## 3.13 Communication serial port module (DF50-M-1COM-232/485/422)

- The communication serial port module supports 1 channel RS485, RS232, or RS422 (one of three options).
- Support Modbus/RTU/ASCII protocol, support master station, slave station, and free transparent working mode.
- RS485/RS232/RS422 interfaces can be used by devices that support Modbus RTU/ASCII protocols to interconnect with upper level PLCs or upper level computers

Protection level IP20.





#### 3.13.1 Specification parameters

Technical Information						
Product Description	Serial	port	module,	1	channel,	supporting

	RS232/RS485/RS422
Number of channels	1
interface	RS232/RS485/RS422
protocol	Modbus RTU/ASCII master and slave modes; Free
	Agreement Mode
Baud	1200bps—500000bps
Data bits	7bit/8bit
Check digit	None/Even/Odd/Space/Mark
Stop bit	1bit/1.5bit/2bit
Maximum data frame length	128byte
Wiring parameters	
Connection technology: input end	PUSH-IN type wiring port
line type	Input
Crimping area of wire	0.14~1.5mm <sup>2</sup> /26~16AWG
Strip length	8~10mm
Installation method	DIN-35 type guide rail
Material parameters	
Colour	Black
Housing material	PC plastic, PA66
Consistency flag	CE
Consistency flag Environmental requirements	CE
Consistency flag Environmental requirements Permissible ambient temperature	CE
Consistency flag Environmental requirements Permissible ambient temperature (during operation)	CE −25~60°C
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage)	CE −25~60°C −40~85°C
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type	CE $-25 \sim 60 ^{\circ}\text{C}$ $-40 \sim 85 ^{\circ}\text{C}$ IP20
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing)	CE $-25\sim60^{\circ}C$ $-40\sim85^{\circ}C$ IP20 2. Comply with IEC 61131-2 standard Without temperature influence: $0\sim2000m$ $5\sim95\%$ RH
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration	CE -25~60°C -40~85°C IP20 2.Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-27 standard
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-27 standard Complies with EN 61000-6-2 standard
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity EMC-Radiated Interference	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-7 standard Complies with EN 61000-6-2 standard Complies with EN 61000-6-3 standard
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity EMC-Radiated Interference Corrosion resistance	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-27 standard Complies with EN 61000-6-2 standard Complies with EN 61000-6-3 standard Complies with IEC 60068-2-42 and IEC 60068-2-43 standards
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity EMC-Radiated Interference Corrosion resistance Permissible H2S pollutant concentration at 75% relative humidity	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-27 standard Complies with EN 61000-6-2 standard Complies with EN 61000-6-3 standard Complies with EN 61000-6-3 standard Complies with IEC 60068-2-42 and IEC 60068-2-43 standards 10ppm
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity EMC-Radiated Interference Corrosion resistance Permissible H2S pollutant concentration at 75% relative humidity Permissible S02 pollutant concentration	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-77 standard Complies with EN 61000-6-2 standard Complies with EN 61000-6-3 standard Complies with EN 61000-6-3 standard Complies with IEC 60068-2-42 and IEC 60068-2-43 standards 10ppm
Consistency flag Environmental requirements Permissible ambient temperature (during operation) Permissible ambient temperature(storage) Protection type Pollution leve Working altitude Relative humidity (non condensing) Anti vibration Impact resistance EMC - Immunity EMC-Radiated Interference Corrosion resistance Permissible H2S pollutant concentration at 75% relative humidity Permissible S02 pollutant concentration at 75% relative humidity	CE -25~60°C -40~85°C IP20 2. Comply with IEC 61131-2 standard Without temperature influence:0~2000m 5~95%RH 4g, Complies with IEC 60068-2-6 standard 15g, Complies with IEC 60068-2-7 standard Complies with EN 61000-6-2 standard Complies with EN 61000-6-3 standard Complies with EN 61000-6-3 standard Complies with IEC 60068-2-42 and IEC 60068-2-43 standards 10ppm 25ppm

## 3.13.2 Hardware interface

3.13.2.1 Definition of wiring port



Serial Number	Signal	Serial Number	Signal	Explanatory note
A1	485/422 TA+	B2	485/422 TB-	RS485
A2	422 R+	B3	422 R-	RS422
A3	GND	B4	GND	CND
A4	GND	В5	GND	GND
A5	24Vo	В6	GND	24V load power supply
A6	5Vo	B7	GND	5V load power supply
A7	232CTS	B8	232RTS	RS232
A8	232RXD	В9	232TXD	RS232
A9	24V	B2	OV	24V input power supply

# 3.13.2.2 Definition of LED indicator lights



LED indicator light	Explanatory note		
DW.	Internal bus power supply is normal		
PW	Abnormal internal bus power supply		
	Power on stage: green light on: module initialization abnormal, green		
CT.	light off: module initialization normal		
51	Operation phase: green light flashing: module internal bus working		
	normally, green light off: module internal bus working abnormally		
COM	Green light on: input signal valid		
COM	Green light off: invalid input signal		
мст	Green light on: input signal valid		
MS I	Green light off: invalid input signal		
CL V	Green light on: input signal valid		
SLV	Green light off: invalid input signal		
000	In 232 mode, the light remains on: normal		
232	In 232 mode, the light remains off: abnormal		
495	In 485 mode, the light remains on: normal		
485	In 485 mode, the light remains off: abnormal		
400	In 422 mode, the light remains on: normal		
422	Under 422 mode, the light remains off: abnormal		
TC	Green light flashing: communication transmission is normal		
15	Green light off: abnormal communication transmission		
DV	Green light flashing: communication reception is normal		
КЛ	Green light off: abnormal communication reception		
	Green light on: module external interface power supply is normal		
EP	Green light off: Abnormal power supply to the external interface of		
	the module		

#### 3.13.2.3 Wiring diagram



Note: A9 and B9 are external power input interfaces

## 3.13.3 Parameter Configuration Table

- 1. New construction project, installation of GSDML-V2.42-DF50-C-PN-RT file;
- 2. Add PLC equipment and DF50-C-PN-RT equipment to the project;

3. Connect the PLC to the DF50-C-PN-RT device



4. Enter the DF50-C-PN-RT device view and add a serial module sub slot;



on it, the serial port module DF50-M-1COM-232/485/422 will be displayed. Double click to add it to the slot/slot of the DF50-C-PN-RT device on the left. DF50-C-PN-RT defaults to two slots/slots, with the first being SystemDiagnostic\_ 1 diagnostic information, the second is AdapterDigitalInput\_ The coupler comes with 8 DI inputs, and the serial module occupies the third slot/slot, and automatically adds a sub slot/sub slot Modbus

(1) From the Module module list, locate the CM gateway module column. After clicking

2 The sub slot Modbus Interface Module is used for interface configuration and can

Interface Module;

select different protocol modes, hardware interfaces, and serial communication formats.

IntervalTime is only valid under Free Protocol and Modbus RTU Slave, while SlaveAddr

is only valid under Modbus RTU Slave.

Module	Parameter Meaning		Initial
parameters			value
OperationMode	0:Free Protocol		0:Free
	1:Modbus RTU Master	2:Modbus RTU Slave	
Interfance	0:RS232 Flow OFF	1:RS232 Flow ON	2:RS485
	2:RS485	3:RS422	
Parity	0:None	1:0dd	0:None
	2:Even		
Data bits	0:8bits		0:8bits
	1:7bits		
Stop bit	0:1Bit		0:1Bit
	1:2Bits		
Baudrate	2400bps-256000bps		11:115200
IntervalTime	Free: The interval tim	ie between two data	0:0ms
	frames, in millisecond	S	
	Modbus RTU Slave: Slav	e Response Master	
	Delay		
Slave addr	The address of the mod	ule is valid in	1
	Modbus RTU Slave mode,	but not in other	
	modes.		

Interface Module configuration parameter table:

③Select the applicable sub slots in the second step based on the selected

operation mode, OperationMode

OperationMode	Corresponding sub slot
---------------	------------------------

0:Free Protocol	2 seed slots starting with F
1:Modbus RTU Master	7 seed slots starting with M
2:Modbus RTU Slave	7 seed slots starting with S

🕶 🛅 Submodules
🕶 🛅 DF50-M-1COM-232/485/422 Submodule
F: Control&Status Modules
F: IO Data Modules
• Imagnostic Modules
• Image M: Read Coils (0xxxx)
• Image: March
M: Read Holding Registers (4xxxx)
• Image: March
M: Write Coils (0xxxx)
• Image: Marce Holding Registers (4xxxx)
S: Diagnostic Modules
S: Read Coils (0xxxx)
S: Read Holding Registers (4xxxx)
S: Write Coils (0xxxx)
S: Write Discrete Inputs (1xxxx)
S: Write Holding Registers (4xxxx)
S: Write Input Registers (3xxxx)

Free Protocol mode

Add the corresponding sub slot in free transparent mode to the left list, where the F: Control Status Module sub slot is fixed to the second sub slot, the F: Free-Port Input sub slot is fixed to the third sub slot, and the F: Free-Port Input sub slot is fixed to the fourth sub slot.

F: The Control Status Module sub slot has a module parameter that defaults to Normal. Other functions are not currently available in this version.

项目2 > 未分组的设备 > DF50-C-PN-RT [DF50-C-PN-RT]	_ ₽ ≡ ×	( 硬件目:	录 🛛 🗋 🔍 🕨
	🛃 拓扑视图 🛛 🚠 网络视图 🔄 📑 设备视图	选项	
🔐 DF50-C-PN-RT [DF50-C-PN-RT] 💌 🔡 🛃 🖽 🛄 🍳 生	□ 设备概览		
	▲ ↓ 模块	▼ 目录	
×.	DF50-C-PN-RT	、 <搜索>	100 40
(2 <sup>NN</sup> )	► PN-IO	🖂 试塘	▶書文件 <全部> ▼ ■
450 <sup>ct</sup>	SystemDiagnostic_1		DEED M1COM 222/485/422 Submodule
Q.	AdapterDigitalInput_1		The Control of Control
	DF50-M-1COM-232/485/422_1		E: Control Status Modules
	<ul> <li>Modbus Interface Module</li> </ul>		F: Control Status Module
	F: Control Status Module	1	E: Free Part Input 0001 Puter
8 <sup>*</sup> ******	F: Free-Port Input 0064 Bytes		E: Free-Port Input 0007 Bytes
	F: Free-Port Output 0064 Bytes		E: Free-Port Input 0004 Bytes
		N	E: Free-Port Input 0008 Bytes
			E: Free-Port Input 0016 Bytes
			E: Free-Port Input 0032 Bytes
			E: Free-Port Input 0064 Bytes
			E: Free-Port Input 0128 Bytes
			E: Free-Port Output 0001 Bytes
× 100%			E: Free-Port Output 0002 Bytes
F: Control Status Module [F: Control Status Module]	3. 属性 3. 信息 3. 诊断 5.		F: Free-Port Output 0004 Bytes
常規 10 变量 系统常数 文本			F: Free-Port Output 0008 Bytes
✓ 堂抑			F: Free-Port Output 0016 Bytes
日录信息 模块参数		- \	F: Free-Port Output 0032 Bytes
描述参数 Module Config Parameters			F: Free-Port Output 0064 Bytes
I/O thit			F: Free-Port Output 0128 Bytes
Communication Mode:	Normal		M: Diagnostic Modules
communication mode.		→ [	M: Read Coils (0xxxx)

F: The data structure of the Control Status Module sub slot is as follows:

		output data				
Byte offset	name	length	meaning			
Byte:0-1	CtrlWord	2byte	Control word			
Byte:2	TxDataLEN	1byte	Sending data length			
Byte:3	TxDataCNT	1byte	Send data sequence number			
	data in					
字节序号	名称	长度	meaning			
Byte:0-1	StateWord	2byte	Status Word			
Byte:2	RxDataLEN	1byte	Received data length			
Byte:3	RxDataCNT	1byte	Receive data sequence number			
Byte:4-11	/	8byte	hold			

其中CtrlWord和State组成控制状态机,CtrlWord包含以下命令:

Command value	Command Name	meaning
16#00A1	CONFIGUREPORT	Configuration command (PN
		bus does not require
		operation)
16#00C1	WRITECUSTOM	Free mode write data
		command
16#00C2	READCUSTOM	Free mode data reading
		command

Note: After each power on configuration of the coupler, it will automatically send the

CONFIGUREPORT command to configure the serial port module. After successful

configuration, the serial port module will enter the READCUSTOM state and feedback that

the State Word state is 16 # 0003.

## StateWord包含以下状态:

Normal state value	Status Name	meaning
16#0000	OP_SUCCESS	Configuration or
		write operation
		successful
16#0001	DATA_FULL	The data has been
		updated and is
		readable
16#0002	WRITE_IDLE	Write free, writable
16#0003	DATA_EMPTY	Read idle, receive
		data not updated
Error status value	Status Name	meaning
16#EOA1	WRITE_BUSY	Busy writing, unable
		to write
16#E0A2	DATA_LARGE	Data length exceeds
		the limit
16#E0A3	CMD_ERR	command error
16#E0A4	PARA_ERR	Configuration
		parameter error
16#E0A5	CHECK_ERR	Verification error
16#E0A6	SLAVE_NOEXIT	Slave device does not
		exist
16#E0A7	PACK_LOSS	Packet loss
16#E0A8	OVER_FLOW	data overflow

F: Free Port Input 0064 Bytes is the input data, totaling 64 Bytes;

F: Free Port Output 0064 Bytes is the output data, totaling 64 Bytes;

## Free Protocol Use Cases:

The following will take reading pressure sensor data as an example to demonstrate

the operating principle using pseudo code (ST language):

Variable declaration area:

TxDataCNT\_Last :UINT:=65535;

RxDataCNT\_Last :UINT:=65535;

RxByte\_ARR:ARRAY[0..64] OF BYTE;

Program area:

IF RxDataCNT\_Last<>RxDataCNT THEN

RxByte\_ARR[0-17] := Free-Port Input[0-17];

CtrlWord:=16#00C1;

TxDataCNT:=TxDataCNT+1;

TxDataLEN:=4;

Free-Port Output[0-3] := "ST/r/n";

RxDataCNT\_Last:=RxDataCNT;

END\_IF

IF StateWord=0 THEN

CtrlWord:=16#00C2;

### END\_IF

Free Protocol Botu Test:

Botu monitoring table test: Connect the module to a 485 to USB device and use a

serial port assistant to send and receive data.

Receiving data test: After the module is configured to run freely, it will

automatically enter the receiving mode. The serial port assistant will be used to send

64 bytes of data, and the received data, data length, serial number, and status

information can be read in the variable monitoring table.

─发送谈 ○ AS	2置 CII ⑧ HEX						
自	动计数	通用快捷					
🗌 追	加新行	04 02 02 04 05	06 07 00 00 44	04 02 02 04 0	- 06 07 00 00	40.04.00	
□重	复发送	01 02 03 04 05	00 0/ 08 09 10	0 01 02 03 04 0	7 00 07 08 09	10 01 02	42.54
间隔:	20 🖨 MS	05 06 07 08 09	10 01 02 03 04	05 06 07 08 0	9 10 01 02 03	62 63 64 64	友达
	清除发送						→ 载入 编辑
	70100000						
COM4:	115200, 8, None,	, 1	重置计数 본 RX: 89	frames TX: 4660785	;frames 收发比: 0	%	64字节已发送 .::
175 🖂 🗅		anaa a oxii 🔪 iikiikk		±			
坝日2	▶ PLC_1 [CPU	1511-1 PN] > 温拴-	与強制表 / 置控:	衣_1			
s e	; 11 <sup>23</sup> 117 10 2	91 % 🐉 🚏 ท					
i	名称	地址	显示格式	监视值	修改值	9	注释
1		%QW2	十六进制	16#0000	16#0000	🗹 🔺	控制字
2		%QB4	十六进制	16#40	16#40	A 1	发送数据字节长度
з		%QB5	十六进制	16#01	16#01	🗹 🚹	发送数据序列号
4							
5		%QB6	十六进制	16#67	16#67	A 1	发送数据 Byte 1
6		%QB7	十六进制	16#89	16#89	A 1	发送数据 Byte 2
7		%QB69	十六进制	16#69	16#69	🗹 🔺	发送数据 Byte 64
8							
9		%IW3	十六进制	16#0003			状态字
10		%IB5	十六进制	16#40			接收数据字节长度
11		%IB6	十六进制	16#01			接收数据序列号
12							
13		%IB15	十六进制	16#01			接收数据 Byte 1
14		%IB16	十六进制	16#02			接收数据 Byte 2
15		%IB78	十六进制	16#64			接收数据 Byte 64
16		<新増>					

Sending data test: Set the control word to 16 # 00C1, the sending data length to

64 bytes, and the sending sequence number to 1. Assign the sending data Byte0,1 and

Byte64 values respectively, and then execute the write action together. Use the serial

port assistant to read the received 64Byte data, as shown in the following figure: (To

1	•	• 1	1	1	1 ,	. 1	1 •		1 \
send	again	simply	Loon	and	accumulate	the	sending	Sequence	number)
Sona	ugum,	Simply	100b	anu	accunatate	UIIC	Schuthe	Sequence	number /

_	i	名称	地址	显示格式	监视值	修改值	9	注释
1			%QW2	十六进制 📃 💌	16#00C1	16#00C1	🗹 🔺	控制字
2			%QB4	十六进制	16#40	16#40	A	发送数据字节长度
3			%QB5	十六进制	16#01	16#01	🗹 🔺	发送数据序列号
4								
5			%QB6	十六进制	16#67	16#67	M 🖌	发送数据 Byte 1
6			%QB7	十六进制	16#89	16#89	🗹 🔺	发送数据 Byte 2
7			%QB69	十六进制	16#69	16#69	A 1	发送数据 Byte 64
8 9	0-	ComTool V2.1.0						– 🗆 🗙
10	文 📄	件(E) 🔀 工具(I)	🥑 帮助( <u>H</u> ) 🛛 🦿	捐赠( <u>D</u> )			O-Co	mTool开源啦 欢迎Star
11	一串口ì	2置	67 89 00 00 00	00 00 00 00 00	00 00 00 00	00 00 00 00 00	00 00 0	00 00 00 00 00
12	端口号	a: COM4 $\lor$	00 00 00 00 00 00 00 00 00 00	00 00 00 00 00	00 00 00 00 00	00 00 00 00 00	00 00 0	00 00 00 00 00
13				00 00 00 00 00	00 05			

4.2 Modbus RTU Master Mode

① Firstly, set the operating mode OperationMode to Modbus RTU Master mode:



② Add the diagnostic module M: Error Code Input (28 CH) to the second sub slot, which contains diagnostic information for the subsequent maximum of 28 sub slots, with each sub slot accounting for 2 Bytes of diagnostic information;

③ From the six function codes starting with M, select the one you want to add to the third sub slot. If you need to read and write more data, you can continuously add different sub slot types, up to 28, plus the first interface sub slot and diagnostic sub slot, for a total of 30 sub slots. Right click on the properties of the third sub slot to configure protocol information.

模块参数							
Module Config Parameters							
Module Config Parameters							
Slave ID:	1						
Fuction Code:	03 Read Holding Registers (4x)						
Start Address:	0						
Data Length:	16						
Poll Time(ms):	500						
Event Trigger:	Poll Mode						
Response Timeout(ms):	1000						
Poll Delay(ms):	0						
Lost Action:	Hold Data						
模块故障							
措计和45/060-16/14公》。(在,	通过"保持上一个值"设置。无法检评						
1关;大议中华时间引用1八1直:	−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−						

## Data definition:

模	块	 机架	插槽	Ⅰ地址	<mark>Q</mark> 地址	类型
•	DF50-C-PN-RT	0	0			DF50-C-PN-RT
	PN-IO	0	0 X1			DF50-C-PN-RT
	SystemDiagnostic_1	0	1	01	01	SystemDiagnostic
	AdapterDigitalInput_1	0	2	2		AdapterDigitalInput
•	DF50-M-1COM-232/485/422_1	0	3			DF50-M-1COM-232/485/4
	Modbus Interface Module	0	3.1			Modbus Interface Module
	M: Error Code Input(28 CH)	0	3 CMD	358		M: Error Code Input(28 CH)
	M: Read 16 Words 4xxxx	0	3 CMD	5990		M: Read 16 Words 4xxxx
	M: Write 02 Words 4xxxx	0	3 CMD		25	M: Write 02 Words 4xxxx

M: Error Code Input (28 CH) contains 28 word data, corresponding to the diagnostic information of 28 slave slots. The PLC program can clearly understand the current status of the slave station by monitoring the diagnostic information, which

Normal state value	Status Name	meaning
16#0000	OP_SUCCESS	Configuration or
		write operation
		successful
16#0001	DATA_FULL	The data has been
		updated and is
		readable
16#0002	WRITE_IDLE	Write free, writable
16#0003	DATA_EMPTY	Read idle, receive
		data not updated
Error status value	Status Name	meaning
16#E0A1	WRITE_BUSY	Busy writing, unable
		to write
16#E0A2	DATA_LARGE	Data length exceeds
		the limit
16#E0A3	CMD_ERR	command error
16#E0A4	PARA_ERR	Configuration
		parameter error
16#E0A5	CHECK_ERR	erification error
16#E0A6	SLAVE_NOEXIT	Slave device does not
		exist
16#E0A7	PACK_LOSS	Packet loss
16#E0A8	OVER_FLOW	OVERFLOW

includes the following content:

M: Read 16 Words 4xxxx contains 16 word data, which represents the slave station with node address 1 and register values with addresses 0-15 based on configuration information;

M: Write O2 Words 4xxxx contains 2 word data. According to the configuration information, this data will be written to the slave station with node address 1 and registers with addresses 4000 and 4001;

模块参数	
Module Config Parameters	
Slave ID:	1
Fuction Code:	16 Write Multiple Registers (4x)
Start Address:	4000
Data Length:	2
Poll Time(ms):	500
Event Trigger:	Poll Mode
Response Timeout(ms):	1000
Poll Delay(ms):	0
Lost Action:	Hold Data

Modbus RTU Master Use Cases:

Add sub slots as follows, and pay attention to configuring node addresses,

registers, cycles, etc. for each sub slot.

<ul> <li>DF50-M-1COM-232/485/422_1</li> </ul>	0	3			DF50-M-1COM-232/485/422
Modbus Interface Module	0	31			Modbus Interface Module
M: Error Code Input(28 CH)	0	3 CMD	358		M: Error Code Input(28 CH)
M: Read 008 Bits 0xxxx	0	3 CMD	59		M: Read 008 Bits 0xxxx
M: Read 008 Bits 1xxxx	0	3 CMD	60		M: Read 008 Bits 1xxxx
M: Read 02 Words 4xxxx	0	3 CMD	6164		M: Read 02 Words 4xxxx
M: Read 02 Words 3xxxx	0	3 CMD	6568		M: Read 02 Words 3xxx
M: Write 008 Bits 0xxxx	0	3 CMD		2	M: Write 008 Bits 0xxxx
M: Write 01 Words 4xxxx	0	3 CMD		34	M: Write 01 Words 4xxx

Create a new variable table to send and receive data:

77. The second for										
项目Z > PLC_1 [CF	/U 1511-1 PN] ▶ <u>温</u> 招	2 与强制表 Mo	dbus RIU Master							
2 2 <i>12 19</i> 10	₽ ₽ £ ₽ ₽ ₽ 9, 8, 87 9° 9°									
<b>i</b> 名称	地址	显示格式	监视值	修改值	9	注释				
1	%IW3	十六进制	16#0001			子槽3 Read 008 Bits 0xxxx的状态字				
2	%IW5	十六进制	16#0001			子槽4 Read 008 Bits 1xxxx的状态字				
3	%IW7	十六进制	16#0001			子槽5 Read 02 Words 4xxx的状态字				
4	%IW9	十六进制	16#0001			子槽6 Read 02 Words 3xxx的状态字				
5	%IW1 1	十六进制	16#0000			子槽7 Write 008 Bits 0xxx的状态字				
6	%IW13	十六进制	16#0000			子槽8 Write 01 Words 4xxxx的状态字				
7										
8	%IB59	十六进制	16#81			子槽3 Read 008 Bits 0xxxx的线圈输入数据				
9										
10	%IB60	十六进制	16#11			子槽4 Read 008 Bits 1xxx的离散里输入数据				
11										
12	%IW61	十六进制	16#1234			子槽5 Read 02 Words 4xxxx的保持寄存器输入数据1				
13	%IW63	十六进制	16#5678			子槽5 Read 02 Words 4xxxx的保持寄存器输入数据2				
14										
15	%IW65	十六进制	16#2345			子槽6 Read 02 Words 3xxx的输入寄存器输入数据1				
16	%IW67	十六进制	16#6789			子槽6 Read 02 Words 3xxx的输入寄存器输入数据2				
17										
18	%QB2	十六进制	16#FF	16#FF	🛛 🗹 📥	子槽7 Write 008 Bits 0xxx的线圈写入数据				
19										
20	%QW3	十六进制	16#4321	16#4321	🛛 🗹 📥	子槽8 Write 01 Words 4xxxx的保持寄存器写入数据				

Using Modbus Slave software, create 6 slave stations to communicate with the module, and obtain the status of each slave station through  $IW3^{\sim}IW14$ . The current

display is normal, and the communication data message and timestamp are shown in the

following figure:

📲 Modbus Slave - Mbslave6 - 🗆 🗙	Communication Traffic	×
<u>File Edit Connection Setup D</u> isplay <u>V</u> iew <u>W</u> indow <u>H</u> elp	Exit Continue Clear Save Copy L	og 🗹 Tir
D 🚅 🖬 🎒 🛅 🖳 🚊 💡 😢	Rx:002904- <mark>16:08:19.621</mark> -01 01 00 00 00 08 3D CC	^
	Tx:002905-16:08:19.624-01 01 01 81 91 E8	
Mbslave1	Rx:002906-16:08:19.888-02 02 00 00 00 08 79 FF	
D Moslave2	Tx:002907-16:08:19.891-02 02 01 11 61 C0	
	Rx:002908-16:08:19.936-03 03 00 00 00 02 C5 E9	
Mbslave3	TX:002909-16:08:19.938-03 03 04 12 34 56 /8 A2 C/	
D 📴 Mbslave4	my.002911-16:08:19.983-04 04 00 00 00 02 71 9E	
	Px:002912-16:08:20 031-05 0F 00 00 08 01 FF BF	26
	Tx:002913-16:08:20.034-05 0F 00 00 00 08 55 89	20
2 1 D 💬 Mbslave6	Rx:002914-16:08:20.079-06 10 00 00 00 01 02 43 21	71 48
$D = 6^{\circ} F = 03$	Tx:002915-16:08:20.082-06 10 00 00 00 01 00 7E	
	Rx:002916-16:08:20.126-01 01 00 00 00 08 3D CC	
	Tx:002917-16:08:20.129-01 01 01 81 91 E8	
5 4 2 Name 00000	Rx:002918-16:08:20.380-02 02 00 00 00 08 79 FF	
6 <u>- 2 1</u> 0 0x4321	Tx:002919-16:08:20.383-02 02 01 11 61 C0	
	Rx:002920-16:08:20.426-03 03 00 00 00 02 C5 E9	
	Tx:002921-16:08:20.429-03 03 04 12 34 56 78 A2 C7	
8 7 6 5 2	Rx:002922-16:08:20.473-04 04 00 00 00 02 71 9E	
	Tx:002923-16:08:20.476-04 04 04 23 45 67 89 5F 43	
	Rx:002924-16:08:20.521-05 OF 00 00 00 08 01 FF BF	26
8 7 6 5	Tx:002925-16:08:20.523-05 0F 00 00 00 08 55 89	
	RX:002926-16:08:20.56/-06 10 00 00 00 01 02 43 21	/1 48
For Help, press F1. Port 4: 115200-8-N-1	TX:002927-16:08:20.370-06 10 00 00 00 01 00 /E	~

Mbslave6 的 The red box indicates that the holding register value of Mbslave6 corresponds to the writing of sub slot 8, and the data of 16 # 4321 is correct;

The yellow box represents the polling time of Mbslavel, corresponding to the reading cycle of the coil value in sub slot 3. The sub slot is configured with a 500ms polling cycle, and the actual test is 20.126s -19.621s=505ms, which is consistent with the configuration.

4.3 Modbus RTU Slave mode

(1) Firstly, set the operation mode OperationMode to Modbus RTU Slave mode, set the Slave response Master delay time IntervalTime (which can be 0), and finally set the node address of the Slave.



② Add the diagnostic module S: Modbus Status Input (1 Word) to the second sub slot, which contains the diagnostic information of the SLAVE slave station.

③ From the six types starting with S, select the one you want to add to the third sub slot. If you need to read and write more data, you can continuously add different sub slot types, up to 28, plus the first interface sub slot and diagnostic sub slot, for a total of 30 sub slots. Right click on the properties of the third sub slot to configure protocol information. Both read and write can set the first address of the register. Input data to set whether the data will be reset or held after a module failure:

模块参数	
Module Config Parameters	
Module Config Parameters	
Start Address:	0
模块故障	
	通过"保持上一个值"设置,无法检评估入的值状态。
模块故障时的输入值:	输入值 0

Modbus RTU Slave Use Cases:

Firstly, set the interface configuration parameters to Modbus RTU Slave mode, with

a node address of 1, and then insert 6 seed slots with a data length of 64Byte;

•	DF50-M-1COM-232/485/422_1	0	3			DF50-M-1COM-232/485/422
	Modbus Interface Module	0	31			Modbus Interface Module
	S: Modbus Status Input(1 Word)	0	3 CMD	34		S: Modbus Status Input(1 Word)
	S: Read 0064 Bytes 0xxxx	0	3 CMD	568		S: Read 0064 Bytes 0xxxx
	S: Read 0032 Words 4xxxx	0	3 CMD	69132		S: Read 0032 Words 4xxxx
	S: Write 0064 Bytes 0xxxx	0	3 CMD		265	S: Write 0064 Bytes 0xxxx
	S: Write 0064 Bytes 1xxxx	0	3 CMD		66129	S: Write 0064 Bytes 1xxx
	S: Write 0032 Words 4xxxx	0	3 CMD		130193	S: Write 0032 Words 4xxxx
	S: Write 0032 Words 3xxx	0	3 CMD		194257	S: Write 0032 Words 3xxxx

Create a new variable table to send and receive data: 6 sub slots correspond to 4 address areas

Sub slot 1 and sub slot 3 correspond to the coil Oxxxx address area of Mbpoll1,

which can read and write self verification;

Sub slots 2 and 5 correspond to the holding register 3xxxx address area of

Mbpoll3, which can read and write self verification;

Sub slot 4 corresponds to the discrete 1xxxx address area of Mbpoll2, and data is

read through Mbpoll2;

Sub slot 6 corresponds to the input register 4xxxx address area of Mbpol4, and

data is read through Mbpol4. The data is the contents of register 0 address 16 # 1112 and register 31 address 16 # 2345, respectively

	⇒ ⇒ ☆ ▶ L 9.5 2 <sup>∞</sup> °											
i		名和	尔 地址	显示格式	监视值	修改值	7		注释			
1			%IW3	十六进制	16#0000				子槽2:从站	状态字		
2												
3			%IB5	十六进制	16#0F				Mbpoll1 子梢	曹3:读取64Byte的	线圈数据的第1个B	yte
4			%IB68	十六进制	16#F0				Mbpoll1 子梢	書3:读取64Byte的	线圈数据的第64个	Byte
5												
6			%IW69	十六进制	16#4567				Mbpoll3 子槽	4:读取32Word的	日保持寄存器的第1个	寄存器值
7			%IW131	十六进制	16#6789		_	_	Mbpoll3 子槽	4:读取32Word的	日保持寄存器的第64	个寄存器值
8			N 082	1.2.2004	16405	16405		<b>a</b> 🔺	Maralla Z#			
9			%QB2	十六进制	16#UF	16#0F			Mbpoll1 子相 Mbpoll1 子相	mp、与人64Bytel的 に、定)64Bytel的	院圈数据的弗11世 代图数据的第三人称	yte
11			%Q865	十八进劇	16#10	10#10				12 · 3/(0+bytel)		syte
12			%OB66	十六进制	16#FF	16#FF		ā 🔥	Mbpoll2 子榑	i6:写入 648vte的	室散量的第1个Byte	
13			%OB129	十六进制	16#FF	16#FF		ā 🚡	Mbpoll2 子槽	i6:写入64Byte的	离散量的第64个Bv	e
14				17 02.43				1	1 1 1			
15			%QW130	十六进制	16#4567	16#456	57		Mbpoll3 子槽	7:写入32Word的	0保持寄存器的第1个	寄存器值
16			%QW192	十六进制	16#6789	16#678	39	1	Mbpoll3 子槽	7:写入32Word的	日保持寄存器的第32	个寄存器值
17												
18			%QW194	十六进制	16#1112	16#111	12	4	Mbpoll4 子槽	8:写入32Word的	1输入寄存器的第1个	~寄存器值
19		_	%QW256	十六进制	16#2345	16#234	15		Mbpoll4 子槽	8:写入32Word的	输入寄存器的第32	个寄存器值
			http://www.commercian.com/set http://www.commercian.com/ http://wwwwwww.commercian.com/ http://wwww.commercian.com/ http://wwww.commercian.com/ http://wwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww	tup F <u>u</u> nctions ■	Display View V 06 15 16 17 2 0 0 23 0 0 3 F = 04: SH = 100	ndow <u>H</u> el 23   TC @	₽  _   <b>? №</b>   					
1	0											
2	1	o		Alias	00000	Alias	00010		Alias	00020	Alias	00030
3	2		0		0x1112		0x0000			0x0000		0x0000
4	3	2	1		0x0000		0x0000			0x0000		0x2345
5	4	3	2		0x0000		0x0000			0x0000		
							0.0000					
6	5	4	3		0x0000		0x0000			0x0000		
6 7	5 6	4	3 4		0x0000 0x0000		0x0000			0x0000 0x0000		
6 7 8	5 6 7	4 5 6	3 4 5		0x0000 0x0000 0x0000		0x0000 0x0000 0x0000			0x0000 0x0000 0x0000		
6 7 8 9	5 6 7 8	4 5 6 7	3 4 5 6		0x0000 0x0000 0x0000 0x0000		0x0000 0x0000 0x0000 0x0000			0x0000 0x0000 0x0000 0x0000		
6 7 8 9 <	5 6 7 8 9	4 5 6 7 8	3 4 5 6 7		0x0000 0x0000 0x0000 0x0000 0x0000		0x0000 0x0000 0x0000 0x0000 0x0000			0x0000 0x0000 0x0000 0x0000 0x0000		
6 7 8 9 <	5 6 7 8 9 <	4 5 6 7 8 9	3 4 5 6 7 8		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000			0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		
6 7 8 9 <	5 6 7 8 9 <	4 5 6 7 8 9	3 4 5 6 7 8 9		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000			0x0000 0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		
6 7 8 9 <	5 6 7 8 9 <	4 5 6 7 8 9	3 4 5 6 7 8 9		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		0x0000 0x0000 0x0000 0x0000 0x0000 0x0000			0x0000 0x0000 0x0000 0x0000 0x0000 0x0000 0x0000		

S: Modbus Status Input (1 Word) is the diagnostic information of the slave

station. The PLC program can clearly understand the current slave station status by

monitoring	the	diagnostic	information,	which	includes	the	following	content:
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Normal state value	Status Name	meaning
16#0000	OP_SUCCESS	Configuration or
		write operation
		successful
16#0001	DATA_FULL	The data has been
		updated and is
		readable
16#0002	WRITE_IDLE	Write free, writable
16#0003	DATA_EMPTY	Read idle, receive
		data not updated

Error status value	Status Name	meaning
16#E0A1	WRITE_BUSY	Busy writing, unable
		to write
16#E0A2	DATA_LARGE	Data length exceeds
		the limit
16#E0A3	CMD_ERR	command error
16#E0A4	PARA_ERR	Configuration
		parameter error
16#E0A5	CHECK_ERR	Verification error
16#E0A6	SLAVE_NOEXIT	Slave device does not
		exist
16#E0A7	PACK_LOSS	Packet loss
16#E0A8	OVER_FLOW	data overflow

## 3.13.4 Mechanical Installation

### Installation dimensions

The installation size information is shown in the following figure.

