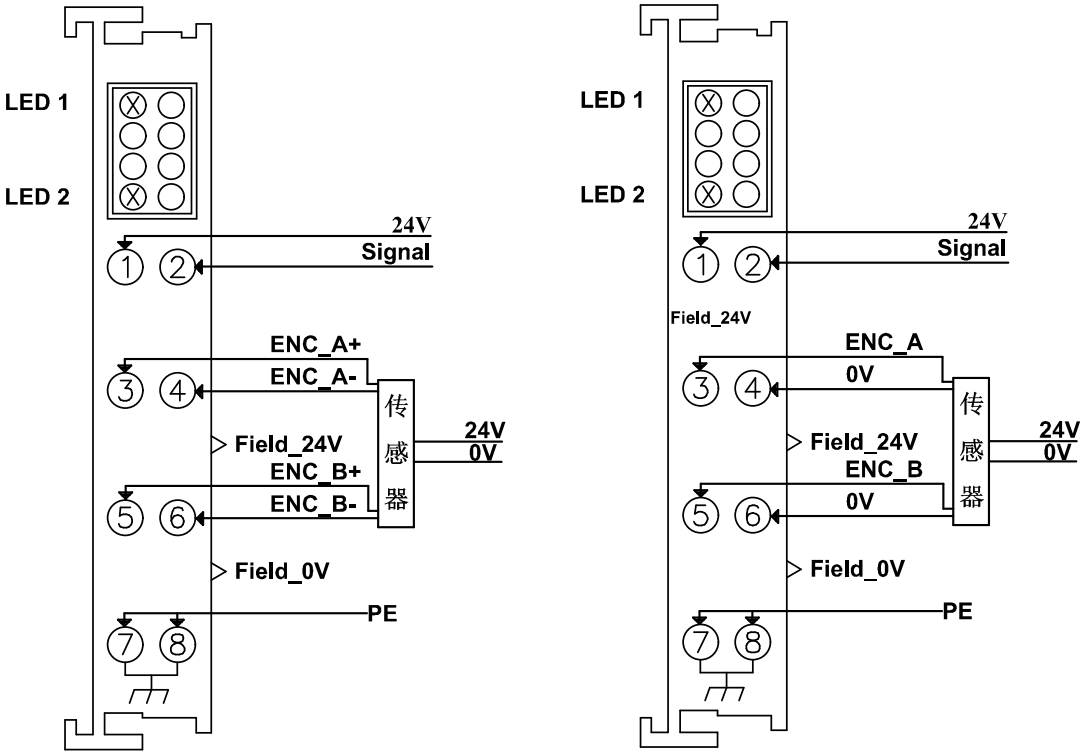
Input data meaning	
Input Data	
Byte0~Byte1	0x010BThe channel is inCounting status
	0x010CIndicates that the channel is in clear state
	0x0109Indicates that the channel is idle
	0x010EIndicates that the channel is in an error state
Byte2~Byte3	Pulse input value lower 16 bits
Byte4~Byte5	Pulse input value high 16 bits
Byte6~Byte7	Pulse input latch value lower 16 bits
Byte8~Byte9	Pulse input latch value high 16 bits

3.39 DF20-M-1CNT-EL-4:1aisleEncoder inputModules24V signal

3.39.1 Technical parameters

Electrical parameters		
Input Channels	1 incremental encoder input	
	1 electronic probe input	
Input signal voltage	Encoder signal	24V
	Electron probe	24V
Encoder input parameters		
Signal Type	A+A-/B+B- differential signal or A/B signal	
Connection Type	2-wire/4-wire	
Counting range	–2147483648~2147483647	
Signal frequency	4x	
mostMaximum input	1MHz	
Resolution/Accuracy	32bit/±1 pulse	
Input Impedance	>500KΩ	
System side current	30mA	
Module failure alarm	support	
General parameters		
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating temperature	-25～75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5～95%RH (no condensation)	
Installation	35mm rail mounting	
Dimensions	100mm × 12mm × 67mm	
Maximum crimping area of	2.5mm²	
Maximum crimping area of	AWG14	
Minimum crimping area of	0.2mm²	
Minimum crimping area for	AWG28	
Line length	8...9mm	

3.39.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.

3.39.3 Process Data Description

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-1CNT-EL-4	5	R	1	R

- Process data description:

Output data meaning	
Output Data	
Byte0~Byte1	Output0x012BRepresents the start of counting,0x012CrepresentClear current count

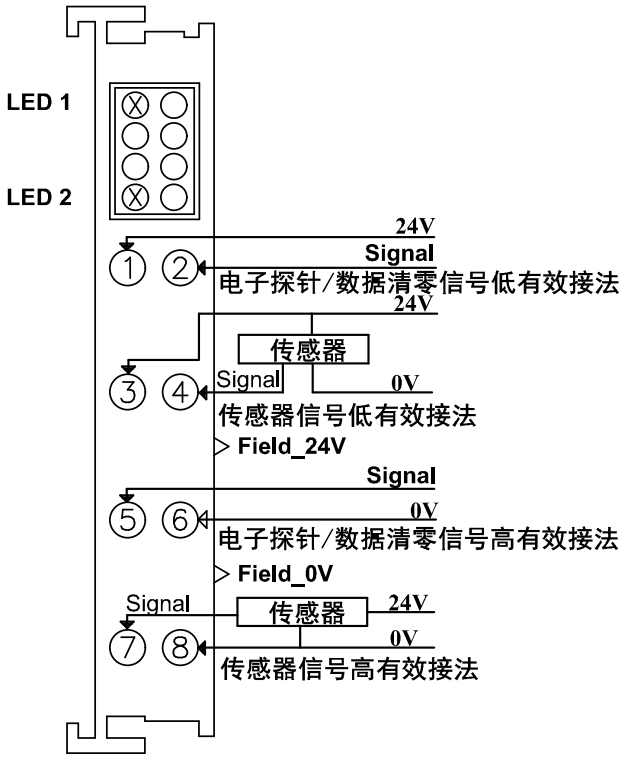
Input data meaning	
Input Data	
Byte0~Byte1	0x010BThe channel is inCounting status
	0x010CIndicates that the channel is in clear state
	0x0109Indicates that the channel is idle
	0x010EIndicates that the channel is in an error state
Byte2~Byte3	Pulse input value lower 16 bits
Byte4~Byte5	Pulse input value high 16 bits
Byte6~Byte7	Pulse input latch value lower 16 bits
Byte8~Byte9	Pulse input latch value high 16 bits

3.40 DF20-M-2CNT-PIL-5:2aislePulse inputModules5V signal

3.40.1 Technical parameters

Electrical parameters		
Input Channels	2 pulse inputs	
	2 electronic probe inputs	
Input signal voltage	Pulse signal	5V
	Electron probe	24V
Encoder input parameters		
Signal Type	Differential signal or single-ended signal	
Connection Type	2-wire	
Counting range	0~4294967295	
mostMaximum input	500KHz	
Resolution/Accuracy	32bit/±1 pulse	
Input Impedance	>500KΩ	
System side current	30mA	
Module failure alarm	support	
General parameters		
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating temperature	-25～75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5～95%RH (no condensation)	
Installation	35mm rail mounting	
Dimensions	100mm × 12mm × 67mm	
Maximum crimping area of	2.5mm²	
Maximum crimping area of	AWG14	
Minimum crimping area of	0.2mm²	
Minimum crimping area for	AWG28	
Line length	8...9mm	

3.40.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.

3.40.3 Process Data Description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2CNT-PIL-5	10	R	6	R

➢ Process data description:

Output data meaning		
The first channel output data		
Byte0~Byte1	Bit15~bit3	reserve
	Bit2	0: Channel 1 comparison value disabled; 1: Channel 1 comparison value enabled
	Bit1	0: Enable the electronic probe function of channel 1; 1: Enable the count clear function triggered by the external signal of channel 1
	bit0	0: Channel 1 stops counting and the original count is reset to zero; 1: Channel 1 starts counting
Byte2~Byte3		Channel 1 comparison value lower 16 bits
Byte4~Byte5		Channel 1 comparison value high 16 bits
Second channel output data		
Byte6~Byte7	Bit15~bit3	reserve
	Bit2	0: Channel 2 comparison value disabled; 1: Channel 2 comparison value enabled
	Bit1	0: Enable the electronic probe function of channel 2; 1: Enable the count clear function triggered by the external signal of channel 2
	bit0	0: Channel2Stop counting, the original count is reset to zero; 1: Channel2Start counting
Byte8~Byte9		Channel 2 comparison value lower 16 bits
Byte10~Byt11		Channel 2 comparison value high 16 bits

Input data meaning		
First channel input data		
Byte0~Byte1	Bit15~bit3	reserve
	bit2	0: The count value of channel 1 is less than the comparison value; 1: The count value of channel 1 is greater than the comparison value.
	bit1	0: No electronic probe/first channel count reset signal; 1: Electronic probe/first channel count reset signal
	bit0	0: Channel 1 counting stop state, the original count is cleared; 1: Channel 1 counting state

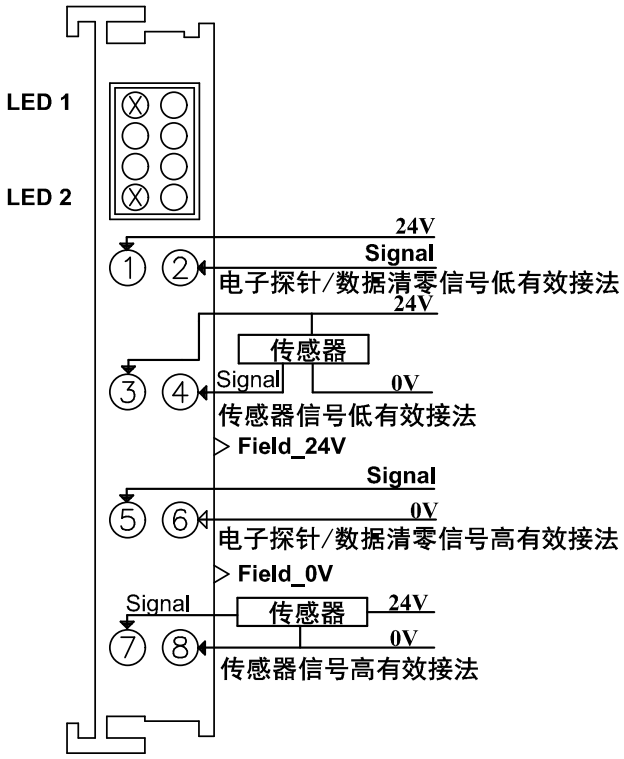
Byte2~Byte3		Channel 1 pulse input valueLower 16 bits
Byte4~Byte5		Channel 1 pulse input valueHigh 16 bits
Byte6~Byte7		Channel 1 pulse input latch valueLower 16 bits
Byte8~Byte9		Channel 1 pulse input latch valueHigh 16 bits
Second channel input data		
Byte10~Byte11	Bit15~bit3	reserve
	bit2	0: Channel2The count value is less than the comparison value; 1: Channel2The count value is greater than the comparison value.
	bit1	0: No electronic probe/first channel count reset signal; 1: Electronic probe/first channel count reset signal
	bit0	0: Channel2Counting stop state, the original count is cleared; 1: Channel2Counting status
Byte12~Byte13		aisle2Pulse input valueLower 16 bits
Byte14~Byte15		aisle2Pulse input valueHigh 16 bits
Byte16~Byte17		aisle2Pulse input latch valueLower 16 bits
Byte18~Byte19		aisle2Pulse input latch valueHigh 16 bits

3.41 DF20-M-2CNT-PIL-4:2aislePulse inputModules24V signal

3.41.1 Technical parameters

Electrical parameters		
Input Channels	2 pulse inputs	
	2 electronic probe inputs	
Input signal voltage	Pulse signal	24V
	Electron probe	24V
Encoder input parameters		
Signal Type	Differential signal or single-ended signal	
Connection Type	2-wire	
Counting range	0~4294967295	
mostMaximum input	500KHz	
Resolution/Accuracy	32bit/±1 pulse	
Input Impedance	>500KΩ	
System side current	30mA	
Module failure alarm	support	
General parameters		
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating temperature	-25～75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5～95%RH (no condensation)	
Installation	35mm rail mounting	
Dimensions	100mm × 12mm × 67mm	
Maximum crimping area of	2.5mm²	
Maximum crimping area of	AWG14	
Minimum crimping area of	0.2mm²	
Minimum crimping area for	AWG28	
Line length	8...9mm	

3.41.2 Status indicator light and wiring diagram



➢ The status indicator lights are shown in the table below:

LED No	Status and meaning
LED1	On: The module is powered normally
	Off: Module power supply is abnormal
LED2	Power-on stage:Always on when powered on; Turns off after the internal bus is initialized..
	Operational stage: Flashes when the module is running normally; When the module is operating abnormally, it is always on or off.

3.41.3 Process data description

➢ Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2CNT-PIL-4	10	R	6	R

➢ Process data description:

Output data meaning		
The first channel output data		
Byte0~Byte1	Bit15~bit3	reserve
	Bit2	0: Channel 1 comparison value disabled; 1: Channel 1 comparison value enabled
	Bit1	0: Enable the electronic probe function of channel 1; 1: Enable the count clear function triggered by the external signal of channel 1
	bit0	0: Channel 1 stops counting and the original count is reset to zero; 1: Channel 1 starts counting
Byte2~Byte3		Channel 1 comparison value lower 16 bits
Byte4~Byte5		Channel 1 comparison value high 16 bits
Second channel output data		
Byte6~Byte7	Bit15~bit3	reserve
	Bit2	0: Channel 2 comparison value disabled; 1: Channel 2 comparison value enabled
	Bit1	0: Enable the electronic probe function of channel 2; 1: Enable the count clear function triggered by the external signal of channel 2
	bit0	0: Channel2Stop counting, the original count is reset to zero; 1: Channel2Start counting
Byte8~Byte9		Channel 2 comparison value lower 16 bits
Byte10~Byt11		Channel 2 comparison value high 16 bits

Input data meaning		
First channel input data		
Byte0~Byte1	Bit15~bit3	reserve
	bit2	0: The count value of channel 1 is less than the comparison value; 1: The count value of channel 1 is greater than the comparison value.
	bit1	0: No electronic probe/first channel count reset signal; 1: Electronic probe/first channel count reset signal
	bit0	0: Channel 1 counting stop state, the original count is cleared; 1: Channel 1 counting state
Byte2~Byte3		Channel 1 pulse input valueLower 16 bits
Byte4~Byte5		Channel 1 pulse input valueHigh 16 bits
Byte6~Byte7		Channel 1 pulse input latch valueLower 16 bits
Byte8~Byte9		Channel 1 pulse input latch valueHigh 16 bits
Second channel input data		
Byte10~Byte11	Bit15~bit3	reserve
	bit2	0: Channel2The count value is less than the comparison value; 1: Channel2The count value is greater than the comparison value.
	bit1	0: No electronic probe/first channel count reset signal; 1: Electronic probe/first channel count reset signal
	bit0	0: Channel2Counting stop state, the original count is cleared; 1: Channel2Counting status
Byte12~Byte13		aisle2Pulse input valueLower 16 bits

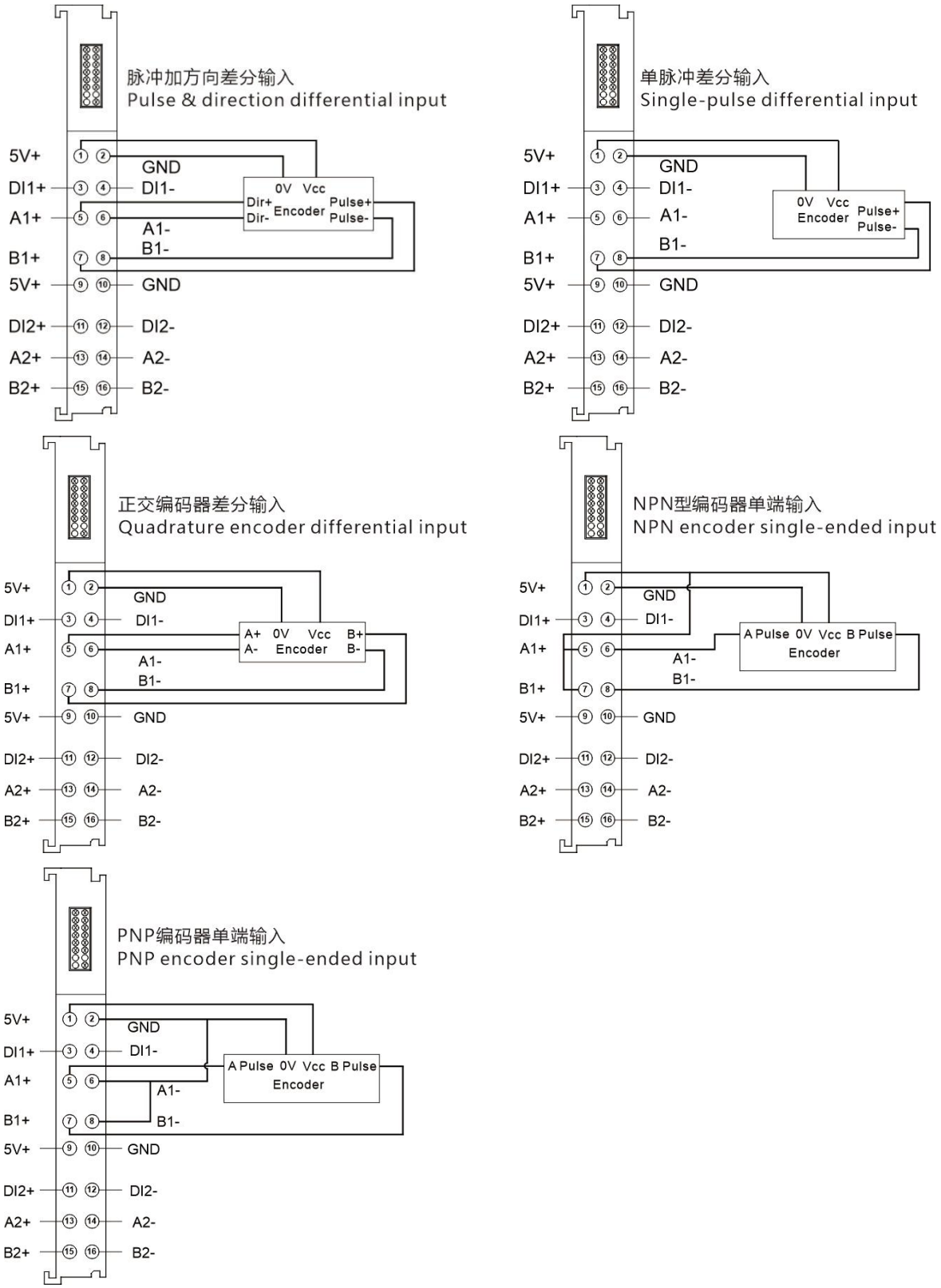
Byte14~Byte15	aisle2Pulse input valueHigh 16 bits
Byte16~Byte17	aisle2Pulse input latch valueLower 16 bits
Byte18~Byte19	aisle2Pulse input latch valueHigh 16 bits

3.42DF20-M-2CNT-EL-5: 2-channel encoder input module 5V signal

3.42.1 Technical parameters

Electrical parameters	
Bus input power rated voltage	DC5V
Bus input power rated current	65mA
Terminal output rated voltage	DC5V
Terminal output rated current	500mA
Input connection type	2-wire / 4-wire
Number of input channels	2
Input signal type	AB quadrature/pulse+direction
Input signal voltage	5V
DI channel input signal type	Single-ended/differential
DI channel input voltage	DC24V
Maximum input frequency	1MHz
Orthogonal coded signal	4x/2x/1x, configurable
Accuracy	±1 pulse
Hardware filtering	Support, configurable
Channel Configuration	support
Error diagnosis	support
Counting Mode	Linear counter form, ring counter form, configurable
Count latch/reset function	Support, configurable
Counting range	–2147483648~2147483647
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility testing	Complies with EN 61000-4
Protection level	IP20
Operating temperature	-25~75℃
Storage temperature	-40°C~+85°C
Relative humidity	5~95%RH (non-condensing)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of wire	2.5mm²
Maximum crimping area of wire (AWG)	AWG14
Minimum crimping area of wire	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.42.2 Status indicator light and wiring diagram



The status indicator lights are shown in the table below:

name	Status description
PWR power indicator	On: Internal bus power supply is normal Off: Internal bus power supply is abnormal

STA status indicator	Power-on stage: Green: Module initialization abnormality
	Power-on stage: Green off: Module initialization is normal
	Running stage: Green flash: The internal bus of the module is working normally
	Running stage: Green off: The internal bus of the module is working abnormally
TP1/TP2 trigger signal indicator	On: Input signal is valid Off: Input signal is invalid
A1/A2 encoder signal indicator	On: Input signal is valid Off: Input signal is invalid
B1/B2 encoder signal indicator	On: Input signal is valid Off: Input signal is invalid
UP1/UP2 indicator	On: Encoder is rotating forward Off: Encoder is stationary or rotating reverse
DN1/DN2 indicator light	On: Encoder is rotating in the reverse direction Off: Encoder is stationary or rotating in the forward direction
FP 5V indicator	On: The module power is normal Off: The module power is abnormal

3.42.3 Process data description

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2CNT-EL-5	10	R	6	R

The first channel output data		
PulseCtrl CH1	bit3~bit15	reserve
	bit2	0: Disable the position comparison function of channel 1; 1: Enable the position comparison function of channel 1
	bit1	0: Enable the electronic probe latch function of channel 1; 1: Enable the electronic probe count clear function of channel 1
	bit0	0: Channel 1 stops counting and the original count is reset to zero; 1: Channel 1 starts counting
PulseCompare CH1		Channel 1 pulse comparison value, range:–2147483648~2147483647
Second channel output data		
PulseCtrl CH2	bit3~bit15	reserve
	bit2	0: Disable the position comparison function of channel 2; 1: Enable the position comparison function of channel 2
	bit1	0: Enable the electronic probe latch function of channel 2; 1: Enable the electronic probe count clear function of channel 2
	bit0	0: Channel 2 stops counting and the original count is cleared; 1: Channel 2 starts counting
PulseCompare CH2		Channel 2 pulse comparison value, range:

		–2147483648~2147483647
First channel input data		
PulseState CH1	bit3~bit15	reserve
	bit2	0: Channel 1 count value is less than the comparison value; 1: Channel 1 count value is greater than or equal to the comparison value.
	bit1	0: Channel 1 has no electronic probe; 1: Channel 1 has an electronic probe
	bit0	0: Channel 1 counting stop state; 1: Channel 1 counting state
PulseCount CH1		Channel 1 pulse input value, range:–2147483648~2147483647
LatchCount CH1		Channel 1 pulse input latch value, range:–2147483648~2147483647
Second channel input data		
PulseState CH2	bit3~bit15	reserve
	bit2	0: Channel 2 count value is less than the comparison value; 1: Channel 2 count value is greater than or equal to the comparison value.
	bit1	0: Channel 2 has no electronic probe; 1: Channel 2 has an electronic probe
	bit0	0: Channel 2 counting stop state; 1: Channel 2 counting state
PulseCount CH2		Channel 2 pulse input value, range:–2147483648~2147483647
LatchCount CH2		Channel 2 pulse input latch value, range:–2147483648~2147483647

3.42.4 Configuration parameter definition

Configuration items	Parameter meaning
Counter Type (Count type)	0: Line Counter (Linear Count) 1: Ring Counter
Pulse Input Method (Input signal type)	0: Phase Differential x4 (quadrature encoding 4 times frequency) 1: Phase Differential x2 (orthogonal encoding 2 times frequency) 2: Phase Differential x1 (orthogonal encoding 1 times frequency) 3: Pulse and Directions
Encoder Count Direction (Signal input direction logic)	0:Position Direaction of Phase A (positive logic) 1:Position Direaction of Phase B (negative logic) Positive logic: Orthogonal encoding input, phase A leads phase B by 90 degrees for forward rotation, pulse plus direction input, direction input high effective signal for forward rotation. Negative logic: Orthogonal encoding input, B phase leads A phase by 90 degrees for forward rotation, pulse plus direction input, direction input low effective signal or floating for forward rotation.
Counter Filter A (Input pulse signal filtering configuration)	3:4MHZ 4:1.5MHZ 5:1MHZ 6:800KHZ 7:600KHZ 8:420KHZ 9:315KHZ 10:250KHZ 11:200KHZ 12:160KHZ 13:120KHZ 14:100KHZ 15:75KHZ
Maximum Counter Value (ring count upper limit)	-2147483648~ 2147483647
Minimum Counter Value (Ring Count Lower Limit)	-2147483648~ 2147483647 For example, if the upper and lower limits are set to 5 and -5 respectively in loop mode, the

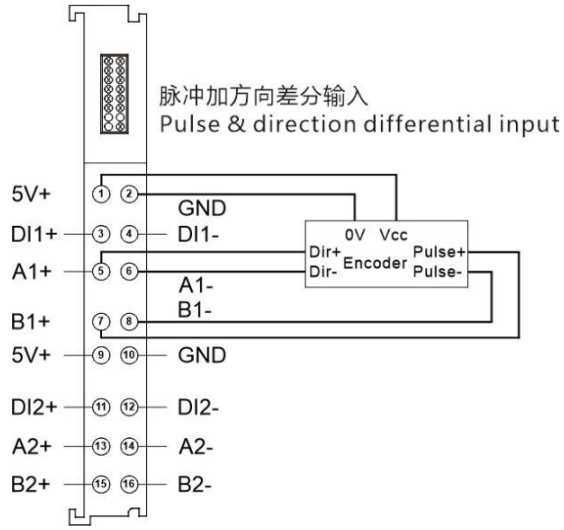
	upward count is -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, -5, -4.... The downward count is -5, 4, 3, 2, 1, 0, -1, -2, -3, -4, -5, 4....

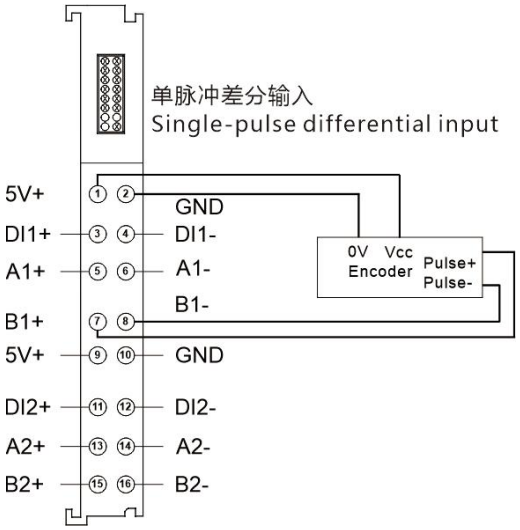
3.43DF20-M-2CNT-EL-4: 2-channel encoder input module 24V signal

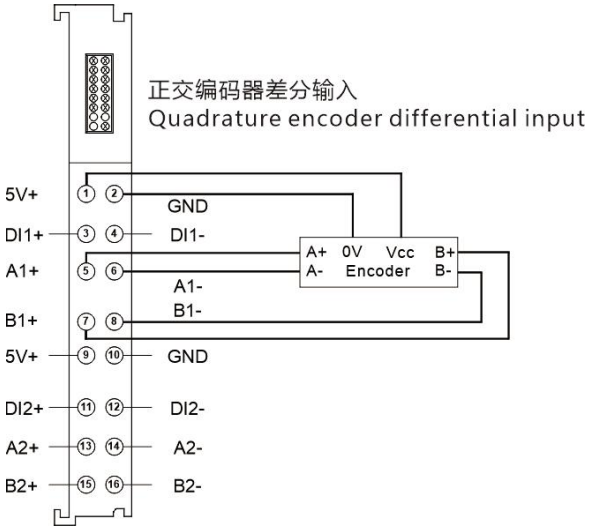
3.43.1 Technical parameters

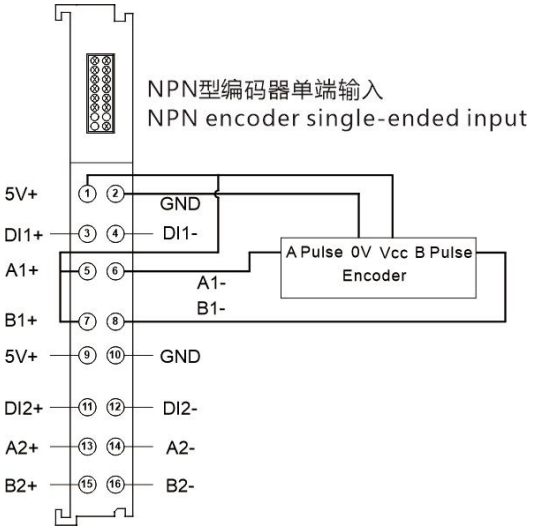
Electrical parameters	
Bus input power rated voltage	DC5V
Bus input power rated current	65mA
Terminal output rated voltage	DC24V
Terminal output rated current	500mA
Input connection type	2-wire / 4-wire
Number of input channels	2
Input signal type	AB quadrature/pulse+direction
Input signal voltage	24V
DI channel input signal type	Single-ended/differential
DI channel input voltage	DC24V
Maximum input frequency	1MHz
Orthogonal coded signal frequency multiplication	4x/2x/1x, configurable
Accuracy	±1 pulse
Hardware filtering	Support, configurable
Channel Configuration	support
Error diagnosis	support
Counting Mode	Linear counter form, ring counter form, configurable
Count latch/reset function	Support, configurable
Counting range	–2147483648~2147483647
General parameters	
Isolation withstand voltage	500V
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic compatibility testing	Complies with EN 61000-4
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40℃~+85℃
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of wire	2.5mm²
Maximum crimping area of wire (AWG)	AWG14
Minimum crimping area of wire	0.2mm²
Minimum crimping area for wire (AWG)	AWG28
Line length	8...9mm

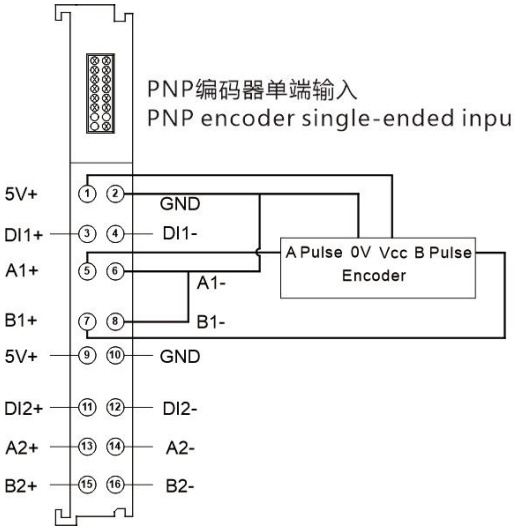
3.43.2 Status indicator light and wiring diagram











The status indicator lights are shown in the table below:

name	Status description
PWR power indicator	On: Internal bus power supply is normal Off: Internal bus power supply is abnormal
STA status indicator	Power-on stage: Green: Module initialization abnormality
	Power-on stage: Green off: Module initialization is normal
	Running stage: Green flash: The internal bus of the module is working normally
	Running stage: Green off: The internal bus of the module is working abnormally
TP1/TP2 trigger signal indicator	On: Input signal is valid Off: Input signal is invalid
A1/A2 encoder signal indicator	On: Input signal is valid Off: Input signal is invalid
B1/B2 encoder signal indicator	On: Input signal is valid Off: Input signal is invalid
UP1/UP2 indicator	On: Encoder is rotating forward Off: Encoder is stationary or rotating reverse
DN1/DN2 indicator light	On: Encoder is rotating in the reverse direction Off: Encoder is stationary or rotating in the forward direction
FP 24V indicator light	On: The module power is normal Off: The module power is abnormal

3.43.3 Process dataillustrate

- Process data structure definition:

Module Model	Uplink process data length (Word)		Downlink process data length (Word)	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2CNT-EL-4	10	R	6	R

The first channel output data		
PulseCtrl CH1	bit3~bit15	reserve
	bit2	0: Disable the position comparison function of channel 1; 1: Enable the position comparison function of channel 1
	bit1	0: Enable the electronic probe latch function of channel 1; 1: Enable the electronic probe count clear function of channel 1
	bit0	0: Channel 1 stops counting and the original count is reset to zero; 1: Channel 1 starts counting
PulseCompare CH1		Channel 1 pulse comparison value, range:–2147483648~2147483647

Second channel output data		
PulseCtrl CH2	bit3~bit15	reserve
	bit2	0: Disable the position comparison function of channel 2; 1: Enable the position comparison function of channel 2
	bit1	0: Enable the electronic probe latch function of channel 2; 1: Enable the electronic probe count clear function of channel 2
	bit0	0: Channel 2 stops counting and the original count is cleared; 1: Channel 2 starts counting
PulseCompare CH2		Channel 2 pulse comparison value, range: –2147483648~2147483647
First channel input data		
PulseState CH1	bit3~bit15	reserve
	bit2	0: Channel 1 count value is less than the comparison value; 1: Channel 1 count value is greater than or equal to the comparison value.
	bit1	0: Channel 1 has no electronic probe; 1: Channel 1 has an electronic probe
	bit0	0: Channel 1 counting stop state; 1: Channel 1 counting state
PulseCount CH1		Channel 1 pulse input value, range:–2147483648~2147483647
LatchCount CH1		Channel 1 pulse input latch value, range:–2147483648~2147483647
Second channel input data		
PulseState CH2	bit3~bit15	reserve
	bit2	0: Channel 2 count value is less than the comparison value; 1: Channel 2 count value is greater than or equal to the comparison value.
	bit1	0: Channel 2 has no electronic probe; 1: Channel 2 has an electronic probe
	bit0	0: Channel 2 counting stop state; 1: Channel 2 counting state
PulseCount CH2		Channel 2 pulse input value, range:–2147483648~2147483647
LatchCount CH2		Channel 2 pulse input latch value, range:–2147483648~2147483647

3.43.4 Configuration parameter definition

Configuration items	Parameter meaning
Counter Type	0: Line Counter (Linear Count) 1: Ring Counter
Pulse Input Method (input signal type)	0: Phase Differential x4 (quadrature encoding 4 times frequency) 1: Phase Differential x2 (orthogonal encoding 2 times frequency) 2: Phase Differential x1 (orthogonal encoding 1 times frequency) 3: Pulse and Directions
Encoder Count Direction (signal input direction logic)	0:Position Direaction of Phase A (positive logic) 1:Position Direaction of Phase B (negative logic) Positive logic: Orthogonal encoding input, phase A leads phase B by 90 degrees for forward rotation, pulse plus direction input, direction input high effective signal for forward rotation. Negative logic: Orthogonal encoding input, B phase leads A phase by 90 degrees for forward rotation, pulse plus direction input, direction input low effective signal or floating

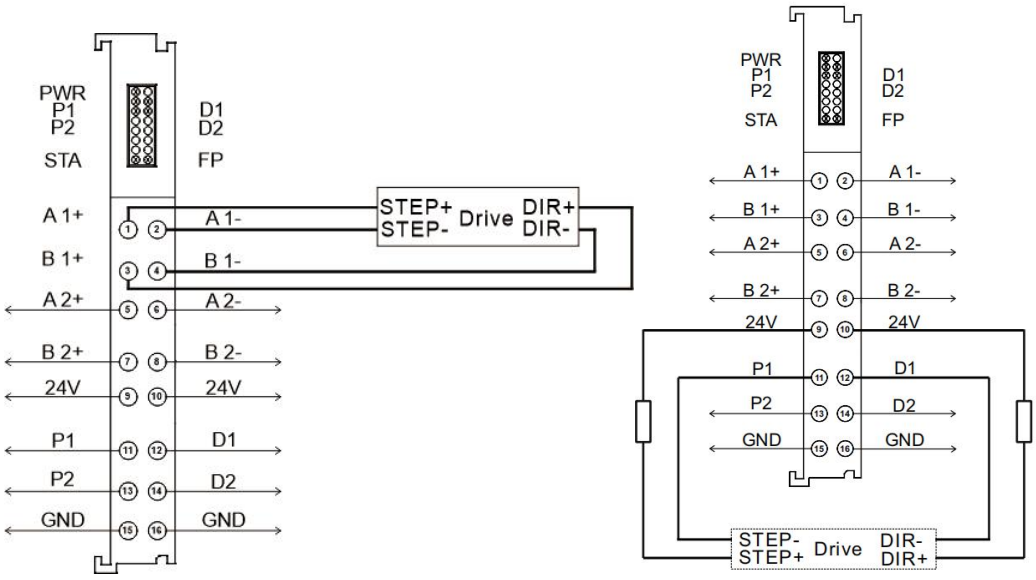
	for forward rotation.
Counter Filter A (Input pulse signal filtering configuration)	3:4MHZ 4:1.5MHZ 5:1MHZ 6:800KHZ 7:600KHZ 8:420KHZ 9:315KHZ 10:250KHZ 11:200KHZ 12:160KHZ 13:120KHZ 14:100KHZ 15:75KHZ
Maximum Counter Value (ring count upper limit)	-2147483648~ 2147483647
Minimum Counter Value (Ring Count Lower Limit)	-2147483648~ 2147483647 For example, if the upper and lower limits are set to 5 and -5 respectively in loop mode, the upward count is -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, -5, -4.... The downward count is -5, 4, 3, 2, 1, 0, -1, -2, -3, -4, -5, 4....

3.44DF20-M-2PWM: 2-channel pulse output module5V signal

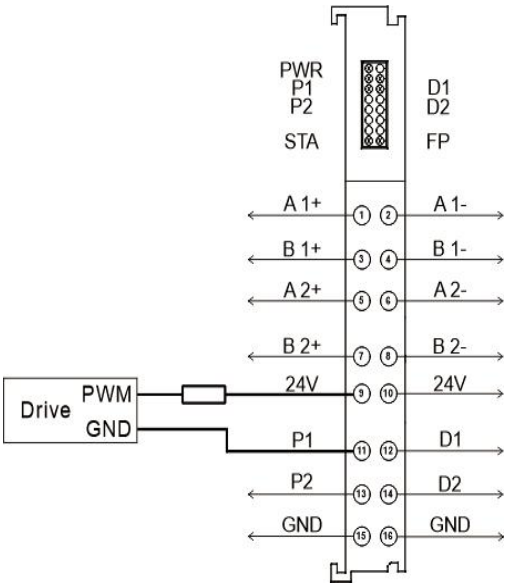
3.44.1 Technical parameters

Electrical parameters	
Bus input power rated	DC5V
Bus input power rated	40mA
Terminal output rated	DC24V
Terminal output rated	500mA
Output connection type	2-wire / 4-wire
Number of output channels	2
Output signal type	Pulse+direction/PWM, configurable
Output signal voltage	DC5V
Differential signal output	800HZ~4MHZ
Open drain signal output	800HZ~500KHZ
PWM signal output	20HZ~12KHZ
Open drain output	30mA
Open-drain output maximum pull-up voltage	28V
Accuracy	±1 pulse
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping area of	2.5mm²
Maximum crimping area of	AWG14
Minimum crimping area of	0.2mm²
Minimum crimping area for	AWG28
Line length	8...9mm

3.44.2 Status indicator light and wiring diagram



Pulse plus direction differential output Pulse plus direction open drain output



PWM open-drain output

The status indicator lights are shown in the table below:

LED No	Status and meaning
PWR	On: The module is powered normally
	Off: Module power supply is abnormal
STA	Power-on stage: Green: initialization abnormality; Green off: Initialization is normal
	Running stage: Green flashing: the internal bus is working normally Green off: Internal bus working abnormally
P1~P2	Green flash: Pulse/PWM signal output
	Green off: No signal output
D1~D2	Green: Output forward direction signal
	Green off: Output reverse direction signal or stop
FP	Green: Power input is normal
	Green off: Power input abnormality

3.44.3 Process dataillustrate

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-2PWM	6	R	8	R

RXPD0			
Name	Type	Size	meaning

Stop bit CH1	BOOL	0.1	1: Channel 1 emergency stop
			0: Channel 1 does not stop suddenly
Jog Enable bit CH1	BOOL	0.1	0->1: Channel 1 starts jog motion
			1->0: Channel 1 stops jog motion
Jog Direction bit CH1	BOOL	0.1	0: Channel 1 jog direction forward
			1: Channel 1 jog direction reverse
Position Enable bit CH1	BOOL	0.1	0->1: Channel 1 starts positioning motion
			1->0: Channel 1 stops positioning motion
Position Clear bit CH1	BOOL	0.1	1: Clear the current position of channel 1
			0: Channel 1 position counts normally
Target Duty Cycle CH1	UINT	2.0	Channel 1 duty cycle setting, 1/1000 resolution.
Target Position or frequency CH1	DINT	4.0	Channel 1 pulse plus direction positioning mode target position setting, or PWM mode frequency setting.
Stop bit CH2	BOOL	0.1	1: Channel 2 emergency stop
			0: Channel 2 does not stop suddenly
Jog Enable bit CH2	BOOL	0.1	0->1: Channel 2 starts jog motion
			1->0: Channel 2 stops jog motion
Jog Direction bit CH2	BOOL	0.1	0: Channel 2 jog direction forward
			1: Channel 2 jog direction reverse
Position Enable bit CH2	BOOL	0.1	0->1: Channel 2 starts positioning motion
			1->0: Channel 2 stops positioning motion
Position Clear bit CH2	BOOL	0.1	1: Clear the current position of channel 2
			0: Channel 2 position counts normally
Target Duty Cycle CH2	UINT	2.0	Channel 2 duty cycle setting, 1/1000 resolution.
Target Position or frequency CH2	DINT	4.0	Channel 2 pulse plus direction positioning mode target position setting, or PWM mode frequency setting.
TXPD0			
Name	Type	Size	meaning
Pulse Fault bit CH1	BOOL	0.1	0: Channel 1 is normal
			1: Channel 1 fault
CtrlWord Fault bit CH1	BOOL	0.1	0: Channel 1 process data is normal
			1: Channel 1 process data is abnormal
Positioning Complete bit CH1	BOOL	0.1	0: Channel 1 is in signal output state
			1: Channel 1 has no signal output status
Config Fault bit CH1	BOOL	0.1	0: Channel 1 configuration data is normal
			1: Channel 1 configuration data is abnormal
ActualPosition CH1	DINT	4.0	Actual position or number of PWM outputs of channel 1.
Pulse Fault bit CH2	BOOL	0.1	0: Channel 2 is normal
			1: Channel 2 fault
CtrlWord Fault bit CH2	BOOL	0.1	0: Channel 2 process data is normal
			1: Channel 2 process data is abnormal
Positioning Complete bit CH2	BOOL	0.1	0: Channel 2 is in signal output state
			1: Channel 2 has no signal output status
Config Fault bit CH2	BOOL	0.1	0: Channel 2 configuration data is normal
			1: Channel 2 configuration data is abnormal
ActualPosition CH2	DINT	4.0	Actual position or number of PWM outputs of channel 2.

3.44.4 Configuration parameter definition

index	Sub-index	name	Size	Value range	default value	meaning
16#40A0	1	Pulse Mode CH1	2.0	See DTA41A0: Table	0	Channel 1 signal type.
	2	Motion Mode CH1	2.0	See DTB41A0: Table	0	Channel 1 pulse control mode.
	3	Ramp Mode CH1	2.0	See DTC41A0: Table	0	Channel 1 pulse ramp enable.
	4	Direction Mode CH1	2.0	See DTD41A0: Table	0	Channel 1 direction logic.
	5	Signal Type CH1	2.0	See DTE41A0: Table	0	Channel 1 pulse output mode.
	6	Duty Cycle CH1	2.0	See DTF41A0: Table	0	Channel 1 PWM signal duty cycle enable.
	7	PWM Freq Range CH1	2.0	See DTA41B0: Table	3	Channel 1 PWM frequency range.
	8	Startup Freq CH1	4.0	800~4000000	1000	Channel 1 pulse output starting frequency, unit: HZ.
	9	Target Freq CH1	4.0	800~4000000	10000	Channel 1 pulse output target frequency, unit: HZ.
	10	Ramp Up Time CH1	2.0	10~4096	100	Channel 1 pulse output ramp-up time, in ms.
	11	Ramp Dn Time CH1	2.0	10~4096	100	Channel 1

						pulse output downslope time, in ms.
	12	Pulse Mode CH2	2.0	See DTA41A0: Table	0	Channel 2 signal type.
	13	Motion Mode CH2	2.0	See DTB41A0: Table	0	Channel 2 pulse control mode.
	14	Ramp Mode CH2	2.0	See DTC41A0: Table	0	Channel 2 pulse ramp enable.
	15	Direction Mode CH2	2.0	See DTD41A0: Table	0	Channel 2 direction logic.
	16	Signal Type CH2	2.0	See DTE41A0: Table	0	Channel 2 pulse output mode.
	17	Duty Cycle CH2	2.0	See DTF41A0: Table	0	Channel 2 PWM signal duty cycle enable.
	18	PWM Freq Range CH2	2.0	See DTA41B0: Table	3	Channel 1 PWM frequency range.
	19	Startup Freq CH2	4.0	800~4000000	1000	Channel 2 pulse output starting frequency, unit: HZ.
	20	Target Freq CH2	4.0	800~4000000	10000	Channel 2 pulse output target frequency, unit: HZ.
	twenty one	Ramp Up Time CH2	2.0	10~4096	100	Channel 2 pulse output ramp-up time, in ms.

	twenty two	Ramp Dn Time CH2	2.0	10~4096	100	Channel 2 pulse output downslope time, in ms.
Note: If the module is inserted in the first card slot after the coupler, the SDO index is 16#40A0. If it is inserted in the second card slot, the SDO index is 16#40A1 and the index offset is 16#01.						

Table DTA41A0:

Sub-index object data	name	meaning
0	Pulse/Dir	Pulse plus direction
1	CW/CCW (Not Supported)	Not supported yet
2	A/B (Not Supported)	Not supported yet
3	PWM	PWM

Table DTB41A0:

Sub-index object data	name	meaning
0	Jog	Jog control
1	RelativePosition	Relative position control
2	AbsolutePosition	Absolute position control

Table DTC41A0:

Sub-index object data	name	meaning
0	Ramp Enable	Open ramp
1	Ramp Disable	Close the ramp

Table DTD41A0:

Sub-index object data	name	meaning
0	Positive	Direction output positive logic
1	Negative	Direction output negative logic

Table DTE41A0:

Sub-index object data	name	meaning
0	OpenDrain	Open-drain output
1	Difference 5V	Differential output

Table DTF41A0:

Sub-index object data	name	meaning
0	Duty cycle enable	Duty cycle adjustment enable
1	Duty cycle disable	Duty cycle adjustment is off, default is 50%

Table DTA41B0:

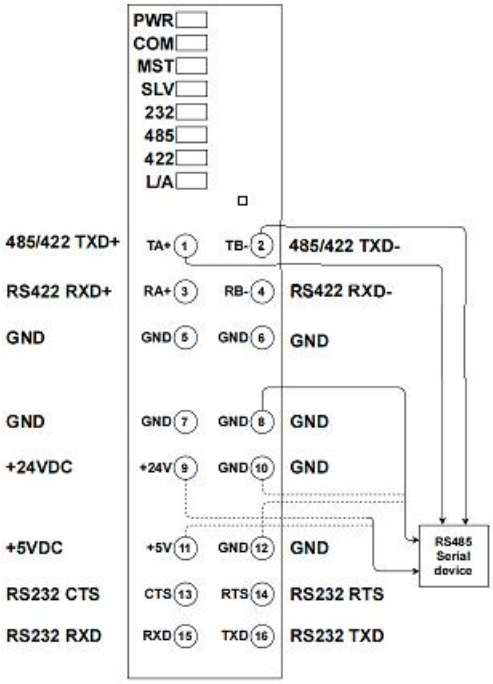
Sub-index object data	name	meaning
0	20Hz~1.2kHz	
1	40Hz~2.4kHz	
2	50Hz~3kHz	
3	100Hz~6kHz	
4	140Hz~8.4kHz	
5	200Hz~12kHz	

3.45DF20-M-1COM-232/485/422：Serial communication module

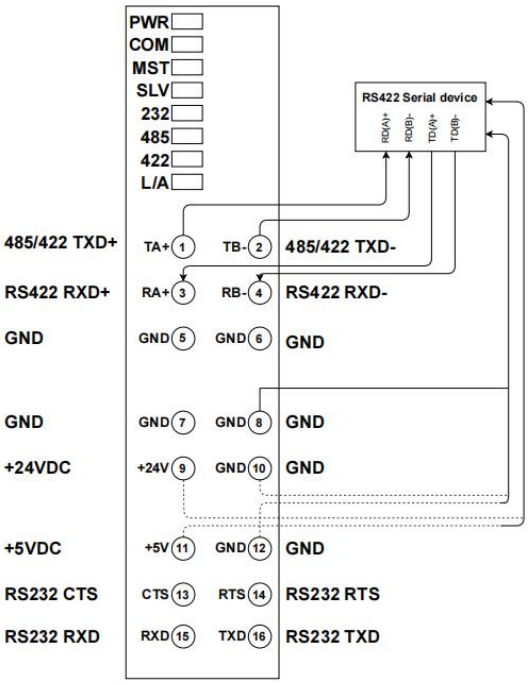
3.45.1 Technical parameters

Electrical parameters	
Bus input power rated	DC5V
Bus input power rated	75mA
interface	RS232/RS485/RS422
Number of channels	1 channel
protocol	Modbus RTU/ASCII master and slave modes; free protocol
Baud rate	2400bps - 512000bps
Data bits	7bit/8bit
Check digit	None/Even/Odd
Stop bits	1bit/2bit
Maximum data frame	40 bytes
Power supply for	5V/500mA
Power supply for	24V/500mA
General parameters	
Vibration Testing	1g, in accordance with IEC 60068-2-6
Shock Test	15g, compliant with IEC 60068-2-27
Electromagnetic	Compliant with EN 61000-4standard
Protection level	IP20
Operating temperature	-25～75℃
Storage temperature	-40°C~+85°C
Relative humidity	5～95%RH (no condensation)
Installation	35mm rail mounting
Dimensions	100mm × 12mm × 67mm
Maximum crimping	2.5mm²
Maximum crimping	AWG14
Minimum crimping	0.2mm²
Minimum crimping	AWG28
Line length	8...9mm

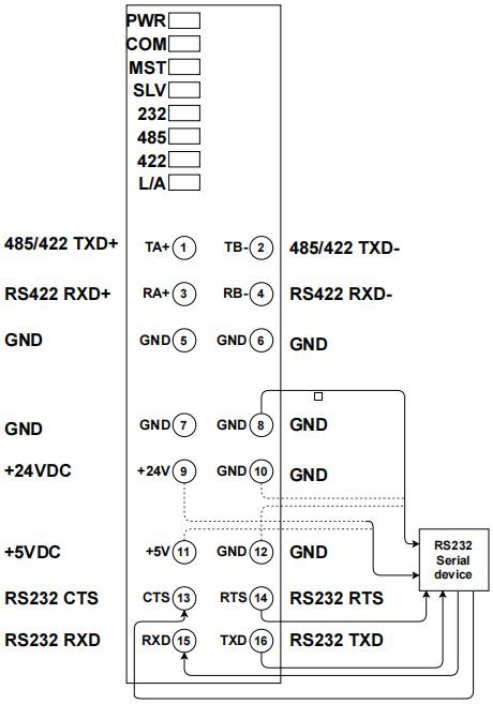
3.45.2 Status indicator light and wiring diagram



RS485 wiring diagram



RS422 wiring diagram



RS232 Wiring Diagram

The status indicator lights are shown in the table below:

LED No	Status and meaning
PWR	When the power supply is normal, the green light is

	always on.
CUSTOM	In free protocol mode, green is always on
MASTER	In MASTER mode, green is always on
SLAVE	In SLAVE mode, green is always on
RS232	In RS232 mode, green is always on
RS485	In RS485 mode, green is always on
RS422	In RS422 mode, green is always on
L/A	Power-on stage: Green light is on when powered on; Turns off after the internal bus is initialized.
	Operation phase: When the module is operating normally, it flashes green; When the module operates abnormally, the green light goes out.
Tx	Flashing: sending data; Off: no data
Rx	Flashing: receiving data; Off: no data

3.45.3 Process dataillustrate

- Process data structure definition:

Module Model	Uplink process data length (Word）		Downlink process data length (Word）	
	Assigning Values	Component name	Assigning Values	Component name
DF20-M-1COM-232/485/422	twenty three	R	twenty three	R

3.45.3.1 FreeRun process data description

Input data(R)			
Name	Type	Size	meaning
StateWord	UINT	2.0	Status word
Input Length	UINT	2.0	Receive data length
Input Count	UINT	2.0	Receive data sequence number
Data In 0	USINT	1.0	Receive data 1
Data In 1	USINT	1.0	Receive data 2
:			
Data In 38	USINT	1.0	Receive data 39
Data In 39	USINT	1.0	Receive data 40

Output data(R Ww)			
Name	Type	Size	meaning
CtrlWord	UINT	2.0	Control Word
Output Length	UINT	2.0	Send data length
Output Count	UINT	2.0	Send data sequence number

Data Out 0	USINT	1.0	Send data 1
Data Out 1	USINT	1.0	Send data 2
:			
Data Out 38	USINT	1.0	Send data 39
Data Out 39	USINT	1.0	Send data 40

StateWord contains the following states:

Normal state value	Status Name	meaning
16#0000	OP_SUCCESS	Configuration or write operation successful
16#0001	DATA_FULL	Data has been updated and can be read
16#0002	WRITE_IDLE	Write idle, writable
16#0003	DATA_EMPTY	Read idle, receive data not updated
Error Status Value	Status Name	meaning
16#E0A1	WRITE_BUSY	Write busy, can't write
16#E0A2	DATA_LARGE	Data length exceeds limit
16#E0A3	CMD_ERR	Command Error
16#E0A4	PARA_ERR	Configuration parameter error
16#E0A5	CHECK_ERR	Verification Error
16#E0A6	SLAVE_NOEXIT	The slave device does not exist
16#E0A7	PACK_LOSS	Packet Loss
16#E0A8	OVER_FLOW	Data overflow

Note: Each time the coupler restarts the state machine, it will automatically send the CONFIGUREPORT command to configure the serial port module. After the configuration is successful, the serial port module automatically enters the READCUSTOM state and feedbacks the StateWord state as 16#0003. The free mode read and write switching can be achieved through the control word CtrlWord. In situations where continuous reading and writing are required, the PLC can periodically switch CtrlWord to write command 16#00C1 and read command 16#00C2 to achieve this. Whether the reading and writing are successful can be judged by StateWord or combined with InputCount.

3.45.3.2 Modbus RTU Master Process Data Description

Input data(R Wr)			
Name	Type	Size	meaning
StateWord	UINT	2.0	Status word
Read Data Length	UINT	2.0	Receive data length
Active Channel	UINT	2.0	Current active channels
Data In 0	UINT	2.0	Receive data 1
Data In 1	UINT	2.0	Receive data 2
:			
Data In 18	UINT	2.0	Receive data 19
Data In 19	UINT	2.0	Receive data 20

Output data(R Ww)			
Name	Type	Size	meaning
CtrlWord	UINT	2.0	Control Word
Reserve	UINT	2.0	reserve
Select Channel	UINT	2.0	Channel operation selection
Data Out 0	UINT	2.0	Transmitter data 1
Data Out 1	UINT	2.0	Transmitter Data 2
:			
Data Out 18	UINT	2.0	Transmitter data 19
Data Out 19	UINT	2.0	Transmitter data 20

3.45.3.3 Modbus RTU Slave Process Data Description

Input data(R Wr)			
Name	Type	Size	meaning
StateWord	UINT	2.0	Status word
Read Data Length	USINT	1.0	Readback data length Byte
Reserve 1	USINT	1.0	reserve
SlaveRegNum	UINT	2.0	Readback register quantity
Data In 0	UINT	2.0	Receive data 1
Data In 1	UINT	2.0	Receive data 2
:			
Data In 18	UINT	2.0	Receive data 19
Data In 19	UINT	2.0	Receive data 20

Output data(R Ww)			
Name	Type	Size	meaning
CtrlWord	UINT	2.0	Control Word
SlaveCMD	USINT	1.0	Slave operation commands
SlaveRegAddr	USINT	1.0	Slave register address
SlaveRegNum	UINT	2.0	Number of slave registers
Data Out 0	UINT	2.0	Send data 1
Data Out 1	UINT	2.0	Send data 2
:			
Data Out 18	UINT	2.0	Send data 19
Data Out 19	UINT	2.0	Send data 20

3.45.4 Configuration parameter definition

General parameter configuration

Module parameters	Parameter meaning	Initial Value
Operation Mode Port OperationMode	0: Custom free protocol 1: Modbus RTU Master 2: Modbus RTU Slave	0:Custom
Interface Type Port Interfance	0:RS232 Flow OFF 1:RS232 Flow ON 2:RS485 3:RS422	2: RS485
Check digit	0:None 1:Odd	0:None

Port Parity	2: Even	
Data bits Port Data bits	0:8 bits 1:7 bits	0:8 bits
Stop bits Port Stop bit	0:1Bit 1:2Bits	0:1Bit
Baud rate Port Baudrate	300bps-512000bps (0-17 enumeration value setting)	11:115200

FreeRun parameter configuration

FreeRun Interval time	The frame receiving interval in transparent transmission mode, in ms	1

Modbus RTU Slave Parameter Configuration

Slave ID	Slave ID	0
Slave:Slave Response Delay(ms)	Slave station response delay time, unit: ms	0

Modbus RTU Master Parameter Configuration

Module parameters	Parameter meaning	Initial value
Slave Address Slave ID	0: Disable the channel 1-127: Modbus RTU Slave ID (slave address)	0
Trigger Mode EventTrig	0: Polling mode, write data to the Slave in a loop 1: Write data to the slave only when the data content changes	0
Disconnection Action LostAction	0: Keep the last output data 1: Clear output data	0
Function code Operation Code	01:READ COILS 02:READ DISCRETE INPUTS (read discrete inputs) 03:READ HOLDING REGISTERS (read holding registers) 04:READ INPUT REGISTERS (read input registers) 05:WRITE SINGLE COIL (write single coil) 06:WRITE SINGLE HOLDING REGISTER (write single register) 15:WRITE MULTIPLE COILS (write multiple coils) 16:WRITE MULTIPLE HOLDING REGISTERS (write multiple registers)	16
Register addressRegistorAddr	Register address span range: 65535 (e.g. 0-65535) Coil address span range: 65535 (e.g. 0-65535)	0
Register number RegistorNum	Register quantity range: 0-20 (40 bytes) Coil quantity range: 0-320 (40 bytes)	0
Polling period Poll Time	Master station polling slave station cycle 0-5000ms	500
Slave timeout RespTimeout	When the master station polls the slave station, the slave station's response timeout 0-65535	1000
Interval time	When the Master station polls the slave station, the	100

PollDelay	polling delay time between the two slave stations 0 - 5000ms	

Module Status Description

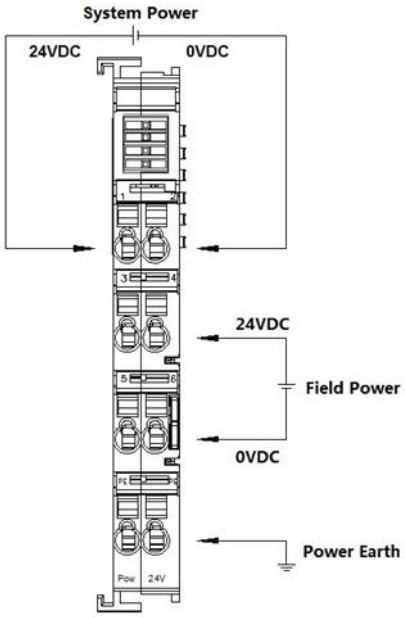
Normal state value	Status Name	meaning
16#0000	OP_SUCCESS	Configuration or write operation successful
16#0001	DATA_FULL	Data has been updated and can be read
16#0002	WRITE_IDLE	Write idle, writable
16#0003	DATA_EMPTY	Read idle, receive data not updated
Error Status Value	Status Name	meaning
16#E0A1	WRITE_BUSY	Write busy, can't write
16#E0A2	DATA_LARGE	Data length exceeds limit
16#E0A3	CMD_ERR	Command Error
16#E0A4	PARA_ERR	Configuration parameter error
16#E0A5	CHECK_ERR	Verification Error
16#E0A6	SLAVE_NOEXIT	The slave device does not exist
16#E0A7	PACK_LOSS	Packet Loss
16#E0A8	OVER_FLOW	Data overflow

1.1. 3.46 DF20-M-DC-UD-5:power supplyModules

1.1.1. 3.46.1 Technical Parameters

Electrical parameters		
System Power	Power Input	24V DC (18~36V)
	Power Output	5V DC/2A
Common power supply	Power Input	24V DC（±20%）
	Rated current	8A
General parameters		
Vibration Testing	1g, in accordance with IEC 60068-2-6	
Shock Test	15g, compliant with IEC 60068-2-27	
Electromagnetic compatibility	Compliant with EN 61000-4standard	
Protection level	IP20	
Operating temperature	-25～75℃	
Storage temperature	-40°C~+85°C	
Relative humidity	5～95%RH (no condensation)	
Installation	35mm rail mounting	
Dimensions	100mm × 12mm × 67mm	
Maximum crimping area of	2.5mm²	
Maximum crimping area of	AWG14	
Minimum crimping area of	0.2mm²	
Minimum crimping area for	AWG28	
Line length	8...9mm	

1.1.2. 3.46.2 Status indicator lights and wiring diagram



The status indicator lights are shown in the table below:

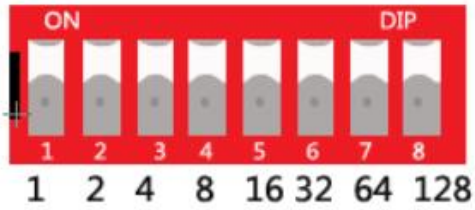
LED No	Status and meaning
ledSys-24V	Off: System power supply24VInput disconnect
	On: System power supply24VInput Normal
ledSys-5V	Off: System power supply5VOutput disconnect
	On: System power supply5VOutput is normal
ledField-24V	Off: Load power supply24VInput disconnect
	On: Load power supply24VInput Normal
ledField-24V	Off: Load power supply24VOutput disconnect
	On: Load power supply24VOutput is normal

4Adapter and module parameter configuration

4.1Adapter IP address parameter settings

4.1.1 Set the last byte of the IP address via the DIP switch

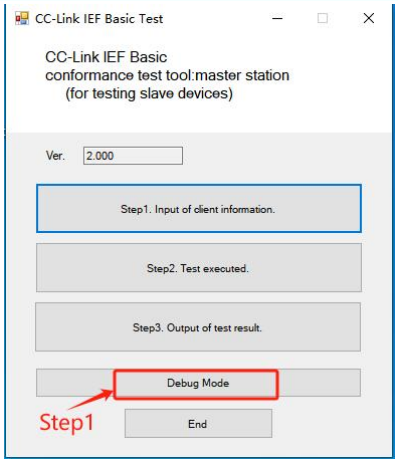
- Calculation of dial value:likeBelowAs shown in the figure, the DIP switch has 8 bits, bit 1 to bit 8, each bit represents a value, and the ON position represents 1, 2, 4, 8, 16, 32, 64, and 128, respectively. The sum of the values represented by the bits turned to ON is the DIP value. Address 11 is: 1 (bit 1) + 2 (bit 2) + 8 (bit 4) = 11, and address 30 is: 2 (bit 2) + 4 (bit 3) + 8 (bit 4) + 16 (bit 5) = 30; all the DIP switches are turned down to represent 0.



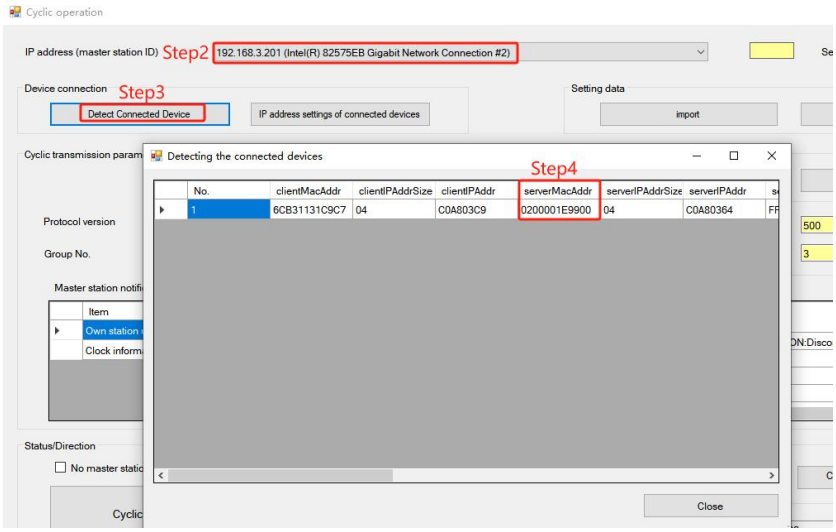
- When the IP address is set by the DIP switch from the factory defaultThe default IP address of the adapter is 192.168.3.2 (when the dial value is 0) when it leaves the factory. If the user modifies the dial value and the adapter is powered on again, the IP address will be 192.168.3.xxx (xxx is the dial switch value, ranging from 1 to 253).
- fromThe IP address has been set by the host computerstateDown,When setting the IP address using the DIP switchThe IP address uses the high 3 bytes of the IP address set by the host computer, and the low 1 byte is the setting value of the dip switch. For example, if the host computer sets it to 172.10.0.12 and then changes it toDialWhen the switch is set, the IP address is 172.10.0.xxx,xxx is the setting value of the DIP switch (1 to 253).

4.1.2Modify the IP address through the Conf_TestTool_ToMaster.exe tool

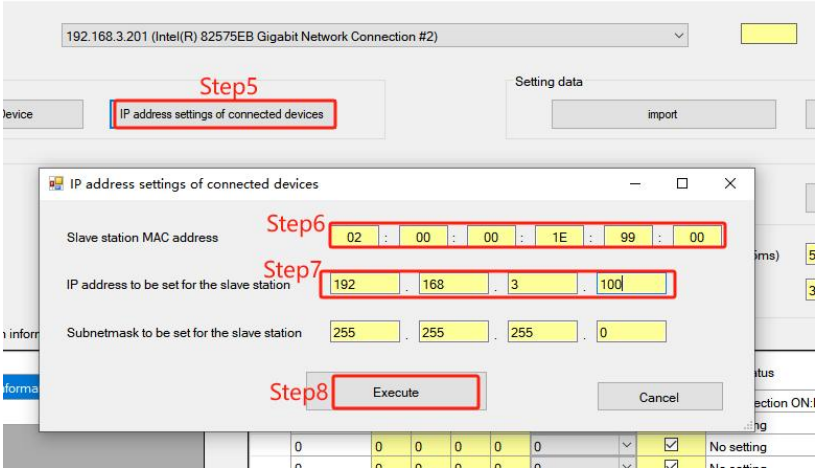
- After the hardware connection is completed, power on and set the computer IP address of the installation tool to the same network segment as the module IP. (For example, the module defaults to The factory IP address is 192.168.3.2, the computer IP can be changed to 192.168.3.201）.
- Open Conf_TestTool_ToMaster.exe,like”Step 1”Shownchoose"Debug Mode”.



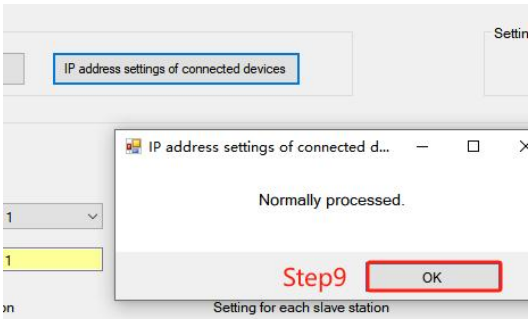
- As shown in Step 2, select the correct computer network interface.
- Click as shown in Step 3"Detect Connected Device".
- Click the required record as shown in Step 4"serverMacAddr"The address in the following will be used to modify the IP address.



- As shown in Step 5, click"IP address settings of connected devices".
- As shown in Step 6, the recorded"serverMacAddr"Fill in the MAC address in"Slave station MAC address"middle.
- As shown in Step 7, the IP address to be modified is**"192.168.3.100"**Fill in"IP address to be set for the slave station"Inside.
- As shown in Step 8, click Execute..

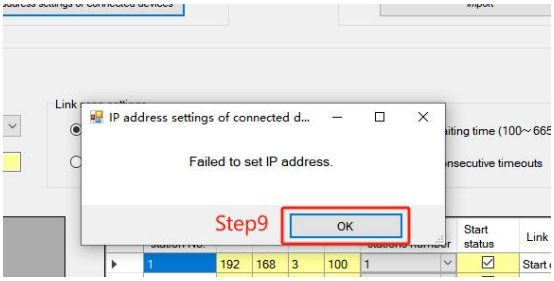


➢ As shown in Step 9, the IP address is modified successfully and can be reconnected. Click"OK", complete the IP modification.

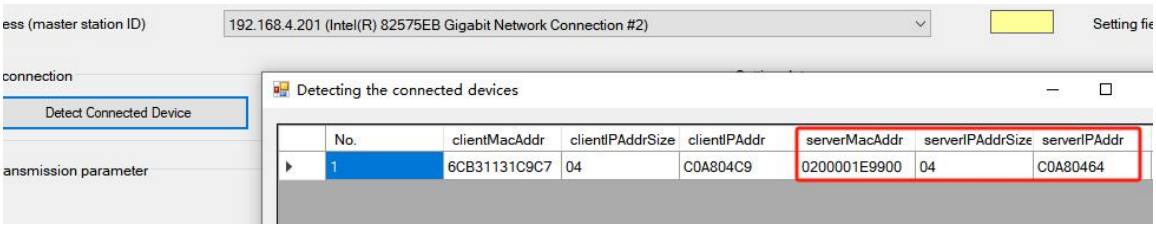


➢ If the user needs to modifyadapterThe network segment of the IP address, such as changing the IP address to "192.168.4.100"**, repeat as shown**
Steps from Step5 to Step8.

➢ The execution result is shown in Step 9. It fails because the software can no longer communicate with the adapter after the adapter changes the network segment.
As a result, the modification has actually been successful.



➢ Change the computer network IP to 192.168.4.201, re-detect the adapter, and verify that the adapter IP address has been successfully modified..



4.1.3Adapter IP address parametersReset settings

- If you forget or lose your IP address or encounter other abnormal situations during use,Set the adapter's dip switch to**"254",**
  adapterIP addressAutomatically set to**"192.168.3.254"**,The user can scan the adapter through the IP address and then perform subsequent operations.
- DialCalculation of valuesdetailedSeeSection 4.1.1

4.2 Configuration Parameter Description

4.2.1 Description of coupler software

➢ The coupler soft element allocation is as follows:

Station	Number of	Component	illustrate
Slave	[1,4]	RX	X × 64 bits For digital input process data
		RY	X × 64 bits For digital output of process data
		R	X × 32 words For analog input process data
		R	X × 32 words For analog output of process data

Note: X is the number of occupied stations.

4.2.2 Module parameter settings

Name	Initial Value	illustrate
Moudle Information		
Manufacturer ID	0x0352	Manufacturer ID, read only
Product Name	DF20-C-CC-FB	Product name, read only
Product ID	0x0000000E	Product ID, read only
Software Version	/	
Occupied Station		
Occupied Station	1	Number of stations occupied by the module, read
ModulesNum		
ModulesNum	0	Module quantity, read only
Outputs Hold or Clear		
Outputs Hold or Clear	Clear	Network disconnection output module maintains or clears output selection, readable and writable
Digital Input Module Parameter		
Inputs Filter	4ms	All digital input modules are filtered and can be
DF20-M-4AI-U-0Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
DF20-M-4AI-U-1Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
DF20-M-4AI-I-2Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
DF20-M-4AI-I-3Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
DF20-M-4AI-U-1Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
Signal Range Select	-10V~10V -27648~27648	Analog input range selection, readable and
DF20-M-4AI-I-5Parameter		
Input Filter Select	20Hz	Analog input filter selection, readable and
Signal Range Select	0~20mA 0~27648	Analog input range selection, readable and
DF20-M-8AI-U-4Parameter		
Input Filter Select	100Hz_10ms	Analog input filter selection, readable and

Signal Range Select	Disable	Analog input range selection, readable and
DF20-M-8AI-I-5Parameter		
Input Filter Select	100Hz_10ms	Analog input filter selection, readable and
Signal Range Select	Disable8	Analog input range selection, readable and
DF20-M-4AO-U-4Parameter		
Signal Range Select	-10V~10V -27648~27648	Analog output range selection, readable and
DF20-M-4AO-I-5Parameter		
Signal Range Select	0~20mA 0~27648	Analog output range selection, readable and
DF20-M-8AO-U-4Parameter		
Signal Range Select	Disable	Analog output range selection, readable and
DF20-M-8AO-I-5Parameter		
Signal Range Select	Disable	Analog output range selection, readable and
DF20-M-2LC-S-5Parameter		
Input Filter Select	20Hz	Pressure sensor input filter selection, readable
DF20-M-2RTD-PTParameter		
Signal Filter Select	1.25Hz_800ms	Temperature signal input filter selection, readable
RTD Type Select	PT100 -200..850 degrees	Thermal resistor temperature sensor selection,
DF20-M-4RTD-PTParameter		
Signal Filter Select	1.25Hz_800ms	Temperature signal input filter selection, readable
RTD Type Select	PT100 -200..850 degrees	Thermal resistor temperature sensor selection,
DF20-M-4TC-KETJParameter		
Signal Filter Select	1Hz_1000ms	Temperature signal input filter selection, readable
TC Type Select	K -270...1370 degrees C	Thermocouple temperature sensor selection,
DF20-M-8TC-KETJParameter		
Signal Filter Select	450ms	Temperature signal input filter selection, readable
TC Type Select	K -270...1370 degrees C	Thermocouple temperature sensor selection,
DF20-M-2CNT-EL-5 Parameter		
CH1 Counter Type Select	LineCount	Count type, readable and writable
CH1 Pulse_Input_Method Select	Phase Differential x4	Input signal type, readable and writable
CH1 Count_Direction Select	Positive_Logic	Signal input direction logic, readable and writable
CH1 Count_Filter Select	4MHZ	Input pulse signal filter configuration, readable
CH1 Count_UpLimit	2147483647	Ring count upper limit, readable and writable
CH1 Count_DnLimit	-2147483648	Ring count lower limit, readable and writable
CH2 Counter Type Select	LineCount	Count type, readable and writable
CH2 Pulse_Input_Method Select	Phase Differential x4	Input signal type, readable and writable
CH2 Count_Direction Select	Positive_Logic	Signal input direction logic, readable and writable
CH2 Count_Filter Select	4MHZ	Input pulse signal filter configuration, readable
CH2 Count_UpLimit	2147483647	Ring count upper limit, readable and writable
CH2 Count_DnLimit	-2147483648	Ring count lower limit, readable and writable
DF20-M-2CNT-EL-4 Parameter		
CH1 Counter Type Select	LineCount	Count type, readable and writable
CH1 Pulse_Input_Method Select	Phase Differential x4	Input signal type, readable and writable
CH1 Count_Direction Select	Positive_Logic	Signal input direction logic, readable and writable
CH1 Count_Filter Select	4MHZ	Input pulse signal filter configuration, readable
CH1 Count_UpLimit	2147483647	Ring count upper limit, readable and writable
CH1 Count_DnLimit	-2147483648	Ring count lower limit, readable and writable
CH2 Counter Type Select	LineCount	Count type, readable and writable
CH2 Pulse_Input_Method Select	Phase Differential x4	Input signal type, readable and writable
CH2 Count_Direction Select	Positive_Logic	Signal input direction logic, readable and writable
CH2 Count_Filter Select	4MHZ	Input pulse signal filter configuration, readable
CH2 Count_UpLimit	2147483647	Ring count upper limit, readable and writable
CH2 Count_DnLimit	-2147483648	Ring count lower limit, readable and writable
DF20-M-1COM-232/485/422 Parameter		

PortOperationMode	FreeRUN	Operation Mode, readable and writable
Port Interfance	RS485	Interface Type, readable and writable
Port Parity	None	Check digit, readable and writable
Port Data bits	8bit	Data bits, readable and writable
Port Stop bit	1bit	Stop bits, readable and writable
Port Baudrate	115200bps	Baud rate, readable and writable
FreeRun Interval time(ms)	1	Receive frame interval in transparent
Slave:Slave ID	1	Slave ID, readable and writable
Slave:Slave Response Delay(ms)	0	Slave Address, readable and writable
Master:Ch0:Slave ID	0	Master Mode Channel 0Slave Address, readable
Master:Ch0:Event Trigger	PollMode	Master Mode Channel 0 Trigger Mode, readable
Master:Ch0:Lost Action	Hold Data	Master mode channel 0 offline action, readable
Master:Ch0:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 0 function code, readable and writable
Master:Ch0:Reg Addr	0	Master mode channel 0 register address, readable
Master:Ch0:Reg Num	0	Master mode channel 0 register quantity, readable
Master:Ch0:Poll Time	500	Master mode channel 0 polling period, readable
Master:Ch0:Poll Delay	0	Master mode channel 0 interval time, readable
Master:Ch0:Response Timeout	1000	Master mode channel 0 slave timeout, readable
Master:Ch1:Slave ID	0	Master mode channel 1Slave Address, readable
Master:Ch1:Event Trigger	PollMode	Master Mode Channel 1 Trigger Mode, readable
Master:Ch1:Lost Action	Hold Data	Master mode channel 1 offline action, readable
Master:Ch1:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 1 function code, readable and writable
Master:Ch1:Reg Addr	0	Master mode channel 1 register address, readable
Master:Ch1:Reg Num	0	Master mode channel 1 register quantity, readable
Master:Ch1:Poll Time	500	Master mode channel 1 polling cycle, readable
Master:Ch1:Poll Delay	0	Master mode channel 1 interval time, readable
Master:Ch1:Response Timeout	1000	Master mode channel 1 slave timeout, readable
Master:Ch2:Slave ID	0	Master Mode Channel 2Slave Address, readable
Master:Ch2:Event Trigger	PollMode	Master Mode Channel 2 Trigger Mode, readable
Master:Ch2:Lost Action	Hold Data	Master mode channel 2 offline action, readable
Master:Ch2:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 2 function code, readable and writable
Master:Ch2:Reg Addr	0	Master mode channel 2 register address, readable
Master:Ch2:Reg Num	0	Master mode channel 2 register quantity, readable
Master:Ch2:Poll Time	500	Master mode channel 2 polling cycle, readable
Master:Ch2:Poll Delay	0	Master mode channel 2 interval time, readable
Master:Ch2:Response Timeout	1000	Master mode channel 2 slave timeout, readable
Master:Ch3:Slave ID	0	Master Mode Channel 3Slave Address, readable
Master:Ch3:Event Trigger	PollMode	Master Mode Channel 3 Trigger Mode, readable
Master:Ch3:Lost Action	Hold Data	Master mode channel 3 offline action, readable
Master:Ch3:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 3 function code, readable and writable
Master:Ch3:Reg Addr	0	Master mode channel 3 register address, readable
Master:Ch3:Reg Num	0	Master mode channel 3 register quantity, readable
Master:Ch3:Poll Time	500	Master mode channel 3 polling cycle, readable
Master:Ch3:Poll Delay	0	Master mode channel 3 interval time, readable
Master:Ch3:Response Timeout	1000	Master mode channel 3 slave timeout, readable
Master:Ch4:Slave ID	0	Master Mode Channel 4Slave Address, readable
Master:Ch4:Event Trigger	PollMode	Master Mode Channel 4 Trigger Mode, readable
Master:Ch4:Lost Action	Hold Data	Master mode channel 4 offline action, readable

Master:Ch4:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 4 function code, readable and writable
Master:Ch4:Reg Addr	0	Master mode channel 4 register address, readable
Master:Ch4:Reg Num	0	Master mode channel 4 register quantity, readable
Master:Ch4:Poll Time	500	Master mode channel 4 polling cycle, readable
Master:Ch4:Poll Delay	0	Master mode channel 4 interval time, readable
Master:Ch4:Response Timeout	1000	Master mode channel 4 slave timeout, readable
Master:Ch5:Slave ID	0	Master Mode Channel 5Slave Address, readable
Master:Ch5:Event Trigger	PollMode	Master Mode Channel 5 Trigger Mode, readable
Master:Ch5:Lost Action	Hold Data	Master mode channel 5 offline action, readable
Master:Ch5:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 5 function code, readable and writable
Master:Ch5:Reg Addr	0	Master mode channel 5 register address, readable
Master:Ch5:Reg Num	0	Master mode channel 5 register quantity, readable
Master:Ch5:Poll Time	500	Master mode channel 5 polling cycle, readable
Master:Ch5:Poll Delay	0	Master mode channel 5 interval time, readable
Master:Ch5:Response Timeout	1000	Master mode channel 5 slave timeout, readable
Master:Ch6:Slave ID	0	Master Mode Channel 6Slave Address, readable
Master:Ch6:Event Trigger	PollMode	Master Mode Channel 6 Trigger Mode, readable
Master:Ch6:Lost Action	Hold Data	Master mode channel 6 offline action, readable
Master:Ch6:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 6 function code, readable and writable
Master:Ch6:Reg Addr	0	Master mode channel 6 register address, readable
Master:Ch6:Reg Num	0	Master mode channel 6 register quantity, readable
Master:Ch6:Poll Time	500	Master mode channel 6 polling cycle, readable
Master:Ch6:Poll Delay	0	Master mode channel 6 interval time, readable
Master:Ch6:Response Timeout	1000	Master mode channel 6 slave timeout, readable
Master:Ch7:Slave ID	0	Master mode channel 7Slave Address, readable
Master:Ch7:Event Trigger	PollMode	Master Mode Channel 7 Trigger Mode, readable
Master:Ch7:Lost Action	Hold Data	Master mode channel 7 offline action, readable
Master:Ch7:Operation Code	WRITE MULTIPLE HOLDING REGISTERS	Master mode channel 7 function code, readable and writable
Master:Ch7:Reg Addr	0	Master mode channel 7 register address, readable
Master:Ch7:Reg Num	0	Master mode channel 7 register quantity, readable
Master:Ch7:Poll Time	500	Master mode channel 7 polling cycle, readable
Master:Ch7:Poll Delay	0	Master mode channel 7 interval time, readable
Master:Ch7:Response Timeout	1000	Master mode channel 7 slave timeout, readable
DF20-M-2PWM Parameter		
CH1_Pulse Mode	Pulse_Dir	Channel 1 signal type, readable and writable
CH1_Motion Mode	Jog	Channel 1 pulse control mode, readable and
CH1_Ramp Mode	Ramp_Enable	Channel 1 pulse ramp enable, readable and
CH1_Direction Mode	Positive	Channel 1 direction logic, readable and writable
CH1_Signal Type	OpenDrain	Channel 1 pulse output mode, readable and
CH1_Duty Cycle	Duty_cycle_enable	Channel 1 PWM signal duty cycle enable,
CH1_PWM Freq Range	100Hz~6KHz	Channel 1 PWM frequency range, readable and
CH1_Startup Freq	1000	Channel 1 pulse output starting frequency, unit
CH1_Target Freq	10000	Channel 1 pulse output target frequency, unit HZ,
CH1_Ramp_Up_Time	100	Channel 1 pulse output ramp-up time, unit: ms,
CH1_Ramp_Dn_Time	100	Channel 1 pulse output downslope time, unit: ms,
CH2_Pulse Mode	Pulse_Dir	aisle2Signal Type, readable and writable
CH2_Motion Mode	Jog	aisle2Pulse control method, readable and writable
CH2_Ramp Mode	Ramp_Enable	aisle2Pulse ramp enable, readable and writable
CH2_Direction Mode	Positive	aisle2Direction logic, readable and writable

CH2_Signal Type	OpenDrain	aisle2Pulse output mode, readable and writable
CH2_Duty Cycle	Duty_cycle_enable	aisle2PWM signal duty cycle enable, readable
CH2_PWM Freq Range	100Hz~6KHz	aisle2PWM frequency range, readable and
CH2_Startup Freq	1000	aisle2Pulse output starting frequency, unit HZ,
CH2_Target Freq	10000	aisle2Pulse output target frequency, unit HZ,
CH2_Ramp_Up_Time	100	aisle2Pulse output ramp-up time, unit: ms,
CH2_Ramp_Dn_Time	100	aisle2Pulse output downslope time, unit: ms,

5 Software Configuration Instructions

5.1 Using FX5U-32MT/ES PLC in GX Works3

5.1.1 Preparation

➢ Hardware Environment

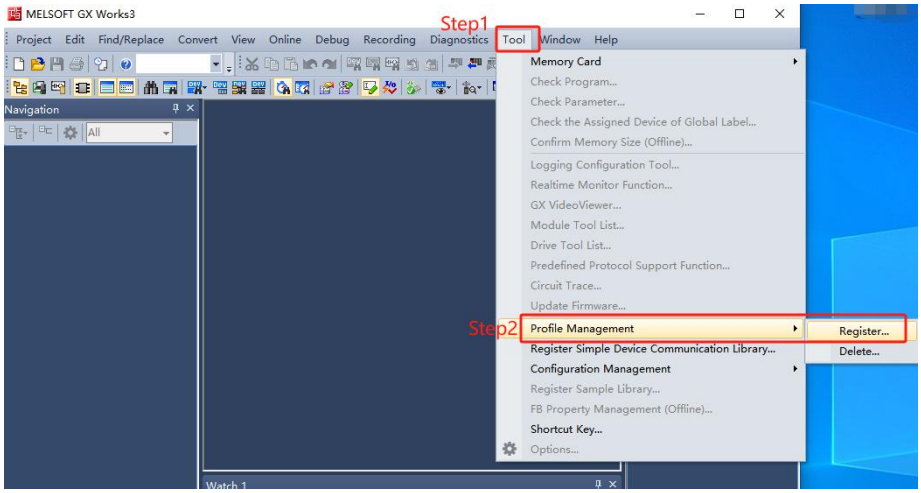
- Module Preparation

This instructionDF20-C-CC-FBCoupler,Insert in orderDF20-M-16DI-N+DF20-M-16DO-N+DF20-M-8DIO-N+DF20-M-4AI-I-5+DF20-M-8AI-I-5+DF20-M-4AO-U-4+DF20-M-8AO-U-4+DF20-M-8TC-KETJA total of 8 modules as an example.

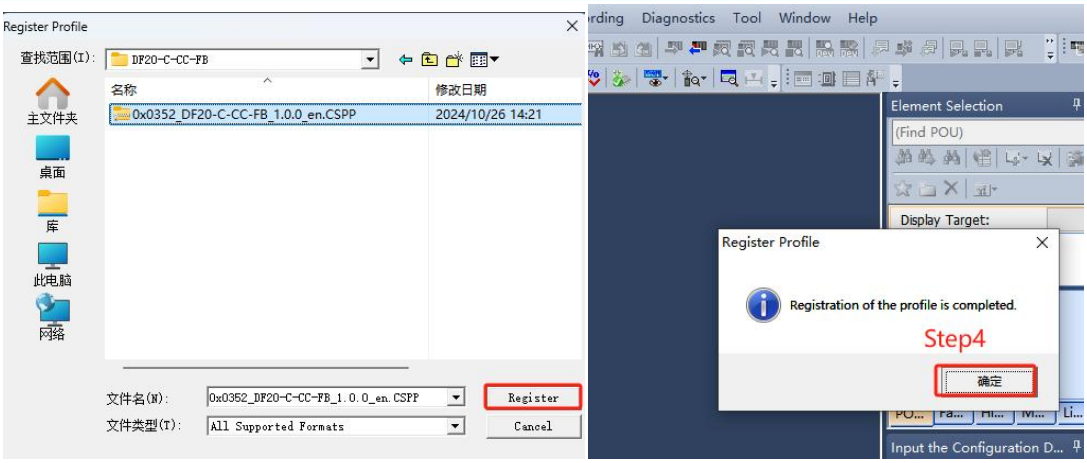
- A computer with GX Works3 software pre-installed.
- Shielded cable for CC-Link IE Field Basic.
- Mitsubishi PLC 1 setThis description takes FX5U-32MT/ES as an example.
- Switching power supply.
- Module mounting rails and rail fixings.
- Device Profile"0x0352_DF20-C-CC-FB_1.0.0_en.CSPP".

5.1.2 Install CSPP file

a. Open the GX Work3 software, click "Tool" in the menu bar, and click "Profile Management -> Register", as shown below.



b. In the pop-up box, select theCSPPFile, click "Login" to complete the installation, as shown below.



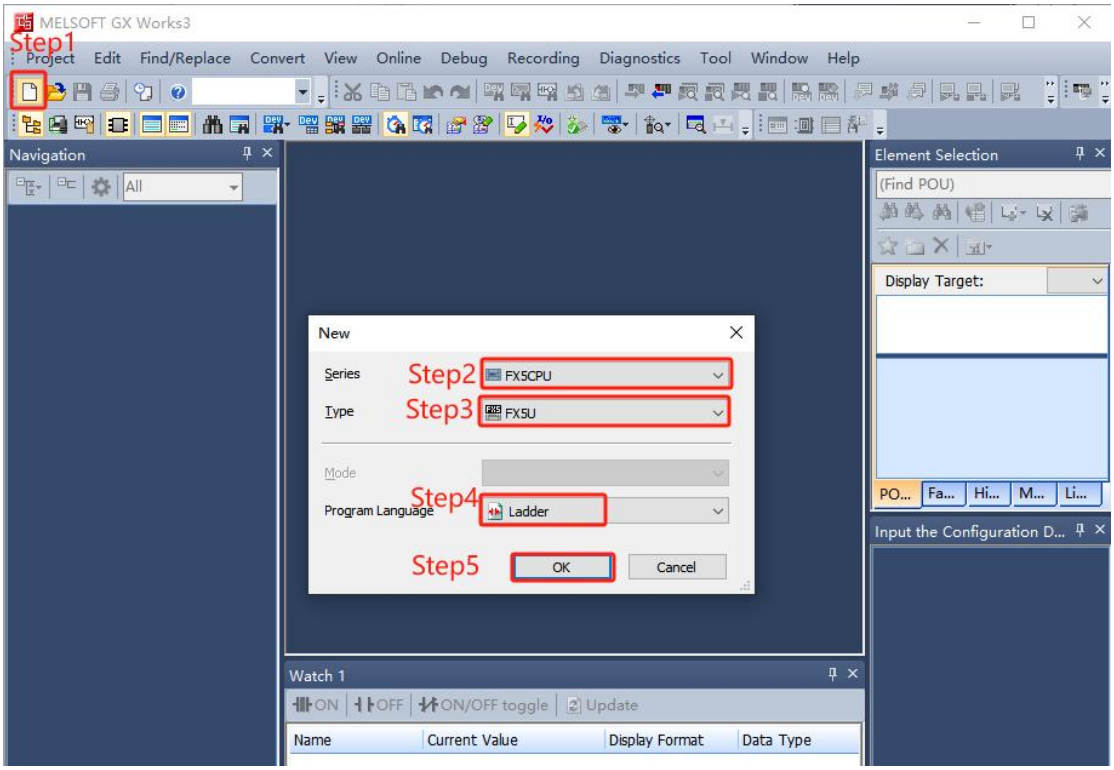
c. **The configuration file does not need to be decompressed, and the project needs to be closed during installation; if the configuration file needs to be replaced, be sure to uninstall it before adding it**.

5.1.3 Create a project

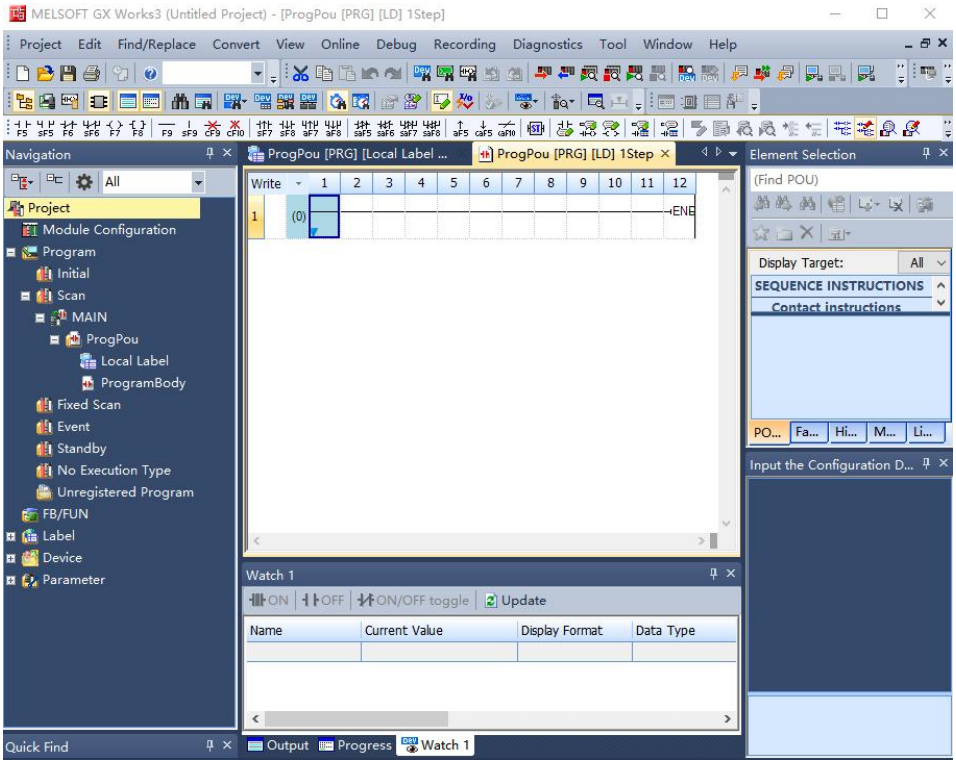
a. Click "New Project" in the menu bar.

b.The New Project dialog box pops up. Select "FX5CPU" for PLC series, "FX5U" for PLC type, and Ladder as the default programming language.

c. Click OK, as shown in the following figure.



d.As shown in the figure belowProject creation completed.



5.1.4 Establish configuration

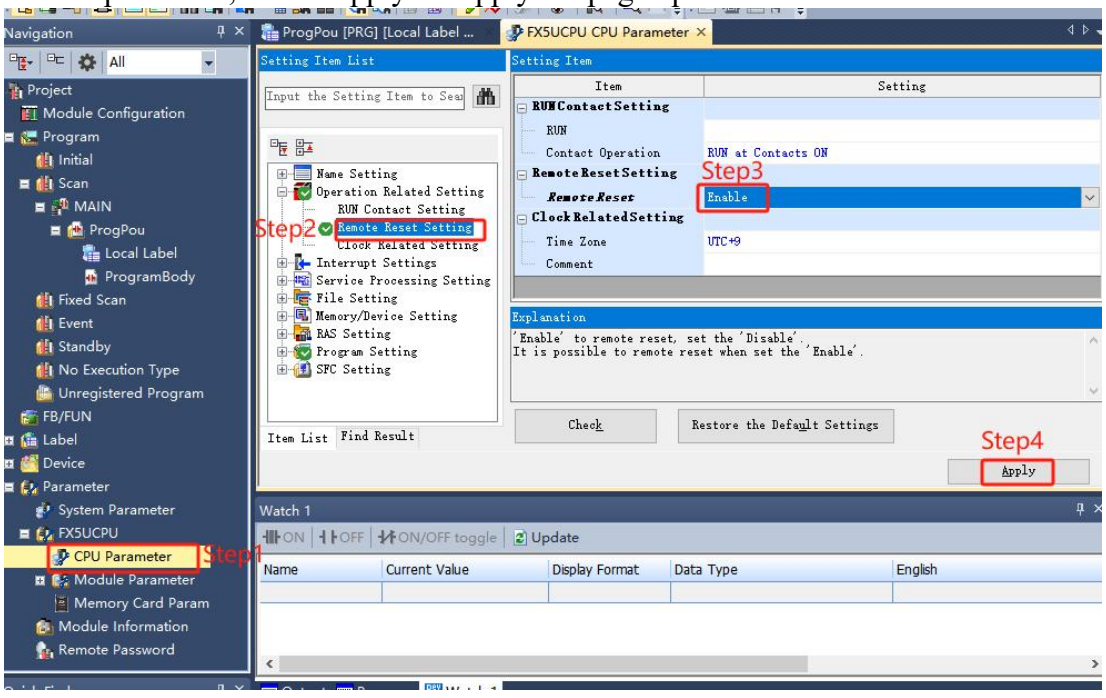
➢ Enable PLC remote reset function:

a. As shown in Step 1 below, in the left navigation interface, select "Parameter -> FX5UCPU->CPU Parameter", and double-click "CPU Parameter".

b. As shown in Step 2 below, double-click "Remote Reset Setting".

c. As shown in Step 3 below, select Enable in Remote Reset to enable the remote reset function..

d. As shown in Step 4 below, click "Apply" to apply the page option.



➢ Network Configuration:

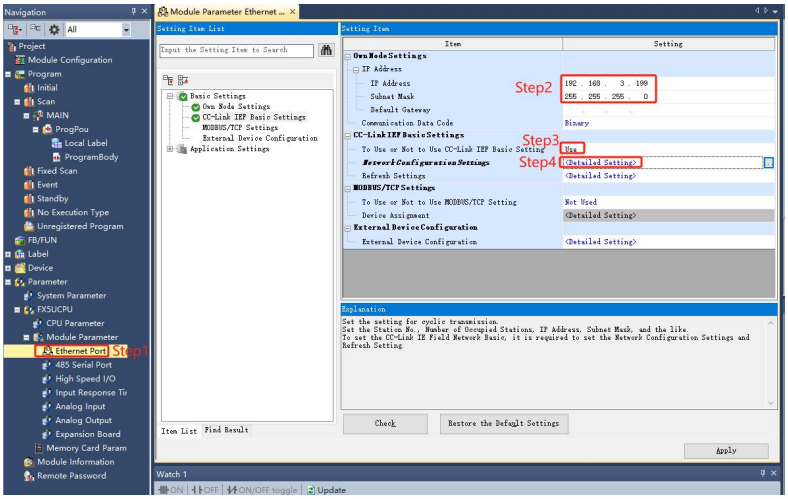
a. As shown in Step 1 below, double-click "Ethernet Port".

b. As shown in Step 2 below, set the "IP Address" and "Subnet Mask" under "Own Node Settings".

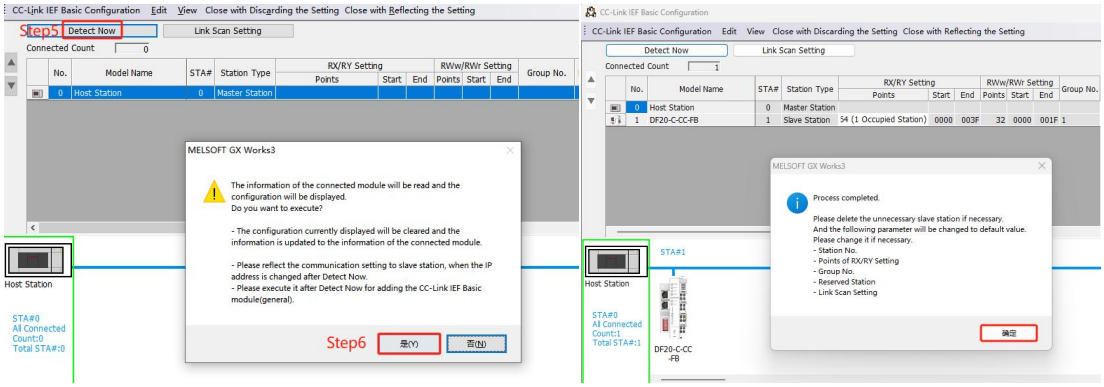
c. As shown in Step 3 below, set “Use” in the “CC-Link IEF Basic Settings”->”To Use or Not to Use

CC-Link IEF Basic Setting" option.

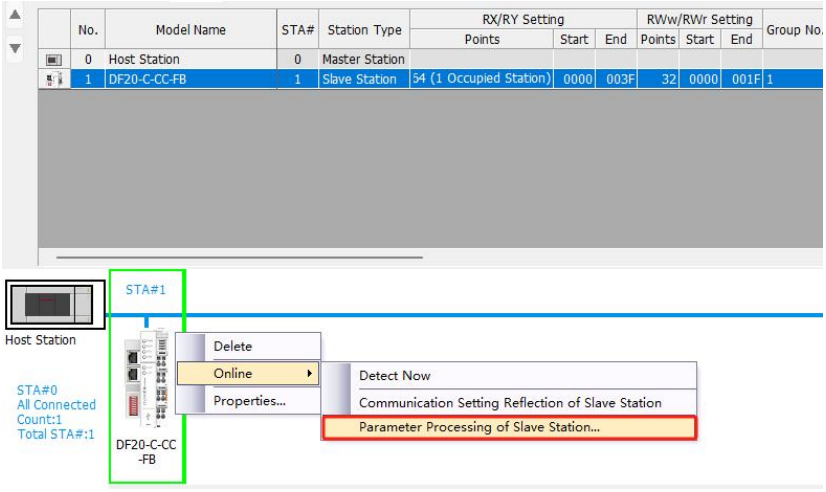
d. As shown in Step 4 below, in the "CC-Link IEF Basic Settings"->"Network Configuration Settings" option, double-click <Detailed Setting> to enter Step 5.



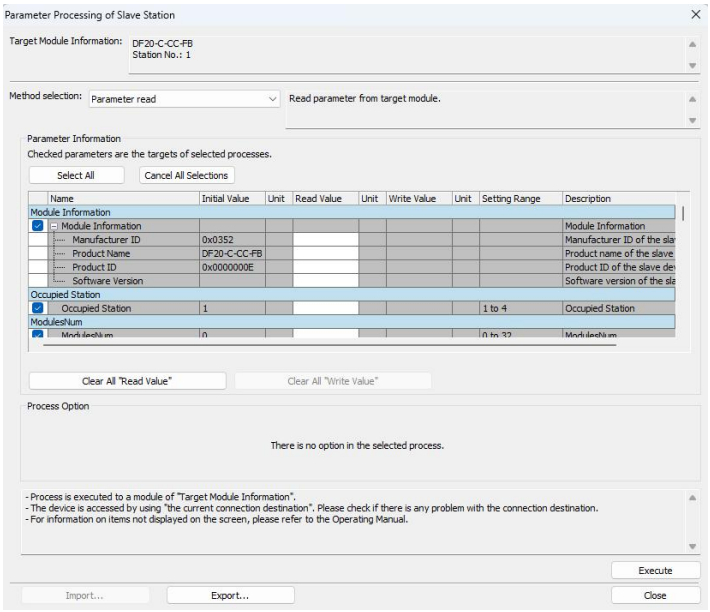
e. As shown in Step 5, Step 6, and Step 7, scan the slave devices.



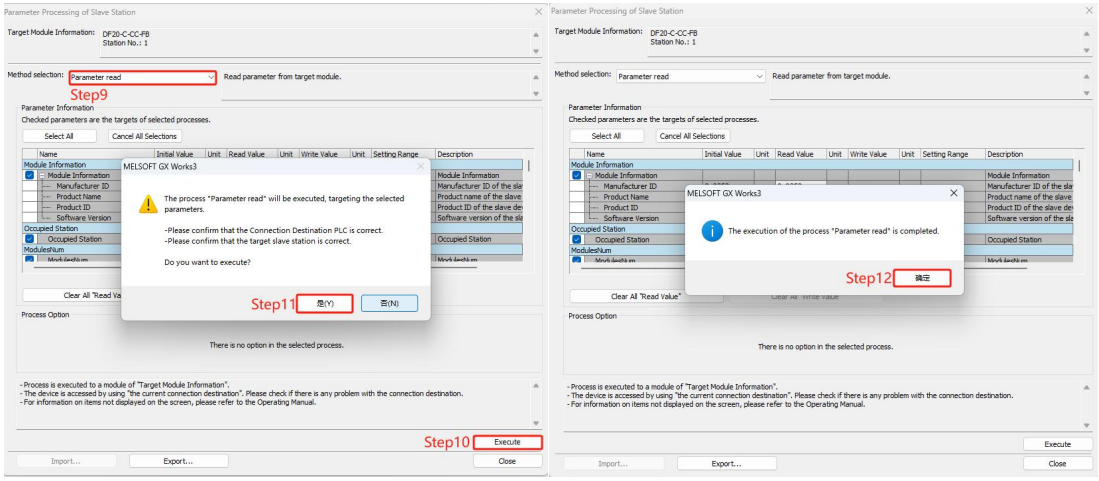
f. As shown in Step 8, click "Parameter Process of Slave Station" to set the slave station parameters.



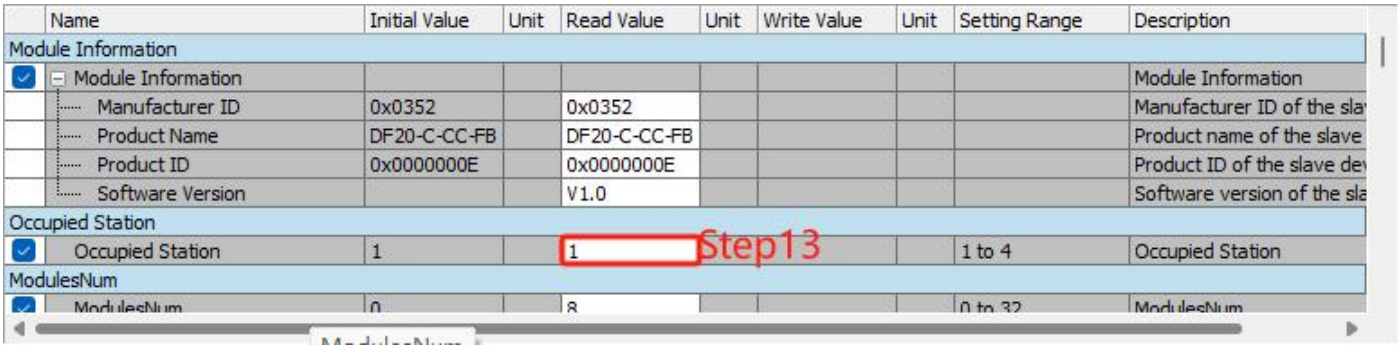
g. The slave parameter reading or writing interface is shown in the figure below.



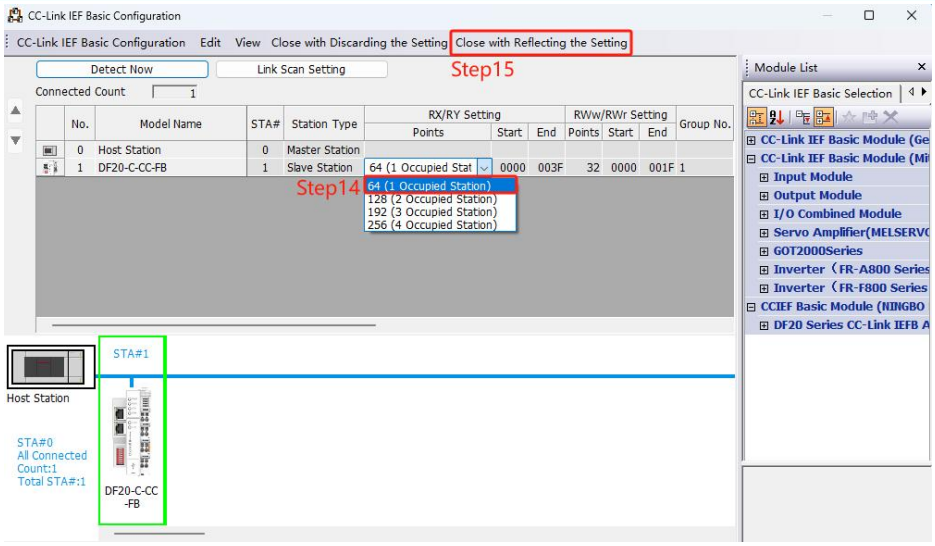
h. As shown in Step 9 to Step 12, read the slave parameters.



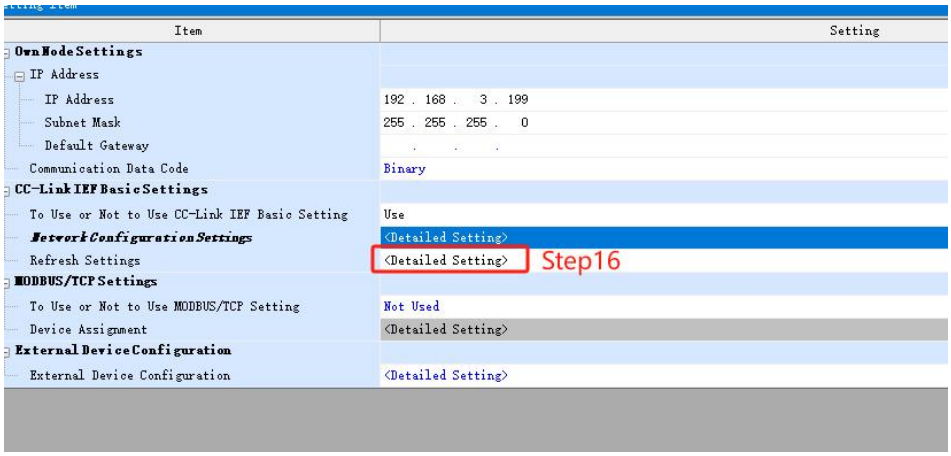
i. As shown in Step 13 below, record the number of stations occupied by the slave station, which is 1 here, and will be used in the next step of setting later.



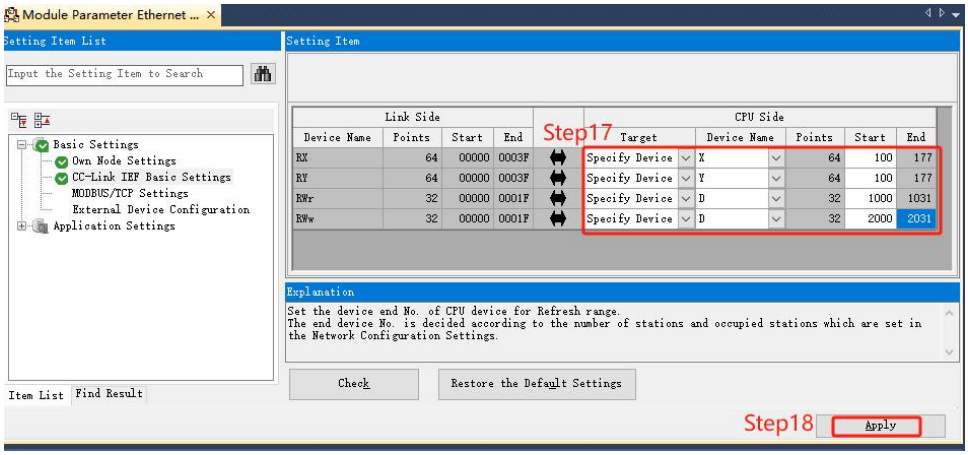
j. As shown in Step 14 below, select the number of stations according to the number of stations "1" of "Occupied Station" in Step 13, and click "Close with Reflecting Setting" as shown in Step 15 to reflect the setting and close.



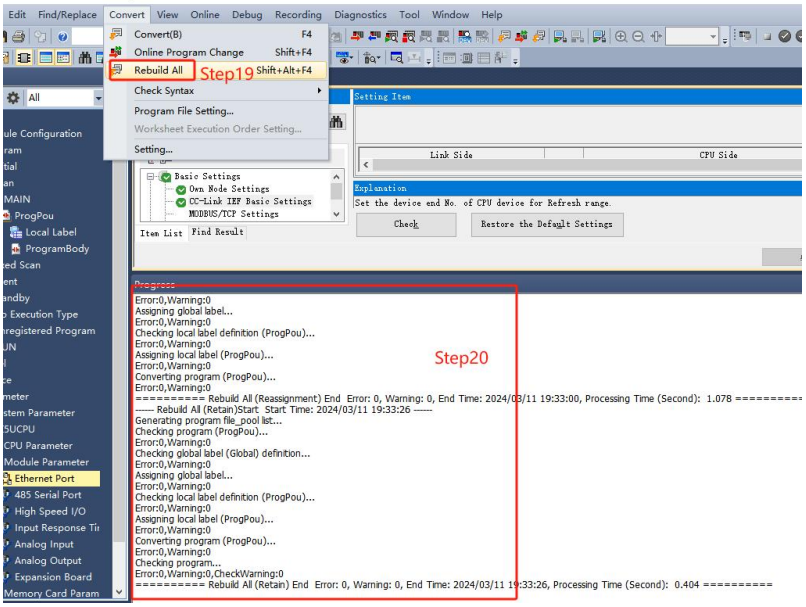
k. As shown in Step 16 below, double-click CC-Link IEF Settings->Refresh Settings->Detailed Setting to enter the refresh settings interface.



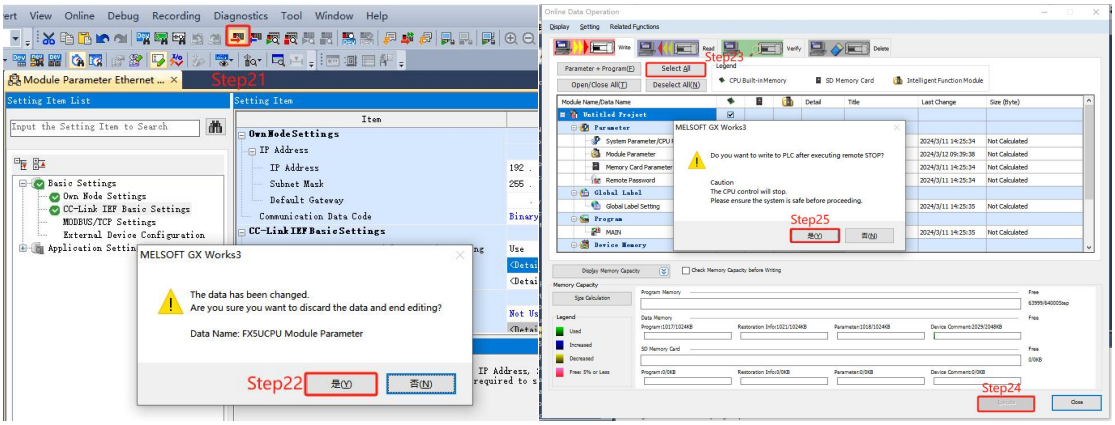
l. As shown in Step 17~Step 18 below, refresh settings and apply them.

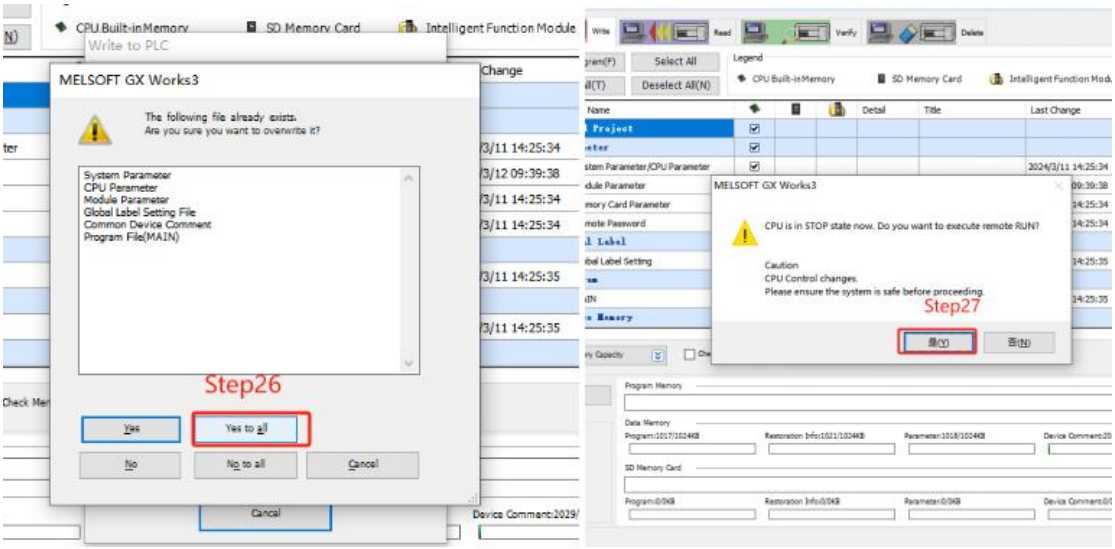


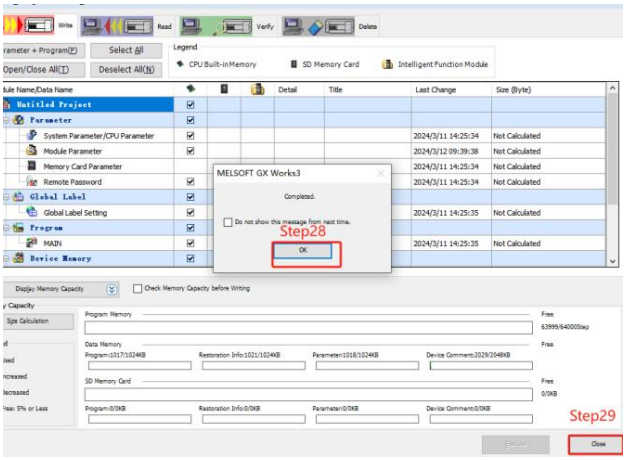
m. As shown in Step 19, compile the project. As shown in Step 20, no error is reported.



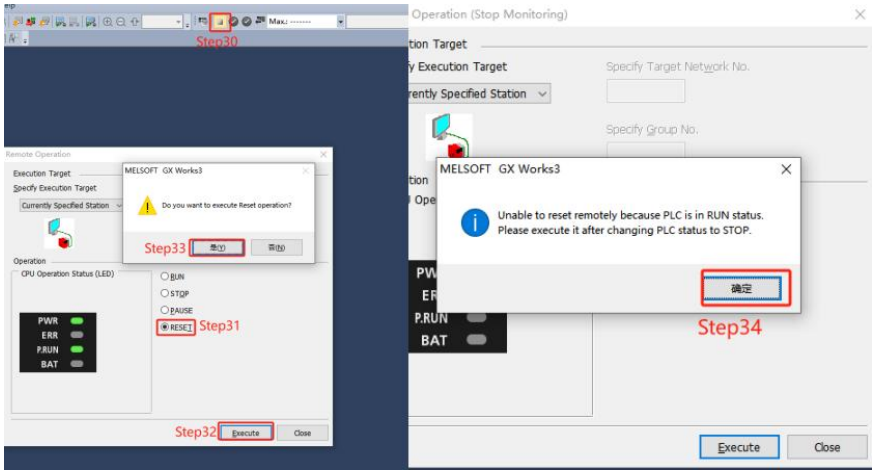
n. Download the project as shown in Step 21 to Step 29.

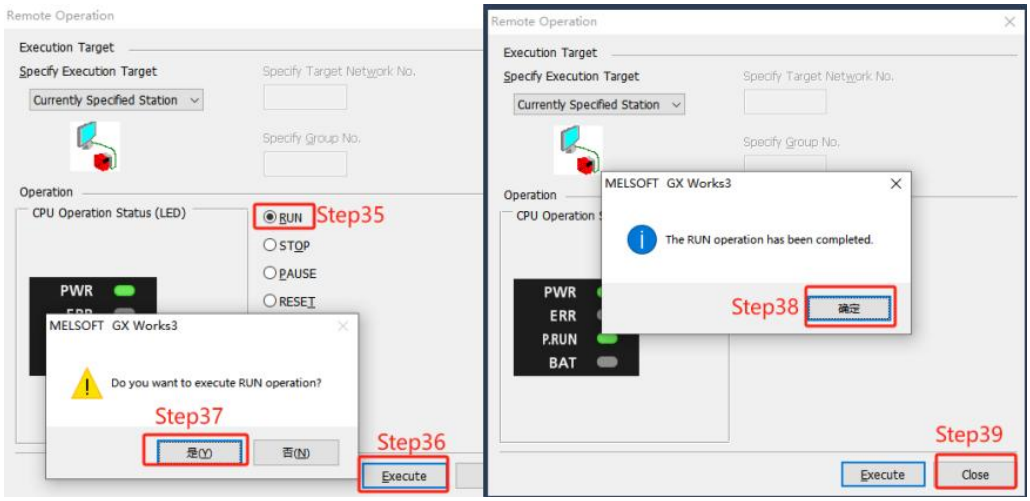




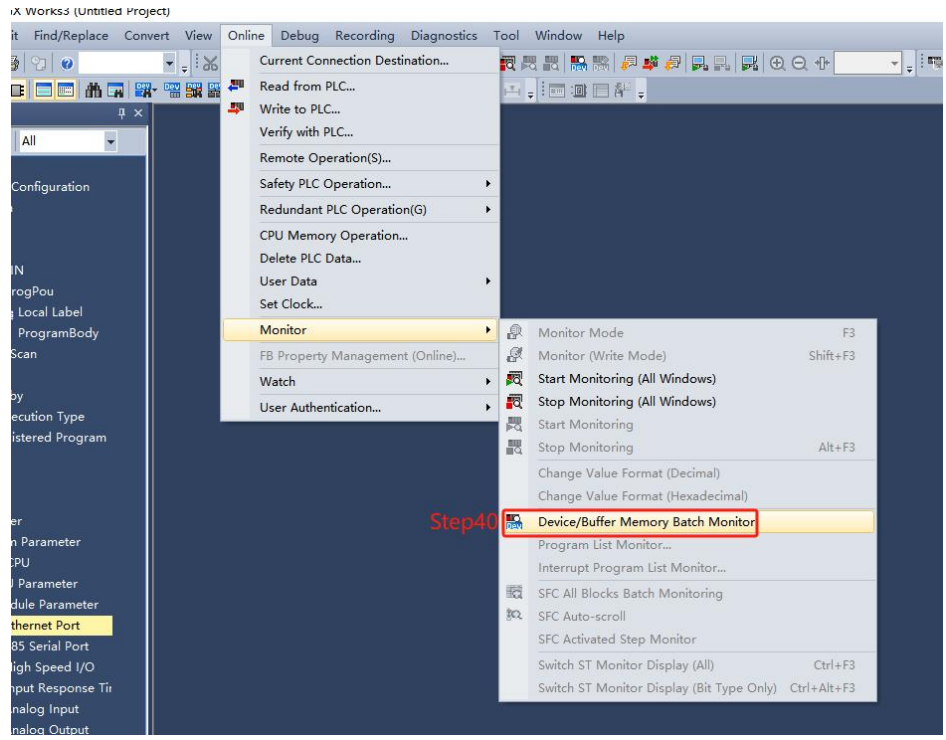


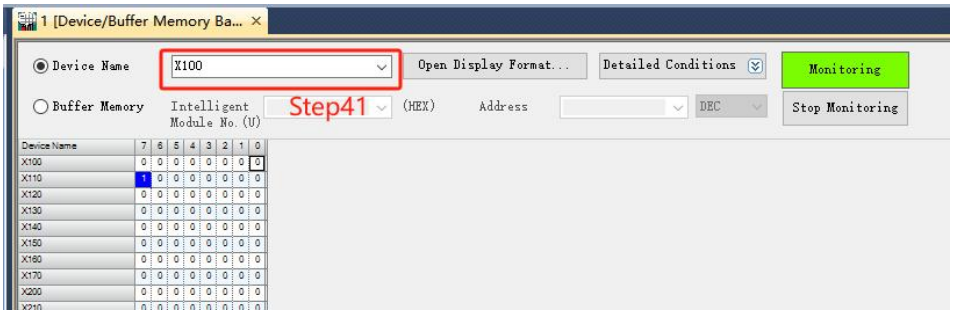
o. As shown in Step 30 to Step 39, reset the PLC and set it to RUN state, so there is no need to power off the PLC again.





p. For monitoring settings, as shown in Step 40, select "Online" -> "Monitor" -> "Device/Buffer Memory Batch Monitor".





q. Repeat the above operation to establish four monitoring interfaces. Enter the parameters of "Remote Input (RX) Refresh Soft Component", "Remote Output (RY) Refresh Soft Component", "Remote Register (RWr)" and "Remote Register (RWw)" set in the network parameter setting interface in "Device Name" of the four monitoring interfaces, that is, "X100", "Y100", "D1000" and "D2000", and the monitoring setting is completed.

5.1.5 Slave station parameter setting instructions

- The figure shows the slave parameter interface. First, execute "Parameter read" to read all the current module parameters. Table 1 shows the detailed description of these parameters. If the current parameters meet the user's needs, there is no need to repeatedly set the module configuration parameters.

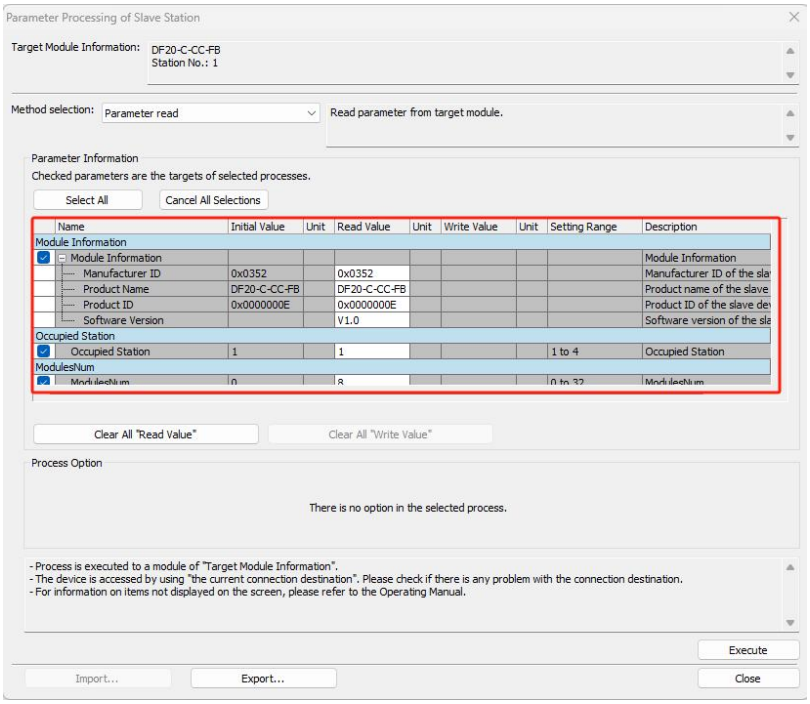


Table 3

Name	Initial Value	Read Value	illustrate
Moudle Information			
Manufacturer ID	0x0352	0x0352	Manufacturer ID, read only
Product Name	DF20-C-CC-FB	DF20-C-CC-FB	Product name, read only
Product ID	0x0000000E	0x0000000E	Product ID, read only
Software Version	/	V1.0	Software version, read only
Occupied Station			
Occupied Station	1	1	Number of stations occupied by the
ModulesNum			
ModulesNum	0	8	Module quantity, read only
Outputs Hold or Clear			
Outputs Hold or Clear	Clear	Clear	Network disconnection output module maintains or clears output
Digital Input Module Parameter			
Inputs Filter	4ms	4ms	All digital input modules are filtered
DF20-M-4AI-U-0Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
DF20-M-4AI-U-1Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
DF20-M-4AI-I-2Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
DF20-M-4AI-I-3Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
DF20-M-4AI-U-4Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
Signal Range Select	-10V~10V -27648~27648	-10V~10V -27648~27648	Analog input range selection,
DF20-M-4AI-I-5Parameter			
Input Filter Select	20Hz	20Hz	Analog input filter selection,
Signal Range Select	0~20mA 0~27648	0~20mA 0~27648	Analog input range selection,
DF20-M-8AI-U-4Parameter			
Input Filter Select	100Hz_10ms	100Hz_10ms	Analog input filter selection,
Signal Range Select	Disable	Disable	Analog input range selection,
DF20-M-8AI-I-5Parameter			

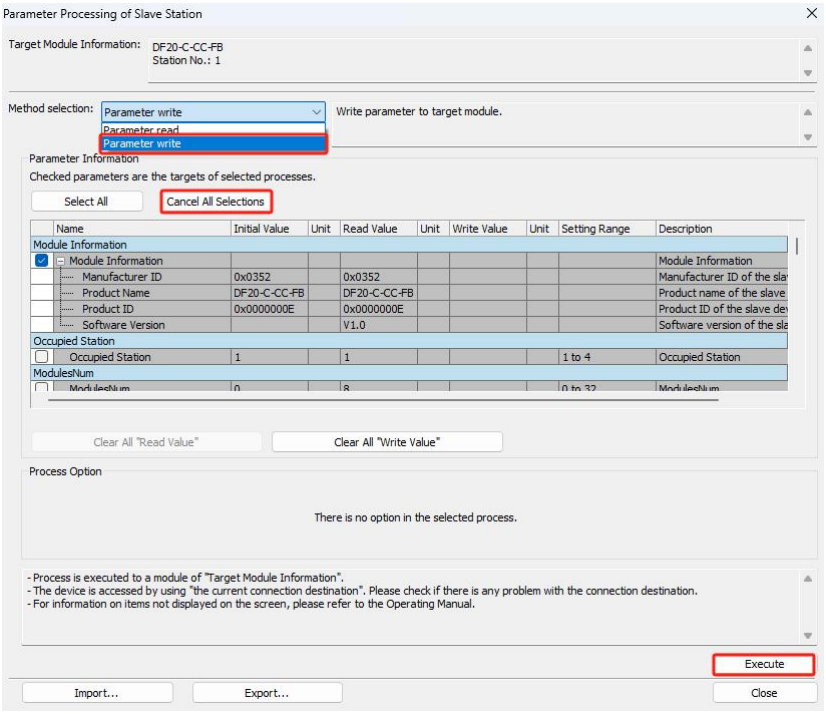
Input Filter Select	100Hz_10ms	100Hz_10ms	Analog input filter selection,
Signal Range Select	Disable	Disable	Analog input range selection,
DF20-M-4AO-U-4Parameter			
Signal Range Select	-10V~10V -27648~27648	-10V~10V -27648~27648	Analog output range selection,
DF20-M-4AO-I-5Parameter			
Signal Range Select	0~20mA 0~27648	0~20mA 0~27648	Analog output range selection,
DF20-M-8AO-U-4Parameter			
Signal Range Select	Disable	Disable	Analog output range selection,
DF20-M-8AO-I-5Parameter			
Signal Range Select	Disable	Disable	Analog output range selection,
DF20-M-2LC-S-5Parameter			
Input Filter Select	20Hz	20Hz	Pressure sensor input filter selection,
DF20-M-2RTD-PTParameter			
Signal Filter Select	1.25Hz_800ms	1.25Hz_800ms	Temperature signal input filter
RTD Type Select	PT100 -200..850 degrees	PT100 -200...850 degrees	Thermal resistor temperature sensor
DF20-M-4RTD-PTParameter			
Signal Filter Select	1.25Hz_800ms	1.25Hz_800ms	Temperature signal input filter
RTD Type Select	PT100 -200..850 degrees	PT100 -200...850 degrees	Thermal resistor temperature sensor
DF20-M-4TC-KETJParameter			
Signal Filter Select	1Hz_1000ms	1Hz_1000ms	Temperature signal input filter
TC Type Select	K -270...1370 degrees C	K -270...1370 degrees C	Thermocouple temperature sensor
DF20-M-8TC-KETJParameter			
Signal Filter Select	450ms	450ms	Temperature signal input filter
TC Type Select	K -270...1370 degrees C	K -270...1370 degrees C	Thermocouple temperature sensor
DF20-M-2CNT-EL-5 Parameter			
CH1 Counter Type Select	LineCount	LineCount	Count type, readable and writable
CH1 Pulse_Input_Method	Phase Differential x4	Phase Differential x4	Input signal type, readable and
CH1 Count_Direction	Positive_Logic	Positive_Logic	Signal input direction logic, readable
CH1 Count_Filter Select	4MHZ	4MHZ	Input pulse signal filter
CH1 Count_UpLimit	2147483647	2147483647	Ring count upper limit, readable and
CH1 Count_DnLimit	-2147483648	-2147483648	Ring count lower limit, readable and
CH2 Counter Type Select	LineCount	LineCount	Count type, readable and writable
CH2 Pulse_Input_Method	Phase Differential x4	Phase Differential x4	Input signal type, readable and
CH2 Count_Direction	Positive_Logic	Positive_Logic	Signal input direction logic, readable
CH2 Count_Filter Select	4MHZ	4MHZ	Input pulse signal filter
CH2 Count_UpLimit	2147483647	2147483647	Ring count upper limit, readable and
CH2 Count_DnLimit	-2147483648	-2147483648	Ring count lower limit, readable and
DF20-M-2CNT-EL-4 Parameter			
CH1 Counter Type Select	LineCount	LineCount	Count type, readable and writable
CH1 Pulse_Input_Method	Phase Differential x4	Phase Differential x4	Input signal type, readable and
CH1 Count_Direction	Positive_Logic	Positive_Logic	Signal input direction logic, readable
CH1 Count_Filter Select	4MHZ	4MHZ	Input pulse signal filter
CH1 Count_UpLimit	2147483647	2147483647	Ring count upper limit, readable and
CH1 Count_DnLimit	-2147483648	-2147483648	Ring count lower limit, readable and
CH2 Counter Type Select	LineCount	LineCount	Count type, readable and writable
CH2 Pulse_Input_Method	Phase Differential x4	Phase Differential x4	Input signal type, readable and
CH2 Count_Direction	Positive_Logic	Positive_Logic	Signal input direction logic, readable
CH2 Count_Filter Select	4MHZ	4MHZ	Input pulse signal filter
CH2 Count_UpLimit	2147483647	2147483647	Ring count upper limit, readable and
CH2 Count_DnLimit	-2147483648	-2147483648	Ring count lower limit, readable and
DF20-M-1COM-232/485/422 Parameter			
PortOperationMode	FreeRUN	FreeRUN	Operation Mode, readable and

Port Interfance	RS485	RS485	Interface Type, readable and writable
Port Parity	None	None	Check digit, readable and writable
Port Data bits	8bit	8bit	Data bits, readable and writable
Port Stop bit	1bit	1bit	Stop bits, readable and writable
Port Baudrate	115200bps	115200bps	Baud rate, readable and writable
FreeRun Interval	1	1	Receive frame interval in transparent
Slave:Slave ID	1	1	Slave ID, readable and writable
Slave:Slave Response	0	0	Slave Address, readable and writable
Master:Ch0:Slave ID	0	0	Master Mode Channel 0Slave
Master:Ch0:Event Trigger	PollMode	PollMode	Master Mode Channel 0 Trigger
Master:Ch0:Lost Action	Hold Data	Hold Data	Master mode channel 0 offline
Master:Ch0:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 0 function
Master:Ch0:Reg Addr	0	0	Master mode channel 0 register
Master:Ch0:Reg Num	0	0	Master mode channel 0 register
Master:Ch0:Poll Time	500	500	Master mode channel 0 polling
Master:Ch0:Poll Delay	0	0	Master mode channel 0 interval
Master:Ch0:Response	1000	1000	Master mode channel 0 slave
Master:Ch1:Slave ID	0	0	Master mode channel 1Slave
Master:Ch1:Event Trigger	PollMode	PollMode	Master Mode Channel 1 Trigger
Master:Ch1:Lost Action	Hold Data	Hold Data	Master mode channel 1 offline
Master:Ch1:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 1 function
Master:Ch1:Reg Addr	0	0	Master mode channel 1 register
Master:Ch1:Reg Num	0	0	Master mode channel 1 register
Master:Ch1:Poll Time	500	500	Master mode channel 1 polling
Master:Ch1:Poll Delay	0	0	Master mode channel 1 interval
Master:Ch1:Response	1000	1000	Master mode channel 1 slave
Master:Ch2:Slave ID	0	0	Master Mode Channel 2Slave
Master:Ch2:Event Trigger	PollMode	PollMode	Master Mode Channel 2 Trigger
Master:Ch2:Lost Action	Hold Data	Hold Data	Master mode channel 2 offline
Master:Ch2:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 2 function
Master:Ch2:Reg Addr	0	0	Master mode channel 2 register
Master:Ch2:Reg Num	0	0	Master mode channel 2 register
Master:Ch2:Poll Time	500	500	Master mode channel 2 polling
Master:Ch2:Poll Delay	0	0	Master mode channel 2 interval
Master:Ch2:Response	1000	1000	Master mode channel 2 slave
Master:Ch3:Slave ID	0	0	Master Mode Channel 3Slave
Master:Ch3:Event Trigger	PollMode	PollMode	Master Mode Channel 3 Trigger
Master:Ch3:Lost Action	Hold Data	Hold Data	Master mode channel 3 offline
Master:Ch3:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 3 function
Master:Ch3:Reg Addr	0	0	Master mode channel 3 register
Master:Ch3:Reg Num	0	0	Master mode channel 3 register
Master:Ch3:Poll Time	500	500	Master mode channel 3 polling
Master:Ch3:Poll Delay	0	0	Master mode channel 3 interval
Master:Ch3:Response	1000	1000	Master mode channel 3 slave
Master:Ch4:Slave ID	0	0	Master Mode Channel 4Slave
Master:Ch4:Event Trigger	PollMode	PollMode	Master Mode Channel 4 Trigger
Master:Ch4:Lost Action	Hold Data	Hold Data	Master mode channel 4 offline
Master:Ch4:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 4 function
Master:Ch4:Reg Addr	0	0	Master mode channel 4 register
Master:Ch4:Reg Num	0	0	Master mode channel 4 register

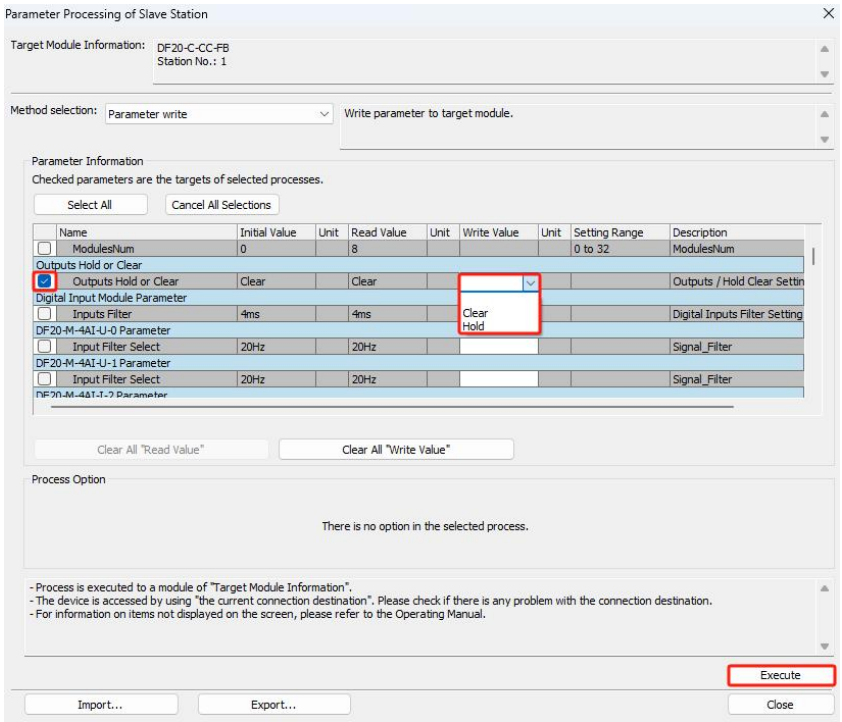
Master:Ch4:Poll Time	500	500	Master mode channel 4 polling
Master:Ch4:Poll Delay	0	0	Master mode channel 4 interval
Master:Ch4:Response	1000	1000	Master mode channel 4 slave
Master:Ch5:Slave ID	0	0	Master Mode Channel 5Slave
Master:Ch5:Event Trigger	PollMode	PollMode	Master Mode Channel 5 Trigger
Master:Ch5:Lost Action	Hold Data	Hold Data	Master mode channel 5 offline
Master:Ch5:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 5 function
Master:Ch5:Reg Addr	0	0	Master mode channel 5 register
Master:Ch5:Reg Num	0	0	Master mode channel 5 register
Master:Ch5:Poll Time	500	500	Master mode channel 5 polling
Master:Ch5:Poll Delay	0	0	Master mode channel 5 interval
Master:Ch5:Response	1000	1000	Master mode channel 5 slave
Master:Ch6:Slave ID	0	0	Master Mode Channel 6Slave
Master:Ch6:Event Trigger	PollMode	PollMode	Master Mode Channel 6 Trigger
Master:Ch6:Lost Action	Hold Data	Hold Data	Master mode channel 6 offline
Master:Ch6:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 6 function
Master:Ch6:Reg Addr	0	0	Master mode channel 6 register
Master:Ch6:Reg Num	0	0	Master mode channel 6 register
Master:Ch6:Poll Time	500	500	Master mode channel 6 polling
Master:Ch6:Poll Delay	0	0	Master mode channel 6 interval
Master:Ch6:Response	1000	1000	Master mode channel 6 slave
Master:Ch7:Slave ID	0	0	Master mode channel 7Slave
Master:Ch7:Event Trigger	PollMode	PollMode	Master Mode Channel 7 Trigger
Master:Ch7:Lost Action	Hold Data	Hold Data	Master mode channel 7 offline
Master:Ch7:Operation	WRITE MULTIPLE	WRITE MULTIPLE	Master mode channel 7 function
Master:Ch7:Reg Addr	0	0	Master mode channel 7 register
Master:Ch7:Reg Num	0	0	Master mode channel 7 register
Master:Ch7:Poll Time	500	500	Master mode channel 7 polling
Master:Ch7:Poll Delay	0	0	Master mode channel 7 interval
Master:Ch7:Response	1000	1000	Master mode channel 7 slave
DF20-M-2PWM Parameter			
CH1_Pulse Mode	Pulse_Dir	Pulse_Dir	Channel 1 signal type, readable and
CH1_Motion Mode	Jog	Jog	Channel 1 pulse control mode,
CH1_Ramp Mode	Ramp_Enable	Ramp_Enable	Channel 1 pulse ramp enable,
CH1_Direction Mode	Positive	Positive	Channel 1 direction logic, readable
CH1_Signal Type	OpenDrain	OpenDrain	Channel 1 pulse output mode,
CH1_Duty Cycle	Duty_cycle_enable	Duty_cycle_enable	Channel 1 PWM signal duty cycle
CH1_PWM Freq Range	100Hz~6KHz	100Hz~6KHz	Channel 1 PWM frequency range,
CH1_Startup Freq	1000	1000	Channel 1 pulse output starting
CH1_Target Freq	10000	10000	Channel 1 pulse output target
CH1_Ramp_Up_Time	100	100	Channel 1 pulse output ramp-up
CH1_Ramp_Dn_Time	100	100	Channel 1 pulse output downslope
CH2_Pulse Mode	Pulse_Dir	Pulse_Dir	aisle2Signal Type, readable and
CH2_Motion Mode	Jog	Jog	aisle2Pulse control method, readable
CH2_Ramp Mode	Ramp_Enable	Ramp_Enable	aisle2Pulse ramp enable, readable
CH2_Direction Mode	Positive	Positive	aisle2Direction logic, readable and
CH2_Signal Type	OpenDrain	OpenDrain	aisle2Pulse output mode, readable
CH2_Duty Cycle	Duty_cycle_enable	Duty_cycle_enable	aisle2PWM signal duty cycle enable,
CH2_PWM Freq Range	100Hz~6KHz	100Hz~6KHz	aisle2PWM frequency range,
CH2_Startup Freq	1000	1000	aisle2Pulse output starting

CH2_Target Freq	10000	10000	aisle2Pulse output target frequency,
CH2_Ramp_Up_Time	100	100	aisle2Pulse output ramp-up time,
CH2_Ramp_Dn_Time	100	100	aisle2Pulse output downslope time,

➢ If the user needs to reset the parameters, in the parameter pop-up window of the slave processing station, set the execution processing to "Parameter write" and click "Cancel All Selections" to facilitate the individual configuration of parameters, as shown in the figure below.

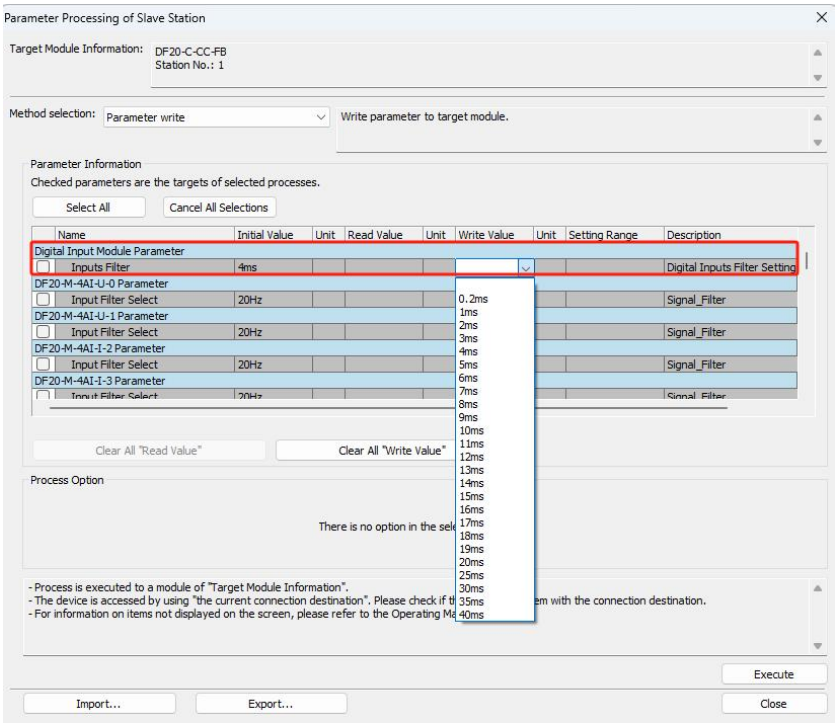


a. For example, to modify the clear/hold function parameters, you can check the "Outputs Hold or Clear" function option, and select "Clear" or "Hold" as needed in the "Write Value" of "Outputs Hold or Clear". After the settings are completed, click "Execute" to save the parameters to the coupler and download the parameters to the controller to make the parameters effective, as shown in the figure below.

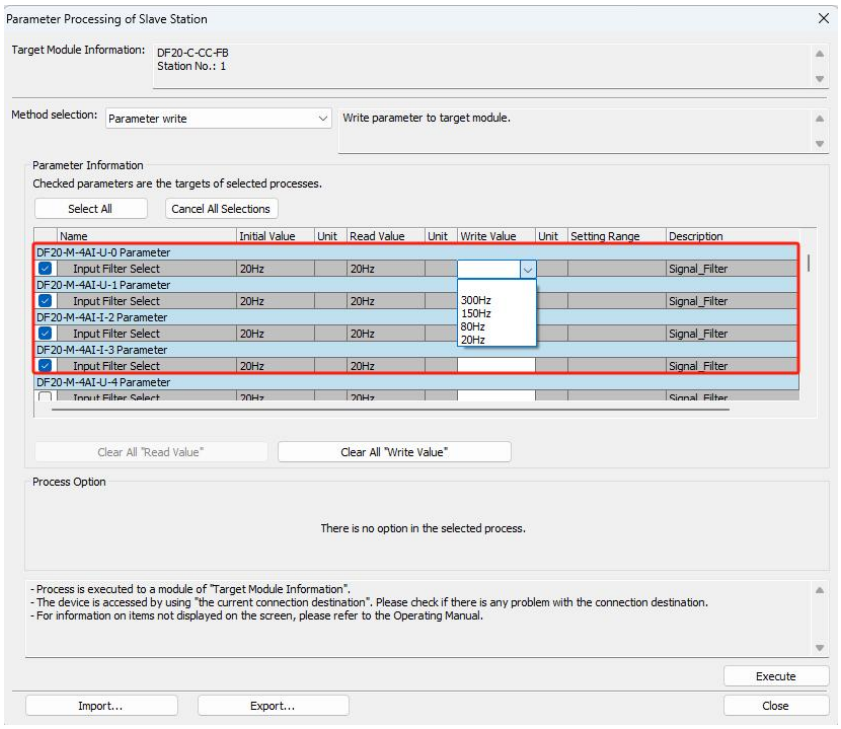


b. ReviseDF20-M-8DI-N/DF20-M-8DI-P/DF20-M-16DI-N/DF20-M-16DI-PTo set the filter time parameter, you can check the "Input Filter" function option, select the filter time in the "Write Value" of "Input Filter" as needed, and after the setting is completed, click "Execute" to save the parameters to the coupler and download the parameters to the controller to make the parameters take effect, as shown in

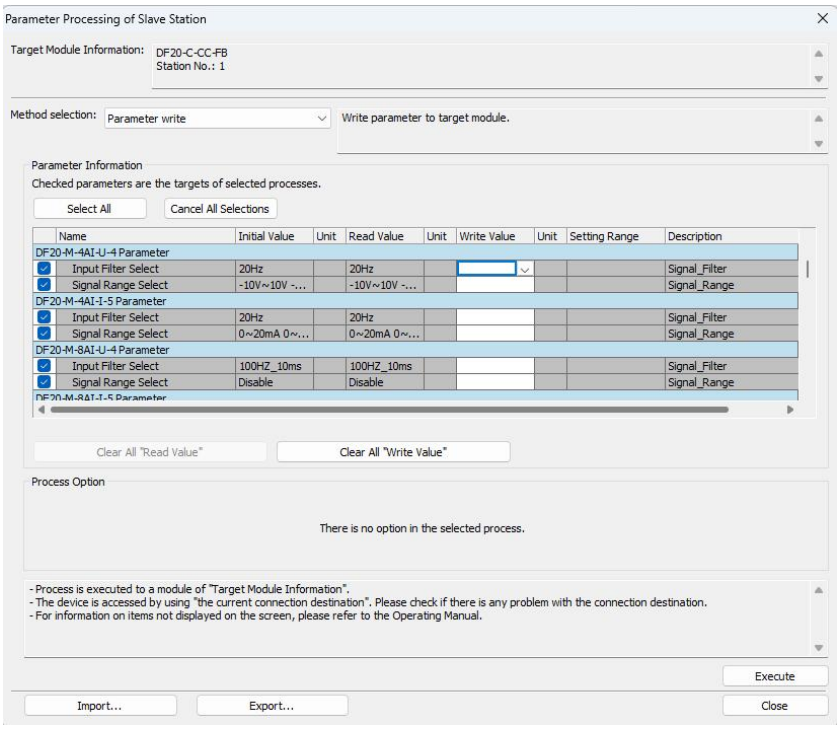
the figure below.



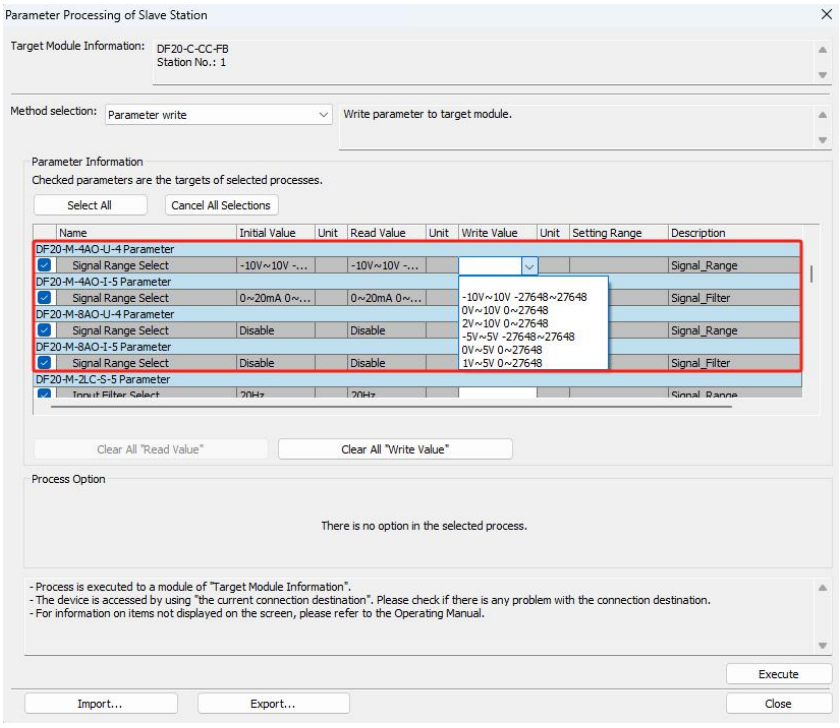
c. ReviseDF20-M-4AI-U-0/DF20-M-4AI-U-1/DF20-M-4AI-I-2/DF20-M-4AI-I-3 filterparameter,You can check "Input FilterSelect"Function options, in "Input FilterSelect"Write value" as neededSelect the filter time. After setting, click“Execute”, save the parameters to the coupler and download the parameters to the controller to make the parameters effective, as shown in the figure below.



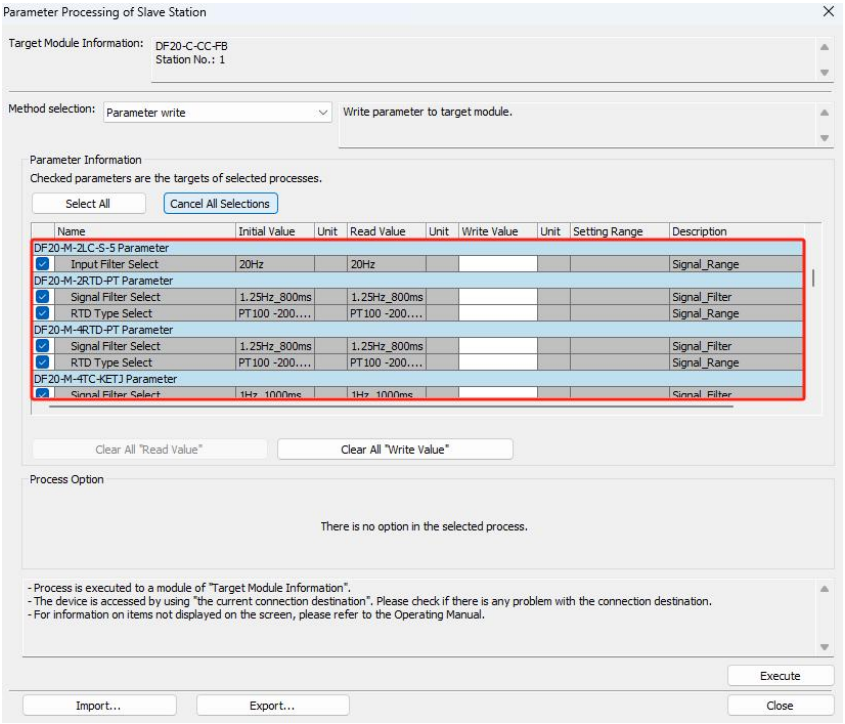
d. ReviseDF20-M-4AI-U-4/DF20-M-4AI-I-5/DF20-M-8AI-U-4/DF20-M-8AI-I-5To configure the filter parameters and channel range parameters, you can check the "Input Filter Select" and "Signal Range Select" function options, select the filter time as needed in the "Write Value" of "Input Filter Select", and select the appropriate range according to user needs in the "Write Value" of "Signal Range Select". After the settings are completed, click "Execute" to save the parameters to the coupler and download the parameters to the controller to make the parameters effective, as shown in the figure below.



e. ReviseDF20-M-4AO-U-4/DF20-M-4AO-I-5/DF20-M-8AO-U-4/DF20-M-8AO-I-5Channel range parameters, select the appropriate range according to user needs in "Write Value" of "Signal Range Select". After setting, click "Execute" to save the parameters to the coupler and download the parameters to the controller to make the parameters effective, as shown in the figure below



f. ReviseDF20-M-2RTD-PT/DF20-M-4RTD-PT/DF20-M-4TC-KETJ/DF20-M-8TC-KETJparameter, select appropriate filter parameters in "Write Value" of "Signal Filter Select" according to user needs, and select appropriate sensor model in "Write Value" of "RTD Type Select" according to user needs. After the settings are completed, click "Execute" to save the parameters to the coupler and download the parameters to the controller to make the parameters effective, as shown in the figure below.

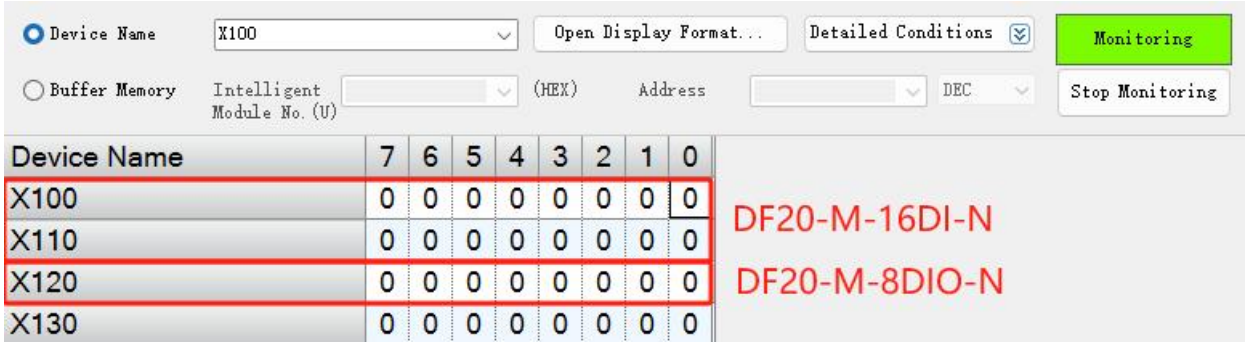


- **The user can also select all the module parameters that need to be configured and click "Execute" to save the parameters to the coupler at one time; after the parameters are set, they are valid for all modules of this type.**

- In this example, the DF20-C-CC-FB coupler is inserted in the orderenterDF20-M-16DI-N+DF20-M-16DO-N+DF20-M-8DIO-N+DF20-M-4AI-I-5+DF20-M-8AI-I-5+DF20-M-4AO-U-4+DF20-M-8AO-U-4+DF20-M-8TC-KETJ.Each module input and output data and diagnostic information data address descriptionThe following table shows.

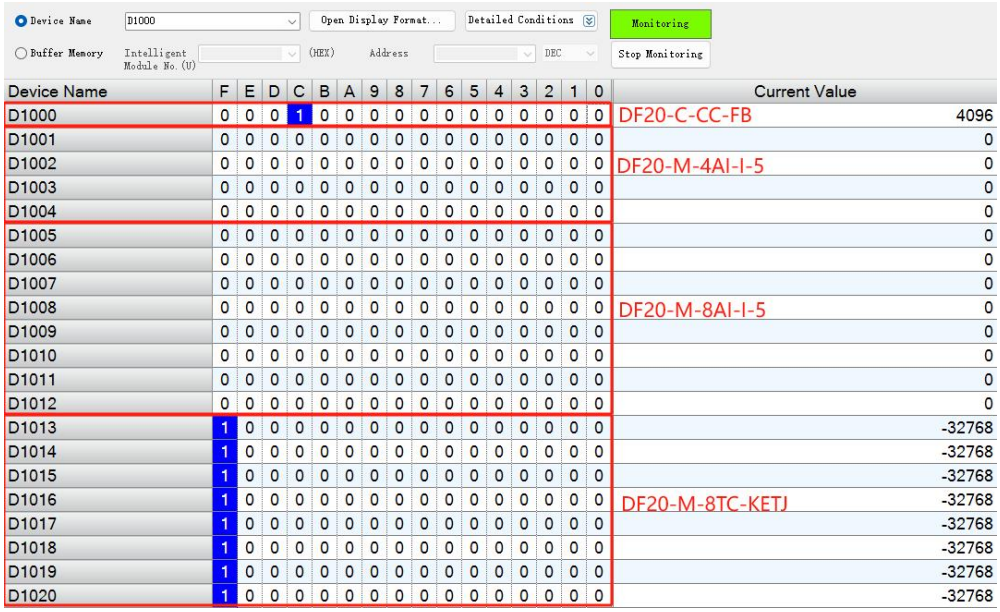
Component	model	Occupied address	Data size	Remark
RX	DF20-M-16DI-N	X100~X107 X110~X117	16 bits	X100~X107:DI0~DI7 X110~X117:DI10~DI17
	DF20-M-8DIO-N	X120~X127	8bits	X120~X127:DIO-DI0~DI8
RY	DF20-M-16DO-N	Y100~Y107 Y110~Y117	16 bits	Y100~Y107:DO0~DO7 Y110~Y117:DO10~DO17
	DF20-M-8DIO-N	Y120~Y127	8bits	Y120~Y127:DIO-DO0~DO7
R	DF20-C-CC-FB	D1000	1Word	Coupler diagnostic
	DF20-M-4AI-I-5	D1001~D1004	4Word	4-channel AI current input
	DF20-M-8AI-I-5	D1005~D1012	8Word	8-channel AI current input
	DF20-M-8TC-KETJ	D1013~D1020	8Word	8-channel thermocouple input
R	DF20-M-4AO-U-4	D2000~D2003	4Word	4-channel AO voltage input
	DF20-M-8AO-U-4	D2004~D2011	8Word	8-channel AO voltage input
	DF20-M-8TC-KETJ	D2012~D2019	8Word	8-channel thermocouple

- The digital input data is displayed as shown in the figure below.

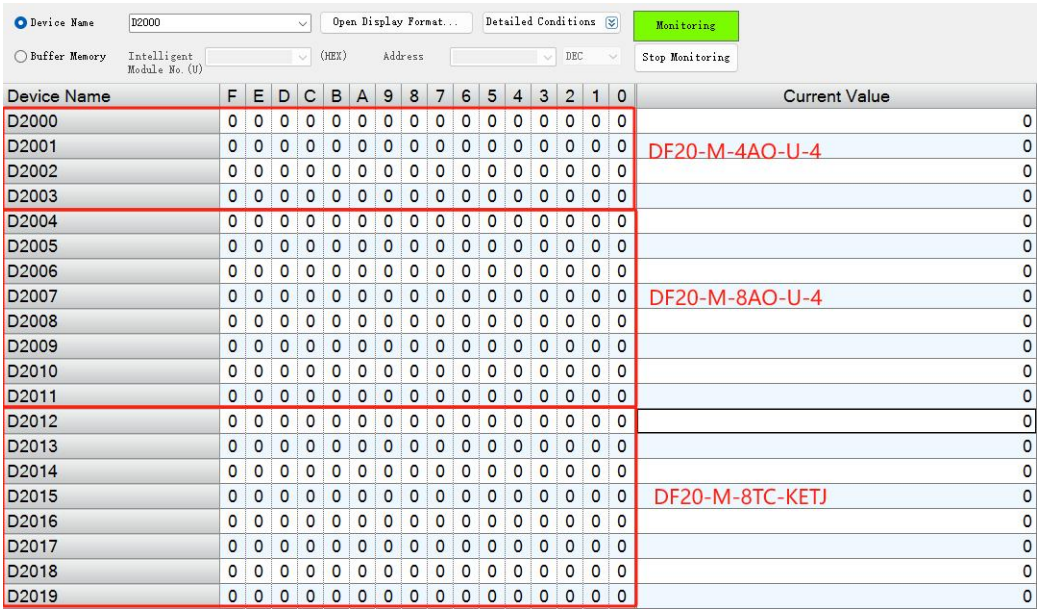


➢ The digital output data settings are shown in the figure below.

➢ The diagnostic and analog input data are displayed as shown below.



➢ The analog output data settings are shown in the figure below.



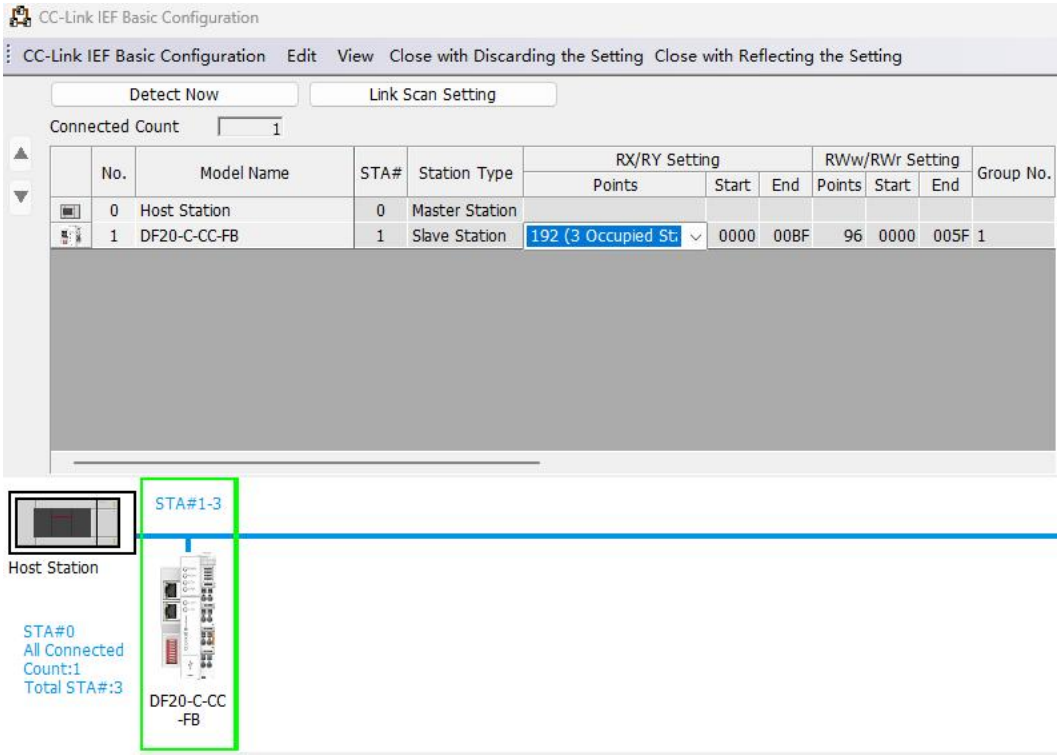
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4AO-U-4 0
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-8AO-U-4 0
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-8TC-KETJ 0
D2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

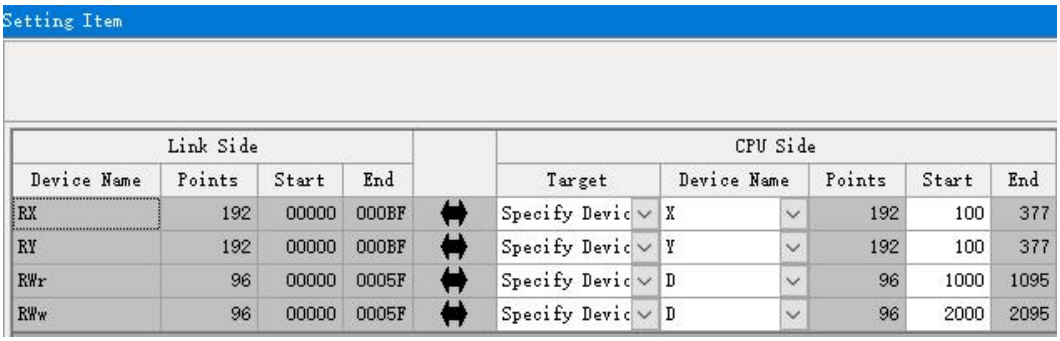
5.1.6Digital Module Configuration Instructions

➢ This sectionDF20-C-CC-FB+DF20-M-8DI-N+DF20-M-8DI-P+DF20-M-16DI-N+DF20-M-16DI-P+DF20-M-32DI-N+DF20-M-32DI-P+DF20-M-4DO-R+DF20-M-8DO-N+DF20-M-8DO-P+DF20-M-16DO-N+DF20-M-16DO-P+DF20-M-32DO-N+DF20-M-32DO-P+DF20-M-8DIO-N+DF20-M-8DIO-PFor the topological structure of the digital module, please refer to5.1.1Sections~5.1.4Section.

➢ This topology requires setting3Sites, points192, the starting addresses are divided into:

- RX: X100
- RY: Y100
- RWr: D1000
- RWw: D2000



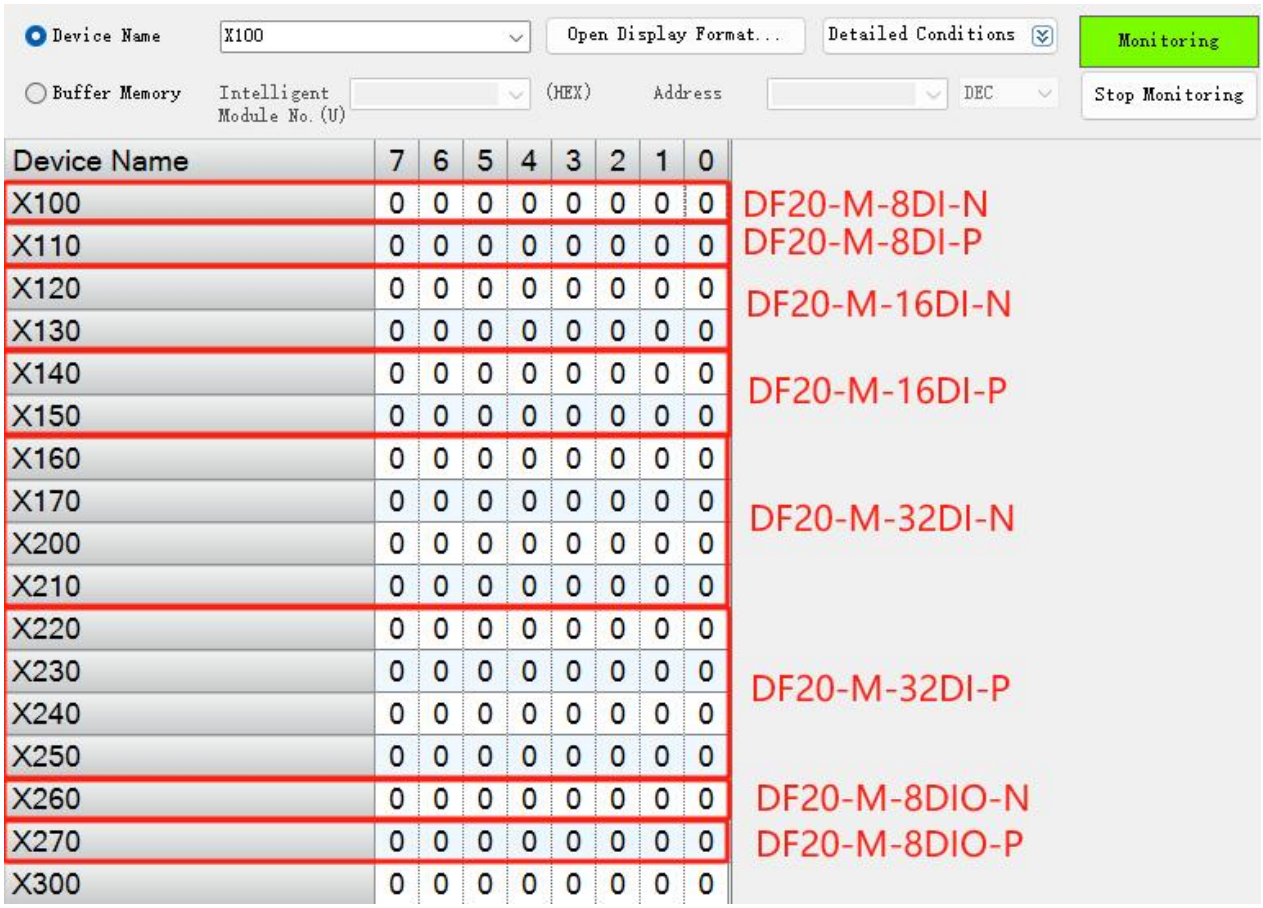


➢ according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

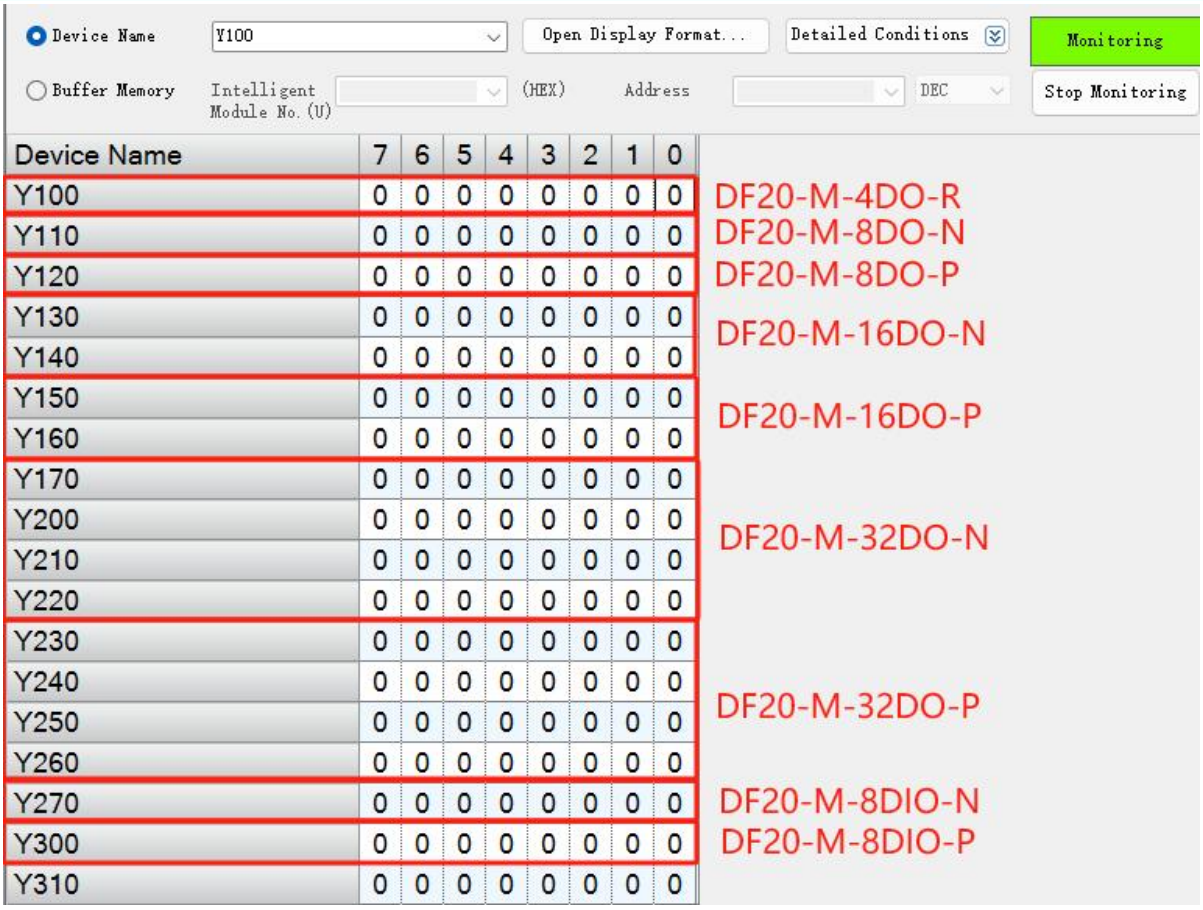
The description is shown in the following table.Detailed module configuration information referenceChapter 5, Section 5.1.5.

Component	model	Occupied	Data size	Remark
RX	DF20-M-8DI-N	X100~X107	8bits	X100~X107:DI0~DI7
	DF20-M-8DI-P	X110~X117	8bits	X110~X117:DI0~DI7
	DF20-M-16DI-N	X120~X137	16 bits	X120~X137:DI00~DI17
	DF20-M-16DI-P	X140~X157	16 bits	X140~X157:DI00~DI17
	DF20-M-32DI-N	X160~X217	32bits	X160~~X217:DI00~DI37
	DF20-M-32DI-P	X220~X257	32bits	X220~X257:DI0~DI37
	DF20-M-8DIO-N	X260~X267	8bits	X260~X267:DI0~DI7
	DF20-M-8DIO-P	X270~X277	8bits	X270~X277:DI0~DI7
RY	DF20-M-4DO-R	Y100~Y107	8bits	Y100~Y103:DO0~DO3
	DF20-M-8DO-N	Y110~Y117	8bits	Y110~Y117:DO0~DO7
	DF20-M-8DO-P	Y120~Y127	8bits	Y120~Y127:DO0~DO7
	DF20-M-16DO-N	Y130~Y147	16 bits	Y130~Y147:DO0~DO17
	DF20-M-16DO-P	Y150~Y167	16 bits	Y150~Y167:DO0~DO17
	DF20-M-32DO-N	Y170~Y227	32bits	Y170~Y227:DO0~DO37
	DF20-M-32DO-P	Y230~Y267	32bits	Y230~Y267:DO0~DO37
	DF20-M-8DIO-N	Y270~Y277	8bits	Y270~Y277:DO0~DO7
	DF20-M-8DIO-P	Y300~Y307	8bits	Y300~Y307:DO0~DO7
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word

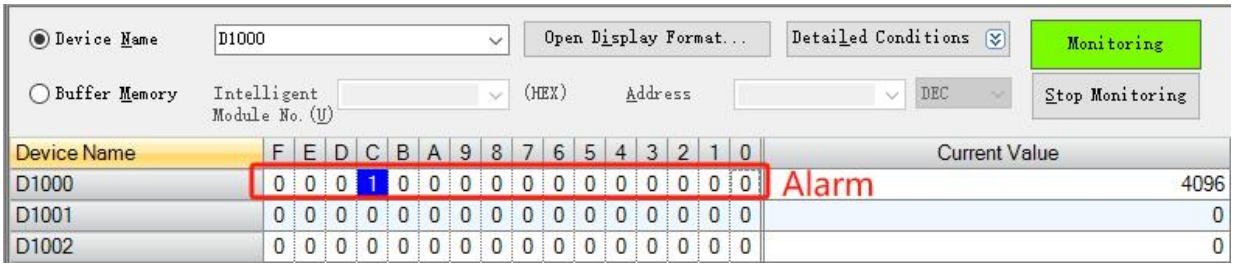
➢ The digital input data is displayed as shown in the figure below.



➢ The digital output data settings are shown in the figure below.



➢ Diagnostic InputStatus wordAs shown in the figure below.

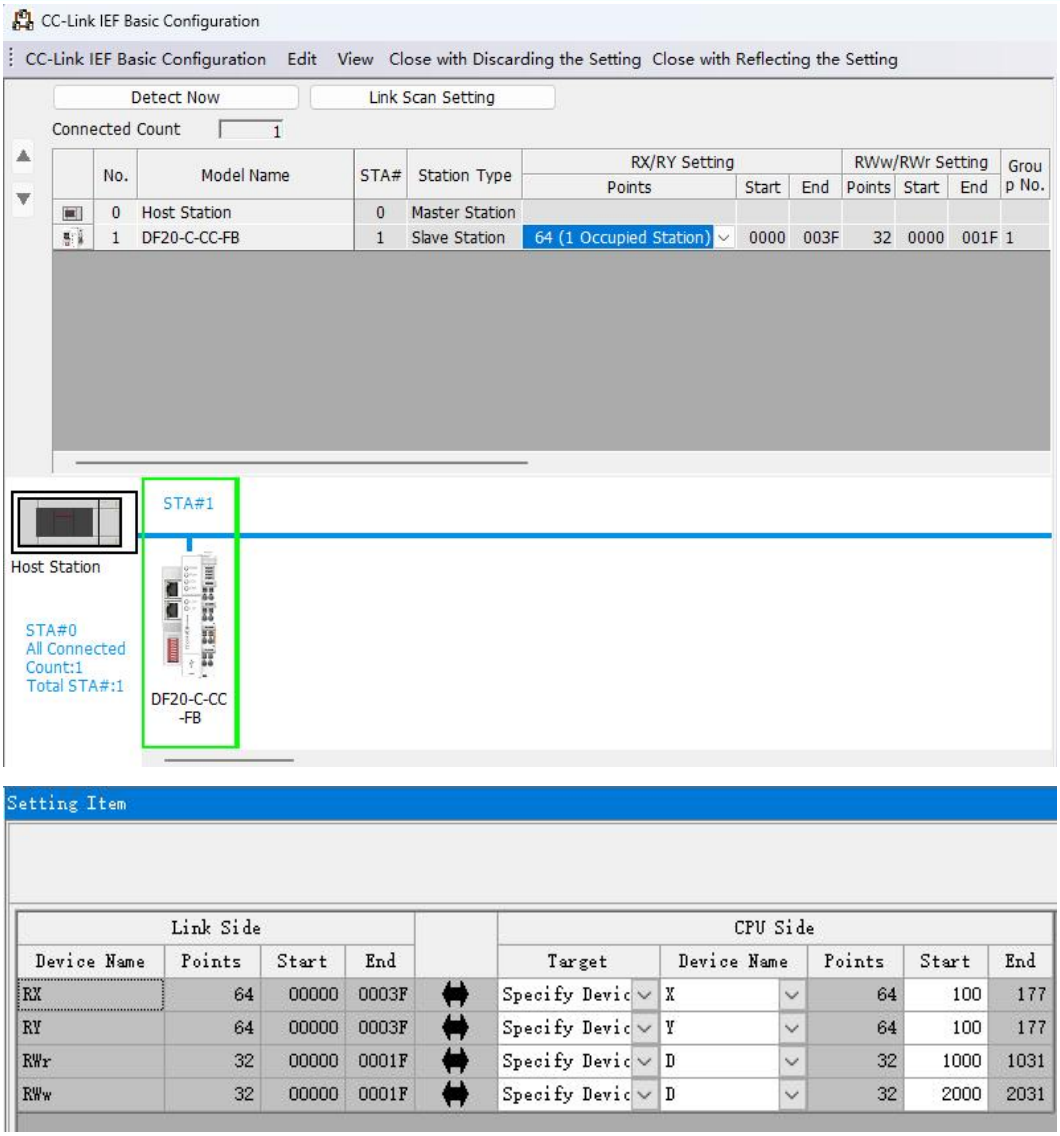


5.1.7Analog Module Configuration Instructions

➢ This sectionDF20-C-CC-FB+DF20-M-4AI-U-4+DF20-M-4AO-U-4+DF20-M-4AI-I-5+ DF20-M-4AO-I-5For the topology structure of the analog input and output module, please refer to5.1.1Sections~5.1.4Section.

➢ This topology only requires setting1Sites, points64Then, the input and output registers are32The starting addresses are:

- RX: X100
- RY: Y100
- RWr: D1000
- RWw: D2000

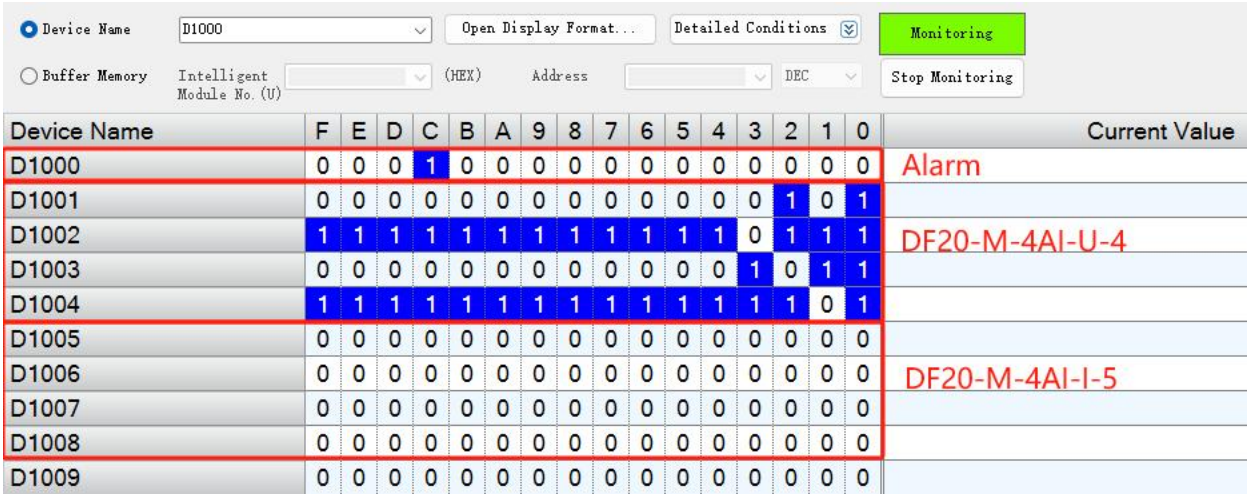


- according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

The description is shown in the following table.Detailed module configuration information referenceChapter 5, Section 5.1.5.

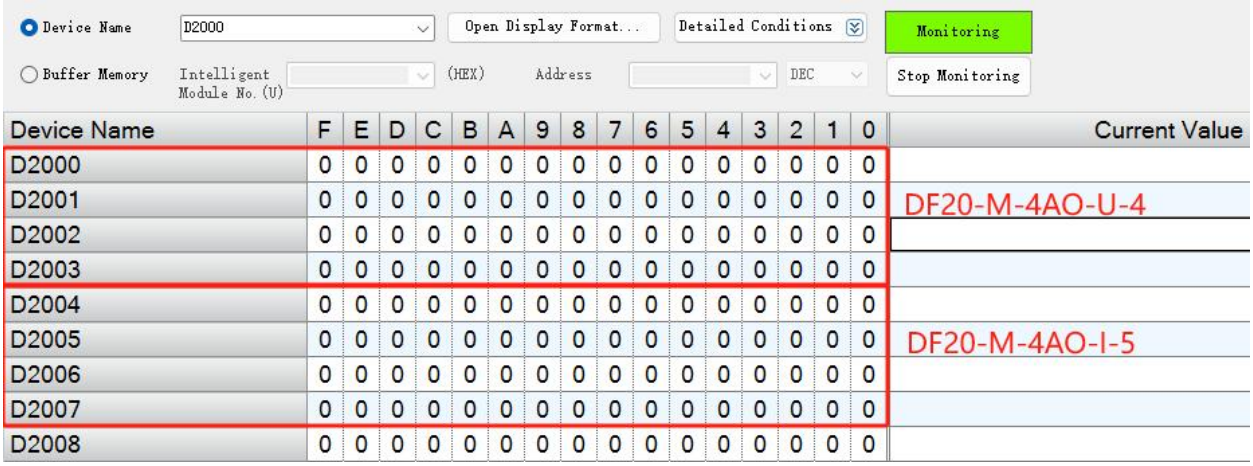
Component	model	Occupied	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-4AI-U-4	D1001~D1004	4Words	AI0~AI3:D1001~D1004
	DF20-M-4AI-I-5	D1005~D1008	4Words	AI0~AI3:D1005~D1008
R	DF20-M-4AO-U-4	D2000~D2003	4Words	AO0~AO3:D2000~D2003
	DF20-M-4AO-I-5	D2004~D2007	4Words	AO0~AO3:D2000~D2003

- The analog input data is displayed as shown in the figure below.



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	Alarm
D1001	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
D1002	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	DF20-M-4AI-U-4
D1003	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
D1004	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4AI-I-5
D1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

➢ The analog output data is shown in the figure below.



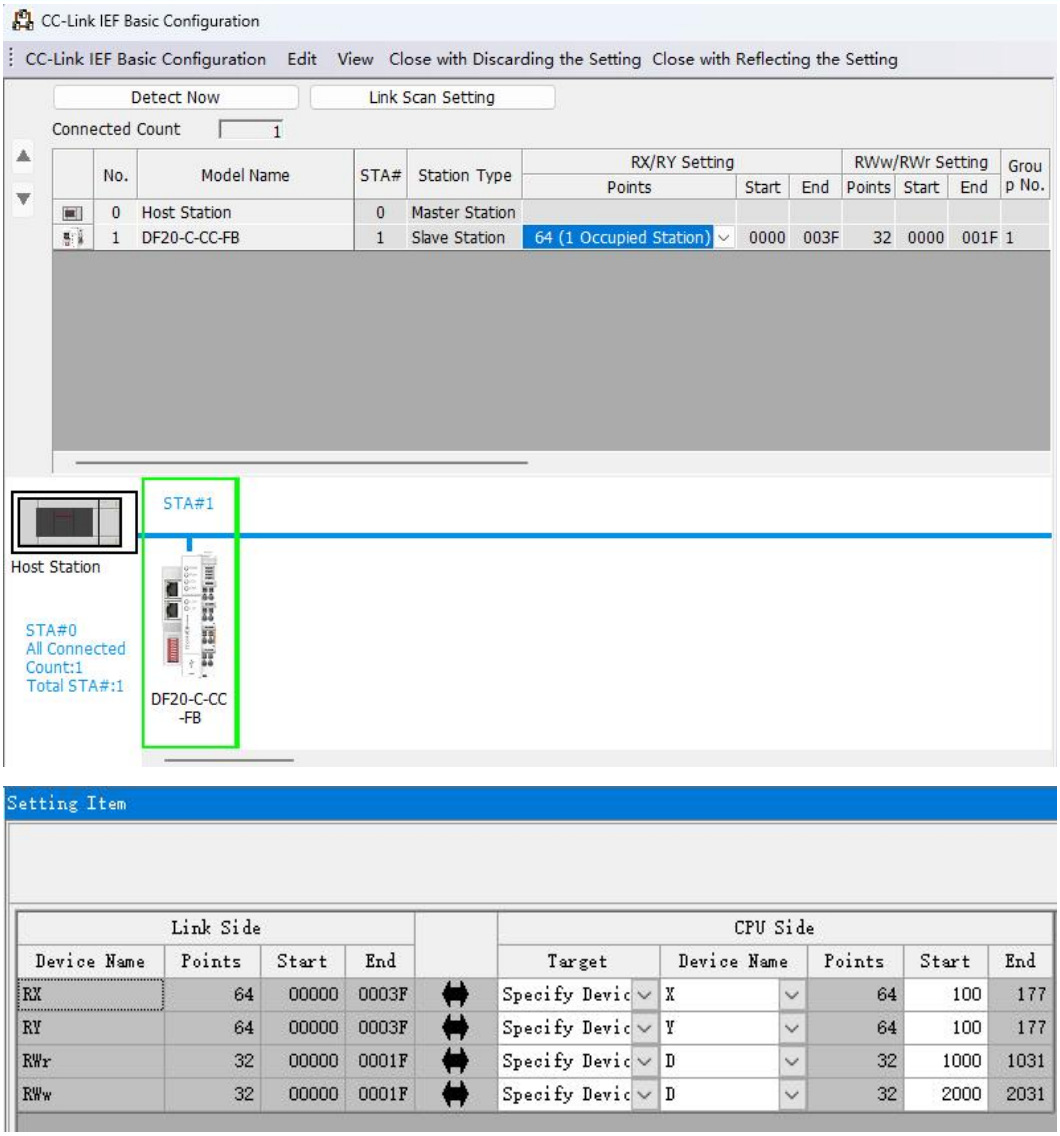
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4AO-U-4
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4AO-I-5
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

5.1.8Temperature Module Configuration Instructions

➢ This sectionDF20-C-CC-FB+DF20-M-2RTD-PT+DF20-M-4RTD-PT+DF20-M-4TC-KETJ +DF20-M-8TC-KETJFor the topology structure of the analog input and output module, please refer to5.1.1Sections~5.1.4Section.

➢ This topology only requires setting1Sites, points64Then, the input and output registers are32The starting addresses are:

- RX: X100
- RY: Y100
- RWr: D1000
- RWw: D2000



➢ according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

The description is shown in the following table.Detailed module configuration information referenceChapter 5, Section 5.1.5.

Component	model	Occupied	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-2RTD-PT	D1001~D1002	2Words	AI0~AI1:D1001~D1002
	DF20-M-4RTD-PT	D1003~D1006	4Words	AI0~AI3:D1003~D1006
	DF20-M-4TC-KETJ	D1007~D1010	4Words	AI0~AI3:D1007~D1010
	DF20-M-8TC-KETJ	D1011~D1018	8Words	AI0~AI7:D1011~D1018
R	DF20-M-8TC-KETJ	D2000~D2007	8Words	Compensation data of channel 0 to

Note: DF20-M-8TC-KETJof8The compensation data is used to compensate for the error caused by the accuracy of the sensor itself.

➢ The analog input data is displayed as shown in the figure below.

Device Name D1000 Open Display Format... Detailed Conditions Monitoring
Buffer Memory Intelligent Module No. (U) (HEX) Address DEC Stop Monitoring

Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	Alarm
D1001	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-2RTD-PT
D1002	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1003	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1004	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4RTD-PT
D1005	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1006	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1007	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-4TC-KETJ
D1009	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1010	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1011	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1012	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1013	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1014	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-8TC-KETJ
D1015	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1016	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1017	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1018	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- DF20-M-8TC-KETJCompensation dataThe settings are shown in the figure below.

Device Name D2000 Open Display Format... Detailed Conditions Monitoring
Buffer Memory Intelligent Module No. (U) (HEX) Address DEC Stop Monitoring

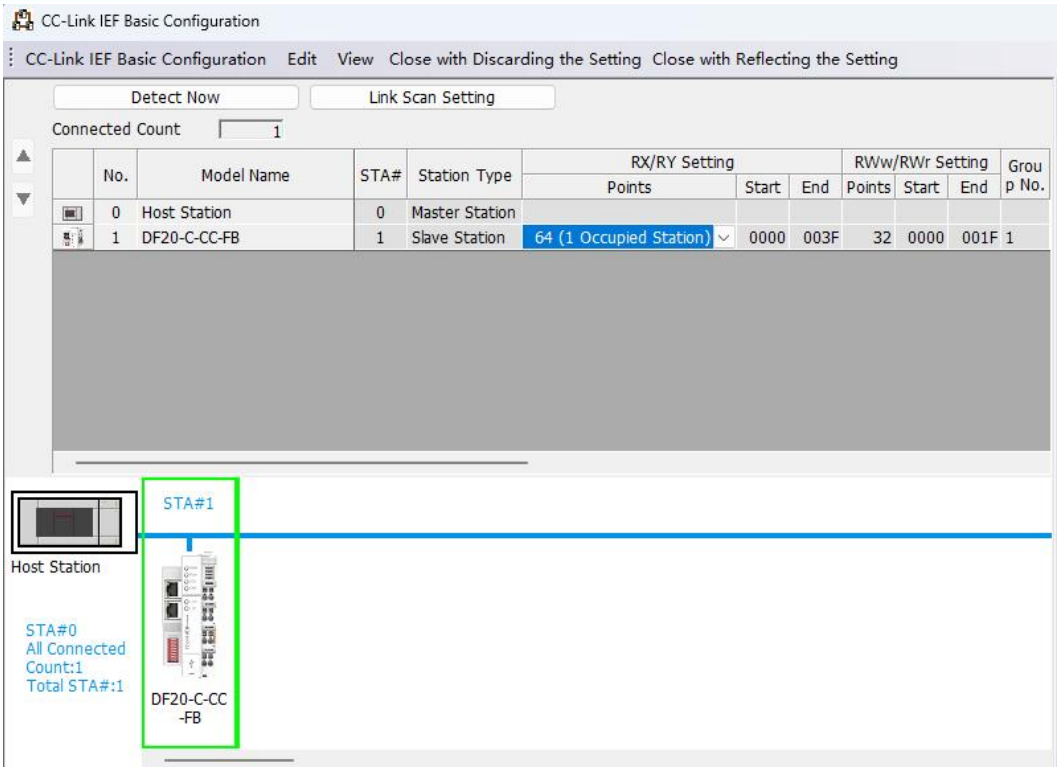
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-8TC-KETJ
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

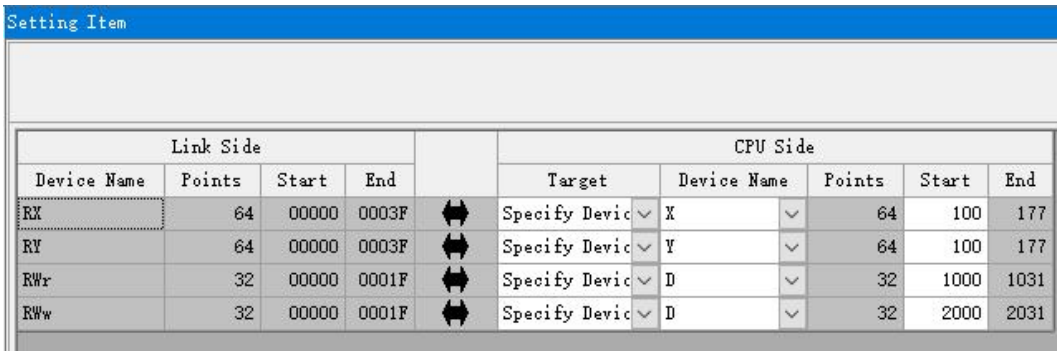
5.1.9 Pressure sensor module configuration instructions

- This sectionDF20-C-CC-FB+DF20-M-2LC-S-5As an example, the topology ofPressure SensorsModule configuration instructions, details

For detailed configuration process, please refer to5.1.1Sections~5.1.4Section.

- This topology only requires setting1Sites, points64Then, the input and output registers are32The starting addresses are:
  - RX: X100
  - RY: Y100
  - RWr: D1000
  - RWw: D2000



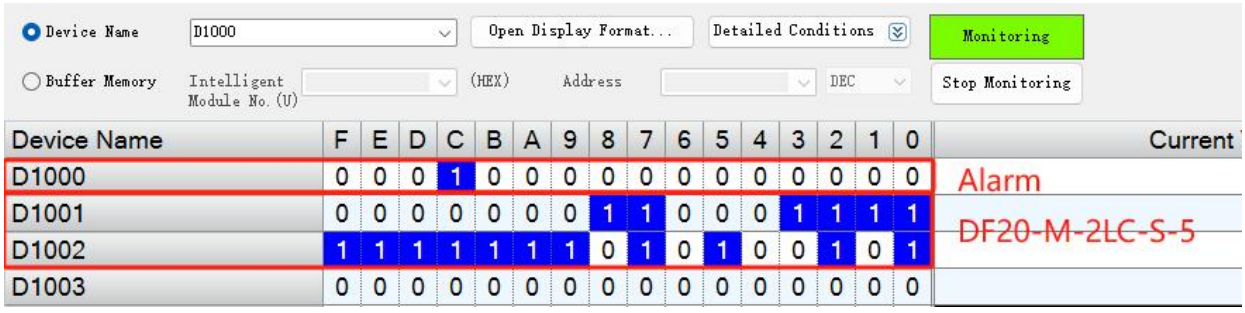


➢ according to[Chapter 3 Section 3.1](#)ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

The description is shown in the following table.Detailed module configuration information reference[Chapter 5, Section 5.1.5](#).

Component	model	Occupied	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-2LC-S-5	D1001~D1002	2Words	First channel acquisitionvalue:D1001 Second channel acquisitionValue: D1002

➢ EncoderThe input data is displayed as shown below.

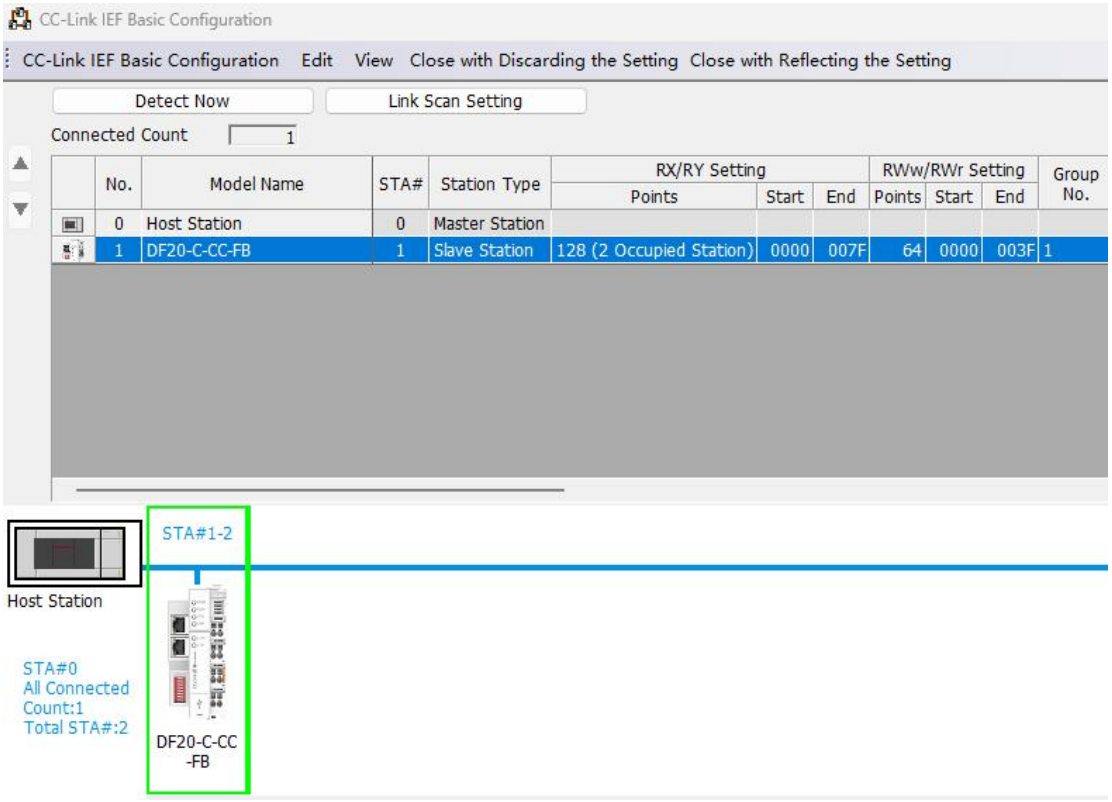


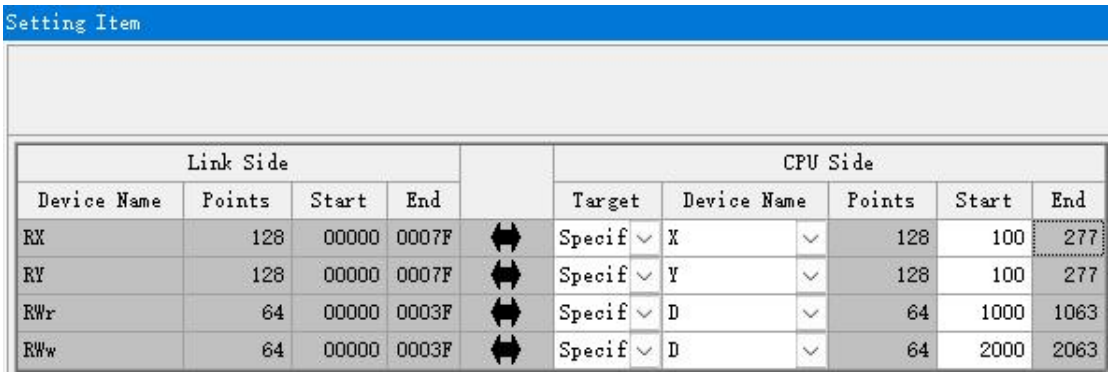
5.1.10 Configuration description of encoder and pulse input module

➢ This sectionDF20-C-CC-FB+DF20-M-1CNT-EL-5+DF20-M-1CNT-EL-4+DF20-M-2CNT-PIL-5+DF20-M-2CNT-PIL-4+DF20-M-2CNT-EL-5+DF20-M-2CNT-EL-4As an example, the topology ofpulseModule configuration instructions, please refer to the detailed configuration process5.1.1Sections~5.1.4Section.

➢ This topology only requires setting2Sites, points128Then, the input and output registers are64The starting addresses are:

- RX: X100
- RY: Y100
- RWr: D1000
- RWw: D2000



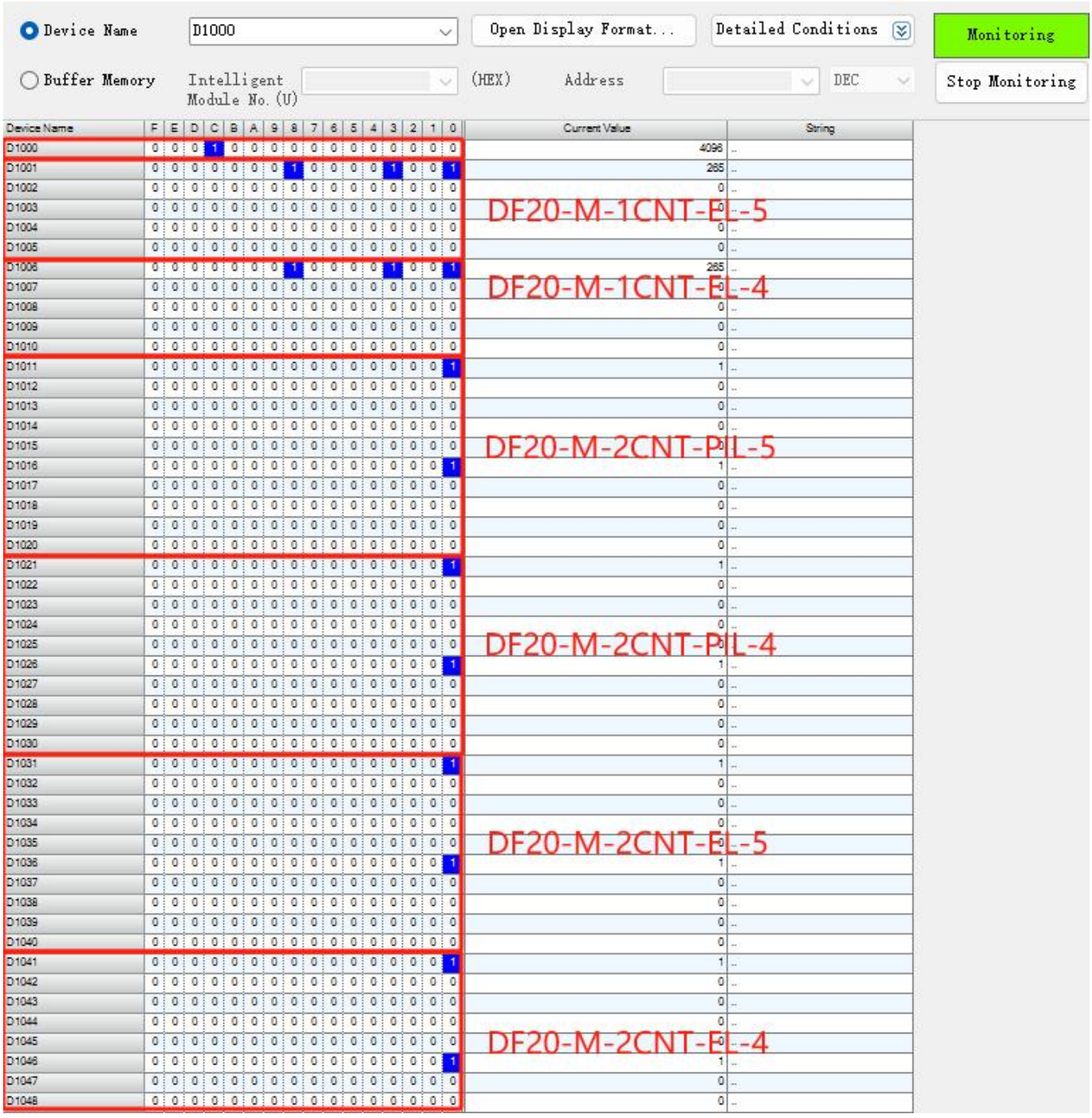


➢ according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

The description is shown in the following table.

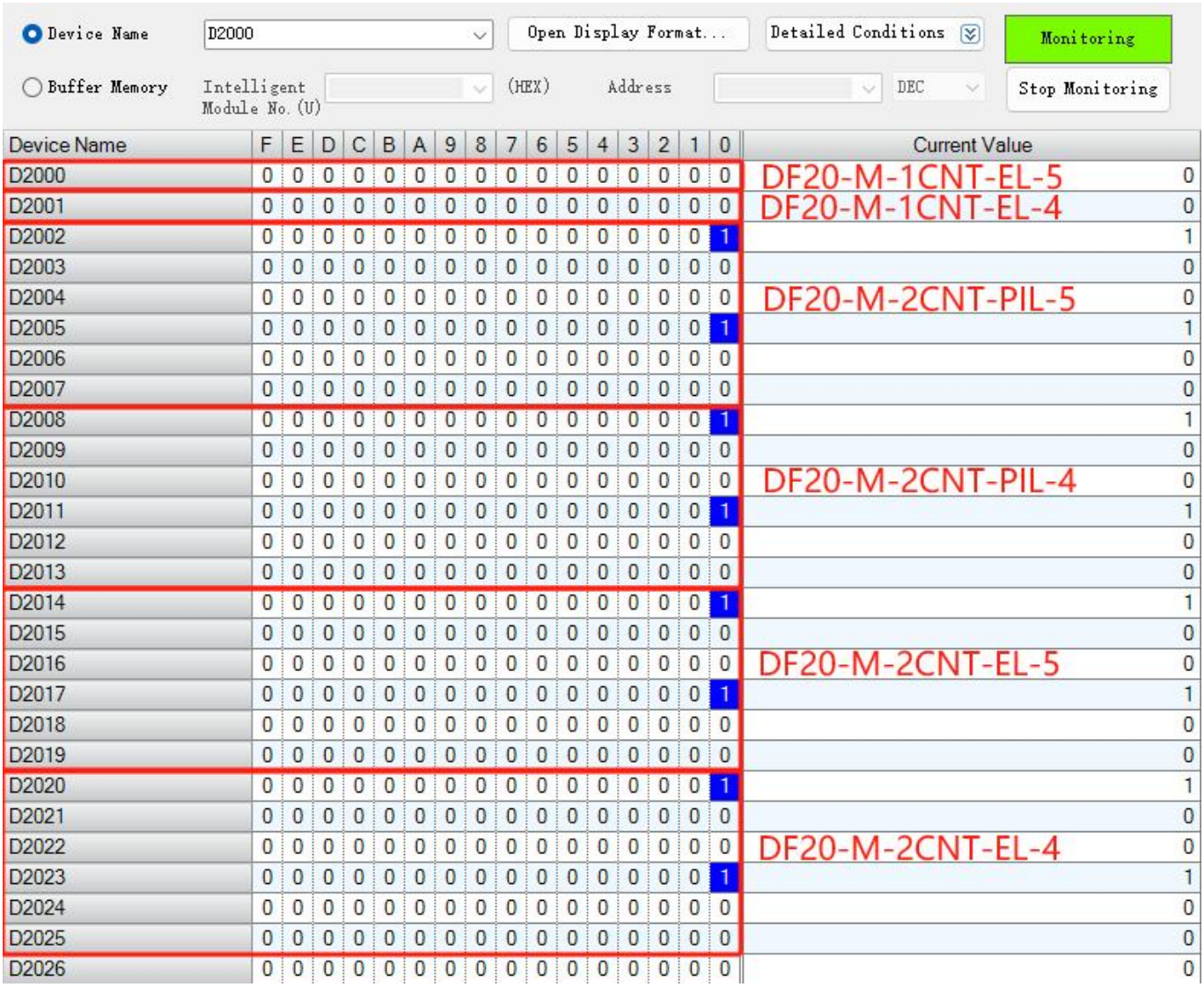
Component	model	Occupied	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-1CNT-EL-5	D1001~D1005	5Words	Status word: D1001 Count value: D1002~D1003 Latch value: D1004~D1005
	DF20-M-1CNT-EL-4	D1006~D1010	5Words	Status word: D1006 Count value: D1007~D1008 Latch value: D1009~D1010
	DF20-M-2CNT-PIL-5	D1011~D1020	10Words	Channel 0 status value: D1011 Channel 0 pulse value: D1012~D1013 Channel 0 latch value: D1014~D1015 Channel 1 status value: D1016 Channel 1 pulse value:
	DF20-M-2CNT-PIL-4	D10twenty one~D1030	10Words	Channel 0 status value: D10twenty one Channel 0 pulse value: D10twenty two~D10twenty three Channel 0 latch value: D10twenty four~D1025 Channel 1 status value: D1026
	DF20-M-2CNT-EL-5	D1031~D1040	10Words	Channel 0 status value: D1031 Channel 0 pulse value: D1032~D1033 Channel 0 latch value: D1034~D1035 Channel 1 status value: D1036 Channel 1 pulse value:
	DF20-M-2CNT-EL-4	D1041~D1050	10Words	Channel 0 status value: D1041 Channel 0 pulse value: D1042~D1043 Channel 0 latch value: D1044~D1045 Channel 1 status value: D1046 Channel 1 pulse value:
R	DF20-M-1CNT-EL-5	D2000	1Words	Control word: D2000
	DF20-M-1CNT-EL-4	D2001	1Words	Control word: D2001
	DF20-M-2CNT-PIL-5	D2002~D2007	6Words	Channel 0 control word: D2002 Channel 0 comparison value: D2003~D2004 Channel 1 control word: D2005 Channel 1 comparison value:
	DF20-M-2CNT-PIL-4	D2008~D2013	6Words	Channel 0 control word: D2008 Channel 0 comparison value: D2009~D2010 Channel 1 control word: D2011 Channel 1 comparison value:
	DF20-M-2CNT-EL-5	D2014~D2019	6Words	Channel 0 control word: D2014 Channel 0 comparison value: D2015~D2016 Channel 1 control word: D2017 Channel 1 comparison value:
	DF20-M-2CNT-EL-4	D2020~D2025	6Words	Channel 0 control word: D2020 Channel 0 comparison value: D20twenty one~D20twenty two Channel 1 control word: D20twenty three

➢ EncoderThe input data is displayed as shown below.



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value	String
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4096	..
D1001	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	265	..
D1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1006	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	265	..
D1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1043	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1046	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	..
D1047	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..
D1048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..

➢ Module output dataAs shown in the figure below.



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value	
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-1CNT-EL-5	0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-1CNT-EL-4	0
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-2CNT-PIL-5	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-2CNT-PIL-4	0
D2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-2CNT-EL-5	0
D2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DF20-M-2CNT-EL-4	0
D2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		1
D2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
D2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0

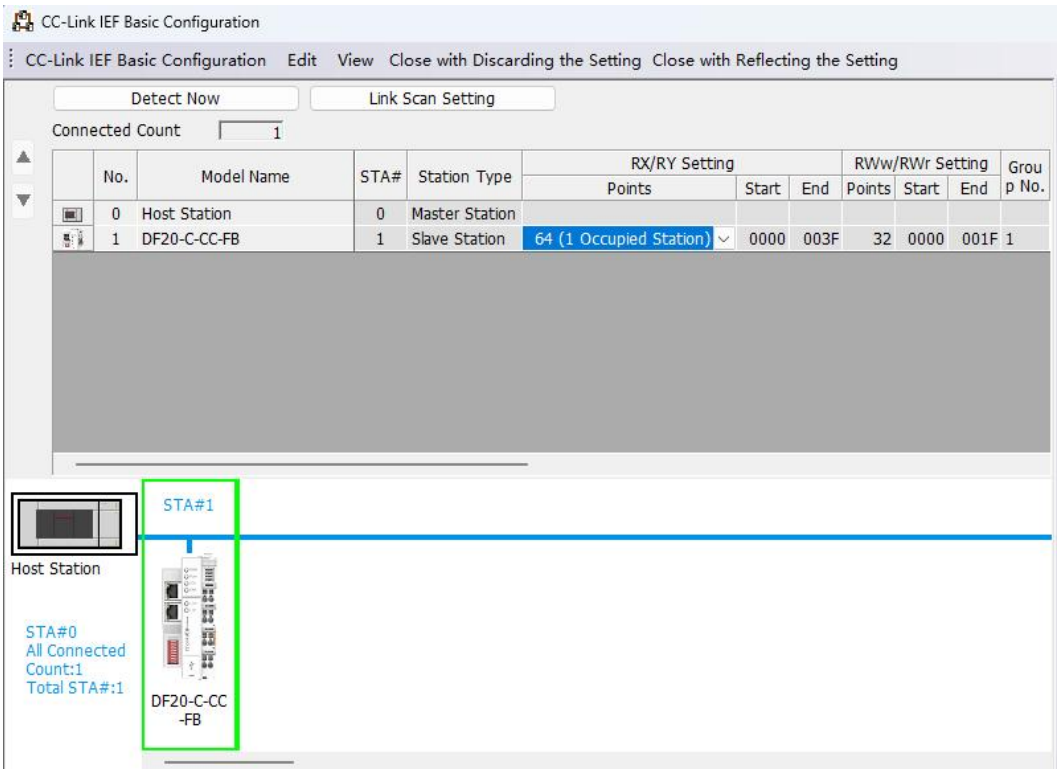
5.1.11 Pulse output module configuration instructions

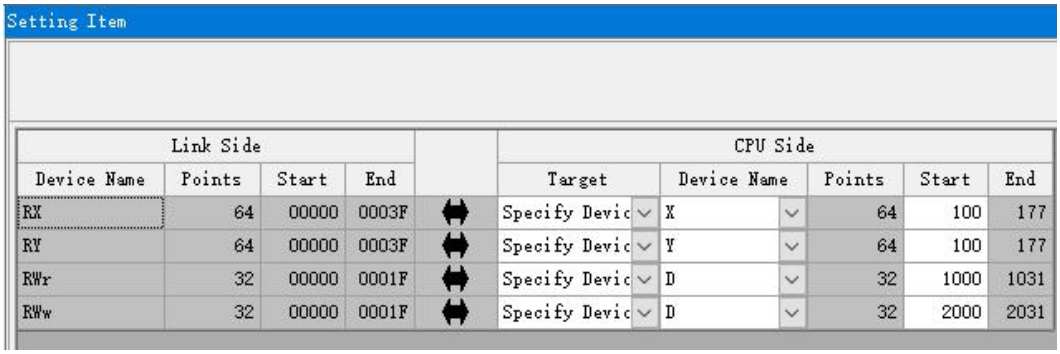
➢ This sectionDF20-C-CC-FB+DF20-M-2PWMAs an example, the topology ofPulse outputModule configuration instructions, detailed

Please refer to the configuration process5.1.1Sections~5.1.4Section.

➢ This topology only requires setting1Sites, points64Then, the input and output registers are32The starting addresses are:

- RX: X100
- RY: Y100
- RWr: D1000
- RWw: D2000





➢ according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

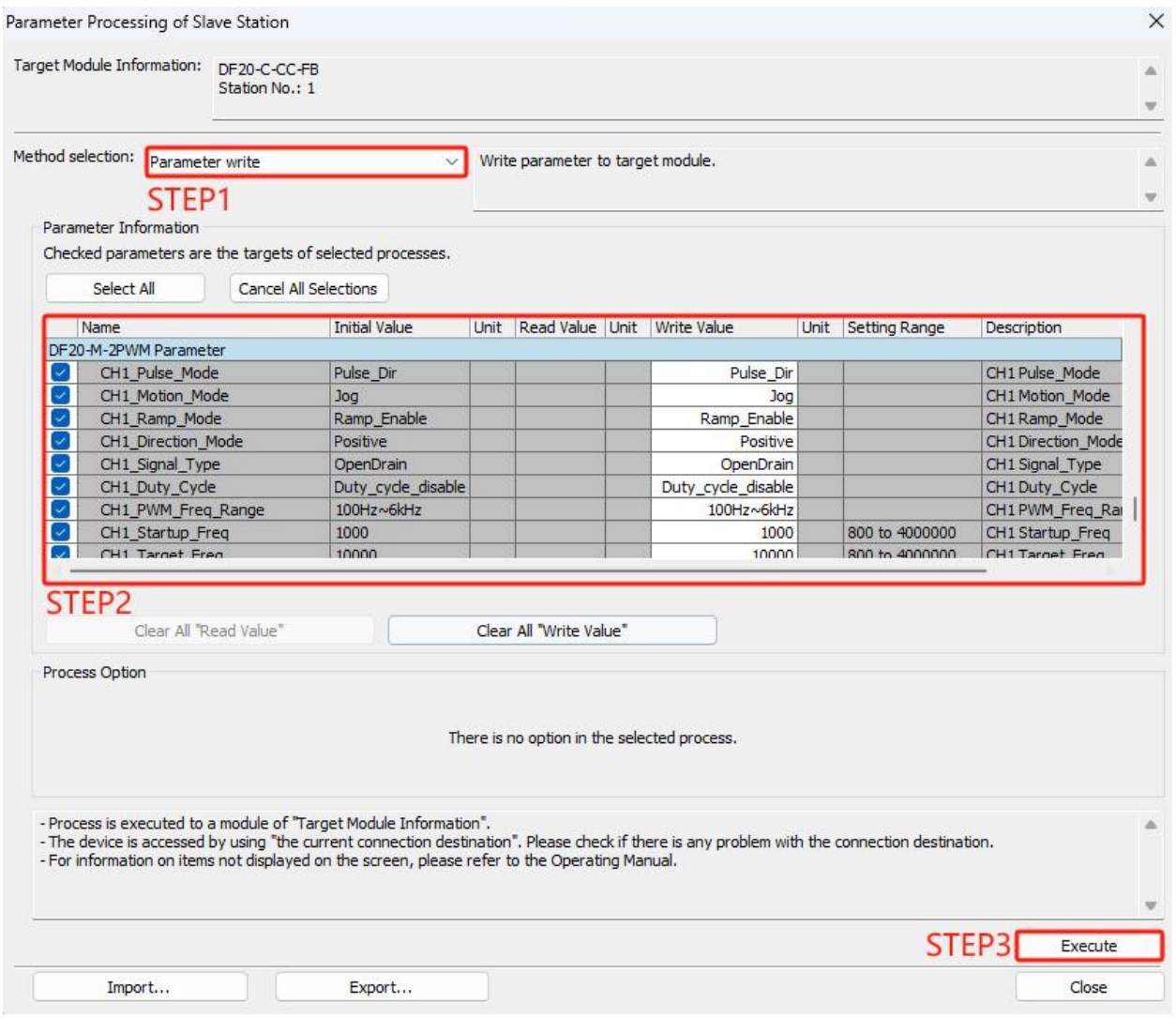
The description is shown in the following table.

Component	model	Occupied	Data size	Remark

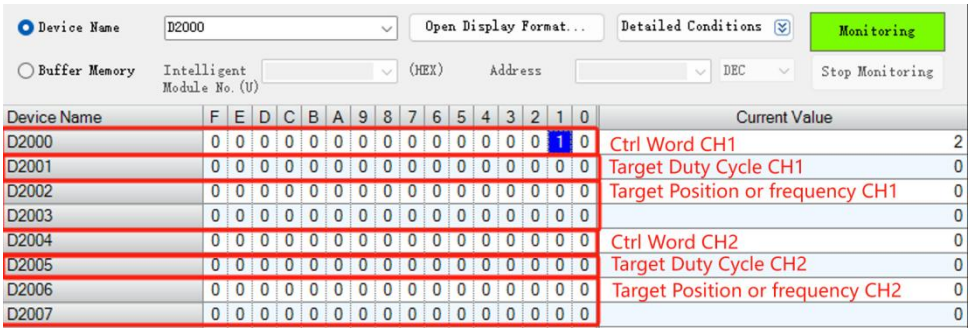
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-2PWM	D1001~D1006	6Words	Channel 0Status word: D1001 Channel 0 actual position or PWM output number:D1002~D1003 Channel 1Status word: D1004 Channel 1 actual position or PWM output number:D1005~D1006
R	DF20-M-2PWM	D2000~D2007	8Words	Channel 0Control word: D2000 Channel 0 duty cycle: D2001 Channel 0Target position setting in pulse plus direction positioning mode, or frequency setting in PWM mode:D2002~D2003 Channel 1Control word: D2004 Channel 1 Duty Cycle: D2005 Channel 1Target position setting in pulse plus direction positioning mode, or frequency setting in PWM

5.1.11.1Instructions for use of pulse plus direction mode + jog mode

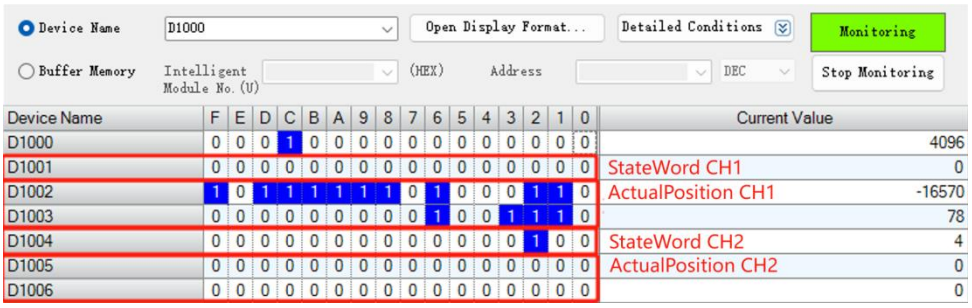
1）DF20-M-2PWMThe module CH1 channel is set to pulse plus direction mode, the output mode is set to jog mode, the frequency ramp enable is turned on, the pulse frequency rise buffer time is set to 100ms, the fall buffer time is 100ms, the start frequency is set to 1000Hz, the target frequency is set to 10000Hz, the pulse output direction is positive logic, and the configuration diagram is shown in the figure below.



2) Inching switch enable



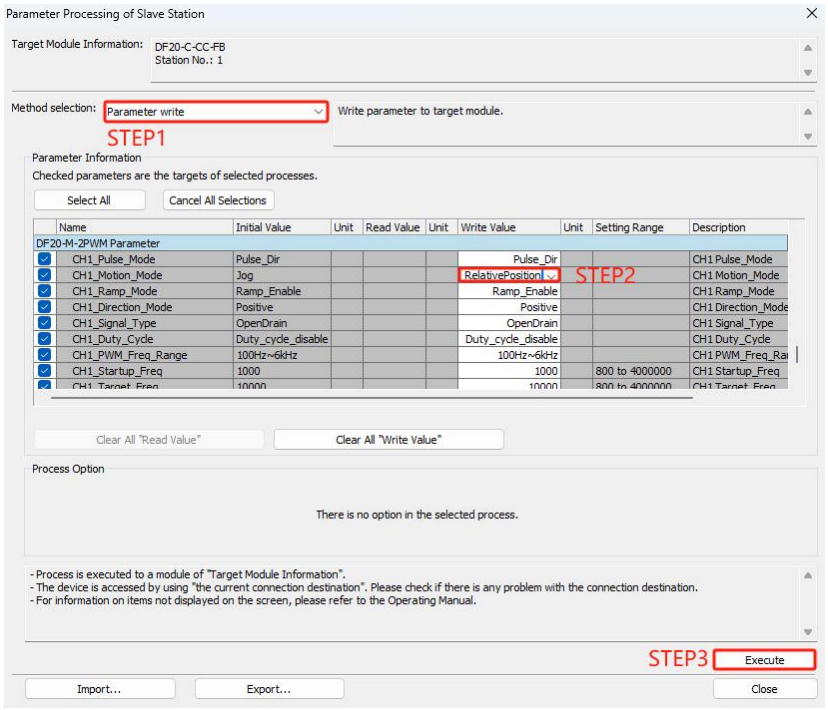
3) Observe the oscilloscope at this time, the current pulse output frequency is 10000HZ.DF20-M-2PWMThe number of module pulses continues to accumulate, as shown in the figure below.



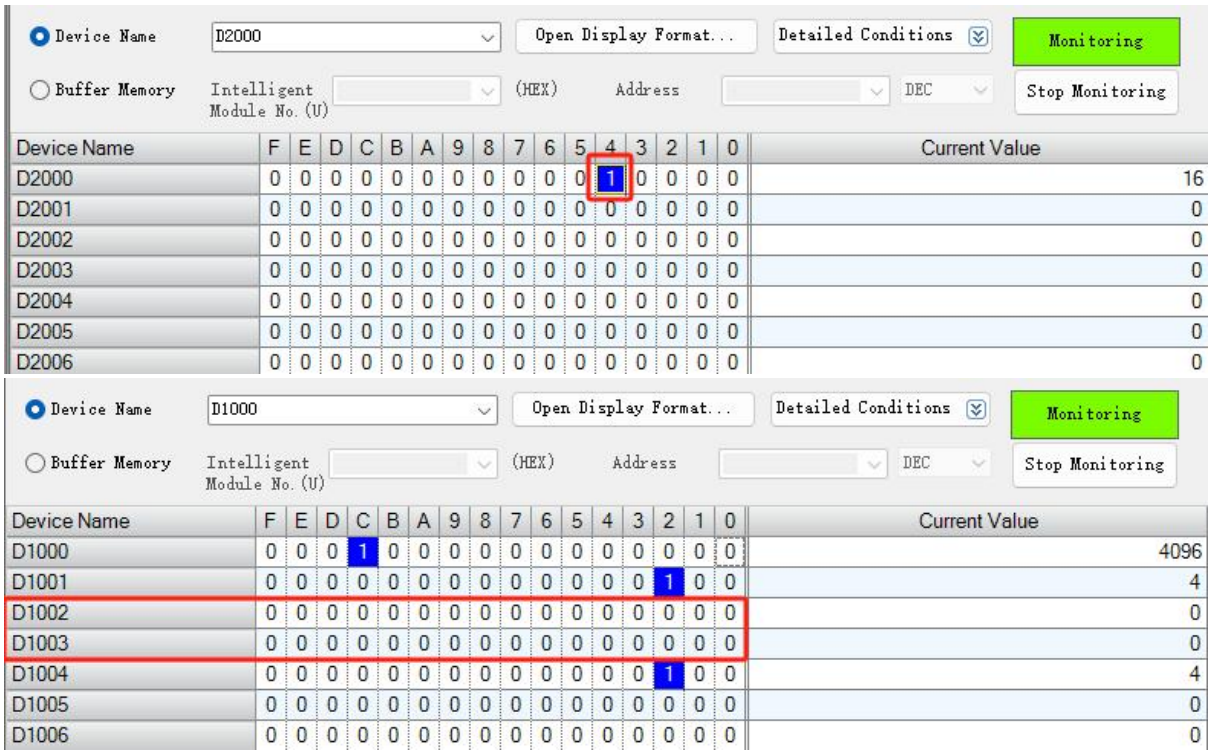
5.1.11.2Instructions for use of pulse plus direction mode + relative position mode

1)DF20-M-2PWMThe module CH1 channel is set to pulse plus direction mode, the output mode is set to

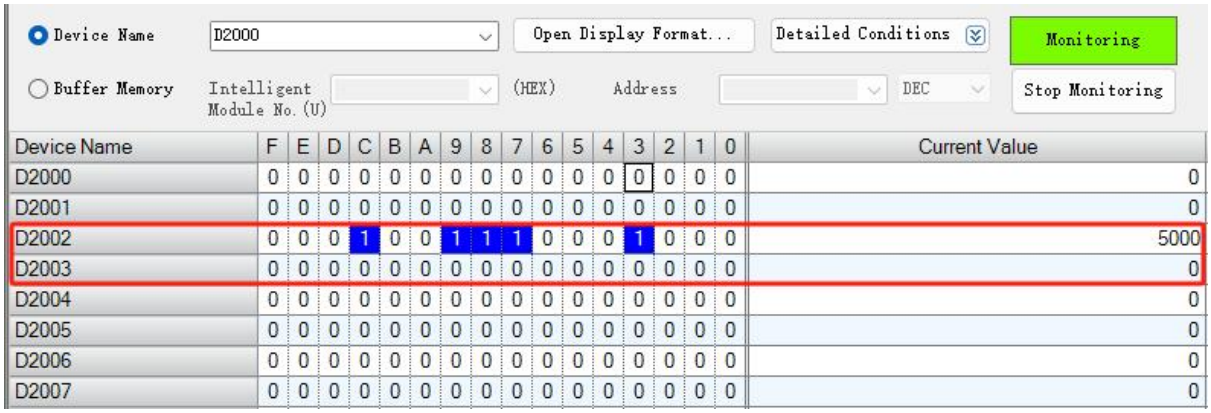
relative position mode, the frequency ramp is enabled, the pulse frequency rise buffer time is set to 100ms, the fall buffer time is set to 100ms, the start frequency is set to 1000Hz, the target frequency is set to 10000Hz, the pulse output direction is positive logic, and the CH1 channel configuration diagram is shown in the figure below.To switch modes, you need to clear "Jog Enable bit CH1" to 0.



2）Write "1" to the Position Clear bit CH1 to clear the current accumulated pulse count. After clearing, write "0" to the Position Clear bit CH1.

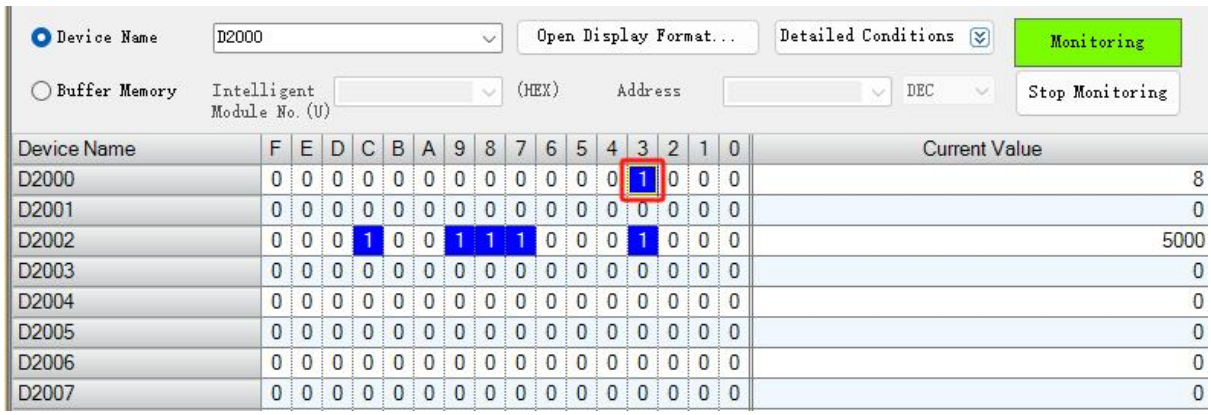


3) Set the target output pulse number to 5000.



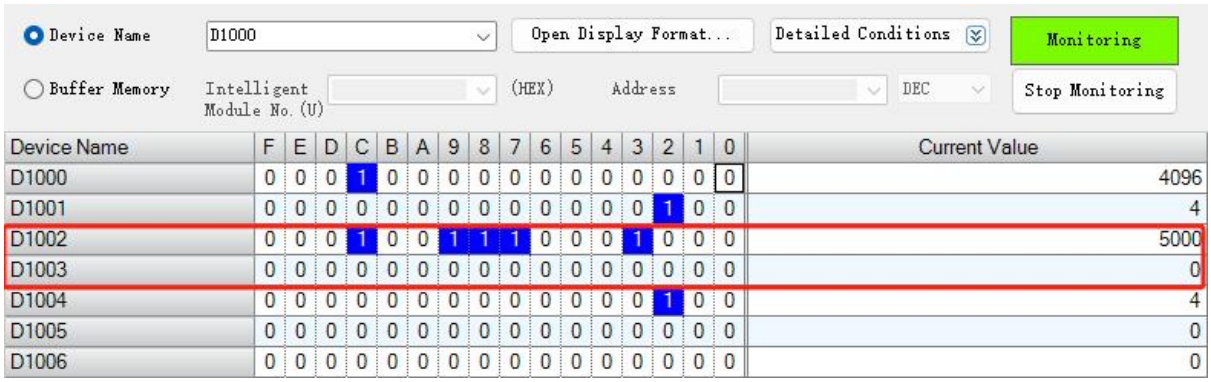
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2002	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	0	5000
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4) enables module pulse output.



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2002	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	0	5000
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

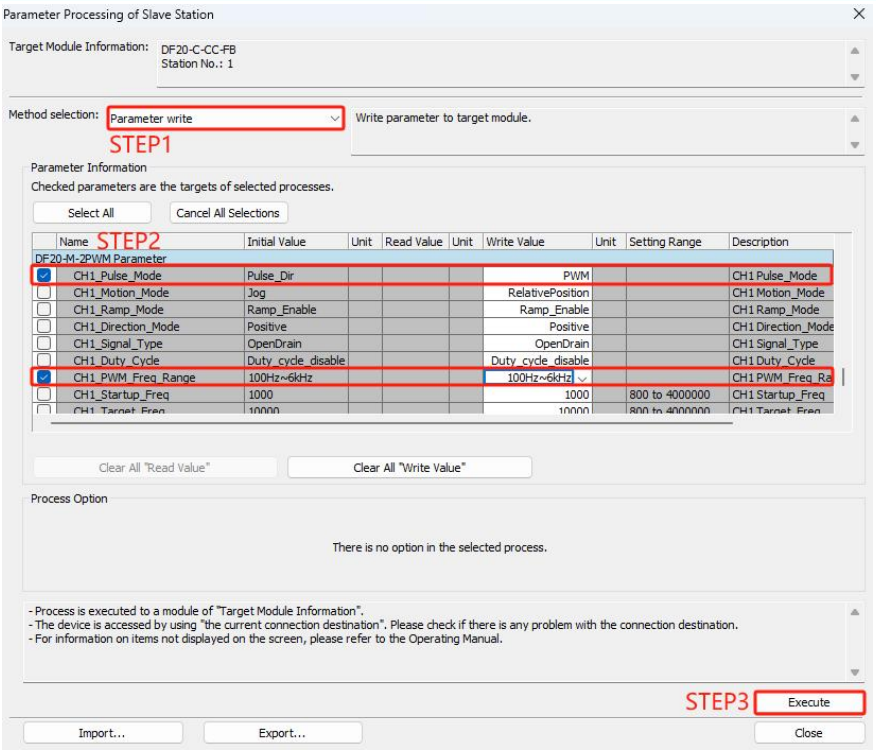
5) The current pulse count is 5000.



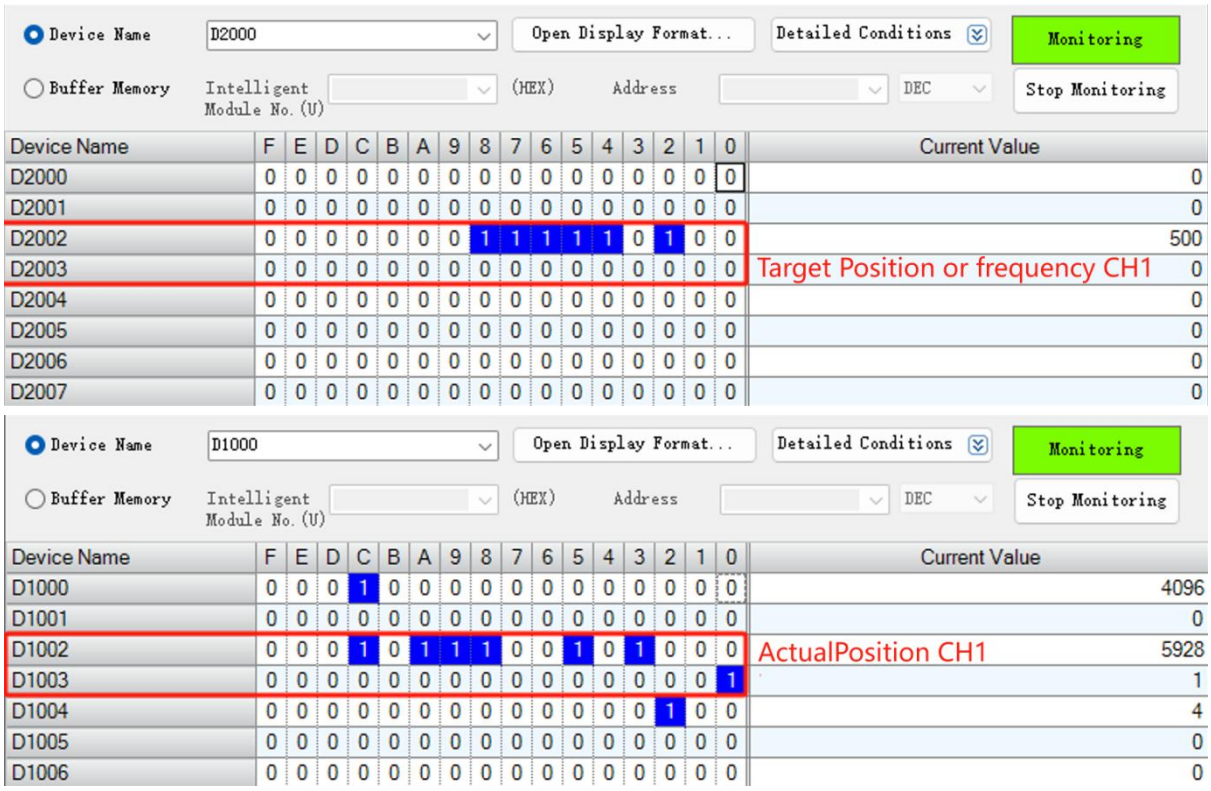
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4096
D1001	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
D1002	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	0	5000
D1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1004	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.1.11.3PWM Mode Instructions

1)DF20-M-2PWMThe module CH1 channel is set to PWM mode, and the PWM frequency range is set to 100Hz-6kHz. The configuration is shown in the figure below.



2) Set the PWM output frequency and observe the oscilloscopeDF20-M-2PWMThe module pulses are continuously output and the number is accumulated.

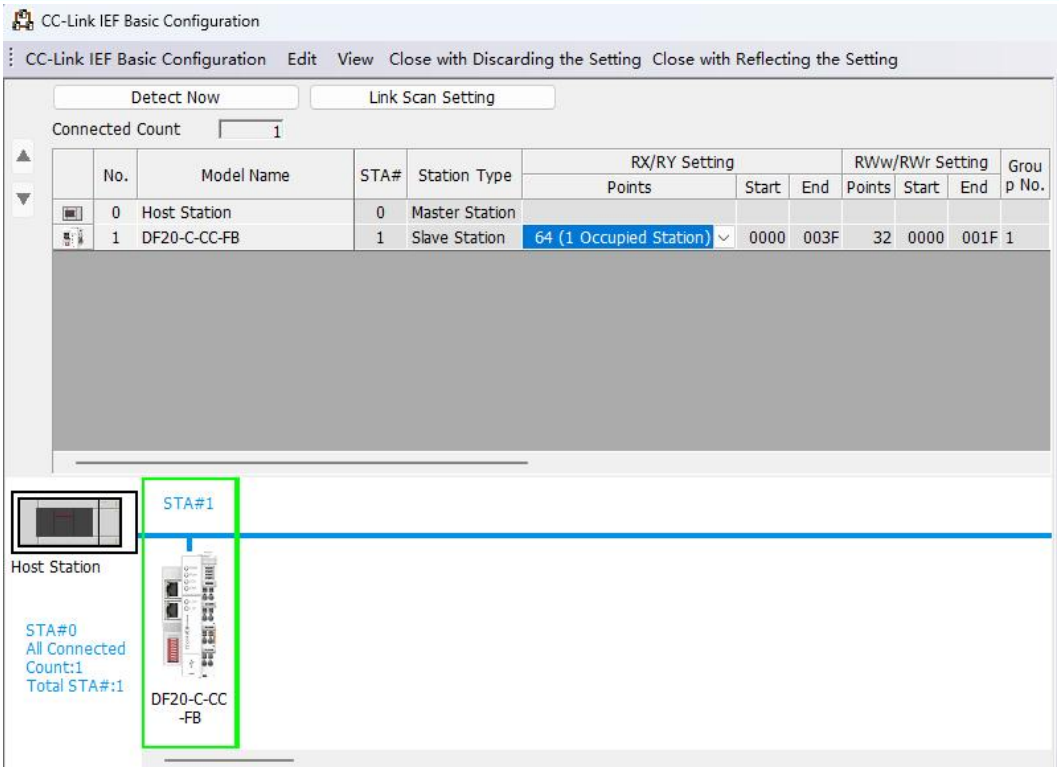


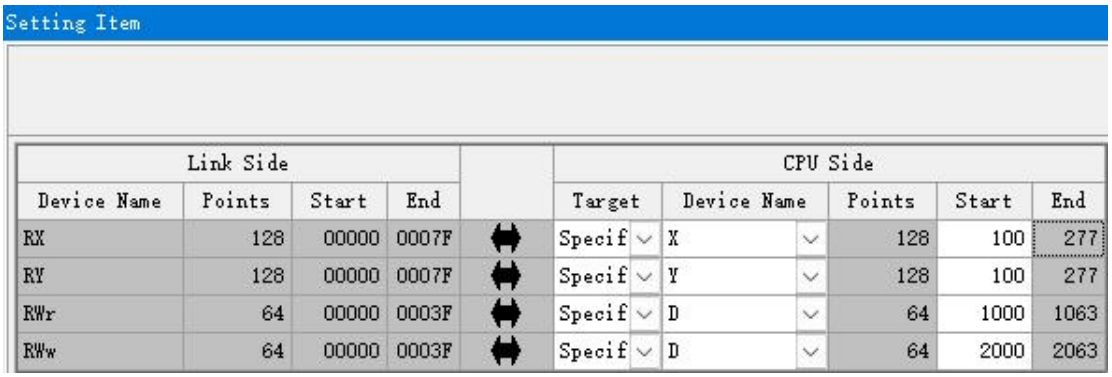
5.1.12 Serial port module configuration instructions

- This sectionDF20-C-CC-FB+DF20-M-1COM-232/485/422As an example, the topology ofSerial PortModule configuration instructions,

For detailed configuration process, please refer to5.1.1Sections~5.1.4Section.

- This topology only requires setting1Sites, points64Then, the input and output registers are32The starting addresses are:
  - RX: X100
  - RY: Y100
  - RWr: D1000
  - RWw: D2000





- according toChapter 3 Section 3.1ModulesIO data allocation instructions, each module input and output data andDiagnostic input status wordaddress

The description is shown in the following table.Detailed module configuration information referenceChapter 5, Section 5.1.5.

Free Mode

Component	model	Occupied address	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-1COM-232/485/422	D1001~D10twenty three	twenty threeWords	Status word:D1001 Accept data length:D1002 Receive data serial number: D1003 Receive data:

R	DF20-M-1COM-232/485/422	D2000~D2022	twenty threeWords	Control word:D2000 Send data length:D1002 Send data serial number: D1003 Send data: D1004~D10twenty three

Master mode

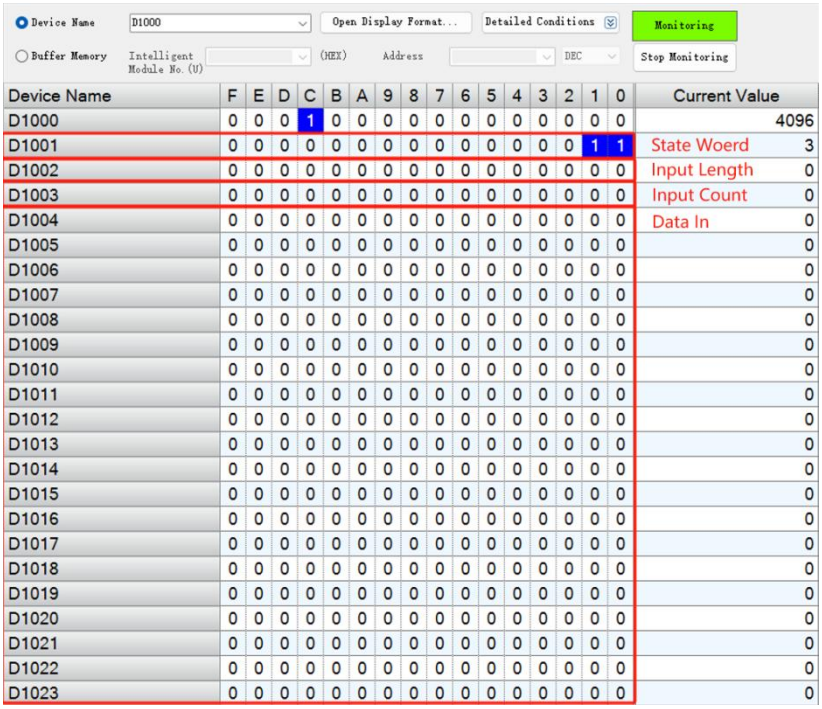
Component	model	Occupied address	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-1COM-232/485/422	D1001~D10twenty three	twenty threeWords	Status word:D1001 Accept data length:D1002 Current active channel: D1003 Receive data: D1004~D10twenty three
R	DF20-M-1COM-232/485/422	D2000~D2022	twenty threeWords	Control word:D2000 Reserved words:D1002 Channel operation selection: D1003 Send data: D1004~D10twenty

Slave Mode

Component	model	Occupied address	Data size	Remark
R	DF20-C-CC-FB	D1000	1Word	Diagnostic input status word
	DF20-M-1COM-232/485/422	D1001~D10twenty three	twenty threeWords	Status word:D1001 Readback data length:D1002 Number of readback registers: D1003 Receive data:
R	DF20-M-1COM-232/485/422	D2000~D2022	twenty threeWords	Control word:D2000 Register Address:D1002 Number of slave registers: D1003 Send data: D1004~D10twenty

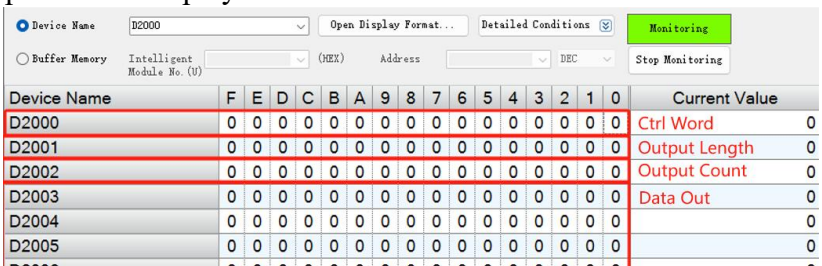
Note: For description of diagnostic information data, please refer toChapter 2, Section 1.3.1DF50-M-1COM-232/485/422 has different definitions of input and output data in different modes. For detailed instructions, please refer toChapter 3, Section 3.45.3.

- The free mode input data is displayed as shown below:



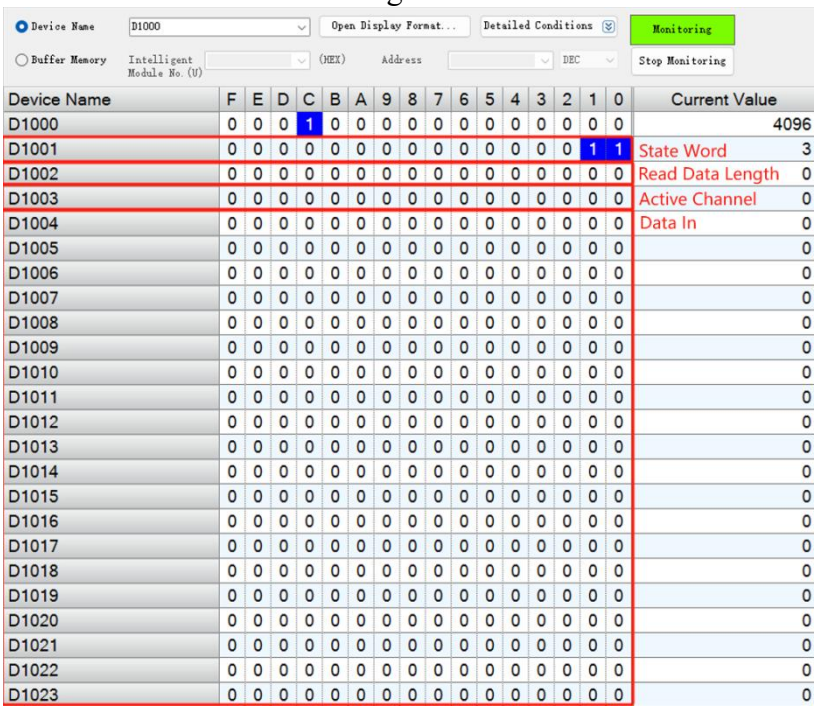
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4096
D1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	State Woerd 3
D1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Input Length 0
D1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Input Count 0
D1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data In 0
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- The free mode output data is displayed as shown below:



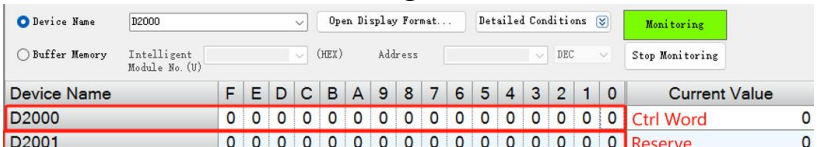
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ctrl Word 0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Output Length 0
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Output Count 0
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data Out 0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

➢ The input data in master mode is shown in the figure below:



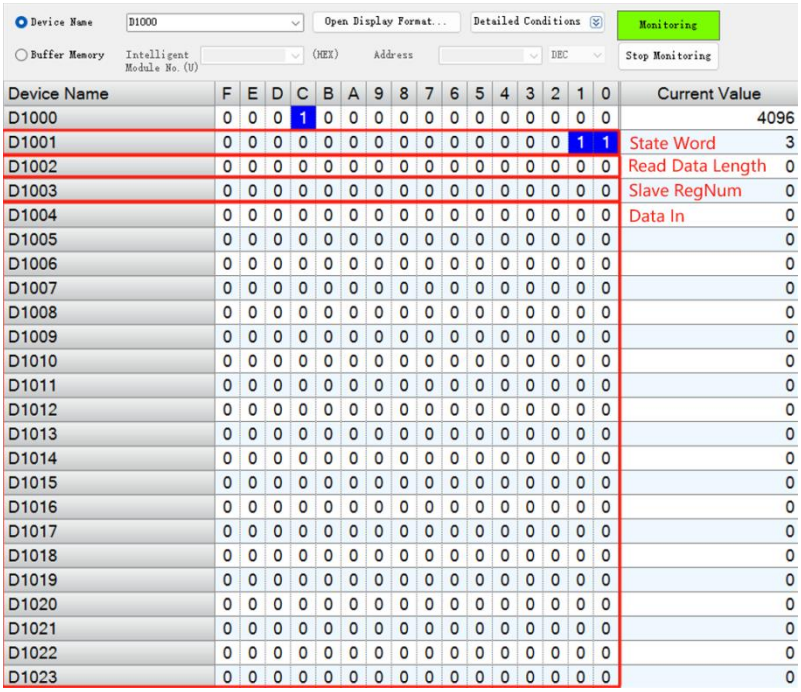
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4096
D1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	State Word 3
D1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Read Data Length 0
D1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Active Channel 0
D1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data In 0
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

➢ The output data in master mode is shown in the figure below:



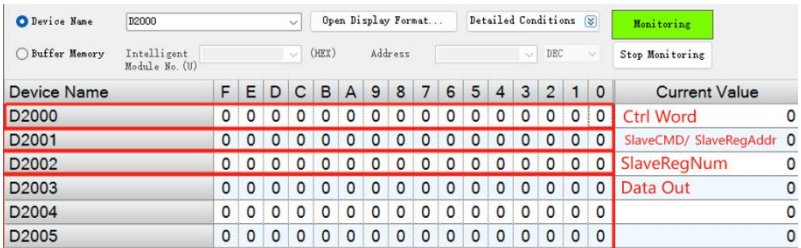
Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ctrl Word 0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Reserve 0
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Select Channel 0
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data Out 0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- The input data of slave mode is shown as follows:



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D1000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4096
D1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	State Word 3
D1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Read Data Length 0
D1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Slave RegNum 0
D1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data In 0
D1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- The output data in slave mode is shown in the figure below:



Device Name	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	Current Value
D2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ctrl Word 0
D2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SlaveCMD/ SlaveRegAddr 0
D2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SlaveRegNum 0
D2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Data Out 0
D2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0