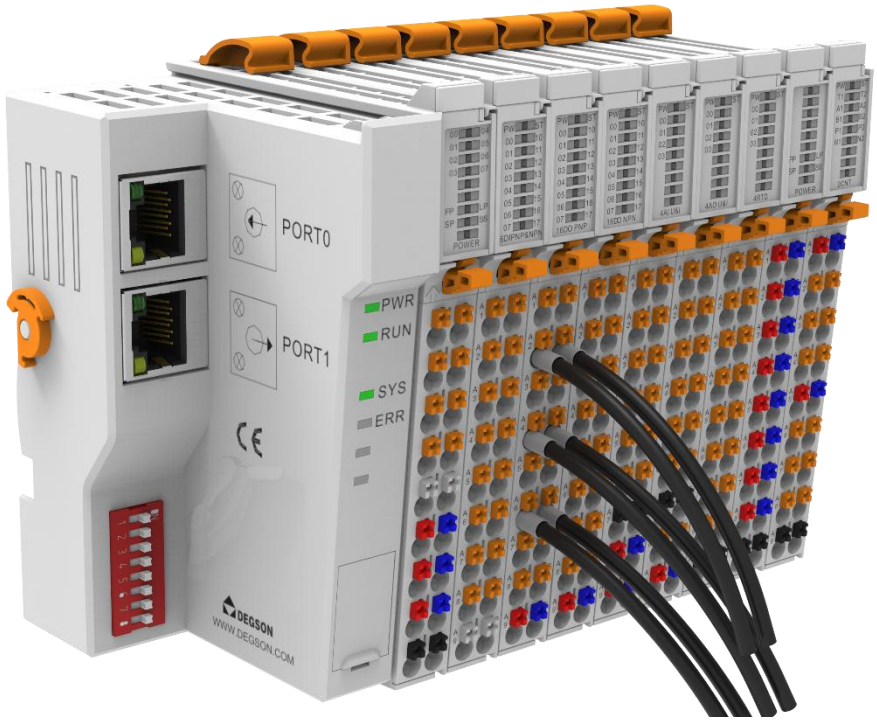
DF58-C-MD-TCP

User Manual



Directory

Preface

Scope of this document

This document applies to DF58 series remote IO systems

Introduction

This manual mainly introduces the technical specifications, installation, and debugging of DF58 series remote I/O modules.

Highlights include:

● System Overview: This paper mainly introduces the product ordering information of DF58 series remote I/O modules, product composition, system architecture, product transportation, storage environment, etc.

● Product Description: Introduce the technical parameters of DF58 series remote I/O module

● Installation and Removal Instructions: Introduce the installation and removal of DF58 series remote I/O modules

● Mechanical and electrical diagrams: DF58 remote IO module dimensions and electrical wiring diagrams;

● User Guide: This section introduces the communication between DF58 series remote I/O modules and mainstream PLCs through examples.

Precautions

This document describes in detail how to use the DF58 series remote I/O modules, and is intended for those with some engineering experience. DEGSON shall not be liable for any consequences arising from the use of this material.

Before attempting to use the equipment, please read the relevant precautions of the equipment carefully, and be sure to follow the safety precautions and operating procedures for installation and commissioning. The degree of harm and damage that may result from the incorrect use of the equipment is illustrated by the symbols below

DANGER

Imminent risk to life!

Notes with the signal word Danger warnyou of situations which will result in seriousnjury or death if you do not follow the instructions given in this manual.

WARNING

Possible danger to life!

Notes with the signal word " Warning " warnyou of situations which may result in seriousinjury or death if you do not follow the instructions given in this manua

ATTENTION

Material damageNotes

With the signal word " Attention " warn you of hazardswhich may result in material damage

Eligibility

This manual provides information on the installation and commissioning of the DF58 series remote I/O modules and is designed for engineers, installers, maintenance personnel, and electricians with a general understanding of automation.

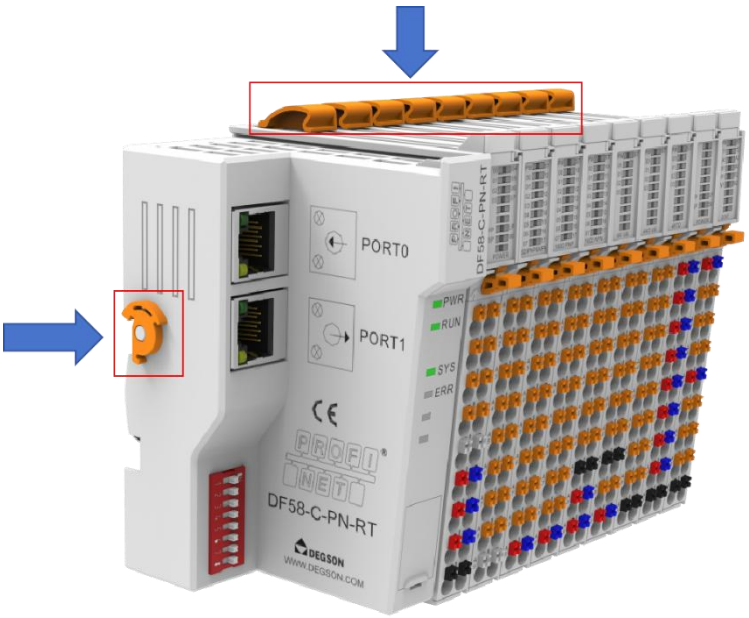
Recycling and disposal

To ensure that the recycling of your old equipment meets environmental requirements, please contact a certified e-waste disposal facility

1.Product installation and disassembly

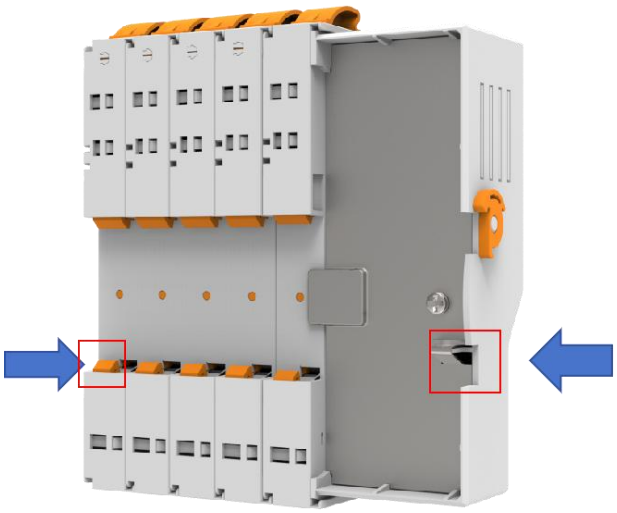
1.1 Installation

- The DIN rail lock at the bottom of the module can be safely and reliably mounted on a 35 mm DIN rail when the module is installed, and the module needs to be aligned with its notch, push the module towards the DIN bayonet, and place the module on the DIN rail.
- When installing the adapter, there is a manual snap above and on the left side for locking the rails.



1.2 Grounding protection

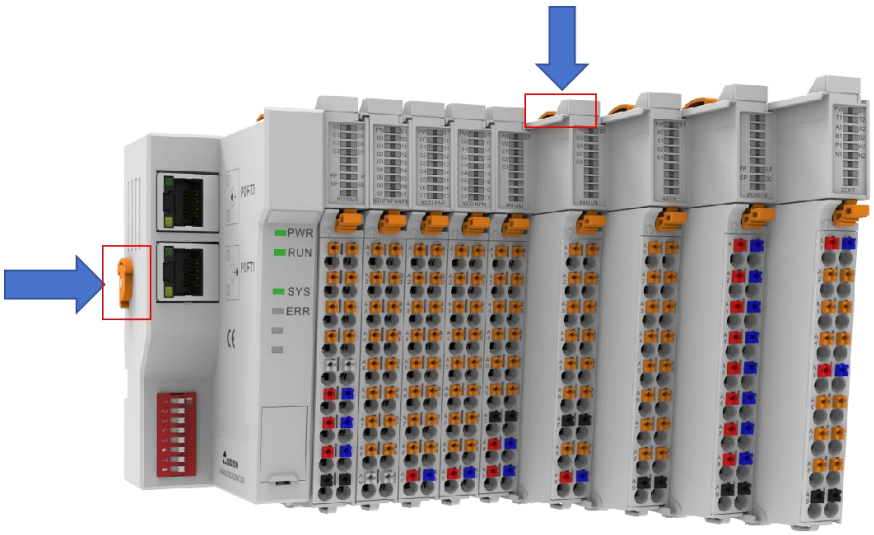
There is a metal shrapnel on the back of the module for effective grounding with the guide rail, and the metal shrapnel is connected to the grounding PE of the adapter module.



1.3 Disassembly method

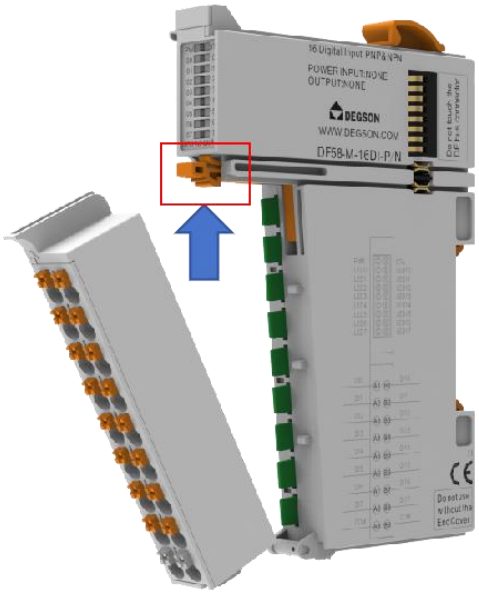
1.3.1 Module disassembly

When removing the adapter module, you should first remove all the signal cables or power cables of the module, then press the bayonet (the yellow part of the arrow at the top of the figure below), and when removing the adapter module, you also need to open the rail lock counterclockwise (the left arrow position).



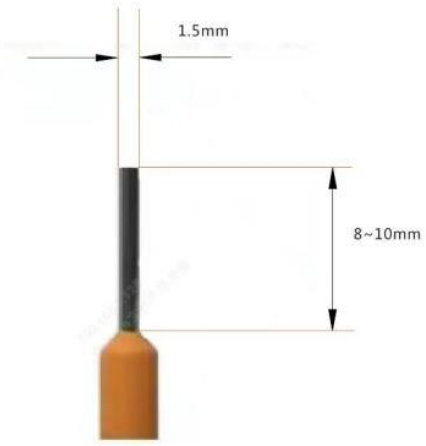
1.3.2 Terminal disassembly

The buckle can be removed separately by pressing the buckle in the direction of the arrow.



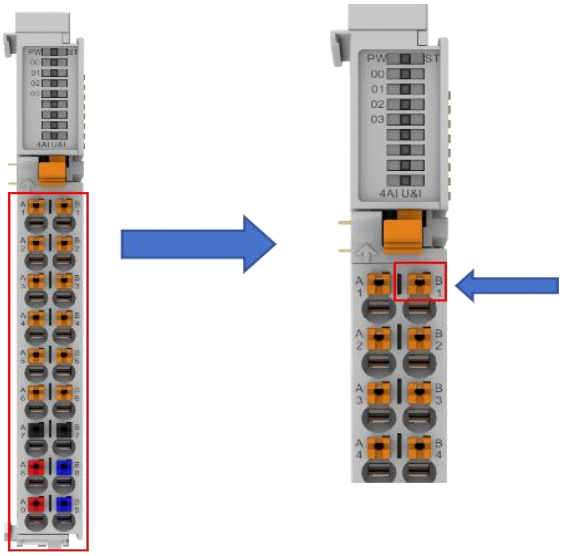
1.3.3 Cold-pressed terminals

It is recommended to use cables with a core of less than 1.5 mm², and the parameters of the crimp terminals are as follows.



The terminal button is recommended to be used, and it is recommended to use a 0.4*2.5 screwdriver to

press down.



1.4. Precautions

- If the module is difficult to install, do not use brute force to install, so as not to damage the current module or other modules, disassemble the module from the guide rail, check whether the module is abnormal (such as foreign body blockage, etc.), confirm that there is no problem, and then plug and unplug.

2. Fieldbus adapter

Fieldbus system	Description	Model
Modbus	Modbus TCP bus, 2 x RJ45, Expandable with 32 modules, 24VDC	DF58-C-MD-TCP

Modbus TCP Fieldbus Adapter (DF58-C-MD-TCP).

- The DF58-C-MD-TCP fieldbus adapter acts as a slave to connect to the MODBUS fieldbus, which has become the industry standard for communication protocols in the industrial sector. It automatically configures and generates local process images including analog, digital, and special function blocks. Analog modules and special function modules transmit data in the form of words or bytes, while digital modules transmit data in the form of bits.
- The fieldbus adapter is designed for fieldbus communication in MODBUS networks.
- It is also equipped with a dual-port switch that makes it easy to create a line structure without using any additional network components.

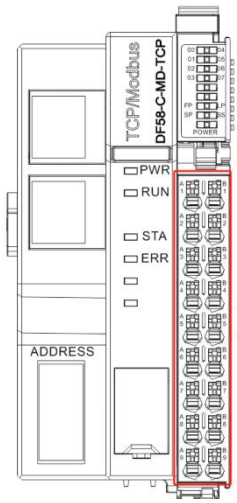
2.1. Specifications

Specifications	
Name of article	DF58-C-MD-TCP
Product Description:	TCP bus, 2 RJ45, Expandable 32 modules, 24VDC
Communication protocols	Modbus TCP/S7 TCP
Connection	2*RJ45, Integrated switch function
Transmission rate	10/100Mbps, ull-duplex
Transmission distance	100 eters
Scalable number of modules	32
Address mapping	Yes
Bus address settings	TCP specification, DIP switch
Transmission medium	Category 5 twisted pair
Isolation method	Electrically isolated from the field layer
Alarm function	Diagnostic alarms, process alarms, plug-in and unplug connector alarms
Minimum cycle time	1ms
Power supply parameters	
The terminal input power supply voltage is rated	24V DC(18V DC~ 28V DC)
The terminal input power supply is rated at current	0.6A
Power protection	Overcurrent protection, anti-reverse polarity protection, surge absorption
Connection	PUSH-IN terminal blocks
No-load current	<350mA
Provides internal system voltage	5VDC
Internal system current is supplied	Max.3A
The load voltage is provided	18V... 28VDC
The maximum current of the load is supplied	10A
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Working environment	

Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
elevation	2000 meters below
Pollution level	Level 2
Immunity	Power cord 2Kv (IEC 61000-4-4)
Overvoltage category	I
EMC anti-interference level	Zone B,IEC61131-2
Vibration resistance	IEC 60068-2-65Hz~8.4Hz, amplitude 3.5 mm, 8.4Hz~150 Hz, acceleration 9.8 m/s2, 100 minutes each in X, Y, Z direction (10 times, 10 minutes each time, 100 minutes in total)
Impact resistance	IEC 60068-2-27, 9 .8m/s2, 11ms, X/Y/Z, 3 times each in 6 directions

2.2 Hardware interface

2.2.1 Definition of terminal block



Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	DI0	B1	DI4	Digital signal input
A2	DI1	B2	DI5	
A3	DI2	B3	DI6	
A4	DI3	B4	DI7	
A5	COM	B5	COM	DI input on the public side
A6	Field_24V	B6	Field_0V	Load 24V power input
A7	Field_24V	B7	Field_0V	
A8	Sys_24V	B8	Sys_0V	24V power input of the system

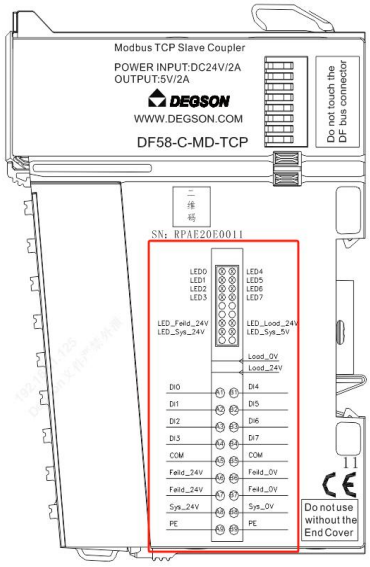
A9	PE	B9	PE	earthing

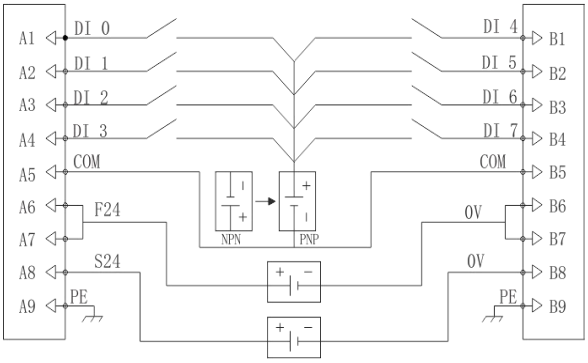
Note: It is recommended to use two 24V power supplies isolated from each other to provide two power supplies for each coupler to achieve optimal anti-interference performance.

2.2.2 LED indicator definition

Light	meaning
PWR（绿）	Power indicator, PWR indicator lights up when the module is powered normally
RUN (green)	Solid on: The coupler is functioning normally Off: The coupler is operating normally Flickering: abnormal configuration;
SYS (green)	Illuminated: Communication between coupler and module is normal Off: Abnormal communication between coupler and module
ERR (red)	On: Communication between the coupler and module is abnormal, Off: Normal.
00~07 (green).	Channel input indicator
FP (Green)	Green: The load power supply is running normally.
LP (Green)	Green: The sensor power supply is operating normally.
SP (green)	Green: The internal system power supply is running normally.
S5 (green)	Green: The internal 5V power supply is running normally.

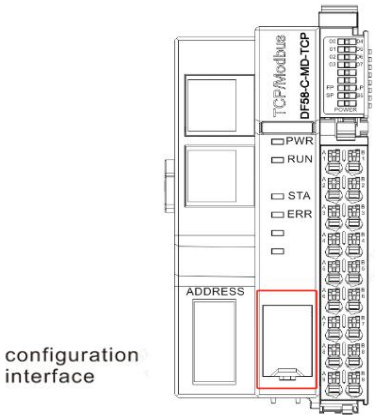
2.2.3 Wiring diagram





Note: COM is a public side, and an external 24V/0V is used to implement NPN/PNP

2.2.4 Configure the interface



Set the configuration interface to facilitate the program upgrade of the adapter.

Note: Non-professionals and authorized personnel are not allowed to use this interface to avoid procedural problems.

2.3 Parameter settings

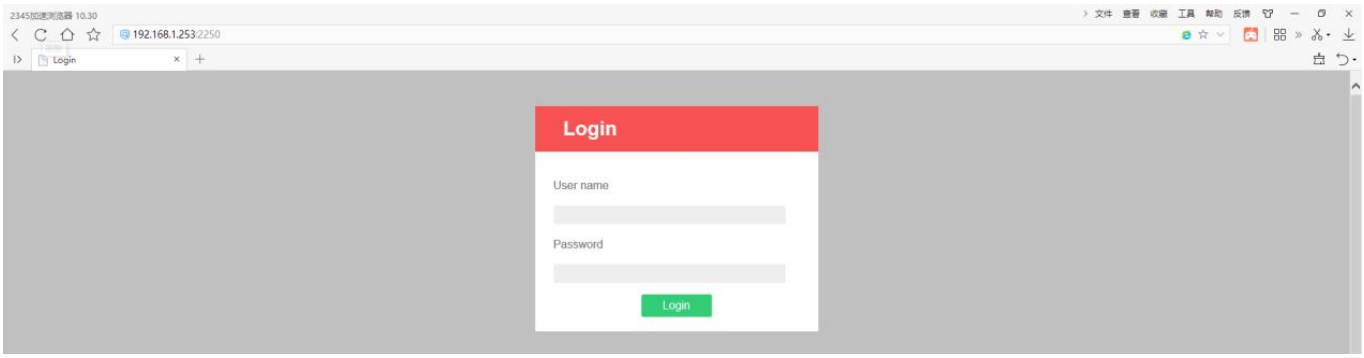
2.3.1 Web Page Parameters

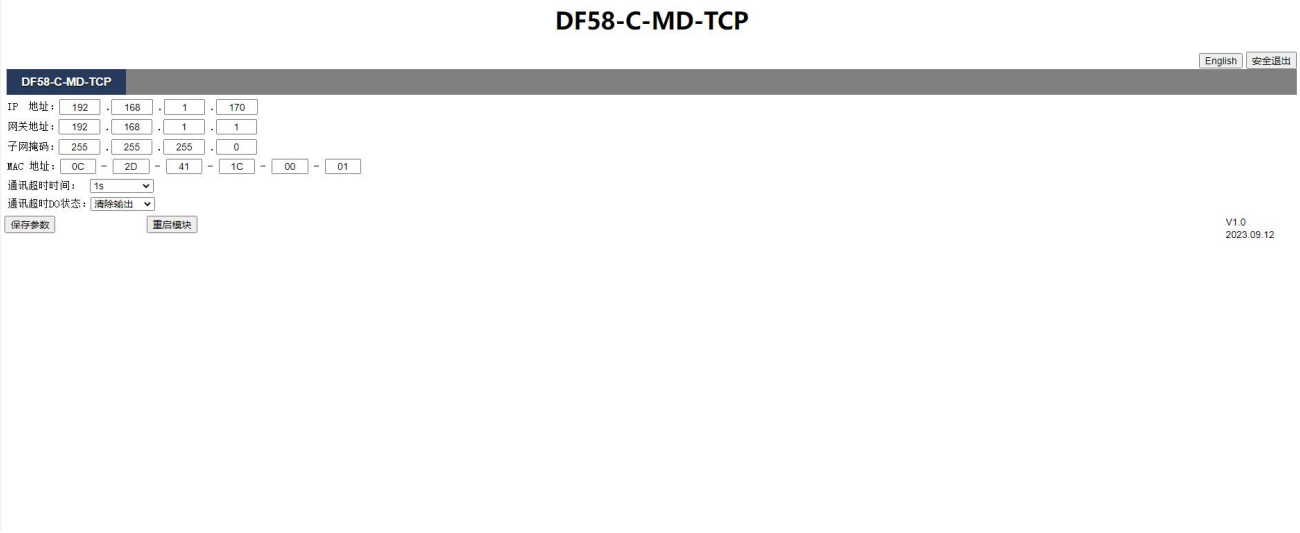
The RJ45 network port of the module gateway adopts a dual-IP design, with two IP addresses, the default user name is admin, and the password is admin;

One of the addresses, the default IP, including the IP of the RJ45 network port, can also be accessed through 192.168.1.253:2250 to the module web page; This address can only be used to modify the parameters on the login page.

The second address, the IP set by the dial code or the IP set by the web page, please refer to "3.2 DIP Parameters" for details, **this address is used for TCP master connection and login to the web page to modify the parameters**. You need to add 2250 to enter the web page, for example, 192.168.1.100:2250.

The default IP of the web page is 192.168.1.253, the default user name and password are "**admin", log in to the web page parameter configuration page** for parameter configuration, and the web page parameters are as follows:





English/Chinese: Switch between English and Chinese interfaces.

Log Out: Exit the module's web interface

IP address: The coupler must be in the same network segment as the IP address of the controller to communicate with the connected controller.

Gateway Address: The gateway to which the coupler is set.

Subnet Mask: Sets the mask of the coupler.

MAC address: Set the MAC address of the coupler, if there are multiple devices in the same network, the MAC address cannot be the same, otherwise the communication will be abnormal.

Communication timeout time: After the communication between the coupler and the controller is disconnected, the output channel output of the analog expansion module behind the coupler is cleared or maintained, with a total of 4 setting items, namely: 200ms, 500ms, 1s, 3S (default). When set to

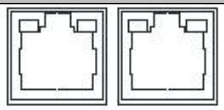
200ms, 500ms, 1s, 3s, the output channel output of the analog expansion module behind the coupler is cleared to zero after the communication disconnection exceeds the set time

Communication timeout DO status: After the communication between the coupler and the controller is disconnected, the output of the output channel of the digital expansion module behind the coupler is cleared or maintained, and there are 3 setting items, namely: hold, clear output (default), and turn on output.

2.3.2 DIP parameters

DIP switch	illustrate
	(1) When all DIPs are set to OFF, configure the IP address used by the coupler for EIP communication through the web page, and set the range XXX.XXX.XXX.1~XXX.XXX.XXX.254. The "XXX.XXX.XXX." indicates the CIDR block to which it is connected in actual use. (2) When the DIP switch is dialed to ON, the last digit of the IP address used by the coupler for EIP communication is the value set by the DIP switch, and the network segment is subject to the web page setting, for example, the IP address 19 3.168.250.123 is set on the web page, and the DIP switch 1 and 2 are dialed to ON, and the others are OFF, and the IP address of the coupler is 19 3.168.250.3. **Address=SW1×20+SW2×21+...+SW8×27** **Concentrate:** **(1) Address settings: XXX.XXX.XXX.1 ~ XXX.XXX.XXX.254** **(2) The dial code sets the IP address, and it will only take effect when the module is powered off and restarted.**

2.3.3 Network port description

Ethernet port	illustrate
	It is used for TCP communication and has the function of a switch.

2.3.4 Description of the coupler address parameter

For details on the layout of address areas when using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules".

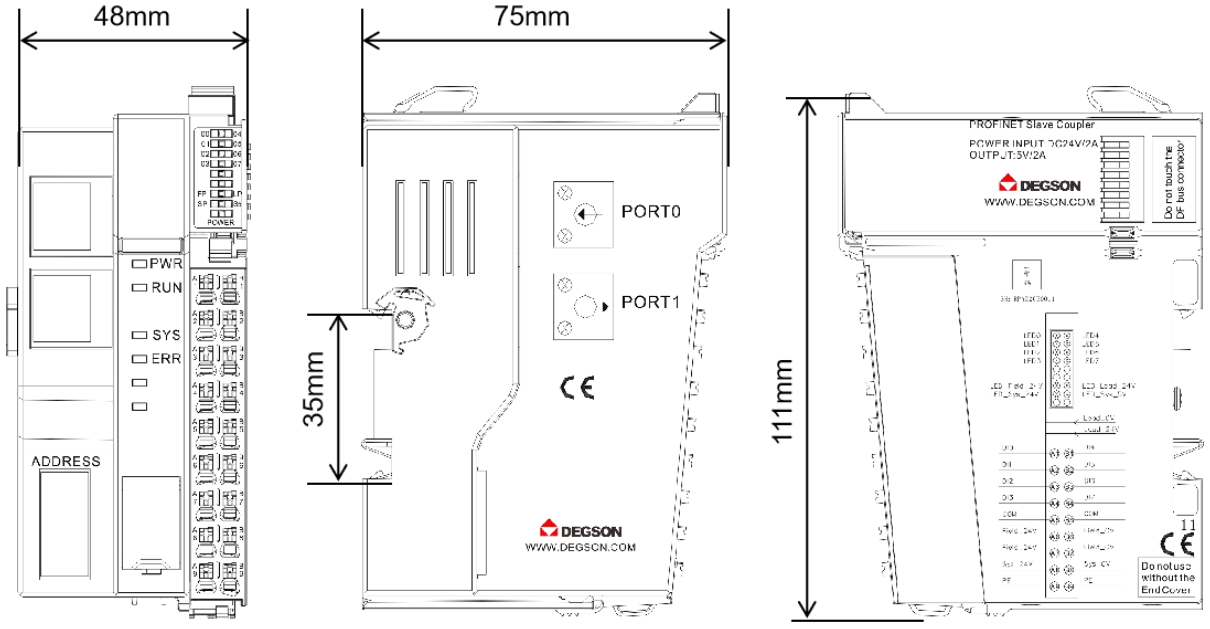
When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

The name of the module	Address area	Type/Total Bytes	Address layout	illustrate
DF58-C-MD-TCP	Digital input area	digital input, 1word	1word	8DI bit0~bit7; Bit8~Bit15 pending

2.4 Mechanical installation

2.4.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).

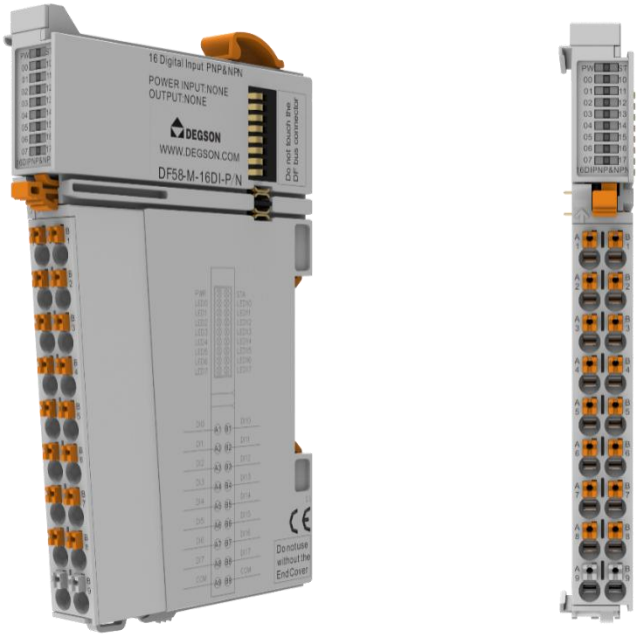


3. Expand the I/O module

function	description	Model
Digital modules	Digital inputs, 16 inputs, PNP/NPN	DF58-M-16DI-P/N
Digital modules	Digital output, 16 output, PNP	DF58-M-16DO-P
Digital modules	Digital outputs, 16 outputs, NPN	DF58-M-16DO-N
Digital modules	Analog input, 4 channels, voltage and current type	DF58-M-4AI-UI-6
Analog Module	Analog output, 4 channels, voltage and current type	DF58-M-4AO-UI-6
Temperature module	RTD measurement, 4 channels	DF58-M-4RTD-PT
Temperature module	Thermocouple measurement, 4 channels	DF58-M-4TC
Temperature module	Thermocouple measurement, 8 channels	DF58-M-8TC
Pulse Counting Module	Encoder input/pulse output, 2 channels	DF58-M-2CNT-PIL-24
Voltage distribution module	Voltage distribution/24VDC to 5VDC	DF58-M-DC-U-5

3.1 16-Channel digital input/24VDC/PNP&NPN (DF58-M-16DI-P/N).

- The digital input module receives control signals from field devices (e.g. sensors, etc.).
- 16 channels of digital input, PNP & NPN active. Public-side translation
- Each input module is equipped with an anti-interference filter.
- Each input module has an LED indicator.
- The field level and the system level are isolated by optocouplers.
- IP20 degree of protection.



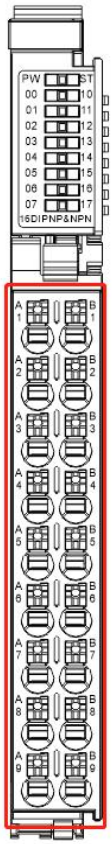
3.1.1 Specifications

Specifications	
Model	DF58-M-16DI-P/N
Product Description:	Digital input module, 16 inputs, NPN+PNP, 24VDC
Signal type	NPN &; PNP
"ON" signal voltage	>15V DC
"OFF" signal voltage	<5V DC
Hardware response time	100us/100us
Number of channels	16
Data size	2 Byte
Connection type	1-wire system, according to IEC 61131-2
Reverse circuit protection	Yes
Isolation method	Photoelectric isolation from the field layer
Error diagnosis	Yes
Signal (0) Input current per channel (typical)	0.678mA
Signal (1) Input current of each channel (typical)	4.07mA
Signal (1) The minimum input current of each channel	2.46mA
Signal (1) The maximum input current of each channel	4.7mA
Filtering time	No filtering, 0.25ms, 0.5ms, 1ms (factory setting), 2ms, 4ms, 8ms, 16ms, 32ms, you can set 2 groups of filtering parameters, a group of 8 channels, and a common filtering parameter within the group
Input impedance	5.6kΩ
Input action display	When the input is in the driving state, the input indicator lights up (the LED is controlled by the IO software of the microcontroller)
Enter the derating	Derating 75% at 55°C (no more than 12 ON input points at the same time) or 10°C at ON input points
IO mapping	Supports bit-by-bit access, byte-by-byte access, and word-by-word access

Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<15mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

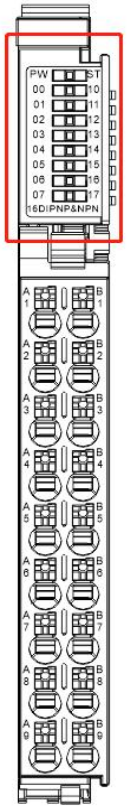
3.1.2 Hardware interface

3.1.2.1 Definition of terminal block



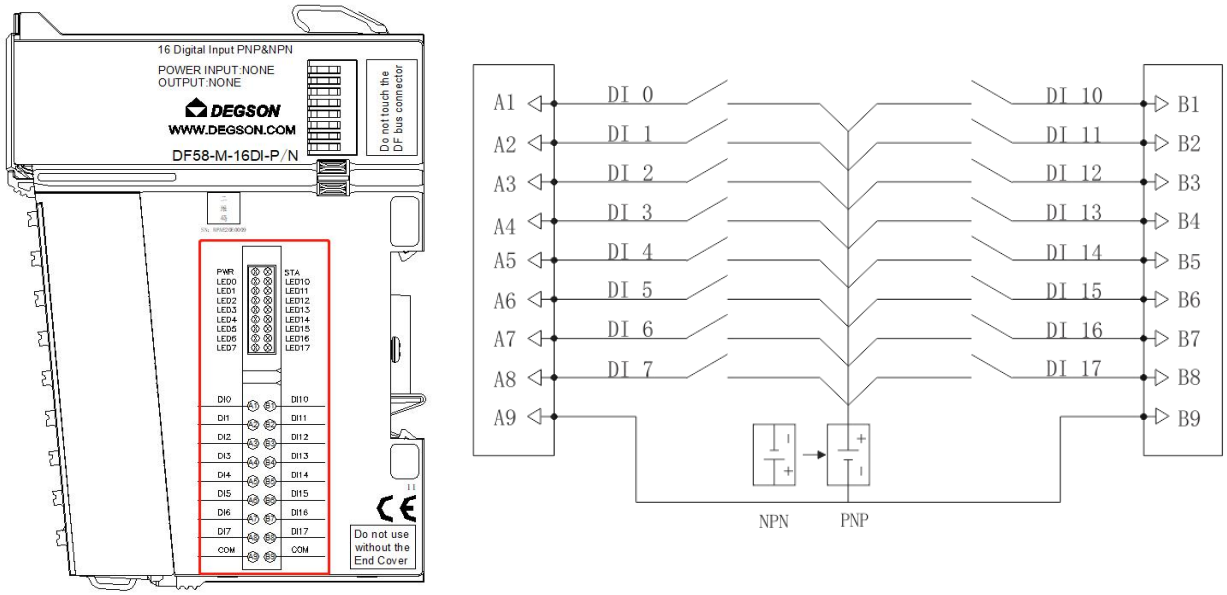
Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	DI 0	B1	DI 10	DI signal input
A2	DI 1	B2	DI 11	
A3	DI 2	B3	DI 12	
A4	DI 3	B4	DI 13	
A5	DI 4	B5	DI 14	
A6	DI 5	B6	DI 15	
A7	DI 6	B7	DI 16	
A8	DI 7	B8	DI 17	
A9	COM	B9	COM	The DI signal is input to the common end

3.1.2.2 LED indicator definition



Light	Meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00~07(Green)	Input indication of channels DI0~DI7.
10~17(Green)	Input indication of channels DI10~DI17.

3.1.2.3 Wiring diagram

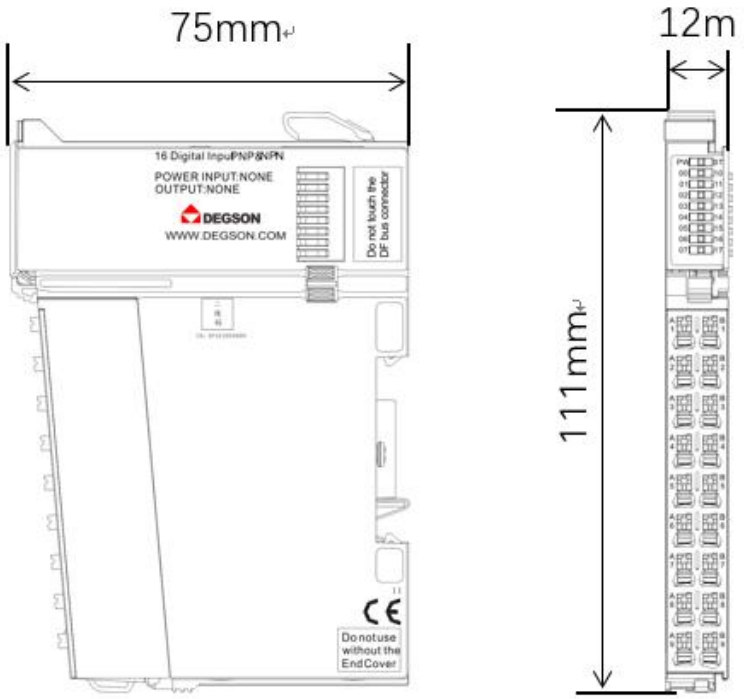


Note: COM is the public side, which is connected to 24V to implement NPN, and external 0V to implement PNP.

3.1.3 Mechanical installation

3.1.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.1.4 Description of module address parameters

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

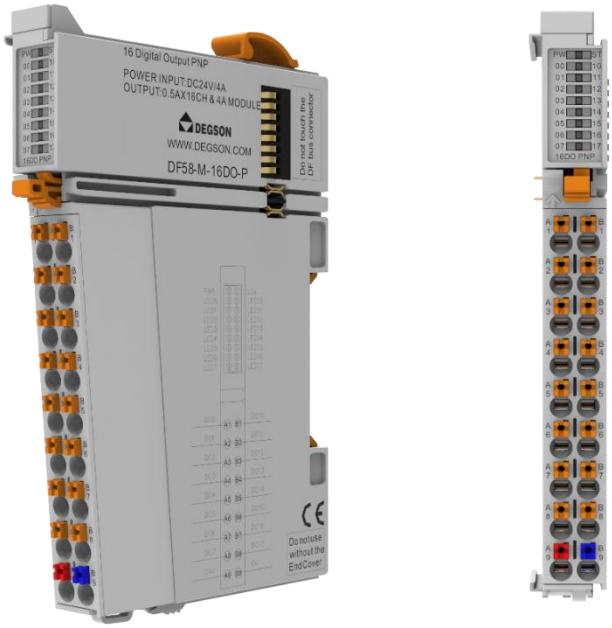
When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-16DI-P/N	Digital input area	input words, 1word	1word	Compatible with 16DI input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: bit0: 0: normal; 1: Bus error. Bit1~Bit15: Spare。

	Module configuration parameters	configuration word, 2word	1st word	Channel 1~8 filter parameters: 0: No filter (default); 1：0.25ms； 2：0.5ms； 3：1ms； 4：2ms； 5：4ms； 6：8ms； 7：16ms； 8：32ms；
			Section 2	Channel 9~16 filtering parameters 0: No filter (default); 1：0.25ms； 2：0.5ms； 3：1ms； 4：2ms； 5：4ms； 6：8ms； 7：16ms； 8：32ms。
	Module type	1word	1word	ID：1

3.2 16-channel digital output/24VDC/PNP (DF58-M-16DO-P).

- The digital output module transmits the binary signal of the automation equipment to the connected actuator (solenoid valve, etc.).
- 16 channels of digital output, PNP active high.
- Each output module is equipped with an anti-interference filter.
- Each output module has an LED indicator.
- The field level and the system level are isolated by optocouplers.
- IP20 degree of protection.



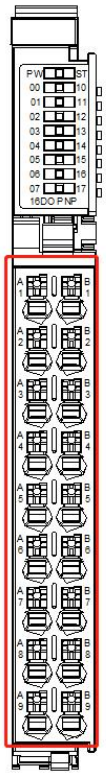
3.2.1 Specifications

Specifications	
Model	DF58-M-16DO-P
Product Description:	Digital output module, 16 outputs, PNP, 24VDC
Signal type	PNP
"OFF" signal voltage	High impedance state
"ON" signal voltage	24V DC
Number of channels	16
Data size	2 Byte
Connection type	1-wire system
Reverse circuit protection	Yes
Overcurrent protection	Yes
Short-circuit protection	Yes
Isolation method	Photoelectric isolation from the field layer
Error diagnosis	Yes
Switching Frequency (Resistive)	100Hz
Switching Frequency (Lamp)	10Hz
Switching Frequency (Inductive)	0.2Hz
The response time of the protection circuit	<180us
The maximum output current per channel	500 mA
Leakage current	Maximum: 10uA
Hardware response time	100us/100us
Output impedance	<200mΩ
Output delay	OFF to ON :Max.100us , ON to OFF :Max.150us
Protection features	Overcurrent protection: typical, 1.9A
The type of load	Inductive (7.2W/dot, 24W/module), Resistive (0.5A/dot, 4A/module), Lamp (5W/dot, 18W/module)
The output action is	When the output is in the driving state, the indicator light is on (the LED

displayed	is controlled by the IO software of the microcontroller)
Enter the derating	Derate by 50% at 55°C (while the output current of ON does not exceed 2A), or 10°C at full ON at the output point
IO mapping	Supports bit-by-bit access, byte-by-byte access, and word-by-word access
Fault shutdown output state mode	Clear to zero, keep the current value, and output according to the preset value
Fault shutdown output preset	0 or 1
Shutdown mode	Output according to the fault shutdown state mode and preset value, no longer refreshed
Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<75mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

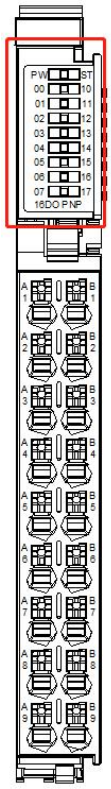
3.2.2 Hardware interface

3.2.2.1 Definition of terminal block



Pin ordinal	signal	Pin ordinal	signal	illustrate
A1	DO 0	B1	DO 10	DO signal output
A2	DO 1	B2	DO 11	
A3	DO 2	B3	DO 12	
A4	DO 3	B4	DO 13	
A5	DO 4	B5	DO 14	
A6	DO 5	B6	DO 15	
A7	DO 6	B7	DO 16	
A8	DO 7	B8	DO 17	
A9	24V	B9	0V	24V power input of the module

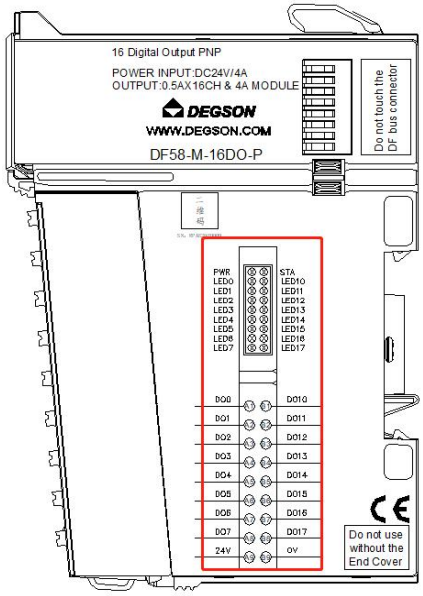
3.2.2.2 LED indicator definition

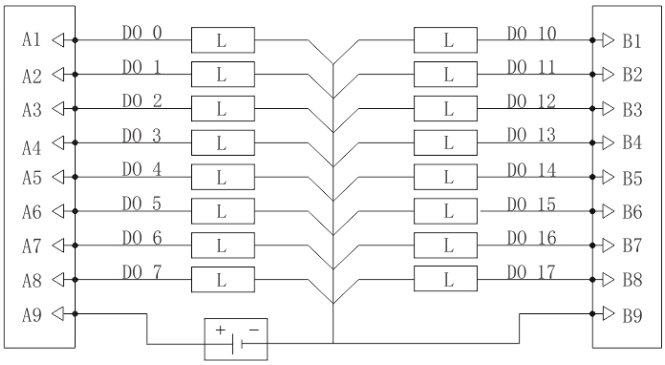


Light	Meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00~07(Green)	Channel DO0~DO7 output indicator.
10~17(Green)	Channel DO10~DO17 output indicator.

3.2.2.3 Wiring diagram

Note: The A9 and B924V power supplies are externally supplied.

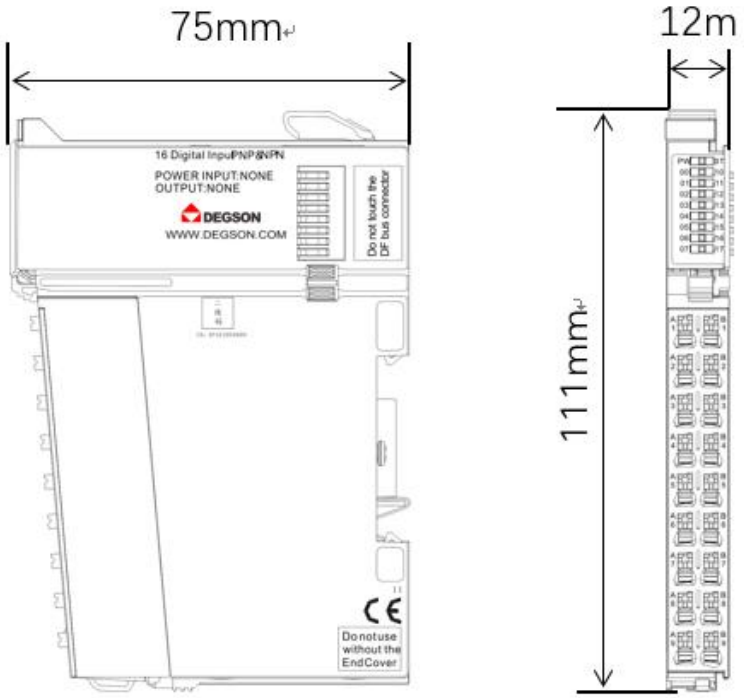




3.2.3 Mechanical installation

3.2.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.2.4 DF58-M-16DO-P parameter description

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

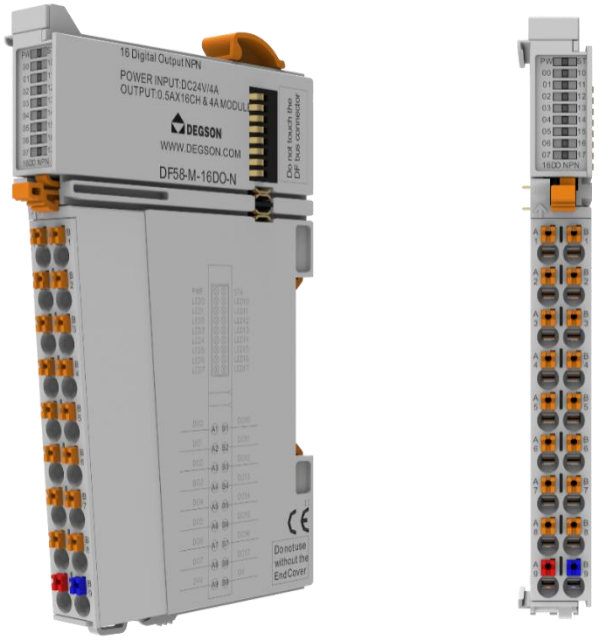
When using S7-TCP addresses, please refer to Chapter 4, Section 2 "S7-TCP Address Allocation Rules" for specific address area layout.

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-16DO-P	Digital output area	output 1word	1word	Compatible with 16DO output
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: 1: Channel 24V is not connected 0: Normal Bit2: 1: Channel 1~8 any channel is short-circuited; 0: Normal Bit3: 1: Channel 9~16 any channel is short-circuited; 0: Normal Bit4~Bit15: Spare

	Module configuration parameters	disposition 1word	1word	When the module is abnormal, the output status is as follows: 0: Output hold 1: The output is cleared 2: The output is set to 1
	Module type	1word	1word	ID：3

3.3 16-channel digital output/24VDC/NPN(DF5-M-16DO-N)

- The digital output module transmits the binary signal of the automation equipment to the connected actuator (solenoid valve, etc.).
- 16 channels of digital output, NPN active-low.
- Each output module is equipped with an anti-interference filter.
- Each output module has an LED indicator.
- The field level and the system level are isolated by optocouplers.
- IP20 degree of protection.



3.3.1 Specifications

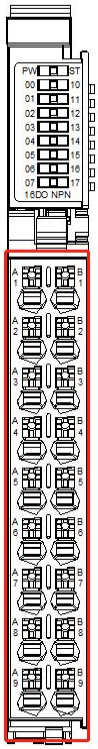
Specifications	
Model	DF58-M-16DO-N
Product Description:	Digital output module, 16 outputs, NPN, 24VDC

Signal type	NPN
"OFF" signal voltage	High impedance state
"ON" signal voltage	0V DC
Number of channels	16
Data size	2 Byte
Connection type	1-wire system
Reverse circuit protection	Yes
Overcurrent protection	Yes
Short-circuit protection	Yes
Isolation method	Photoelectric isolation from the field layer
Error diagnosis	Yes
Switching Frequency (Resistive)	100Hz
Switching Frequency (Lamp)	10Hz
Switching Frequency (Inductive)	0.2Hz
The response time of the protection circuit	< 100μs
The maximum output current per channel	500 mA
Leakage current	Maximum: 10uA
Hardware response time	100us/100us
Output impedance	<200mΩ
Output delay	OFF to ON :Max.100us , ON to OFF :Max.150us
Protection features	Overcurrent protection: typical, 1.9A
The type of load	Inductive (7.2W/dot, 24W/module), Resistive (0.5A/dot, 4A/module), Lamp (5W/dot, 18W/module)
The output action is displayed	When the output is in the driving state, the indicator light is on (the LED is controlled by the IO software of the microcontroller)
Enter the derating	Derate by 50% at 55°C (while the output current of ON does not exceed 2A), or 10°C at full ON at the output point
IO mapping	Supports bit-by-bit access, byte-by-byte access, and word-by-word access
Fault shutdown output state mode	Clear to zero, keep the current value, and output according to the preset value
Fault shutdown output preset	0 or 1

Shutdown mode	Output according to the fault shutdown state mode and preset value, no longer refreshed
Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<75mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

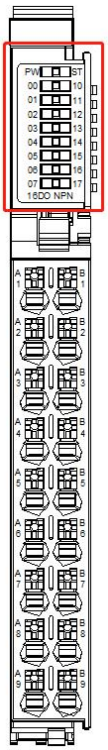
3.3.2 Hardware interface

3.3.2.1 Definition of terminal block



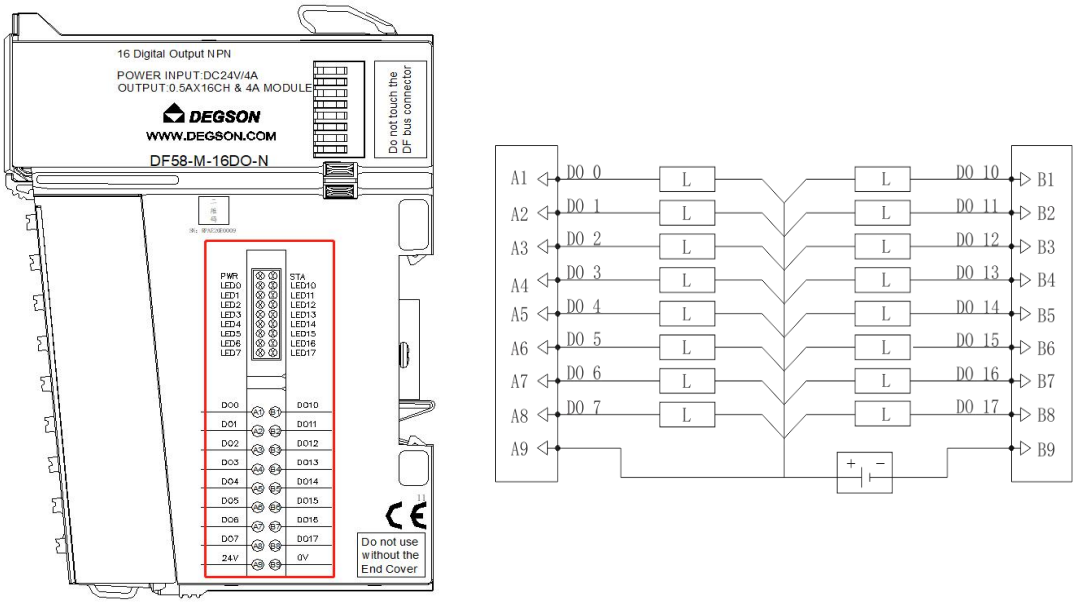
Pin ordinal	Signal	Pin ordinal	Signal	illustrate
A1	DO 0	B1	DO 10	DO signal output
A2	DO 1	B2	DO 11	
A3	DO 2	B3	DO 12	
A4	DO 3	B4	DO 13	
A5	DO 4	B5	DO 14	
A6	DO 5	B6	DO 15	
A7	DO 6	B7	DO 16	
A8	DO 7	B8	DO 17	
A9	24V	B9	0V	24V power input of the module

3.3.2.2 LED indicator definition



Light	Meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00~07(Green)	Channel DO0~DO7 output indicator.
10~17(Green)	Channel DO10~DO17 output indicator.

3.3.2.3 Wiring diagram

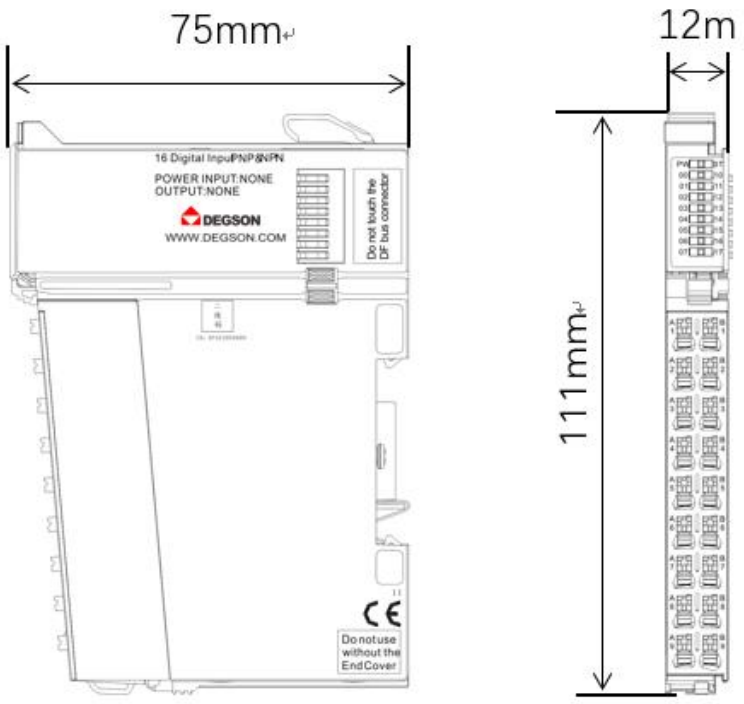


Note: The A9 and B9 24V power supplies are externally supplied.

3.3.3 Mechanical installation

3.3.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.3.4 DF58-M-16DO-N parameter description

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

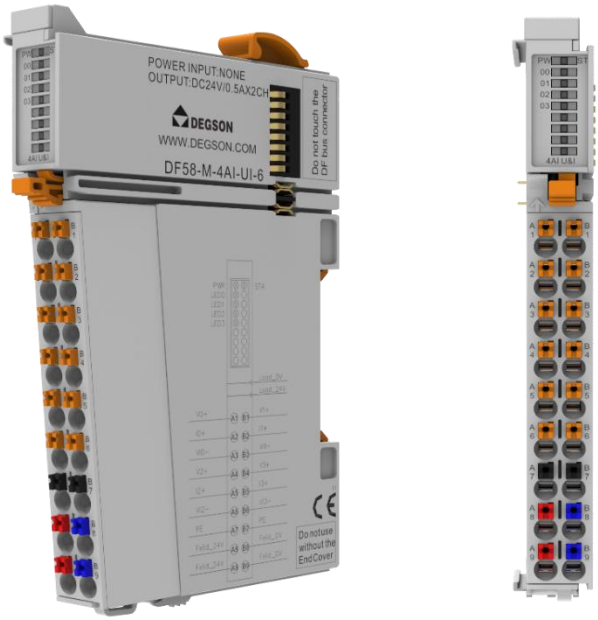
When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-16DO-N	Digital output area	Output words 1word	1word	Compatible with 16DO output
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: 1: Channel 24V is not

				connected 0: Normal Bit2： 1: Channel 1~4 any channel is short-circuited; 0: Normal Bit3： 1: Channel 5~8 any channel short circuit; 0: Normal Bit4： 1: Channel 9~12 any channel short circuit; 0: Normal Bit5： 1: Channel 13~16 any channel is short-circuited; 0: Normal Bit6~Bit15： Spare
	Module configuration parameters	Configure the word 1word	1word	When the module is abnormal, the output status is as follows: 0: Output hold 1: The output is cleared 2: The output is set to 1
	Module type	1word	1word	ID：2

3.4 4-channel analog input/voltage/current (DF58-M-4AI-UI-6).

- The analog input module receives voltage, current, and standard signals.
- 4-channel analog input, voltage type, current type.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Magnetic isolation between the field layer and the system layer.
- Transmitted in 16-bit resolution.
- IP20 degree of protection



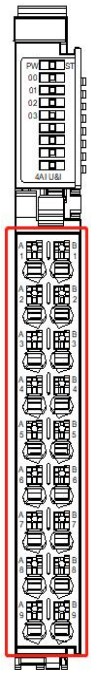
3.4.1 Specifications

Specifications	
Model	DF58-M-4AI-UI-6
Product Description:	Analog input module, 4 inputs, voltage type, current type
Input method	Voltage type, current type
Number of channels	4
Conversion time	400us/channel
Voltage input range	±10V、0-10V、2-10V、±5V、0-5V、1-5V
Voltage input impedance	>100KΩ
Voltage input accuracy (25° C)	±0.1% (full scale)
Voltage input accuracy (over full temperature range)	±0.2% (full scale)
Voltage input limit	±15V
Voltage input diagnostics	Yes
Current input range	±20mA、0-20mA、4-20mA
Current acquisition impedance	250Ω
Current Input Accuracy (Full Temperature Range)	±0.2% (full scale)
Current input limit	Instant:±30mA, average:±24mA
Current input diagnostics	Disconnection detection is not supported
Whether or not to quarantine	There is no isolation between interface channels, the power supply is isolated from the interface, and the interface is isolated from the bus
Configure the diagnostic escalation function	Support input upper and lower overflow alarm diagnosis and reporting
Conversion mode configuration	±10V，0-10V，2-10V，±5V，0-5V，1-5V，±20mA，0-20mA，4-20mA
Filter parameter configuration	The software filtering time can be configured by the host computer, and the setting range is 0-65535, and the unit is the sampling period
Enable overrun detection	Yes
Peak Hold Enable configuration	Yes

Convert digital range configurations	The default configuration ± 32000
Sampling time	4 channels 4ms
Sample refresh	Asynchronous refresh according to the sampling time, and synchronous refresh by bus cycle is not required
Stop mode	Keeps the current value and does not refresh again
Signal type	difference
Data size	8 Byte
resolution	16 Bit
Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<120mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

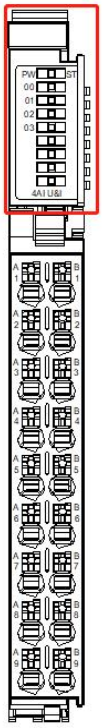
3.4.2 Hardware interface

3.4.2.1 Definition of terminal block



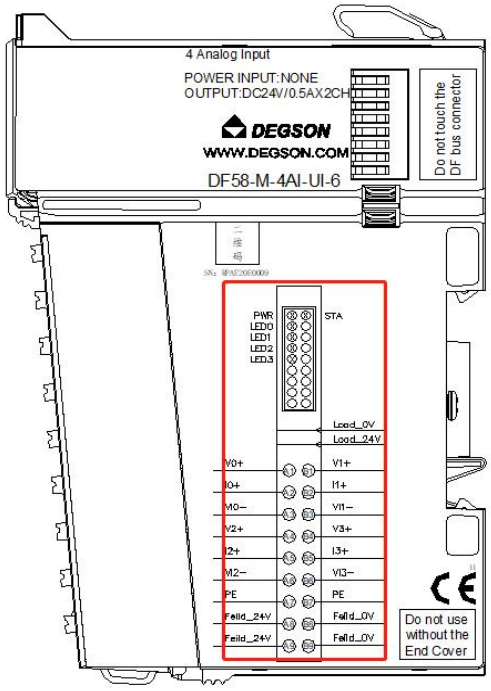
Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	V0+	B1	V1+	Positive side of the voltage input channel
A2	I0+	B2	I1+	Current input channel positive
A3	V0-/I0-	B3	V1-/I1-	Negative terminal of voltage/current input
A4	V2+	B4	V3+	Positive side of the voltage input channel
A5	I2+	B5	I3+	Current input channel positive
A6	V2-/I2-	B6	V3-/I3-	Negative terminal of voltage/current input
A7	PE	B7	PE	earth
A8	Load 24V	B8	Load 0V	24V power output
A9	Load 24V	B9	Load 0V	24V power output

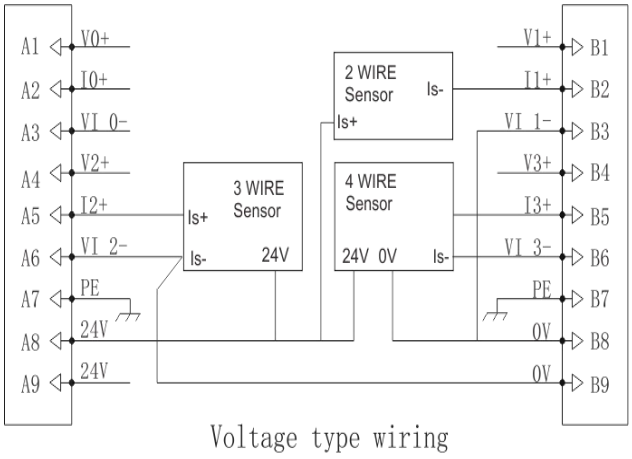
3.4.2.2 LED indicator definition



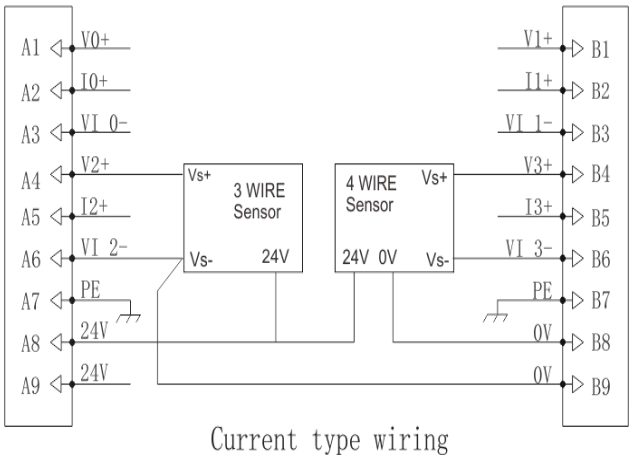
Light	Meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
LED0~LED3	No effect

3.4.2.3 Wiring diagram





Voltage type wiring

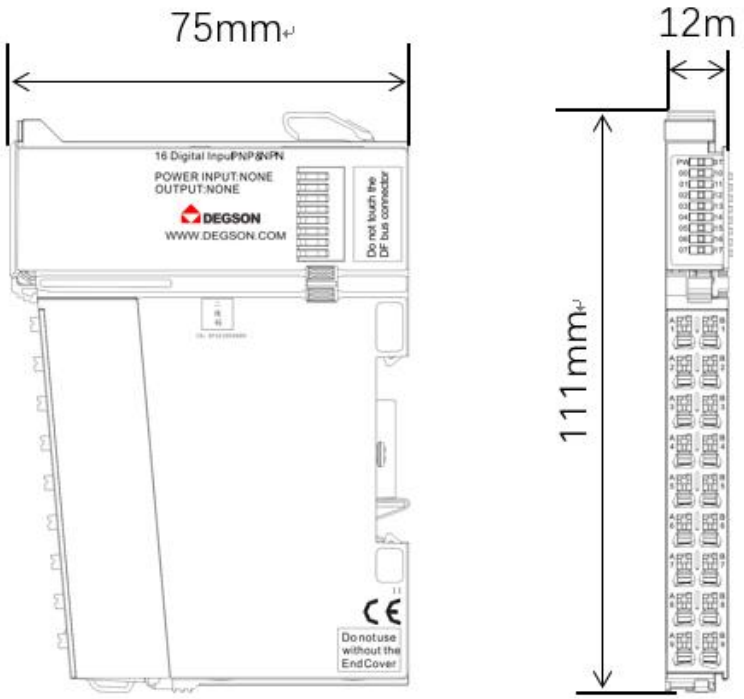


Current type wiring

3.4.3 Mechanical installation

3.4.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.4.4 Process data definition

Enter the voltage process parameters (as shown in the table below), taking the voltage (±10V) range -27648~27648 as an example. Rated voltage range: The voltage of the input channel is -10V~10V, and the monitored channel value is -27648~27648.

Exceeding the upper limit: The voltage of the input channel is (10V+0.3617mV)~10.12V, and the monitored channel value is 27649~27979. Overflow: The voltage of the input channel is greater than 10.12V, and the monitored channel value is 32767.

Exceeding the upper limit: The voltage of the input channel is (-10V-0.3617mV)~-10.12V, and the monitored channel value is -27649~-27979.

Overflow: The voltage of the input channel is less than -10.12V, and the monitored channel value is

-32768.

Process Data Definition (Voltage Type)								
Voltage (0-5V)	Voltage (1-5V)	Voltage (0-10V)	Voltage (2-10V)	voltage (±5V)	voltage (±10V)	decimal	hexadecimal	
>5.06	>5.06	>10.12	>10.12	>5.06	>10.12	32767	0x7FFF	Overflow
5.06	5.06	10.12	10.12	5.06	10.12	27979	0x6D4B	Super Upper Limit
5V+ 0.1808mV	5V+ 0.1808mV	10V+ 0.3617mV	10V+ 0.3617mV	5V+ 0.1808mV	10V+ 0.3617mV	27649	0x6C01	
5	5	10	10	5	10	27648	0x6C00	Rated range
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
2.5	3	5	6	2.5	5	13824	0x3600	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
0	1	0	2	0	0	0	0x0000	
/	/	/	/	-	-	-	-	
/	/	/	/	-	-	-	-	
/	/	/	/	-2.5	-5	-13824	0xCA00	
/	/	/	/	-	-	-	-	
/	/	/	/	-	-	-	-	
/	/	/	/	-5	-10	-27648	0x9400	
/	/	/	/	-5V-0.1808mV	-10V-0.3617mV	-27649	0x93FF	Ultra-lower limit
/	/	/	/	-5.06	-10.12	-27979	0x92B5	
/	<0.3	/	<0.59	<-5.06	<-10.12	-32768	0x8001	Hypolympation

Enter the current process parameter table (as shown in the following table), take the current (4~20mA), 27648 range as an example. Rated voltage range: the current of the input channel is 4~20mA, and the monitored channel value is -27648~27648. Exceeding the upper limit: When the current of the input channel is 20.005mA~22.81mA, the channel value is 27649~32511.

Overflow: The current of the input channel is greater than 22.81mA, and the monitored channel value is 32767.

Ultra-lower limit: the current of the input channel is 3.9995mA~1.1852mA, and the monitored channel value is -1~-4864;

Underflow: The current of the input channel is less than 1.1852mA, and the monitored channel value is -32768.

Process Data Definition (Current)				
Current (0-20mA)	Current (4-20mA)	decimal	hexadecimal	
>23.515	>22.810	32767	0x7FFF	Overflow
23.515	22.81	32511	0x7EFF	Super Upper Limit
-	-	-	-	
-	-	-	-	
20.0007	20.0005	27649	0x6C01	
20	20	27648	0x6C00	Rated range
-	-	-	-	
-	-	-	-	
10	12	13824	0x3600	
-	-	-	-	
-	-	-	-	
0	4	0	0x0000	
<0.0	3.9995	-1	0xFFFF	Ultra-lower limit
-	-	-	-	
-	-	-	-	
-	1.1852	-4864	0xED00	

/	<1.1852	-32768	0x8001	Hypolympation

3.4.5 DF58-M-4AI-UI-6 parameter description

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

When using S7-TCP addresses, please refer to Chapter 4, Section 2 "S7-TCP Address Allocation Rules" for specific address area layout.

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-4AI-UI-6	Analog input area	input 4word	1~4word	Compatible with 4 channels of AI analog input

	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: Reserved Bit2: 1: Overflow on channel 1 0: Normal Bit3: 1: Overflow under channel 1 0: Normal Bit4: 1: Overflow on channel 2 0: Normal Bit5: 1: Overflow under channel 2 0: Normal Bit6: 1: Overflow on channel 3 0: Normal Bit7: 1: Overflow under channel 3 0: Normal Bit8: 1: Overflow on channel 4 0: Normal Bit9: 1: Overflow under channel 4 0: Normal Bit10~Bi0t15: Spare
	Module	arrangement	1st word	reserve

			Section 2	Set the range of channel 1: 0:±10V; 1：0-10VDC; 2：2-10VDC; 3：±5VDC; 4：0-5VDC; 5：1-5VDC; 6:-20-20ma; 7:0-20ma; 8:4-20ma;
			Word 3	Set the channel 2 range: 0:±10V; 1：0-10VDC; 2：2-10VDC; 3：±5VDC; 4：0-5VDC; 5：1-5VDC; 6:-20-20ma; 7:0-20ma; 8:4-20ma;
			4th word	Set the channel 3 range: 0:±10V; 1：0-10VDC; 2：2-10VDC; 3：±5VDC; 4：0-5VDC; 5：1-5VDC; 6:-20-20ma; 7:0-20ma; 8:4-20ma;

			Article 5	Set the range of channel 4: 0:±10V; 1：0-10VDC; 2：2-10VDC; 3：±5VDC; 4：0-5VDC; 5：1-5VDC; 6:-20-20ma; 7:0-20ma; 8:4-20ma;
	Module type	1word	1word	ID：4

3.5 4-channel analogue output/voltage/current (DF58-M-4AO-UI-6).

- The analog output module receives output voltage and current standard signals.
- 4-channel analog output, voltage and current type.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Magnetic isolation between the field layer and the system layer.
- Transmitted in 16 resolutions.
- IP20 degree of protection.

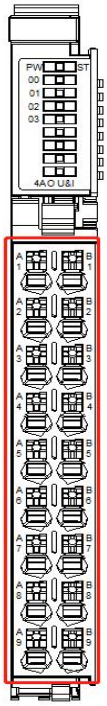
3.5.1. Specifications

Specifications	
Model	DF58-M-4AO-UI-6
type	Analog output
Measuring range	Voltage, current
Number of channels	4
resolution	16 Bit
Conversion time	3ms/channel
Voltage output range	±10V、0-10V、2-10V、±5V、0-5V、1-5V
Voltage output load	1KΩ
Voltage output accuracy (25° C)	±0.1% (full scale)
Voltage output accuracy (over full temperature range)	±0.5% (full scale)
Current output range	0-20mA、4-20mA
Current output load	0-600Ω
Current Output Accuracy (25° C)	±0.1% (full scale)
Current Output Accuracy (Full Temperature Range)	±0.5% (full scale)
Whether or not to quarantine	There is no isolation between interface channels, the power supply is isolated from the interface, and the interface is isolated from the bus
Configure the diagnostic escalation function	Yes
Conversion mode configuration	±10V，0-10V，2-10V，±5V，0-5V，1-5V，0-20mA，4-20mA
Output status configuration after shutdown	Clear, keep current output, output preset value
Output preset value configuration after shutdown	Yes
Convert digital range configurations	Fixed range ± 32000
Stop mode	Output according to the fault shutdown state mode and preset value, no longer refreshed
Signal type	difference

Data size	8 Byte
Error diagnosis	YES
The type of load	Sensual, resistive, capacitive
Protection current	20mA
Temperature coefficient	<20 ppm
Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<110mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

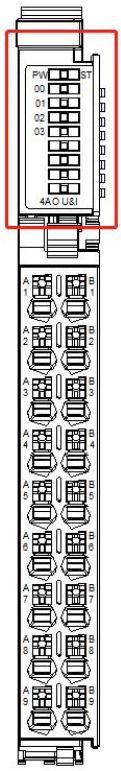
3.5.2 Hardware interface

3.5.2.1 Definition of terminal block



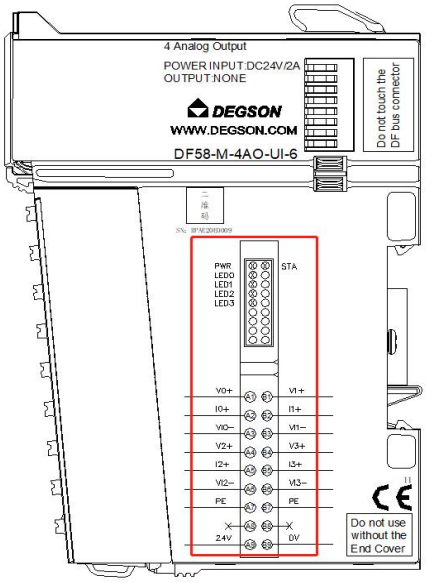
Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	V0+	B1	V1+	The positive pole of the voltage output channel
A2	I0+	B2	I1+	The current output channel is positive
A3	V0-/I0-	B3	V1-/I1-	Negative terminal at voltage/current output
A4	V2+	B4	V3+	The positive pole of the voltage output channel
A5	I2+	B5	I3+	The current output channel is positive
A6	V2-/I2-	B6	V3-/I3-	Negative terminal of voltage/current input
A7	PE	B7	PE	earth
A8	\	B8	\	\
A9	Load 24V	B9	Load 0V	24V power input of the module

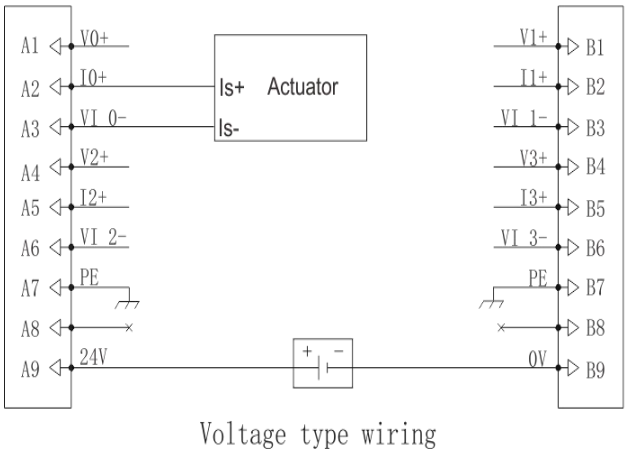
3.5.2.2 LED indicator definition



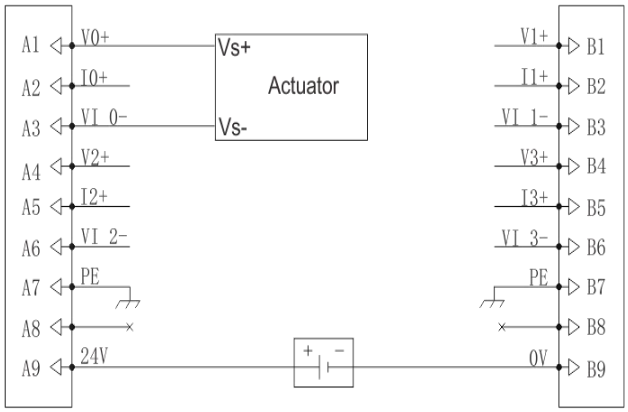
Light	meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.

3.5.2.3 Wiring diagram





Voltage type wiring

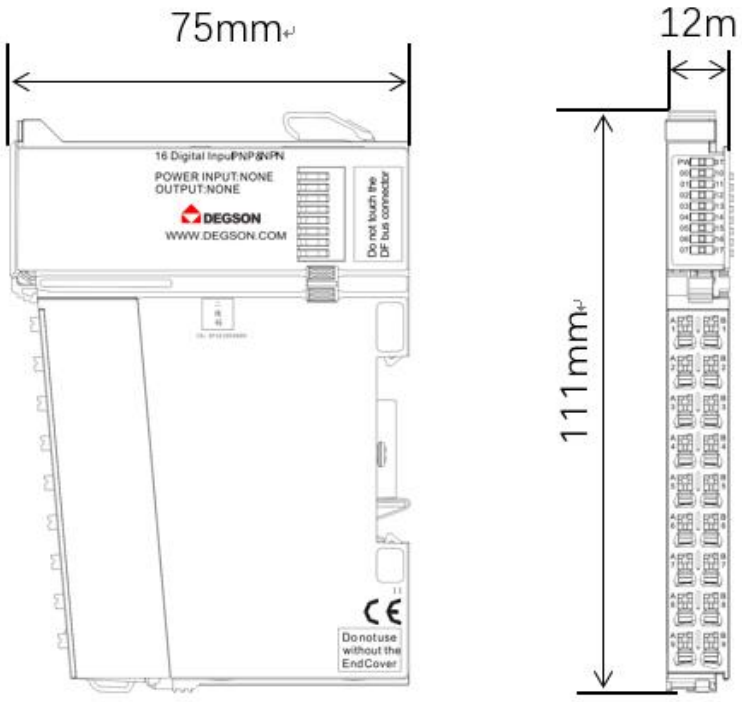


Current type wiring

3.5.3 Mechanical installation

3.5.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.5.3 DF58-M-4AO-UI-6 parameters

Pay special attention to the DF58-M-4AO-UI-6 channel 1~4 default 0 configuration (output disabled), please configure the channel in the parameter configuration area, and use it after the parameter is saved and takes effect.

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

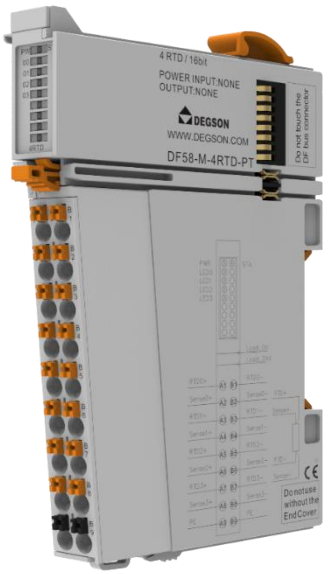
The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	Address description
DF58-M-4AO-UI-6	Analog output area	output 4word	1~4word	Compatible with 4 channels of AO analog input

	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault; 0: Normal. Bit1： 1: 24V is not connected; 0: Normal. Bit3~Bit15：Spare。
	Module configuration parameters	disposition 6word	1st word	When the module is abnormal, the output status is as follows: 0: Keep the output; 1: Cleared; 2: Output the preset value.
			Section 2	The preset value setting range of the output when the module is abnormal: -32000~32000
			Word 3	Set the range of channel 1: 0：DISABLE; 1：0-5VDC; 2：1-5VDC; 3：±5VDC; 4：0-10VDC; 5：2-10VDC; 6:±10V; 7:0-20mA; 8:4-20mA;
			4th word	Set the channel 2 range: 0：DISABLE; 1：0-5VDC; 2：1-5VDC; 3：±5VDC; 4：0-10VDC; 5：2-10VDC; 6:±10V; 7:0-20mA; 8:4-20mA;

			Article 5	Set the channel 3 range: 0：DISABLE; 1：0-5VDC; 2：1-5VDC; 3：±5VDC; 4：0-10VDC; 5：2-10VDC; 6:±10V; 7:0-20mA; 8:4-20mA;
			Article 6	Set the range of channel 4: 0：DISABLE; 1：0-5VDC; 2：1-5VDC; 3：±5VDC; 4：0-10VDC; 5：2-10VDC; 6:±10V; 7:0-20mA; 8:4-20mA;
	Module type	1word	1word	ID：5

3.6 4-channel RTD measurement (DF58-M-4RTD-PT).

- The module uses 4-channel RTD measurement and supports 13 conventional RTDs.
- Quad sensor support
- Support 2-wire, 3-wire, 4-wire sensors.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Each channel has an LED indicator.
- Magnetic isolation between the field layer and the system layer.
- Transmitted in 16 resolutions.
- IP20 degree of protection.



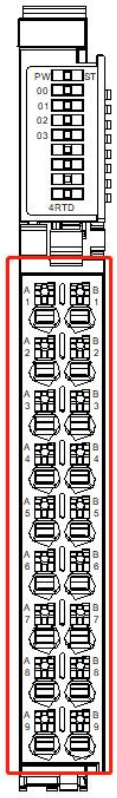
3.6.1 Specifications

Specifications	
Model	DF58-M-4RTD-PT
Product Description:	RTD measurement module, 16-bit resolution, 4 channels
Measuring range	RTD
Number of channels	4
Signal type	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni 200, Ni500, Ni1000, Cu10.40 Ω, 80 Ω, 150 Ω,300 Ω, 500 Ω.1kΩ, 2kΩ, 4kΩ
Temperature range	depending on the sensor type 0.1mA (Pt100, Ni100, Ni120, Cu10, 40 Ω, 80 Ω, 150 Ω, 300 Ω) or 0.1mA (Pt200, Pt500, Pt1000, Ni200, Ni500, Ni1000, 500 Ω,1kΩ, 2kΩ, 4kΩ)
precision	max. 0.2 % FSR / 0.3 % FSR for Ni sensors / 0.6 % FSR for Cu10
Sensor current	depending on the sensor type 0.1mA (Pt100, Ni100, Ni120, Cu10, 40 Ω, 80 Ω, 150 Ω, 300 Ω) or 0.1mA (Pt200, Pt500, Pt1000, Ni200, Ni500, Ni1000, 500 Ω, 1kΩ, 2kΩ, 4kΩ)
Connection type	2/3/4 wire
Temperature coefficient	±50 ppm/K max.
Reverse polarity protection	Yes
Module diagnostics	Yes
Single-channel diagnostics	Yes
Isolation method	Each channel is magnetically isolated from the field layer and isolated between channels
Data size	8 Byte
Internal resistance	>500KΩ
resolution	16bit，0.1℃/bit
diagnosis	Disconnection / Parameter assignment error
Process alarms	Upper/lower limit per channel
Power supply parameters	
Operating voltage	24V DC +20%/ -15%
System feed current	<100mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Working environment	

Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 ... 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

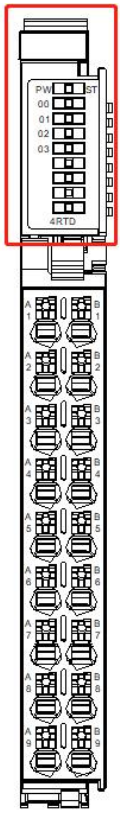
3.6.2 Hardware interface

3.6.2.1 Definition of terminal block



Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	RTD0+	B1	RTD0-	RTD signal input channel 1
A2	Sense0+	B2	Sense0-	
A3	RTD1+	B3	RTD1-	RTD signal input channel 2
A4	Sense1+	B4	Sense1-	
A5	RTD2+	B5	RTD2-	RTD signal input channel 3
A6	Sense2+	B6	Sense2-	
A7	RTD3+	B7	RTD3-	RTD signal input channel 4
A8	Sense3+	B8	Sense3-	
A9	PE	B9	PE	earth

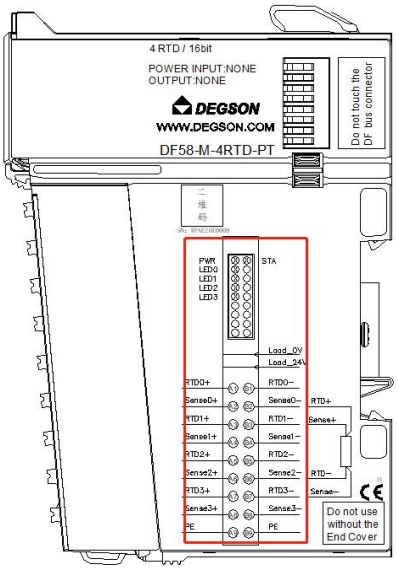
3.6.2.2 LED indicator definition

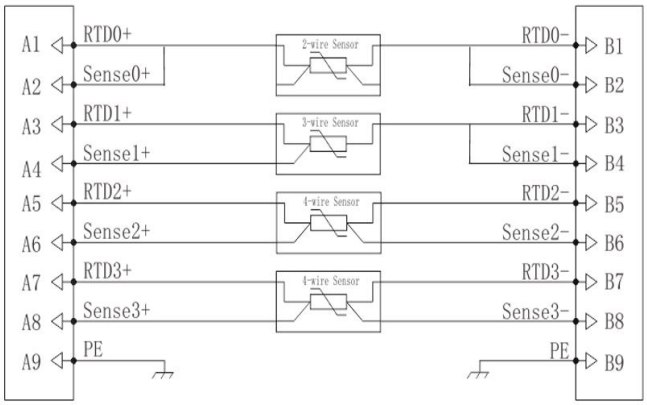


Light	meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00 (green)	Channel 1 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
01 (green)	Channel 2 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
02 (green)	Channel 3 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;

03 (green)	Channel 4 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;

3.6.2.3 Wiring diagram





Remark:

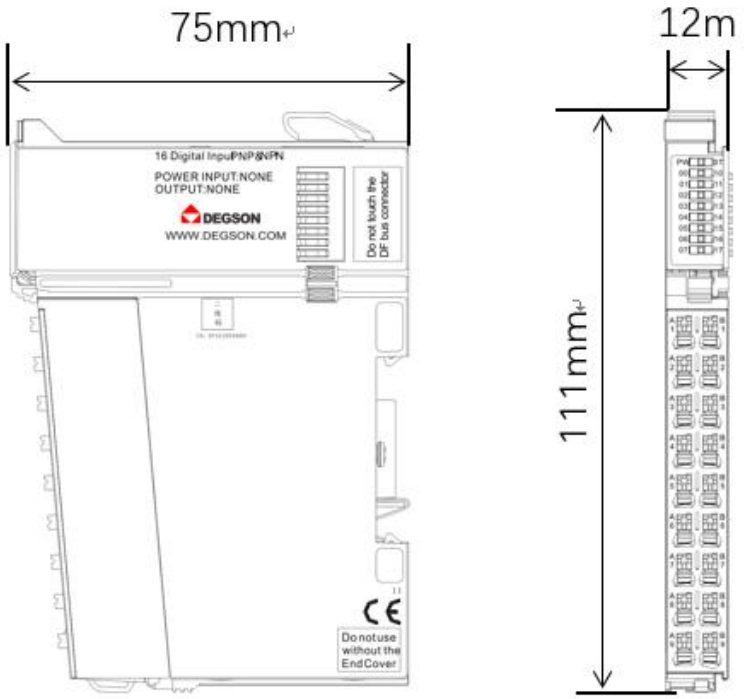
The excitation power + and signal + of the RTD sensor **are usually two red wires, which** do not distinguish functions and can be mixed

The excitation power supply-, signal--**is usually two blue wires, or 1 blue and 1 black**, **which can be mixed without distinguishing functions;**

3.6.3 Mechanical installation

3.6.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.6.4 Process data definition

Pt100	Pt200	Pt500	Pt1000	Ni100	decimal	hexadecimal	
32767	32767	32767	32767	32767	32767	0x7FFF	Overflow
8500	8500	8500	8500	2500	32511	0x7EFF	
-	-	-	-	-	27648	0x6C00	rated
-2000	-2000	-2000	-2000	-600	-	-	range
-32767	-32767	-32767	-32767	-32767	0	0x0000	Hypolympation
-32768	-32768	-32768	-32768	-32768	-32768	0x8000	Breaking

Ni200	Ni500	The 1000	Cu10	Ni200	decimal	hexadecimal	
32767	32767	32767	32767	32767	32767	0x7FFF	Overflow
2500	2500	2500	2600	2500	32511	0x7EFF	
-	-	-	-	-	27648	0x6C00	rated
-600	-600	-600	-1000	-600	-	-	range
-32767	-32767	-32767	-32767	-32767	0	0x0000	Hypolympation
-32768	-32768	-32768	-32768	-32768	-32768	0x8000	Breaking

40Ω	80Ω	150Ω	300Ω	decimal	hexadecimal	
>47.04Ω	>94.07Ω	>176.4Ω	>352.77Ω	32767	0x7FFF	Overflow

47.04Ω	94.07Ω	176.4Ω	352.77Ω	32511	0x7EFF	
40Ω	80Ω	150Ω	300Ω	27648	0x6C00	
-	-	-	-	-	-	rated
0Ω	0Ω	0Ω	0Ω	0	0x0000	range
-32768	-32768	-32768	-32768	-32768	0x8000	Breaking

500Ω	1KΩ	2KΩ	4KΩ	decimal	hexadecimal	
>587.9Ω	>1.177KΩ	>2.352KΩ	>4.703KΩ	32767	0x7FFF	Overflow
587.9Ω	1.177KΩ	2.352KΩ	4.703KΩ	32511	0x7EFF	
500Ω	1.0KΩ	2.0KΩ	4.0KΩ	27648	0x6C00	
-	-	-	-	-	-	rated
0Ω	0Ω	0Ω	0Ω	0	0x0000	range
-32768	-32768	-32768	-32768	-32768	0x8000	Breaking

3.6.5 DF58-M-4RTD-PT parameters

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-4RTD-PT	Analog input area	Input, 4word	1~4word	Compatible with 4 channels of analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault;

				0: normal; Bit1： 1: Channel 1 is disconnected or exceeds the upper and lower limits; 0: normal; Bit2： 1: Channel 2 is disconnected or exceeds the upper and lower limits; 0: normal; Bit3： 1: Channel 3 is disconnected or exceeds the upper and lower limits; 0: normal; Bit4： 1: Channel 4 is disconnected or exceeds the upper and lower limits 0: Normal Bit5~Bit15：Spare
	Module configuration parameters	disposition 2word	1st word	reserve
			Section 2	Set up 4 channel RTD types: 0：Pt100； 1：Pt200； 2：Pt500； 3：Pt1000； 4:Ni100; 5:Ni120; 6: It's 200; 7:Ni500; 8:Ni1000; 9:Cu10; 10：40 Ω； 11：80 Ω； 12：150 Ω；

				13：300 Ω; 14：500 Ω; 15：1kΩ; 16：2kΩ; 17：4kΩ;
	Module type	1word	1word	ID：6

3.7 4-channel thermocouple measurement (DF58-M-4TC)

- The module uses 4-channel thermocouple measurements and supports K/E/T/J/B/S/R/N/L types.
- Supports 2/3/4 wire sensors.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Each channel has an LED indicator.
- Magnetic isolation between the field layer and the system layer.
- Transmitted in 16 resolutions.
- IP20 degree of protection.

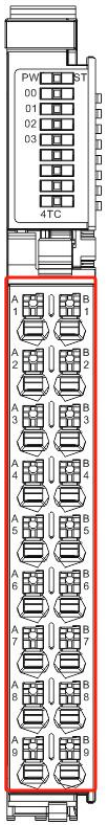
3.7.1. Specifications

Specifications		
Model	DF58-M-4TC	
Product Description:	Thermocouple module, 4 inputs, 16-bit resolution	
Measuring range	thermocouple	
Number of channels	4	
Signal type	E(-200 ~ 1000°C),S(-50 ~ 1,768°C),J(-210 ~ 1,200°C),T(-200~400°C) K(-200~1.372°C),N(-200 ~ 1300°C)，R(-50 ~ 1,768°C)±15.625mV、±31.25mV、±62.5mV、±125mV、±250mV、±500mV、±1V	
Internal resistance	1 MΩ	
Cold junction compensation	Support internal and external NTC compensation	
Module diagnostics	be	
Temperature coefficient	≤ 50 ppm/K	
Connection type	2-wire system	
Reverse polarity protection	Yes	
Isolation method	Magnetically isolated from the field layer	
Data size	8 Byte	
Error diagnosis	YES	
Single module diagnostics	YES	
Internal resistance	>500KΩ	
resolution	16bit，0.1℃/bit	
Margin of error	Operational errors	±0.5%
	Fundamental error	±0.5% @ 25°C
	Temperature error	±0.005%/K
	Linearity error	±0.05%/K
	The repeatability is in steady state	±0.05%/K
Data size	2 Byte	
Measuring range	-32768~32767	
precision	±0.2% FSR / 0.3% FSR for nickel sensors / 0.6% FSR for Cu10	
Power supply parameters		
Connection	PUSH-IN terminal blocks	
Operating voltage	24V DC +20%/ -15%	

System feed current	<100mA
The maximum crimping area of the wire	1.5mm²
Maximum crimping area of conductor (AWG)	AWG16
The minimum crimping area of the wire	0.14mm²
Minimum crimp area (AWG) of conductor	AWG26
Dial length	8...9mm
The maximum crimping area of the wire	1.5mm²
Mechanical structure	
Ingress protection	IP20
Dimensions (H X W X D)	
Rail type	35mm DIN
Working environment	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)

3.7.2 Hardware interface

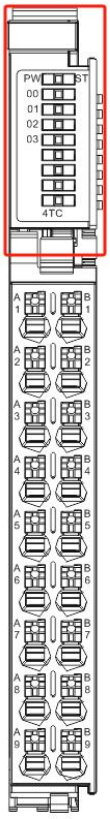
3.7.2.1 Definition of terminal block



Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	TC0+	B1	TC0-	Channel 0 thermocouple terminals
A2	CJC0+	B2	CJC0-	Channel 0 external NTC compensation terminal
A3	TC1+	B3	TC1-	Channel 1 thermocouple terminals
A4	CJC1+	B4	CJC1-	Channel 1 external NTC compensation terminal
A5	TC2+	B5	TC2-	Channel 2 thermocouple terminals
A6	CJC2+	B6	CJC2-	Channel 2 external NTC compensation terminal
A7	TC3+	B7	TC3-	Channel 3 thermocouple terminals

A8	CJC3+	B8	CJC3-	Channel 3 external NTC compensation terminal
A9	PE	B9	PE	earth

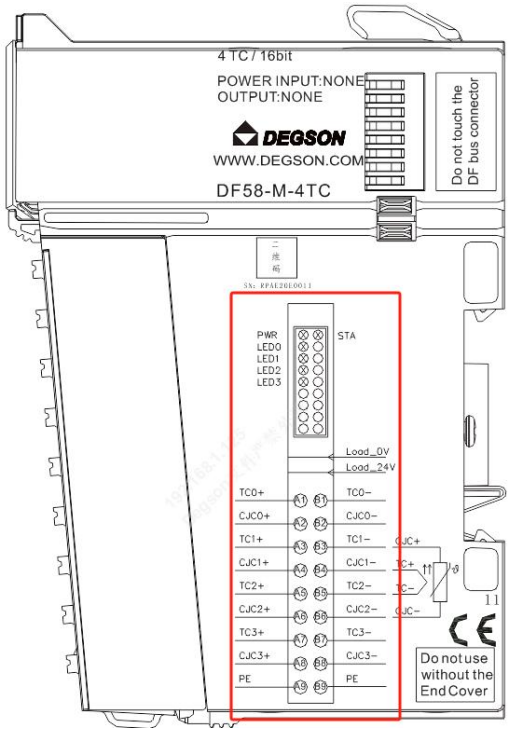
3.7.2.2 LED indicator definition

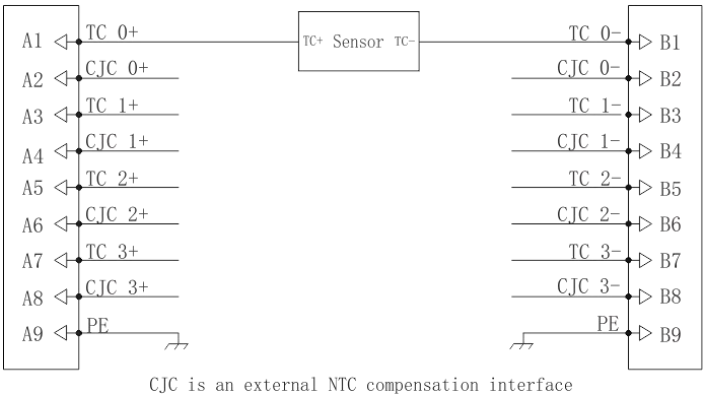


Light	meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00 (green)	Channel 1 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
01 (green)	Channel 2 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
02 (green)	Channel 3 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits:

	Extinguished: disconnected;
03 (green)	Channel 4 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;

3.7.2.3 Wiring diagram



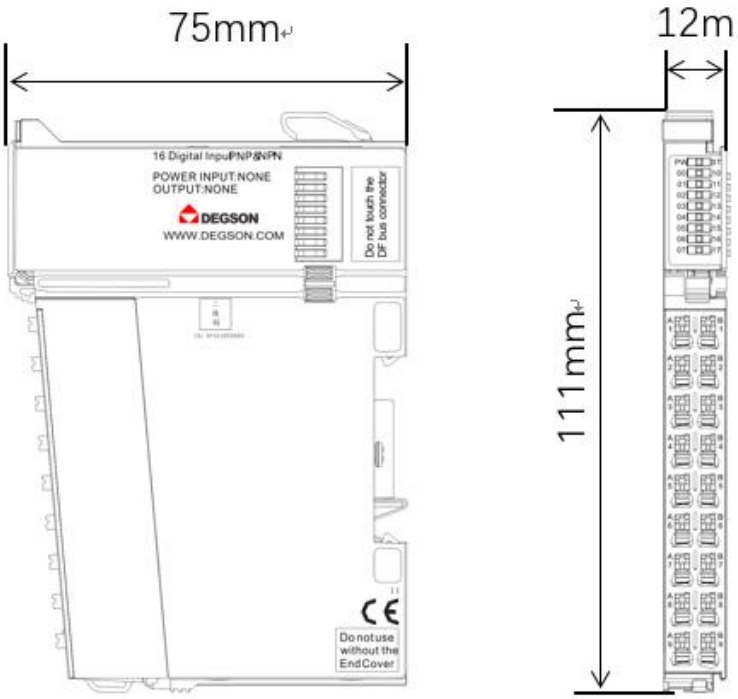


CJC is an external NTC compensation interface

3.7.3 Mechanical installation

3.7.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.7.4 Process data definition

3.7.4.1 Process data definition J-type

Process Data Definition (Type J)			
temperature	decimal	hexadecimal	
>1450.0	32767	7FFF	Overflow
1450	14500	38A4	Super Upper Limit
-	-	-	
-	-	-	
1200.1	12001	2EE1	
1200	12000	2EE0	Rated range
-	-	-	
-	-	-	
-210	-2100	F7CC	
<-210	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.2 Process data definition K-type

Process Data Definition (Type K)			
temperature	decimal	hexadecimal	
>1622	32767	7FFF	Overflow
1622	16220	3F5C	Super Upper Limit
-	-	-	
-	-	-	
1372.1	13721	3599	
1372	13720	3598	Rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.3 Process data definition type E

Process Data Definition (Type E)			
temperature	decimal	hexadecimal	
>1200	32767	7FFF	Overflow
1200	12000	2EE0	Super Upper Limit
-	-	-	
-	-	-	
1000.1	10001	2711	
1000	10000	2710	rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.4 Process data definition T-type

Process Data Definition (Type T)			
temperature	decimal	hexadecimal	
>540.0	32767	7FFF	Overflow
540	5400	1518	Super Upper Limit
-	-	-	
-	-	-	
400.1	4001	0FA1	
400	4000	0FA0	Rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.5 Process data definition S-type

Process Data Definition (Type S)			
temperature	decimal	hexadecimal	
>2019.0	32767	7FFF	Overflow
2019	20190	4EDE	Super Upper Limit
-	-	-	
-	-	-	
1769.1	17691	451B	
1769	17690	451A	Rated range
-	-	-	
-	-	-	
-50	-500	FE0C	
<-50.1	-501	FE0B	Ultra-lower limit
-	-	-	
-	-	-	
<-170.0	-1700	F95C	
<-170.0	-32767	8001	Hypolympation

The sensor is not connected	-32768	8000	Wire break detection

3.7.4.6 Process data definition R type

Process Data Definition (Type R)			
temperature	decimal	hexadecimal	
>2019.0	32767	7FFF	Overflow
2019	20190	4EDE	Super Upper Limit
-	-	-	
-	-	-	
1769.1	17691	451B	
1769	17690	451A	Rated range
-	-	-	
-	-	-	
-50	-500	FE0C	
<-50.1	-501	FE0B	Ultra-lower limit
-	-	-	
-	-	-	
<-170.0	-1700	F95C	
<-170.0	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.7 Process data definition N-type

Process Data Definition (N-Type)			
temperature	decimal	hexadecimal	
>1550.0	32767	7FFF	Overflow
1550.0	15500	3C8C	Super Upper Limit
-	-	-	
-	-	-	
1300.1	13001	32C9	
1300.0	13000	32C8	rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.8 Process data definition± 15.625mV

Process Data Definition (±15.625mV)			
MV value	decimal	hexadecimal	
15.625mV	32767	7FFF	Rated range
-	-	-	
-15.625mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.9 Process data definition ± 31.25mV

Process Data Definition (±31.25mV)			
MV value	decimal	hexadecimal	
62.5mV	32767	7FFF	Rated range
-	-	-	
-62.5mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.10 Process data definition± 62.5mV

Process Data Definition (±62.5mV)			
MV value	decimal	hexadecimal	
62.5mV	32767	7FFF	Rated range
-	-	-	
-62.5mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.7.4.11 Process data definition ± 125mV

Process Data Definition (±125mV)			
MV value	decimal	hexadecimal	
125mV	32767	7FFF	Rated range
-	-	-	

-125mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.7.4.12 Process data definition± 250mV

Process Data Definition (±250mV)			
MV value	decimal	hexadecimal	
250mV	32767	7FFF	Rated range
-	-	-	
-250mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.7.4.13 Process data definition ± 500mV

Process Data Definition (±500mV)			
MV value	decimal	hexadecimal	
500mV	32767	7FFF	rated range
-	-	-	
-500mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.7.4.14 Process data definition ± 1000mV

Process Data Definition (±1000mV)			
MV value	decimal	hexadecimal	
1V	32767	7FFF	Rated range
-	-	-	
-1V	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.7.5 DF58-M-4TC parameters

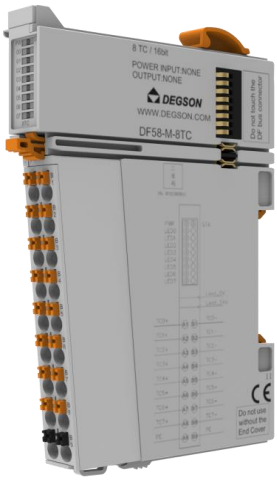
When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-4TC	Analog input area	Input, 4word	1~4word	Compatible with 4 channels of analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault; 0: normal; Bit1: 1: Channel 1 is disconnected or exceeds the upper and lower limits; 0: normal; Bit2: 1: Channel 2 is disconnected or exceeds the upper and lower limits; 0: normal; Bit3: 1: Channel 3 is disconnected or exceeds the upper and lower limits; 0: normal; Bit4: 1: Channel 4 is disconnected or exceeds the upper and lower limits; 0: normal; BIt5~Bit15:Spare
	Module configuration parameters	disposition 6word	1st word	Configurable 4-channel cold-junction compensation enabled: 0: ENABLE 1: DISABLE
			Section 2	Set 4 channels of cold end

				compensation: 0: Internal 1: External NTC
			Word 3	reserve
			4th word	Set up 4 channels to detect disconnection: 0：ENABLE 1：DISABLE
			Article 5	reserve
			Article 6	Set up 4-channel thermocouple measurement type: 0: J type 1: Type K 2: Type E 3: Type T 4: S-type 5: Type R 6: Type B (not supported) 7: N-type 8: Type C (not supported yet) 9: L-type (not supported yet) 10: U-shape (not supported yet) 11:±15.625mv 12:±31.25mv 13:±62.5mv 14:±125mv 15:±250mv 16:±500mv 17:±1000mv 18:±2000mV (not supported)
	Module type	1word	1word	ID：8

3.8 8-channel thermocouple measurement (DF58-M-8TC)

- The module uses 8-channel thermocouple measurements and supports K/E/T/J/B/S/R/N/L types.
- Supports 2-wire sensors.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Each channel has an LED indicator.
- Magnetic isolation between the field layer and the system layer.
- Transmitted in 16 resolutions.
- IP20 degree of protection.



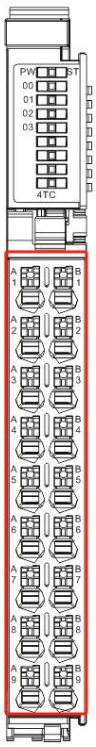
3.8.1 Specifications

Specifications		
Model	DF58-M-8TC	
Product Description:	Thermocouple module, 8 inputs, 16-bit resolution	
Measuring range	thermocouple	
Number of channels	8	
Signal type	E(-200 ~ 1000°C),S(-50 ~ 1,768°C),J(-210 ~ 1,200°C) T(-200~400°C),K(-200~1.372°C),N(-200 ~ 1300°C)，R(-50 ~ 1,768°C) ±15.625mV、±31.25mV、±62.5mV、±125mV、±250mV、±500mV、±1V	
Internal resistance	1 MΩ	
Cold junction compensation	Internal NTC compensation	
Module diagnostics	be	
Temperature coefficient	≤ 50 ppm/K	
Connection type	2-wire system	
Reverse polarity protection	Yes	
Isolation method	Magnetically isolated from the field layer	
Data size	16 Byte	
Error diagnosis	YES	
Single module diagnostics	YES	
Internal resistance	>500KΩ	
resolution	16bit，0.1℃/bit	
Margin of error	Operational errors	±0.5%
	Fundamental error	±0.5% @ 25°C
	Temperature error	±0.005%/K
	Linearity error	±0.05%/K
	The repeatability is in steady state	±0.05%/K
Data size	2 Byte	
Measuring range	-32768~32767	
precision	±0.2% FSR / 0.3% FSR for nickel sensors / 0.6% FSR for Cu10	
Power supply parameters		
Connection	PUSH-IN terminal blocks	
Operating voltage	24V DC +20%/ -15%	

System feed current	<150mA
The maximum crimping area of the wire	1.5mm²
Maximum crimping area of conductor (AWG)	AWG16
The minimum crimping area of the wire	0.14mm²
Minimum crimp area (AWG) of conductor	AWG26
Dial length	8...9mm
The maximum crimping area of the wire	1.5mm²
Mechanical structure	
Ingress protection	IP20
Dimensions (H X W X D)	
Rail type	35mm DIN
Working environment	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)

3.8.2 Hardware interface

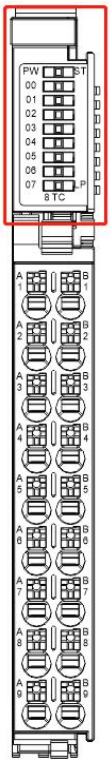
3.8.2.1 Definition of terminal block



Terminal serial number	Signal	Terminal serial number	Signal	illustrate
A1	TC0+	B1	TC0-	Channel 0 thermocouple terminals
A2	TC1+	B2	TC1-	Channel 1 thermocouple terminals
A3	TC2+	B3	TC2-	Channel 2 thermocouple terminals
A4	TC3+	B4	TC3-	Channel 3 thermocouple terminals
A5	TC4+	B5	TC4-	Channel 4 thermocouple terminals
A6	TC5+	B6	TC5-	Channel 5 thermocouple terminals
A7	TC6+	B7	TC6-	Channel 6 thermocouple terminals
A8	TC7+	B8	TC7-	Channel 7 thermocouple terminals

A9	PE	B9	PE	earth

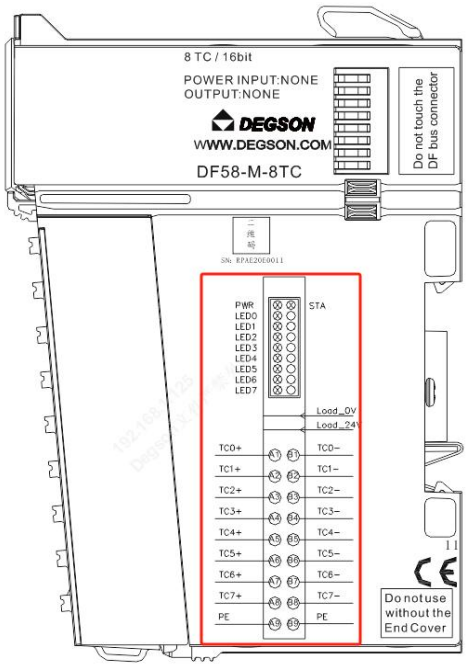
3.8.2.2 LED indicator definition

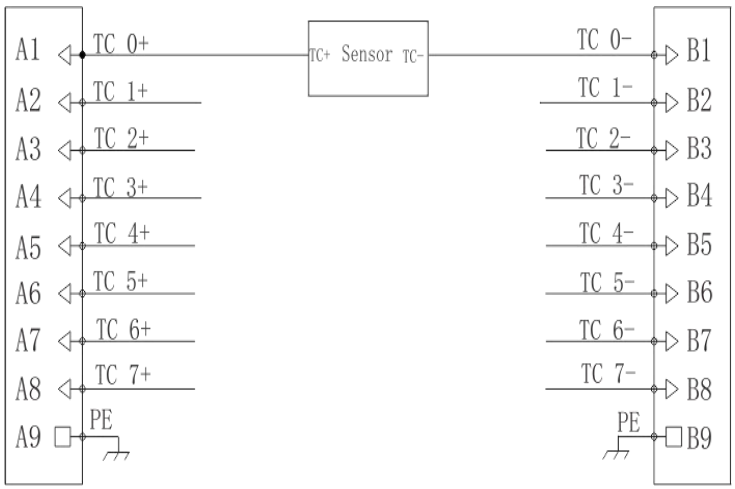


Light	meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
00 (green)	Channel 1 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
01 (green)	Channel 2 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
02 (green)	Channel 3 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;

03 (green)	Channel 4 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
04 (green)	Channel 5 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
05 (green)	Channel 6 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
06 (green)	Channel 7 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;
07 (green)	Channel 8 Indicator: Flashing: Normal sampling, Solid: Exceeding upper and lower limits: Extinguished: disconnected;

3.8.2.3 Wiring diagram

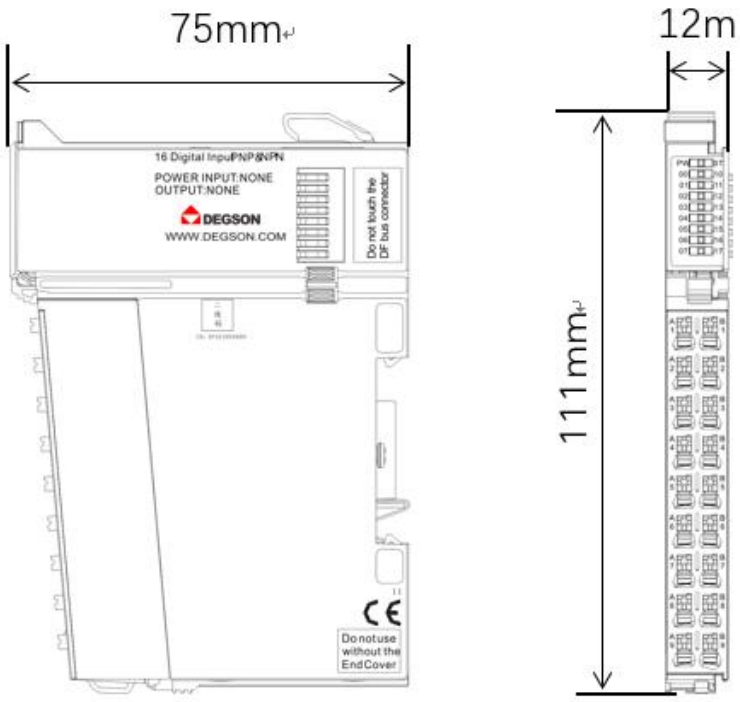




3.8.3 Mechanical installation

3.8.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.8.4 Process data definition

3.8.4.1 Process data definition J-type

Process Data Definition (Type J)			
temperature	decimal	hexadecimal	
>1450.0	32767	7FFF	Overflow
1450	14500	38A4	Super Upper Limit
-	-	-	
-	-	-	
1200.1	12001	2EE1	
1200	12000	2EE0	Rated range
-	-	-	
-	-	-	

-210	-2100	F7CC	
<-210	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.2 Process data definition K-type

Process Data Definition (Type K)			
temperature	decimal	hexadecimal	
>1622	32767	7FFF	Overflow
1622	16220	3F5C	Super Upper Limit
-	-	-	
-	-	-	
1372.1	13721	3599	
1372	13720	3598	Rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.3 Process data definition type E

Process Data Definition (Type E)			
temperature	decimal	hexadecimal	
>1200	32767	7FFF	Overflow
1200	12000	2EE0	Super Upper Limit
-	-	-	
-	-	-	
1000.1	10001	2711	
1000	10000	2710	rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation

The sensor is not connected	-32768	8000	Wire break detection

3.8.4.4 Process data definition T-type

Process Data Definition (Type T)			
temperature	decimal	hexadecimal	
>540.0	32767	7FFF	Overflow
540	5400	1518	Super Upper Limit
-	-	-	
-	-	-	
400.1	4001	0FA1	
400	4000	0FA0	Rated range
-	-	-	
-	-	-	
-270	-2700	F574	
<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.5 Process data definition S-type

Process Data Definition (Type S)			
temperature	decimal	hexadecimal	
>2019.0	32767	7FFF	Overflow
2019	20190	4EDE	Super Upper Limit
-	-	-	
-	-	-	
1769.1	17691	451B	
1769	17690	451A	Rated range
-	-	-	
-	-	-	
-50	-500	FE0C	
<-50.1	-501	FE0B	Ultra-lower limit

-	-	-	
-	-	-	
<-170.0	-1700	F95C	
<-170.0	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.6 Process data definition R type

Process Data Definition (Type R)			
temperature	decimal	hexadecimal	
>2019.0	32767	7FFF	Overflow
2019	20190	4EDE	Super Upper Limit
-	-	-	
-	-	-	
1769.1	17691	451B	
1769	17690	451A	Rated range
-	-	-	
-	-	-	
-50	-500	FE0C	
<-50.1	-501	FE0B	Ultra-lower limit
-	-	-	
-	-	-	
<-170.0	-1700	F95C	
<-170.0	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.7 Process data definition N-type

Process Data Definition (N-Type)			
temperature	decimal	hexadecimal	
>1550.0	32767	7FFF	Overflow
1550.0	15500	3C8C	Super Upper Limit
-	-	-	
-	-	-	
1300.1	13001	32C9	
1300.0	13000	32C8	rated range
-	-	-	
-	-	-	
-270	-2700	F574	

<-270	-32767	8001	Hypolympation
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.8 Process data definition± 15.625mV

Process Data Definition (±15.625mV)			
MV value	decimal	hexadecimal	
15.625mV	32767	7FFF	Rated range
-	-	-	
-15.625mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.9 Process data definition ± 31.25mV

Process Data Definition (±31.25mV)			
MV value	decimal	hexadecimal	
62.5mV	32767	7FFF	Rated range
-	-	-	
-62.5mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.10 Process data definition± 62.5mV

Process Data Definition (±62.5mV)			
MV value	decimal	hexadecimal	
62.5mV	32767	7FFF	Rated range
-	-	-	
-62.5mV	-32767	8001	
The sensor is not connected	-32768	8000	Wire break detection

3.8.4.11 Process data definition ± 125mV

Process Data Definition (±125mV)			
MV value	decimal	hexadecimal	
125mV	32767	7FFF	Rated range
-	-	-	
-125mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.8.4.12 Process data definition± 250mV

Process Data Definition (±250mV)			
MV value	decimal	hexadecimal	
250mV	32767	7FFF	Rated range
-	-	-	
-250mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.8.4.13 Process data definition ± 500mV

Process Data Definition (±500mV)			
MV value	decimal	hexadecimal	
500mV	32767	7FFF	rated range
-	-	-	
-500mV	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.8.4.14 Process data definition ± 1000mV

Process Data Definition (±1000mV)			
MV value	decimal	hexadecimal	
1V	32767	7FFF	Rated range
-	-	-	
-1V	-32767	8001	
The sensor is not connected	-32768	8000	Disconnection detection (not supported)

3.8.5 DF58-M-8TC parameters

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

When using S7-TCP addresses, please refer to Chapter 4, Section 2, "S7-TCP Address Allocation Rules".

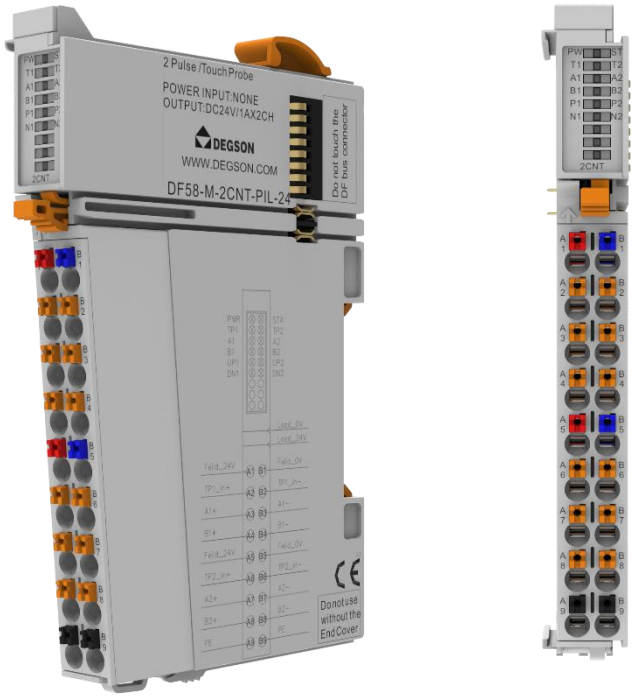
The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	illustrate
DF58-M-8TC	Analog input area	Input, 8word	1~8Word	Compatible with 8 channels of analog input
	Module Diagnostic Information Area	Diagnosis, 1 word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: 1: Channel 1 is disconnected or exceeds the upper and lower limits 0: Normal Bit2: 1: Channel 2 is disconnected or exceeds the upper and lower limits 0: Normal Bit3: 1: Channel 3 is disconnected or exceeds the upper and lower limits 0: Normal Bit4: 1: Channel 4 is disconnected or exceeds the upper and lower

				limits 0: Normal Bit5： 1: Channel 5 is disconnected or exceeds the upper and lower limits 0: Normal Bit6： 1: Channel 6 is disconnected or exceeds the upper and lower limits 0: Normal Bit7： 1: Channel 7 is disconnected or exceeds the upper and lower limits 0: Normal Bit8： 1: Channel 8 is disconnected or exceeds the upper and lower limits 0: Normal BIt9~Bit15:Spare;
	Module configuration parameters	Configuration, 6word	1st word	Configuring 8 Channels Cold Junction Compensation Enables: 0：ENABLE 1：DISABLE
			Section 2	retain
			Word 3	reserve
			4th word	Set up 8 channels to detect disconnection: 0：ENABLE 1：DISABLE
			Article 5	reserve
			Article 6	Set up 8 channels of thermocouple measurement types: 0: J type

				1: Type K 2: Type E 3: Type T 4: S-type 5: Type R 6: Type B (not supported) 7: N-type 8: Type C (not supported yet) 9: L-type (not supported yet) 10: U-shape (not supported yet) 11:±15.625mv 12:±31.25mv 13:±62.5mv 14:±125mv 15:±250mv 16:±500mv 17:±1000mv 18:±2000mV (not supported)
	Module type	1word	1word	ID：9

3.9 Encoder pulse count/24VDC (DF58-M-2CNT-PIL-24).

- The pulse counting module uses 2-channel pulse counting. The input signal voltage is 24VDC.
- Each input module is equipped with an anti-interference filter.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Magnetic isolation between the field layer and the system layer.
- IP20 degree of protection.



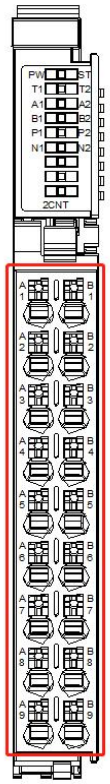
3.9.1 Specifications

Specifications	
Model	DF58-M-2CNT-PIL-24
Product Description:	Pulse counting module, 2 channels
Maximum count frequency	1Mhz
Number of channels	2
Input signal type	Incremental encoder AB or Pulse/Direction signal
Input signal voltage	24V DC
Enter the connection type	4-wire / 2-wire
Reverse circuit protection	Yes
Isolation method	Isolated from field layer optocouplers
Data size	20 Byte
Frequency multiplication mode	x1/x4
Filtering time	0.01 to 1 ms
DI on voltage	Min.5Vdc to Max.28Vdc
DI off voltage	Max.2.7Vdc
DI turns on the current	Max.10mA/channel @28V
DI input impedance	=2.7k
Sensor powered	500mA@5V，500mA@24V
Error diagnosis	Yes, us responds, and the error code can be queried by the upper computer
resolution	32 Bit
Measuring range	Encoder: –2147483648~2147483647
precision	±1 press
Power supply parameters	
System feed current	<100mA
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Environmental requirements	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 … 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2

EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant
Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

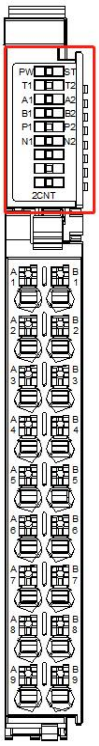
3.9.2 Hardware interface

3.9.2.1 Definition of terminal block



Terminal serial number	Signal	Terminal serial number	Signal	
A1	24V	B2	0V	24V power output
A2	TP1_in+	B3	TP1_in-	Channel 1 latched signal input (24V)
A3	A1+	B4	A1-	Channel 1 A signal input (24V)
A4	B1+	B5	B1-	Channel 1 B signal input (24V)
A5	24V	B6	0V	24V power output
A6	TP2_in+	B7	TP2_in-	Channel 2 latched signal input (24V)
A7	A2+	B8	A2-	Channel 2 A signal input (24V)
A8	B2+	B9	B2-	Channel 2 B signal input (24V)
A9	PE	B2	PE	earth

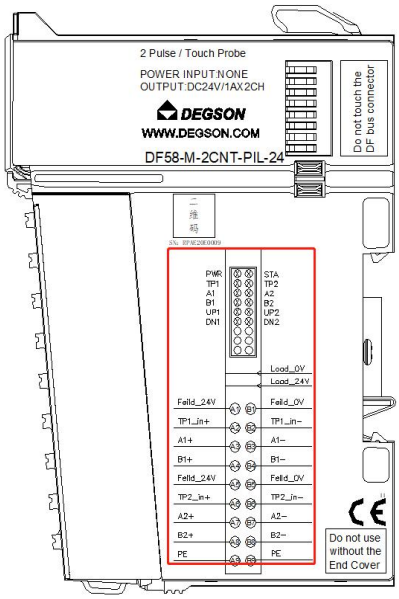
3.9.2.2 LED indicator definition

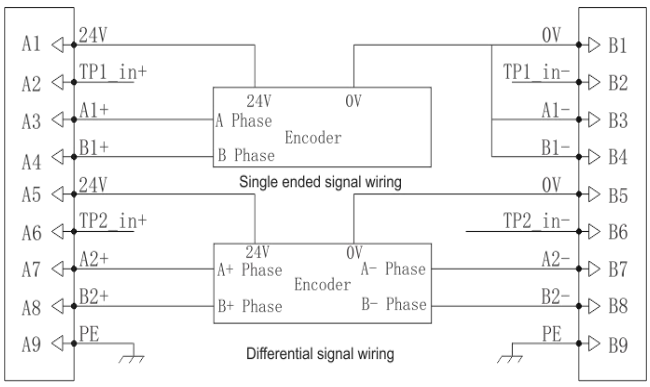


Light	meaning
PW (green)	Bright: The internal bus power supply is normal Off: The internal bus power supply is abnormal
STA (red)	Backplane bus communication fault alarm indication: Solid on: Bus communication failure Off: Normal.
T1 (green)	Channel 1 latches the signal indicator. Bright: The latch is successful. Off: No latching is performed.
T2 (green)	Channel 2 latches the signal indicator. Bright: The latch is successful. Off: No latching is performed.
A1 (green)	Channel 1 Encoder A Signal Indicator: On: The input signal is valid Off: The input signal is invalid
B1 (green)	Channel 1 Encoder B Signal Indicator: On: The input signal is valid Off: The input signal is invalid
A2 (green)	Channel 2 Encoder A Signal Indicator: On: The input signal is valid Off: The input signal is invalid
B2 (green)	Channel 2 Encoder B Signal Indicator: On: The input signal is valid Off: The input signal is invalid

P1 (green)	On: Encoder 1 rotates forward Off: Encoder 1 is stationary or rotates in the opposite direction
P2 (green)	On: Encoder 2 rotates forward Off: Encoder 2 is stationary or rotates in the opposite direction
N1 (green)	On: Encoder 1 rotates in reverse Off: Encoder 1 is stationary or rotates in a forward direction
N2 (green)	On: Encoder 2 rotates in reverse Off: Encoder 2 rotates stationary or forward
E1 (green)	Channel 1 Working Mode Indicator: On: The channel is in phase AB mode Off: The channel is in pulse/direction mode
E2 (green)	Channel 2 Working Mode Indicator: On: The channel is in phase AB mode Off: The channel is in pulse/direction mode

3.9.2.3 Wiring diagram

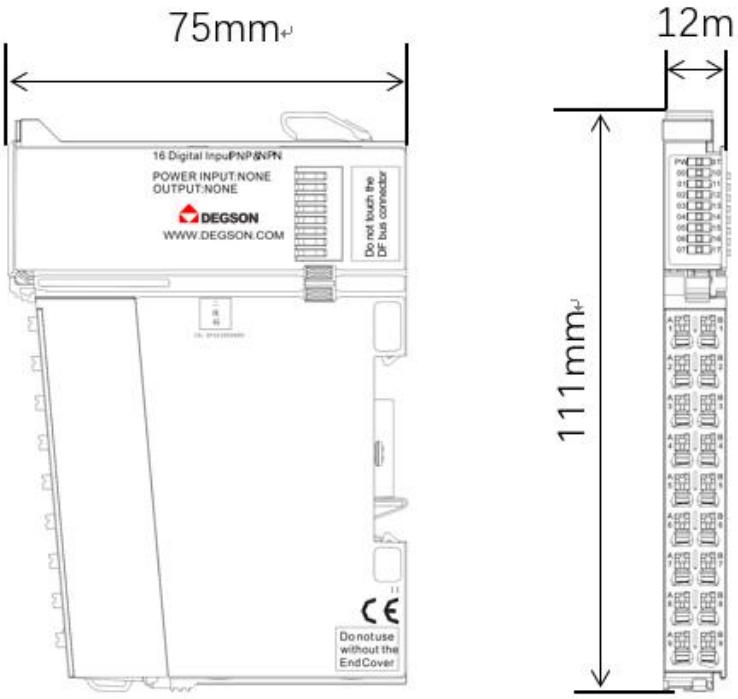




3.9.3 Mechanical installation

3.9.3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



3.9.4. DF58-M-2CNT-PIL-24 parameters

When using Modbus addresses, please refer to Chapter 4 "Modbus-TCP Address Allocation Rules" for the specific address area layout.

When using S7-TCP addresses, please refer to Chapter 4, Section 2 "S7-TCP Address Allocation Rules" for specific address area layout.

The name of the module	Address area	Type/Total Bytes	Address layout (Descend)	Address description

DF58-M-2CNT-PIL-24	Analog input area	input 10word	1st word	CH1 Status: Bit0:A input Bit1:B input Bit2: latching the success flag Bit3: Encoder forward indication Bit4: Encoder inverted indication Bit5: 1: Overflowing on the current count value 0: After the count value is overflowed, the count value continues to exceed 5000. Bit6: 1: Overflow under the current count value 0: After the count value overflows, the count value continues down to exceed 5000. Bit7: The counter is preset successfully, and 1 is valid Bit8-Bit15:Range
			Word 2-3	Counter value CH1: Current Count Value (32Bit)
			Word 4-5	Latch value CH1: Depending on the configuration, the rising or falling edge of the TP signal latches the current count value (32 bits).

			Article 6	CH2 Status: Bit0:A input Bit1:B input Bit2: latching the success flag Bit3: Encoder forward indication Bit4: Encoder inverted indication Bit5: 1: Overflowing on the current count value 0: After the count value is overflowed, the count value continues to exceed 5000. Bit6: 1: Overflow under the current count value 0: After the count value overflows, the count value continues down to exceed 5000. Bit7: The counter is preset successfully, and 1 is valid Bit8-Bit15:Range
			Word 7-8	Counter value CH2: Current Count Value (32Bit)
			Word 9-10	Latch value CH2: Depending on the configuration, the rising or falling edge of the TP signal latches the current count value (32 bits).

	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0： 1: Bus error; 0: normal; Bit1: reserved; Bit2： 1: Channel 1 is out of phase, and the AB phase is in orthogonal counting mode. 0: normal; Bit3： 1: Channel 2 is out of phase, and the AB phase is in quadrature counting mode. 0: normal; Bit4~Bit15：Range

	Analog output area	output 6word	1st word	Counter Control CH1: Bit0: The rising edge is 0→1, and the counter preset value is set to the current counting value Bit1: clears the counter value Bit2: Clear the overflow flag on zero Bit3: Clear the overflow flag under zero BIT4:0: INVALID 1： TP Signal Rising edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then set 1 again (to avoid invalid abnormal latch due to interference). BIT5:0: INVALID 1： TP Signal Falling edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then set 1 again (to avoid invalid abnormal latch due to interference). Bit6-Bit15:Spare
			Word 2-3	Set Counter value CH1: Range (32Bit)

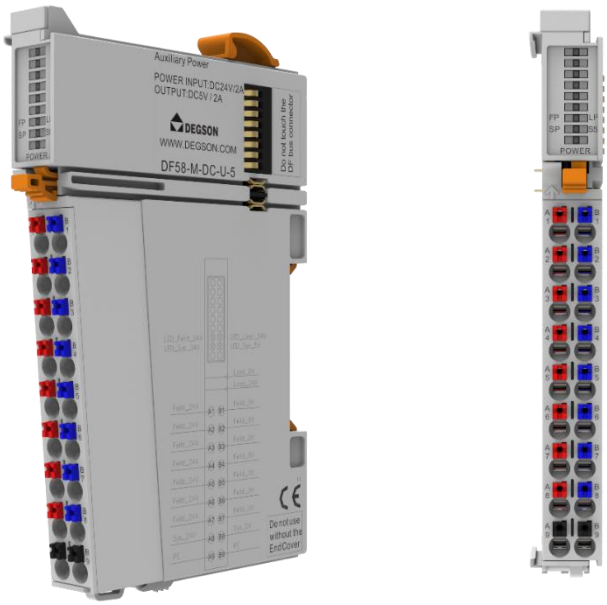
			4th word	Counter Control CH2: Bit0: The rising edge is 0→1, and the counter preset value is set to the current counting value Bit1: clears the counter value Bit2: Clear the overflow flag on zero Bit3: Clear the overflow flag under zero BIT4:0: INVALID 1： TP Signal Rising edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the 0 parameter and then set it to 1 again (to avoid invalid abnormal latch due to interference). BIT5:0: INVALID 1： TP Signal Falling edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then set 1 again (to avoid invalid abnormal latch due to interference). Bit6-Bit15:Spare
			Word 5-6	Set Counter value CH2: Range(32Bit)

	Module configuration parameters	disposition 8word	1st word	Set CH1 working mode: 0：AB Side onefold Frequency count 1：AB Side fourfold Frequency count 2：Pulse+Dir
			Section 2	Set CH1 working direction: 0: counts upwards 1: Count downward
			Word 3	Set the counter status when CH1 is wrong: 0: Keeps the last value, the counter stops counting during an error such as bus failure, backplane bus failure, or AB phase loss, once it resumes normal work, the counter will continue to count from the previous value. 1: The counter continues to count during the error
			4th word	Set CH1 filtering time: 0：None 1：0.01ms 2：0.02ms 3：0.03ms 4：0.04ms 5：0.05ms 6：0.20ms 7：0.40ms 8：0.60ms 9：0.80ms 10：1.00ms

			Article 5	Set CH2 working mode: 0：AB Side onefold Frequency count 1：AB Side fourfold Frequency count 2：Pulse+Dir
			Article 6	Set the CH2 working direction: 0: counts upwards 1: Count downward
			7th word	Counter status when CH2 error is set: 0: Keeps the last value, the counter stops counting during an error such as bus failure, backplane bus failure, or AB phase loss, once it resumes normal work, the counter will continue to count from the previous value. 1: The counter continues to count during the error
			Article 8	Set CH2 filtering time: 0：None 1：0.01ms 2：0.02ms 3：0.03ms 4：0.04ms 5：0.05ms 6：0.20ms 7：0.40ms 8：0.60ms 9：0.80ms 10：1.00ms
	Module type	1word	1word	ID：7

3.10 24V to 5V Power isolation module (DF58-M-DC-U-5)

- The operating voltage of 5VDC for the I/O module is set by the internal bus of the module.
- Provides internal system current of 2A.
- 24VDC rated voltage for external sites.
- The two LED indicators indicate that the module is operating normally and the communication is normal, respectively.
- Galvanic isolation between the field layer and the system layer.
- IP20 degree of protection.



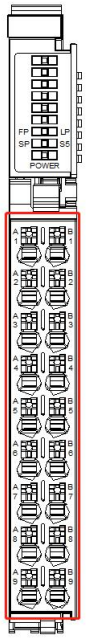
3.10．1.Specifications

Specifications	
Model	DF58-M-DC-U-5
Product Description:	24VDC converted 5VDC/2A
Number of channels	1
Isolation method	System power to field power: Isolation module
Power supply parameters	
Operating voltage	24V DC +20 %/ -15 % (IEC mode)
Anti-reverse polarity protection	YES
Over-temperature protection	YES
Overload protection	YES
Short-circuit protection	YES
Provides internal system voltage	5VDC
Internal system current is supplied	Max.2A@5V
The load voltage is provided	24V DC +20 %/ -15 % (IEC mode)
The maximum current of the load is supplied	10A
Load overvoltage protection	YES
Mechanical structure	
Ingress protection	IP20
Rail type	35mm DIN
Working environment	
Operating temperature	-25... 60℃
Storage temperature	-40... 85℃
relative humidity	5... 95% RH (non-condensing)
Pollution level	2. Comply with IEC 61131-2 standard
Working altitude	0 … 2000 m
Vibration-resistant	4g, according to IEC 60068-2-6
Impact-resistant	15g,IEC 60068-2-27
EMC - Interference immunity	Complies with EN 61000-6-2
EMC - Radiated Interference	Complies with EN 61000-6-3
Corrosion resistance	IEC 60068-2-42 and IEC 60068-2-43 compliant

Permissible H2S pollutant concentration at 75 % relative humidity	10ppm
Permissible SO2 pollutant concentration at 75 % relative humidity	25ppm
Firmware upgrades	Yes

3.10．2. Hardware interface

3.10．2.1 Definition of terminal block

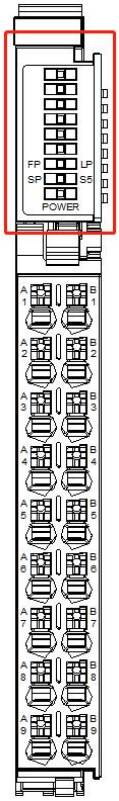


Terminal serial number	Signal	Terminal serial number	Signal	
A1	24V	B2	0V	24V power output
A2	24V	B3	0V	24V power output
A3	24V	B4	0V	24V power output
A4	24V	B5	0V	24V power output
A5	24V	B6	0V	24V power output
A6	24V	B7	0V	24V power output
A7	24V	B8	0V	24V power output
A8	24V	B9	0V	24V power input of the module
A9	PE	B2	PE	earth

Note: It is recommended to use two 24V power supplies isolated from each other to provide 2 power

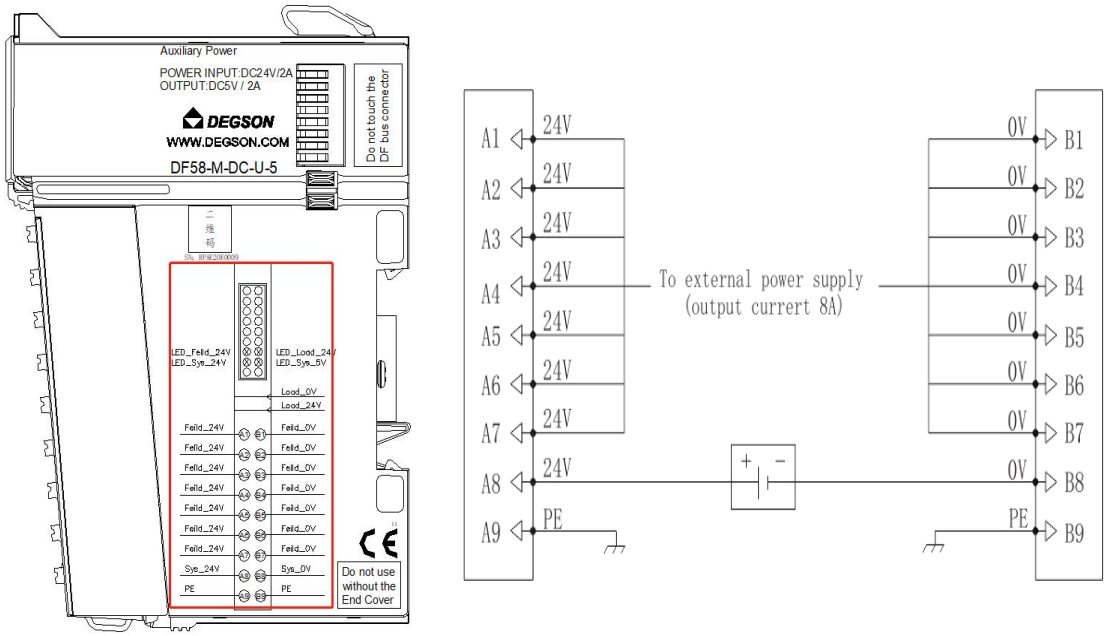
supplies for the module to achieve optimal anti-interference performance.

3.10．2.2 LED indicator definition



Light	meaning
FP (Green)	Green: The load power supply is running normally.
LP (Green)	Green: The sensor power supply is operating normally.
SP (green)	Green: The internal system power supply is running normally.
S5 (green)	Green: The internal 5V power supply is running normally.

3.10．2.3 Wiring diagram



As shown in the image:

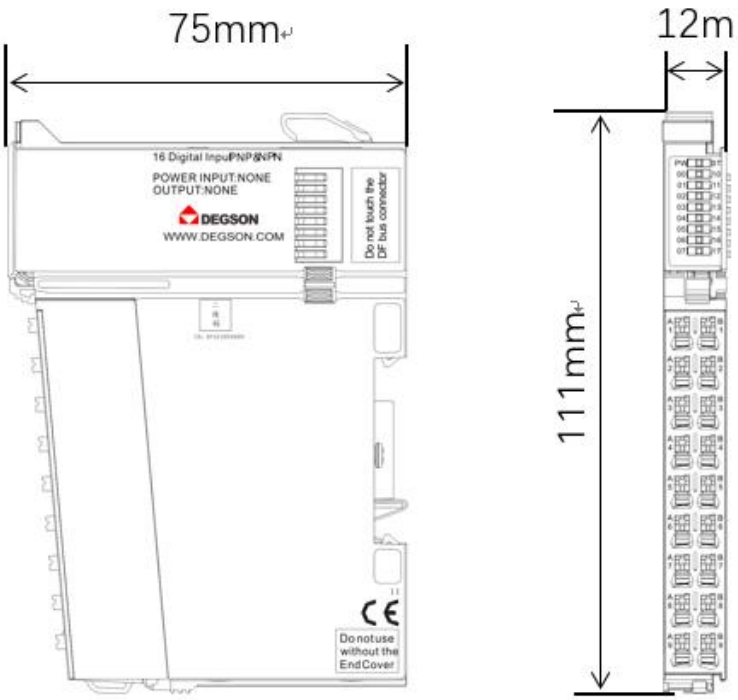
A8 external wiring 24v end, B8 external wiring 0v end, A9, B9 ground.

A1-B1 is one group of external power supply, and one group can support 7 groups of external 24V power supply.

3.10．3. Mechanical installation

3.10．3.1 Installation dimensions

The installation size information is shown in the figure below, and the unit is (mm).



4. Address description

4.1 Modbus-TCP address allocation rules

- DF58-C-MD-TCP supports 6 function codes: 02 (read discrete input), 03 (read hold register), 05 (write single coil), 06 (write single register), 15 (write multiple coils), and 16 (write multiple registers).
- DF58-C-MD-TCP Tunnel Address Allocation Rules: The table describes the Modbus TCP addresses corresponding to each channel of each I/O module.
- **The configuration words occupied by each slot are 8, but the actual number of words used refers to the specific description of the configuration parameters of each module;**

Feature codes	address	illustrate	attribute
1/5/15	0-1023	QB0-QB127 Digital Output Area (1024 dots)	R/W
2	0-1023	IB0-IB127 Digital Input Area (1024 dots)	R

Feature codes	address	illustrate	attribute
3/6/16	40001-40064	IB0-IB127 Digital Input Area (1024 dots)	R
	40065-40128	QB0-QB127 Digital Output Area (1024 dots)	R/W
	40129-40384	Analog input area (256 channels)	R
	40385-40640	Analog output area (256 channels)	R/W
	40641-40672	Module diagnostic information area (corresponding to 1-32 slots, one word for each slot)	R
	40673-40680	Module configuration parameter area: Slot 1 (8 characters)	R/W
	40681-40688	Module configuration parameter area: Slot 2 (8 characters)	R/W
	40689-40696	Module configuration parameter area: Slot 3 (8 words)	R/W
	40697-40704	Module configuration parameter area: Slot 4 (8 characters)	R/W
	40705-40712	Module configuration parameter area: Slot 5 (8 characters)	R/W
	40713-40720	Module configuration parameter area: Slot 6 (8	R/W

		characters)	
	40721-40728	Module configuration parameter area: Slot 7 (8 words)	R/W
	40729-40736	Module configuration parameter area: Slot 8 (8 characters)	R/W
	40737-40744	Module configuration parameter area: Slot 9 (8 characters)	R/W
	40745-40752	Module configuration parameter area: Slot 10 (8 characters)	R/W
	40753-40760	Module configuration parameter area: Slot 11 (8 characters)	R/W
	40761-40768	Module configuration parameter area: Slot 12 (8 characters)	R/W
	40769-40776	Module configuration parameter area: Slot 13 (8 characters)	R/W
	40777-40784	Module configuration parameter area: Slot 14 (8 words)	R/W
	40785-40792	Module configuration parameter area: Slot 15 (8 characters)	R/W
	40793-40800	Module configuration parameter area: Slot 16 (8 characters)	R/W
	40801-40808	Module configuration parameter area: Slot 17 (8 characters)	R/W
	40809-40816	Module configuration parameter area: Slot 18 (8 characters)	R/W
	40817-40824	Module configuration parameter area: Slot 19 (8 words)	R/W
	40825-40832	Module configuration parameter area: Slot 20 (8 words)	R/W
	40833-40840	Module configuration parameter area: Slot 21 (8 characters)	R/W
	40841-40848	Module configuration parameter area: Slot 22 (8 characters)	R/W
	40849-40856	Module configuration parameter area: Slot 23 (8 words)	R/W
	40857-40864	Module configuration parameter area: Slot 24 (8 characters)	R/W
	40865-40872	Module configuration parameter area: Slot 25 (8 words)	R/W
	40873-40880	Module configuration parameter area: Slot 26 (8 characters)	R/W
	40881-40888	Module configuration parameter area: Slot 27 (8 words)	R/W
	40889-40896	Module configuration parameter area: Slot 28	R/W

		(8 words)	
	40897-40904	Module configuration parameter area: Slot 29 (8 characters)	R/W
	40905-40912	Module configuration parameter area: Slot 30 (8 words)	R/W
	40913-40920	Module configuration parameter area: Slot 31 (8 characters)	R/W
	40921-40928	Module configuration parameter area: Slot 32 (8 words)	R/W
	40929	retain	R
	40930	retain	R
	40931	Module Information Area: the number of modules to be extended	R
	40932-40963	Module Information Area: Module type	R
	40964-40995	Module Information Area: The status of the module bus 0: The module bus is normal 1: The module bus is abnormal	R
	40999	Save Parameters (Rising Edge Valid): 1: Save the module configuration parameter area	R/W

4.2 S7-TCP address allocation rules

The DF58-C-MD-TCP supports S7-TCP communication, and the address assignment is shown in the table

Each slot occupies 8 configuration words, but the actual number of words used refers to the specific description of the configuration parameters of each module

address	illustrate	attribute
VW0-VW126	IB0-IB127 Digital Input Area (1024 dots)	R
VW128-VW254	QB0-QB127 Digital Output Area (1024 dots)	R/W
VW256-VW766	Analog input area (256 channels)	R
VW768-VW1278	Analog output area (256 channels)	R/W
VW1280-VW1342	Module diagnostic information area (corresponding to 1-32 slots, one word for each slot)	R
VW1344-VW1358	Module configuration parameter area: Slot 1 (8	R/W

	characters)	
VW1360-VW1374	Module configuration parameter area: Slot 2 (8 characters)	R/W
VW1376-VW1390	Module configuration parameter area: Slot 3 (8 words)	R/W
VW1392-VW1406	Module configuration parameter area: Slot 4 (8 characters)	R/W
VW1408-VW1422	Module configuration parameter area: Slot 5 (8 characters)	R/W
VW1424-VW1438	Module configuration parameter area: Slot 6 (8 characters)	R/W
VW1440-VW1454	Module configuration parameter area: Slot 7 (8 words)	R/W
VW1456-VW1470	Module configuration parameter area: Slot 8 (8 characters)	R/W
VW1472-VW1486	Module configuration parameter area: Slot 9 (8 characters)	R/W
VW1488-VW1502	Module configuration parameter area: Slot 10 (8 characters)	R/W
VW1504-VW1518	Module configuration parameter area: Slot 11 (8 characters)	R/W
VW1520-VW1534	Module configuration parameter area: Slot 12 (8 characters)	R/W
VW1536-VW1550	Module configuration parameter area: Slot 13 (8 characters)	R/W
VW1552-VW1566	Module configuration parameter area: Slot 14 (8 words)	R/W
VW1568-VW1582	Module configuration parameter area: Slot 15 (8 characters)	R/W
VW1584-VW1598	Module configuration parameter area: Slot 16 (8 characters)	R/W
VW1600-VW1614	Module configuration parameter area: Slot 17 (8 characters)	R/W
VW1616-VW1630	Module configuration parameter area: Slot 18 (8 characters)	R/W
VW1632-VW1646	Module configuration parameter area: Slot 19 (8 words)	R/W
VW1648-VW1662	Module configuration parameter area: Slot 20 (8 words)	R/W
VW1664-VW1678	Module configuration parameter area: Slot 21 (8 characters)	R/W
VW1680-VW1694	Module configuration parameter area: Slot 22 (8 characters)	R/W
VW1696-VW1710	Module configuration parameter area: Slot 23	R/W

	(8 words)	
VW1712-VW1726	Module configuration parameter area: Slot 24 (8 characters)	R/W
VW1728-VW1742	Module configuration parameter area: Slot 25 (8 words)	R/W
VW1744-VW1758	Module configuration parameter area: Slot 26 (8 characters)	R/W
VW1760-VW1774	Module configuration parameter area: Slot 27 (8 words)	R/W
VW1776-VW1790	Module configuration parameter area: Slot 28 (8 words)	R/W
VW1792-VW1806	Module configuration parameter area: Slot 29 (8 characters)	R/W
VW1808-VW1822	Module configuration parameter area: Slot 30 (8 words)	R/W
VW1824-VW1838	Module configuration parameter area: Slot 31 (8 characters)	R/W
VW1840-VW1854	Module configuration parameter area: Slot 32 (8 words)	R/W
VW1856	retain	R
VW1858	retain	R
VW1860	Module Information Area: the number of modules to be extended	R
VW1860-VW1924	Module Information Area: Module type	R
VW1926-VW1988	Module Information Area: The status of the module bus 0: The module bus is normal 1: The module bus is abnormal	R
VW1996	Save Parameters (Rising Edge Valid): 1: Save the module configuration parameter area	R/W

5. Example of address layout

5.1 Instructions for address layout

The DF58-C-MD-TCP coupler has a digital input area, a digital output area, an analog input area, an analog output area, a module diagnostic information area, and a module configuration parameter area.

region	Layout module
Digital input area	DF58-M-16DI-P/N
Digital output area	DF58-M-16DO-N,DF58-M-16DO-P
Analog input area	DF58-M-4AI-UI-6，DF58-M-4RTD-PT，DF58-M-2CNT-PIL-24，DF58-M-4TC，DF58-M-8TC
Analog output area	DF58-M-4AO-UI-6,DF58-M-2CNT-PIL-24
Module Diagnostic Information Area	All expansion modules
Module configuration parameters	All expansion modules

Note: The modules in the same area are arranged in order of address, for example, DF58-C-MD-TCP expands 32 modules, including 8 digital input modules, 8 digital output modules, 8 analog input modules, and 8 analog output modules. The order of the slots in which the extension modules are located is random.

Digital input area: 8 digital input modules are arranged in order of address (digital input module modules are in any slot number);

Digital output area: 8 digital output modules are arranged in order of address (digital output module modules are in any slot);

Analog input area: 8 analog input modules are arranged in order according to the address (the analog input module module is in any slot number);

Analog output area: 8 analog output modules are arranged in order according to the address (the analog output module module is in any slot);

Module diagnostic information area: 1 slot number corresponds to 1 module diagnostic

information, for example, the first slot number corresponds to the first module diagnostic information, and the 32nd slot number corresponds to the 32nd module diagnostic information.

Module configuration parameters: 1 slot corresponds to 1 module configuration parameter, for example, the first slot number corresponds to the 1st module configuration parameter, and the 32nd slot corresponds to the 32nd module configuration parameter. After the module configuration parameters are completed, the parameters need to be saved (the rising edge is valid) to take effect, please check the Modbus-tcp address or S7-tcp address for saving the parameter address. Each slot occupies 8 configuration words, but the actual number of words used refers to the specific description of the configuration parameters of each module

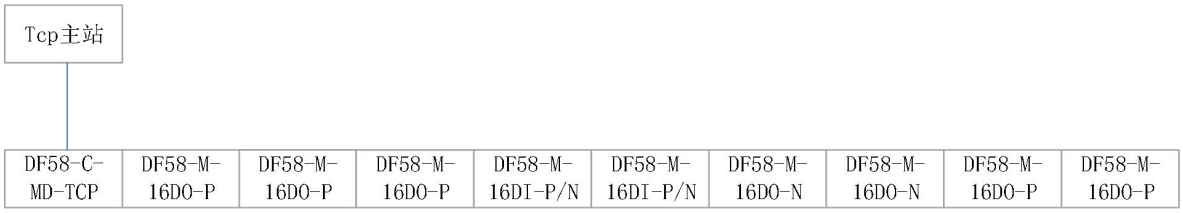
5.2 DF58-C-MD-TCP Example of Address Layout of Extended Digital Module

This document is intended to be a quick guide to the MODBUS-TCP coupler DF58-C-MD-TCP and DF58 series IO modules, and is intended to be used quickly by people with some engineering experience

5.2.1 Hardware Configuration

hardware	quantity	remark
Programming a computer	1	MODBUS-TCP (如 ModbusPoll)
DF58-C-MD-TCP	1	Coupler
DF58-M-16DO-P	5	Expansion modules
DF58-M-16DO-N	2	Expansion modules
DF58-M-16DI-P/N	2	Expansion modules
Cable	Several	
DC regulated power supply	1	Controller, module power supply

5.2.2 Schematic diagram of the connection



Slot number	Model	remark
	DF58-C-MD-TCP	Coupler
1	DF58-M-16DO-P	16-channel digital output module
2	DF58-M-16DO-P	16-channel digital output module
3	DF58-M-16DO-P	16-channel digital output module
4	DF58-M-16DI-P/N	16-channel digital input module
5	DF58-M-16DI-P/N	16-channel digital input module
6	DF58-M-16DO-N	16-channel digital output module
7	DF58-M-16DO-N	16-channel digital output module
8	DF58-M-16DO-P	16-channel digital output module
9	DF58-M-16DO-P	16-channel digital output module

5.2.3. Modbus-TCP address layout

According to this configuration, the Modbus-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters.

Slot number	Model	Address area	Data size	Occupy the address	remark
	DF58-C-MD-TCP	Digital input area (40001~40064)	1word	40001	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending
1	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40065	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40641	
		Module configuration area (40673~40928)	8word	40673~40680	

Slot number	Model	Address area	Data size	Occupy the address	remark
2	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40066	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40642	
		Module configuration area (40673~40928)	8word	40681~40688	
3	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40067	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40643	
		Module configuration area (40673~40728)	8word	40689~40696	
4	DF58-M-16DI-P/N	Digital input area (40001~40064)	1word	40002	Bit0~Bit15：I0.0~I1.7
		Diagnostic information area (40641~40672)	1word	40644	
		Module configuration area (40673~40728)	8word	40697~40704	
5	DF58-M-16DI-P/N	Digital input area (40001~40064)	1word	40003	Bit0~Bit15：I0.0~I1.7
		Diagnostic information area (40641~40672)	1word	40645	
		Module configuration area (40673~40728)	8word	40705~40712	
6	DF58-M-16DO-N	Digital output area (40065~40128)	1word	40068	Bit0~Bit15：Q0.0~Q1.7

Slot number	Model	Address area	Data size	Occupy the address	remark
		Diagnostic information area (40641~40672)	1word	40646	
		Module configuration area (40673~40928)	8word	40713~40720	
7	DF58-M-16DO-N	Digital output area (40065~40128)	1word	40069	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40647	
		Module configuration area (40673~40928)	8word	40721~40728	
8	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40070	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40648	
		Module configuration area (40673~40928)	8word	40729~40736	
9	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40071	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40649	
		Module configuration area (40673~40928)	8word	40737-40744	

5.2.4. S7-TCP address layout

According to this configuration, the S7-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters.

Tank number	Model	Address area	Data size	Occupy the address	remark
	DF58-C-MD-TCP	Digital input area (VW0~VW126)	1word	VW0	Bit0~Bit7: I0.0~I0.7 Bit8~Bit15 pending
1	DF58-M-16DO-P	Digital output area (VW128~VW254)	1word	VW128	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1280	
		Module configuration area (VW1344~VW1854)	8word	VW1344~VW1358	
1	DF58-M-16DO-P	Digital output area (VW128~VW254)	1word	VW130	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1282	
		Module configuration area (VW1344~VW1854)	8word	VW1360~VW1374	
3	DF58-M-16DO-P	Digital output area	1word	VW132	Bit0~Bit15:

Tank number	Model	Address area	Data size	Occupy the address	remark
		(VW128~VW254)			Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1284	
		Module configuration area (VW1344~VW1854)	1word	VW1376~VW1390	
4	DF58-M-16DI-P/N	Digital input area (VW0~VW126)	1word	VW2	Bit0~Bit15: I0.0~I1.7
		Diagnostic information area (VW1280-VW1342)	1word	VW1286	
		Module configuration area (VW1344~VW1854)	1word	VW1392~VW1406	
5	DF58-M-16DI-P/N	Digital input area (VW0~VW126)	1word	VW4	Bit0~Bit15: I0.0~I1.7
		Diagnostic information area (VW1280-VW1342)	1word	VW1288	
		Module configuration area (VW1344~VW1854)	1word	VW1408~VW1422	
6	DF58-M-16DO-N	Digital output area (VW128~VW254)	1word	VW134	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1290	
		Module configuration area (VW1344~VW1854)	1word	VW1424~VW1438	
7	DF58-M-16DO-N	Digital output area (VW128~VW254)	1word	VW136	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area	1word	VW1292	

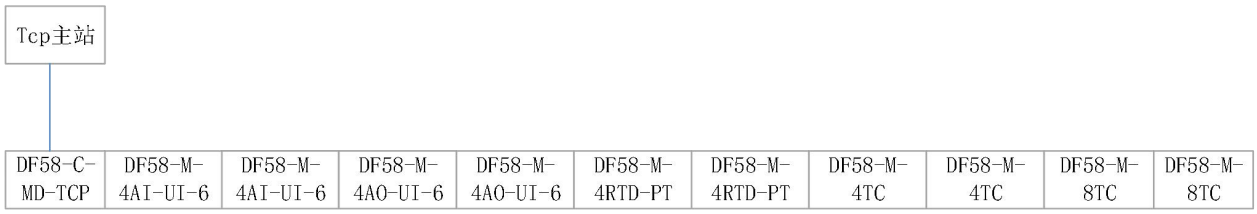
Tank number	Model	Address area	Data size	Occupy the address	remark
		(VW1280~VW1342)			
		Module configuration area (VW1344~VW1854)	1word	VW1440~VW1454	
8	DF58-M-16DO-P	Digital output area (VW128~VW254)	1word	VW138	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1294	
		Module configuration area (VW1344~VW1854)	1word	VW1456~VW1470	
9	DF58-M-16DO-P	Digital output area (VW128~VW254)	1word	VW140	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1296	
		Module configuration area (VW1344~VW1854)	1word	VW1472~VW1486	

5.3 DF58-C-MD-TCP Extended Analog Module Address Layout Example

5.3.1 Hardware Configuration

hardware	quantity	remark
Programming a computer	1	
DF58-C-MD-TCP	1	Coupler
DF58-M-4AI-UI-6	2	Expansion modules
DF58-M-4AO-UI-6	2	Expansion modules
DF58-M-4RTD-PT	2	Expansion modules
DF58-M-4TC	2	Expansion modules
DF58-M-8TC	2	Expansion modules
Cable	Several	Expansion modules
DC regulated power supply	1	Controller, module power supply

5.3.2 Connection diagram



Slot number	Model	remark
	DF58-C-MD-TCP	Coupler
1	DF58-M-4AI-UI-6	4-channel analog input module
2	DF58-M-4AI-UI-6	4-channel analog input module
3	DF58-M-4AO-UI-6	4-channel analog output module
4	DF58-M-4AO-UI-6	4-channel analog output module
5	DF58-M-4RTD-PT	4-channel RTD input module
6	DF58-M-4RTD-PT	4-channel RTD input module
7	DF58-M-4TC	4-channel thermocouple input module
8	DF58-M-4TC	4-channel thermocouple input module
9	DF58-M-8TC	8-channel thermocouple input module
10	DF58-M-8TC	8-channel thermocouple input module

5.3.3 Modbus-TCP address layout

According to this configuration, the Modbus-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters.

Slot number	Model	Address area	Data size	Occupy the address	remark	
	DF58-C-MD-TCP	Digital input area (40001~40064)	1word	40001	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending	
1	DF58-M-4AI-UI-6	Analog input area (40129~40384)	4word	40129~40132	40129	Channel 1
					40130	Channel 2
					40131	Channel 3
					40132	Channel 4

Slot number	Model	Address area	Data size	Occupy the address	remark	
		Diagnostic information area (40641~40672)	1word	40641		
		Module configuration area (40673~40928)	8word	40673~40680		
2	DF58-M-4AI-UI-6	Analog input area (40129~40384)	4word	40133~40136	40133	Channel 1
					40134	Channel 2
					40135	Channel 3
					40136	Channel 4
		Diagnostic information area (40641~40672)	1word	40642		
		Module configuration area (40673~40928)	8word	40681~40688		
3	DF58-M-4AO-UI-6	Analog output area(40385~40640)	4word	40385~40388	40385	Channel 1
					40386	Channel 2
					40387	Channel 3
					40388	Channel 4
		Diagnostic information area (40641~40672)	1word	40643		
		Module configuration area (40673~40728)	8word	40689~40696		
4	DF58-M-4AO-UI-6	Analog output area(40385~40640)	4word	40389~40392	40389	Channel 1
					40390	Channel 2
					40391	Channel 3
					40392	Channel 4
		Diagnostic information area (40641~40672)	1word	40644		
		Module configuration area (40673~40728)	8word	40697~40704		
5	DF58-M-4R	Analog input area	4word	40137~401	40137	Channel 1

Slot number	Model	Address area	Data size	Occupy the address	remark	
	TD-PT	(40129~40384)		40	40138	Channel 2
					40139	Channel 3
					40140	Channel 4
		Diagnostic information area (40641~40672)	1word	40645		
		Module configuration area (40673~40728)	8word	40705~40712		
6	DF58-M-4R TD-PT	Analog input area (40129~40384)	4word	40141~40144	40141	Channel 1
					40142	Channel 2
					40143	Channel 3
					40144	Channel 4
		Diagnostic information area (40641~40672)	1word	40646		
		Module configuration area (40673~40928)	8word	40713~40720		
7	DF58-M-4TC	Analog input area (40129~40384)	4word	40145~40148	40145	Channel 1
					40146	Channel 2
					40147	Channel 3
					40148	Channel 4
		Diagnostic information area (40641~40672)	1word	40647		
		Module configuration area (40673~40928)	8word	40721~40728		
8	DF58-M-4TC	Analog input area (40129~40384)	4word	40149~40152	40149	Channel 1
					40150	Channel 2
					40151	Channel 3
					40152	Channel 4
		Diagnostic information area (40641~40672)	1word	40648		
		Module	8word	40729~407		

Slot number	Model	Address area	Data size	Occupy the address	remark	
		configuration area (40673~40928)		36		
9	DF58-M-8TC	Analog input area (40129~40384)	8word	40153~40160	40153	Channel 1
					40154	Channel 2
					40155	Channel 3
					40156	Channel 4
					40157	Channel 5
					40158	Channel 6
					40159	Channel 7
					40160	Channel 8
		Diagnostic information area (40641~40672)	1word	40649		
		Module configuration area (40673~40928)	8word	40737-40744		
10	DF58-M-8TC	Analog input area (40129~40384)	8word	40161~40168	40161	Channel 1
					40162	Channel 2
					40163	Channel 3
					40164	Channel 4
					40165	Channel 5
					40166	Channel 6
					40167	Channel 7
					40168	Channel 8
		Diagnostic information area (40641~40672)	1word	40650		
		Module configuration area (40673~40928)	8word	40745~40752		

5.3.4 S7-TCP address layout

According to this configuration, the S7-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters.

Slot number	Model	Address area	Data size	Occupy the address	remark	
	DF58-C-MD-TCP	Digital input area (VW0~VW126)	1word	VW0	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending	
1	DF58-M-4AI-UI-6	Analog input area (VW256~VW766)	4word	VW256~VW62	VW256	Channel 1
					VW258	Channel 2
					VW260	Channel 3
					VW262	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1280		
		Module configuration area (VW1344~VW1854)	8word	VW1344~VW1358		
2	DF58-M-4AI-UI-6	Analog input area (VW256~VW766))	4word	VW264~VW270	VW264	Channel 1
					VW266	Channel 2
					VW268	Channel 3
					VW270	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1282		
		Module configuration area (VW1344~VW1854)	8word	VW1360~VW1374		
3	DF58-M-4AO-UI-6	Analog output area(VW768~VW1278)	4word	VW768~VW774	VW768	Channel 1
					VW770	Channel 2
					VW772	Channel 3
					VW774	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1284		
		Module configuration area (VW1344~VW1854)	8word	VW1376~VW1390		
4	DF58-M-4AO-UI-6	Analog output area(VW768~VW1278)	4word	VW776~VW782	VW776	Channel 1
					VW778	Channel 2
					VW780	Channel 3
					VW782	Channel 4

Slot number	Model	Address area	Data size	Occupy the address	remark	
		Diagnostic information area (VW1280~VW1342)	1word	VW1286		
		Module configuration area (VW1344~VW1854)	8word	VW1392~VW1406		
5	DF58-M-4 RTD-PT	Analog input area (VW256~VW766)	4word	VW272~VW278	VW272	Channel 1
					VW274	Channel 2
					VW276	Channel 3
					VW278	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1288		
		Module configuration area (VW1344~VW1854)	8word	VW1408~VW1422		
6	DF58-M-4 RTD-PT	Analog input area (VW256~VW766)	4word	VW280~VW286	VW280	Channel 1
					VW282	Channel 2
					VW284	Channel 3
					VW286	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1290		
		Module configuration area (VW1344~VW1854)	8word	VW1424~VW1438		
7	DF58-M-4 TC	Analog input area (VW256~VW766)	4word	VW288~VW294	VW288	Channel 1
					VW290	Channel 2
					VW292	Channel 3
					VW294	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1292		
		Module configuration area (VW1344~VW1854)	8word	VW1440~VW1454		

Slot number	Model	Address area	Data size	Occupy the address	remark	
8	DF58-M-4 TC	Analog input area (VW256~VW766)	4word	VW296~VW302	VW296	Channel 1
					VW298	Channel 2
					VW300	Channel 3
					VW302	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1294		
		Module configuration area (VW1344~VW1854)	8word	VW1456~VW1470		
9	DF58-M-8 TC	Analog input area (VW256~VW766)	8word	VW304~VW318	VW304	Channel 1
					VW306	Channel 2
					VW308	Channel 3
					VW310	Channel 4
					VW312	Channel 5
					VW314	Channel 6
					VW316	Channel 7
					VW318	Channel 8
		Diagnostic information area (VW1280~VW1342)	1word	VW1296		
		Module configuration area (VW1344~VW1854)	8word	VW1472~VW1486		
10	DF58-M-8 TC	Analog input area (VW256~VW766)	8word	VW320~VW334	VW320	Channel 1
					VW322	Channel 2
					VW324	Channel 3
					VW326	Channel 4
					VW328	Channel 5
					VW330	Channel 6
					VW332	Channel 7
					VW334	Channel 8
		Diagnostic information area (VW1280~VW1342)	1word	VW1298		
		Module configuration	8word	VW1488~V		

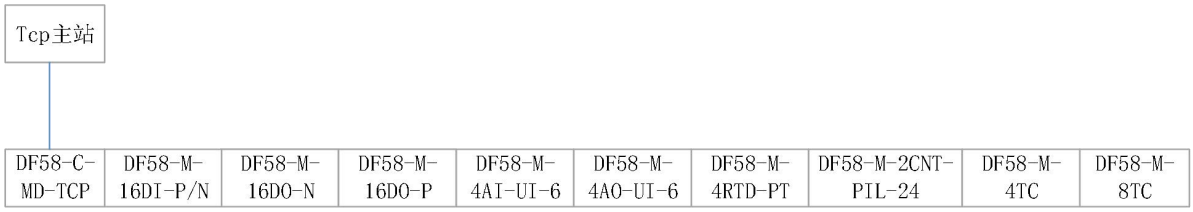
Slot number	Model	Address area	Data size	Occupy the address	remark
		area (VW1344~VW1854)		W1502	

5.4. DF58-C-MD-TCP extends the address layout of all types of modules

5.4.1 Hardware Configuration

hardware	quantity	remark
Programming a computer	1	
DF58-C-MD-TCP	1	Coupler
DF58-M-16DI-P/N	1	Expansion modules
DF58-M-16DO-N	1	Expansion modules
DF58-M-16DO-P	1	Expansion modules
DF58-M-4AI-UI-6	1	Expansion modules
DF58-M-4AO-UI-6	1	Expansion modules
DF58-M-4RTD-PT	1	Expansion modules
DF58-M-2CNT-PIL-24	1	Expansion modules
DF58-M-4TC	1	Expansion modules
DF58-M-8TC	1	Expansion modules
Cable	Several	
DC regulated power supply	1	Controller, module power supply

5.4.2 Schematic diagram of connection



Slot number	Model	remark
	DF58-C-MD-TCP	4-channel analog input module
1	DF58-M-16DI-P/N	16-channel digital input module

Slot number	Model	remark
2	DF58-M-16DO-N	16-channel digital output module
3	DF58-M-16DO-P	16-channel digital output module
4	DF58-M-4AI-UI-6	4-channel analog input module
5	DF58-M-4AO-UI-6	4-channel analog output module
6	DF58-M-4RTD	4-channel RTD input module
7	DF58-M-2CNT-PIL-24	Pulse Counting Module
8	DF58-M-4TC	4-channel thermocouple input module
9	DF58-M-8TC	8-channel thermocouple input module

5.4.3 Modbus-TCP address layout

According to this configuration, the Modbus-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters.

Slot number	Model	Address area	Data size	Occupy the address	remark
	DF58-C-MD-TCP	Digital input area (40001~40064)	1word	40001	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending
1	DF58-M-16DI-P/N	Digital input area (40001~40064)	1word	40002	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40641	
		Module configuration area (40673~40928)	8word	40673~40680	
2	DF58-M-16DO-N	Digital output area (40065~40128)	1word	40065	Bit0~Bit15：Q0.0~Q1.7
		Diagnostic information area (40641~40672)	1word	40642	
		Module	8word	40681~4068	

Slot number	Model	Address area	Data size	Occupy the address	remark	
		configuration area (40673~40928)		8		
3	DF58-M-16DO-P	Digital output area (40065~40128)	1word	40066	Bit0~Bit15：Q0.0~Q1.7	
		Diagnostic information area (40641~40672)	1word	40643		
		Module configuration area (40673~40728)	8word	40689~40696		
4	DF58-M-4AI-UI-6	Analog input area (40129~40384)	4word	40129~40132	40129	Channel 1
					40130	Channel 2
					40131	Channel 3
					40132	Channel 4
		Diagnostic information area (40641~40672)	1word	40644		
		Module configuration area (40673~40728)	8word	40697~40704		
5	DF58-M-4AO-UI-6	Analog output area (40385~40640)	4word	40385~40388	40385	Channel 1
					40386	Channel 2
					40387	Channel 3
					40388	Channel 4

Slot number	Model	Address area	Data size	Occupy the address	remark	
		Diagnostic information area (40641~40672)	1word	40645		
		Module configuration area (40673~40728)	8word	40705~40712		
6	DF58-M-4RTD	Analog input area (40129~40384)	1word	40133~40136	40133	Channel 1
					40134	Channel 2
					40135	Channel 3
					40136	Channel 4
		Diagnostic information area (40641~40672)	1word	40646		
		Module configuration area (40673~40928)	8word	40713~40720		
7	DF58-M-2CNT-PIL-24	Analog input area (40129~40384)	10word	40137~40146	40137	CH1 status
					40138~40139	CH1 count value
					40140~40141	CH1 latch value
					40142	CH2 state
					40143~40144	CH2 count value
					40145~4014	CH2

Slot number	Model	Address area	Data size	Occupy the address	remark	
					6	latch value
		Analog output area (40385~40640)	6word	40389~40394	40389	CH1 is enabled
					40390~40391	CH1 preset
					40392	CH2 is enabled
					40393~40394	CH2 preset
		Diagnostic information area (40641~40672)	1word	40647		
		Module configuration area (40673~40928)	8word	40721~40728		
8	DF58-M-4TC	Analog input area (40129~40384)	4word	40147~40150	40147	Channel 1
					40148	Channel 2
					40149	Channel 3
					40150	Channel 4
		Diagnostic information area (40641~40672)	1word	40648		
		Module configuration area (40673~40928)	8word	40729~40736		
9	DF58-M-8TC	Analog input area (40129~40384)	1word	40151~40158	40151	Channel 1

Slot number	Model	Address area	Data size	Occupy the address	remark	
					40152	Channel 2
					40153	Channel 3
					40154	Channel 4
					40158	Channel 5
					40156	Channel 6
					40157	Channel 7
					40158	Channel 8
		Diagnostic information area (40641~40672)	1word	40649		
		Module configuration area (40673~40928)	8word	40737-40744		

5.4. 4 S7-TCP address layout

According to this configuration, the S7-TCP address layout is explained. For specific information about module diagnosis and module configuration, please refer to the corresponding module parameters

Slot number	Model	Address area	Data size	Occupy the address	remark
	DF58-C-MD-TCP	Digital input area (VW0~VW126)	1word	VW0	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending

Slot number	Model	Address area	Data size	Occupy the address	remark
1	DF58-M-16DI-P/N	Digital input area (VW0~VW126)	1word	VW2	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1280	
		Module configuration area (VW1344~VW1854)	8word	VW1344~VW1358	
2	DF58-M-16DO-N	Digital output area (VW128~VW254)	1word	VW128	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1282	
		Module configuration area (VW1344~VW1854)	8word	VW1360~VW1374	
3	DF58-M-16DO-P	Digital output area (VW128~VW254)	1word	VW130	Bit0~Bit15: Q0.0~Q1.7
		Diagnostic information area (VW1280~VW1342)	1word	VW1284	
		Module configuration area (VW1344~VW1854)	8word	VW1376~VW1390	

Slot number	Model	Address area	Data size	Occupy the address	remark	
4	DF58-M-4AI-UI-6	Analog input area (VW256~VW766)	4word	VW256~VW262	VW256	Channel 1
					VW258	Channel 2
					VW260	Channel 3
					VW262	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1286		
		Module configuration area (VW1344~VW1854)	8word	VW1392~VW1406		
5	DF58-M-4AO-UI-6	Analog output area (VW768~VW1278)	4word	VW768~VW774	VW768	Channel 1
					VW770	Channel 2
					VW772	Channel 3
					VW774	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1288		
		Module configuration area (VW1344~VW1854)	8word	VW1408~VW1422		
6	DF58-M-4RTD	Analog input area (VW256~VW766)	1word	VW264~VW270	VW264	Channel 1

Slot number	Model	Address area	Data size	Occupy the address	remark	
					VW266	Channel 2
					VW268	Channel 3
					VW270	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1290		
		Module configuration area (VW1344~VW1854)	8word	VW1424~VW1438		
7	DF58-M-2CNT-PIL-24	Analog input area (VW256~VW766)	10word	VW272~VW290	VW272	CH1 status
					VD274	CH1 count value
					VD278	CH1 latch value
					VW282	CH2 state
					VD284	CH2 count value
					VD288	CH2 latch value
		Analog output area (VW768~VW1278)	6word	40389~40394	40389	CH1 is enabled
					40390~40391	CH1 preset

Slot number	Model	Address area	Data size	Occupy the address	remark	
					40392	CH2 is enabled
					40393~40394	CH2 preset
		Diagnostic information area (VW1280~VW1342)	1word	VW1292		
		Module configuration area (VW1344~VW1854)	8word	VW1440~VW1454		
8	DF58-M-4TC	Analog input area (VW256~VW766)	4word	VW292~VW298	VW292	Channel 1
					VW294	Channel 2
					VW296	Channel 3
					VW298	Channel 4
		Diagnostic information area (VW1280~VW1342)	1word	VW1294		
		Module configuration area (VW1344~VW1854)	8word	VW1456~VW1470		
9	DF58-M-8TC	Analog input area (VW256~VW766)	1word	VW230~VW244	VW230	Channel 1
					VW232	Channel 2
					VW234	Chann

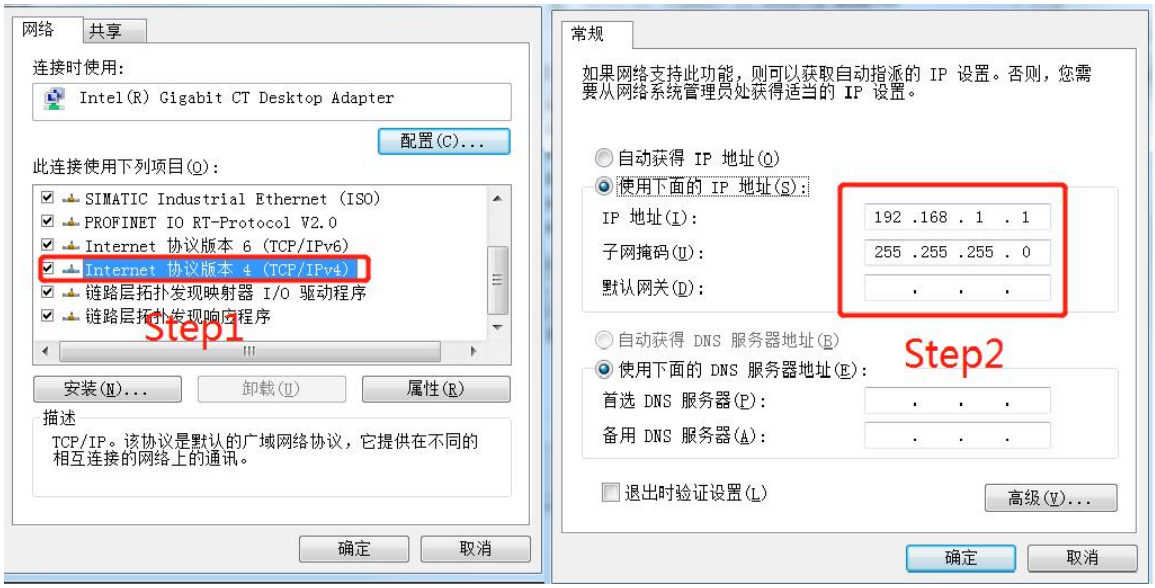
Slot number	Model	Address area	Data size	Occupy the address	remark	
						el 3
					VW236	Channel 4
					VW238	Channel 5
					VW240	Channel 6
					VW242	Channel 7
					VW244	Channel 8
		Diagnostic information area (VW1280~VW1342)	1word	VW1296		
		Module configuration area (VW1344~VW1854)	8word	VW1472~VW1486		

6. Example of software configuration

6.1. Instructions for using the MODBUS configuration software ModbusPoll

6.1.1 Set the IP address, subnet mask and gateway address information of the computer where the configuration software is located

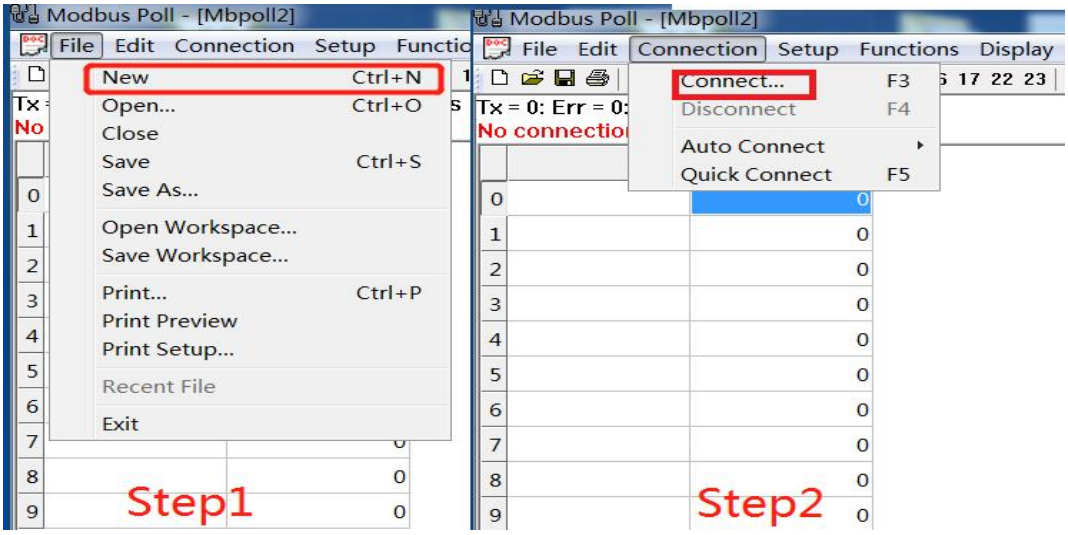
- The IP address of the computer is 192.168.1.1, the subnet mask is 255.255.255.0, and the configuration process is shown in the figure.



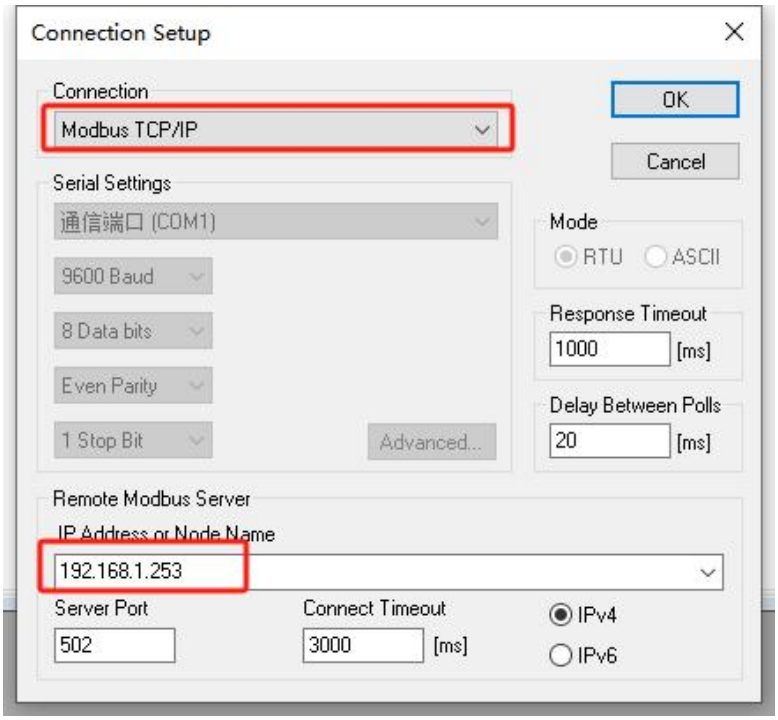
6.1.2 Network connection

- Open the ModbusPoll software and select "File-> New" from the menu bar;

- 点击 Connection,如图所示 Step1-Step2。



➢ Configure connection information.

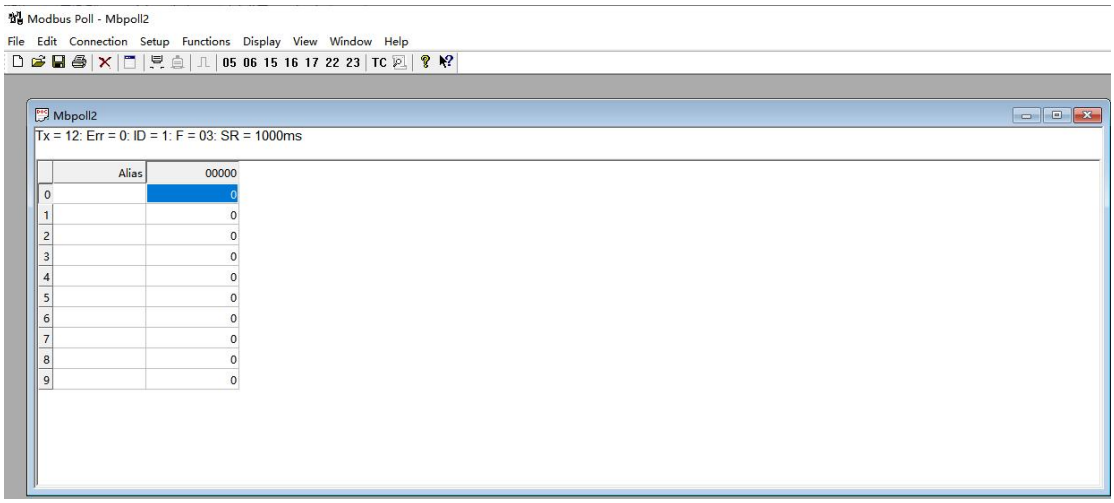


(1) Set the connection destination to Modbus TCP/IP;

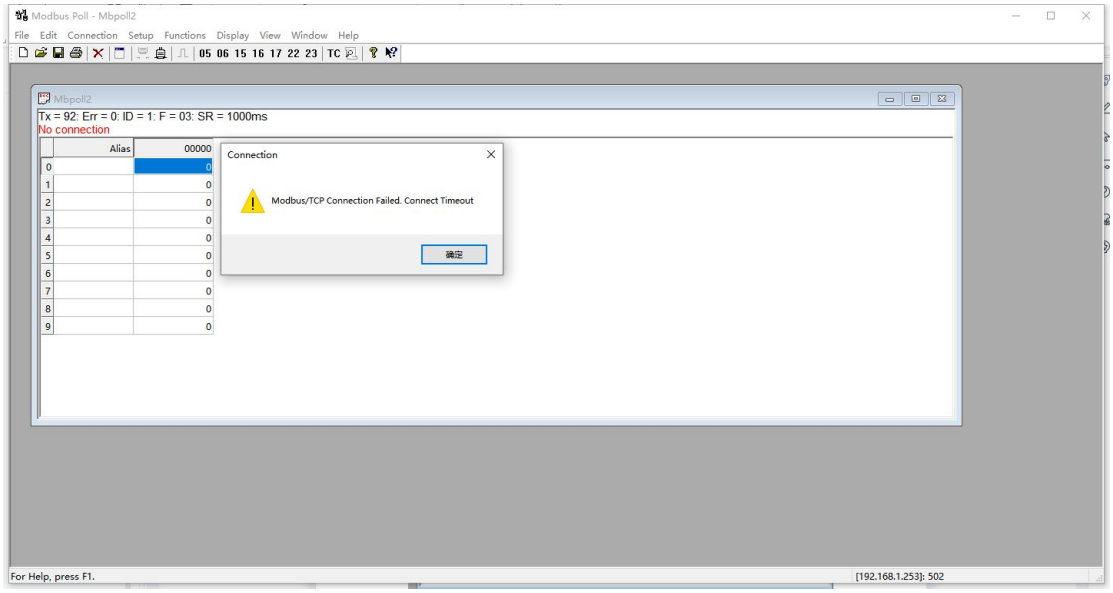
(2) Set this IP address to 192.168.1.253 according to the DIP switch value (the actual IP address of DF58-C-MD-TCP shall prevail).

(3) Server Port is set to 502.

➢ Status after successful connection.



➢ The status after connection failure.



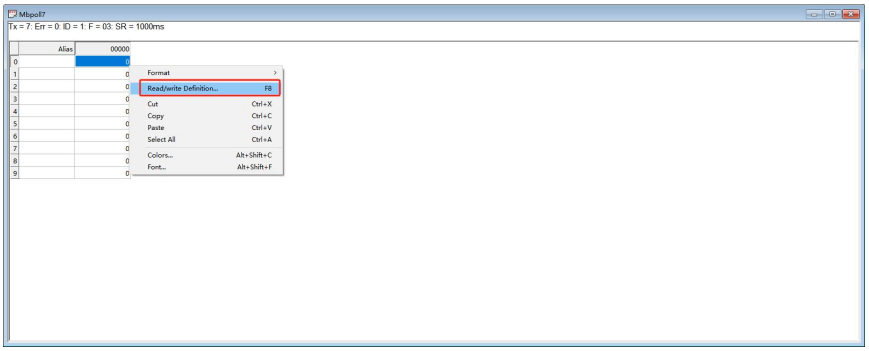
6.1.3 Use routines

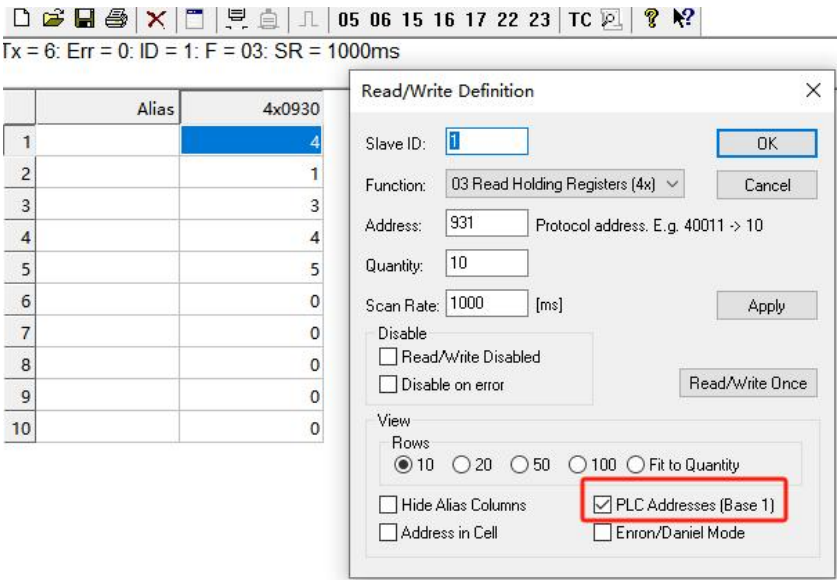
6.1.3.1 Combinations

Test combination: DF58-C-MD-TCP+DF58-M-16DI-P/N+DF58-M-16DO-P+DF58-M-4AI-UI-6

6.1.3.2 Extension module information query

After the master station is connected to DF58-C-MD-TCP, press the shortcut key F8 in the ModbusPoll software to configure the parameters. Select 03 Read Holding Registers(4x) for Function, and select PLC Addresses(Base1), otherwise the start address of ModbusPoll is 40000, and the start address of ModbusPoll is 40001



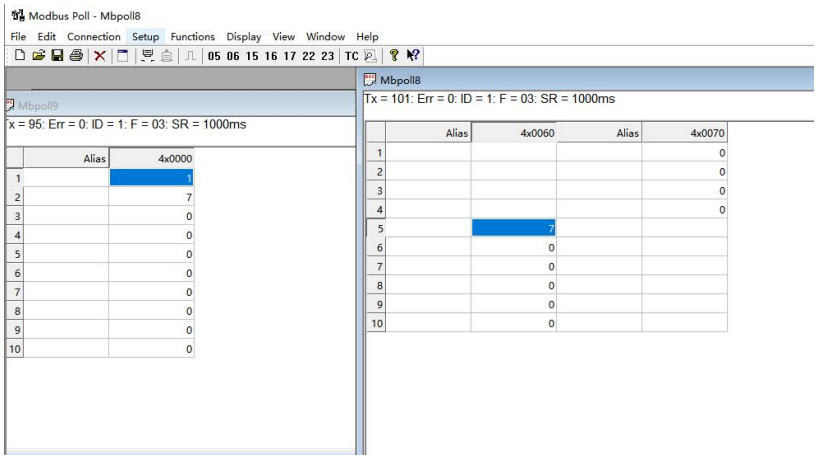


In the figure, the value of address 40931 is 4, which means that there are 4 extension module data. DF58-M-16DI-P/N (ID: 1), DF58-M-16DO-P (ID: 3), DF58-M-4AI-UI-6 (ID: 4), DF58-M-4AO-UI-6 (ID: 5);

6.1.3.3 Digital module data monitoring

Digital input area: 40001~40064;Digital output area: 40065~40128;

Channel 1 of DF58-C-MD-TCP has signal input, and channels 1~16 of DF58-M-16DI-P/N are connected with channels 1~16 of DF58-M-16DO-P through signal lines. DF58-M-16DO-P channels 1~3 output, DF58-M-16DI-P/N channels 1~3 detect the signal, as shown in the figure.



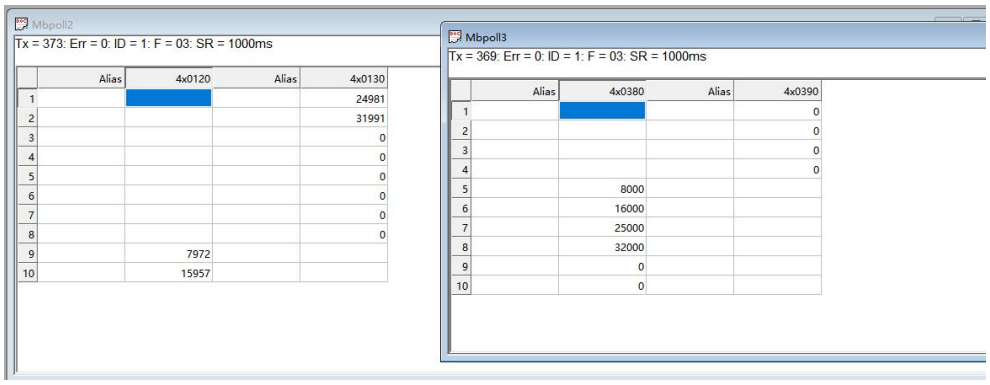
Digital input area, analog output area

The name of the module	region	Register address	Data Information	Screenshot data
DF58-C-MD-TCP	Digital input area (40001~40064)	40001	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending	1
DF58-M-16DI-P/N	Digital input area (40001~40064)	40002	Bit0~Bit15：I0.0~I1.7	7
DF58-M-16DO-P	Digital output area (40065~40128)	40065	Bit0~Bit15：Q0.0~Q1.7	7

6.1.3.4 Analog module data monitoring

Analog input area: 40129~40384;Analog output area: 40385~40640;

Pages 40129~40138 and 40385~40484 are established in the ModbusPoll software, and channels 1~4 of DF58-M-4AO-UI-6 and DF58-M-4AI-UI-6 are connected through signal lines. As shown in Fig



Analog input area, analog output area

The name of the module	region	Register address	Data Information	Screenshot data
DF58-M-4AI-UI-6	Analog input area (40129~40384)	40129	DF58-M-4AI-UI-6 channel 1 input address	7972
		40130	DF58-M-4AI-UI-6 channel 2 input address	15957
		40131	DF58-M-4AI-UI-6 channel 3 input address	24981
		40132	DF58-M-4AI-UI-6 channel 4 input address	31991
DF58-M-4AO-UI-6	Analog output area (40385~40640)	40385	DF58-M-4AO-UI-6 channel 1 output address	8000
		40386	DF58-M-4AO-UI-6 channel 2	16000

			output address	
		40387	DF58-M-4AO-UI-6 channel 3 output address	25000
		40388	DF58-M-4AO-UI-6 channel 4 output address	32000

6.1.3.5 Diagnostic information data monitoring

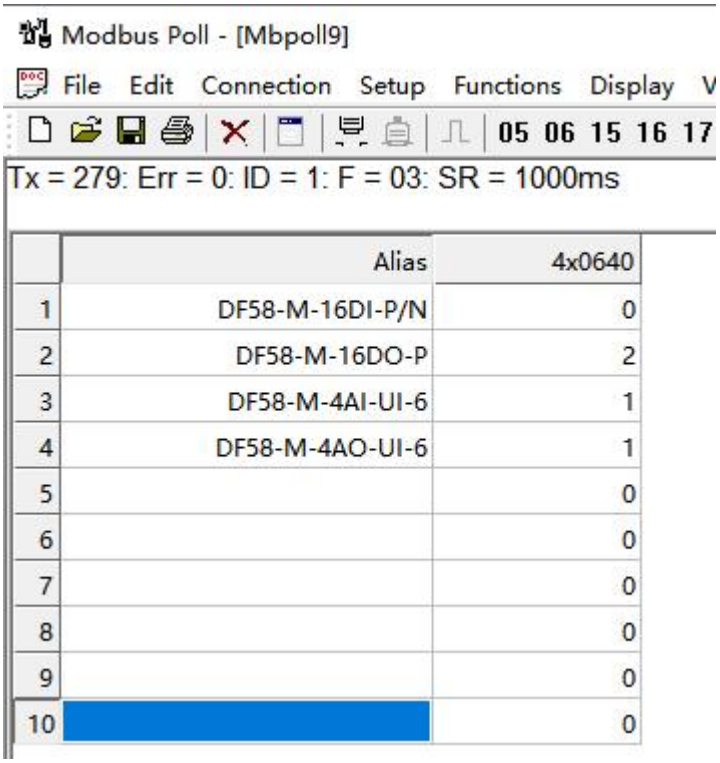
Diagnostic information area:

40641~40672;DF58-C-MD-TCP+DF58-M-16DI-P/N+DF58-M-16DO-P+DF58-M-4AI-UI-6+DF58-M-4AO-UI-6;

As shown in the image, the extension error data is 0, that is, there is no error.

	Alias	4x0640
1	DF58-M-16DI-P/N	0
2	DF58-M-16DO-P	0
3	DF58-M-4AI-UI-6	0
4	DF58-M-4AO-UI-6	0
5		0
6		0
7		0
8		0
9		0
10		0

As shown in the figure below, the DF58-M-16DO-P channel 24V is missed, then the error data is "2". If you manually unplug the DF58-M-4AI-UI-6 and DF58-M-4AO-UI-6 modules, the error data is "1", that is, the 3rd and 4th modules are missing.



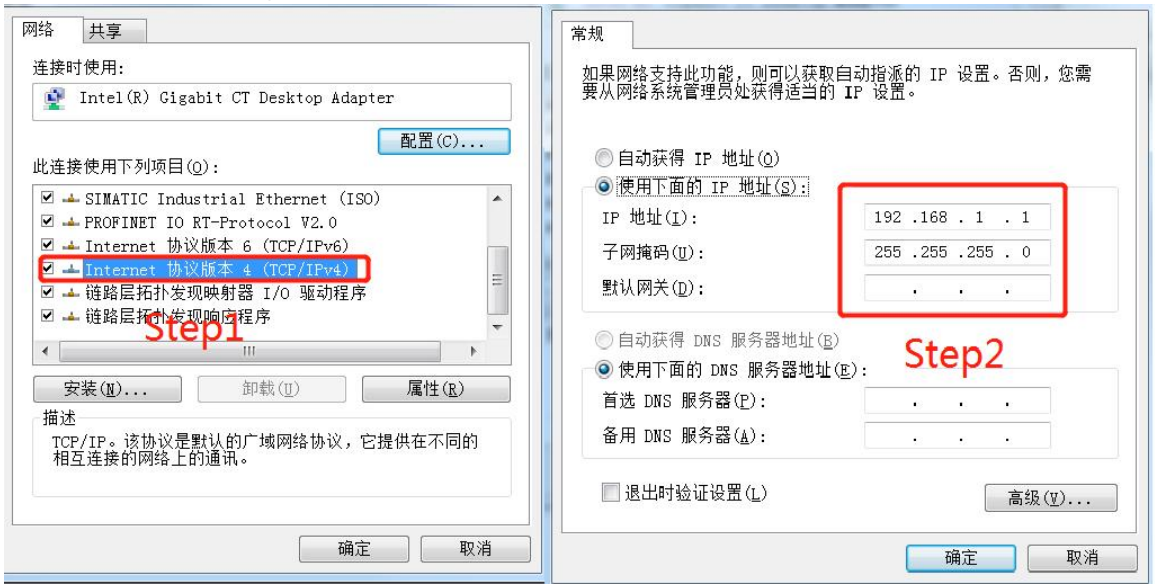
	Alias	4x0640
1	DF58-M-16DI-P/N	0
2	DF58-M-16DO-P	2
3	DF58-M-4AI-UI-6	1
4	DF58-M-4AO-UI-6	1
5		0
6		0
7		0
8		0
9		0
10		0

6.2 Smart200 S7-TCP instructions

In this example, the DF58-C-MD-TCP coupler communicates with the Siemens smart200 CPU.

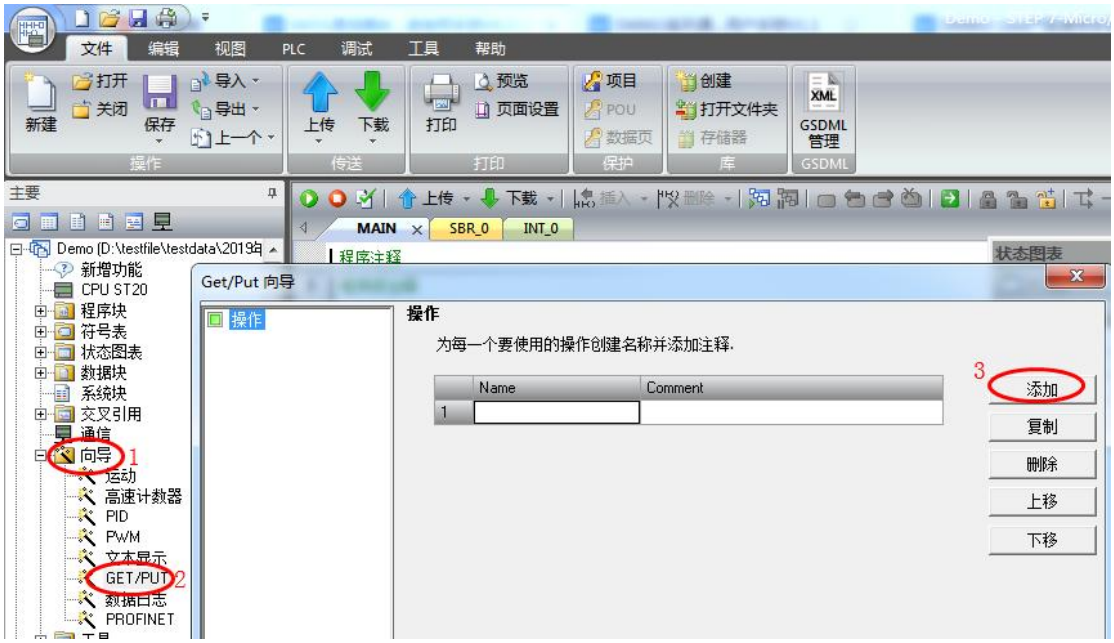
6.2.1 Set the IP address, subnet mask and gateway address information of the computer where the configuration software is located

- The IP address of the computer is 192.168.1.1, the subnet mask is 255.255.255.0, and the configuration process is shown in the figure.

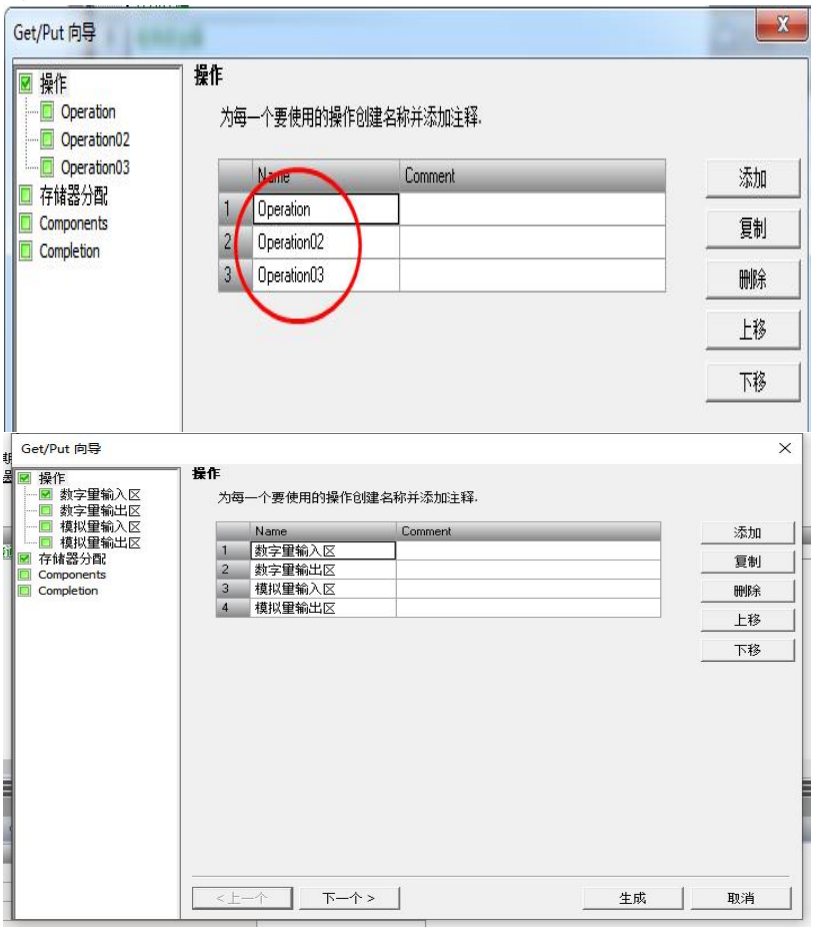


6.2.2 smart200CPU parameter configuration

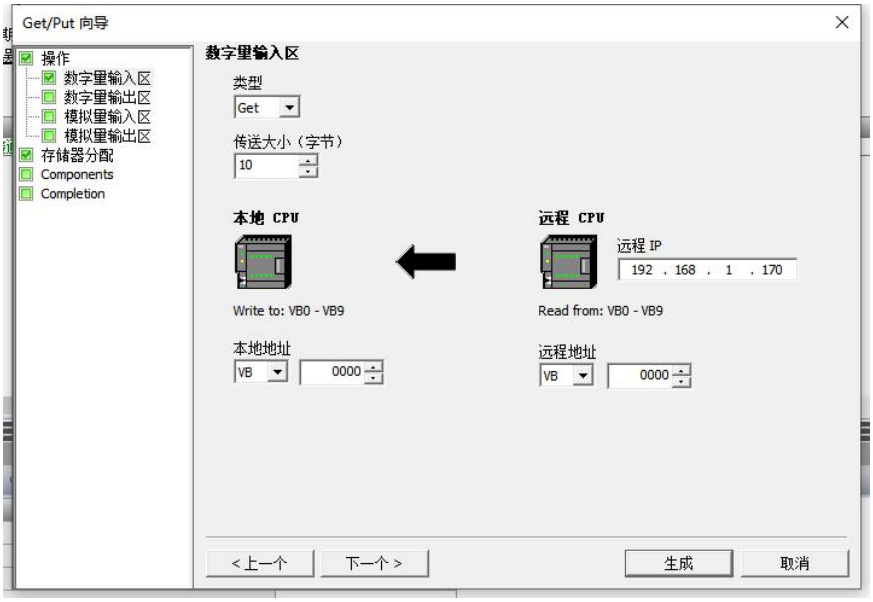
In the programming software of smart200, S7-TCP communication is carried out through the "GET/PUT" command in the wizard, as shown in the following figure:



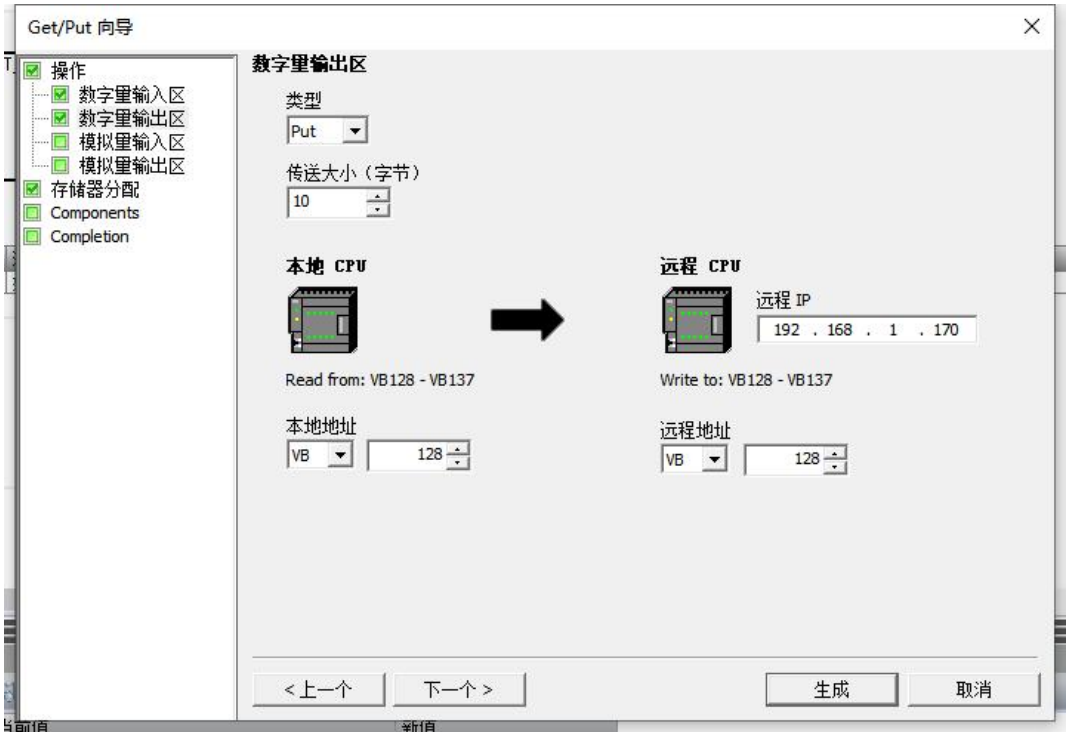
Click "Add" to add 4 operations in this example, and the names are defined by the operation habits, as shown in the following figure



Digital input area address: Select "Get" as the type, and fill in the transmission size (bytes) as required. In the remote CPU, the remote IP is written to the IP address of DF58-C-MD-TCP, and the remote address is written according to the definition, in this example, VB0 is written. The local address of the local CPU refers to the data address of the DF58-C-MD-TCP. As shown in Fig

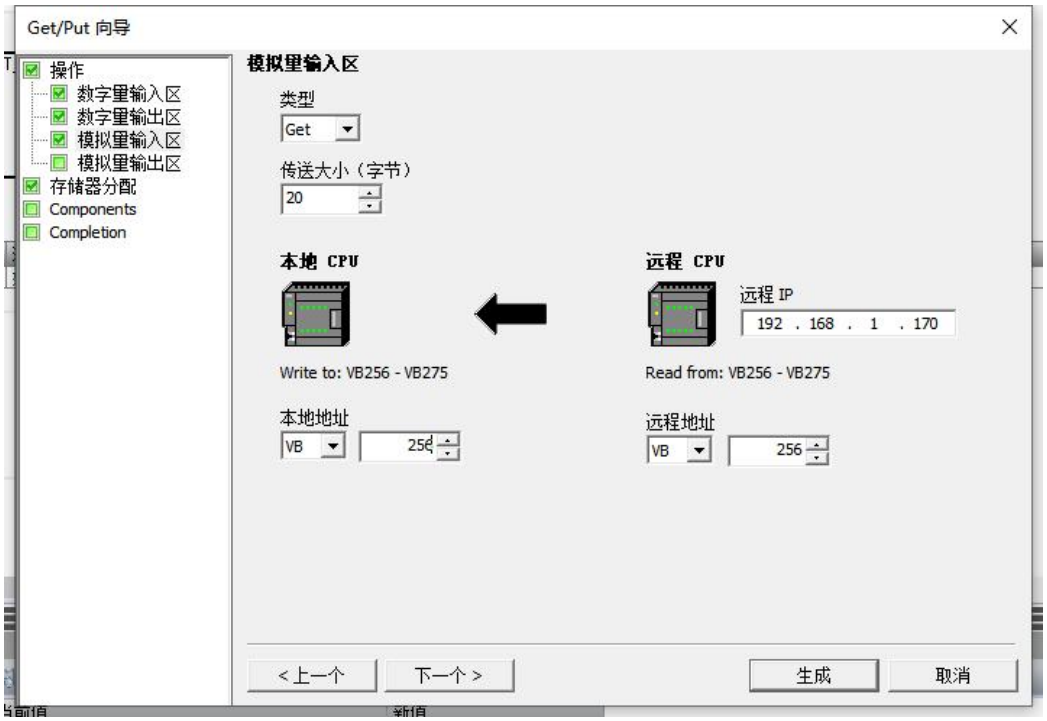


Digital output area address: Select "Put" as the type, and fill in the transmission size (bytes) as required. In the remote CPU, the remote IP is written to the IP address of DF58-C-MD-TCP, and the remote address is written according to the definition, in this example, VB128 is written. The local address of the local CPU refers to the data address of the DF58-C-MD-TCP. As shown in the figure below

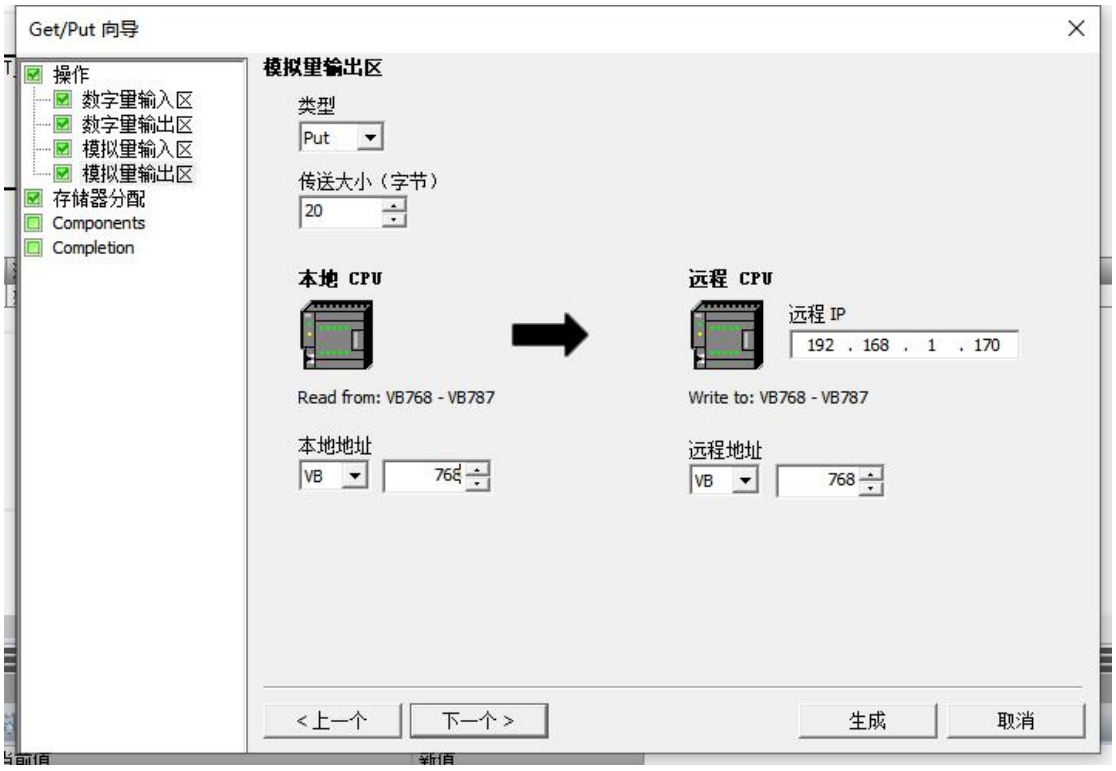


Address of the simulated input area: Select "Get" as the type, and fill in the transmission size (bytes) as required. In the remote CPU, the remote IP is written to the IP address of DF58-C-MD-TCP, and the

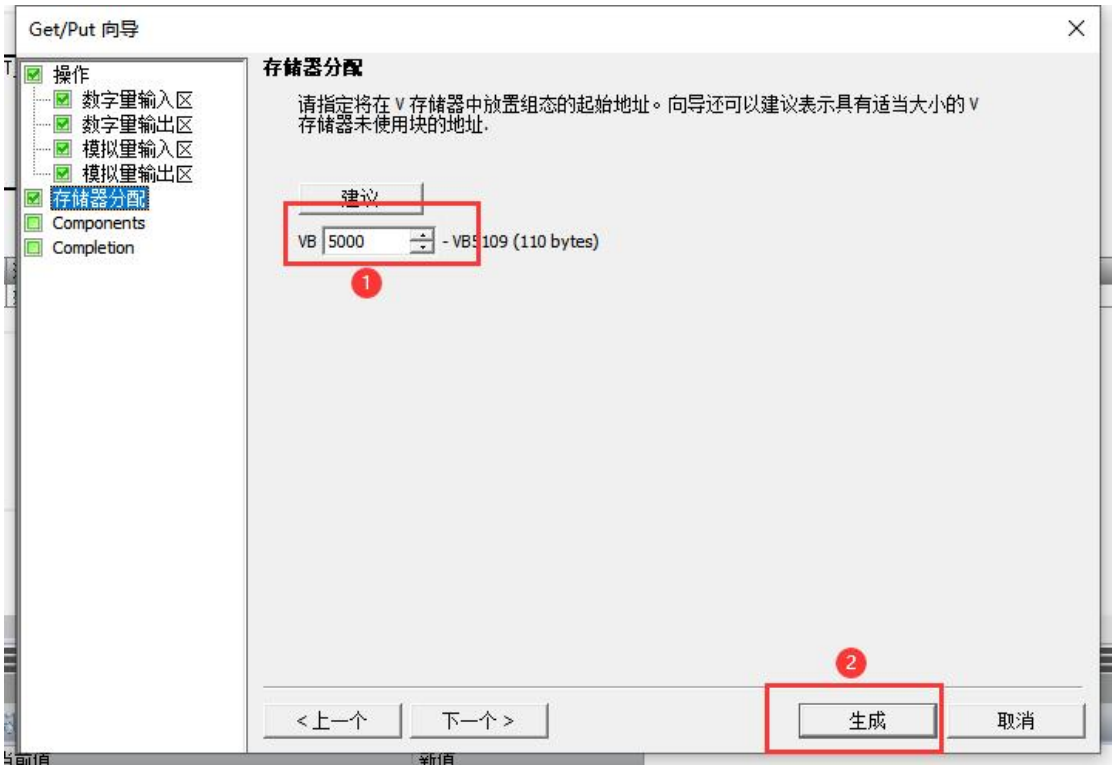
remote address is written according to the definition, in this example, VB256 is written. The local address of the local CPU refers to the data address of the DF58-C-MD-TCP. As shown in Fig



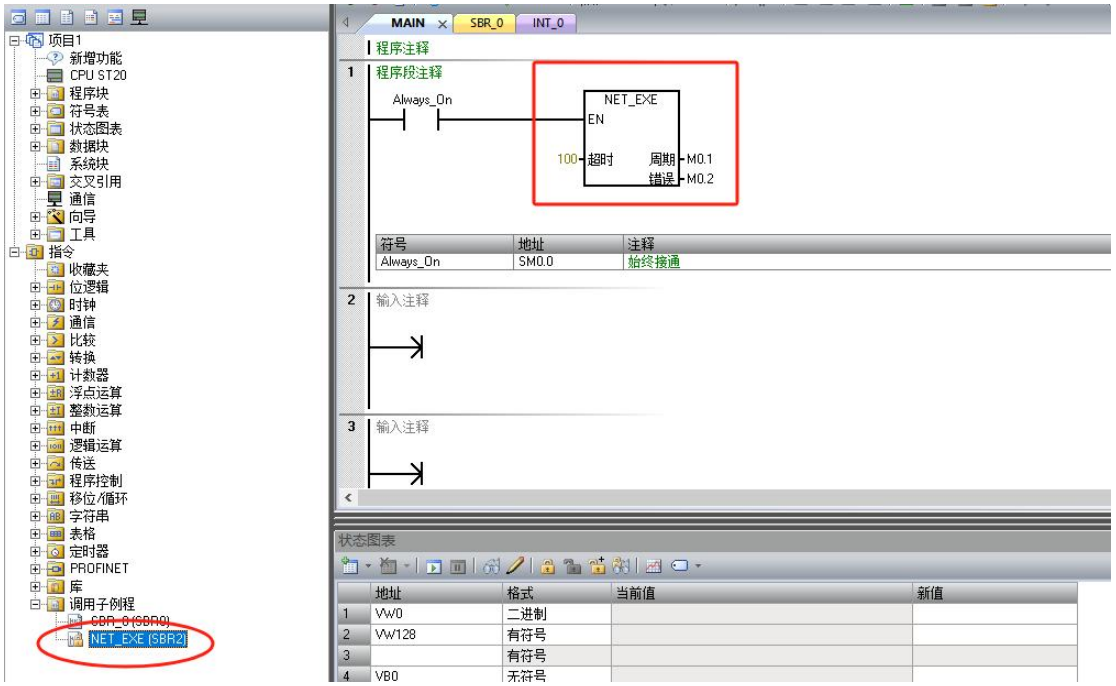
Analog output area address: Select Put as the type, and fill in the transmission size (bytes) as required. In the remote CPU, the remote IP is written to the IP address of DF58-C-MD-TCP, and the remote address is written according to the definition, in this example, VB768. The local address of the local CPU refers to the data address of the DF58-C-MD-TCP. As shown in Fig



For the storage allocation address, assign the address of the unused block, click Generate, as shown in the figure:



The generated subroutine is called during programming to realize the communication between smart200 and DF58-C-MD-TCP.



6.2.3 Data monitoring

Click the chart in the status table and write the corresponding address to the table on the address in the

status chart.

The name of the module	region	Register address	Data Information	Screenshot data	
DF58-C-MD-TCP	Digital input area (VW0~VW126)	VW0	Bit0~Bit7：I0.0~I0.7 Bit8~Bit15 pending	0	
DF58-M-16DI-P/N	Digital input area (VW0~VW126)	VW2	Bit0~Bit15：I0.0~I1.7	15	
DF58-M-16DO-P	Digital output area (VW128~VW254)	VW128	Bit0~Bit15：Q0.0~Q1.7	15	
DF58-M-4AI-UI-6	Analog input area (VW256~VW766)	VW256	DF58-M-4AI-UI-6 channel 1 input address	3177	
		VW258	DF58-M-4AI-UI-6 channel 2 input address	6382	
		VW260	DF58-M-4AI-UI-6 channel 3 input address	12788	
		VW262	DF58-M-4AI-UI-6 channel 4 input address	25594	
DF58-M-4AO-UI-6	Analog output area (VW768~VW1278)	VW768	DF58-M-4AO-UI-6 channel 1 output	3200	

			address		
		VW770	DF58-M-4AO-UI-6 channel 2 output address	6400	
		VW772	DF58-M-4AO-UI-6 channel 3 output address	12800	
		VW774	DF58-M-4AO-UI-6 channel 4 output address	25600	

7. Appendix Quick description of the module

Note: 1. The configuration words occupied by each slot are 8, but the actual number of words used refers to the specific description of the configuration parameters of each module;

2. The module configuration area is configured with 0 by default. Pay special attention to the DF58-M-4AO-UI-6 channel 1~4 default 0 configuration (output disabled), please configure the channel in the parameter configuration area, and use it after the parameter is saved and takes effect.

The name of the module	Address area	Type/Total Bytes	address	Address description
DF58-M-16DI (Module ID: 1)	Digital input area	Enter the word 1word	1word	Compatible with 16DI input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: bit0: 0: Normal 1: Bus error Bit1~Bit15: Spare
	Module configuration parameters	Configure the word 2word	1word	Channel 1~8 filter parameters: 0: No filter (default) 1: 0.25ms 2: 0.5ms 3: 1ms 4: 2ms 5: 4ms 6: 8ms 7: 16ms 8: 32ms
			2word	Channel 9~16 filtering parameters 0: No filter (default) 1: 0.25ms 2: 0.5ms

				3：1ms 4：2ms 5：4ms 6：8ms 7：16ms 8：32ms
DF58-M-16DO-N (Module ID: 2)	Digital output area	Output words 1word	1word	Compatible with 16DO output
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1： 1: Channel 24V is not connected 0: Normal Bit2： 1:1~4 channel short circuit 0: Normal Bit3： 1:5~8 channels short circuit 0: Normal Bit4： 1:9~12 channel short circuit 0: Normal Bit5： 1:13~16 channel short circuit 0: Normal Bit6~Bit15：Spare
	Module configuration parameters	Configure the word 1word	1word	When the module is abnormal, the output status is as follows: 0: Output hold 1: The output is cleared 2: The output is set to 1
DF58-M-16DO-P (Module ID: 3)	Digital output area	Output words 1word	1word	Compatible with 16DO output
	Module Diagnostic	diagnosis 1word	1word	Module Diagnostic Information: Bit0:

	Information Area			1: Bus fault 0: Normal Bit1： 1: Channel 24V is not connected 0: Normal Bit2： 1:1~8 channel short circuit 0: Normal Bit3： 1:9~16 channel short circuit 0: Normal Bit4~Bit15： Spare
	Module configuration parameters	Configure the word 1word	1word	When the module is abnormal, the output status is as follows: 0: Output hold 1: The output is cleared 2: The output is set to 1
DF58-M-4AI-UI-6 (Module ID: 4)	Analog input area	Enter the word 4word	1-4word	Compatible with 4 channels of AI analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: Reserved Bit2： 1: Overflow on channel 1 0: Normal Bit3： 1: Overflow under channel 1 0: Normal Bit4： 1: Overflow on channel 2 0: Normal Bit5： 1: Overflow under channel 2 0: Normal Bit6： 1: Overflow on channel 3

				0: Normal Bit7： 1: Overflow under channel 3 0: Normal Bit8： 1: Overflow on channel 4 0: Normal Bit9： 1: Overflow under channel 4 0: Normal Bit10~Bi0t15：Spare
	Module configuration parameters	Configure the word 5word	1word	Sampling Period: Range: 0-65535
			2word	Channel 1 Range: 0: ±10V (default) 1：0-10VDC 2：2-10VDC 3：±5VDC 4：0-5VDC 5：1-5VDC 6:-20-20mA 7:0-20ma 8:4-20ma
			3word	Channel 2 Range: 0: ±10V (default) 1：0-10VDC 2：2-10VDC 3：±5VDC 4：0-5VDC 5：1-5VDC 6:-20-20mA 7:0-20ma 8:4-20ma
			4word	Channel 3 Range: 0: ±10V (default) 1：0-10VDC 2：2-10VDC 3：±5VDC 4：0-5VDC 5：1-5VDC

				6:-20-20mA 7:0-20ma 8:4-20ma
			5word	Channel 4 Range: 0: ±10V (default) 1：0-10VDC 2：2-10VDC 3：±5VDC 4：0-5VDC 5：1-5VDC 6:-20-20mA 7:0-20ma 8:4-20ma
DF58-M-4AO-UI-6 (Module ID: 5)	Analog output area	Output words 4word	1-4word	Compatible with 4 channels of AO analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1： 1: 24V is not connected 0: Normal Bit3~Bit15：Spare
	Module configuration parameters	Configure the word 6word	1word	When the module is abnormal, the output status is as follows: 0: Maintain output 1: Cleared 2: Output the preset value
			2word	Preset values output when the module is abnormal: -32000~32000
			3word	Channel 1 Range: 0：DISABLE（default） 1：0-5VDC 2：1-5VDC 3：±5VDC 4：0-10VDC 5：2-10VDC 6:±10V

				7:0-20mA 8:4-20mA
			4word	Channel 2 Range: 0：DISABLE（ default ） 1：0-5VDC 2：1-5VDC 3：±5VDC 4：0-10VDC 5：2-10VDC 6:±10V 7:0-20mA 8:4-20mA
			5word	Channel 3 Range: 0：DISABLE （ default ） 1：0-5VDC 2：1-5VDC 3：±5VDC 4：0-10VDC 5：2-10VDC 6:±10V 7:0-20mA 8:4-20mA
			6word	Channel 4 Range: 0：DISABLE （ default ） 1：0-5VDC 2：1-5VDC 3：±5VDC 4：0-10VDC 5：2-10VDC 6:±10V 7:0-20mA 8:4-20mA
DF58-M-4RTD-PT (Module ID: 6)	Analog input area	Enter the word 4word	1-4word	Compatible with 4 channels of analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1： 1: Channel 1 is disconnected

				or exceeds the upper and lower limits 0: Normal Bit2: 1: Channel 2 is disconnected or exceeds the upper and lower limits 0: Normal Bit3: 1: Channel 3 is disconnected or exceeds the upper and lower limits 0: Normal Bit4: 1: Channel 4 is disconnected or exceeds the upper and lower limits 0: Normal Bit5~Bit15: Spare
	Module configuration parameters	Configure the word 2word	1word	Conversion Time Configuration: Range: 133---800ms
			2word	RTD Type: 0: Pt100 (default) 1: Pt200 2: Pt500 3: Pt1000 4:Ni100 5:Ni120 6:200 7:Ni500 8:Ni1000 9:Cu10 10: 40 Ω 11: 80 Ω 12: 150 Ω 13: 300 Ω 14: 500 Ω 15: 1kΩ 16: 2kΩ

				17：4kΩ
DF58-M-2CNT-PIL-24 (Module ID: 7)	Analog input area	Enter the word 10word	1word	CH1 Status: Bit0:A side input Bit1:B side input Bit2: latching the success flag Bit3: Encoder positive indication Bit4: Encoder inverted indication Bit5: 1: Overflowing on the current count value 0: After the count value is overflowed, the count value continues to exceed 5000. Bit6: 1: Overflow under the current count value 0: After the count value overflows, the count value continues down to exceed 5000. Bit7: The counter is preset successfully, and 1 is valid Bit8-bit15:Spare
			2-3word	Counter value CH1： Current Count Value (32Bit)
			4-5word	Latch value CH1： Depending on the configuration, the rising or falling edge of the TP signal latches the current count value (32 bits).
			6word	CH2 Status: Bit0:A side input Bit1:B side input Bit2: latching the success flag

				Bit3: Encoder positive indication Bit4: Encoder inverted indication Bit5: 1: Overflowing on the current count value 0: After the count value is overflowed, the count value continues to exceed 5000. Bit6: 1: Overflow under the current count value 0: After the count value overflows, the count value continues down to exceed 5000. Bit7: The counter is preset successfully, and 1 is valid Bit8-bit15:Spare
			7-8word	Counter value CH2: Current Count Value (32Bit)
			9-10word	Latch value CH2: Depending on the configuration, the rising or falling edge of the TP signal latches the current count value (32 bits).
	Analog output area	Output words 6word	1word	Counter Control CH1: Bit0: The rising edge is 0→1, and the counter preset value is set to the current counting value Bit1: clears the counter value Bit2: Clear the overflow flag on zero Bit3: Clear the overflow flag under zero BIT4:0: INVALID

				1：TP signal Rising edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then reset it to 1 (to avoid invalid abnormal latch due to interference). BIT5:0: INVALID 1：TP signal Falling edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then reset it to 1 (to avoid invalid abnormal latch due to interference). Bit6-Bit15:Spare
			2-3word	Set Counter value CH1: Spare(32Bit)
			4word	Counter Control CH2: Bit0: The rising edge is 0→1, and the counter preset value is set to the current counting value Bit1: clears the counter value Bit2: Clear the overflow flag on zero Bit3: Clear the overflow flag under zero BIT4:0: INVALID 1：TP signal Rising edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then reset it to 1 (to

				avoid invalid abnormal latch due to interference). BIT5:0: INVALID 1：TP signal Falling edge Counter value to Latch value Note that the latch is only used once, if you need to start the latch again, you need to set the parameter 0 and then reset it to 1 (to avoid invalid abnormal latch due to interference). Bit6-Bit15:保留
			5-6word	Set Counter value CH2: Spare (32Bit)
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus error 0: Normal Bit1: Reserved Bit2： 1: Channel 1 is out of phase, and the AB phase is in orthogonal counting mode. 0: normal; Bit3： 1: Channel 2 is out of phase, and the AB phase is in quadrature counting mode. 0: normal; Bit4~bit15：Spare
	Module configuration parameters	Configure the word 8word	1word	Channel 1 mode: 0：AB side onefold Frequency count 1：AB side fourfold Frequency count 2：Pulse+Dir
			2word	Channel 1 direction: 0: counts upwards 1: Count downward

			3word	Counter status when channel 1 is wrong: 0: Keeps the last value, the counter stops counting during an error such as bus failure, backplane bus failure, or AB phase loss, once it resumes normal work, the counter will continue to count from the previous value. 1: The counter continues to count during the error
			4word	Channel 1 Filtering Time: 0: None (default) 1：0.01ms 2：0.02ms 3：0.03ms 4：0.04ms 5：0.05ms 6：0.20ms 7：0.40ms 8：0.60ms 9：0.80ms 10：1.00ms
			5word	Channel 2 mode: 0：AB side onefold Frequency count 1：AB side fourfold Frequency count 2：Pulse+Dir
			6word	Channel 2 direction: 0: counts upwards 1: Count downward
			7word	Counter status when channel 2 is wrong: 0: Keeps the last value, the counter stops counting during an error such as bus failure, backplane bus

				failure, or AB phase loss, once it resumes normal work, the counter will continue to count from the previous value. 1: The counter continues to count during the error
			7word	Channel 2 Filtering Time: 0: None (default) 1：0.01ms 2：0.02ms 3：0.03ms 4：0.04ms 5：0.05ms 6：0.20ms 7：0.40ms 8：0.60ms 9：0.80ms 10：1.00ms
DF58-M-4TC (Module ID: 8)	Analog input area	Enter the word 4word	1-4word	Compatible with 4 channels of AI analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0： 1: Bus fault 0: Normal Bit1： 1: Channel 1 is disconnected or exceeds the upper and lower limits 0: Normal Bit2： 1: Channel 2 is disconnected or exceeds the upper and lower limits 0: Normal Bit3： 1: Channel 3 is disconnected or exceeds the upper and lower limits

				0: Normal Bit4： 1: Channel 4 is disconnected or exceeds the upper and lower limits 0: Normal
	Module configuration parameters	Configure the word 6word	1word	Cold Junction Compensation Enables: 0: ENABLE (default) 1： DISABLE
			2word	Cold Junction Compensation: 0: Internal (default) 1: External NTC
			3word	Interference Suppression: 0:10HZ (default) 1:50HZ 2:60HZ 3:400HZ
			4word	Disconnection Detection: 0: ENABLE (default) 1： DISABLE
			5word	Changeover time: Range： 36... 240ms
			6word	Types of Thermocouple Measurements: 0: J type (default) 1: Type K 2: Type E 3: Type T 4: S-type 5: Type R 6: Type B (not supported) 7: N-type 8: Type C (not supported yet) 9: L-type (not supported yet) 10: U-shape (not supported yet)

				11:±15.625mv 12:±31.25mv 13:±62.5mv 14:±125mv 15:±250mv 16:±500mv 17:±1000mv 18:±2000mV (not supported)
DF58-M-8TC (Module ID: 9)	Analog input area	Enter the word 8word	1-8word	Compatible with 8 channels of AI analog input
	Module Diagnostic Information Area	diagnosis 1word	1word	Module Diagnostic Information: Bit0: 1: Bus fault 0: Normal Bit1: 1: Channel 1 is disconnected or exceeds the upper and lower limits 0: Normal Bit2: 1: Channel 2 is disconnected or exceeds the upper and lower limits 0: Normal Bit3: 1: Channel 3 is disconnected or exceeds the upper and lower limits 0: Normal Bit4: 1: Channel 4 is disconnected or exceeds the upper and lower limits 0: Normal Bit5: 1: Channel 5 is disconnected or exceeds the upper and lower limits

				0: Normal Bit6： 1: Channel 6 is disconnected or exceeds the upper and lower limits 0: Normal Bit7： 1: Channel 7 is disconnected or exceeds the upper and lower limits 0: Normal Bit8： 1: Channel 8 is disconnected or exceeds the upper and lower limits 0: Normal
	Module configuration parameters	Configure the word 6word	1word	Cold Junction Compensation Enables: 0: ENABLE (default) 1： DISABLE
			2word	retain
			3word	Interference Suppression: 0:10HZ (default) 1:50HZ 2:60HZ 3:400HZ
			4word	Disconnection Detection: 0: ENABLE (default) 1： DISABLE
			5word	Changeover time: Range： 36... 240ms
			6word	Types of Thermocouple Measurements: 0: J type 1: Type K 2: Type E 3: Type T 4: S-type 5: Type R 6: Type B (not supported)

				7: N-type 8: Type C (not supported yet) 9: L-type (not supported yet) 10: U-shape (not supported yet) 11:±15.625mv 12:±31.25mv 13:±62.5mv 14:±125mv 15:±250mv 16:±500mv 17:±1000mv 18:±2000mV (not supported)