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Amx-fx3u-e network port series programmable controller

User Manual

Rev: V1.2

Foreword

Contents of the manual

This manual describes the programming resources, functions and usage of AMX-FX3U-E PLC products, such as PLC software component distribution, support instructions, analog input and output, high-speed counter, high-speed pulse output, ethernet, Modbus RTU communication, for the purchase of this product for customers to provide reference.

Instructions

Before using PLC products, users should read and grasp the information of this PLC completely

The sample contents in the manual are only for users' reference and understanding. If in doubt, please contact the relevant technical personnel of imoxun

If the user will use this PLC with other products, please ensure that the relevant technical specifications

Contact

If you have questions about the use of this PLC product, please contact the agent, the sales staff, or contact us by telephone.

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Scan the QR code below for more product information on imoxun's official public account

Version history

Version, revision date, revision description, page number
V1.02020.07.01 initial version -
V1.12020.07.06-ADD "Sensor wiring diagram" to page 15
V1.22020.08.27-change of name of PLC - - adjust "Analog output" text description - - correction of "Ethernet parameter settings" picture content page 41 - partial layout layout layout, wiring diagram adjustment - - add AMX-FX3U-26MT-E -

The text after "Rev:" on the cover of this user's manual represents the document version

User Manual Guide

The content of this manual is structured as follows:

Chapter	Projects	Content description
1	Product Overview	This paper introduces the product name and main features of AMX-FX3U-E Port Series PLC
2	Product specification	The specification and wiring definition of AMX-FX3U-E Port Series PLC are introduced
3	Functional planning	This paper describes the main functions of various models of AMX-FX3U-E PLC
4	Software component specification	Describes the distribution of AMX-FX3U-E Port Series PLC programming software components and high-speed counters
5	Analog usage	The function and application of AMX-FX3U-E Net Port Series PLC analog measurement are introduced
6	Communication Guide	Describes the communication function and application of AMX-FX3U-E Port Series PLC

7	Orientation control instructions	The function of PLC positioning control of AMX-FX3U-E network port series transistor output type is described

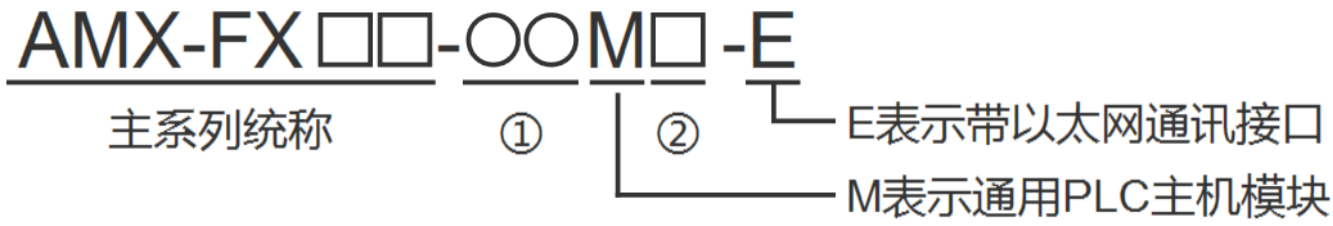
目录

Product Overview

AMX-FX3U-E is a new generation of high-speed, high-performance programmable controller (PLC) which supports the communication between MC and MODBS TCP protocol RJ45.

1.1 model naming convention

The basic unit models of the AMX-FX3U-E programmable controller series are as follows:



The 1 and 2 of the model name components represent the following specifications

1 io total points: 26

2 output type: R stands for relay output (with contact, AC/DC load)

t represents transistor output (for contactless DC loads)

1.2 models and key features

FX3U compatible Series model	Switching quantity		Analog quantity		Communication port				High-speed count		High-speed output
	输入	输出	Inputting	Output	422	485	232	Mesh opening	Single phase	AB phase	
AMX-FX3U-26MR-E	16	10	2	1	1	1	无	1	100K, Route 4, Route 2,40K	Route 2	No
AMX-FX3U-26MT-E	16	10	2	1	1	1	无	1			Route 2 100K

1.3 product features

Main features

The MCU adopts ARM32-bit industrial processor and is suitable for small PLC in industrial automation application

Mitsubishi FX3U most of the instructions, support GX Works2/GX Developer programming; with its own independent programming port

All IO port with photoelectric isolation transmission signal, effective filtering all kinds of interference, input support positive/negative trigger, easy to use

1 way 10/100Mbps network port, support MC and Modbus TCP protocol communication

High-speed counter function

Support 2-way 100K high-speed pulse output

With analog input and output channels

The power supply circuit adopts anti-reverse connection and anti-surge design

All key electronic components are imported big brand, quality assurance for 3 years

It is widely used in signal acquisition and control of industrial field equipment

The basic function of enrichment

1. Basic Instruction Speed: 0.18 US/step, fast instruction execution

Large program capacity: the program memory size is 0 ~ 16000 steps, with a more complete basic/application instructions

3. Have Clock calendar, RUN STOP switch, a/d, D/A, firmware upgrade and other powerful functions

4, DIN guide rail installation, easy maintenance

Extensive communication capabilities

The programming port is a standard RS422 S terminal. In addition, the programming port can communicate with touch screen which supports FX3U PLC protocol

With its RS485 communication port, it supports Modbus RTU communication protocol and FX3U PLC touch screen communication

It has 1 RJ45 net port, supports Modbus TCP communication protocol, and supports Mitsubishi GX Works2 programming software to communicate with PLC through Net Port

High-speed counter function

1.6 channels (x 0 ~ x 5) single-phase high-speed pulse counting, 2 channels AB phase counting, 4 channels (x 0 ~ x 3)100K single-phase counting, 2 channels (x 4 ~ x 5)40K pulse counting

Pulse output function

1. ETH-AMX-FX3U-26MT supports two (y 0 ~ y 1)100K high-speed pulse output

Product specification

2.1 major specifications

Model number	AMX-FX3U-26MR-E	AMX-FX3U-26MT-E
Digital input		
Number of input points	16	
Input signal type	Switch contact signal or level signal, support positive and negative trigger	
Input signal voltage	DC 20 ~ 28V	
Insulation Loop	Optocoupler isolation	
Digital output		
Number of output points	10	
Output type	Relay	NPN transistor
Contact capacity	30VDC 5A, 250VAC 5A	Maximum DC 8A/100V support
Insulation Loop	Mechanical insulation	Optocoupler isolation
Analog input		
Number of input points	2	
Input type	Voltage/current, DIP switch switch switch input type	
Input Range	0 ~ 10V/0 ~ 20ma	
Conversion accuracy	12 bits	

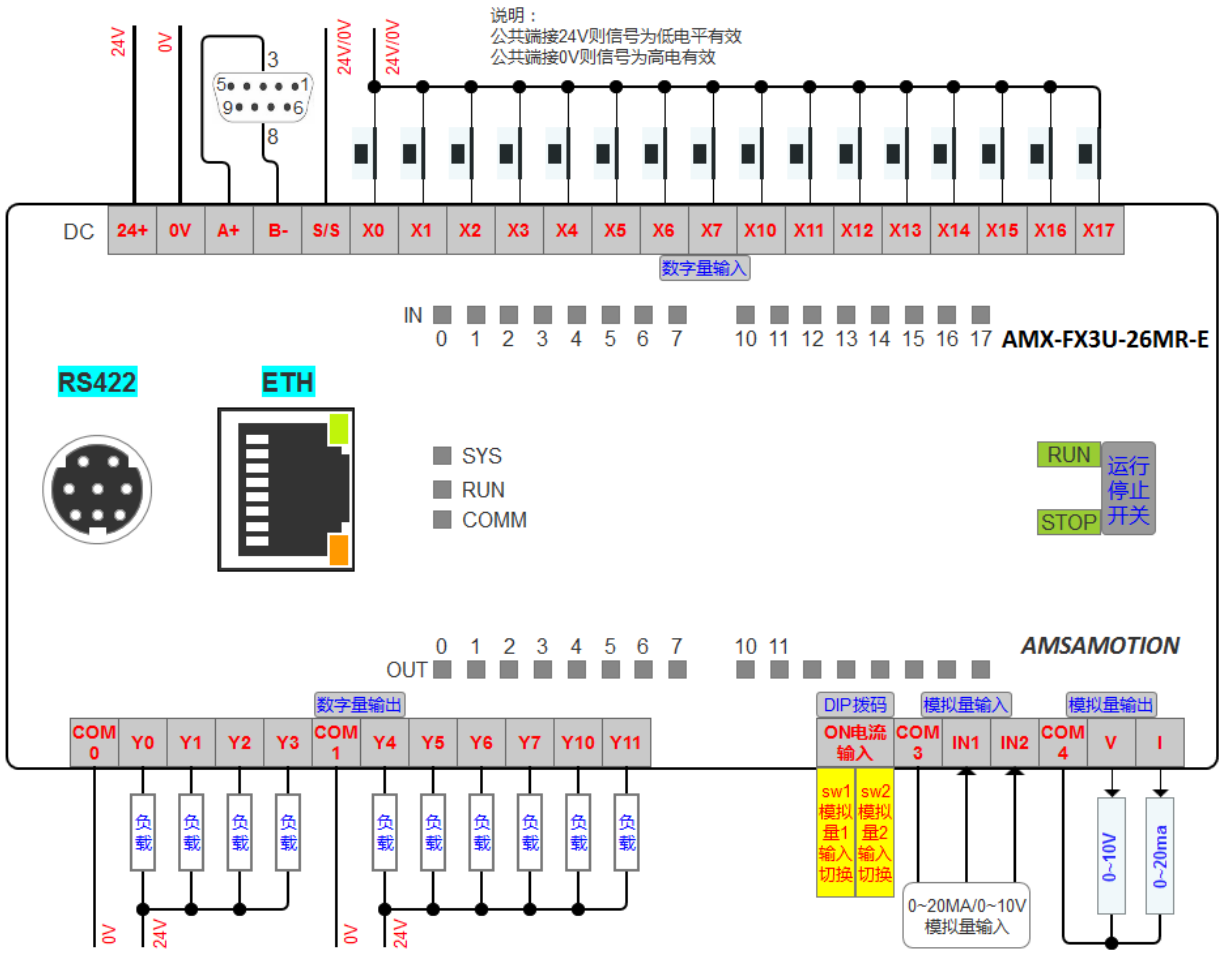
Analog output		
Number of output points	1	
Output type	Voltage, current	
Output Range	0 ~ 10V/0 ~ 20ma	
Conversion accuracy	12 bits	
High-speed counter		
Number of input points	Six channels (x 0 ~ x 5) single phase, two channels AB phase	
Pulse frequency	Single-phase 4-way 100K (x 0 ~ x 3) , 2-way 40K (x 4 ~ x 5)	
Input signal voltage	DC 20 ~ 28V	
High-speed pulse output		
Number of output points	No high-speed pulse output	Route 2(y 0 ~ y 1)
Pulse frequency		100K per route
Communication interface		
RS485	Route 1	
	Support Modbus RTU, FX3U PLC communication protocol	
RS422	Route 1, support download, monitor	
RJ45	1 way, 10/100Mbps communication rate, support Modbus TCP, Mitsubishi FX3U built-in TCP/IP protocol	

Power supply	
Power supply	DC24V, terminal access; with anti-reverse protection
Power consumption	2W ~ 4W
Surge protection	$6 million
Structure and environment	
Size (mm)	129 * 86 * 50
Installation mode	35mm DIN rail
Operating temperature	Working temperature 0 °C ~ + 50 °C (no freezing)
Working humidity	10 ~ 80% Rh (no condensation)

2.2 interface specification

2.2.1 AMX-FX3U-26MR-E interface definition

Terminal diagram



Terminal instruction

Terminal	Function description
24 +	DC 24V power positive pole
0v	DC 24V power supply negative pole
A-plus	485A + (see Chapter 6.2 for
B minus	485B-(see Chapter 6.2 for features)
S/s	Common end of 1-16 digital input
X0	Channel 1 digital input
X 1	Channel 2 digital input

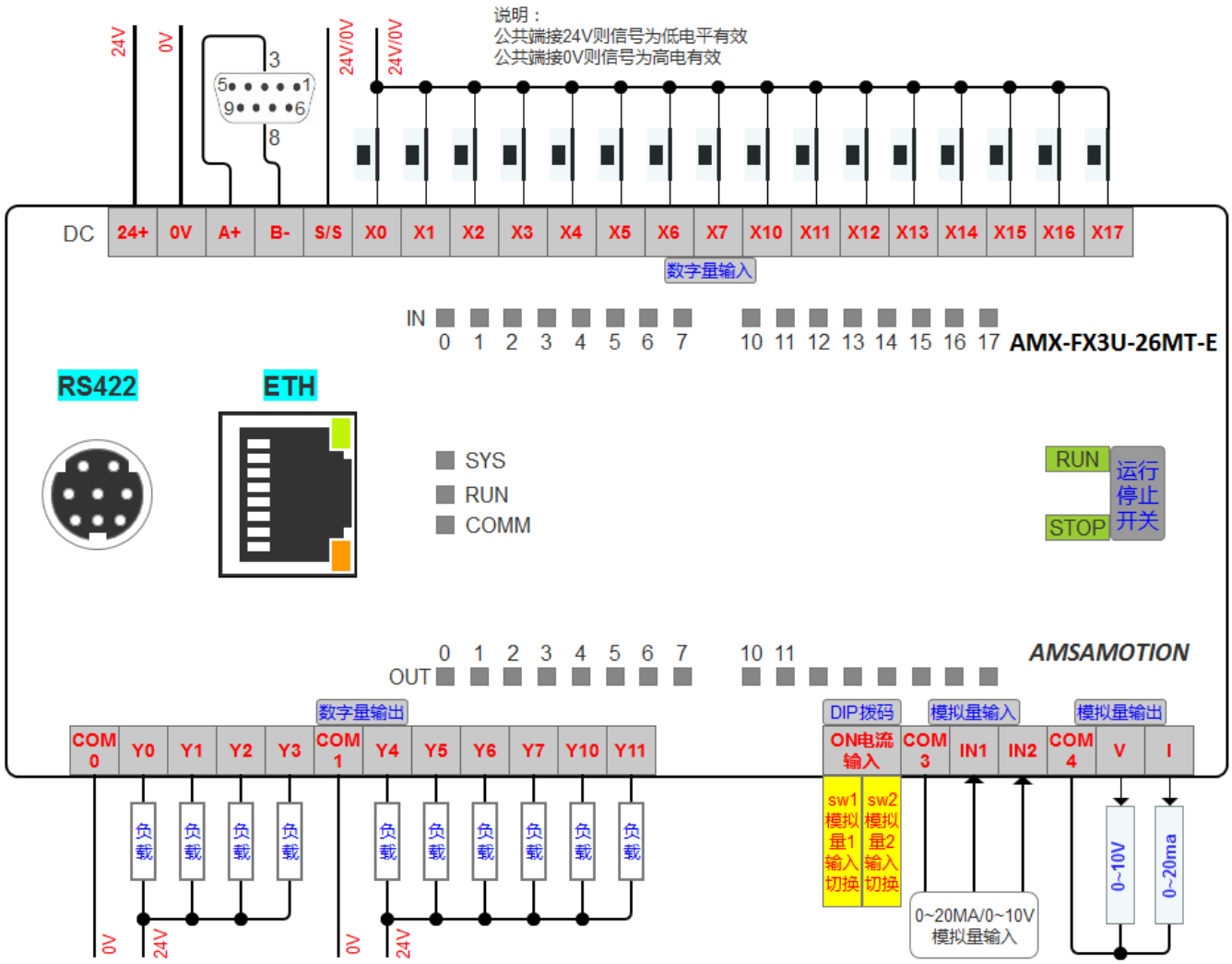
Terminal	Function description
COM0	Common terminal of 1 ~ 4 digital
Y zero	Channel 1 digital output
Y 1	Digital output of Route 2
Y 2	Digital output of Route 3
Y 3	Channel 4 digital output
COM1	Digital output common terminal of 5
Y 4	Digital output of Route 5

X 2	Channel 3 digital input
X 3	Channel 4 digital input
X 4	Channel 5 digital input
X 5	Channel 6 digital input
X 6	Number seven input
X 7	Route 8 digital input
X10	Route 9 digital input
X 11	10th digital input
X-12	Route 11 digital input
X13	Channel 12 digital input
X14	Route 13 digital input
X 15	Route 14 digital input
X16	Route 15 digital input
X17	Route 16 digital input

Y-5	Route 6 digital output
Y 6	Route 7 digital output
Y7	Route 8 digital output
Y10	Route 9 digital output
Y11	10th digital output
SW1	Analog input 1 voltage/current
SW2	Analog Input 2 voltage/current
COM3	Analog input
In1	The first analog input is 0 ~ 10V/0 ~ 20ma current
In2	The second analog input is 0 ~ 10V/0 ~ 20ma current
COM4	Analog output
V	Analog 0 ~ 10V voltage output
I	Analog current output channel of 0
RS422	RS422 programming port, S
Eth	10/100Mbps network port, RJ45 bus
Sys.	Error indicator, PLC error when the
Run	Run Indicator: The PLC runs with a green light and stops with a red light
COMM	RS485 communication light,

2.2.2 AMX-FX3U-26MT-E interface definition

Terminal diagram



Terminal instruction

Terminal	Function description
24 +	DC 24V power positive pole
0v	DC 24V power supply negative pole
A-plus	485a +

Terminal	Function description
COM0	Common terminal of 1 ~ 4 digital
Y zero	Channel 1 digital output
Y 1	Digital output of Route 2

B minus	485b -
S/s	Common end of 1-16 digital input
X0	Channel 1 digital input
X 1	Channel 2 digital input
X 2	Channel 3 digital input
X 3	Channel 4 digital input
X 4	Channel 5 digital input
X 5	Channel 6 digital input
X 6	Number seven input
X 7	Route 8 digital input
X10	Route 9 digital input
X 11	10th digital input
X-12	Route 11 digital input
X13	Channel 12 digital input
X14	Route 13 digital input
X 15	Route 14 digital input
X16	Route 15 digital input
X17	Route 16 digital input

Y 2	Digital output of Route 3
Y 3	Channel 4 digital output
COM1	Digital output common terminal of 5
Y 4	Digital output of Route 5
Y-5	Route 6 digital output
Y 6	Route 7 digital output
Y7	Route 8 digital output
Y10	Route 9 digital output
Y11	10th digital output
SW1	Analog input 1 voltage/current
SW2	Analog Input 2 voltage/current
COM3	Analog input
In1	The first analog input is 0 ~ 10V/0 ~ 20ma current
In2	The second analog input is 0 ~ 10V/0 ~ 20ma current
COM4	Analog output
V	Analog 0 ~ 10V voltage output
I	Analog current output channel of 0
RS422	RS422 programming port, S
Eth	10/100Mbps network port, RJ45 bus
Sys.	Error indicator, PLC error when the
Run	Run Indicator: The PLC runs with a green light and stops with a red light
COMM	RS485 communication light,

Function Planning

AMX-FX3U-E network port series of different models of PLC function planning information as shown in table 3 below

Table 3-1amx-fx3u-26mr-e feature list

Function name		Function description
Io configuration	Io count	16-point photoelectric isolation digital input, 10-point relay output, do not support extended IO points
	High-speed counter (hardware)	4 single-phase (x 0 ~ x 3)100K pulse counting, 2 single-phase (x 4 ~ x 5)40K pulse counting; Two-way AB phase (x 0, X 1 for 1 way, X 3, X 4 for 1 Way) counting
User programming capacity	Program capacity	0-16K
	Annotation capacity	$0-$31
	File register capacity	The file register is not supported. The default is 0 block
Communication function	Communication port	1-way asynchronous serial port: RS422(s terminal) , RS485, RJ45 interface
	Communication protocol	Built-in TCP/IP protocol for FX3U PLC, Modbus RTU, Modbus TCP, Mitsubishi FX
	Programming mode	Programming port: RS422 Programming Cable: USB to RS422 S terminal cable (USB-SC09-FX cable) Programming software: support GX-Works2/Gx-Developer to achieve the download and monitoring debugging
	Equipment Communication	The equipment or upper computer which includes RS422, RS485 serial port and supports FX3U PLC protocol can communicate with this PLC
		The equipment or host computer with RS485 serial port and supporting Modbus RTU protocol can communicate with this PLC
		The equipment or host computer which contains RJ45 network port and supports Modbus TCP and MC protocol can communicate with this PLC
Analog quantity Inputting	Number of channels	Route 2
	Input Range	0 ~ 10V or 0 ~ 20ma current
	Switching mode	2-WAY DIP switch switching voltage/current
	Conversion accuracy	12-bit resolution
Analog quantity Output	Number of channels	Route 1
	Output Range	0 ~ 10V or 0 ~ 20ma current
	Conversion accuracy	12-bit resolution
Other functions	RUN/Stop	The RUN/SOTP dial switch is used to control the running stop of PLC, and the green light shows that the PLC is in working mode; the orange light shows that the PLC is in stop mode
	False indication	When the PLC operation error, the error light red light
	Power down save	Support, Save Range See section 4.1, can not be modified through the software power-down range
	Clock	Support, button battery power in case of power failure
	Firmware upgrade	Support

Table 3-2amx-fx3u-26mt-e feature list

Function name		Function description
Io configuration	Io count	16-point photoelectric isolation digital input, 10-point relay output, do not support extended IO points
	High-speed counter (hardware)	4 single-phase (x 0 ~ x 3)100K pulse counting, 2 single-phase (x 4 ~ x 5)40K pulse counting; Two-way AB phase (x 0, X 1 for 1 way, X 3, X 4 for 1 Way) counting
	High-speed pulse output	Two pulse outputs (y 0 ~ y 1) at 100K per circuit
User programming capacity	Program capacity	0-16K
	Annotation capacity	$0-$31
	File register capacity	The file register is not supported. The default is 0 block
Communication function	Communication port	1-way asynchronous serial port: RS422(s terminal) , RS485, RJ45 interface
	Communication protocol	Built-in TCP/IP protocol for FX3U PLC, Modbus RTU, Modbus TCP, Mitsubishi FX
	Programming mode	Programming port: RS422 Programming Cable: USB to RS422 S terminal cable (USB-SC09-FX cable) Programming software: support GX-Works2/Gx-Developer to achieve the download and monitoring debugging
	Equipment Communication	The equipment or upper computer which includes RS422, RS485 serial port and supports FX3U PLC protocol can communicate with this PLC
		The equipment or host computer with RS485 serial port and supporting Modbus RTU protocol can communicate with this PLC
		The equipment or host computer which contains RJ45 network port and supports Modbus TCP and MC protocol can communicate with this PLC
Analog quantity Inputting	Number of channels	Route 2
	Input Range	0 ~ 10V or 0 ~ 20ma current
	Switching mode	2-WAY DIP switch switching voltage/current
	Conversion accuracy	12-bit resolution
Analog quantity Output	Number of channels	Route 1
	Output Range	0 ~ 10V or 0 ~ 20ma current
	Conversion accuracy	12-bit resolution
Other functions	RUN/Stop	The RUN/SOTP dial switch is used to control the running stop of PLC, and the green light shows that the PLC is in working mode; the orange light shows that the PLC is in

		stop mode
	False indication	When the PLC operation error, the error light red light
	Power down save	Support, Save Range See section 4.1, can not be modified through the software power-down range
	Clock	Support, button battery power in case of power failure
	Firmware upgrade	Support

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Software component specification

4.1 software component allocation

The types of software components supported by the AMX-FX3U-E series programmable controllers are illustrated in the following table:

Serial number	Soft element	Function description
1	Enter Relay X	The bits corresponding to the digital input of PLC are addressed in octal number
2	Output Relay Y	The bits corresponding to the digital output of PLC are addressed in octal number
3	Auxiliary Relay M	Auxiliary relay bit element in PLC.
4	Status Relay S	The utility model is mainly used for the programming of sequence function diagrams, and is used as a bit element of state mark for step control
5	Timer T	16bit timer with 1MS, 10ms and 100ms clock pulses
6	Counter C	Support 16bit/32bit increment/decrement count, high speed count, single/double phase count
7	Data Register D	Supports register D for holding data; Index Register V, Z
8	Pointer	Jump Pointer P, subroutine pointer P (interrupt pointer not supported)
9	Constant K · H	Support binary, decimal, hexadecimal, floating-point data operations

Software component category	AMX-FX3U-26MR-E	AMX-FX3U-26MT-E
Enter Relay X	X 0 ~ x 17, that's 16 points	
Output Relay Y	Y-o-y-11, that's 10 points	

Auxiliary Relay	M0 ~ M511	M512 ~ M1023	M1024 ~ M7696	M8000 ~ M8424

M	512 General purpose	512 Keep using it	512 General purpose	425 points Special purpose	
Status Relay S	S 0 ~ s 4095, total 4096 points, general				
Timer T	T0 ~ T199 200.100 MS General purpose	T200 ~ T245 46 points 10 MS General purpose	T246 ~ T249 4:00 1 ms cumulative type Keep using it	T250 ~ T255 6:00 10ms cumulative type Keep using it	T256 ~ T511 256 points 1ms General purpose
Counter C	16-bit increment count		32 bit bidirectional counter	32-bit bidirectional high-speed counter	
	C0 ~ C99 100 General purpose	C100 ~ C199 100 Keep using it	C200 ~ C234 Thirty-five General purpose	C235 ~ C255 28 General purpose	
Data Register D	D0 ~ D499 500 points General purpose	D500 ~ D950 951 points Keep using it	D951 ~ D7999 7,049 General purpose	D8000 ~ D8483 484 points Special purpose	V 0 ~ V 7, Z 0 ~ Z 7 16 o'clock change of address General purpose
Pointer	N-0-n-7,8:00, co-dominant		P 0 ~ p 127,128 points, branching pointer		
Constant K	16-32768 ~ 32767		32-digit-2147483648 ~ 2147483647		
Constant H	16 bit 0 ~ FFFFFF H		32 bit FFFFFFFFH		
Constant E	± 1.175495e-38 ~ ± 3.402823E + 38(significant position 7)				

4.2 high speed counter instructions

The ETH-AMX-FX3U series programmable controller supports 4 single-phase (x 0 ~ x 3)100K pulse counting and 2 single-phase (x 4 ~ x 5)40K pulse counting Support 2-way AB phase (x 0, X 1 for 1 way, X 3, X 4 for 1 Way) , the count for the hardware count, do not support the software count, high-speed counter description as follows table:

	1 Phase 1 count input											1 phase 2 count input				
	C235	C236	C237	C238	C239	C240	C241	C242	C243	C244	C245	C246	C247	C248	C249	C250
X0	U/d						U/d			U/d		U	U		U	
X 1		U/d					R			R		D	D		D	
X 2			U/d					U/d			U/d		R		R	
X 3				U/d				R			R			U		U
X 4					U/d				U/d					D		D
X 5						U/d			R					R		R
X 6										S					S	
X 7											S					S
U: Upper Count; D: Lower Count; R: Reset; S: Start																

Two phase two count input

	C251	C252	C253	C254	C255	Account for
X0	A	A		A		C251 positive count, M8251 off, reverse count, M8251 on When C252 counts forward, M8252 disconnects. When counting backward, M8252 turns on When C253 counts forward, M8253 disconnects. When counting backward, M8253 turns on When C254 counts forward, M8254 disconnects. When counting backward, M8254 turns on When C255 counts forward, M8255 disconnects. When counting backward, M8255 turns on
X 1	B	B		B		
X 2		R		R		
X 3			A		A	
X 4			B		B	
X 5			R		R	
X 6				S		
X 7					S	
A: Phase A; B: Phase B; R: Reset; S: Start; A: phase a input; B: Phase B Input						

The auxiliary relay is used to change the increasing and decreasing direction of the high-speed counter. When the state is OFF, the high-speed counter is counted.

Counter Serial number	Counting direction Switching address
C235	M8235
C236	M8236
C237	M8237
C238	M8238
C239	M8239
C240	M8240

Counter Serial number	Counting direction Switching address
C241	M8241
C242	M8242
C243	M8243
C244	M8244
C245	M8245

4.3 special software components

The types of software components supported by the AMX-FX3U-E network interface programmable controllers are illustrated in the following table:

Special assistance Relay M	Functional Type	Functional description	Special data Register D	Functional Type	Functional description
M8000	PLC. Status	Run Center 1, Clear 0 when stopped	D8000	PLC. Status	Retentions
M8001		Clear 0 on run, 1 on stop	Delta 8001		Model Version FX3U (C)(D8101 also saved) , PC type and version number
M8002		Initiating Pulse (first scan engaged)	Delta 8002		Memory capacity (D8102 also saved)
M8003		Initial pulse (first scan disengaged)	Delta 8003		Memory type, register type
M8011	System	10 Ms Pulse	D8004		Error m address number BCD

	clock				conversion value
M8012		100 ms pulse	Delta 8010	System clock	Scan current value
M8013		1s pulse	Delta 8013		Corresponding second
M8014		One minute pulse	Delta 8014		Corresponding minutes
M8015		1 means the clock is stopped, 0 means the clock is running	Delta 8015		Corresponding Hour
M8018		1 indicates that the clock is running normally; Zero means stop	Delta 8016		Corresponding date
M8020	Signs and Hint	Zero mark	Delta 8017		Corresponding month
M8021		Borrow sign	Delta 8018		Corresponding year
M8022		Carry flag	Delta 8019		Corresponding Week
M8029		Command complete	Delta 8020	Inputting Filter	Input filter, X010-X017 input filter initial value is transmitted to special data register D8020; x 0 ~ x 7 filter can be set through REFF instruction, unit: MS
M8063		Master Station Modbus Communication Error Lock	Delta 8028	Index content	The contents of the Z 0(Z) register
M8064		Parameter error	Delta 8029		The contents of the VO (V) register
M8065		Syntax Error	Delta 8030	Analog quantity A/D Input value	AD0 channel
M8067		Arithmetic error	Delta 8031		AD1 channel
M8145	Pulse output start and stop	Y-0 pulse output stopped immediately	Delta 8032		AD2 channel
M8146		Y 1 pulse output stopped immediately	Delta 8033		AD3 channel
M8147		Busy/READY in Y00 pulse output	Delta 8067	Error record	Arithmetic error, error code sequence number (M8067)
M8148		Monitor BUSY/READY in the Y01 pulse output (PLSY instruction)	Delta 8068		Save error PC step
M8235	High-speed counting direction control	C235 plus minus counter control bit	Delta 8080	D/a value	Analog output value setting
M8236		C236 plus minus counter control bit	Delta 8101	PLC status	Model Version FX2N (C)(D8001 is also saved)

M8237	High-speed counting direction control	C237 add-subtract count control bit	Delta 8102	PLC status	Memory capacity (D8002 also saved)
M8238		C238 plus-minus counter control bit	Delta 8105		Hardware version number + software version number (5-digit Base 10, with the first two digits representing the hardware version and the last three digits representing the software version, such as the 10101 hardware version v1.0 software version v1.01)
M8239		C239 add-subtract counter control bit	Delta 8140 Low	Pulse output	The total number of output pulses of the FNC59(PLSR) FNC57(PLSY)

			position	quantity record	instruction to Y000
M8240		C240 plus minus counter control bit	Delta 8141, high post		
M8241		C241 plus minus counter control bit	Delta 8142, low post		The total number of output pulses of the FNC59(PLSR) FNC57(PLSY) instruction to Y001
M8242		C242 plus minus counter control bit	Delta 8143, high post		
M8243		C243 plus-minus counter control bit	Delta 8144 Low position		The total number of output pulses of the FNC59(PLSR) FNC57(PLSY) instruction to Y002
M8244		C244 plus-minus counter control bit	Delta 8145 High position		
M8245		C245 plus minus counter control bit	Delta 8146 Low position		The total number of output pulses of the FNC59(PLSR) FNC57(PLSY) instruction to Y003
M8251	High-speed counting direction monitoring	C251 plus minus count status bit	Delta 8147 High position		
M8252		C252 plus minus count status bit	Delta 8182	Address content	The contents of the Z 1 register
M8253		C253 plus-minus count status bit	Delta 8183		The contents of the V1 register
M8254		C254 plus minus count status bit	Delta 8184		The contents of the Z 2 register
M8255		C255 plus minus count status bit	Delta 8185		The contents of the V2 register
M8340	Pulse monitoring and positioning	Monitoring on Y000 pulse output On: Busy/Off: Ready	Delta 8186		The contents of the Z 3 register
M8341		Y000 clear signal output function effective (zrn)	Delta 8187		The contents of the V3 register
M8342		Y000 specifies the direction of origin regression (unsupported)	Delta 8188		The contents of the Z 4 register
M8343		Y000 positive limit	Delta 8189		The contents of the V4 register
M8344		Y000 reverse limit	Delta 8190		The contents of the Z 5 register
M8345		Y000 perigee DOG logic inversion (unsupported)	Delta 8191		The contents of the V5 register
M8346		Y000 zero point logic inversion (unsupported)	Delta 8192		The contents of the Z 6 register
M8347		Y000 interrupt logic inversion (unsupported)	Delta 8193		The contents of the V6 register
M8348		Y000 locating command drive	Delta 8194		The contents of the Z 7 register
M8349		Y000 pulse output stop command	Delta 8195		The contents of the V7 register
M8350		Y001, monitor pulse output On: Busy/Off: Ready	Delta 8200	Modbus Communication	The RS485 function configures registers with 1 as the Modbus Master and 2 as the slave

M8351	Pulse monitoring and positioning	Y001 clear signal output function effective	Delta 8340	Kinematic positioning	Y00 current value register, D8340 low bit, D8341 high bit
M8352		Y001 specifies the direction of origin regression (unsupported)	Delta 8341		
M8353		Y001 positive limit	Delta 8342		Y00 deviation velocity initial value: 0
M8354		Y001 reverse limit	Delta 8343		Y00, top speed
M8355		Y001, perigee DOG, logic inversion (unsupported)	Delta 8344		
M8356		Y001, null logic inversion (unsupported)	Delta 8348		Y00 acceleration time initial value
M8357		Y001 interrupt logic inversion (unsupported)	Delta 8349		Y00 deceleration time initial value
M8358		Y001 locating command drive	Delta 8350		Y01 current value register, D8350 low bit, D8351 high bit
M8359		Y001 pulse output stop command	Delta 8351		Y01 deviation velocity initial value: 0
M8360		Y002, monitor pulse output On: Busy/Off: Ready	Delta 8352		
M8361		Y002 clear signal output function effective	Delta 8353		Y01, top speed
M8362		Y002 specifies the direction of origin regression (unsupported)	Delta 8354		
M8363		Y002 positive limit	Delta 8358		Y01, initial acceleration time
M8364		Y002 reverse limit	Delta 8359		Y01, initial deceleration time
M8365		Y002 perigee DOG logic inversion (unsupported)	Delta 8360		Y02 current value register, D8360 low bit, D8361 high bit
M8366		Y002, null logic inversion (unsupported)	Delta 8361		
M8367		Y002 interrupt logic inversion (unsupported)	Delta 8362		Y02 deviation velocity initial value: 0
M8368		Y002, locating command drive	Delta 8363		Y02, top speed
M8369		Y002 pulse output stop command	Delta 8364		
M8370		On: Busy/Off: Ready	Delta 8368		Y02 initial acceleration time
M8371		Y003 clear signal output function effective	Delta 8369		Y02 initial deceleration time
M8372		Y003 specifies the direction of origin regression (unsupported)	Delta 8370		Y02 current value register, D8370 low bit, D8371 high bit
M8373		Y003 positive limit	Delta 8371		
M8374		Y003 reverse limit	Delta 8372		Y02 deviation velocity initial value: 0
M8375		Y003, perigee DOG, logic inversion (unsupported)	Delta 8373		Y02, top speed
M8376		Y003, null logic inversion (unsupported)	Delta 8378		Y02 initial acceleration time

M8377		Y003 interrupt logic inversion (unsupported)	Delta 8379		Y02 initial deceleration time

M8378	Pulse monitoring and positioning	Y003, locating command drive	Delta 8380	Kinematic positioning	Y 0, the number of steps in a circle
M8379		Y003 pulse output stop command	Delta 8381		Y 0 step drive subdivision
M8401	Modbus Communication	In Modbus communication	Delta 8382		Y 1, the number of steps in a circle
M8402		An error occurred in the Modbus communication	Delta 8383		Y 1 step drive subdivision
M8403		Error lock for Modbus communication	Delta 8384		Y 2 the number of steps in a circle
M8408		Retry occurs	Delta 8385		Y 2 Step Drive subdivision
M8409		Time-out occurred	Delta 8386		Y 3 the number of steps in a circle
M8411		The flag bit set by Modbus communication parameters is kept on when the PLC is powered on	Delta 8387		Y 3 step drive subfraction
M8422		An error occurred in the Modbus communication	Delta 8400	MDOBUS Communication	Master station communication format
M8423		Error lock for Modbus communication	Delta 8402		Master station communication error code
M8424		When only receive mode (offline state)	Delta 8403		The details of the master error
			Delta 8404		A communication error occurred at the main station
			Delta 8405		Display communication parameters (master station)
			Delta 8407		Step number in communication (master station)
			Delta 8408		Current number of retries (master)
			Delta 8409		Slave response timeout (master)
			Delta 8410		Play delay (main station)
			Delta 8411		Inter request delay (inter frame delay)(master station)
			Delta 8412		Number of retries (master)
			Delta 8414		Site No. (0-247)(main site)
			Delta 8419		Action mode display (main station)
			Delta 8420		Slave communication format
			Delta 8422		Error code from the station
			Delta 8423		Details of what went wrong from the station
			Delta 8425		Display communication parameters from slave station
			Delta 8431		Inter request delay (inter-frame delay)

	Delta 8434		Site No. (0-247)
	Delta 8438		Serial communication error code (slave)
	Delta 8439		Slave action mode display
	Delta 8470	Modbus TCP communication	High Byte: IP address segment 1, Low Byte IP address segment 2
	Delta 8471		High Byte: IP address segment 3, Low Byte IP address segment 4
	Delta 8472		High Byte: MAC address end 1, Low Byte: MAC address end 2
	D8473		High Byte: MAC address end 3, Low Byte: MAC address end 4

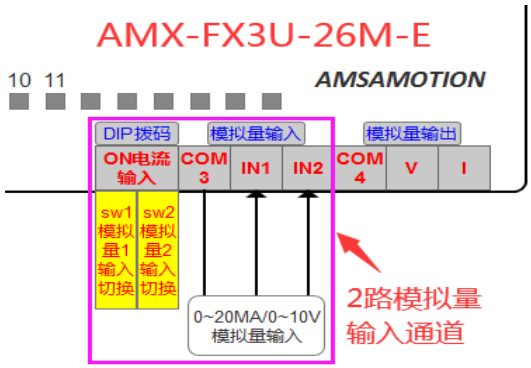
	Delta 8474	Modbus TCP communication	High Byte: MAC address end 5, Low Byte: MAC address end 6
	Delta 8475		High number of first 4-bit connections, low 12-bit error code
	Delta 8476		Coil status, pointing to digital output
	Delta 8477		Input discrete signal pointing to digital input
	Delta 8478		Input Register configuration
	Delta 8479		Keep Register configuration
	Delta 8480	Modbus RTU slave station	Configure the number of points and register address for the coil in Modbus 485 slave mode
	Delta 8481		Configure Modbus 485 slave mode to enter the number of discrete points and register address
	Delta 8482		Configure Modbus 485 slave mode to enter the number of registers and the starting address
	Delta 8483		Configure Modbus 485 slave mode to hold the number of registers and the starting address

Instructions for the use of analog quantities

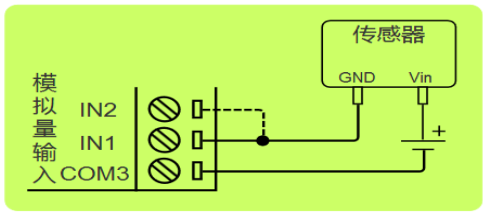
5.1 analog input

AMX-FX3U-26/T-E programmable controller includes two analog input channels, according to the two DIP code beside the channel to switch voltage/current input, support "0 ~ 10V/0 ~ 20ma" analog input.

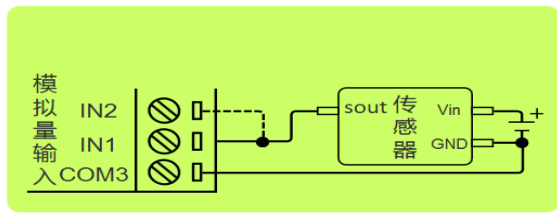
Analog input position



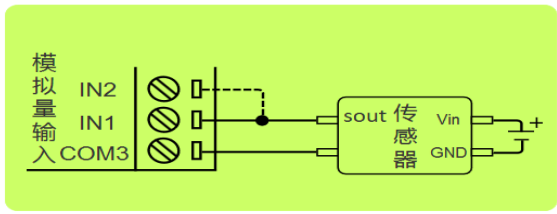
Schematic diagram of sensor wiring



两线制传感器接法



三线制传感器接法



四线制传感器接法

Note: The dotted line connection shows that the second analog input channel is the same, but a sensor can only select one of the channels to input analog signals.

Terminal block

Description of 2-way analog input terminal			
Serial number	Terminal name	Function description	Notes
1	SW1	Analog Channel 1 voltage/current switching	Default voltage input, DIP code OFF for the voltage, ON for the current; Dial up to OFF, dial down to ON
2	SW2	Analog volume channel 2 voltage/current switching	
3	In1	Analog 1-way voltage/current input	The range of analog quantity is 0 ~ 10V/0 ~ 20ma
4	In2	Analog 2-way voltage/current input	The range of analog quantity is 0 ~ 10V/0 ~ 20ma
5	COM3	Analog input common land	

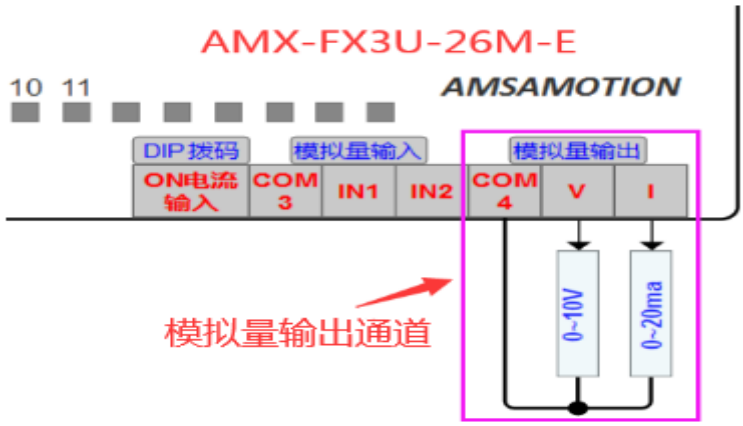
Conversion parameter

Description of 2-channel analog input data conversion			
Serial number	Parametric characteristic	Detailed description	Notes
1	Corresponding AD value	0 ~ 2047	Analog Input PLC converted to decimal data
2	IN1 channel corresponding register	Delta 8030	
3	IN2 channel corresponding register	Delta 8031	

5.2 analog output

AMX-FX3U-26/T-E supports "0 ~ 10V/0 ~ 20ma" two analog output types, but one analog output.

Analog output position



Terminal block

AMX-FX3U-26/T-E analog output (1-way) terminal description			
Serial number	Terminal name	Function description	Notes
1	V	1-way 0 ~ 10V analog voltage output	Both channels can be used simultaneously, but are subject to the same PLC register control analog output value size
2	I	1-way 0 ~ 20ma analog current output	
3	COM4	Analog output common land	

Conversion parameter

Description of analog output parameter conversion			
Serial number	Parametric characteristic	Detailed description	Notes
1	Output Analog range	0 ~ 10V/0 ~ 20ma	
2	Corresponding numerical range	0 ~ 4095	Decimal system
3	Analog Output Channel Register	Delta 8080	The value of the PLC Data Register D8080, Determines the size of the output value of the analog quantity

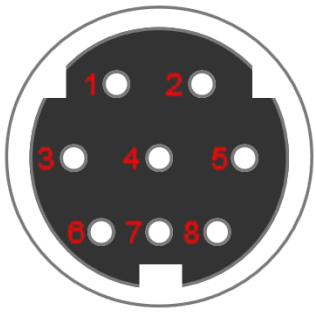
6. Communications Guide

Currently AMX-FX3U-26MR-E supports RS422, RS485 and RJ45(10/100Mbps) interface communication.

6.1RS422 communication

Users can communicate programmatically via RS422(master) or with a PC/touch screen that supports the FX3U protocol.

RS422 communication port (master) position and PIN specification (for PLC)



Pin sequence	PIN action
1	422
2	422 +
3	SG
4	422
7	422 +

Programming Communication

Users can communicate with PLC by using USB to RS422 signal s terminal serial port cable. It is suggested that the PLC can be purchased with USB-SC09-FX programming cable.

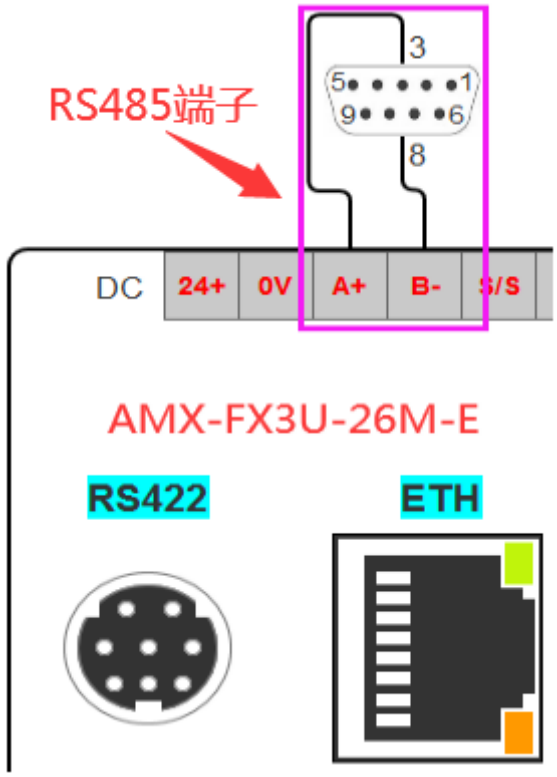
Equipment Communication

When the user device supports RS422 serial port signal and FX3U protocol, the PLC data can be monitored by RS422. The default communication parameters are 9600,7, EVEN, 1(baud rate adaptive) .

6. 2RS485 communication

AMX-FX3U-26/T-E programmable controller contains only one 485 terminal channel, but it can be configured by program and switch communication function for PLC to make Modbus RTU slave station or master station. FX3U PLC protocol communication is the default.

485 interface location and terminal description:



Description of amx-fx3u-26/T-E 485 terminal		
Serial number	DB9 master head pin	Function description
1	Pin3	A terminal on the 485 bus
2	Pin8	B terminal of 485 bus

6.2.1.485 communication using FX3U PLC

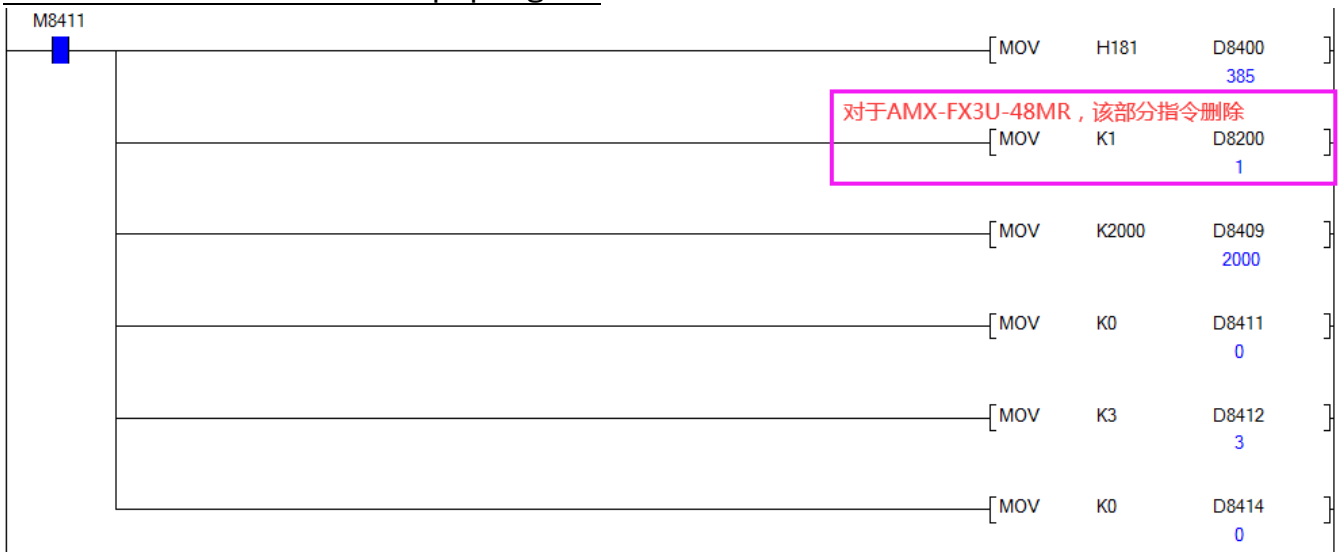
When AMX-FX3U-26MR-E programmable controller is manufactured, the RS485 terminal defaults to the FX3U PLC communication port, or the user can use this function by setting the D8200 value to 0. The communication parameters default to 9600,7, EVEN, 1.

6.2.2, PLC for Modbus RTU main station communication

Master communication parameter

Communication parameter form of Modbus RTU main station			
Delta 8400	Communication format	Sentence is too long, please supply a shorter sentence	R/W

Master Station PLC setup program



The software components in the Master Station PLC setup routine are described as follows:

M8411: set the flag bit of Modbus communication parameter setting, and the PLC will stay on when power up

D8400: Communication format setting, the routine set value is H181, representing RTU mode, using Modbus protocol, 9600 communication baud rate, 1 stop bit, no check, 8 bit data, other format setting refer to master communication parameter table

D8200: This PLC 485 port function configuration, routine set value k 1 means configuration 485 port as Modbus master use

D8409: response timeout from slave station, MS. The routine sets the value K2000, indicating a timeout of 2 seconds

D8411: delay between frame data requests in MS. For example, if the routine is set to K0, the default delay interval for the system is used

D8412: request retry number, the routine to set the value of K3, that means after the timeout communication connection retry 3 times

D8414: PLC as Modbus RTU main station when the station number, routine said the main station number set to 0, the default 0 can be

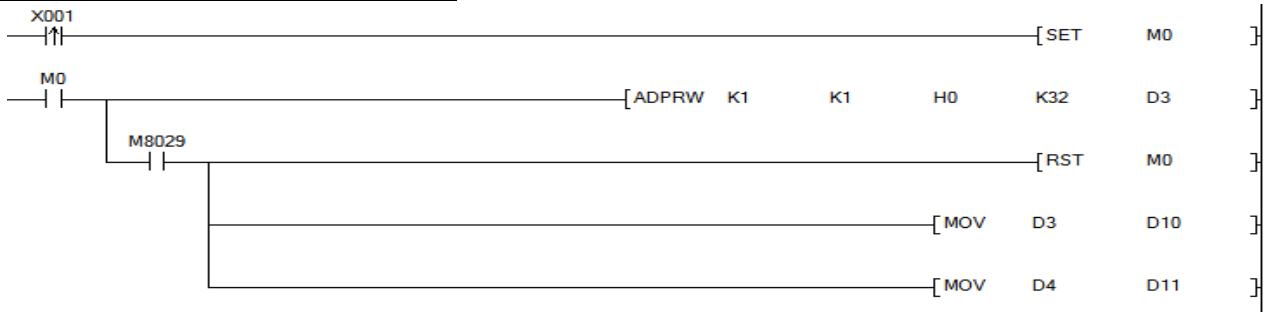
---

Pay attention

PLC power to execute the above initialization code, before the main station communication, so power communication should keep the main Station PLC when setting the program

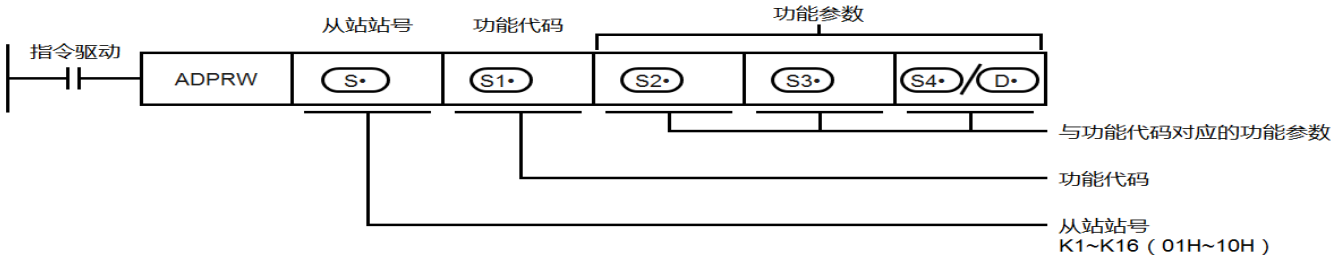
PLC power-on if change the main station set program parameters, power off and restart will be effective.

ADPRW instruction synopsis



The Modbus communication function of PLC is to communicate (read/write data) through the ADPRW instruction (16 bits continuously execute instruction) .

When calculating instructions, act according to the parameters S2, S3, S4 on the slave station s according to the function code S1.



Set data

Type of operand	Content	Data type
S	From station number (station number range 1-16)	BIN16 bit
S 1	Function code (support 01,02,03,04,05,06,15,16 function code)	BIN16 bit
S 2	Function parameter corresponding to function code	BIN16 bit
S3	Function parameter corresponding to function code	BIN16 bit
S 4 d	Function parameter corresponding to function code	Bit/BIN16 bit

ADPRW instruction function parameter

The required function parameters for each function code are shown in the following table.

S 1 Functional Code	S 2 Modbus address	S3 Access points	S 4 Data storage software element initiation
1h Coil readout	Modbus address: 0000H ~ FFFEH	Access Points: 1 ~ 2000	Read object soft element/(starting address)
			Object Software component: D
2h Input dispersion readout	Modbus address: 0000H ~ FFFEH	Access Points: 1 ~ 2000	Read object soft element/(starting address)
			Object Software component: D
3h Keep Register read	Modbus address: 0h ~ FFFEH	Access points: 1 ~ 125	Read object soft element (start address)
			Object Software component: D
4h Input register readout	Modbus address: 0000H ~ FFFEH	Access points: 1 ~ 125	Read object soft element/(starting address)
			Object Software component: D
5h Single coil write	Modbus address: 0000H ~ FFFEH	0(fixed)	Write object soft element/(start address)
			Object Software component: D
6h Single Register write	Modbus address: 0000H ~ FFFEH	0(fixed)	Write object soft element (start address)
			Object Software component: D
An Arrangement Batch coil writing	Modbus address: 0000H ~ FFFEH	Number of visits: 1 ~ 1968	Write object soft element (start address)
			Object Software component: D
10H Batch register write	Modbus address: 0000H ~ FFFEH	Access points: 1 ~ 123	Write object soft element (start address)
			Object Software component: D

Pay attention

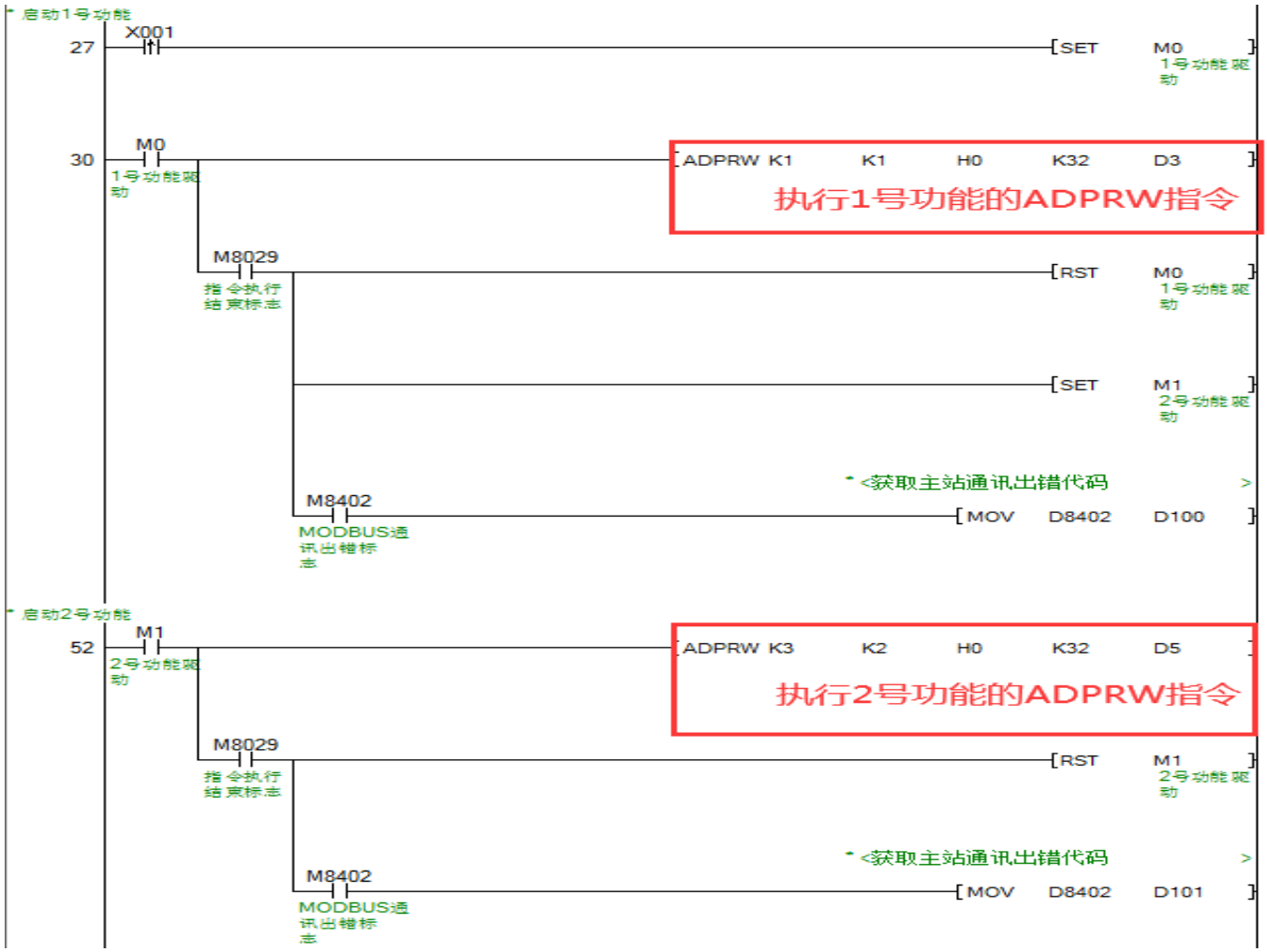
Function code S4 object software components only support data register D, set other software components PLC error indicator will light error.

Main station function code use routine

The following routine, the "Master station setup program" part has been omitted, before users use the master station function code, according to the previous part of the content "Master Station PLC setup program" to ensure that the master station setup is correct.

ADPRW detailed instructions are presented primarily in the "Function 01" routine and are not repeated in other routines.

The coil reads function 01



1) the ADPRW instruction parameter description that performs function 1 in the routine:

S: This PLC master station to visit the slave station number, routine K 1, that PLC Access Station number 1 slave station equipment data.

S 1: This PLC master station access slave station function code, routine K 1, that PLC uses 01 function code to read slave station coil state.

S 2: This PLC master station accesses the Modbus starting address of the slave station, 0h in the routine, indicating that the PLC accesses the slave station from Modbus Address 0H.

S 3: the number of Modbus address of the slave station accessed by the PLC Master Station, K32 in routine, indicating that the PLC accesses the Modbus address data of 32 slave stations.

S 4: after the PLC Master station accesses the data in the Modbus address of the slave station, the data should be stored in the starting address of the PLC, Example

The process is D3, which means that the PLC will access the data from the Modbus station address and store the data from the PLC address D3.

2) specification of other software components in the routine:

M8029: end of instruction execution flag, driving the ADPRW instruction to start and end after instruction execution, M8029 becomes ON.

M8402: Modbus communication error flag, when Modbus communication due to human program settings error or equipment damage, etc.

M8402 becomes ON when communication fails due to.

D8402: when Modbus communication error, the PLC D8402 will give the relevant communication error code, combined with Appendix B

Error code description, easy to check the user communication error reasons.

3) with the routine of function 01, this PLC master station can read the state of the slave station coil:

In the routine, whenever x 1 changes from OFF to ON, M0 is set to ON, and M0 is set to ON, ADPRW is driven

Instruction execution function (function 01 in routine, execution should keep driving condition M0 as ON) , when M8029 changes from OFF to ON, ADPRW instruction

execution is finished.

Routine ADPRW instructions to perform the specific action of function 01 is the result of this PLC master station from No. 1 slave station equipment
Modbus address 0 starts to access the state of the 32 coils, and then puts the read state into the PLC address beginning with D3, and stores the sequence in order to start accessing the Modbus address from low to high, one by one corresponds to the beginning of the PLC storage address from the lower to the higher word.

Pay attention

With the ADPRW instruction, keep the drive contacts (such as M0) ON until the end of the ADPRW instruction (M8029 is ON) .

When driving multiple ADPRW instructions simultaneously in the Modbus master station, only one instruction is executed at a time. When the current instruction ends, execute the next ADPRW instruction in procedural order.

Do not disconnect the status before an ADPRW communication ends. When a state is disconnected during communication, the ADPRW instruction becomes a stop-in state. Will not be transferred to other ADPRW commands. Please refer to the following notes for programming sequence control:

Interlock your state transition conditions with the ON condition of M8029(end of instruction flag bit) to ensure no state transition occurs while communicating with other stations. For example, in the example above, only if M8029 is ON will the driver condition M0 of function 01 be reset and the driver condition M1 of Function 02 be reset.

When the state is disconnected in the communication process, the remaining communication can be completed after the state is ON again, but the communication time-out may occur according to the disconnection time.

When using the ADPRW instruction in a program flow, the ADPRW instruction can not be used in the following program flow:

Between CJ-P conditional jump instructions
Between the FOR-NEXT loop instructions
P-sret subroutine

I-IRET interrupt subroutine

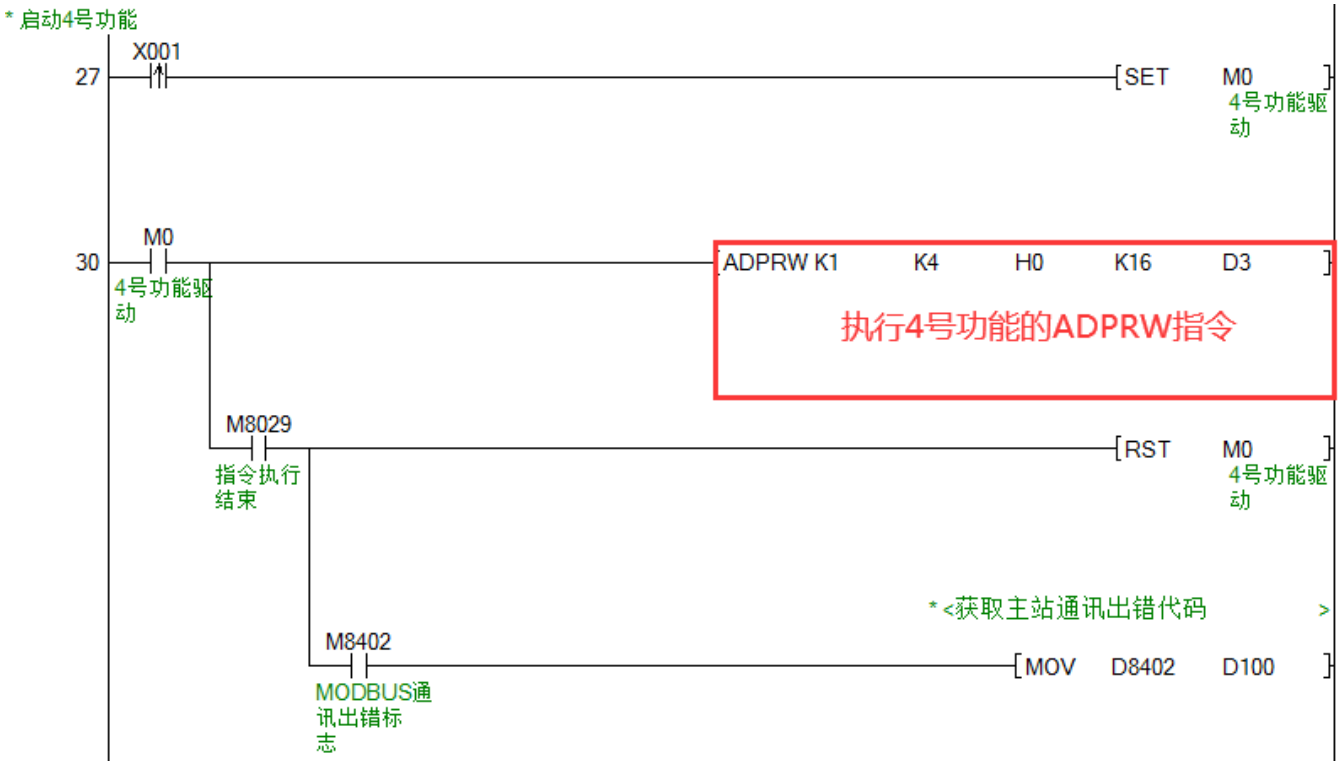
Input dispersion reads function 02

Function routine 02 as above, use instructions refer to “Coil read function 01”content

Keep Register reading function 03

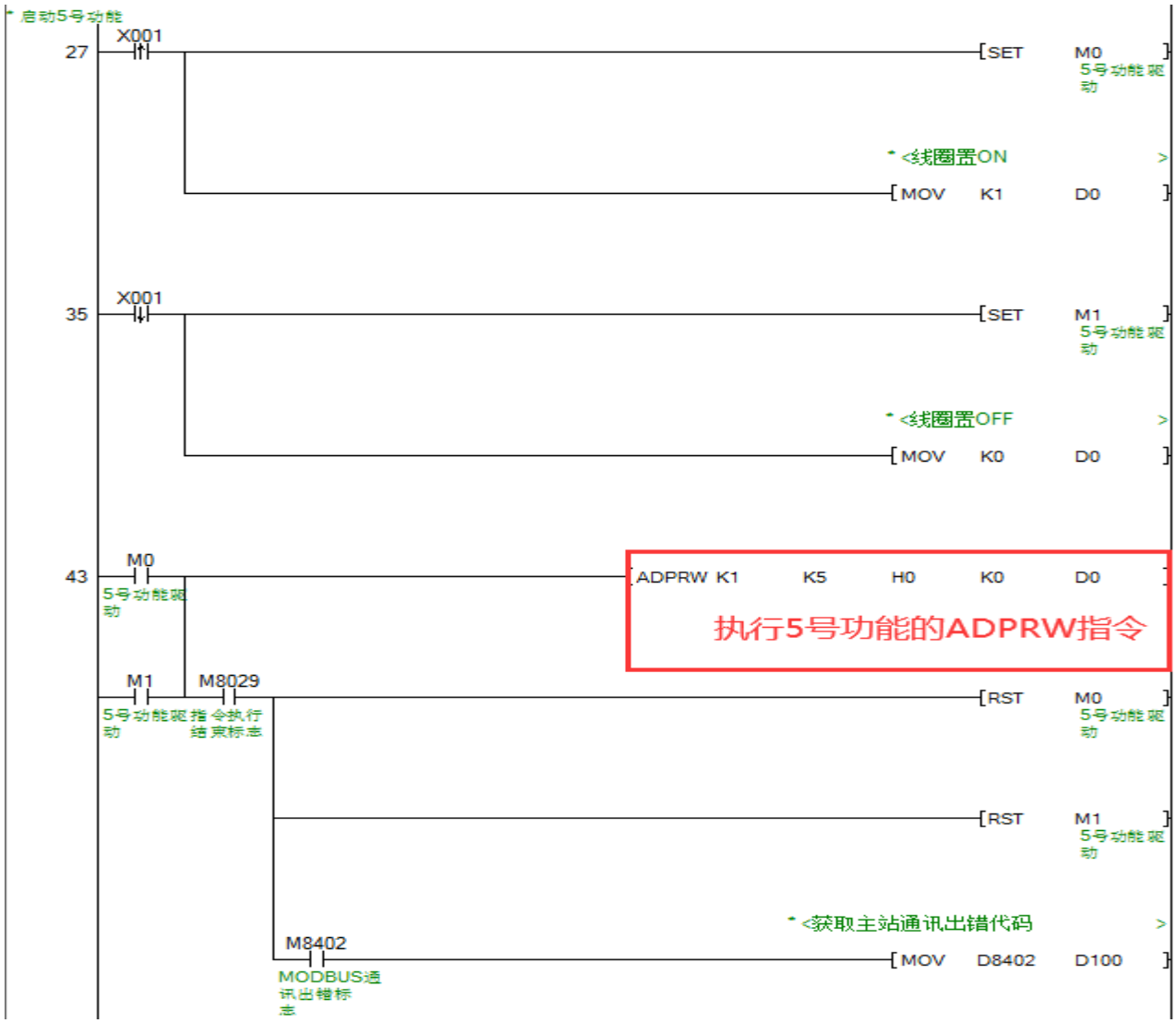
Function routine 03 as above, use instructions refer to “Coil read function 01”content

Input Register reads function 04



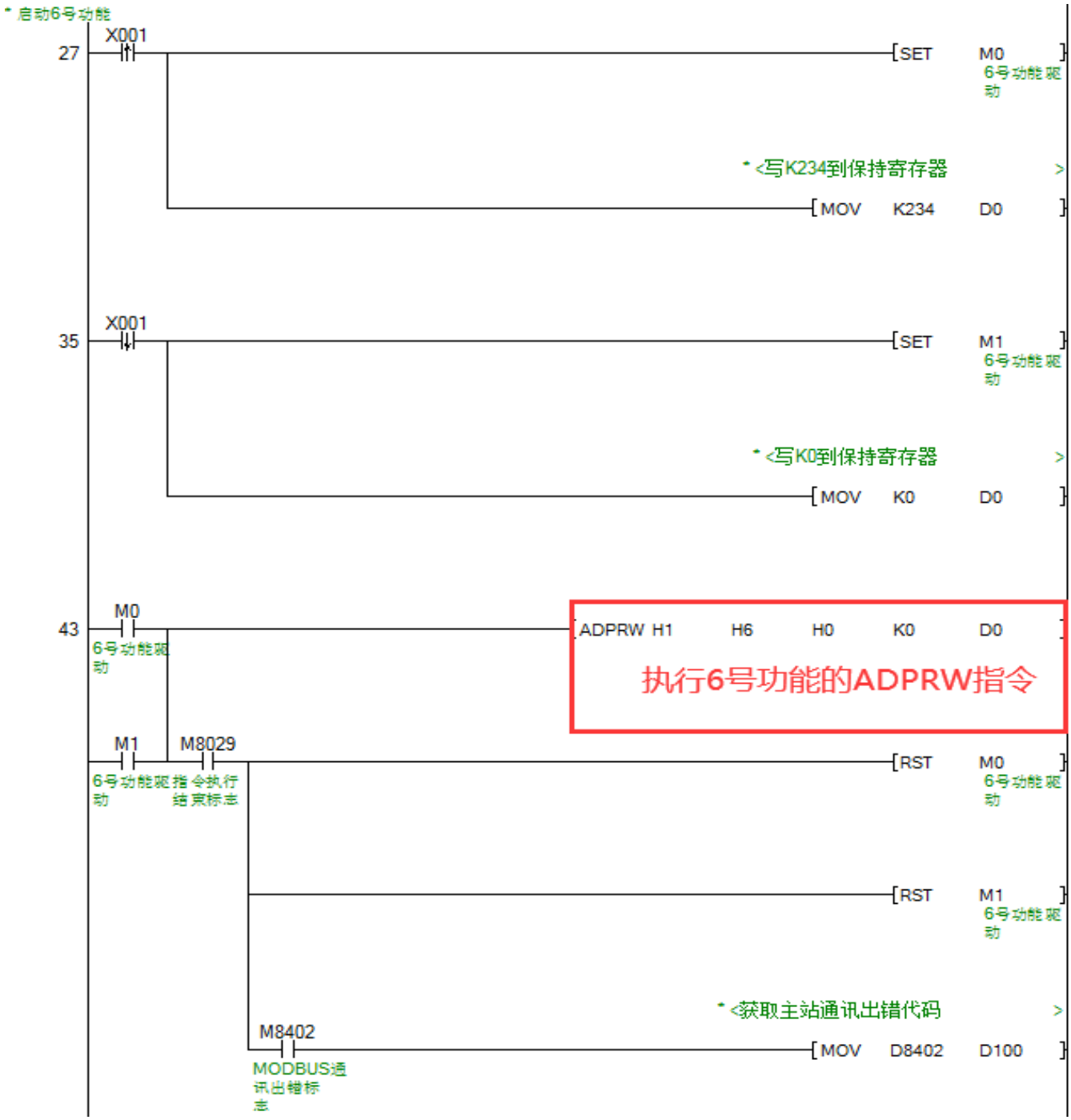
Function routine 04 as above, use instructions refer to “Coil read function 01” content

The coil writes to function 05



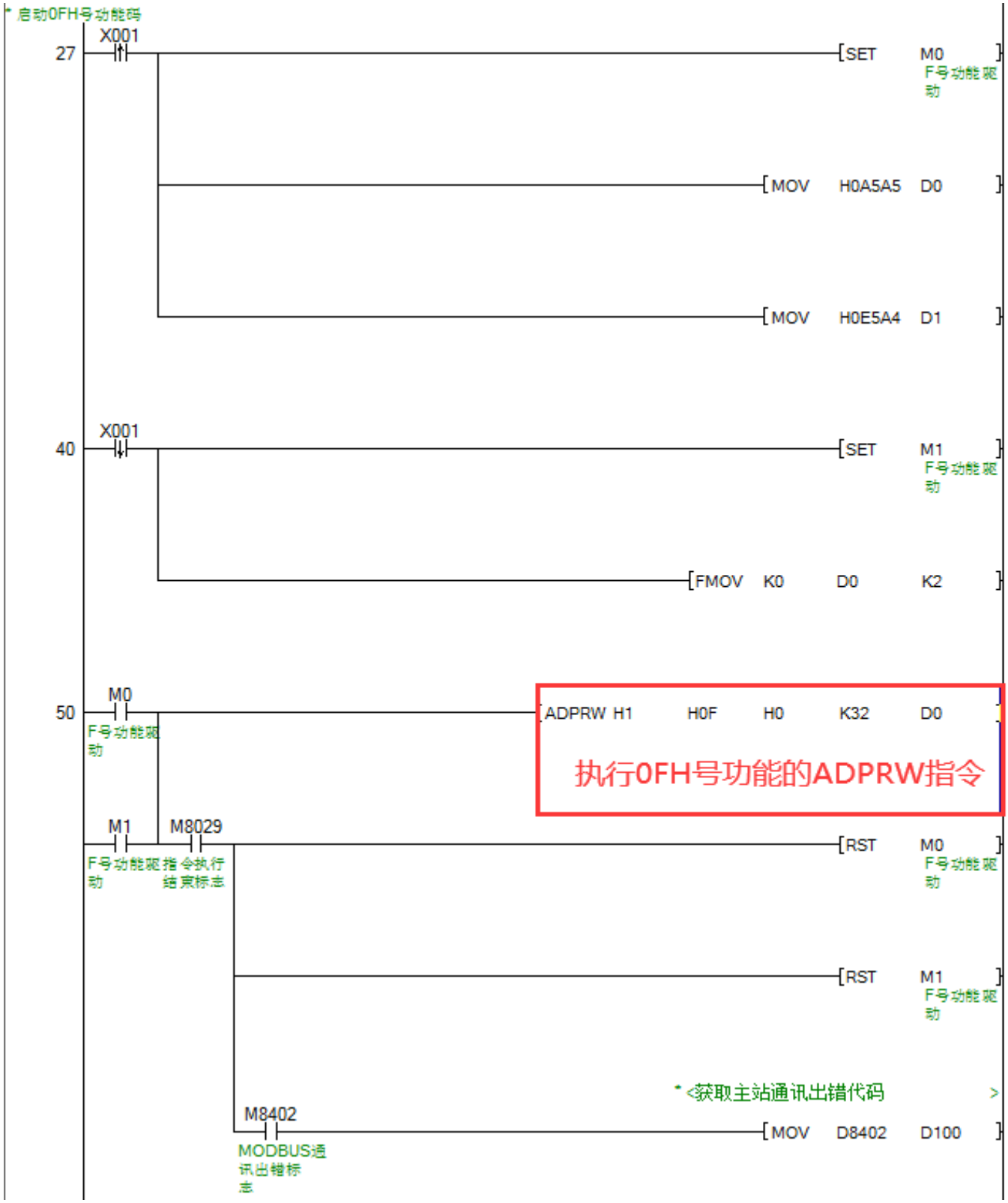
Function routine 05 as above, use instructions refer to “Coil read function 01” content

Register writes to function 06



Function routine 06 as above, the use of instructions refer to “Coil read function 01” content

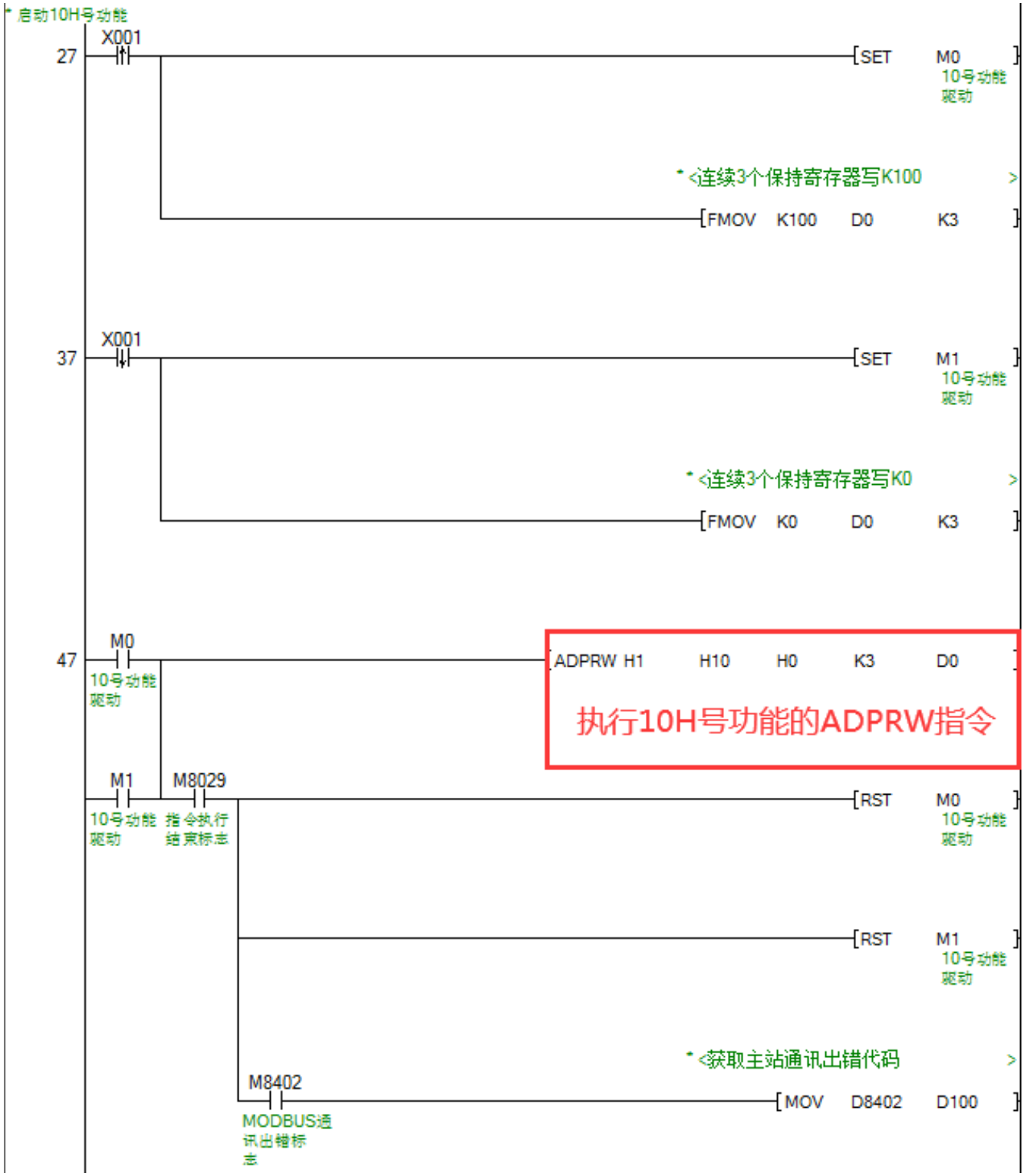
Batch coil write 0FH function



0F function routine as above, the use of instructions refer to "Coil read function

01" content

Batch register write 10H function



Function routine No. 10 as above, use instructions refer to "Coil read function No.

01" content

6.2.3. Using PLC to communicate with Modbus RTU slave station

The slave function is turned off by default and needs to be started by setting instruction D8420 to K2, which is started by M8411.

When PLC communicates with Modbus RTU slave station:

Baud rates between 1,200 and 19,200

The default input discreteness is the host' s digital input

The default coil quantity is the digital output quantity of the host

The default input register is 2 input analog starting data 16 bytes of data.

The default holds registers for D7200 starting in the data area

Slave communication parameter

Communication parameters of Modbus 485 slave station			
Delta 8420	Communication format	Sentence is too long, please supply a shorter sentence	R/W

Modbus 485 slave station associated configuration register

Serial number	Corresponding Special D register	Function description
1	Delta 8200	When DB9 bus port 485 function configuration, d8200 = K2, PLC makes Modbus RTU slave station
2	Delta 8420	Configure the communication parameters of Modbus 485 slave station; see the above communication instructions for Modbus 485 slave station
3	Delta 8431	The time to determine whether a packet of data is finished; 0 represents the system default time

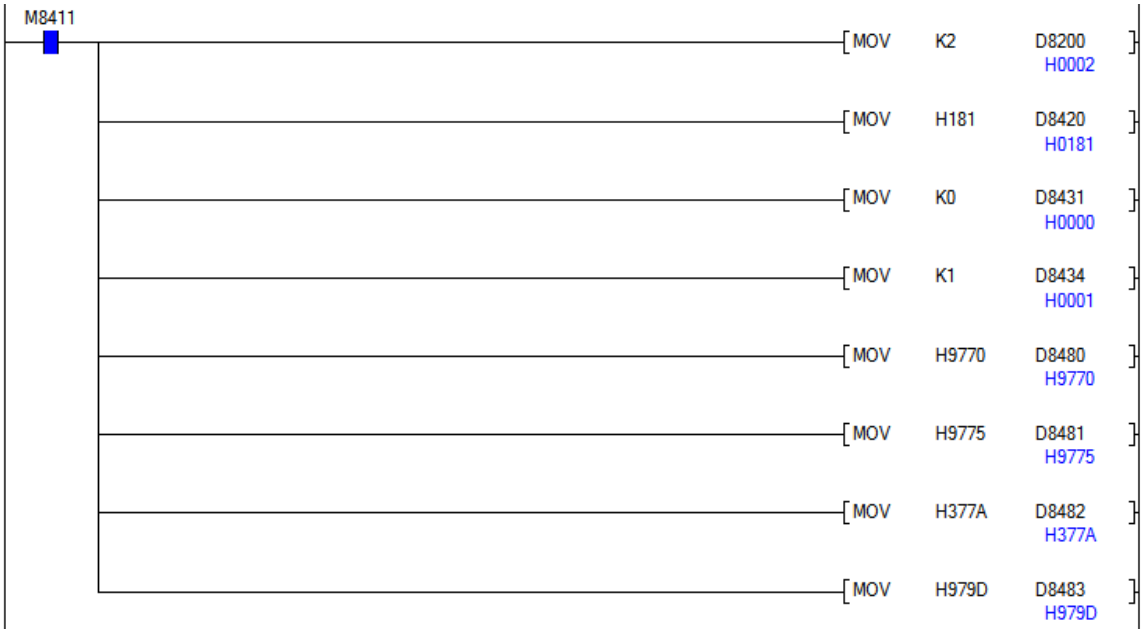
4	Delta 8434	Configure the slave address
5	Delta 8480	Configure the number of points and register address for the coil in Modbus 485 slave mode
6	Delta 8481	Configure Modbus 485 slave mode to enter the number of discrete points and register address
7	Delta 8482	Configure Modbus 485 slave mode to enter the number of registers and the starting address
8	Delta 8483	Configure Modbus 485 slave mode to hold the number of registers and the starting address

Associated Components Register of Modbus 485 slave station

The working register corresponding to the slave function of Modbus 485			
Serial number	Function name	Default address	Notes
1	Coil condition	Point to digital output, 3 bytes; corresponding channel Y000 ~ Y027	Can be configured with D8480, no more than 7 * 8 bits
2	Input Discrete Signal	Point to digital input, 4 bytes; corresponding input channel X000 ~ X027	Can be configured with D8481, no more than 7 * 8 bits
3	Input Register	16 characters, 32 bytes; data beginning with D8030 corresponding to D register	Can be configured with D8482, no more than 64 words
4	Hold Register	16 characters, 64 bytes; D7200 corresponding to D register	Can be configured through D8483, no more than 64 words

Modbus 485 slave station usage routine

Slave Station PLC setup program



The software components in the PLC setup routine at the slave station are illustrated as follows:

M8411: set the flag bit of Modbus communication parameter, the PLC will be connected after power on

D8200: This PLC 485 function configuration, routine setting value k 2 means configuration 485 as Modbus slave use

D8420: PLC as Modbus RTU slave communication parameter, routine setting value is H181, representing RTU mode, using Modbus protocol, 9600 communication baud rate, 1 stop bit, no check, 8 bit data

D8431: delay between frame data requests, the routine setting value of K0 indicates the use of the system default delay interval (3.5 character interval, PLC automatically adjusts according to the set baud rate) , in MS

D8434: PLC as slave station address, routine set value for K 1

D8480: the starting address of the coil discrete quantity and the number of components when setting this machine as slave station

D8481: when setting this machine as slave, input the starting address of the discrete quantity and the number of components

D8482: when setting this machine as slave, enter the starting address of the register and the number of components

D8483: when setting this machine as slave station, keep the starting address of register and the number of components

---

Pay attention

PLC power-on to execute the above initialization code, will save the parameters, power-off reset after the parameters set will be effective.

In order to reduce the power-on time to save parameters to write FLASH, after the execution of this set code once, you can delete this set program, later if you need to change communication parameters to write to join the run.

Description of address setting of relative soft component in slave station

When PLC is used as Modbus RTU slave station, the type and number range of soft components accessed by Modbus RTU master station in PLC are determined by the values of four configuration addresses D8480 ~ D8483.

In the numerical format, the last 13 bit (bit 0 ~ bit 12) of the configuration address is used to determine the type of software components and the starting address of the host station, the first 3 bit (bit 13 ~ bit 15) of the configuration address is used to determine the number of the host station visit address.

In order to specify M100 ~ M200 as the coil discrete quantity in PLC, it is necessary to specify the format of the last 13 digits of the address of D8480, the corresponding configuration address (decision object) , the coil discrete quantity is the number of M element that master station accesses slave Station PLC, and the number of M element that accesses when address first 3 digit value and format.

The following describes four types of access address and number formats: coil dispersion, input dispersion, input register, and hold register.

Pay attention

Must take M8411 as the instruction drive, through MOV and other data transmission write instruction, change the configuration address D8480 ~ D8483 numerical value, the PLC power cut restarts after taking effect, the following explanation does not make this stipulation again to emphasize, the user needs to pay attention.

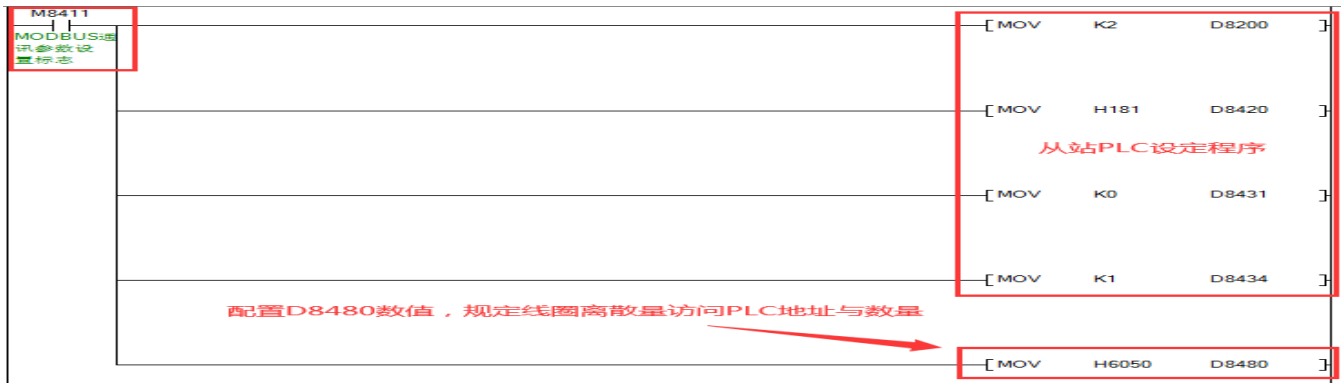
If the configuration value exceeds the PLC address range, the master station will fail to communicate if the access range also exceeds the PLC address range.

Set the address and number of coil components

Coil status, supports the following ranges of addresses:

The access address points to Software component category	Address Range
Y element	Y 0 ~ Y27; valid 13-bit address is 0x00 ~ 0x79 or 0xC0 ~ 0x1F3
M element	M0 ~ M1063; valid 13-bit address 0x80 ~ 0xBF: 0x80 corresponds to M0 ~ M15; 0x81 corresponds to M16 ~ M31; ... 0xBF corresponds to M1008 ~ M1023 and reaches the maximum M1063 when the number of configuration addresses is 7 * 8 = 56
D register	D500 ~ D7999; valid 13-bit address is 0x01F4 ~ 0x1F3F

The instructions are as follows:



Point to Y coil data conversion instructions:

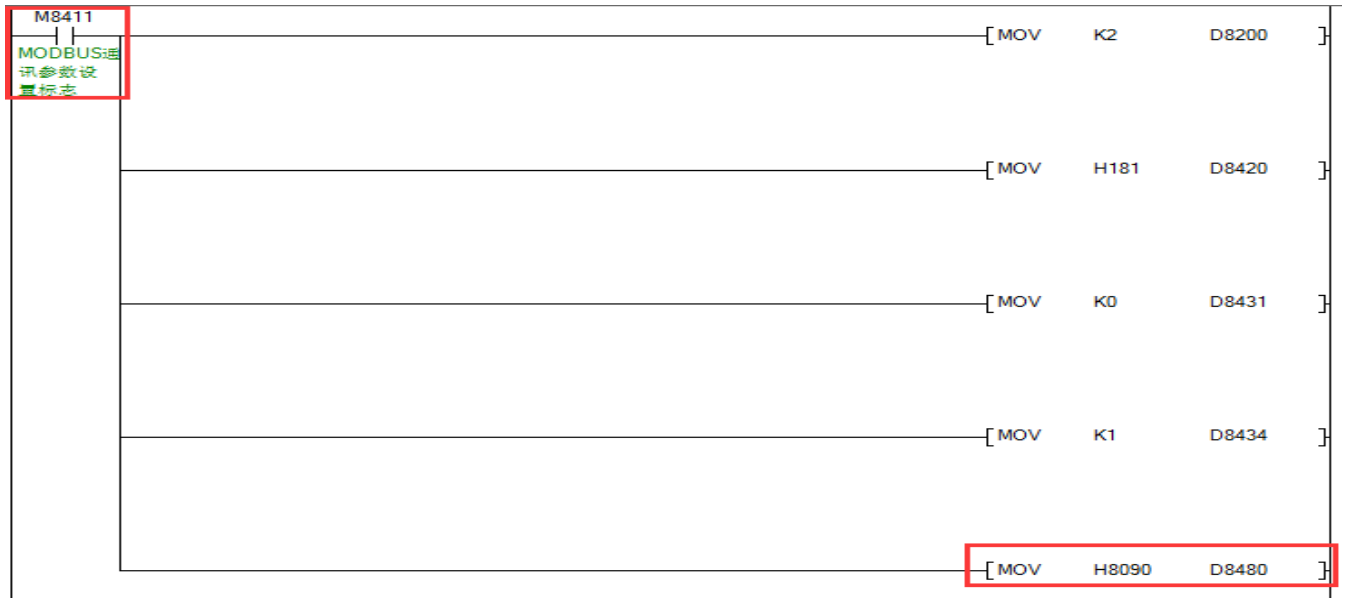
In the example program above, the H6050 converts to binary data bits as follows:

The last 13 bit bit "0000001010000" of D8480 address corresponds to hexadecimal 50; that is to say, the PLC address type as coil discrete quantity in slave PLC. .

The first three bits of the D8480 address, regardless of their value, point to the y element' s default range "Y 0 ~ Y77" (octal) .

In combination with the above, the routine specifies that the coil discrete address range of master station access slave station PLC is "Y 0 ~ y 77" (octal, amx-fx3u-48actual hardware coil range "Y 0 ~ y 27" , the rest is software range)

Data conversion instructions for the M element:



In the example program above, H8090 converts to binary data as follows:

The last 13 bit "0000010010000" of D8480 address corresponds to 16 base 90; that is to say, the PLC address type as coil discrete quantity in slave PLC. .

H0090-H0080 = H10, convert decimal 256;

H0080 corresponds to the PLC address M0, then H0090 corresponds to the PLC address M256.

The first three bits "100" of the D8480 address correspond to 10 decimal 4, with 8 bits, or 4x8 = 32 bits, the bit element representing Modbus master station when accessing the PLC coil dispersion of slave station has 32 bits (when the number is set to 0, the access points to the Y element default range "Y 0 ~ Y77" (Octal)) .

In combination with the above, the routine specifies that the coil discrete address range of master station access slave station PLC is "M256 ~ M287" (the rest in turn) .

Instructions for converting data to D register:

In the example program above, H9770 converts to binary data bits as follows:

The last 13 bit bit "101110110000" of D8480 address corresponds to hexadecimal 1770; that is to say, the PLC address type in slave station PLC as coil discrete quantity is D element. H1770 is hexadecimal 6000, which means access begins at the D6000 address.

The first three bits "100" of the D8480 address correspond to base 104 in units of 8 bit, that is 4x8 = 32 bit, the bit element representing Modbus master station when accessing the PLC coil dispersion of slave station has 32 bits (when the number is set to 0, the access points to the Y element default range "Y 0 ~ Y77" (Octal)) .

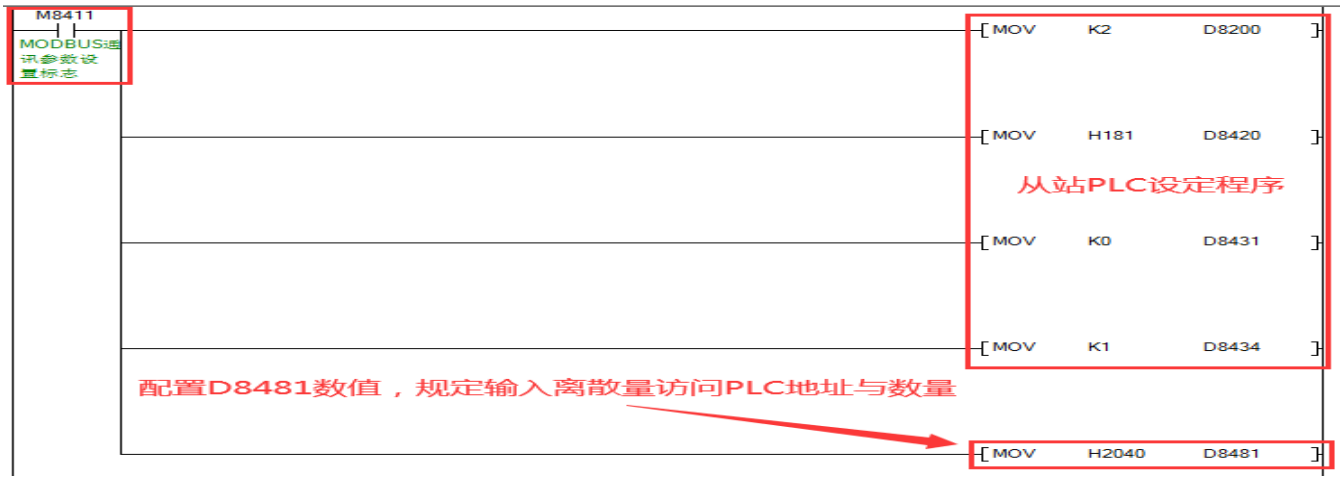
Combined with the above, the routine provides that the master station access slave PLC coil discrete address range of "D6000.0 ~ D6001.15" (a data register D address 16bit) , that is, D6000, D6001 two words.

Sets the address and number of input discrete components

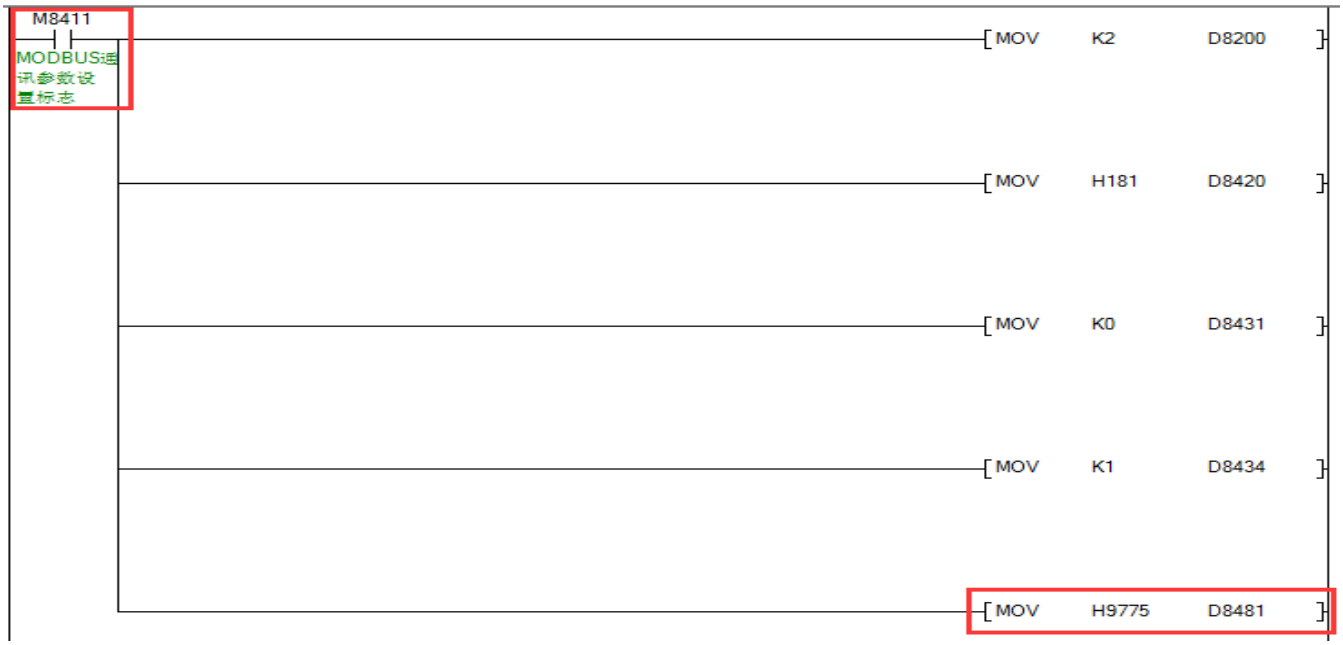
Enter the state of the discreteness, and the range of addresses that support configuration is as follows:

The access address points to Software component category	Address Range
X element	X 0 ~ X24; the valid 13-bit address is 0x00 ~ 0x79,0XC0 ~ 0x1F3. The number of configurations, regardless of the value, points to the default range of the X element (the master station only reads the input discreteness, so the range is based on the actual number of PLC input points)
M element	M0 ~ M455; valid 13-bit address 0x80 ~ 0xBF: 0x80 corresponds to M0 ~ M15; 0x81 corresponds to M16 ~ M31; ... 0xBF corresponds to M1008 ~ M1023, when the number is 7 * 8 = 56, the maximum PLC address is M1063, when the number of configuration is 0, it points to the default range of X element;
D register	D500 ~ D7999; valid 13-bit address 0x01f4 ~ 0x1F3F, configuration number 0 points to X element default range

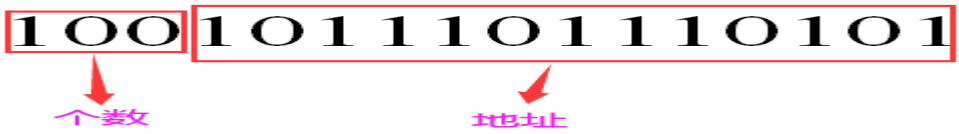
The instructions are as follows:



Data conversion instructions (for example, pointing to the D register) :



In the example program above, H9775 converts to binary data bits as follows:



The last 13 bit bit "101110110000" of D8481 address corresponds to hexadecimal 1775; that is, the PLC address type in slave station PLC as input discrete quantity is D element. H1775 is hexadecimal 6005, which means access begins at the D6005 address.

The first three bits "100" of the D8481 address correspond to base 104, and the unit is 8bit, that is 4x8 = 32bit, which means that the bit element has 32 bits when Modbus master station accesses the Slave Station PLC to input the discrete quantity (when the number is set to 0, the access points to the default range of X element) .

In combination with the above, the routine specifies that the input discrete address range of master station access slave station PLC is "D6005.0 ~ D6006.15" (a data register D address 16bit) , namely D6005, D6006 these two words.

Sets the address and number of input register components

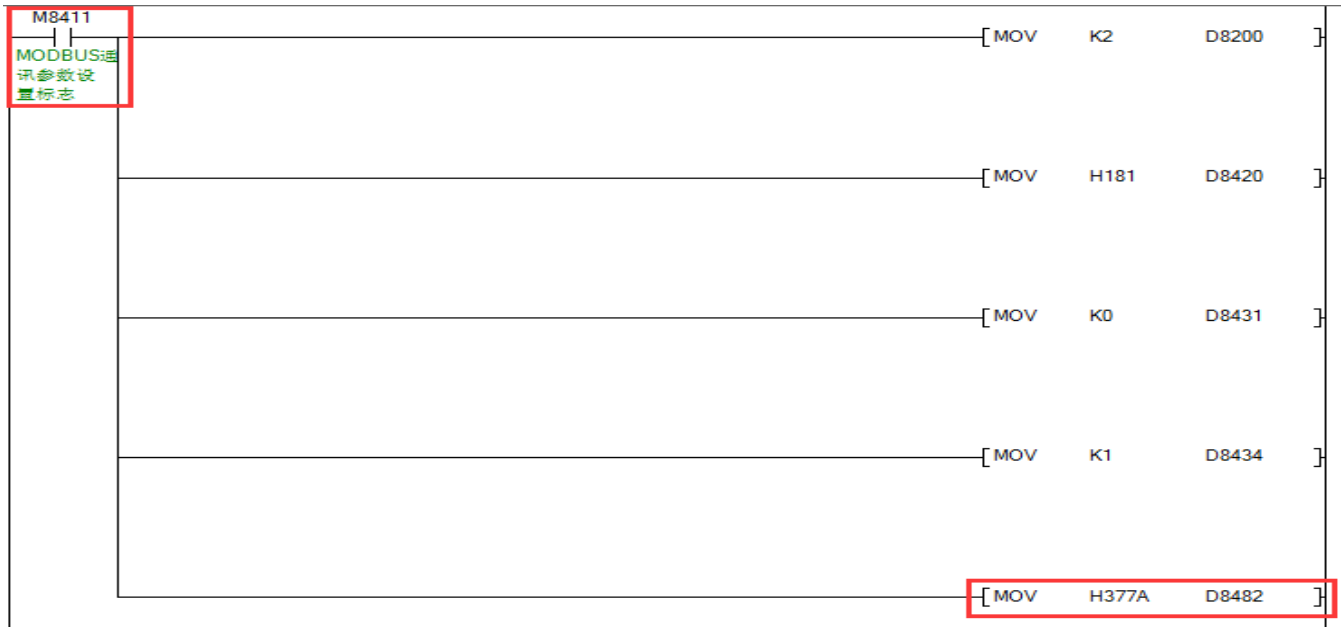
Enter a register that supports the following range of addresses:

Serial number	Software component category	Address Range
1	Delta 8030, go	D8030 ~ D8093; the valid 13-bit address is 0x00 ~ 0x1F3. No matter what the configuration number is, it all points to the PLC address D8030 ~ D8093
2	D General	D500 ~ D7999; the valid 13-bit address is 0x01f4 ~ 0x1F30, the configuration address is

	Register	1F30, when the number is 1, the PLC address is maximum to D7999

The instructions are as follows:

Data conversion notes:



In the example program above, H377A converts to binary data bits as follows:

The last 13 bit bit "1011101111010" of D8482 address corresponds to hexadecimal 177A; that is to say, the PLC address type as input discrete quantity in slave PLC. . H177A is hexadecimal 6010, which means access begins at the D6010 address.

The first three bits "001" of the D8482 address correspond to decimal 1, in 16Word, that is, 1x16 = 16Word, which means that the character element of the Modbus master station when accessing the Slave Station PLC input register has 16 words (when the number is set to 0, the access points to the D8030 element starting the default range) .

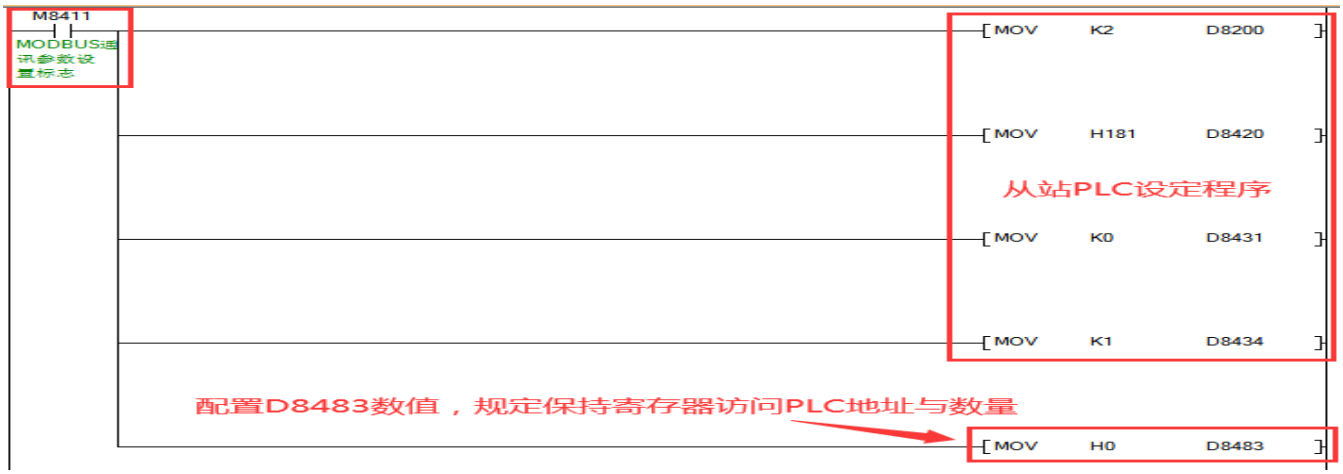
Combined with the above, the routine provides that the master station access Slave PLC input register address range is "D6010 ~ D6026" .

Set the address and number of hold register elements

To keep registers, the range of addresses that support configuration is as follows:

Serial number	Software component category	Address Range
1	Delta 7200, go	D7200 ~ D7263; the valid 13-bit address is 0x00 ~ 0x1F3. No matter what the configuration number is, it all points to the PLC address D7200 ~ D7263. It should be noted that the longer the master station visits the PLC address, the larger the master station time-out should be set
2	D General Register	D500 ~ D7999; the valid 13-bit address is 0x01f4 ~ 0x1F30, and the number of special components is 0. When the number of addresses exceeds D7999, the number of visits to the master station exceeds the range of the PLC address

The instructions are as follows:



Data conversion notes:

In the example program above, H979D converts to binary data bits as follows:

The last 13 bit bit “101111001101” of D8483 address corresponds to hexadecimal 179D; that is to say, the PLC address type as input discrete quantity in slave PLC. . H179D is hexadecimal 6045, which means access begins at the D6045 address.

The first three bits “100” of the D8483 address correspond to base 104 in 16Word, that is, 4x16 = 64word, which means that the character element when Modbus master station accesses the Slave Station PLC input register has 64 words (when the number is set to 0, the access point to the D8030 element starts the default range) .

Combined with the above, the routine provides that the master station access Slave PLC input register address range is “D6045 ~ D6108.” .

6.3 interface communication

AMX-FX3U-26MR-E programmable controller supports the communication of network interface through which users can communicate programmatically or with devices that support the FX3U protocol, such as touch screen. This section mainly describes the PLC side communication settings, some touch screen or host side communication settings, please refer to “Appendix C” in the content.

Ethernet parameter

Specification of Ethernet parameters			
Serial number	Parameter type	Function description	Notes
1	Support Protocol	Modbus TCP, MC protocol	MC protocol refers to Mitsubishi PLC protocol, in this connection for Ethernet interface communication
2	Mesh rate	10100mbps	
3	Default IP	192.168.1.18	
4	Modbus service port number	502	Unalterable
5	MC protocol service port number	5551,6551	Unalterable

Ethernet parameters correspond to special registers

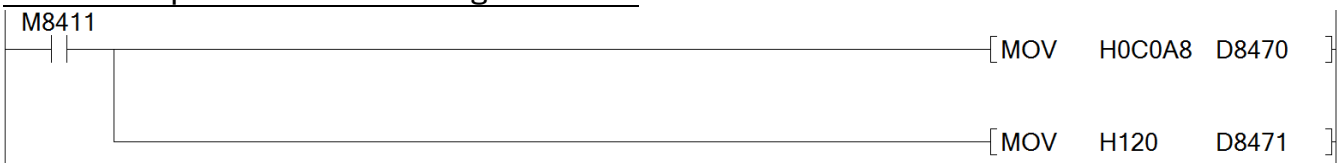
Special register corresponding to Ethernet parameters			
Serial number	Parameter name	Parameter address	Notes
1	IP address segment 1	Corresponds to D8470 high bytes	Power-down hold
2	IP address segment 2	Corresponds to D8470 low bytes	Power-down hold
3	IP address segment 3	Corresponds to D8471 high bytes	Power-down hold
4	IP address segment 4	Corresponds to D8471 low bytes	Power-down hold
5	MAC address end 1	Corresponds to D8472 high bytes	Power-down hold
6	MAC address end 2	Corresponds to D8472 low bytes	Power-down hold
7	MAC address end 3	Corresponds to D8473 high bytes	Power-down hold
8	MAC address end 4	Corresponds to D8473 low bytes	Power-down hold
9	MAC address end 5	Corresponds to D8474 high bytes	Power-down hold
10	MAC address Terminal 6	Corresponds to D8474 low bytes	Power-down hold
11	Number of connections	Corresponds to the first four digits of the D8475 high byte	The power's out
12	Error code	That corresponds to the lower 12 digits of D8475	The power's out

Modbus TCP correlation component register

Working register corresponding to Ethernet function			
Serial number	Function name	Default address	Notes
1	Coil condition	Point to digital output, 2 bytes; corresponding channel Y000 ~ Y011	Can be configured with D8476, no more than 4 * 8 bits
2	Input Discrete Signal	Point to digital input, 4 bytes; corresponding input channel X000 ~ X027	Can be configured with D8477, no more than 4 * 8 bits
3	Input Register	16 words; default corresponds to data starting from D register D8030	Can be configured through D8478, no more than 32 words
4	Hold Register	16 characters; default corresponds to data starting	Can be configured through D8479, no

		from D register D7100	more than 64 words

Ethernet parameter setting routine



The software components in the PLC setup routine at the slave station are illustrated as follows:

M8411: set the flag bit of Modbus communication parameter, the PLC will be connected after power on

D8470: set the 1st and 2nd bit of the 4-bit IP address, the routine set value is HC0A8:

C0 corresponds to the first bit of the IP address, which is 192

A8 corresponds to the second bit of the IP address, which is 168

D8471: sets the 3rd and 4th bits of a 4-bit IP address, the routine sets the value to H120:

01 corresponds to the third bit of the IP address, which is 1

20 corresponds to the fourth bit of the IP address, which is 32

Above all, the IP of PLC as Modbus TCP server is 192.168.1.32

The subnet mask is fixed at 255.255.255.0(the default subnet mask for the Class C IP address) , the first three segments of the default gateway are the first three segments of the user’ s IP (the network number for the Class C IP address) , and the last segment is fixed at 1, so the default gateway in the sample program is 192.168.1.1.

Pay attention

PLC power-on to execute the above initialization code, will save the parameters, power-off reset after the parameters set will be effective.

In order to reduce the power-on time to save parameters to write FLASH, after the execution of this set code once, you can delete this set program, later if you need to change communication parameters to write to join the run.

As the subnet mask, the default gateway can not be set, the interface parameters users only need to set the IP address.

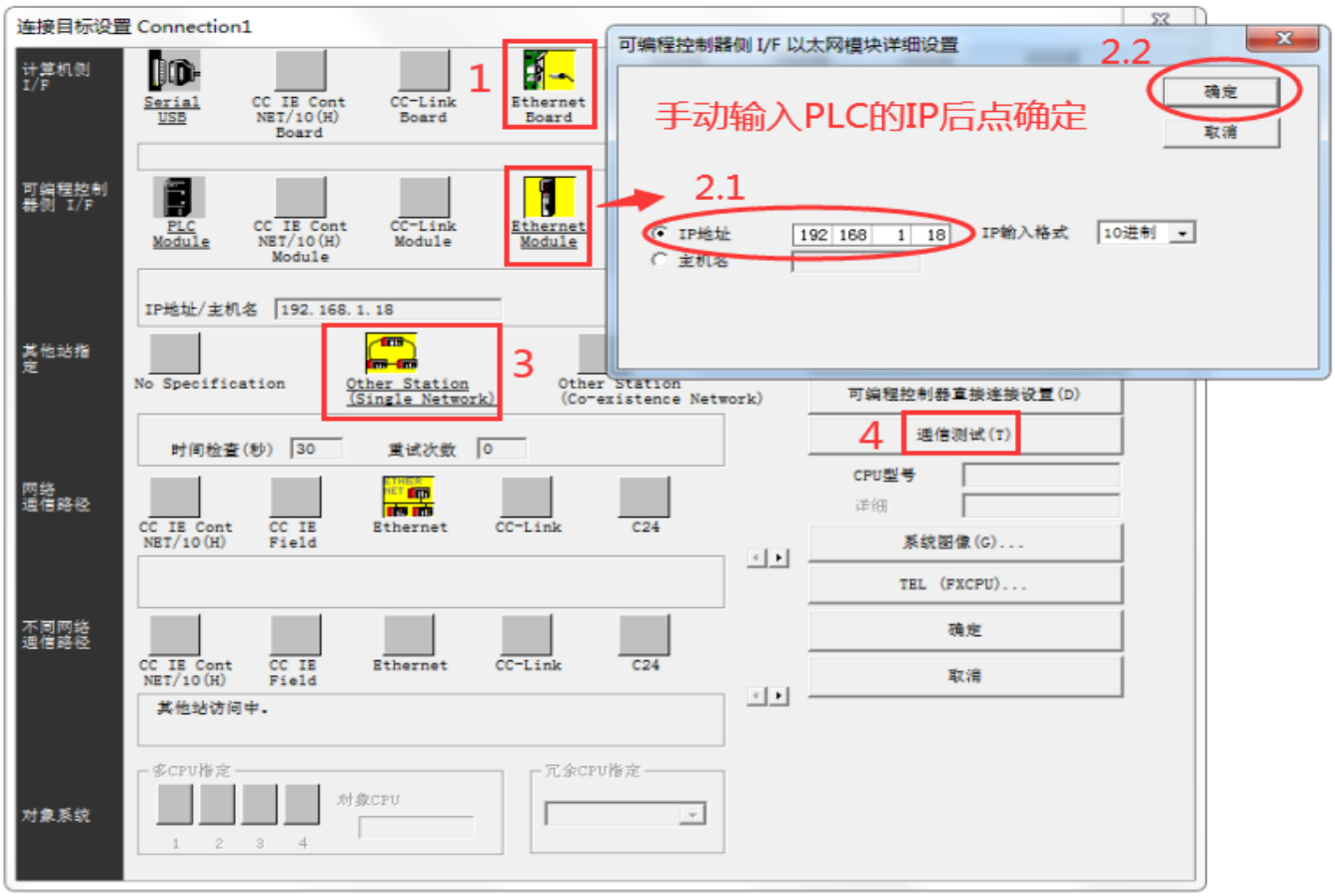
6.3.1, communication with Mitsubishi programming software (GX Works2 +)

Local connection settings on the computer side

AMX-FX3U-26MR-E default IP address is 192.168.1.18(change IP by Ethernet parameter setting routine) . Should ensure that the computer IP network segment and PLC consistent and IP does not conflict, as shown in the following figure set the computer local IP address 192.168.1.110.

Programming software communication connection settings (GX Works2 example)

After opening the connection target setting window of Mitsubishi’ s programming software, configure it by directly entering the Ethernet module IP, as shown in the following figure.



Follow the 1-4 steps shown above.

Pay attention

When GX Works2 programming software establishes the Ethernet connection with PLC, the user needs other upper computer/touch screen which supports MC Ethernet protocol to connect PLC at the same time, please use port 6551

6.3.2, Modbus TCP communication description

Modbus TCP server-side related software component address setting program

The software components in the PLC setup routine at the slave station are illustrated as follows:

D8476: the starting address and number of components of the coil dispersion accessed when setting this machine as the Modbus TCP server side

D8477: the starting address and number of components of the input discreteness accessed when setting the Modbus TCP server on this machine

D8478: the starting address and number of components of the input register accessed when setting this machine as the Modbus TCP server side

D8479: the starting address and number of components of the hold register that are accessed when setting this machine as the Modbus TCP server side

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Pay attention

PLC power-on to execute the above initialization code, will save the parameters, power-off reset after the parameters set will be effective.

In order to reduce the power-on time to save parameters to write FLASH, after the execution of this set code once, you can delete this set program, later if you need to change communication parameters to write to join the run.

Explanation of address setting for Modbus TCP related software components

When using Modbus TCP function, through four configuration address D8480 ~ D8403 value, Determine PLC Modbus TCP master access to the type of software components address and number range.

The numerical format is: to configure the 13 bit (bit 0 ~ bit 12) value after the address, to determine the type of software components visited by the host station and the starting address, to configure the first 3 bit (bit 13 ~ bit 15) value of the address, to determine the number of visited address by the host station.

In order to specify M100 ~ M200 as the coil discrete quantity in PLC, it is necessary to specify the format of the last 13 digits of the address of D8480, the corresponding configuration address (decision object) , the coil discrete quantity is the number of M element that master station accesses slave Station PLC, and the number of M element that accesses when address first 3 digit value and format.

M8411 must be used as instruction driver to change the value of configuration address D8476 ~ D8479 through MOV and other data transmission and write instructions. If the configuration value exceeds the PLC address range, the master station will fail to communicate if the access range also exceeds the PLC address range.

The following describes four types of access address and number formats: coil dispersion, input dispersion, input register, and hold register.

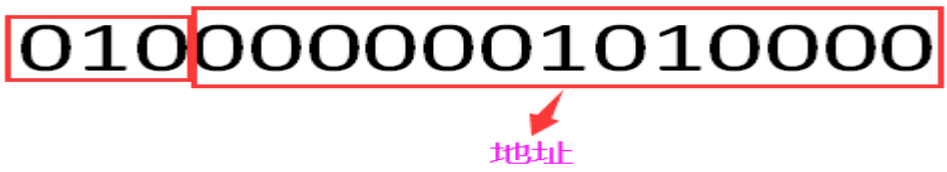
Set the address and number of coil components

Coil status, supports the following ranges of addresses:

Access address Pointing element Categories	Address Range	(PLC) number of addresses for access	Notes
Y element	Y 0 ~ Y11 corresponds to a valid 13-bit configuration address of 0x00 ~ 0x79 or 0xC0 ~ 0x1F3	No more than 32 accesses, 32 regardless of how many accesses are configured, subject to the actual number of Y input channels	1)0x80 ~ 0x1F3F configuration for more than 32 accesses, the access address will point to the Y element 2)0xBF, 0x1F3F, 16 < configuration for number of accesswhen 32, as long as the number of primary site visits not more than 16, still access configuration address points to the software component, after that time will timeout
M element	M0 ~ M1063; valid 13-bit configuration address is 0x80 ~ 0x99: 0x80 corresponds to M0 ~ M15; 0x81 corresponds to M16 ~ M31; ... 0xBF corresponds to M1008 ~ M1023	1) configure the address 0x80 ~ 0xBE with a maximum of 32 accesses 2)0 x BF recommended 16	
D register	D500 ~ D7999; valid 13-bit configuration address 0x01F4 ~ 0x1F3F	1) when the address 0x01F4 ~ 0x1F3E is configured, the maximum number of accesses is 32; 2) configuration address 0x1F3F 16 is recommended	

Point to Y coil data conversion instructions:

In the example program above, the H4050 converts to binary data bits as follows:



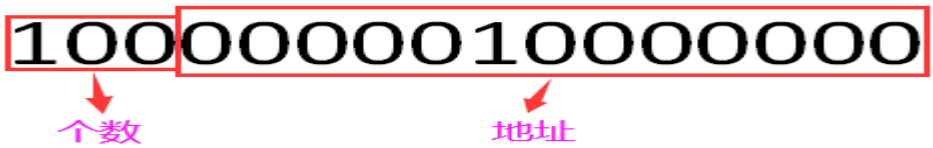
The last 13 bit bit “0000001010000” of D8476 address corresponds to hexadecimal 50; that is to say, the PLC address type as coil discrete quantity in slave PLC. .

The first three bits of the D8476 address, regardless of their value, point to the y element’ s default range “Y 0 ~ Y37” (octal) .

In combination with the above, the routine specifies that the coil discrete address range of master station access slave station PLC is “Y 0 ~ y 37” (octal, amx-fx3u-26actual hardware coil range “Y 0 ~ y 11”, the rest is software range)

Data conversion instructions for the M element:

In the example program above, H8080 converts to binary data as follows:



The last 13 bit “00000 million” of the D8476 address corresponds to hexadecimal 80; that is, the PLC address type as the coil discrete quantity in the Slave PLC is the M element, and the H0080 corresponds to the PLC address M0.

The first three bits “100” of the D8476 address correspond to 10 decimal 4, with 8 bits, or 4x8 = 32 bits, the bit element representing Modbus master station when accessing the PLC coil dispersion of slave station has 32 bits (when the number is set to 0, the access points to the Y element default range “Y 0 ~ Y37” (Octal)) .

Combined with the above, the routine provides that the master station access

slave PLC coil discrete address range is “M0 ~ M31”.

Instructions for converting data to D register:

In the example program above, H9770 converts to binary data bits as follows:

The last 13 bit bit “101110110000” of D8476 address corresponds to hexadecimal 1770; that is to say, the PLC address type in slave station PLC as coil discrete quantity is D element. H1770 is hexadecimal 6000, which means access begins at the D6000 address.

The first three bits “100” of the D8480 address correspond to base 104 in units of 8 bit, that is 4x8 = 32 bit, the bit element representing Modbus master station when accessing the PLC coil dispersion of slave station has 32 bits (when the number is set to 0, the access points to the Y element default range “Y 0 ~ Y37” (Octal)).

Combined with the above, the routine provides that the master station access slave PLC coil discrete address range of “D6000.0 ~ D6001.15” (a data register D address 16bit), that is, D6000, D6001 two words.

Sets the address and number of input discrete components

Enter the state of the discreteness, and the range of addresses that support configuration is as follows:

Access address Pointing element Categories	Address Range	(PLC) number of addresses for access	Notes
X element	X0 ~ X17 corresponds to a valid 13-bit configuration address of 0x00 ~ 0x79 or 0xC0 ~ 0x1F3	No more than 32 accesses, 32 regardless of how many accesses are configured, subject to the actual number of X input channels	1)0x80 ~ 0x1F3F is configured for 32 or more accesses, the access address will

M element	M0 ~ M1063; valid 13-bit configuration address is 0x80 ~ 0x99: 0x80 corresponds to M0 ~ M15; 0x81 corresponds to M16 ~ M31; ... 0xBF corresponds to M1008 ~ M1023	1) configure the address 0x80 ~ 0xBE with a maximum of 32 accesses 2)0 x BF recommended 16	point to the X element 2)0xBF, 0x1F3F, 16 < configuration for number of accesswhen 32, as long as the number of primary site visits not more than 16, still access configuration address points to the software component, after that time will timeout
D register	D500 ~ D7999; valid 13-bit configuration address 0x01F4 ~ 0x1F3F	1) when the address 0x01F4 ~ 0x1F3E is configured, the maximum number of accesses is 32; 2) configuration address 0x1F3F 16 is recommended	

Data conversion instructions (for example, pointing to the D register) :

In the example program above, H9775 converts to binary data bits as follows:

The last 13 bit bit “101110110000” of D8477 address corresponds to hexadecimal 1775; that is to say, the PLC address type of slave station PLC as input discrete quantity is D element. H1775 is hexadecimal 6005, which means access begins at the D6005 address.

The first three bits “100” of the D8477 address correspond to 10 base 4, and the unit is 8bit, that is 4x8 = 32bit, which means that the bit element has 32 bits when Modbus master station accesses the Slave Station PLC input discrete quantity -LRB- when the number is set to 0, the access points to the default rangeXof x element) .

In combination with the above, the routine specifies that the input discrete address range of master station access slave station PLC is “D6005.0 ~ D6006.15” (a data register D address 16bit) , namely D6005, D6006 these two words.

Sets the address and number of input register components

Enter a register that supports the following range of addresses:

Access address Pointing element Categories	Address Range	(PLC) number of addresses for access	Notes
Delta 8030, go	D8030 ~ D8061; valid 13-bit address is 0x00 ~ 0x1F3	No more than 32 accesses, the configuration for accesses will point to D8030 ~ D8061 regardless of the value	1)0x01F4 ~ 0x1F30 is configured to point to D8030 ~ D8061 when the number of accesses is 0 or more 2)0x1F21 ~ 0x1F30, configuration for access number "32, as long as the number of visits to the main site does not exceed the "Configuration address to the number of D7999", still access configuration address to the software component, after that time-out
D routine Register	D500 ~ D7999; valid 13-bit address is 0x01F4 ~ 0x1F30	1) configure the address 0x01F4 ~ 0x1F20 with a maximum of 32 accesses; 2) configuration address 0x1F21 ~ 0x1F30, when the number of configuration for access has exceeded D7999, the actual number of configuration address points to the number of D7999 address of the software component	

Data conversion notes:

In the example program above, H377A converts to binary data bits as follows:

The last 13 bit bit "1011101111010" of D8478 address corresponds to hexadecimal 177A; that is to say, the PLC address type as input discrete quantity in slave PLC. . H177A is hexadecimal 6010, which means access begins at the D6010 address.

The first three bits "001" of the D8478 address correspond to decimal 1, in 16Word, that is, 1x16 = 16Word, which means that the character element when Modbus master station accesses the Slave Station PLC input register has 16 words (when the number is set to 0, the access points to the D8030 element to start the

default range) .

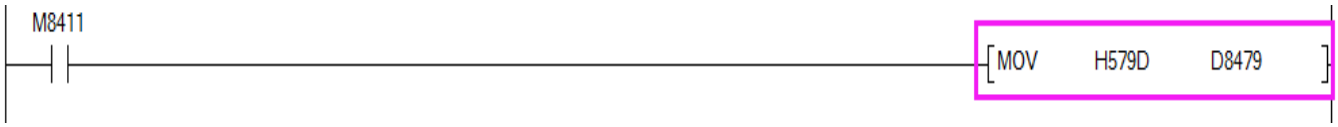
Combined with the above, the routine provides that the master station access Slave PLC input register address range is “D6010 ~ D6026” .

Set the address and number of hold register elements

To keep registers, the range of addresses that support configuration is as follows:

Access address Pointing element Categories	Address Range	(PLC) number of addresses for access	Notes
Delta 7100, go	D7100 ~ D7163; valid 13-bit address is 0x00 ~ 0x1F3	No more than 32 accesses, the configuration for accesses will point to D7100 ~ D7163 regardless of the value	1)0x01F4 ~ 0x1F30 is configured to point to D7100 ~ D7163 when the number of accesses is zero or more than 64 2)0x1F01 ~ 0x1F30, configuration for access number “64, as long as the number of visits to the main site does not exceed the “Configuration address to the number of D7999”, still access configuration address to the software component, after the timeout
D routine Register	D500 ~ D7999; valid 13-bit address is 0x01F4 ~ 0x1F30	1) configure the address 0x01F4 ~ 0x1F00 with a maximum of 64 accesses; 2) configuration address 0x1F01 ~ 0x1F30, when the number of configuration for access has exceeded D7999, the actual number of configuration address points to the number of D7999 address of the software component	

Data conversion notes:



In the example program above, H979D converts to binary data bits as follows:

The last 13 bit bit “101111001101” of D8479 address corresponds to hexadecimal 179D; that is to say, the PLC address type as input discrete quantity in slave PLC. . H179D is hexadecimal 6045, which means access begins at the D6045 address.

The first three bits “100” of the D8479 address correspond to base 104 in 16Word, that is, 4x16 = 64word, which means that the character element of the Modbus master station when accessing the Slave Station PLC input register has 64 words (when the number is set to 0, the access points to the D8030 element starting the default range) .

Combined with the above, the routine provides that the master station access Slave PLC input register address range is “D6045 ~ D6108.” .

Orientation control instructions

AMX-FX3U-E Port Series PLC only AMX-FX3U-26MT-E support positioning control, the following brief description.

7.1 positioning control features

High-speed pulse output (positioning control) supporting Y 0, y 1 co-2 axes;

Maximum 100kHz pulse output per circuit;

Support Mitsubishi PLSV, PLSY, PLSR, DRVA, DRVI, ZRN instructions;

Support for PULSE + direction signal and forward and reverse pulse switching.

7.2 features

The list of instructions used in the AMX-FX3U-26MT-E positioning feature is shown in the following table.

Positioning instruction	Function	Chapter
Zrn DZRN	Mechanical origin regression	7.5.1
PLSY/DPLSY	Pulse output	7.5.2
PLSV DPLSV	Variable speed pulse output	7.5.3
PLSR/DPLSR	Pulse output with acceleration and deceleration	7.5.4
DRVI/DDRVI	Relative positioning	7.5.5
DRVA/DDRVA	Absolute positioning	7.5.6

7.3I/O point allocation

The list of instructions used in the AMX-FX3U-26MT-E positioning feature is shown in the following table.

Allocation of input points

<table>
<tr><th>Function</th><th>Enter the number</th><th>Account for</th></tr>
<tr><td>Origin regression</td><td>All input points</td><td>Please connect at any input.
If the input to the wiring is 0N, drive the ZRN instruction.</td></tr>
<tr><td>Positive transpose limit (LSF)</td><td>All input points</td><td>Please connect at any input.
If the input to the connection is ON, drive the forward limit flag bit.
Depending on the pulse output, the positive turn limit flag bit is shown in the following table.
<table>
<tr><th>Pulse output</th><th>Positive turn limit</th></tr>
<tr><td>Y000</td><td>M8343</td></tr>
<tr><td>Y001</td><td>M8353</td></tr>
</table></td></tr>
<tr><td>Inversion limit (LSR)</td><td>All input points</td><td>Please connect at any input.
If the input to the connection is ON, drive the reverse limit flag bit.
Depending on the pulse output, the reverse limit flag bit is shown in the following table.
<table>
<tr><th>Pulse output</th><th>Reverse limit marker bit</th></tr>
<tr><td>Y000</td><td>Delta 8464</td></tr>
<tr><td>Y001</td><td>Delta 8465</td></tr>
</table></td></tr>
</table>

Allocation of output points

<table>
<tr><th>Function</th><th>Enter the number</th><th>Account for</th></tr>
<tr><td>Pulse train signal (pulse output)</td><td>Y zero
Y 1</td><td>Please connect the Y000 ~ Y001 wire which is set to the output of the pulse by the positioning instruction.</td></tr>
<tr><td>Direction signal (direction of rotation signal)</td><td>The direction signals of Y 0 ~ y 1 correspond to Y 4 ~ y 5.
<table>
<tr><th>Pulse train signal</th><th>Direction signal</th></tr>
<tr><td>Y zero
Y 1</td><td>Y 4
Y-5</td></tr>
</table></td><td>Connect to the output of the signal specified by the orientation instruction as the direction of rotation.
In the positioning instruction, the directional signal corresponding to each channel pulse train signal has now been fixed.</td></tr>
<tr><td>Clear signal</td><td>All output points</td><td>When the ZRN instruction is used to output the clear signal, the wire is connected.
According to the ZRN instruction specified by the different pulse output, the default reset signal
No. is shown in the following table.
<table>
<tr><th>Pulse output</th><th>Clear signal</th></tr>
<tr><td>Y zero</td><td>Y 4</td></tr>
<tr><td>Y 1</td><td>Y-5</td></tr>
</table>
If the zeroing function is used, the zeroing soft element can be used to specify registers to specify any output</td></tr>
</table>

		corresponding to each pulse output. Depending on the output of the pulse, the reset signal soft component registers are shown in the following table. Pulse output / Reset the Instruction register Y zero / Delta 8464 Y 1 / Delta 8465

7.4 list of related software components

The associated special auxiliary relays are shown in the following table. Y000, Y001 for the pulse output software components.

Special Auxiliary Relay:

Software component number		Name	Attribute	Object instruction (supports 32-bit instructions)
Y zero	Y 1			
M8029		End of instruction execution flag bit	Read only	Plsy Zrn Drvi Drva
M8329		Abnormal end of instruction execution flag bit	Read only	Plsy Zrn Drvi Drva
M8340	M8350	Busy/READY monitoring of pulse output	Read only	Plsy Zrn Drvi Drva
M8341	M8351	The clear signal output function is effective	Read only	Zrn
M8343	M8353	Positive limit	Read only	ZRN/DRVI/Drva
M8344	M8354	Reversal limit	Read only	ZRN/DRVI/Drva
M8348	M8358	Locating Command Drive	Read only	ZRN/DRVI/Drva
M8349	M8359	Pulse stop command	Readable and writable	Plsy Zrn Drvi Drva
M8464	M8465	The function specified by the reset signal soft component is valid		Zrn

The associated special data relays are shown in the following table. Y000, Y001 for the pulse output software components.

Special Data Register:

Software component number		Name	Data Length	Initial value	Object instruction (supports 32-bit instructions)
Y zero	Y 1				
Delta 8340 (low)	Delta 8350 (low)	Current Value Register [PLS]	32 bits	0	ZRN/DRVI/Drva
Delta 8341 (high position)	Delta 8351 (high position)				
Delta 8342	Delta 8352	Base velocity [Hz]	16 bits	0	ZRN/DRVI/Drva

Delta 8343 (low)	Delta 8353 (low)	Max speed [Hz]	32 bits	50k	ZRN/DRVI/Drva
Delta 8344 (high position)	Delta 8354 (high position)				
Delta 8348	Delta 8358	Acceleration time [ms]	16 bits	100	ZRN/DRVI/Drva
Delta 8349	Delta 8359	Deceleration Time [MS]	16 bits	100	ZRN/DRVI/Drva
Delta 8464	Delta 8465	Clear signal soft component designation	16 bits		Zrn
Delta 8380	Delta 8382	The number of steps in a circle	16 bits	200	ZRN/DRVI/Drva
Delta 8381	Delta 8383	Step-driven subdivision	16 bits	32	ZRN/DRVI/Drva

Note: the number of steps per revolution multiplied by the step drive subdivision is the number of pulses Per Revolution

7.5 instructions

7.5.1. Mechanical origin regression -- ZRN instruction

Instruction Overview

A command that causes a quick return to the origin.

Instructions	Function	Bits	Instruction format	Number of steps
Zrn	Origin regression	16	Zrn	9

DZRN		32		17

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H
S1					●	●	●	●	●
S2					●	●	●	●	●
S3	●	●	●	●					
D		●							

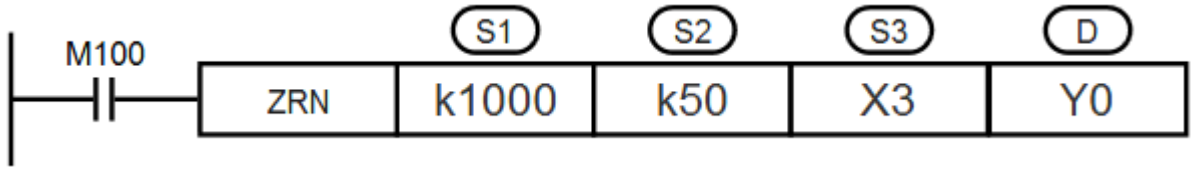
For the velocity at the beginning of the origin regression, the frequency range is: 10 ~ 32,767 Hz (BIN16 bit) , Or 10 ~ 100,000 Hz (bit BIN32) ;

For specified crawling speed, enabled when origin signal is ON, range: 10 ~ 32,767(Hz) ;

Dog origin signal input, where X signal response is the best;

The AMX-FX3U transistor family can specify either y 0 or y 1 for the port number of the specified pulse output.

Functional action



Pulse output: AMX-FX3U-26MT-E supports y 0 ~ y 1 dual-axis output

Is in the same direction as, and the absolute value of the former is greater than the absolute value of the latter

After the instruction is driven by the M100, the PLC sends a pulse starting from the designated high-speed pulse output port Y 0 at the origin regression speed of 1000 Hz to make the servo/stepping motor move toward the origin

When the DOG origin signal x 3 changes from OFF to ON, the output frequency of Y 0 decreases to 50 Hz

When the DOG origin x 3 state changes from ON to OFF, Y 0 stops the pulse output

and writes 0 to the current value register (Y000: [D8341, D8340] , Y001: [D8350, D8351]) .

When M8341(reset signal output function) ON, output reset signal. Later, when the completion flag (M8029) is set to ON, the monitor in the pulse output (y 0: [M8340, Y 1: [M8350]) becomes OFF.

Special software components associated with this directive

1. The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]
2. Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]
3. Y 0 pulse output stopped (stop immediately) : M8349
4. Y 1 pulse output stopped (stop immediately) : M8359
5. Busy/READY: M8340
6. Busy/READY: M8350

7.5.2. Pulse output -- PLSY instruction

Instruction Overview

One-way quantitative pulse output instruction without acceleration or deceleration time variation.

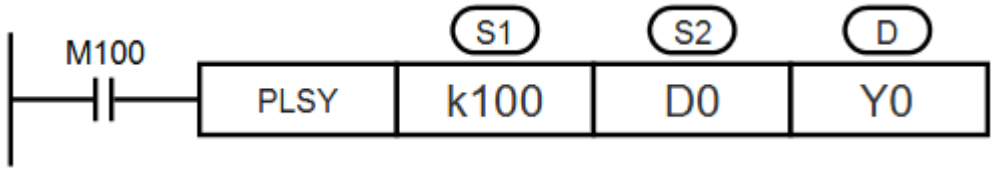
Instructions	Function	Bits	Instruction format	Number of steps
PLSY	Pulse output	16	PLSY	7
DPLSY		32		13

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H

S1					●	●	●	●	●
S2					●	●	●	●	●
D		●							

For specifying pulse output frequency, in the range 1-32,767 Hz (BIN16 bit) ,
Or 1 ~ 100,000 Hz (bit BIN32) ;
For specifying the number of output pulses, ranging from 1 to 32,767 pls (BIN16 bits) ,
Or 1 ~ 2,147,483,647 pls (Bin32 bit) ;
For the port number of the specified pulse output, AMX-FX3U-26MT-E can specify either y 0 or y 1.

Functional action



When the instruction is driven by M100, the PLC sends pulses at the specified 100 Hz frequency starting from the specified high-speed pulse output port Y 0. When the number of pulses sent reaches the specified value of the D0 register, the Y 0 pulse output stops and the completion Mark (M8029) is set to ON.

Special software components associated with this directive

1. Y 0 output pulse number (32 bits, reduced when reversed) : [D8141(high) , D8140(low)]
2. Y 1 output pulse count (32 bits, reduced when reversed) : [D8143(high) , D8142(low)]
3. Y000 pulse output stop (stop immediately) : M8349
4. Y001 pulse output stop (stop immediately) : M8359
5. Busy/READY: M8340
6. Y001, BUSY/READY: M8350

7.5.3 variable speed pulse output-plsv instruction

Instruction Overview

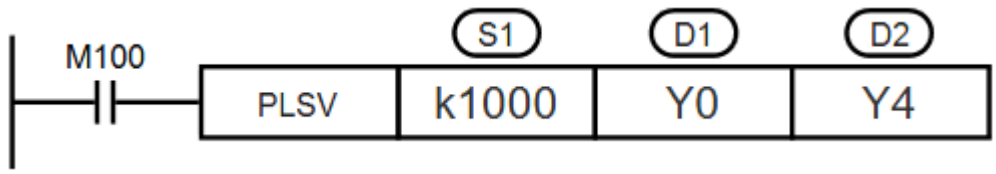
Variable speed pulse output instruction with rotation direction.

Instructions	Function	Bits	Instruction format	Number of steps
PLSV	Variable speed Pulse output	16	PLSV	7
DPLSV		32		13

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H
S1					●	●	●	●	●
D1		●							
D2		●	●	●					

For specifying pulse output frequency, in the RANGE-32,7681 ~ 32,767 Hz (except 0, BIN16 bit) ,
Or-50,000 ~ 50,000 Hz (except 0, BIN32 bit) , where the minus sign represents the opposite direction
For the port number of the specified pulse output, AMX-FX3U-26MT-E can specify y 0 or y 1;
Amx-fx3u-26mt-e can specify y 4 or y 5 as the rotation direction signal, and the output signal is ON, running in the forward direction, or vice versa, to specify the rotation direction signal output port number or bit variable.

Functional action



When the instruction is driven by M100, the PLC pulses from the specified high-speed pulse output port Y 0 to the specified 1000 Hz, when the specified direction of rotation signal output port Y4 = on, indicating the positive direction

Special software components associated with this directive

1. The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]
2. Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]
3. Y 0 pulse output stopped (stop immediately) : M8349
4. Y 1 pulse output stopped (stop immediately) : M8359
5. Busy/READY: M8340
6. Busy/READY: M8350

7.5.4. Pulse output with acceleration and deceleration -- PLSR instruction

Instruction Overview

Pulse output command with acceleration and deceleration function.

Instructions	Function	Bits	Instruction format	Number of steps
PLSR	Belt acceleration and deceleration Pulse output	16	PLSR	9
DPLSR		32		17

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H
S1					●	●	●	●	●
S2					●	●	●	●	●

S3					●	●	●	●	●
D		●							

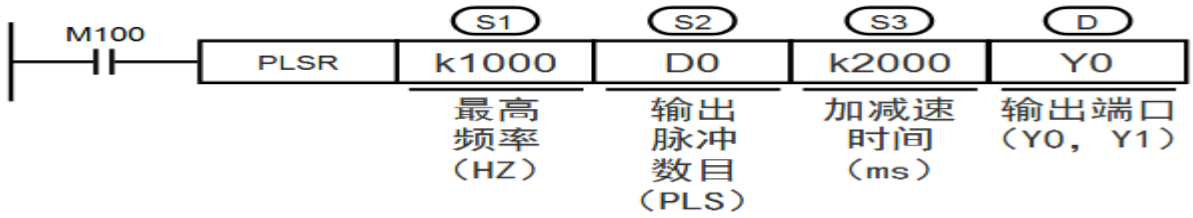
The highest frequency of the specified pulse output, in the range of 10-32,767 Hz (BIN16 bit) , Or 10 ~ 50,000 Hz (BIN32 bit) ;

For the specified number of output pulses, in the range 1-32,767(BIN16 bits) , Or 1 ~ 2,147,483,647(PLS)(Bin32 bit) ;

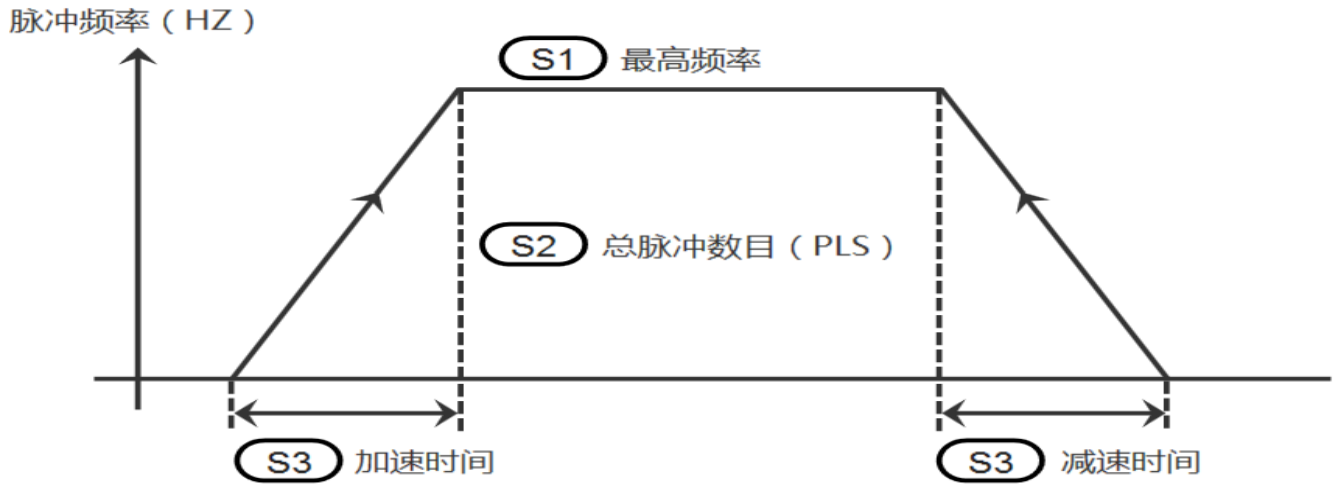
for the specified acceleration and deceleration time, the range: 50 ~ 5000(units: MS) , note the same acceleration and deceleration time;

For the port number of the specified pulse output, AMX-FX3U-26MT-E can specify either y 0 or y 1.

Functional action



When the instruction is driven by M100, the PLC sends out a pulse from the designated high-speed pulse outlet Y 0, reaches the designated 1000HZ frequency pulse after the designated acceleration time of 2 seconds, and stops the output after the designated deceleration time of 2 seconds after running for a period of time, total number of output pulses issued at the same time.



Special software components associated with this directive

1. The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]
2. Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]
3. Y 0 pulse output stopped (stop immediately) : M8349
4. Y 1 pulse output stopped (stop immediately) : M8359
5. Busy/READY: M8340
6. Busy/READY: M8350

7.5.5. Relative positioning -- DRVI instruction

Instruction Overview

Single-segment pulse control instruction for relative positioning.

Instructions	Function	Bits	Instruction format	Number of steps
Drvi	Relative positioning	16	Drvi	9
DDRVI		32		17

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H

S1					●	●	●	●	●
S2					●	●	●	●	●
D1		●							
D2		●	●	●					

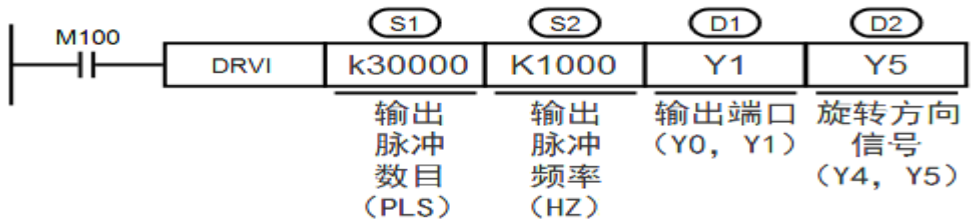
For the specified number of output pulses, in the RANGE-32,768 ~ 32,767(except 0, Bin16 bits) , OR-999,999 ~ 999,999 Hz (except 0, BIN32 bit) , where the minus sign represents the reverse direction;

For specifying pulse output frequency, in the range of 10 ~ 32,767 Hz (BIN16 bit) , Or 10 ~ 100,000 Hz (bit BIN32) ;

For the port number of the specified pulse output, AMX-FX3U-26MT-E can specify y 0 or y 1;

Amx-fx3u-26mt-e can specify y 4 or y 5 as the rotation direction signal, and the output signal is ON, running in the forward direction, or vice versa, to specify the rotation direction signal output port number or bit variable.

Functional action



After the instruction is driven by M100, the PLC starts from the specified high-speed pulse output port Y 1 and outputs the specified 30000pls pulse at the specified 1000HZ. When the direction of rotation is specified, the signal output port Y5 = on indicates the positive direction

The number of output pulses is relative (y 0, Y 1) to the current value register as relative position:

The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]

Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]

Instructions can be used multiple times in a program, but do not print to the same port at the same time

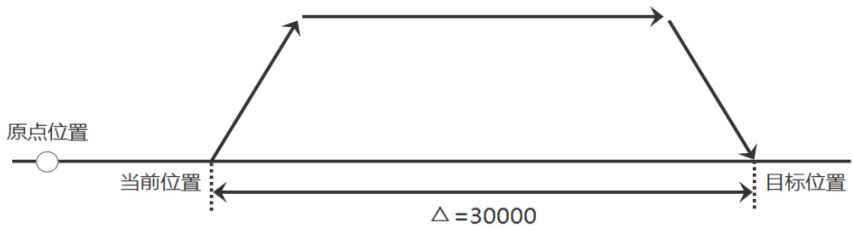
Changes the operand content during instruction execution, only the next time the instruction is executed

deceleration stops when the drive contact is OFF during instruction execution. At this point, M8029, the end of instruction execution flag, does not act.

When the monitoring (BUSY/READY) in the pulse output is ON, the positioning instructions using that output can not be executed.

Even if the instruction-driven contact is OFF and the pulse output is monitored (BUSY/READY) ON, please

Do not execute location instructions (including PLSY) that specify the same output number.



Special software components associated with this directive

1. The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]
2. Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]
3. Y 0 pulse output stopped (stop immediately) : M8349
4. Y 1 pulse output stopped (stop immediately) : M8359
5. Busy/READY: M8340
6. Busy/READY: M8350

Base speed when executing the DRVI instruction:

Y 0 pulse output: D8342

Y 1 pulse output: D8352

Set range: less than 1/10th of maximum speed, or 1/10th of maximum speed if above

The maximum speed at which the DRVI instruction is executed:

Y 0 pulse output: [D8344(high) , D8343(low)]

Y 1 pulse output: [D8354(high) , D8353(low)]

The specified pulse output frequency must be less than the maximum speed, set range: 10 ~ 100,000 Hz

9. Acceleration and deceleration time when executing the DRVI instruction:

Y0 pulse output acceleration time: D8348

Y1 pulse output acceleration time: D8358

Y0 pulse output deceleration time: D8368

Y1 pulse output deceleration time: D8378

The acceleration and deceleration time is the time required to reach the maximum speed in MS

7.5.6. Absolute positioning -- the drva directive

Instruction Overview

Single-segment pulse control instruction for relative positioning.

Instructions	Function	Bits	Instruction format	Number of steps
Drva	Absolute positioning	16	Drva	9
DDRVA		32		17

Operands	Bit element				Character element			Constant	
	X	Y	M	S	T	C	D	K	H
S1					●	●	●	●	●
S2					●	●	●	●	●
D1		●							
D2		●	●	●					

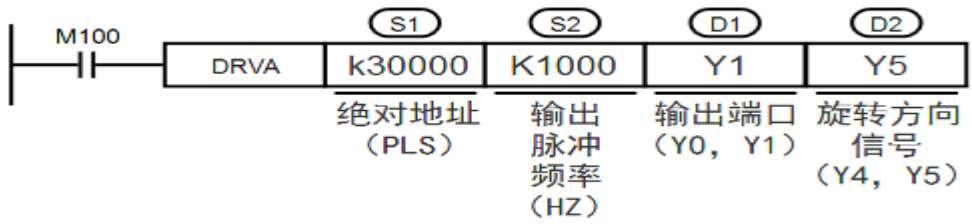
For specifying absolute (target) positions, range:-32,768 ~ 32,767(except 0, Bin16 bits) , OR-999,999 ~ 999,999 Hz (except 0, bit Bin32) ;

For specifying pulse output frequency, in the range of 10 ~ 32,767 Hz (BIN16 bit) , Or 10 ~ 100,000 Hz (bit BIN32) ;

For the port number of the specified pulse output, AMX-FX3U-26MT-E can specify y 0 or y 1;

Amx-fx3u-26mt-e can specify either y 4 or y 5 as a rotation direction signal to specify a port number or a bit variable for the rotation direction signal, when the state is OFF, it runs in the opposite direction.

Functional action



After the instruction is driven by the M100, the PLC sends out a pulse from the designated high-speed pulse output port Y 0 at the designated 1000 Hz to move the movement device to the designated target point of 30000 pls pulses from the designated origin, when the designated rotation direction signal output port Y5 = on, positive direction

The number of output pulses is relative (y 0, Y 1) to the current value register as relative position:

The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]

Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]

Instructions can be used multiple times in a program, but do not print to the same port at the same time

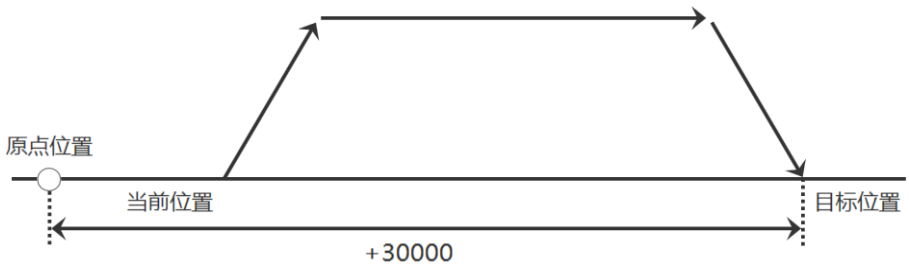
Changes the operand content during instruction execution, only the next time the instruction is executed

deceleration stops when the drive contact is OFF during instruction execution. At this point, M8029, the end of instruction execution flag, does not act.

When the monitoring (BUSY/READY) in the pulse output is ON, the positioning instructions using that output can not be executed.

Even if the instruction-driven contact is OFF and the pulse output is monitored (BUSY/READY) ON, please

Do not execute location instructions (including PLSY) that specify the same output number.



Special software components associated with this directive

1. The current value register (32 bits) of the Y 0 output: [D8341(high bit) , D8340(low bit)]

2. Current Value Register (32-bit) for Y 1 output: [D8350(high bit) , D8351(low bit)]

3. Y 0 pulse output stopped (stop immediately) : M8349

4. Y 1 pulse output stopped (stop immediately) : M8359

5. Busy/READY: M8340

6. Busy/READY: M8350

Base speed when executing the DRVI instruction:

Y 0 pulse output: D8342

Y 1 pulse output: D8352

Set range: less than 1/10th of maximum speed, or 1/10th of maximum speed if above.

The maximum speed at which the DRVI instruction is executed:

Y 0 pulse output: [D8344(high) , D8343(low)]

Y 1 pulse output: [D8354(high) , D8353(low)]

The specified pulse output frequency must be less than the maximum speed, set range: 10 ~ 100,000 Hz

9. Acceleration and deceleration time when executing the DRVI instruction:

Y0 pulse output acceleration time: D8348

Y1 pulse output acceleration time: D8358

Y0 pulse output deceleration time: D8368

Y1 pulse output deceleration time: D8378

The acceleration and deceleration time is the time required to reach the maximum speed in MS

Appendix A, AMX-FX3U-E Network Port Series PLC support instruction table

Instruction type	Instruction Code	Functional description	Notes
Contact	LD	Get (start of logical operation of a contact)	

instruction	LDI	Get Back (start of logical operation of B contact)	
	LDP	Take the rising edge of the pulse (start of operation to detect the rising edge)	
	LDF	Take the falling edge of the pulse (the beginning of the operation to detect the falling edge)	
	AND	With (series a contact)	
	Ani	With non (Series B contacts)	
	ANDP	Connected in series with the rising edge of the pulse (detecting the rising edge)	
	ANDF	Connected in series with the pulse falling edge (detecting falling edge)	
	Or	Or (parallel a contact)	
	Or	Or not (parallel B contact)	
	Orp	Or pulse rising edge (parallel connection to detect rising edge)	
	Orf	Or pulse drop edge (parallel connection to detect drop edge)	
Combined instruction	ANB	To connect (a Circuit Block in series)	
	Orb	Circuit block or (parallel connection of Circuit Block)	
	MPS	Stack Access (arithmetic storage)	
	MRD	Read Stack (read memory)	
	MPP	Out of the stack (read out storage and reset)	
	INV	Inversion of the result of an operation	
Output instruction	Out	Output (coil driven)	
	Set	Position (action hold)	
	RST	Reset (UNHOLD action, current value and register clearing)	
	PLS.	Rising pulse (rising edge pulse output)	
	PLF	Down Pulse (down edge pulse output)	
Master Command	MC	Master Control (coil instruction for universal series contacts)	
	MCR	Master Reset (Universal series contact release instruction)	
Other commands	Nop	No program (empty operation)	
End instruction	END	End of program (end of program and input/output processing, and return 0 steps)	
Step ladder instruction	STL	Step ladder diagram (the beginning of a step ladder diagram)	
	Ret	Return (end of step ladder diagram)	
Program flow	CJ	Conditional jump	
	CALL	Subroutine call	
	Sret	Subroutine return	

Program flow	FEND	Main program terminated	
	For	The beginning of the looping range	

	Next	The end of the loop range	
Transmission comparison	MOV	Teleport	Two-word instruction support, Pulse Command not supported
	Smov	Dislocated	
	Hey, CMP	Comparison	
	ZCP	Interval comparison	
	CML	Reverse transmission	
	BMOV	Batch transmission	
	Fmov	Multipoint transmission	
	XCH	Swap	
	BCD	BCD conversion	
	BIN	Bin conversion	
Four. Logic Arithmetic operation	Add	Bin addition	
	Sub	Bin subtraction	
	Mul	Bin multiplication	
	Div	Bin Division	
	Inc.	Bin plus one	
	Dec.	Bin Minus One	
	Wand	Logic and	
	Wor	Logic or	
	WXOR	Exclusive or	
	NEG	Complementary code	
Contact comparison	LD =	Contact comparison LD S1 = S2	
	LD >	Contact comparison LD s 1 > S 2	
	LD <	Contact comparison LD S1 < S2	
	LD < >	Contact comparison LD s 1≠ s 2	
	LD < =	Contact comparison LD s 1≤ s 2	
	LD > =	Contact comparison LD s 1≥ s 2	
	And =	Contact comparison AND S1 = S2	
	AND >	Contact comparison AND S 1 > s 2	
	And <	Contact comparison AND S1 < S2	
	And < >	Contact comparison AND s 1≠ s 2	
	And < =	Contact comparison AND S 1≤ s 2	
	AND > =	Contact comparison AND s 1≥ s 2	
	OR =	Contact comparison OR S1 = S2	

Contact comparison	OR >	Contact comparison OR S1 > S2	
	Or <	Contact comparison OR S1 < S2	
	Or < >	Contact comparison OR s 1≠ s 2	

	Or < =	Contact comparison OR s 1≤ s 2	
	OR > =	Contact comparison OR s 1≥ s 2	
Cycle. Shift	Ror	Cyclic right shift	Two-word instruction support, pulse instruction not support
	Whoa, Whoa, whoa	Cyclic left shift	
	RCR	Carry cycle right shift	
	RCL	Carry cyclic left shift	
	SFTR	Shift right	
	SFTL	Shift left	
Data Processing	Zrst	Batch reset	
	Mean	Mean value	
	Flt	Bin integer-binary floating point number conversion	
High-speed processing	Reff	Filter adjustment	
Positioning control	Zrn	Mechanical origin regression	Two-word instruction support Only transistor output type PLC supports positioning control instructions
	PLSY	Pulse output	
	PLSV	Variable Speed Pulse	
	PLSR	Pulse output with acceleration and deceleration	
	Drvi	Relative positioning	
	Drva	Absolute positioning	
IEEE 754-2008: IEEE Standard for Floating-Point Arithmetic	DECMP	Binary floating point number comparison	Pulse Command not supported
	DEZCP	Interval comparison of binary floating-point numbers	
	Demov	Binary floating-point data transfer	
	DEBCD	Binary-to-decimal floating-point conversion	
	Debin	Decimal floating-point to binary floating-point conversion	
	DEADD	Binary floating-point number addition	
	DESUB	Binary floating-point number subtraction	
	DEMUL	Binary floating-point multiplication	
	DEDIV	Binary floating-point number division	
	INT	Binary floating-point number-BIN integer conversion	
	DSIN	Binary floating point number SIN operation	
	DCOS	Binary floating-point COS operation	
	DTAN	Binary floating point number TAN operation	
Data Processing 2	Swap	Up and down byte conversion	

Clock operation	TCMP	Clock data comparison	Pulse Command not supported
	TZCP	Clock data interval comparison	
	Tadd	Clock data addition	
	Tsub	Clock data subtraction	

	TRD	Clock readout	
	Twr	Clock data write	
Peripheral equipment	Gry	Gray code's transformation	Two-word instruction support, Pulse Command not supported
	Gbin	Gray code's reversal	
	ADPRW	Modbus read write	

Appendix B, Modbus RTU communication error code (D8402 data) explanation

Modbus communicat	Error name And the details	Master/Slave Station	Actions of related software components (special M, D	Disposal mode

ion error code (decimal)			addresses)	
201	ADP did not detect an error in Modbus communication Detection of Modbus Communication Adapter failed	Master/Slave Station	1) M8063 will be set to ON, and 6321 will be stored in D8063 2) M8122 will be set to ON and the communication error code will be stored In D8122 3) M8123 will be set to ON and the error details will be stored In D8123	Verify that the Modbus communication adapter is used
202	Modbus communication parameter setting exception The Modbus communication parameter setting is invalid	Master/Slave Station	See above	Confirm the parameter values of the relevant data registers, and confirm the Modbus communication setup program
203	Communication port occupied by other communication More than two types of communication are set up in one channel Example: Modbus communication and N: N network are used on the same channel	Master/Slave Station	See above	Verify that the Modbus communication is only on channel 1
204	Parity error, overflow error, frame error	Master/Slave Station	See above	Please confirm communication format D8400/D8420
205	CRC/LRC error Text CRC/LRC invalid RTU mode text length is less than 3 bytes, ASCII mode text length is less than 8 bytes	Master/Slave Station	See above	Please confirm the communication format D8120, play delay D8180, request delay D8174 error occurred
206	Character overflow - when receiving more than 256 bytes in RTU mode (ASCII mode is more than 513 bytes) - during the processing of a previous request, when other requests are received (from a station only)	Master/Slave Station	See above	Please confirm an error with play delay D8180 and inter request delay D8174 Occurrence status. Make sure the communication port settings are correct

Continuation:

207	The request text is not in the correct format The number of access points received for receiving text does not match the number of points actually received Or the number of access points exceeds the function's maximum value	Master/Slave Station	See above	Verify that the slave is using Modbus communication and is receiving the correct one Function, verify that the instruction's access points are within the range of the slave and master stations . Protocol errors sometimes occur if programming is not correct
208	Receiving text error. ASCII mode can not be converted to byte code	Master/Slave Station	See above	Refer to the handling of error code 207
209	Received without corresponding function code The requested function code is invalid or does not correspond	Slave station	See above	Please make sure that the functions used are in accordance with the specifications of the master and slave stations
210	Access was made to the Modbus software component that was not assigned the software component The selected Modbus software component or software component + access point is exceeded The support range of the slave station	Slave station	See above	Verify that the slave MODBUS software component assignment is set up correctly. Verify that the master data is in the valid range of the selected function Make sure that the primary site has access to a valid software component range
211	Slave response timeout	Master station	See above	Please confirm that the station number

				and communication parameters are set correctly
212	Exception response text receive The exception response text was sent from the station (refer to the exception response later Code) Details: High-bit byte: Exception Function Code Low-bit byte: Exception Response Code	Master station	See above	Make sure that the functions and function parameters used are consistent with those of the master and slave stations Specifications
213	The station numbers don't match The request and response text are not aligned from the site number Details: High-bit byte: the requested number from the site Low-bit byte: the number of the response from the site	Master station	See above	Please refer to the handling of error code 0207
214	The function code is inconsistent The function code for the request text and the response text is inconsistent Details: High-bit byte: the function code for the request text Low-bit byte: function code that responds to text	Master station	See above	Please refer to the handling of error code 0207
215	Error in play request From the station received the playback function does not support the function of the playback request Details: Not Diagnostic, diagnostic High Byte: 0 function code (08H) Low-bit byte: Function Code, subfunction code	Slave station	See above	Please confirm whether the function corresponds to playback in the scope of the slave specification
216	Request text data exception The data values do not agree with the Modbus specification.	Slave station	See above	Please refer to the handling of error code 0207

	(for example: off = [0000H] , on = [FF00H] outside Hu 1 coil write [5h] value)			
217	Incorrect use of the ADPRW instruction The ADPRW instruction is used at the slave station	Slave station	See above	Use the ADPRW command on the main site
218	Out of range of application instruction operand data The RS instruction has an invalid read/write object software component. Or how many points it takes Out of range Details: High Byte: 0 Low Bit Byte: S. based on RS instruction. Invalid parameter storage 1-4 for S 4D	Master station	Refer to the above or M8067 will be set to ON, and 6705 or 6706 will be stored in the D8076 in progress	Make sure the functionality is within the scope of the master site specification or software components
219	The data length is incorrect	Master/Slave Station	The length of data received does not match the Modbus specification	Refer to the handling of error code 207

The exception response code for the Modbus slave station (details of the master station error, data in D8403)		
Exception response code	Exception response code name	
01H	Functional code exception	The requested function code does not correspond to a slave station
02H	Soft component anomaly	The requested Modbus software component or access point exceeds the valid range of the slave station
03H	Data Anomaly	One data region of the request text exceeds the valid range (data length, number of soft elements)
04H	Processing interrupt	A fatal error occurred while processing the request text from the station
0CH	I/0 error in sending or receiving data	Incorrect length of data received or CRC error

Appendix C, part of the touch screen/PC side network interface communication settings example

Explanation:

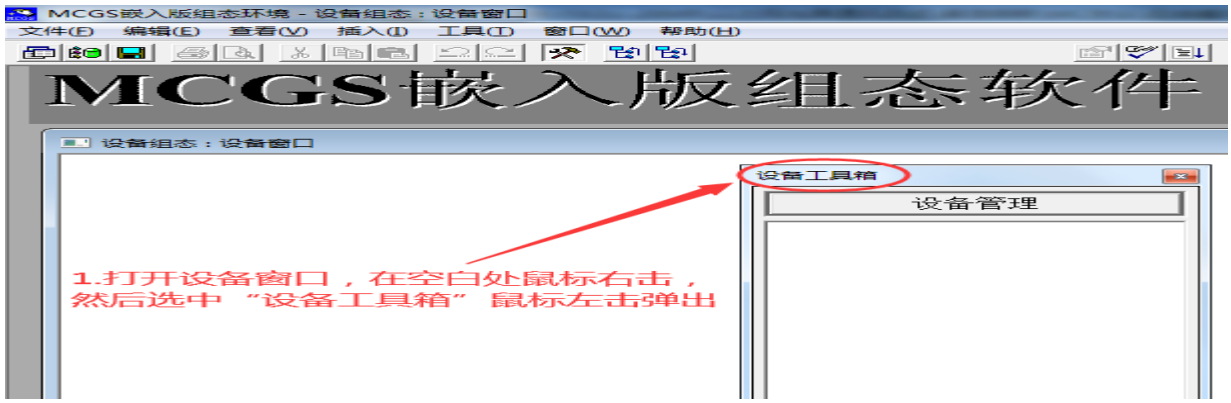
There are many touch screen/PC brands and even product lines on the market. I Can’ t give you an example here, but the communication settings are pretty much the same:

A. Set up the correct communication protocol. When the MC protocol communicates, select a protocol that looks like “FX3 Ethernet”or “FX Series Ethernet”(definitely not “FX5”or “FX5U”)

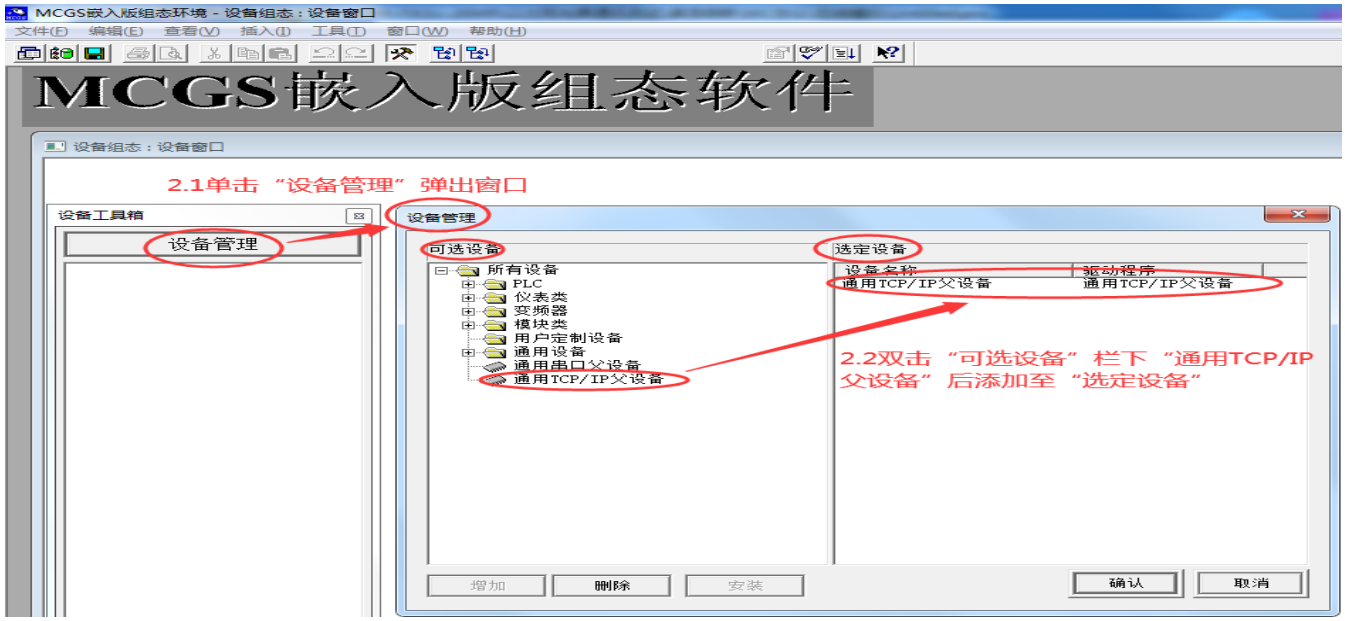
B. Set the correct touch screen/host computer, PLC IP and port number (PLC default IP is 192.168.1.18, MC protocol port number 5551, Modbus TCP protocol port number 502)

Some examples of communication settings:

1. And Kunlun MCGS embedded version (version 7.7) connected

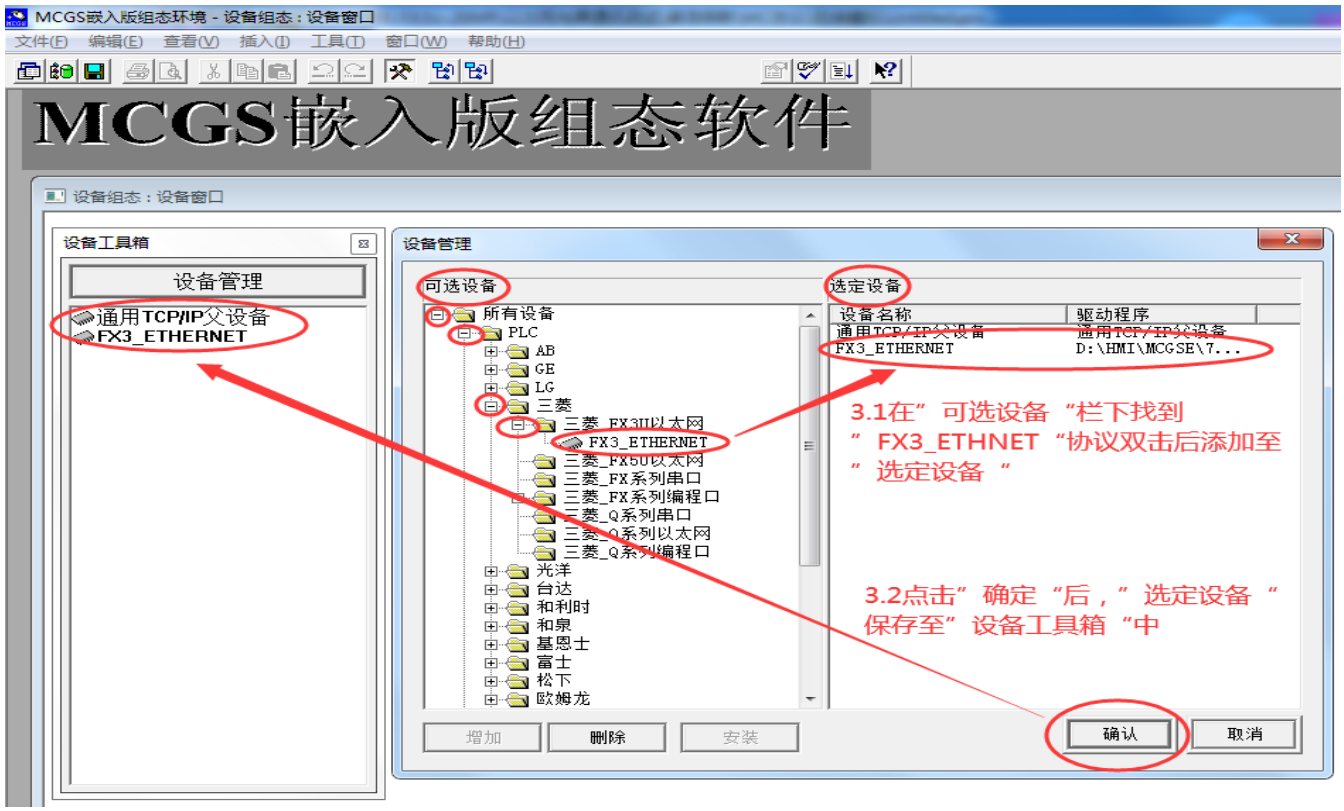


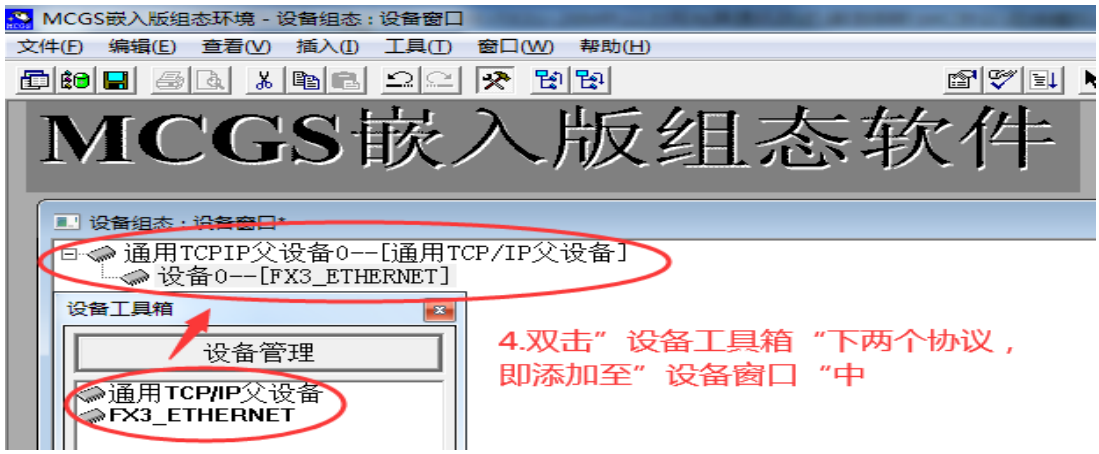
Open the device window on the MCGS engineering workbench and open the "Device toolbox" according to the picture above.



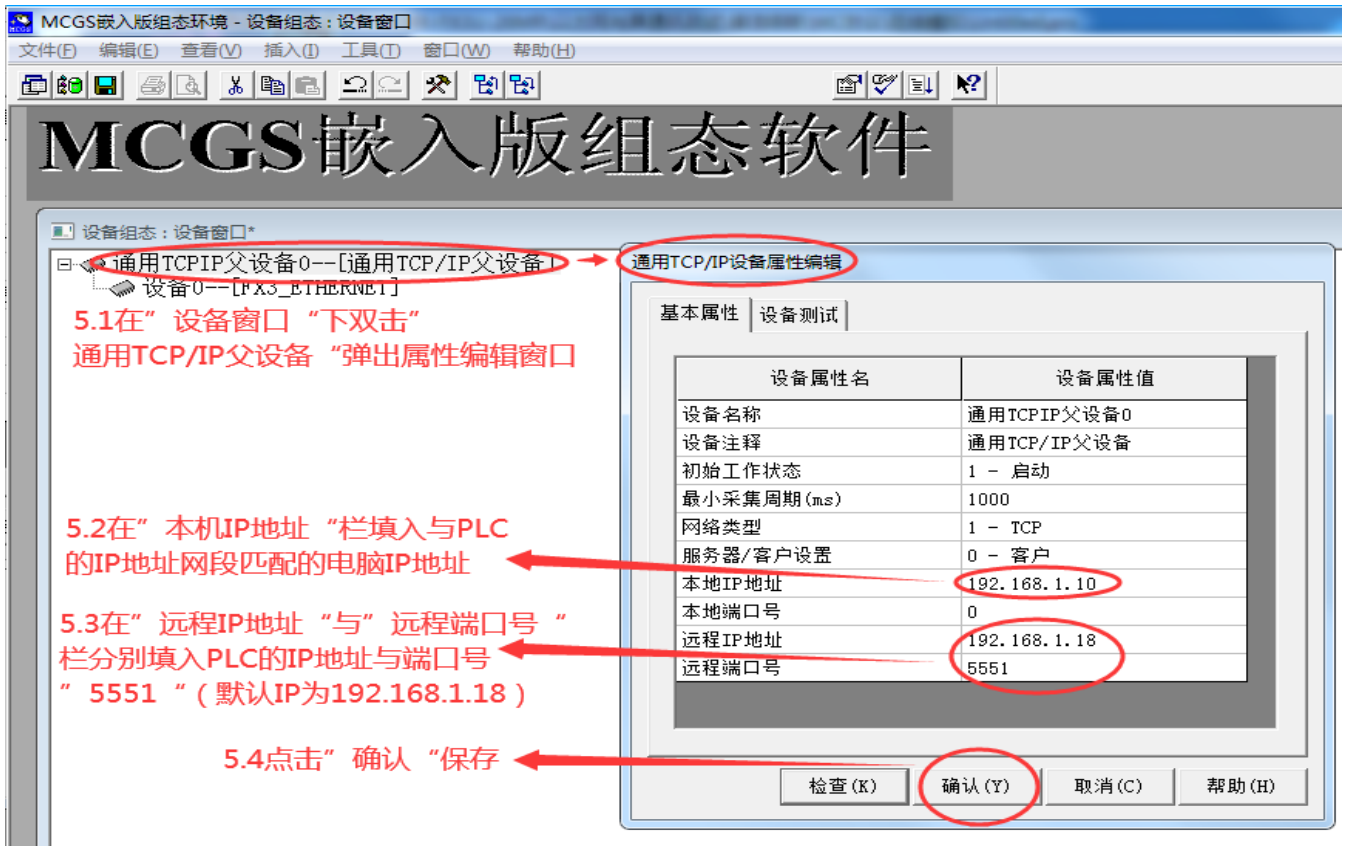
Add the selected device "Universal TCP/IP parent device".

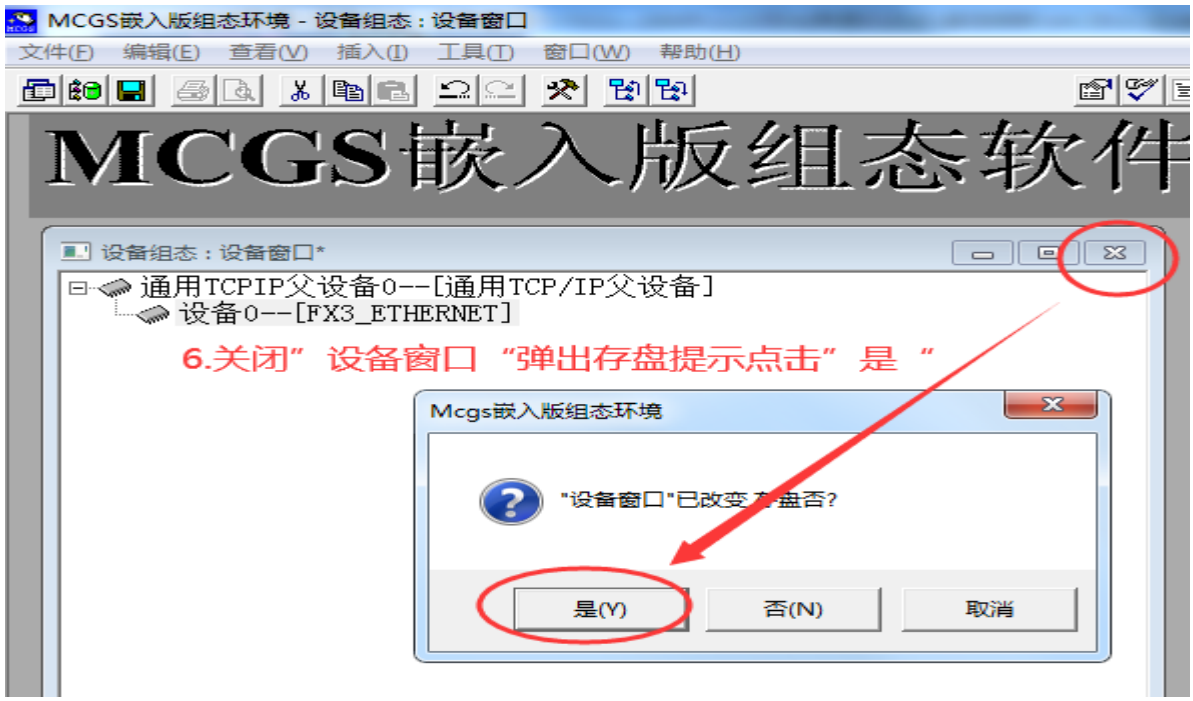
I.MC





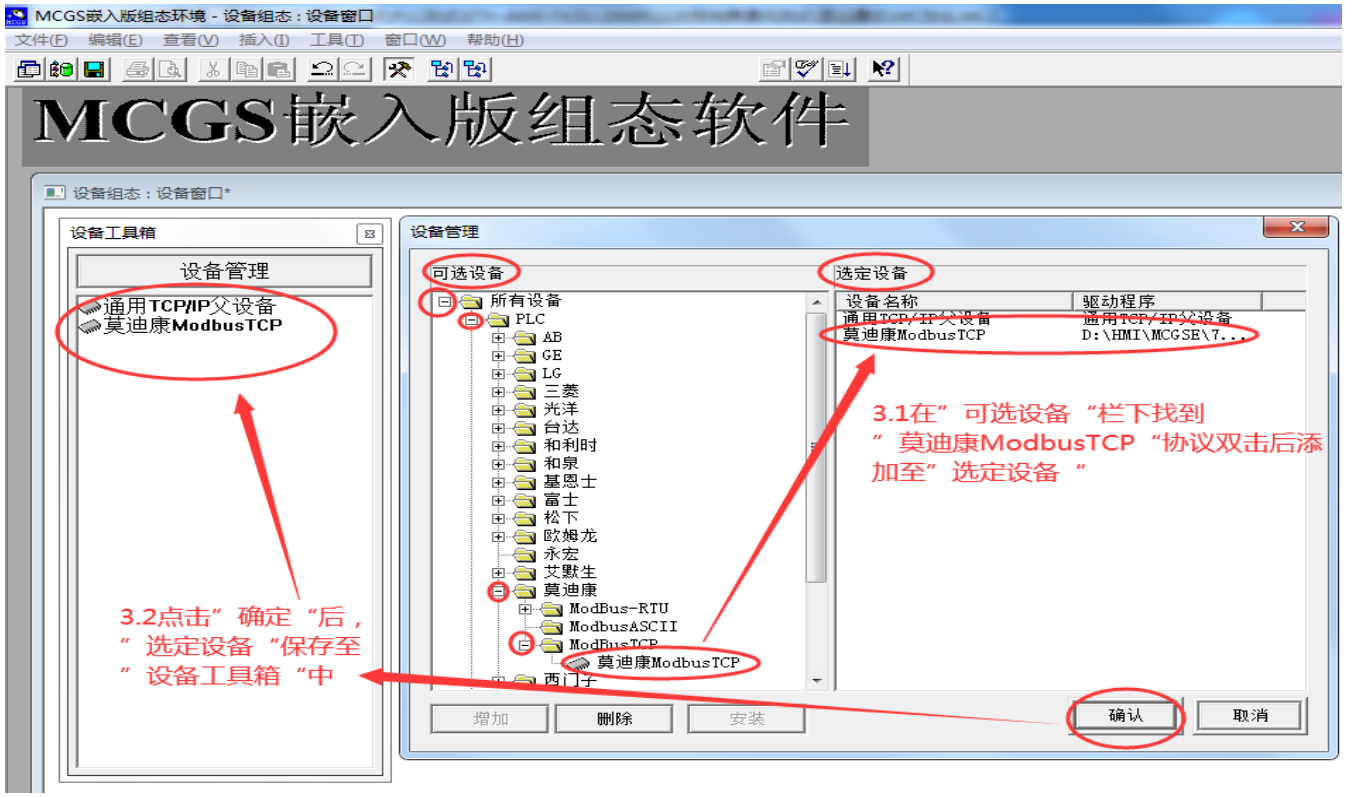
Then steps 1 and 2 add “Universal TCP/IP parent device” and “FX3” to the device toolbox.

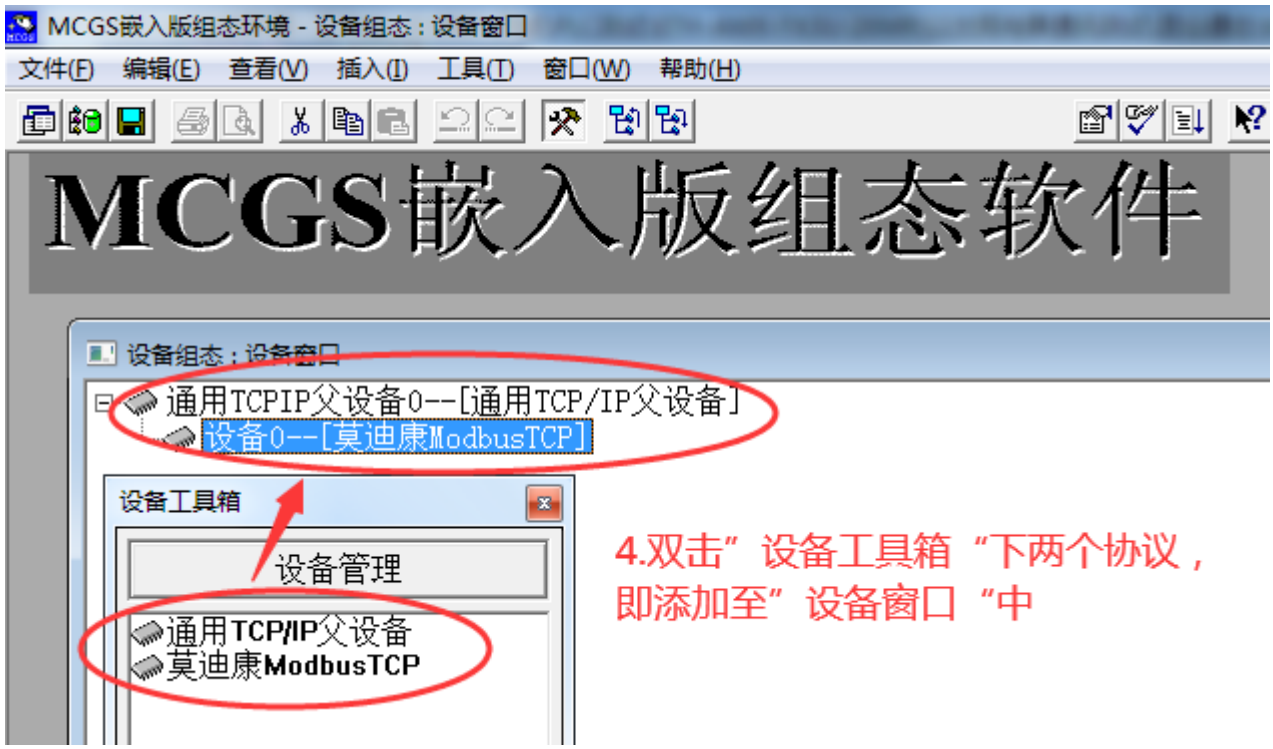




In the "Universal TCP/IP parent device properties edit" window, set the computer IP, PLC IP and port number (5551) , and save it.

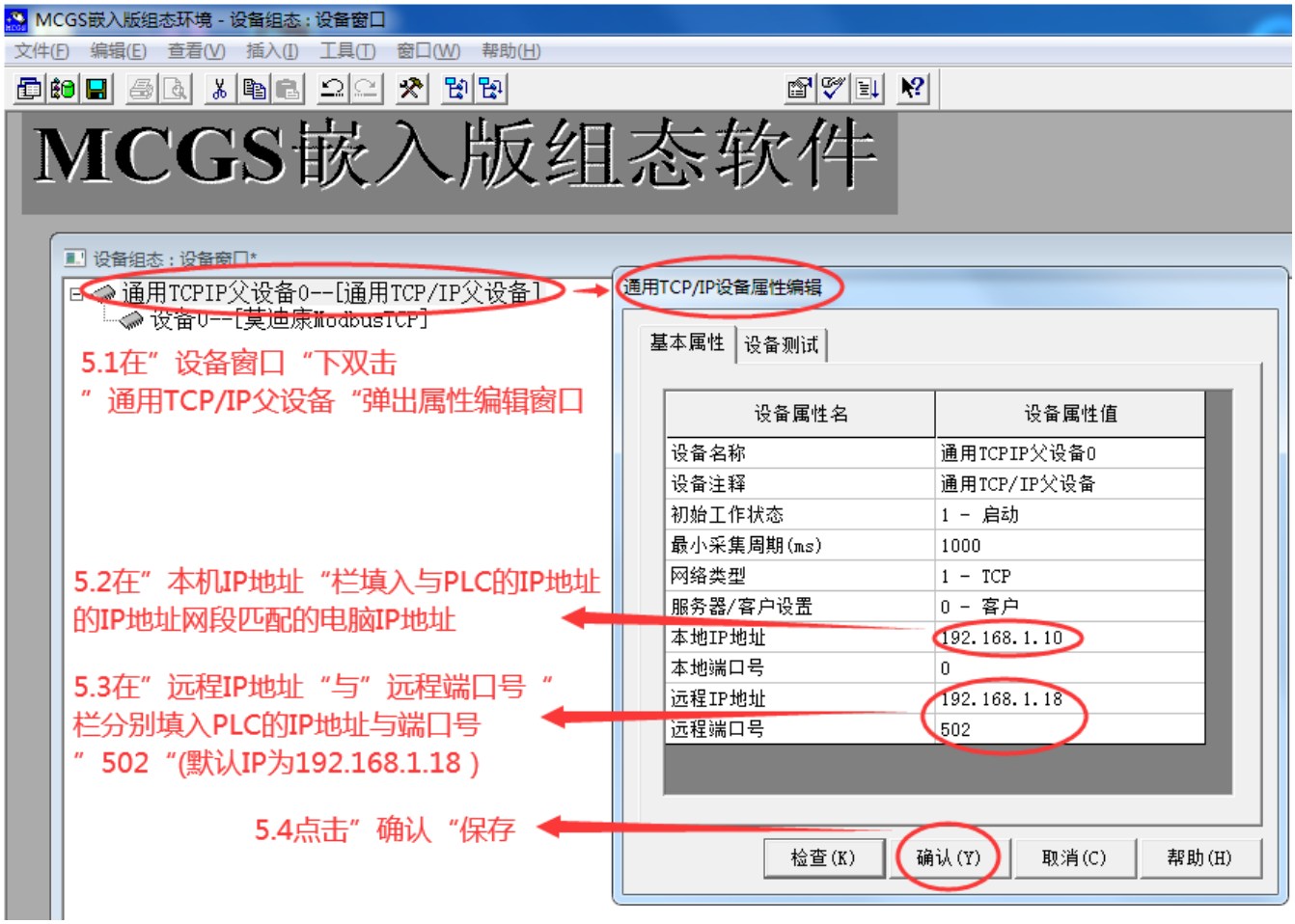
II.MODBUS TCP protocol communication

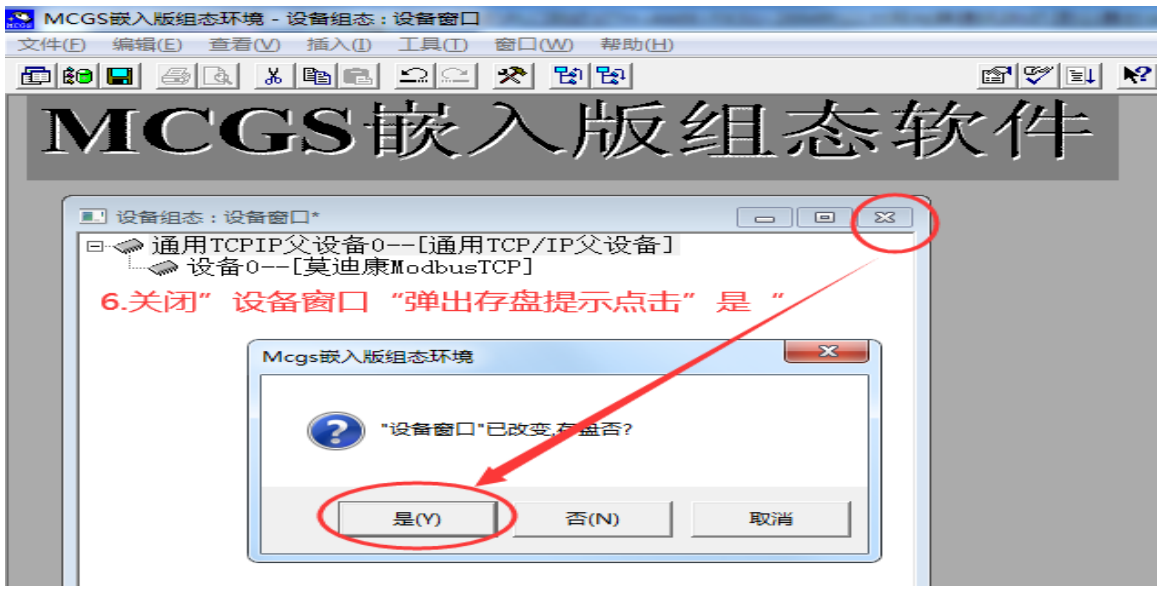




Then steps 1 and 2 add “Generic TCP/IP parent device” and “MODBUSTCP” to the

device toolbox.

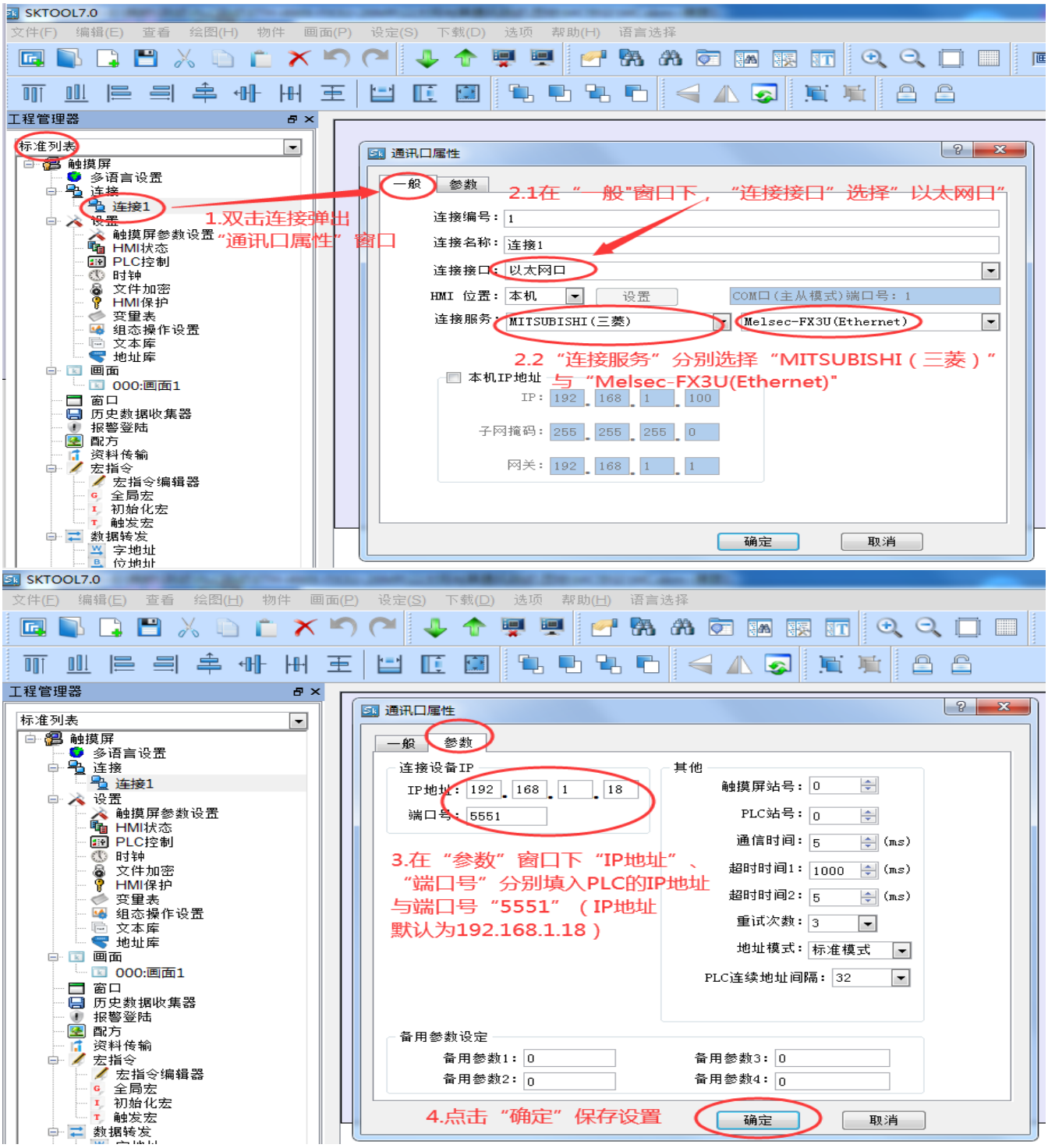




In the "Universal TCP/IP parent device properties edit" window, set the computer IP, PLC IP and port number (5551) , and save it.

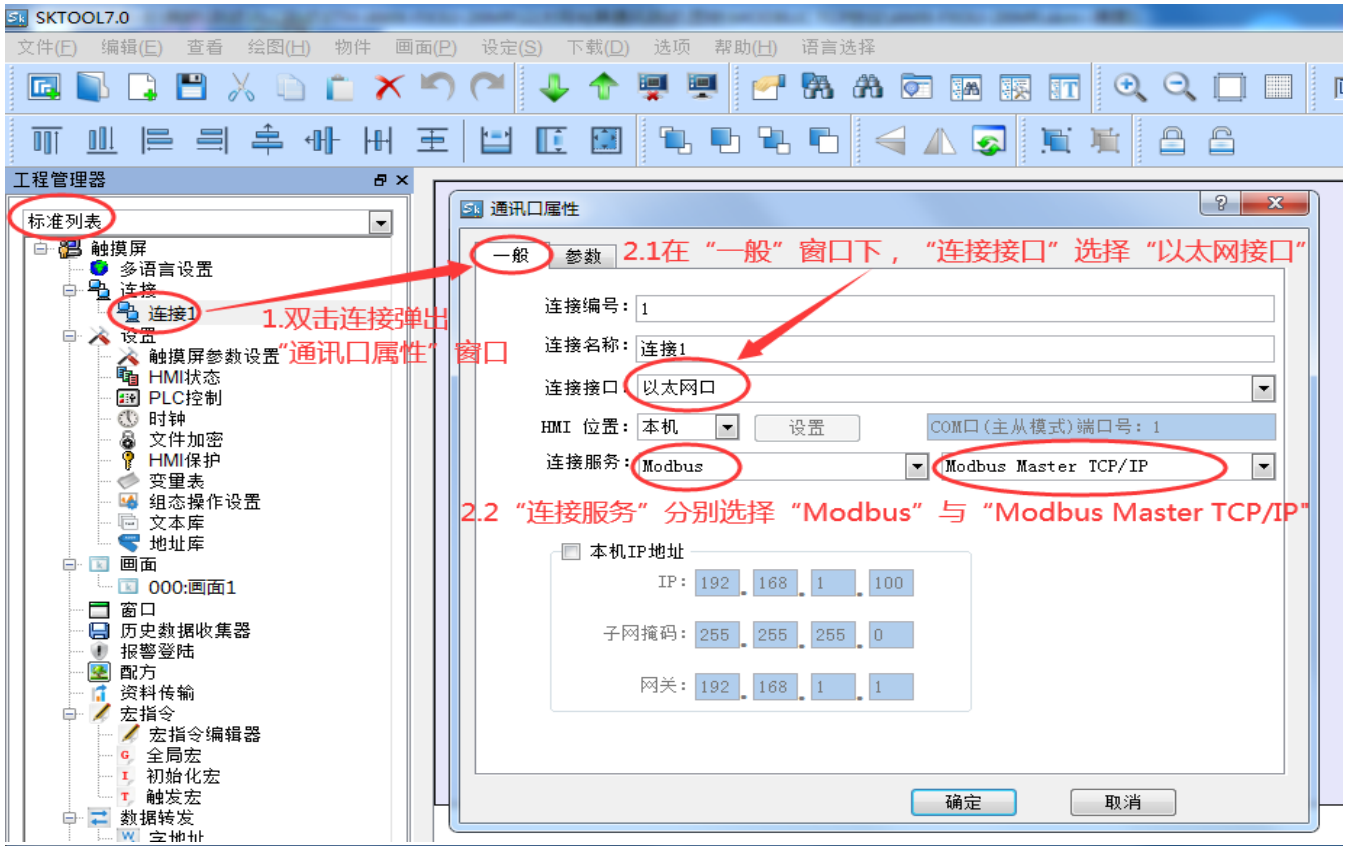
2. Connect to the display touch screen (software version Sktool7.0)

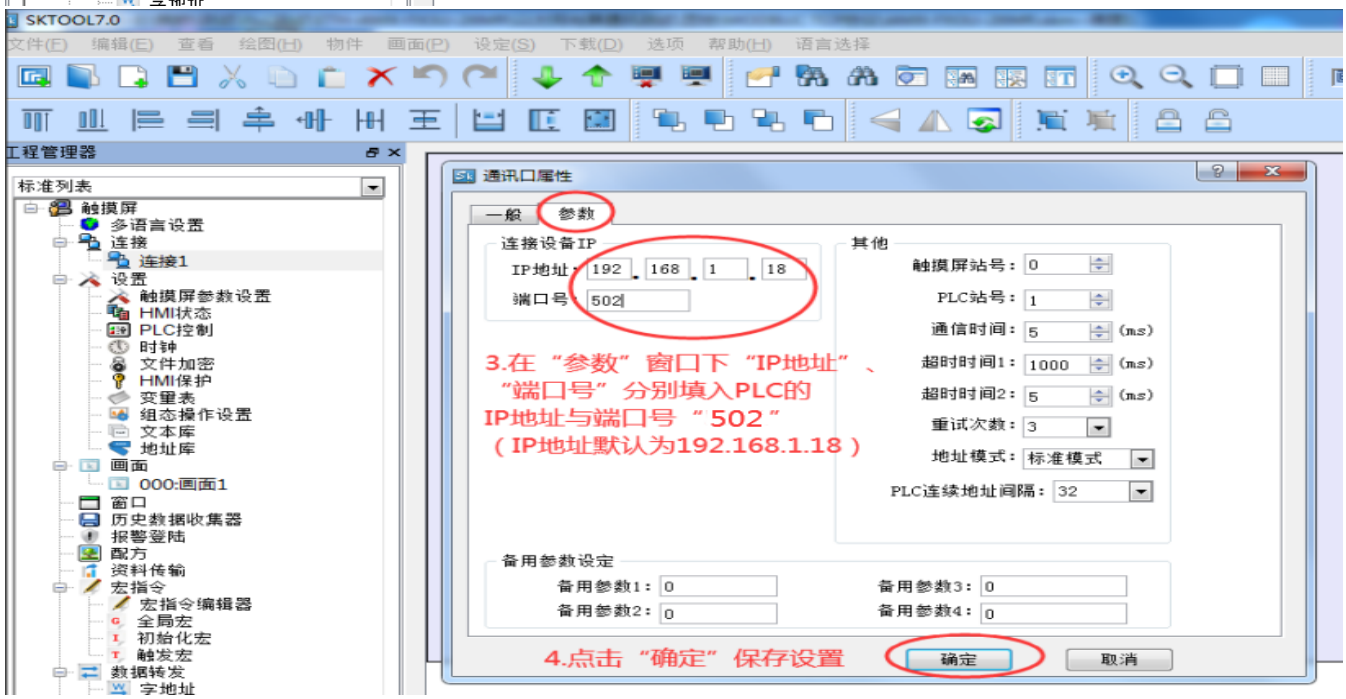
I.MC



Select the connection protocol "MELSEC-FX3U (Ethernet)" through the port properties window, set the PLC's IP address and port number "5551" and save.

II.MODBUS TCP protocol communication

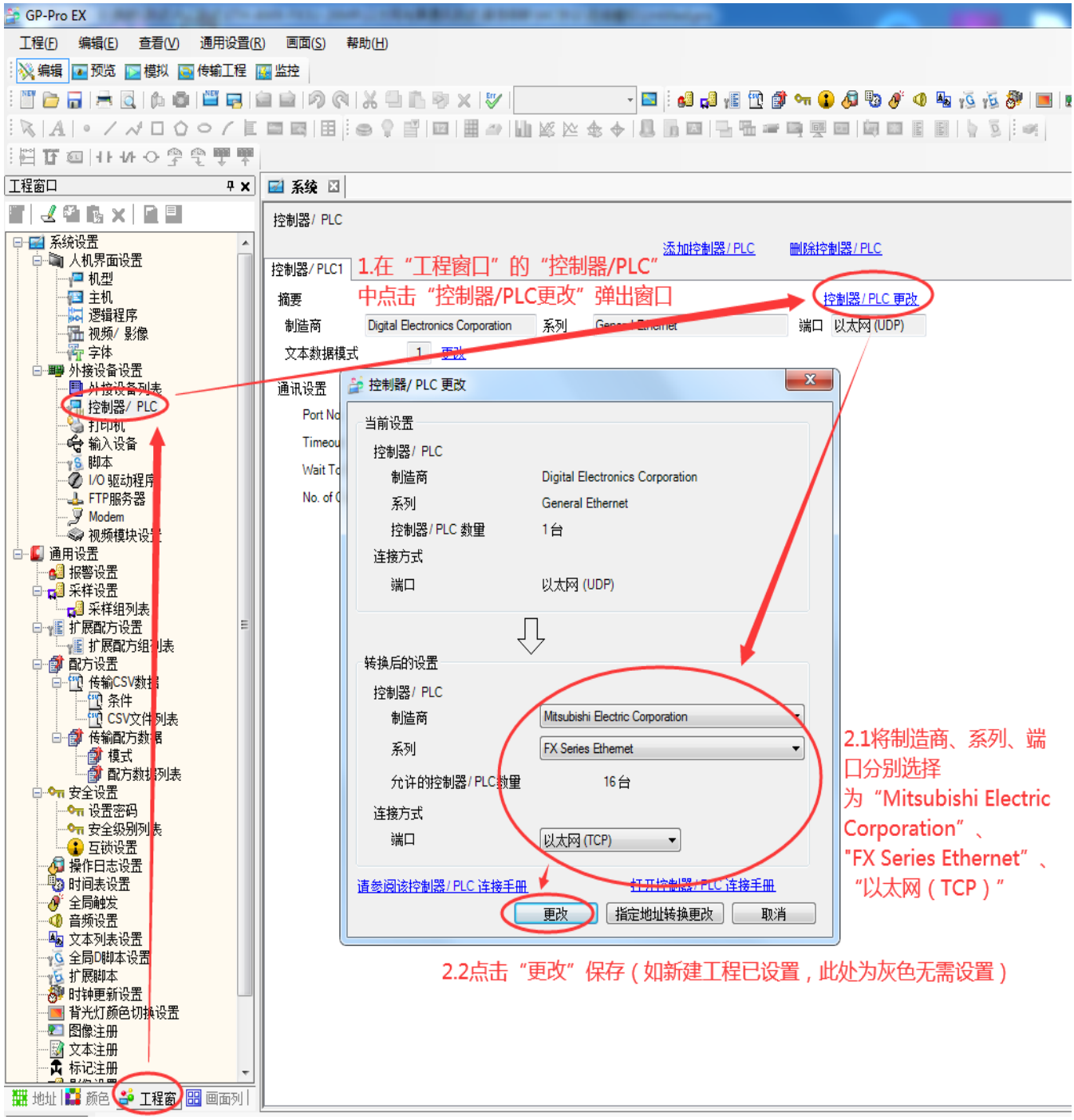




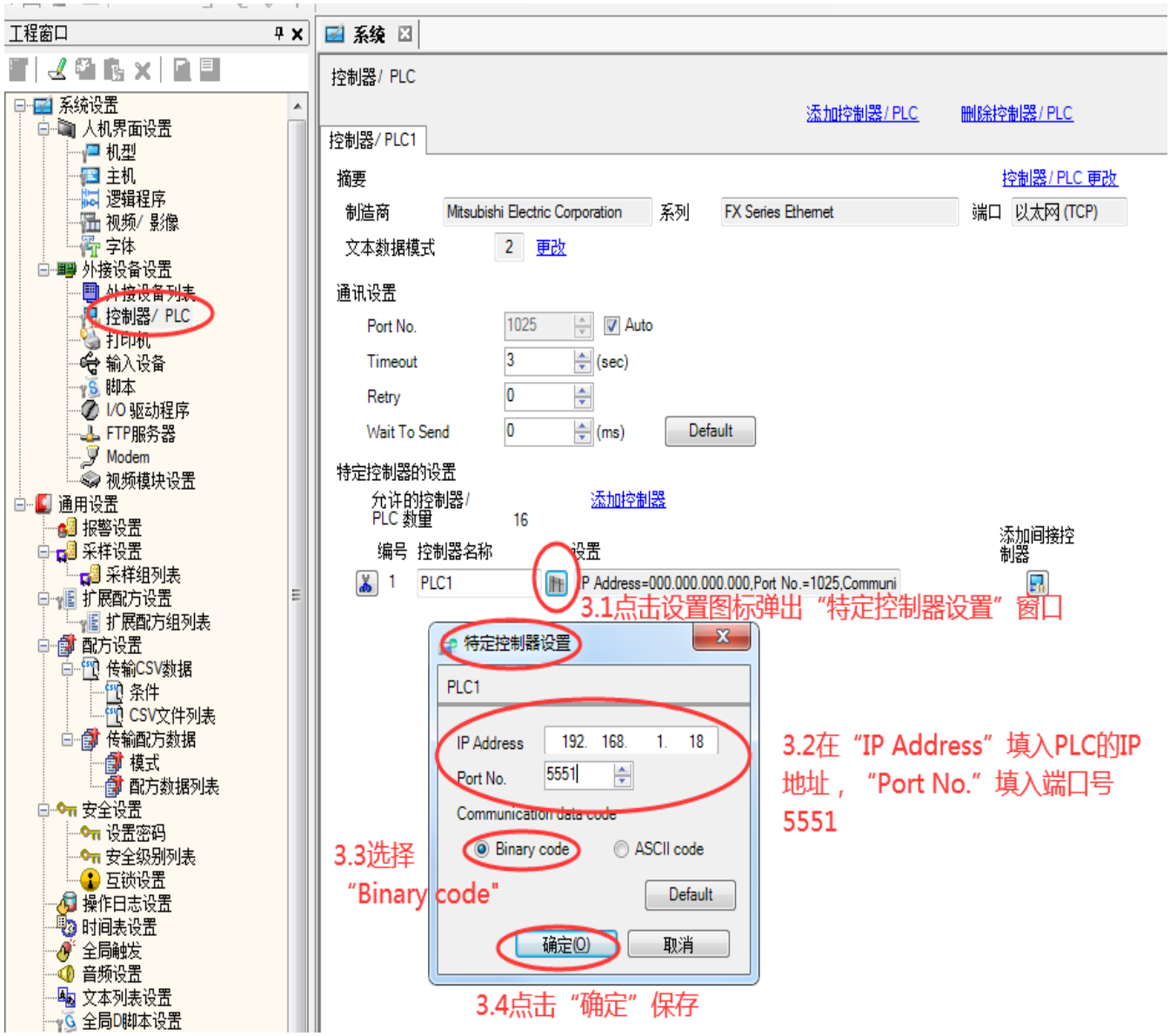
Select the connection protocol as "Modbus Master TCP/IP" through the "Communication port properties" window, set the IP address and port number "502" of PLC and save it.

3. Connect to the profius touch screen (software version GP-Pro EX 4.08)

I.MC

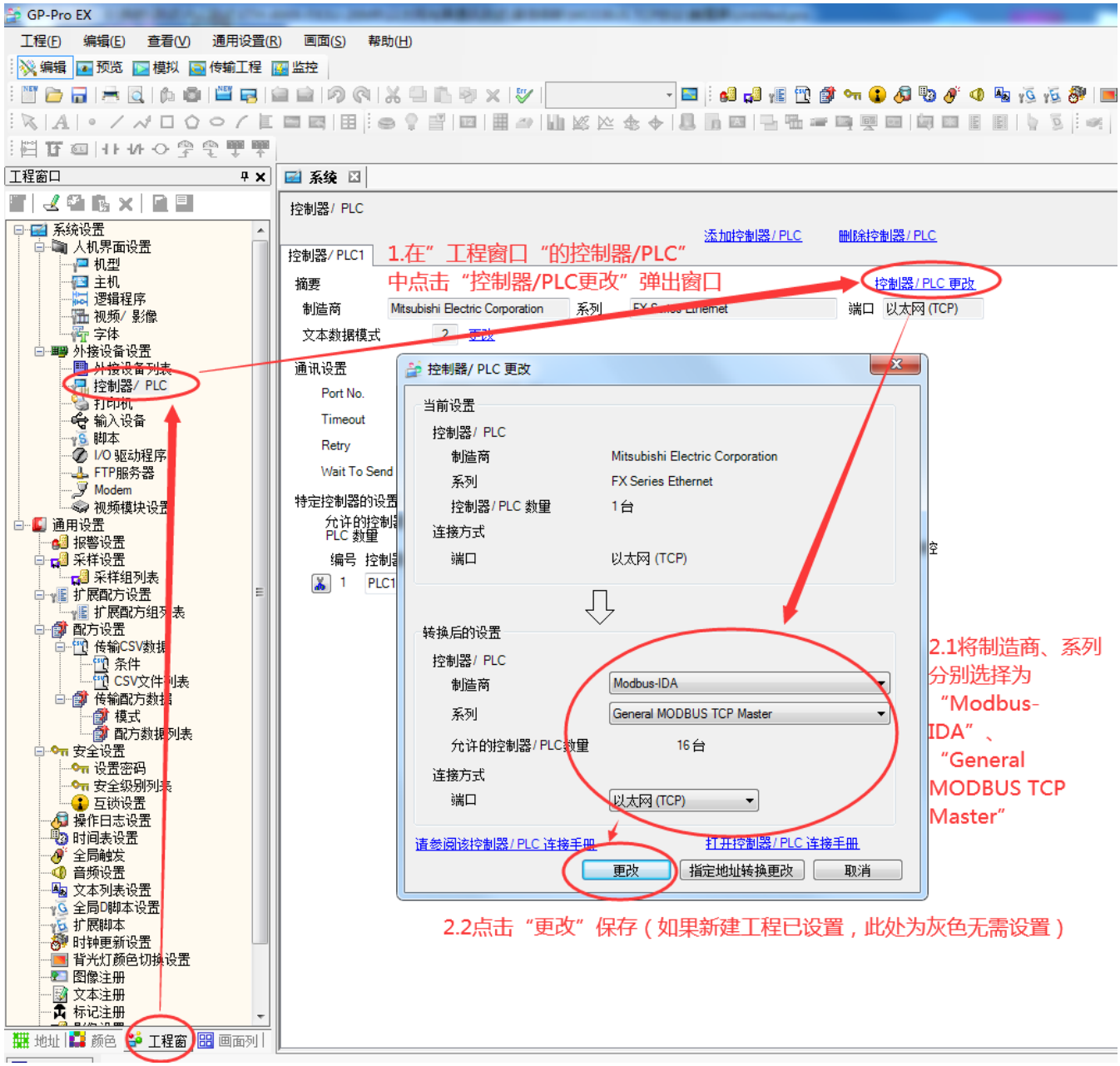


In “Engineering windows-peripheral device settings-controller/PLC-CONTROLLER/PLC changes”, select manufacturer, Series, and port as “Mitsubishi Electric Corporation”, “FX Series Ethernet”, and “Ethernet (TCP)” (if a new project has been set to ignore this step) .



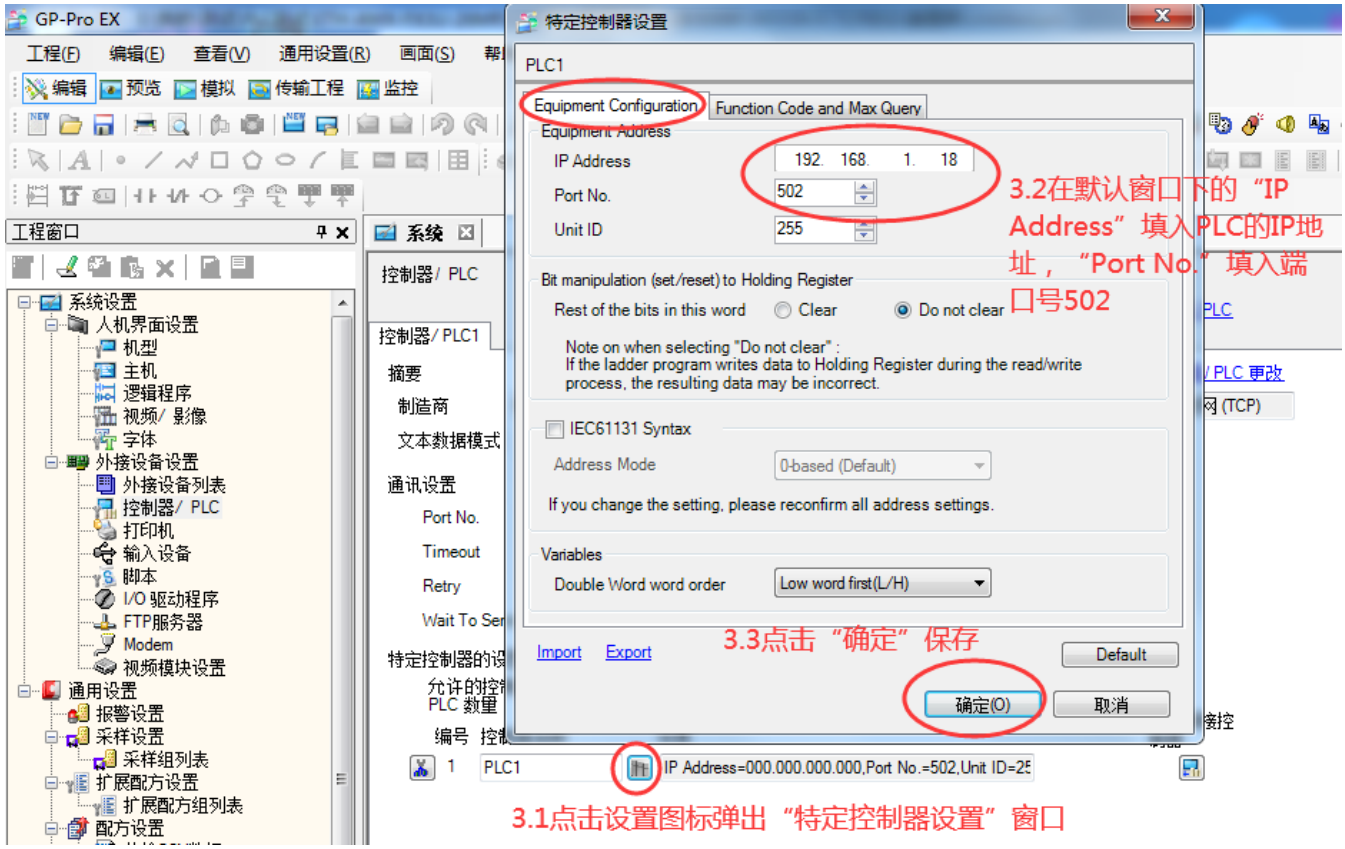
The PLC IP address, with the port number “5551” through the “Specific controller settings” window filled in.

II.MODBUS TCP protocol communication



In "Engineering window-external device settings-controller/PLC-CONTROLLER/PLC changes", the manufacturer, serial port and port are selected as "MODBUS-IDA" and

"General Modbus TCP Master" respectively.

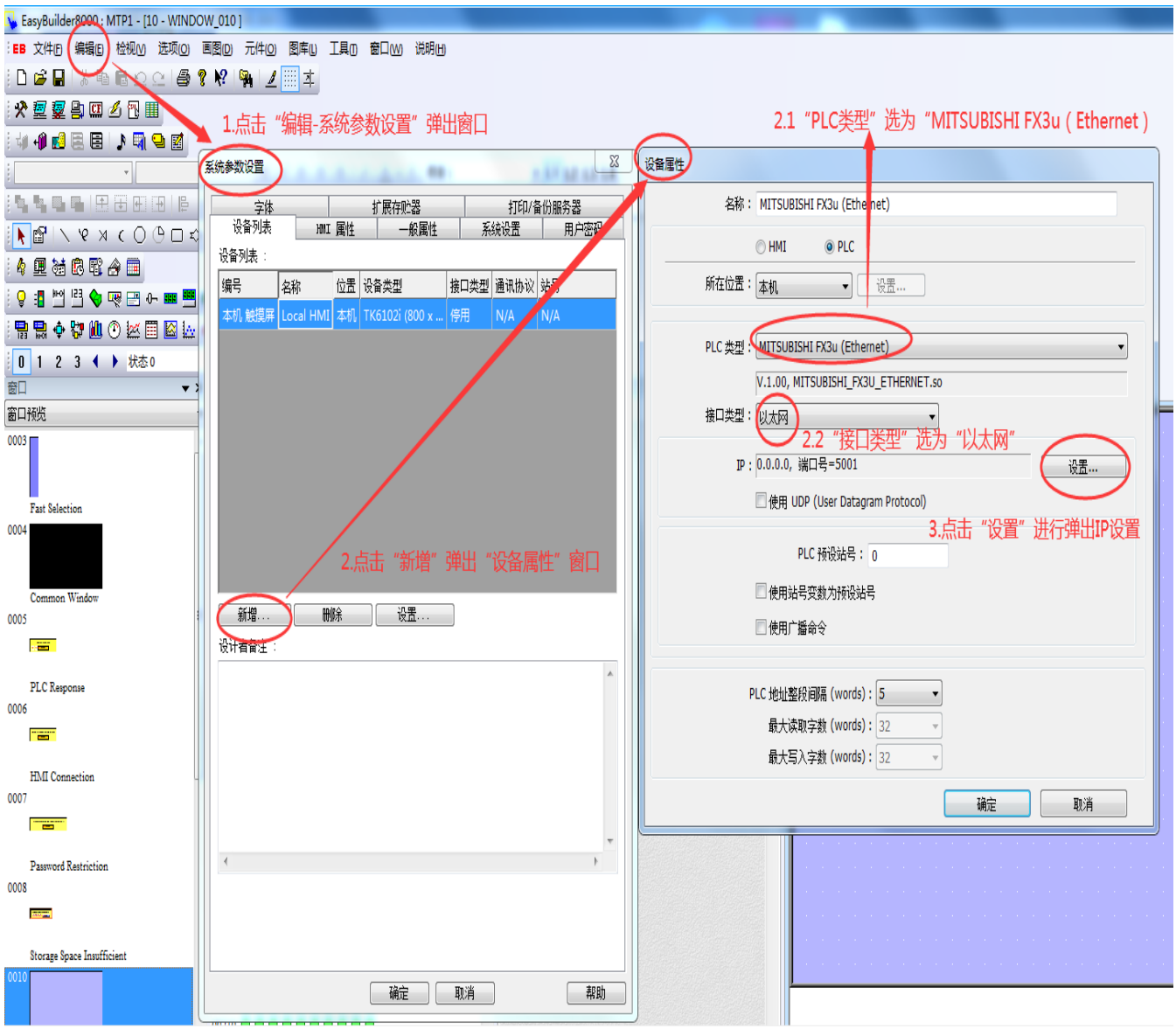


The PLC IP address, with the port number "502" through the "Specific controller settings" window filled in.

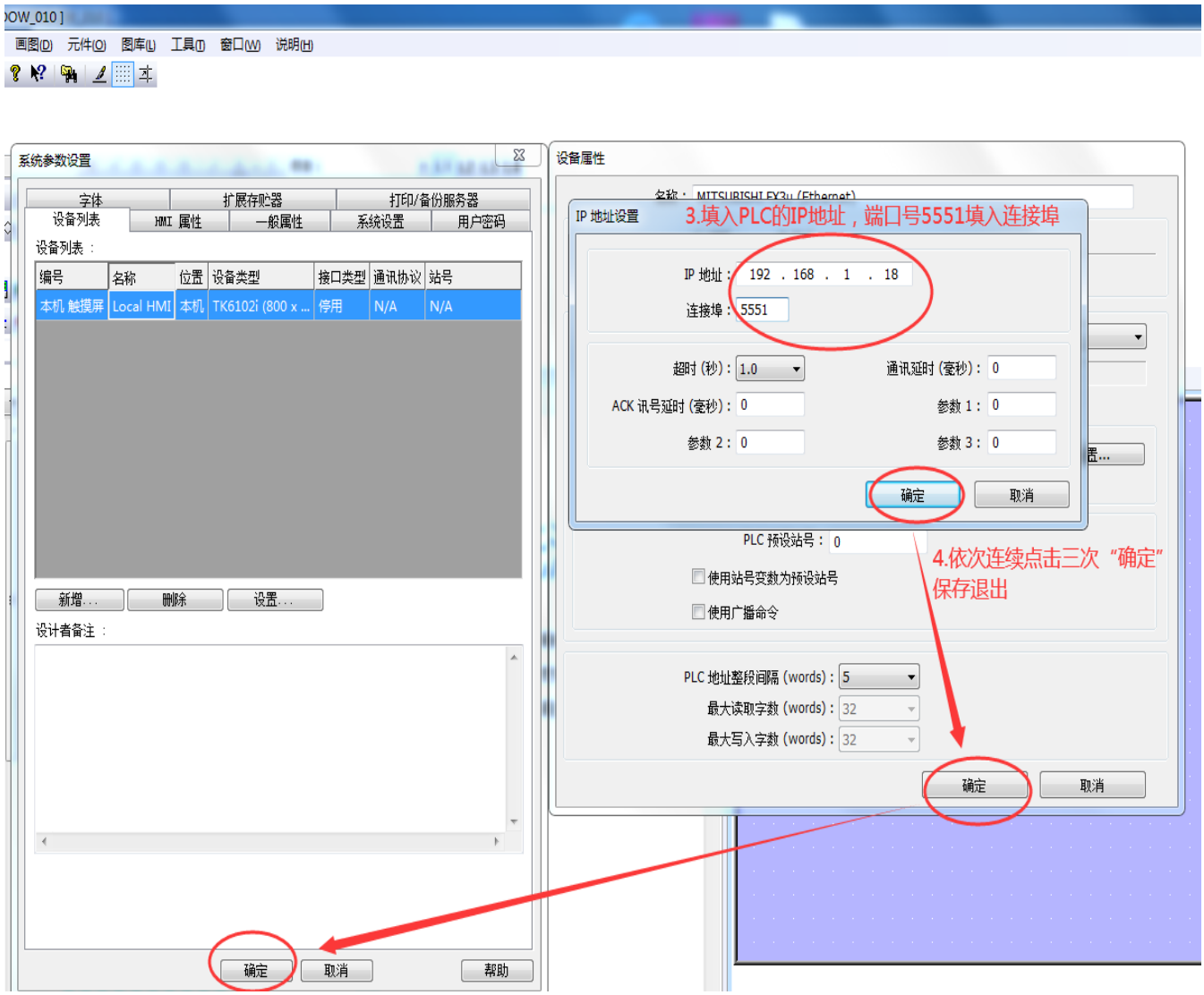
4. Connect to Weilun touch screen

I.MC

1) Software EB8000 Project Manager, V4.43

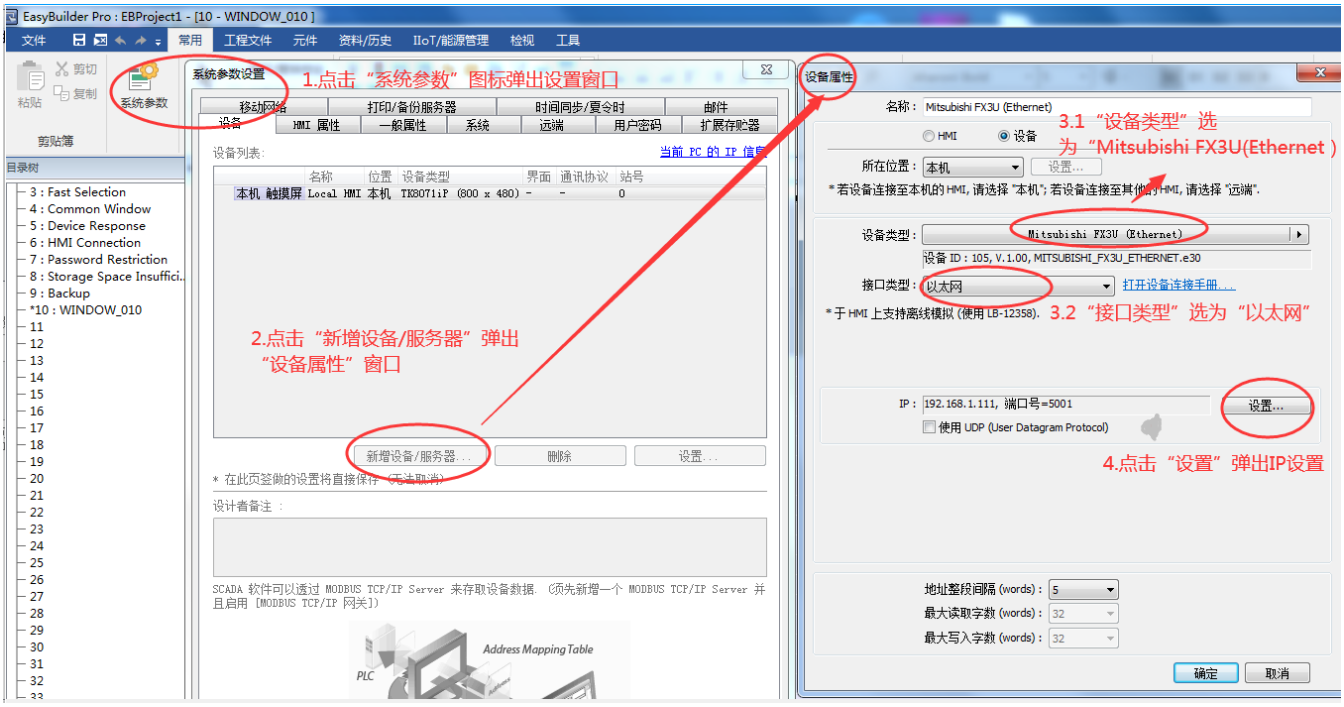


The PLC type in the device properties is set to "Mitsubishi FX3U (Ethernet)", the interface type is Ethernet, and IP settings are made.

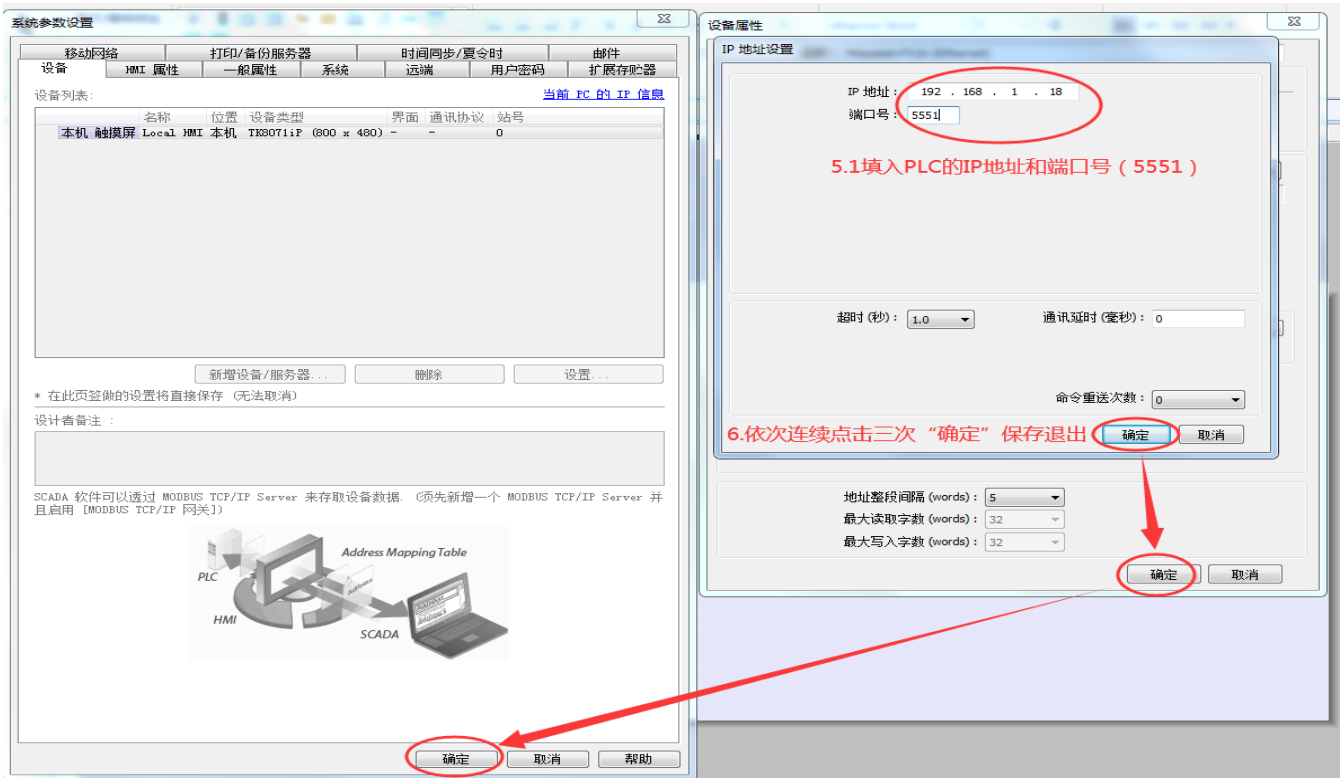


The PLC IP address, with the port number "5551" through the "IP address settings" window filled in and saved.

2) software EasyBuilder Pro, V6.04.01



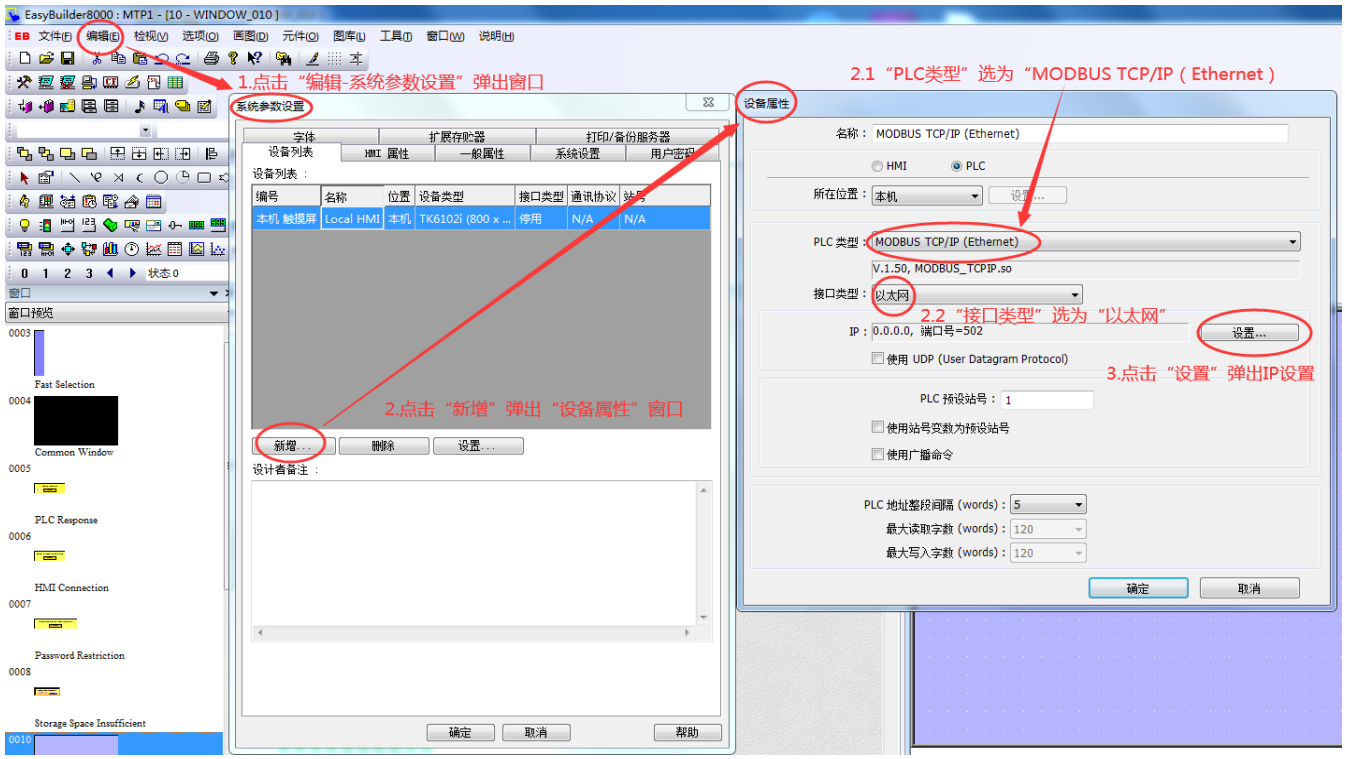
The PLC type in the device properties is set to “Mitsubishi FX3U (Ethernet)”, the interface type is Ethernet, and IP settings are made.



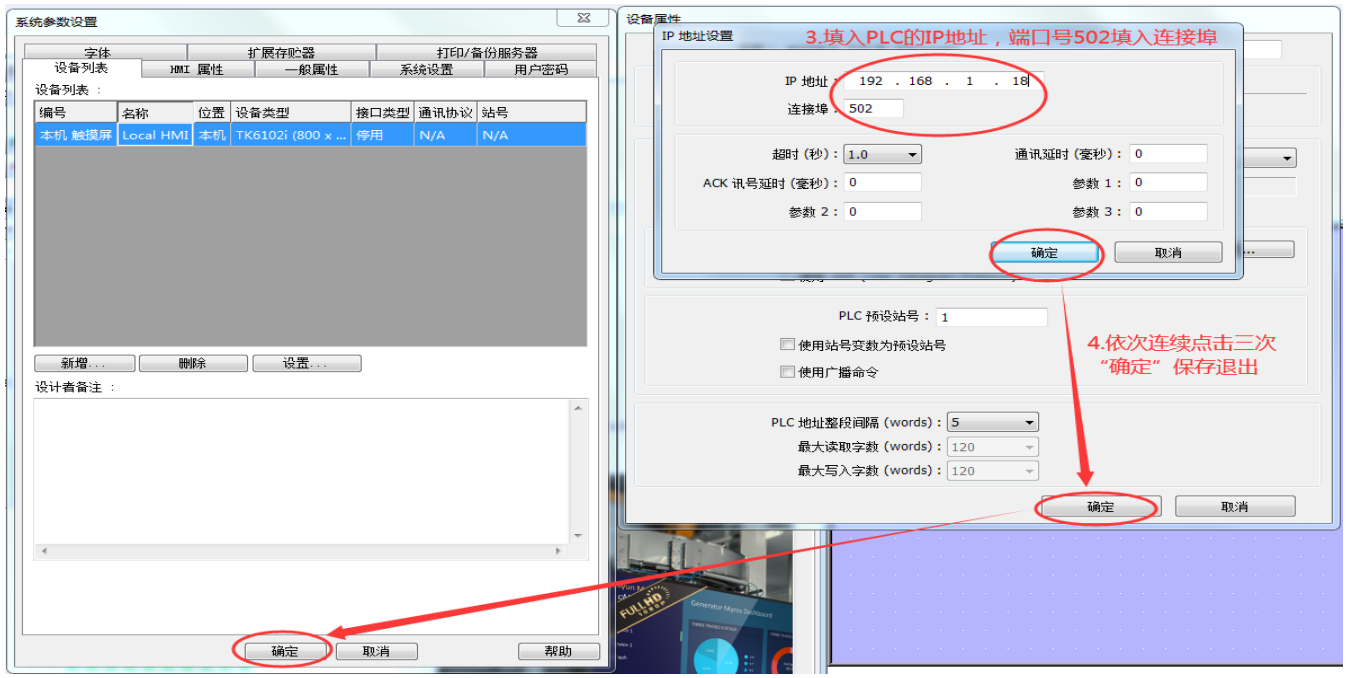
The PLC IP address, with the port number “5551” through the “IP address settings” window filled in and saved.

II.MODBUS TCP protocol communication

1) Software EB8000 Project Manager, V4.43



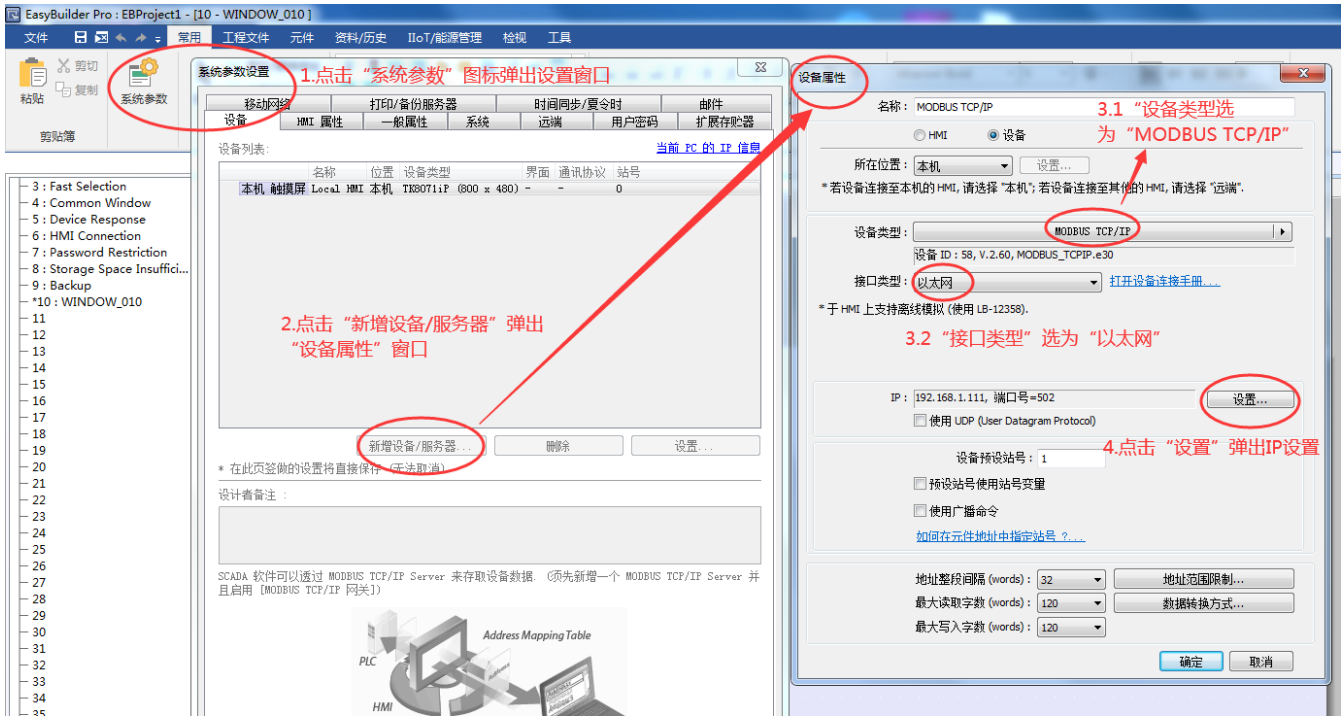
The device properties have the PLC type set to “Modbus TCP/IP (Ethernet)”, the interface type to Ethernet, and IP settings.



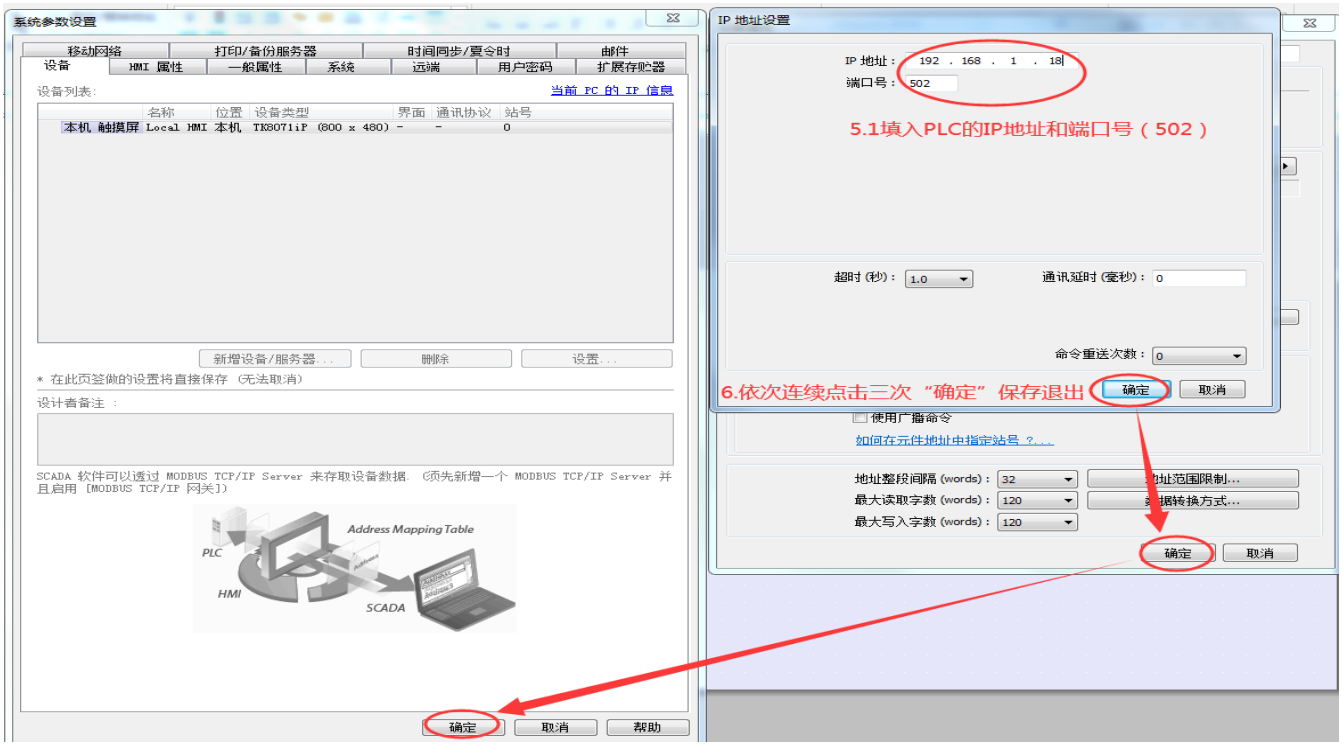
The PLC IP address, with the port number “502” through the “IP address

settings" window filled in and saved.

2) software EasyBuilder Pro, V6.04.01



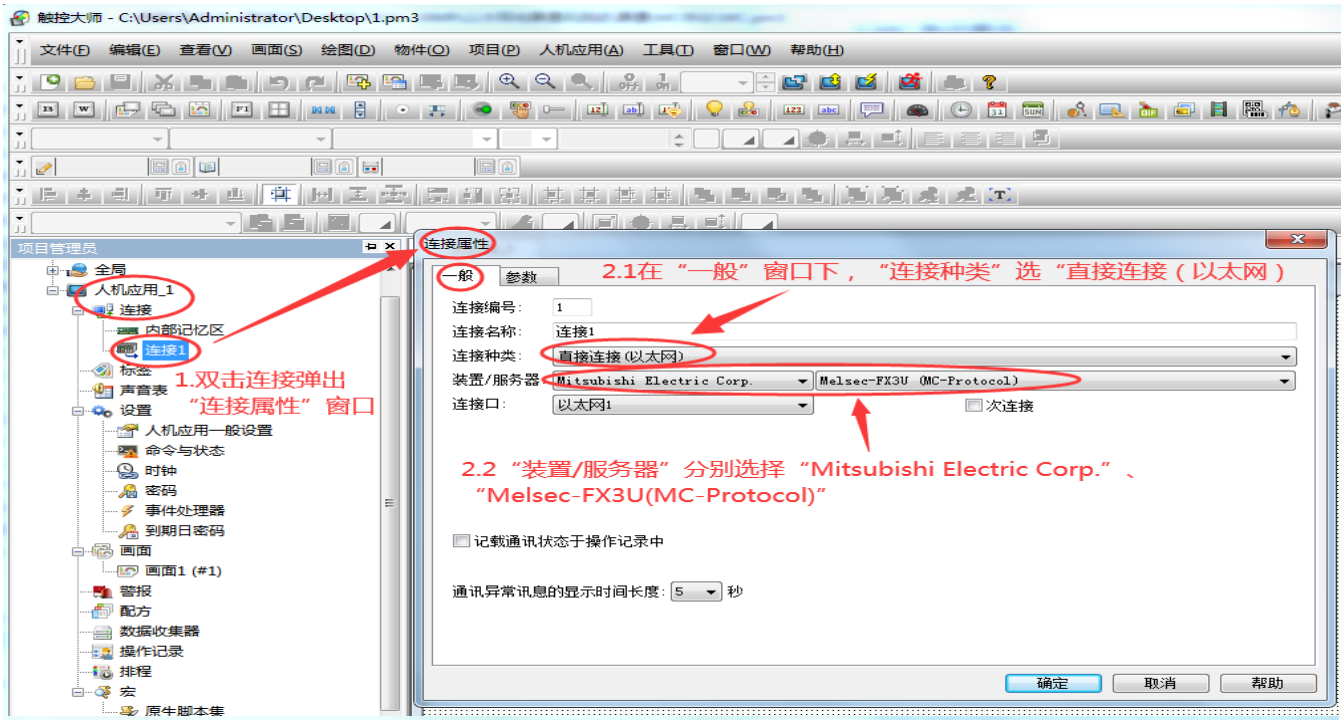
The device properties have the PLC type set to "Modbus TCP/IP (Ethernet)", the interface type to Ethernet, and IP settings.

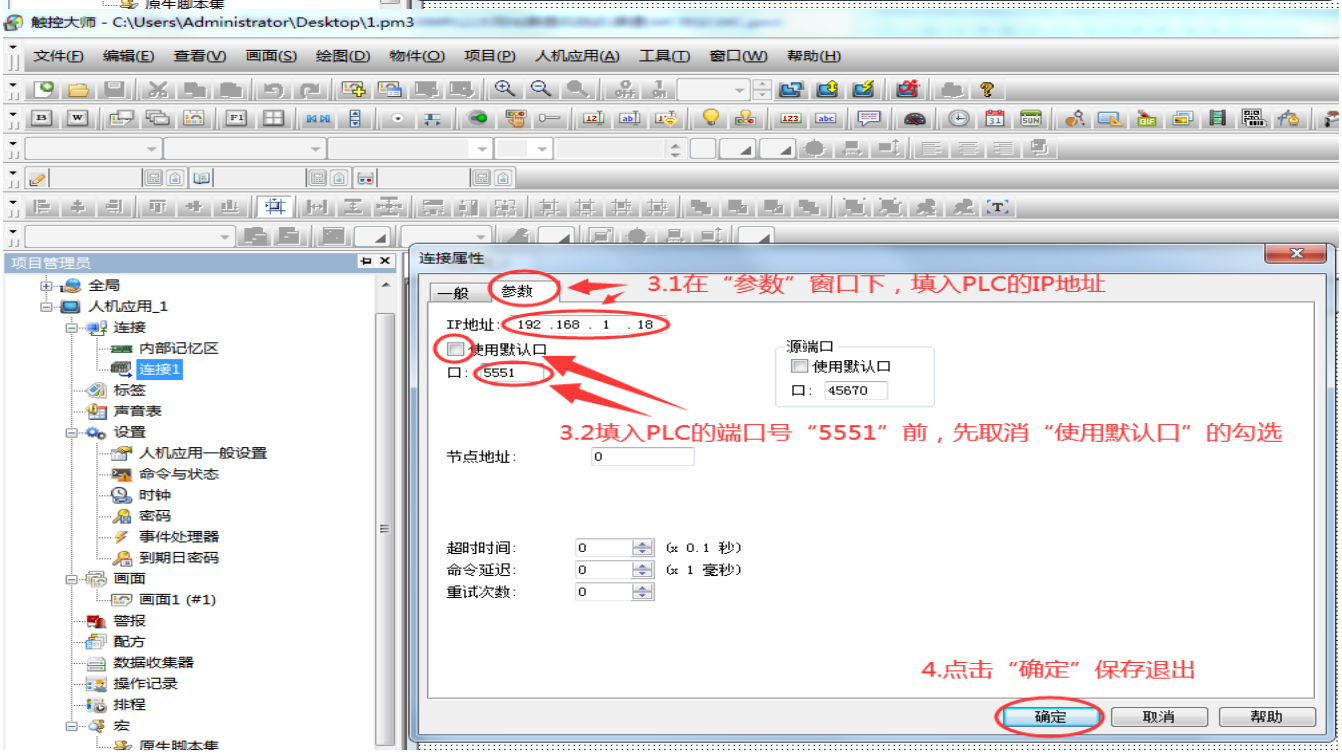


The PLC IP address, with the port number "502" through the "IP address settings" window filled in and saved.

5. Connect to touch screen (software version touch master V2.1)

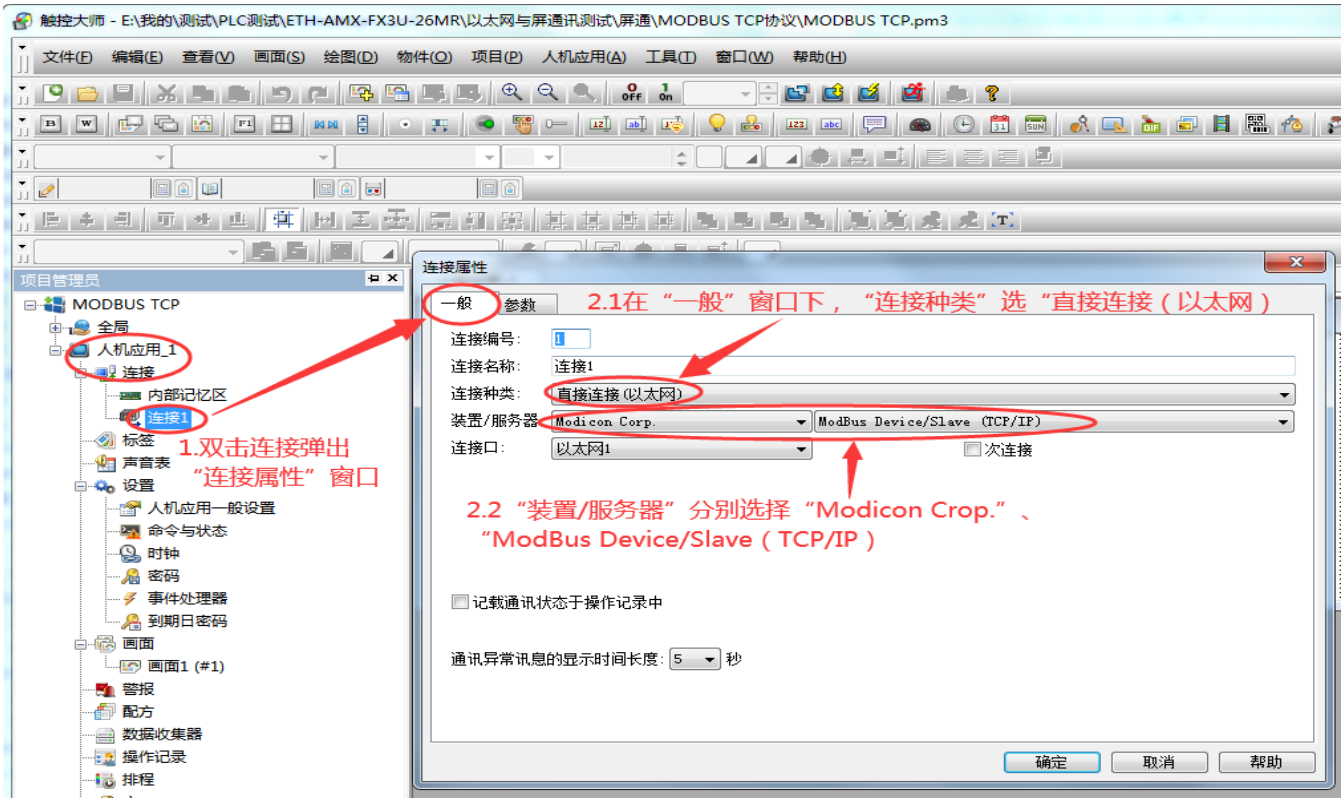
I.MC

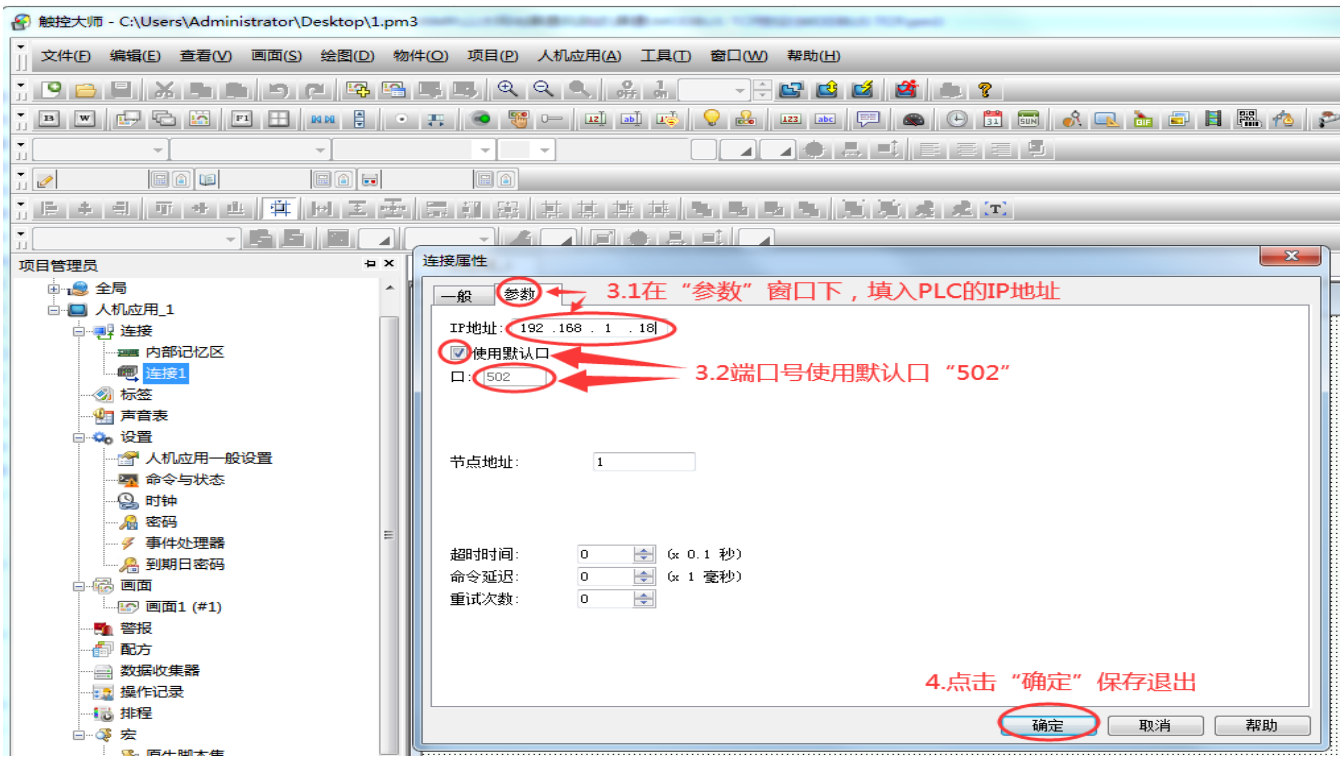




Select “Connection type” as “Direct connection (Ethernet)” and “Melsec-FX3U (MC-Protocol)” from the “Connection properties” window. Set the PLC IP address and port number “5551” and save it.

II.MODBUS TCP protocol communication

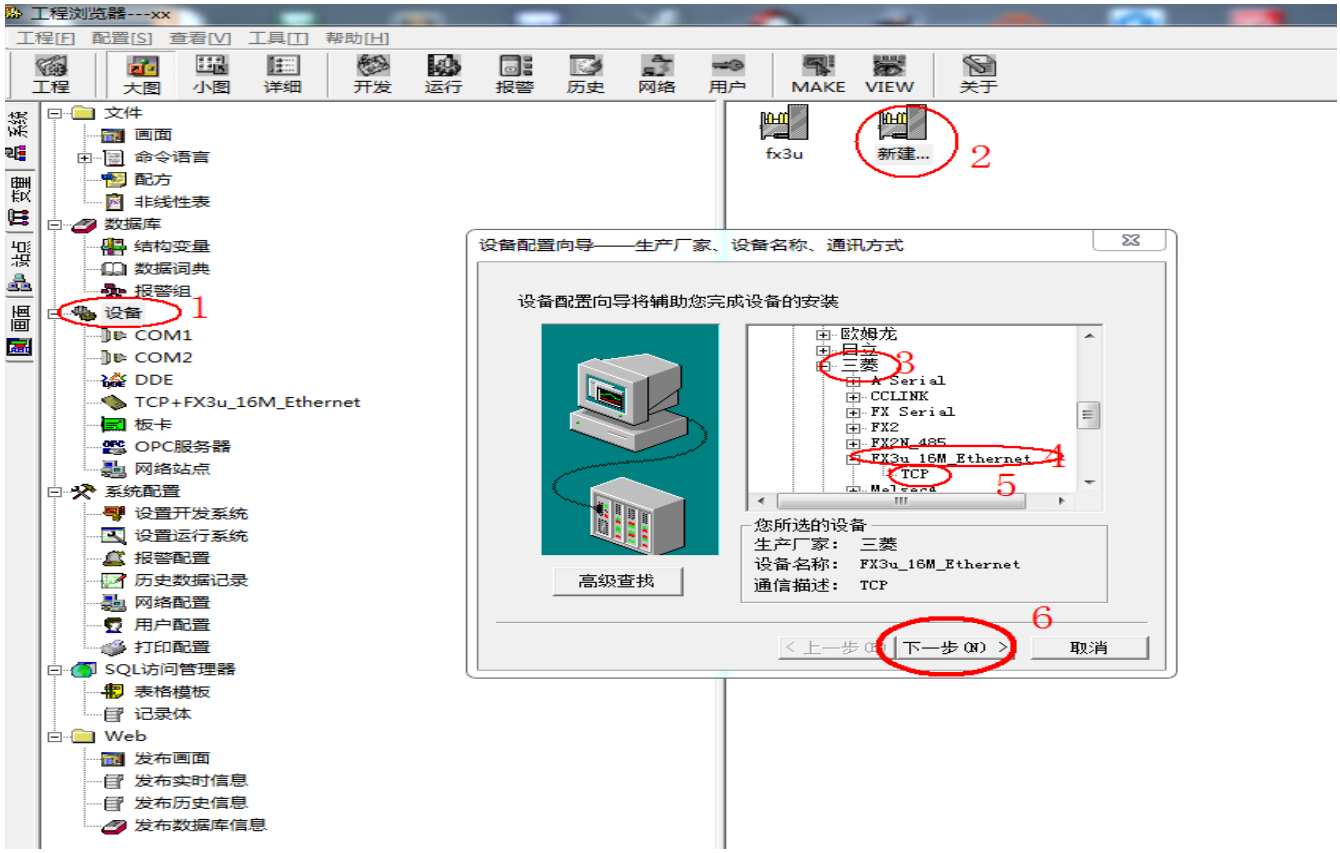




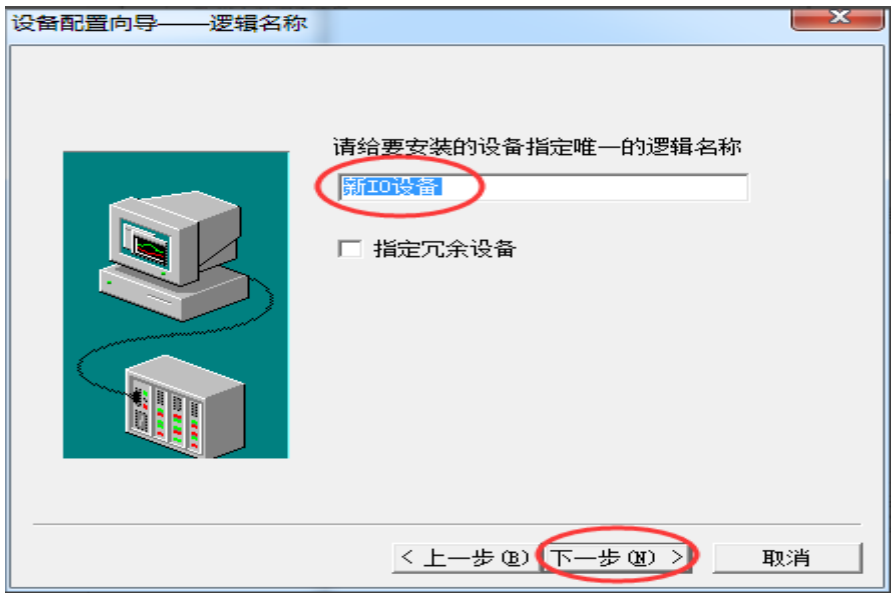
Select “Connection type” as “Direct connection (Ethernet) , connection protocol as “Modbus/Device (TCP/IP)” from the “Connection properties” window, set the PLC IP address and port number “502” and save it.

6. Connect to kingview (version 6.55)

I.MC



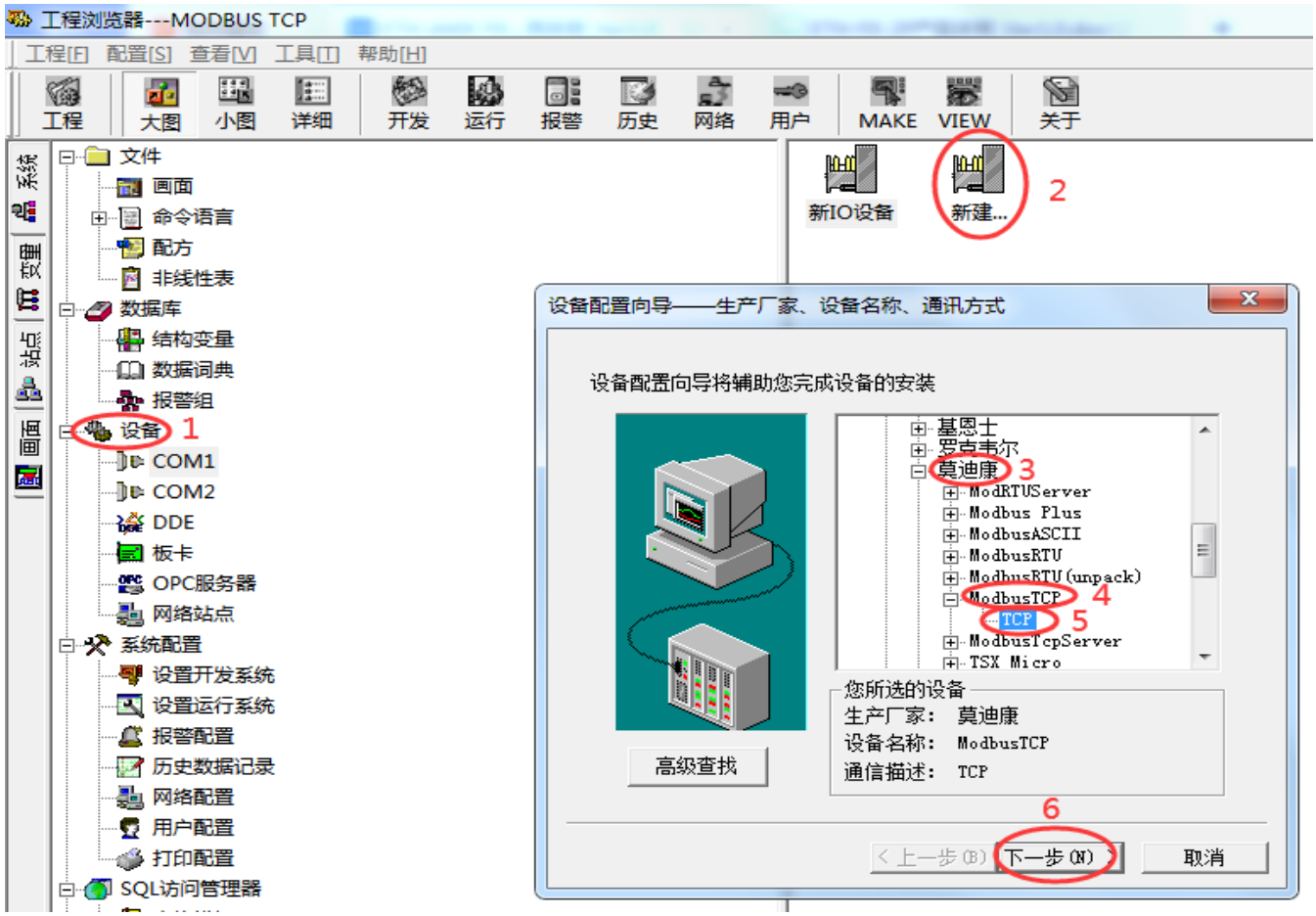
After opening kingview to create a new project, create the "Mitsubishi FX3U 16M" protocol as shown in step 1-5 above, and then proceed to the next step.



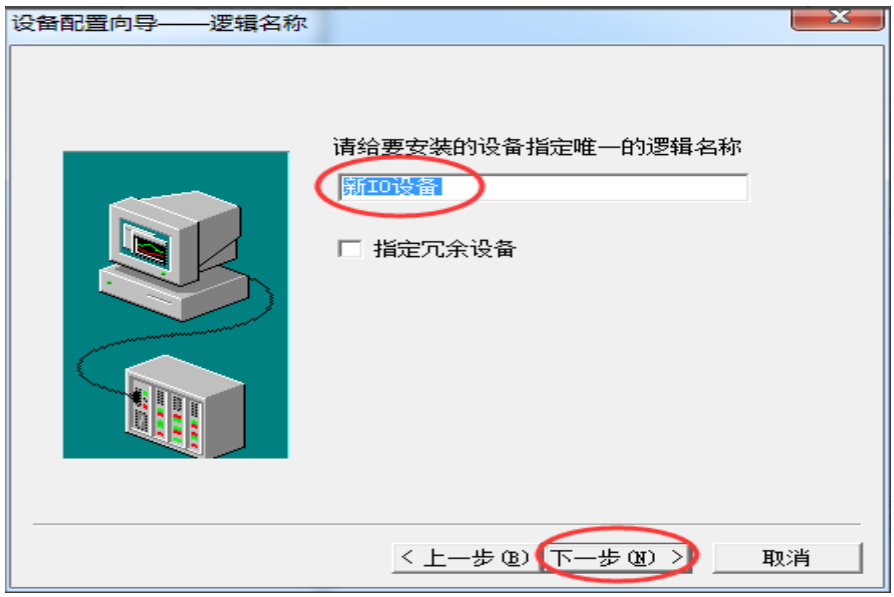
Enter the IP address and port number 5551 of the ETH-FX-2P module, separated by a colon (for further IP setup rules, click address help) .

Click next and wait until you’ re done.

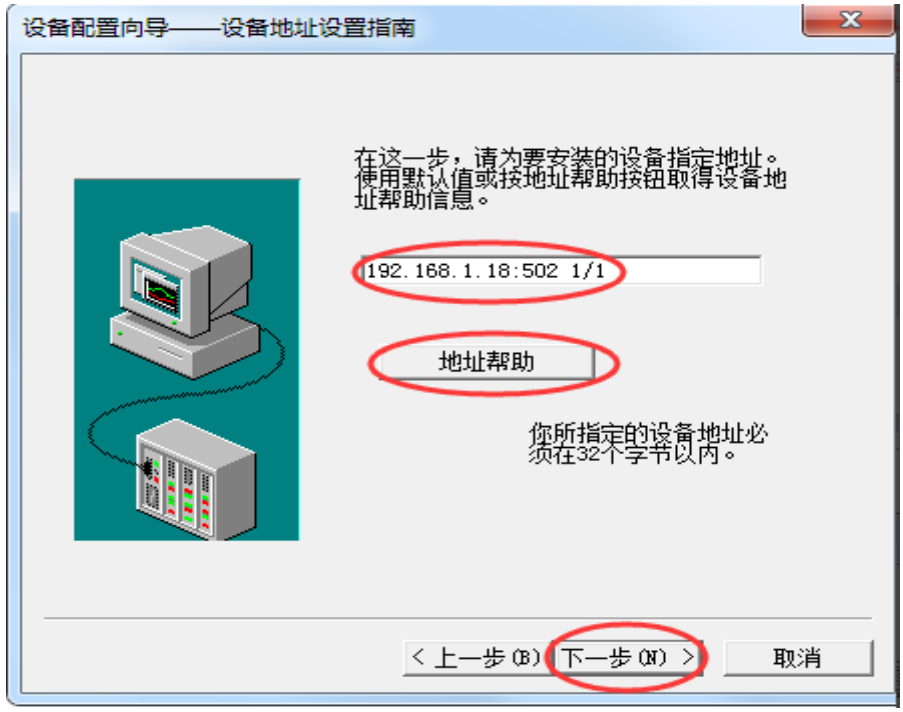
II.MODBUS TCP protocol communication



After opening kingview to create a new project, create a new "MODBUSTCP-TCP" protocol as shown in steps 1-5 above, and then proceed to the next step.



Enter the IP address and port number 502 of the ETH-FX-2P module, separated by a colon, separated by a space, separated by a device address 1, and separated by a" /" delay time of 1 second (for further IP setup rules, click on address help) .

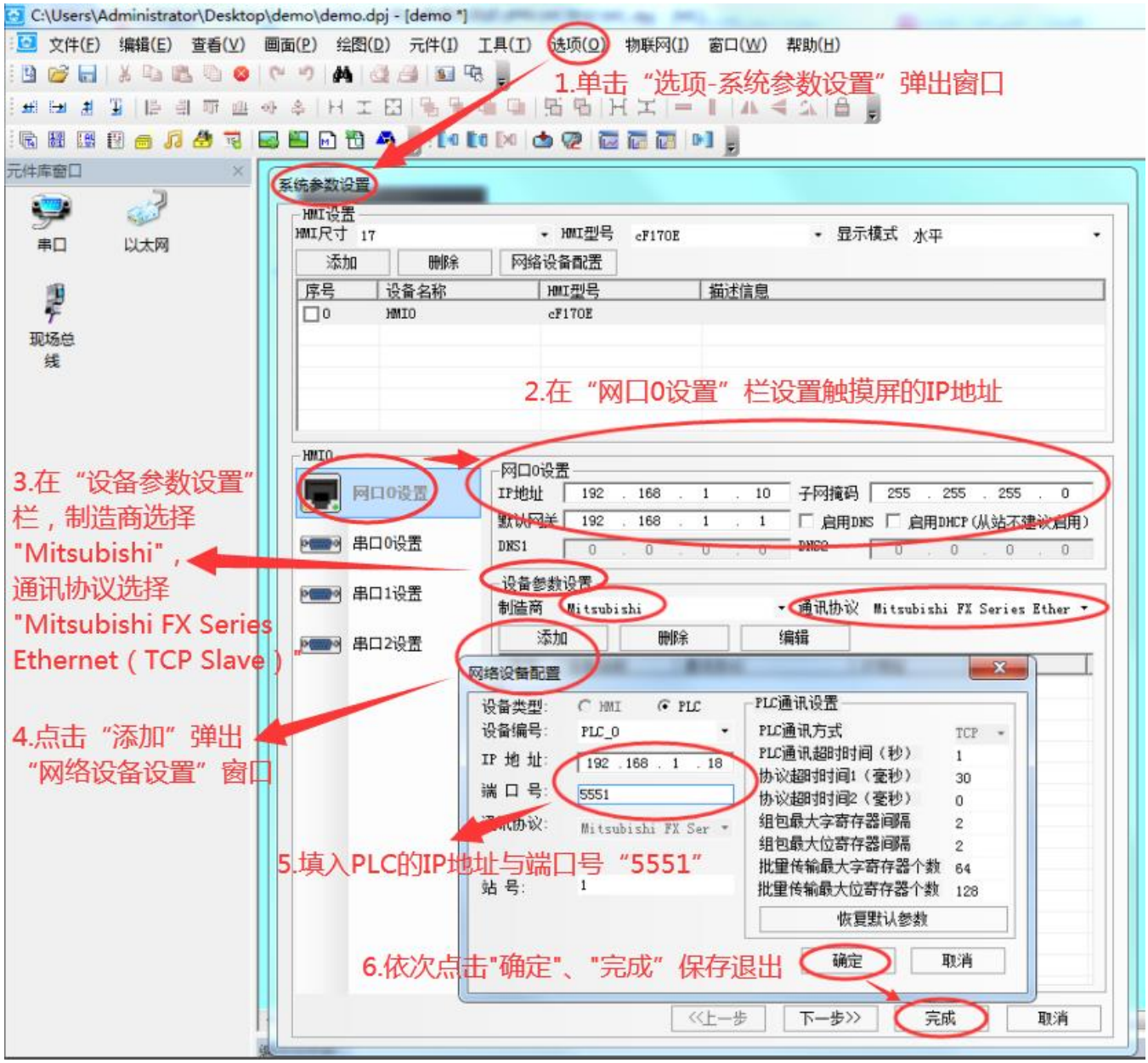


Click next and wait until you' re done.


设备安装向导——信息总结
你所要安装的设备信息:
设备信息
新设备为 莫迪康 生产的 ModbusTCP .
设备逻辑名: 新IO设备
设备地址:192.168.1.18:502 1/1
通讯方式: TCP
自动建变量
< 上一步(B)
完成
取消

Kill. Connect to the step touch screen (software version Kinco DTools v3.4)

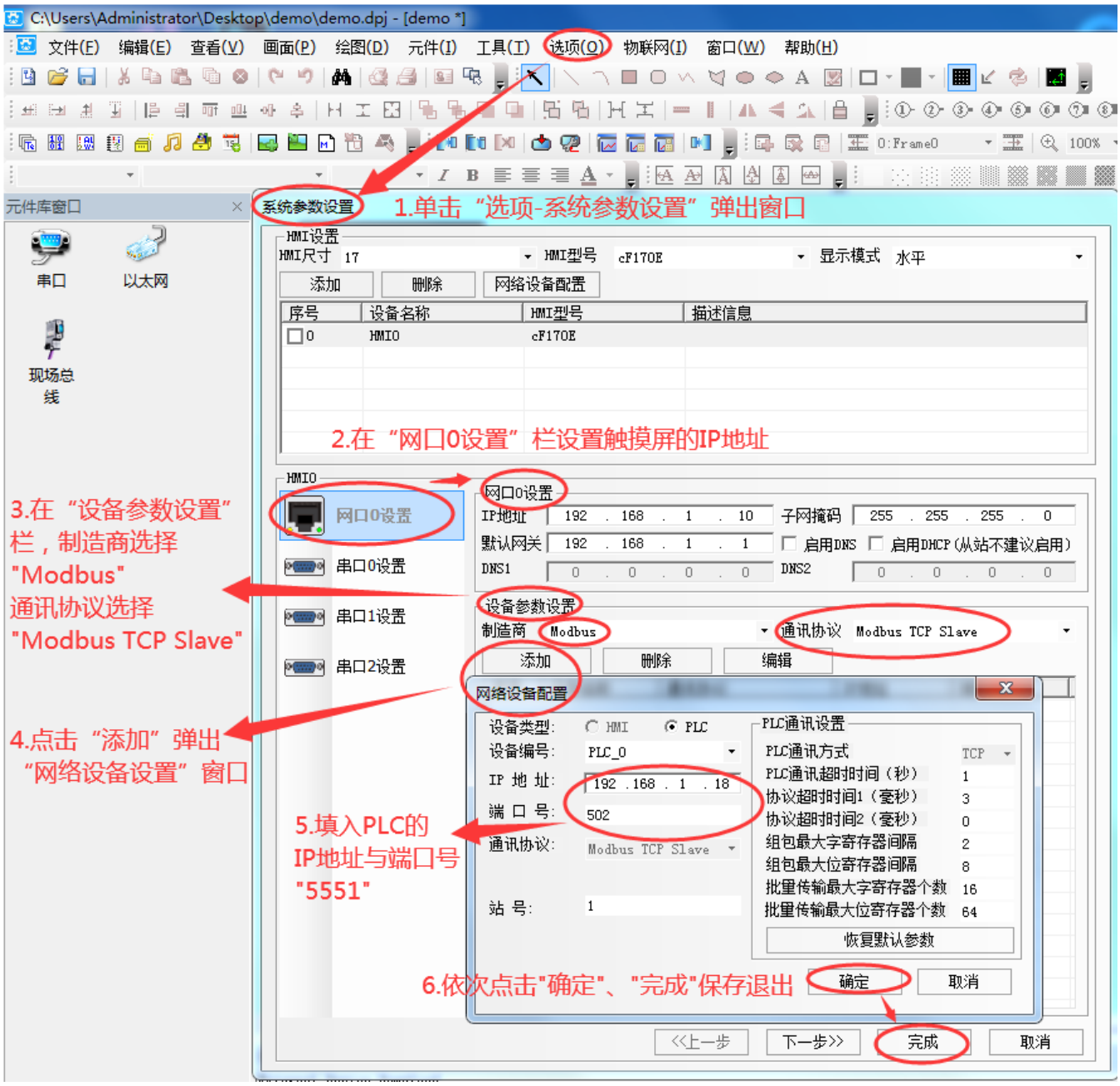
I.MC



Open the “System parameter settings” window to set up the touch screen IP, the manufacturer of the device parameter select “Mitsubishi”,

The communication protocol select “Mitsubishi F X Series Ethernet (TCP Slave)” and then fill in the PLC’s IP address and port number “5551” to save the settings.

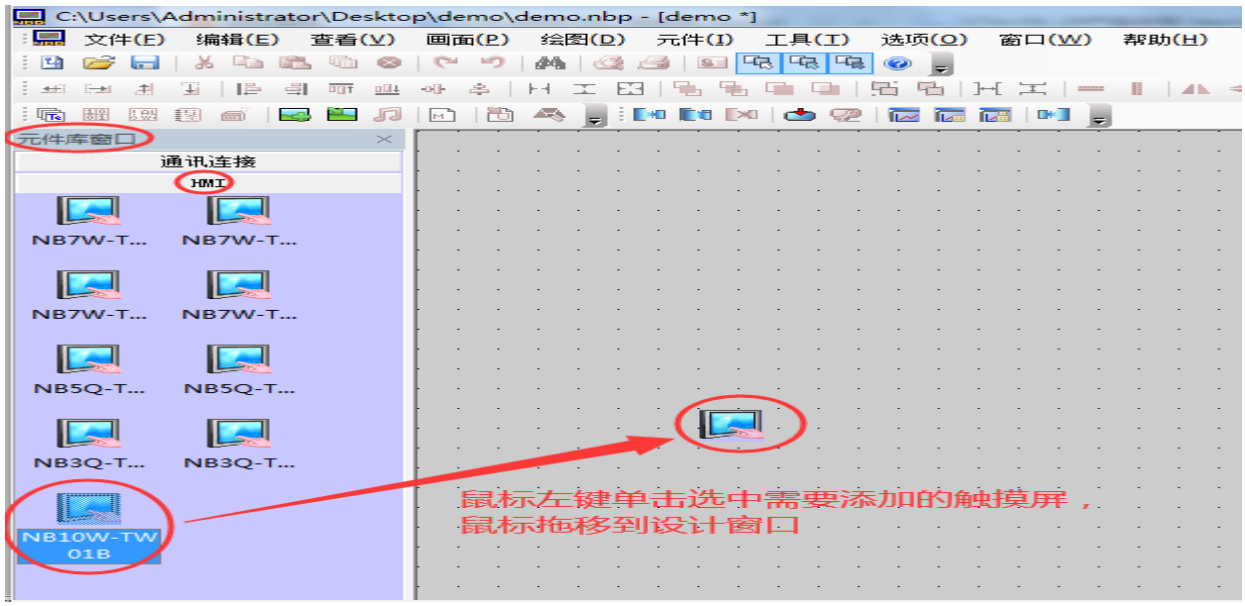
II.MODBUS TCP protocol communication



Open the “System parameters” window to set the IP of the touch screen, and select “Modbus” for the manufacturer of the device parameters,

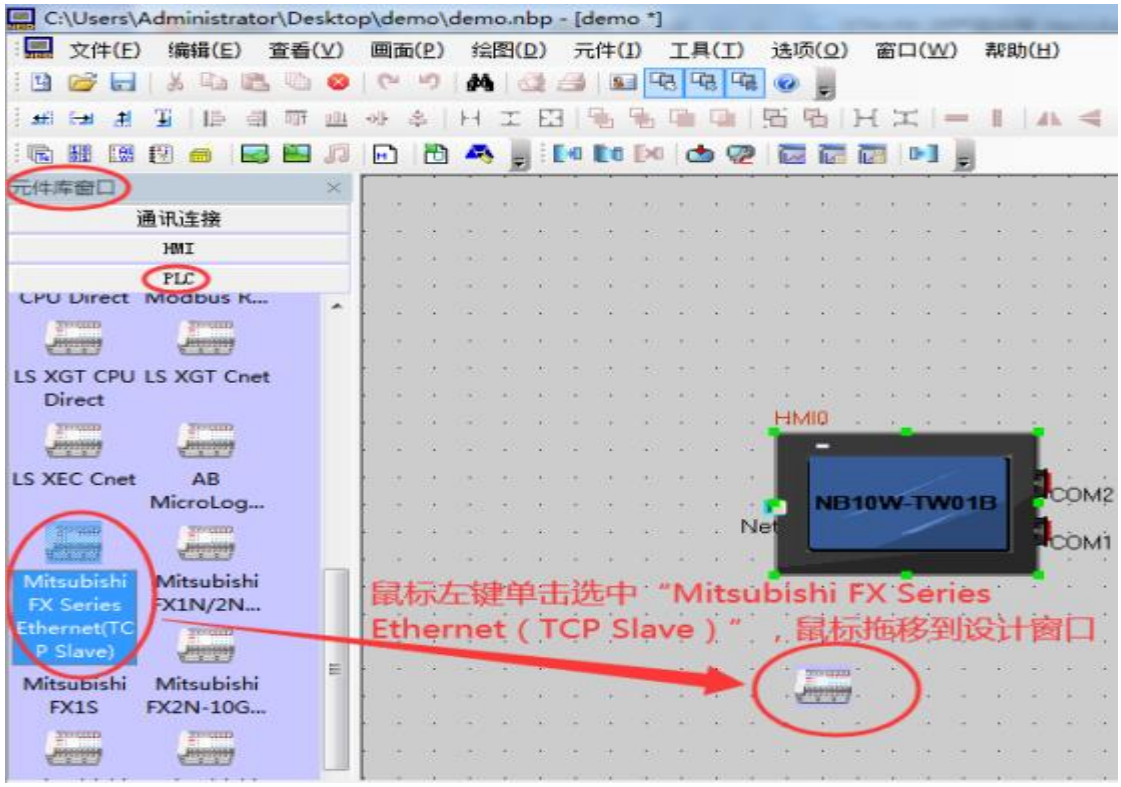
The communication protocol select “Modbus TCP Slave” and then fill in the PLC’s IP address and port number “502” to save the settings.

8. Connect to Omron touch screen (software version NB-Designer V1.4)

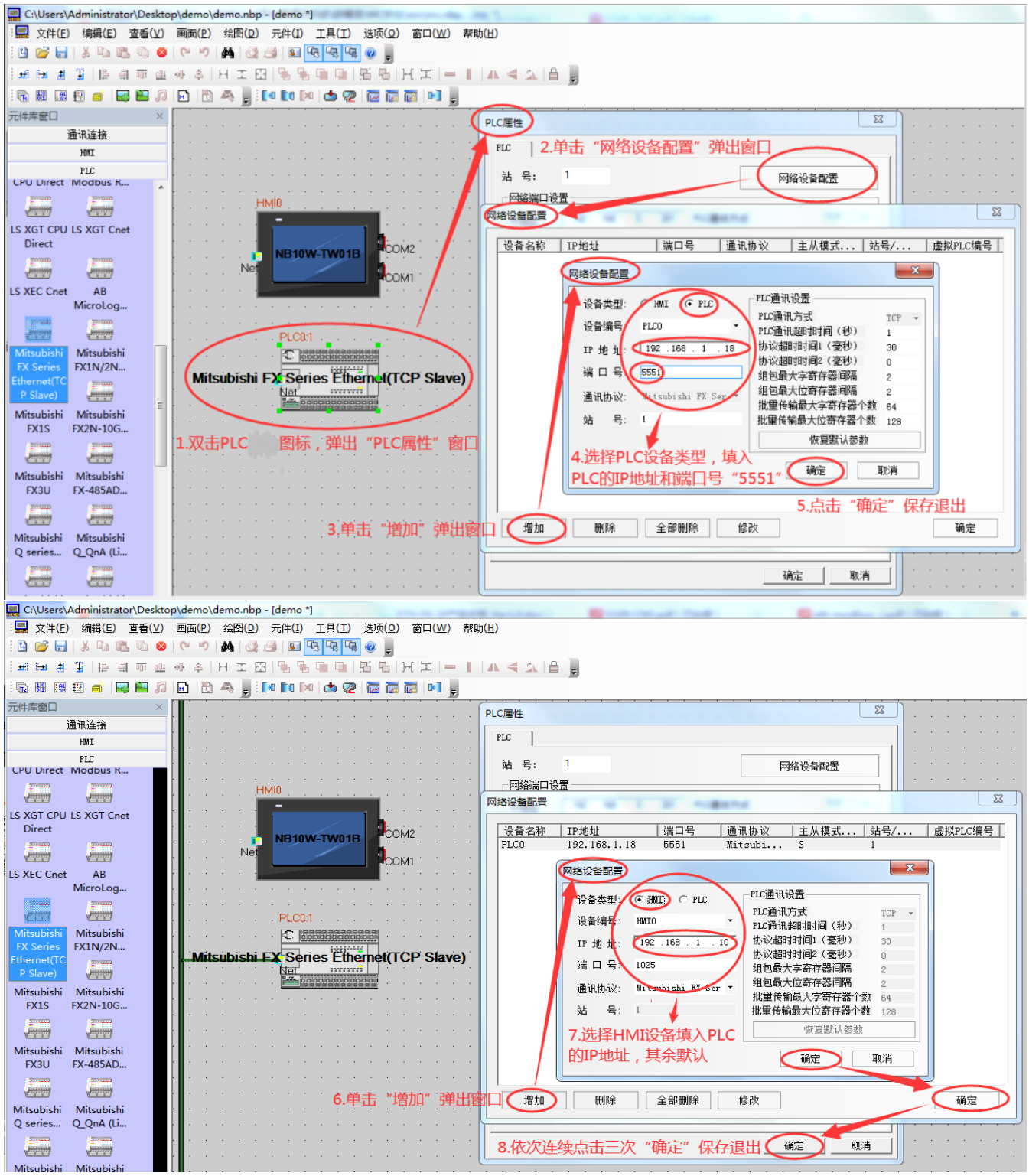


Select the user touch screen icon from component library window-HMI, click and drag the HMI icon to the design window.

I.MC

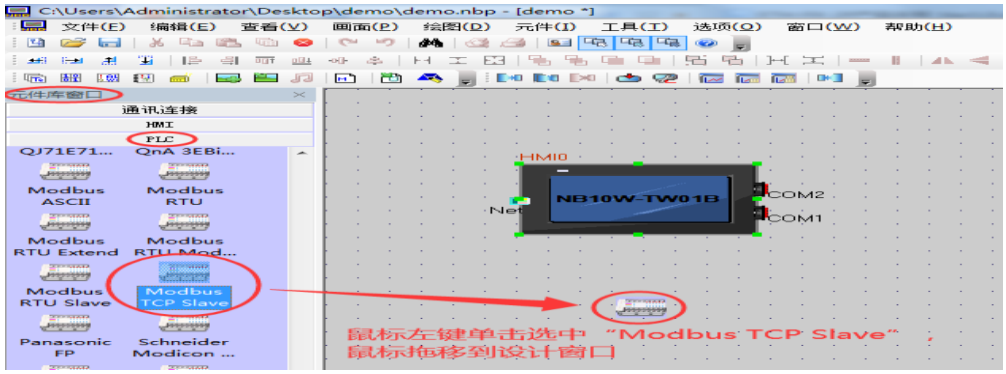


Select the Mitsubishi F X Series Ethernet (TCP Slave) icon from component library window-PLC, and click to select the drag icon to the design window.

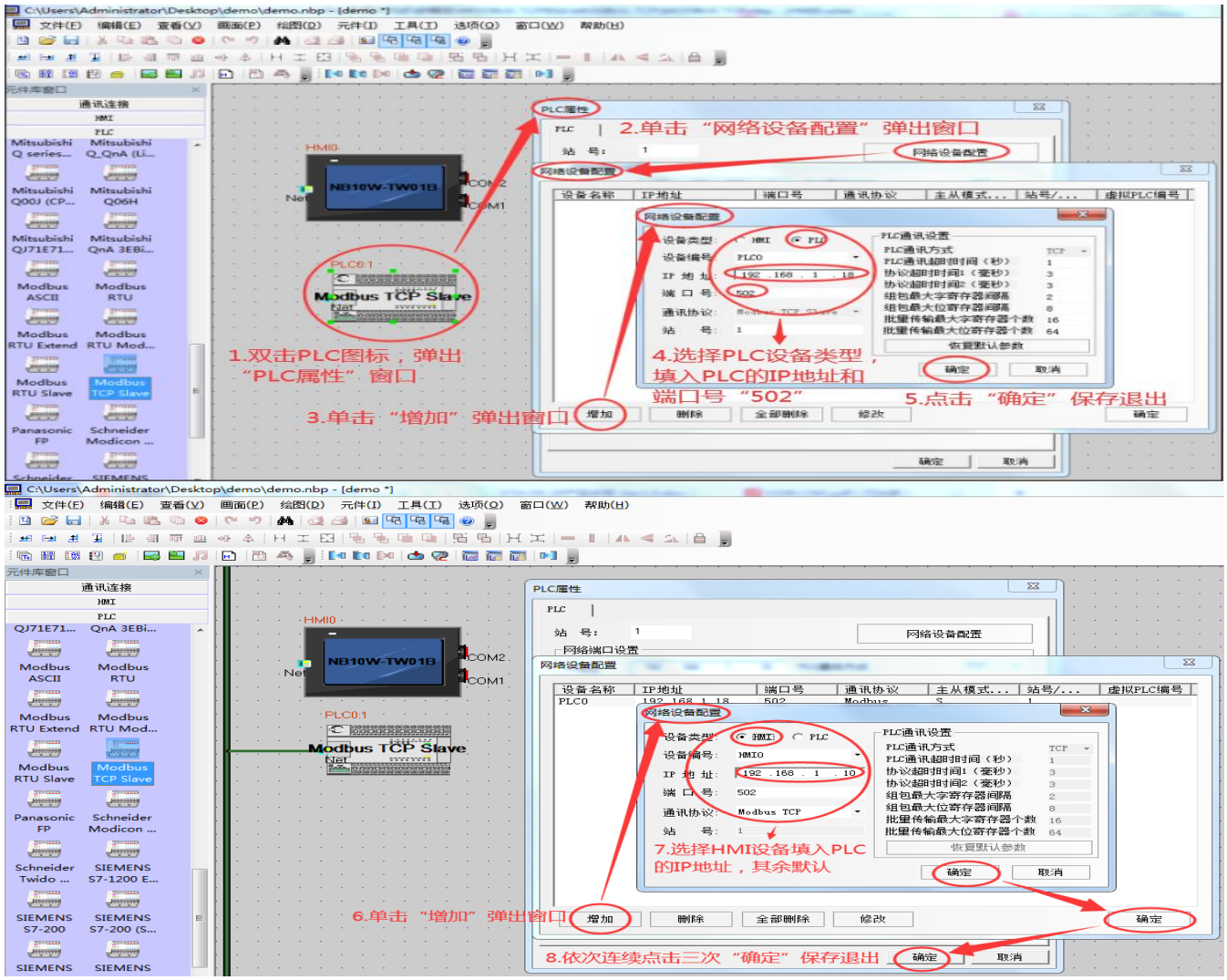


Open “PLC properties-network device configuration”, add the PLC IP address and port number “5551”, as well as the touch screen after saving the IP address exit.

II.MODBUS TCP protocol communication



Select the “Modbus TCP Slave” icon from component library window-PLC, click and select the drag icon to the design window.



Open “PLC properties-network device configuration”, add the PLC IP address and port number “5551”, as well as the touch screen after saving the IP address exit.