

Rogerwell

DDC Program User Manual V5.6



Rogerwell Control System Limited

Oct 2025

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一、 Overview

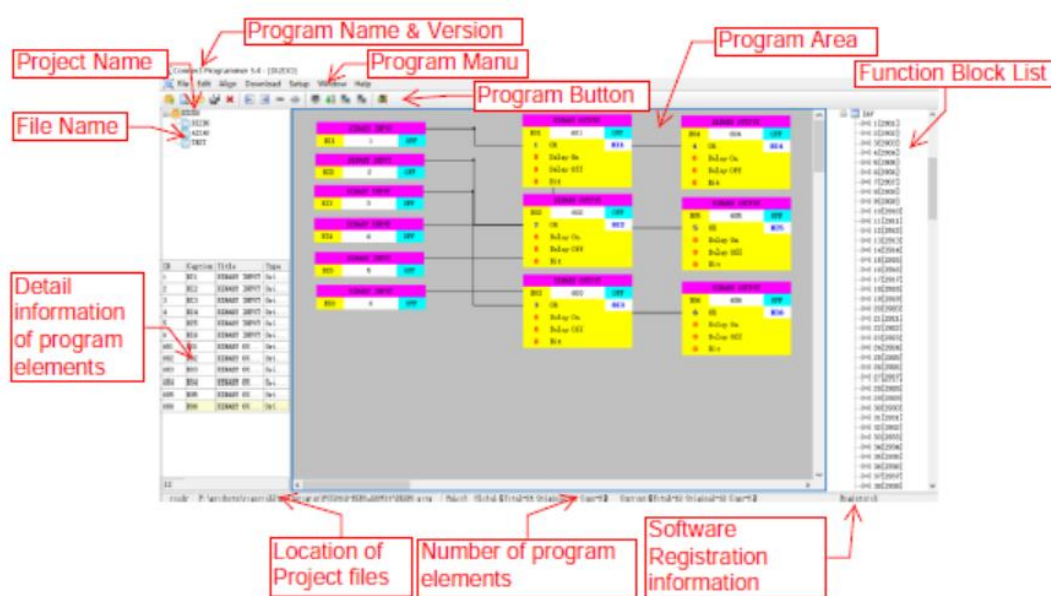
Rogerwell Control System (Guangzhou) Co., Ltd. is a high-tech enterprise established in 2010. The company develops control systems with independent intellectual property rights and has introduced a new generation of programming software that adopts a mature, simple, and convenient function block programming method. By simply dragging and dropping, inputs, outputs, and function blocks are connected to complete the editing of control functions. It is primarily used in HVAC, temperature and humidity control of air conditioning units, control of sumps and sewage pumps, automatic control of supply and exhaust fans, lighting control, and other fields.

This programming software is compatible with Rogerwell's controllers.

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二、Introduce Connect program

Connect Program is base on graphic programming tools, all the function blocks and IO point can reference directly through connect, programming only need to use the IO points and function block in the programming area, the connection line between the IO point and function block is through the mouse click drag and drop, the programming software will automatically display the line, at the same time in the function block of the corresponding location display IO point address.



Programmer Interface

1. Manu item

1.1 File

New Project: You can set up a new project and define the project name

New File: The new file is under the project, you can set up many file in one project, the file maybe define different function

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Open Porject: Open the exist project

Close Project: Close the opened project

Exit: Exit the program

1.2Edit

Save: Save the current file

Save All: Save all file

Property: Select module and click the property,display the module all detail information

Snap: snap the screen to image file

Note: Add comments to program

Select All: select the all module in the current file

Lock: Lock the module,the module will be can not move

Unlock: Release the module,the module can be move by mouse

1.3Align

Left Align: Aligns the selected module to the left

Right Align: Aligns the selected module to the Right

Top Align: Aligns the selected module to the Top

Bottom Align: Aligns the selected module to the Bottom

Bring to Front: Aligns the selected module to the Front

Set to Back: Aligns the selected module to the Back

1.4Download

Compile: Compile the file to download .bin format

Compile config: Open the download config page

Open ConfigPCC: Open the ConfigPCC program for Setting MS/TP controllers

Open Hyper Terminal: Open the Hyper Terminal for test

Open NetAssist: Open the NetAssist for test

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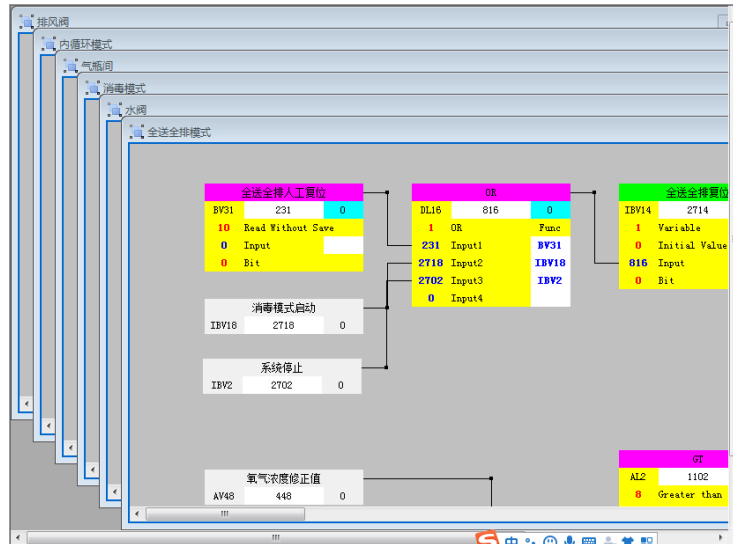
1.5 Setup

Setup: Setup parameter of Module(This function just for development staff)

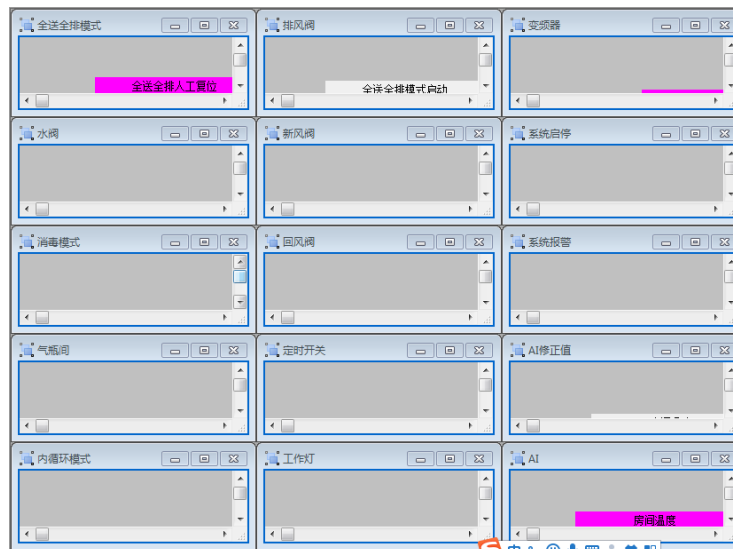
Language: Select English or Chinese

1.6 Windows

Cascade: Make the file hierarchical arrangement



Tile Horizontal: Make the file horizontal arrangement



Tile Vertical: Make the file vertical arrangement

1.7 help

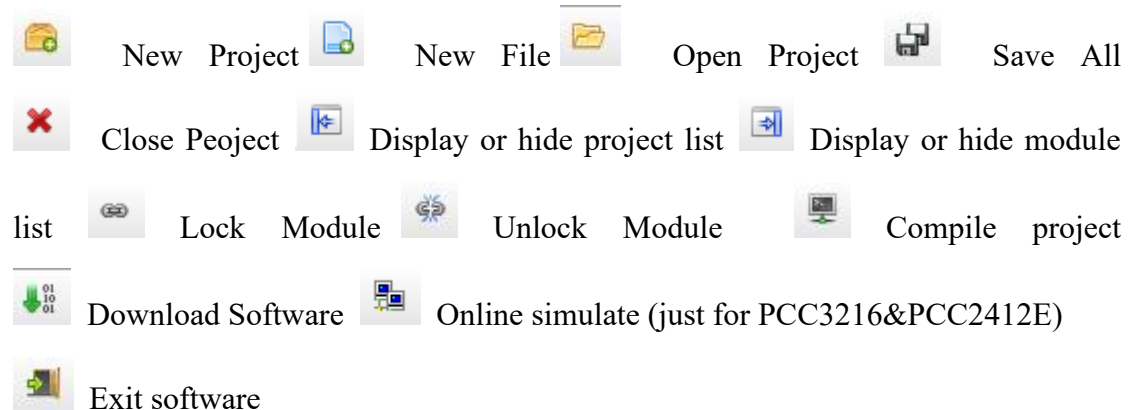
MachineID: Click the MachineID and get machineID,you can ask our

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support get the software license code

About: Software information

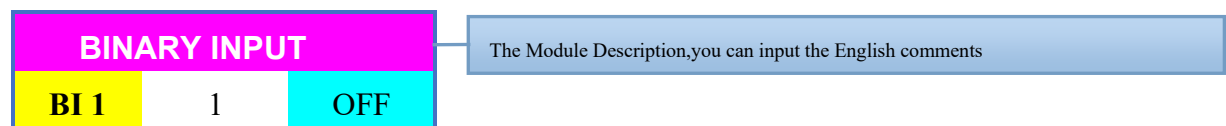
2. Button Description



3. Function Block introduce

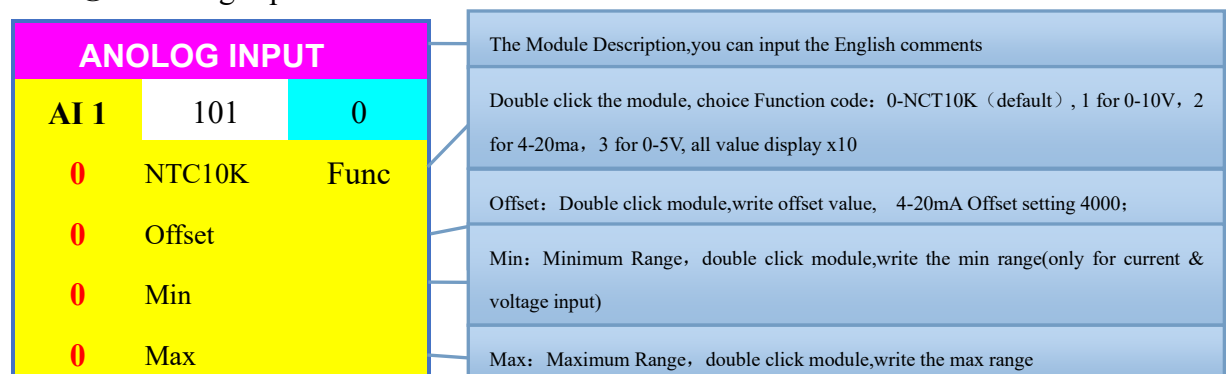
● IO Function Block:

① Digital Input module (1~96)



BI1-Digital Input 1, the number 1 ~96 present this module program code

② Analog Input module (101~196)



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AI1-Analog Input 1, the number 101 ~196 present this module program code

③ Digital variable (201~400)

BINARY VALUE		
BV1	201	0
0	Read/Write	
0	Input	
0	Bit	

The Module Description,you can input the English comments

Read/Write: Double click the module,choice the function:

Read and Save (default):BV can be setting from computer and power on last value;

Write and Save:BV can be setting program input and power on last value;

Read Without Save:BV can be setting from computer and power on initial value;

Write Without Save:BV can be setting program input and power on initial value

Input: connect input module, leftside display input module code

Bit: Read the input value by bit,default lowest bit 0

BV1-Binary Value 1, the number 201 ~ 400 present this module program code

④ Analog Value (401~600)

ANALOG VALUE		
AV1	401	0
0	Read/Write	
0	Input	

The Module Description,you can input the English comments

Read/Write: Double click the module,choice the function:

Read and Save (default):BV can be setting from computer and power on last value;

Write and Save:BV can be setting program input and power on last value;

Read Without Save:BV can be setting from computer and power on initial value;

Write Without Save:BV can be setting program input and power on initial value

Input: connect input module, leftside display input module code

AV1-Analog Value 1, the number 401 ~ 600 present this module program code

⑤ Digital Output (601~648)

BINARY OUTPUT		
BO1	601	0
0	OR	
0	Delay On	
0	Delay Off	
0	Bit	

The Module Description,you can input the English comments

OR: connect digital input module

Delay On: Double click the module and input delay time (second)

Delay Off: Double click the module and input delay time (second)

Bit: Read the input value by bit,default lowest bit 0

BO1-Binary Output 1, the number 601 ~ 648 present this module program code

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⑥ Analog Output (701~748)

ANALOG OUTPUT		
AO1	701	0
0	Out	
0	Min	
0	Max	
0	Offset	

The Module Description,you can input the English comments

Out: Connect Analog output module such as AV/AL

Min: Minimum Range, double click module,write the min range

Max: Maximum Range, double click module,write the max range

Offset: If 2-10V output, the Offset setting as (Max-Min) *2=(1000-0)*2=200

AO1-Analog Output 1, the number 701 ~ 748 present this module program code

● Logic Module:

1. Digital Logic (801~1100)

DIGITAL LOGIC		
DL 1	801	0
0	NA	Func
0	Input1	
0	Input2	
0	Input3	
0	Input4	

The Module Description,you can input the English comments

Function Code: Double click the module and choice the Function
OR, NOR,AND,NAND,XOR,NXOR

Input1~4: Input as BI/BV/ADL module

DL1-Digital Logic 1, the number 801 ~ 1100 present this module program code

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2. Analog Logic (1101~1300)

ANALOG LOGIC		
AL 1	1101	0
0	NA	Func
0	Input1	
0	Input2	
0	Input3	
0	Input4	

The Module Description,you can input the English comments

Function Code: Double click the module and choice the Function
Maximum,Minimum,Average,Add,Sub,Multiply,Divide,Greater than,Less than,Greater than or equal, Less than or equal,Equal,Not equal,Dewpoint Temperature, Square Root

Input1~4: Analog input for logic such as AI/AV

Attention: Function 1-5,Input 1-4 valid

Function 6-13, only for Input 1-2

Function 14 and 17only Input 1-2,Input 1 is temperature,Input 2 humidity

Function 15 and 16, only for Input 1

AL1-Analog Logic 1, the number 1101 ~ 1300 present this module program code

3. Multiplexer (1301~1400)

MULTIPLEXER		
MUX 1	1301	OFF
0	Disable	
0	Input1	
0	Input2	

The Module Description,you can input the English comments

Disable/Enable: Input module type as BI/BV/DL

When the Disable/Enable Input=0, the module Output=Input1

When the Disable/Enable Input=1, the module Output=Input2

Input1~2: Input 1~2 can connect all type of module

MUX1-Multiplexer 1, the number 1301 ~ 1400 present this module program code

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4. Timer (1401~1500)

TIMER		
TM1	1401	OFF
0	Disable	
0	Sec	
0	On Delay	

The Module Description,you can input the English comments

Disable/Enable: Input module type as BI/BV/DL

Sec: Delay time(Unit:Second),connect AV/IAV module

On Delay: Input module type as BI/BV/DL

When On Delay=0,the module is On Delay Function

Disable/Enable=1,Timer running, the time Sec=setting Sec,Timer=1

Disable/Enable=0,Timer reset,Timer=0

When On Delay=1,the module is Off Delay Function

Disable/Enable=0,Timer running, the time Sec=setting Sec,Timer=1

Disable/Enable=1,Timer reset,Timer=0

TM1-Timer 1, the number 1401 ~ 1500 present this module program code

5. RS Trigger (1501~1600)

RS		
RS1	1501	OFF
0	Reset	
0	Set	
0	RS	

The Module Description,you can input the English comments

Reset: Connect BI/BV/DL

Set: Connect BI/BV/DL

RS: This is define the Function RS or SR

When RS input = 0,the Function is RS

When R=0,S=1,Output =1;when R=1,S=0,Output = 0;

When R=0,S=0,Output of random;when R=1,S=1,Output = 0;

When RS input = 1,the Function is SR

When R=0,S=1,Output = 1;when R=1,S=0,Output = 0;

When R=0,S=0, Output of random;when R=1,S=1,Output = 1;

RS1-RS 1, the number 1501 ~ 1600 present this module program code

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6. PID (1601~1630)

CONTROL LOOP		
CL1	1601	OFF
0	Stop	
0	Input	
0	Setpoint	
0	Proportion	
0	Integration	
0	Derivative	
0	Direct Acting	
0	Deadband	
0	Min Output	
0	Max Output	

The Module Description,you can input the English comments

Stop/Start: PID enable bit, connect BI/BV/DL; bit=0, disable PID, bit=1, enable PID

Input: Input value for PID,connect AI/AV/AL

Setpoint: Setpoint for PID,connect AI/AV/AL

Proportion: Proportion for PID,connect AV/IAV

Integration: Integration for PID,connect AV/IAV

Derivative: Derivative for PID,connect AV/IAV

Direct/Reverse Acting: PID direction, connect BV,0=forward,1=reverse;

Deadband: This is important for our PID function,the deadband range is PID function active range,double click the function module input the deadband figure;default input 200

Min Output: connect AV/IAV,default input is 0

Max Output: connect AV/IAV,default input is 1000

CL1-Control Loop 1, the number 1601 ~ 1630 present this module program code

7. Runtime (1701~1800)

RUNTIME		
RT1	1701	0
0	Disable	
0	Time Min	

The Module Description,you can input the English comments

Disable/Enable: connect BI/BV/DL

Time Min: Cumulative running time(Unit:Minute);connect AV

Disable/Enable =1,every minute add 1on AV

Disable/Enable =0,don't change the value;

Attention:the computer should be change the value;the AV value is Output time

RT1-Runtime 1, the number 1701 ~ 1800 present this module program code

8. Time & Fault Changeover (1801~1810)

TIME LOOP			The Module Description,you can input the English comments
TL1	1801	OFF	
0	Total Num		Total Num: The total number of devices participating in the time fault rotation function(Max num is 6),connect AV/ IAV Run Num: demand running devices number,connect AV/ IAV; Runtime1-6: 1-6 device #total equipment running time, connect AV/ IAV; Fault1-6: 1-6#fault status,connect BI/BV/IBV; The function block is mainly used to optimize the start-stop control of the chiller plant, first defining the total number of devices. When the number of running units needs to increase, the module automatically starts the equipment with the shortest running time and no failure; automatically turns off the equipment with the longest running time when the operation needs to reduce. Attention: The runtime unit is Minute.
0	Run Num		
0	Runtime1		
0	Runtime2		
0	Runtime3		
0	Runtime4		
0	Runtime5		
0	Runtime6		
0	Fault1		
0	Fault2		
0	Fault3		
0	Fault4		
0	Fault5		
0	Fault6		
	Output1	0	
	Output2	0	
	Output3	0	
	Output4	0	
	Output5	0	
	Output6	0	

TL1- Time & Fault Rotation 1, the number 1801 ~ 1810 present this module program code

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9. Schedule (1901~1910)

SCHDULE			The Module Description,you can input the English comments
SC1	1901	OFF	
0	1 On		1/2/3 On: define 1/2/3 on time,connect AV/IAV 1 /2/3Off: define 1/2/3off time,connect AV/IAV Validity: the weekly validity input, low 7 bits validity, 1-enable,0-disable 0 bit for Monday, 1 bit for Tuesday, 2 bit for Wednesday, 3 bit for Thursday, 4 bit for Friday, 5 bit for Saturday, 6 bit for Sunday 3 time period can be defined for every day, the time must be arranged from early to later, with a block output value of 0 =off or 1=on The time frame is Hour+Minute, for example: 8:10=810 / 18:00;1800 Validity Monday to Sunday=1111111; Validity Monday to Friday=0011111,
0	1 Off		
0	2 On		
0	2 Off		
0	3 On		
0	3 Off		
0	Validity		

SC1-Schedule 1, the number 1801 ~ 1810 present this module program code

10. DIGITAL TO ANALOG (2001~2010)

DIGITAL TO ANALOG			The Module Description,you can input the English comments
DA1	2001	OFF	
0	Input		This function block just for Rogerwell CP4DITO1AI module Input: AI connect AI block; Attention:The AI should setting to 0-10V, Range setting as 0-10000 Output1~4: 1-4#DI display DI status,not need connect function block; This block output 32 bits; low 4 bits validity,read value by bit 0 bit Output1 : DI1 1 bit Output2 : DI2 2 bit Output3 : DI3 3 bit Output4 : DI4
	Output1	0	
	Output2	0	
	Output3	0	
	Output4	0	

DA1-DIGITAL TO ANALOG 1, the number 2001 ~ 2010 present this module program code

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11. ANALOG TO DIGITAL (2101)

ANALOG TO DIGITAL		
AD1	2101	OFF
0	Disable	
0	Input	
0	Sequence1	
0	Sequence2	
0	Sequence3	
0	Deadband	
	Output1	0
	Output2	0
	Output3	0

The Module Description,you can input the English comments

Disbale/Enable: Block enable/disable, connect BI/BV/DL; 0=Disable,1=Enable

Input: connect Analog AI/AV/AL

Sequence1-3: Sequence1< Sequence2< Sequence3,connect AV/IAV;

Deadband: double click adjust the Deadband;

Input>=Sequence1,Output1=1; when Input=0,Output1=0;

Input>=Sequence2,Output2=1; when Input<= Sequence2- Deadband,Output2=0;

Input>=Sequence3,Output3=1; when Input<= Sequence3- Deadband,Output3=0;

Sequence1: connect AV/IAV;

Output1~3;3 stage output,just display output status, do not need connect function block;

The block output 32bits;low 3 bits validity;read value by bit;

0 bit Output1; First stage

1 bit Output2; Second stage

2 bit Output3; Third stage;

AD1-ANALOG TO DIGITAL 1, the number 2101 present this module program code

12. CLOCK (2201~2201)

CLOCK		
CK1	2201	0
0	Set	

The Module Description,you can input the English comments

Set: connect AV for setting RTC;

Frame of setting:(1)+Week(1-7)+Hour(00-23)+Minute(00-59)

For example: Monday 8:10=110810

The Realtime Clock Output Frame::Week(1-7)+Hour(00-23)+Minute(00-59)

For example: Sunday 9:00=70900

CK1-CLOCK 1, the number 2201 present this module program code

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13. SEQUENCE On/Off (2301~2310)

SEQCTL			The Module Description,you can input the English comments
SE1	2301	0	
0	Sys On/Off		Sys On/Off: Connect BI/BV/DL;
0	Unit On/Off		Unit On/Off: Connect BI/BV/DL
0	CTV Open		CTV Open: Cooling Tower Valve Open Status, connect BI/BV/DL;
0	CWV Open		CWV Open: Cooling Water Valve Open Status, connect BI/BV/DL;
0	CHV Open		CHV Open: Chilled Water Valve Open Status, connect BI/BV/DL;
0	CWP Status		CWP Status: Cooling Water Pump Status, connect BI/BV/DL;
0	CHP Status		CHP Status: Chilled Water Pump Status, connect BI/BV/DL;
0	CH Status		CH Status: Chiller Status, connect BI/BV/DL;
0	CWP On Time		CWP On Time: Cooling Water Pump complete of startup time, connect AV/IAV;
0	CHP On Time		CHP On Time: Chilled Water Pump complete of startup time, connect AV/IAV;
0	CH On Time		CH On Time: Chiller complete of startup time, connect AV/IAV;
0	CH Off Time		CHP Off Time(Sys): Chilled Water Pump complete of closing time for Sys, connect AV/IAV;
0	CHP Off Time (Sys)		CHP Off Time(Unit): Chilled Water Pump complete of closing time for Unit, connect AV/IAV;
0	CHP Off Time (Unit)		CWP Off Time(Sys): Cooling Water Pump complete of closing time for Sys, connect AV/IAV;
0	CWP Off Time (Sys)		CWP Off Time(Unit): Cooling Water Pump complete of closing time for Unit, connect AV/IAV;
0	CWP Off Time (Unit)		CT & Valve Off Time: Cooling Tower & Valve of Cooling Tower,Cooling Water Pump,Chilled Water pump complete closing time, connect AV/IAV;
0	CT & Valve Off Time		Attention: The time unit is Second.
	CWV/CTV/CT Output	0	Output1~5: The 5 types equipment just display output status, don't need connect function block;
	CHV Output	0	This block output 32 bits; low 5 bits validity, read value by bit;
	CWP Output	0	0 bit for CWV/CTV/CT Output
	CHP Output	0	1 bit for CHV Output
	CH Output	0	2 bit for CWP Output
			3 bit for CHP Output

SE1- SEQUENCE On/Off 1, the number 2301 ~ 2310 present this module program code

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14. CHILLER ADD/SUB (2401~2402)

CHNUM			The Module Description,you can input the English comments
CH1	2401	0	
0	Sys On/Off		Sys On/Off: Connect BI/BV/DL;
0	First Start Num		First Start Num: First start Chiller number, connect AV/IAV;
0	Min Run Num		Min Run Num: Minimal Running Chiller number, connect AV/IAV;
0	Max Run Num		Max Run Num: Maximum Running Chiller number, connect AV/IAV;
0	Add Condition		Add Condition: Add Chiller condition, connect BI/BV/DL;
0	Sub Condition		Sub Condition: Subtract Chiller condition, connect BI/BV/DL;
0	First Add/Sub Time		First Add/Sub Time: First Add/Sub Chiller time AV/IAV;
0	Time From 1 To 2		Time From 1To2: Connect AV/IAV;
0	Time From 2 To 1		Time From 2To1: Connect AV/IAV;
0	Time From 2 To 3		Time From 2To3: Connect AV/IAV;
0	Time From 3 To 2		Time From 3To2: Connect AV/IAV;
0	Time From 3 To 4		Time From 3To4: Connect AV/IAV;
0	Time From 4 To 3		Time From 4To3: Connect AV/IAV;
0	Time From 4 To 5		Time From 4To5: Connect AV/IAV;
0	Time From 5 To 4		Time From 5To4: Connect AV/IAV;
0	Time From 5 To 6		Time From 5To6: Connect AV/IAV;
0	Time From 6 To 5		Time From 6To5: Connect AV/IAV;
			Attention: The time unit is Second

CH1- CHILLER ADD/SUB 1, the number 2401 ~ 2402 present this module program code

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15. COOLING TOWER NUM (2501~2502)

CTNUM			The Module Description,you can input the English comments	
CT1	2501	0	CT On/Off: Cooling Tower On/Off BI/BV/DL; Min Run Num: Minimum Cooling Tower Running number, connect AV/IAV; Max Run Num: Maximum Cooling Tower Running number, connect AV/IAV; Input Temp: Cooling Water input temperature, connect AI/IAV; Set Temp: Cooling Water set temperature, connect AV/IAV; Temp Threshold: Threshold Temperature, connect AV/IAV; Off Time: Cooling Tower complete of close time, connect AV/IAV;	
0	CT On/Off			
0	Min Run Num			
0	Max Run Num			
0	Input Temp			
0	Set Temp			
0	Temp Threshold			
0	Off Time			
	Output1	0	Output1~4: Just for display	
	Output2	0		
	Output3	0		
	Output4	0		

CT1- COOLING TOWER NUM 1, the number 2501 ~ 2502 present this module program code

16. ABNORMAL (2601~2700)

ABNORMAL OUT			The Module Description,you can input the English comments	
AB1	2601	0	Control: Connect BI/BV/DL; Feedback: Connect BI/BV/DL; Reset: Connect BI/BV/DL; FB Delay Time: Feedback delay tim, connect AI/IAV; Function: When Control=1, the time=Feedback time, Feedback=0,the Block Output=1; When Control=1,the time<Feedback time,Feedback=1,the Block Output=0; When Control=0,Feedback=0/1,Reset=0,the Block Output=0; When Control=0,Feedback=0/1,Reset=1,the Block Output=0;	
0	Control			
0	Feedback			
0	Reset			
0	FB Delay Time			

AB1-ABNORMAL 1, the number 2601 ~ 2700 present this module program code

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17. INTERNAL BINARY VALUE (2701~2900)

INTERNAL BINARY VALUE		
IBV1	2701	0
0	Constant	Func
0	Initial Value	
0	Input	
0	Bit	

The Module Description,you can input the English comments

Constant/Variable: Define Constant or Variable,double click and choice;
0=Constant (Default),IBV=Initial Value;
1=Variable,IBV=Input

Initial Value: Double click input value

Input: Connect Input

Bit: If the input is a 16 or 32 bits Value, we can define the read bit,double click and input the number bit (default is Low 0 bit)

IBV1- INTERNAL BINARY VALUE 1, the number 2701 ~ 2900 present this module program code

18. INTERNAL ANALOG VALUE (2901~3100)

INTERNAL ANALOG VALUE		
IAV1	2901	0
0	Constant	Func
0	Initial Value	
0	Input	

The Module Description,you can input the English comments

Constant/Variable: Define Constant or Variable,double click and choice;
0=Constant (Default),IAV=Initial Value;
1=Variable,IAV=Input

Initial Value: Double click input value

Input: Input: Connect Input

IAV1- INTERNAL ANALOG VALUE 1, the number 2901 ~ 3100 present this module program code

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19 FUNCTION BLOCK TABLE

FUNCTION BLOCK NAME	MAX SUPPORT NUMBER
DL	30
AL	20
MUX	20
RUNTIME	10
TIMER	10
RS	10
CL	8
TL	4
ADL	1
AI2DI	10
CLOCK	1
SCHDULE	10
SEQCTL	1
CH	1
CT	1
ABOUT	10
IBV	20
IAV	20

Remark:

PCC3216 &PCC2412E controller support all Function Block.

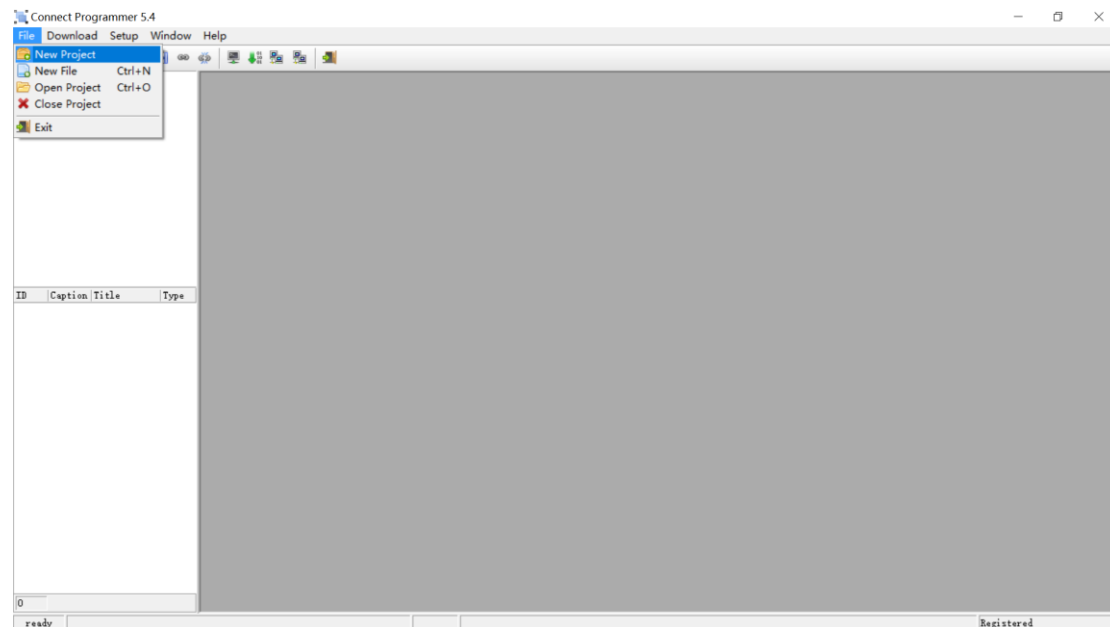
Others PCC series BACnet MS/TP Controllers just support parts of Function Blocks.

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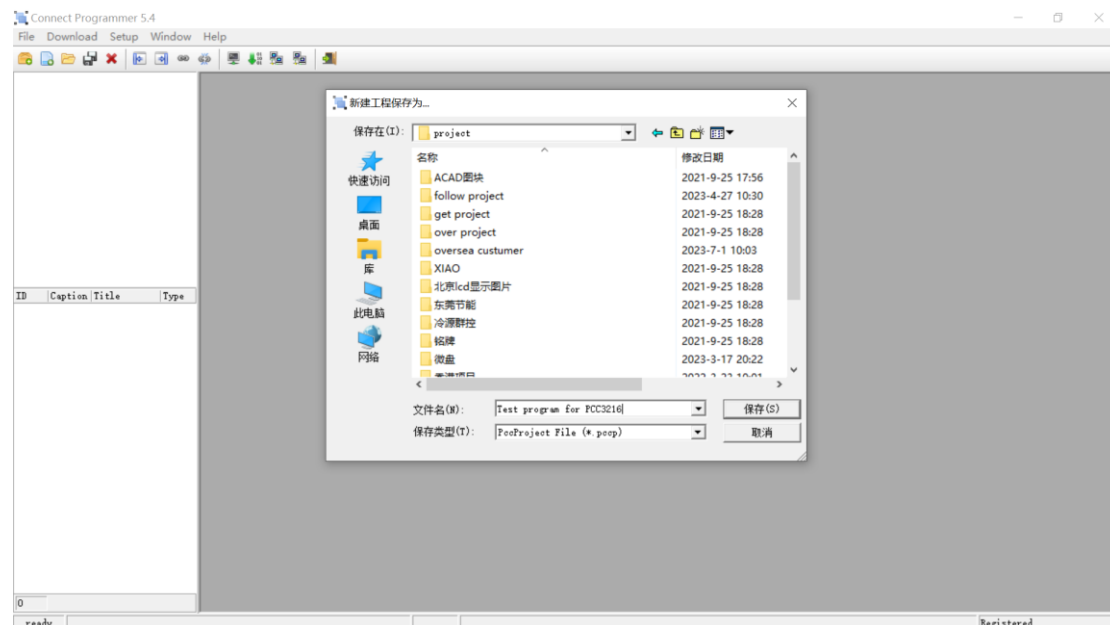
2. Programming

2.1 New project

Open the Connect program and create a new project



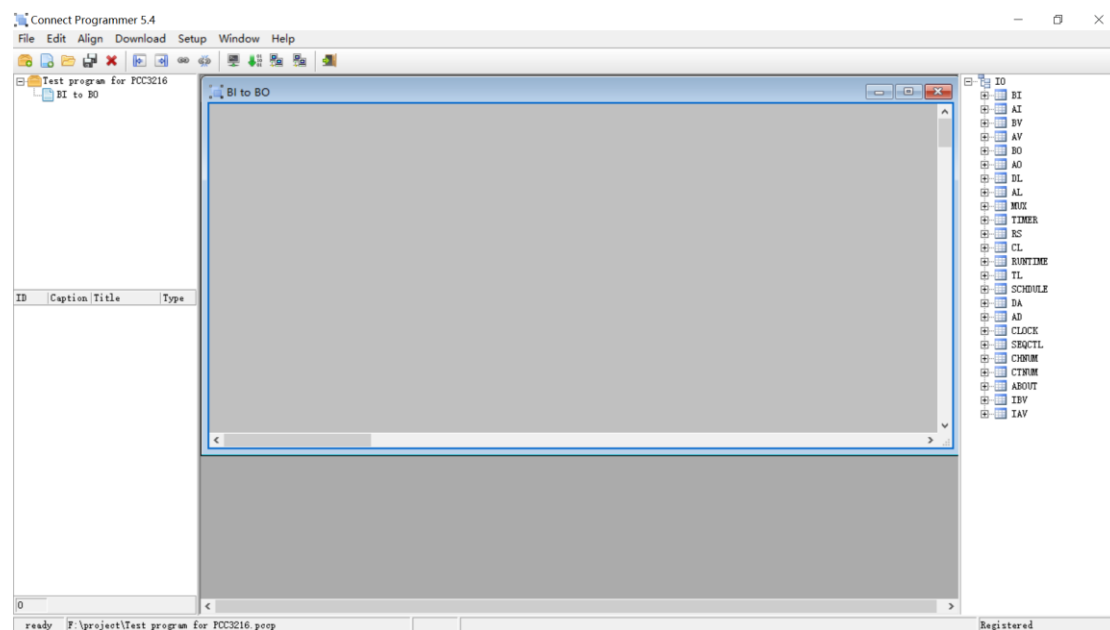
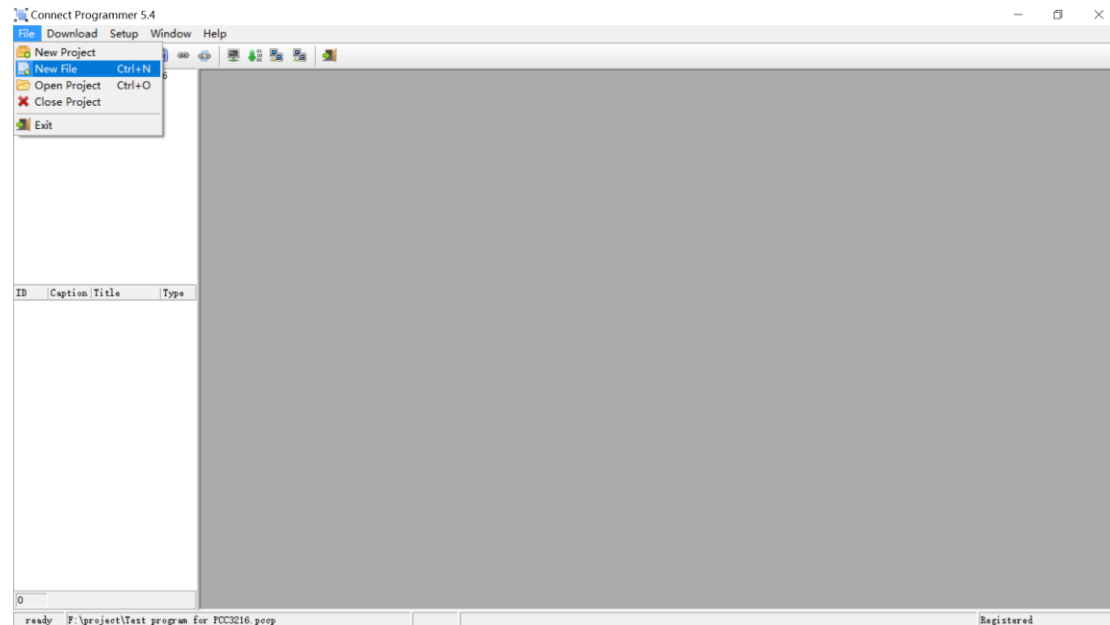
Select project location and name the project as below:



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2.2 New File

Create a new file of the project



One project include many files,say a file as a sub-program.

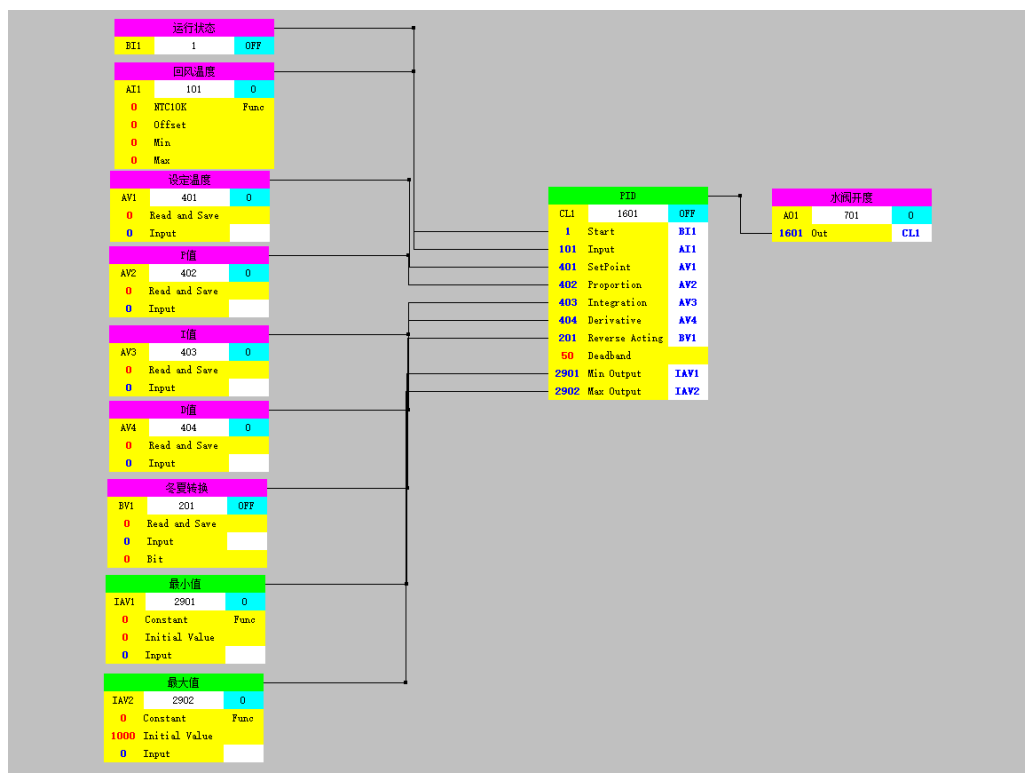
You can choice function block, put the function block in the program area,drag and drop function block and connect different block complete the function program.

3. Program Sample

① AHU Temperature PID control sample

Description for Control:

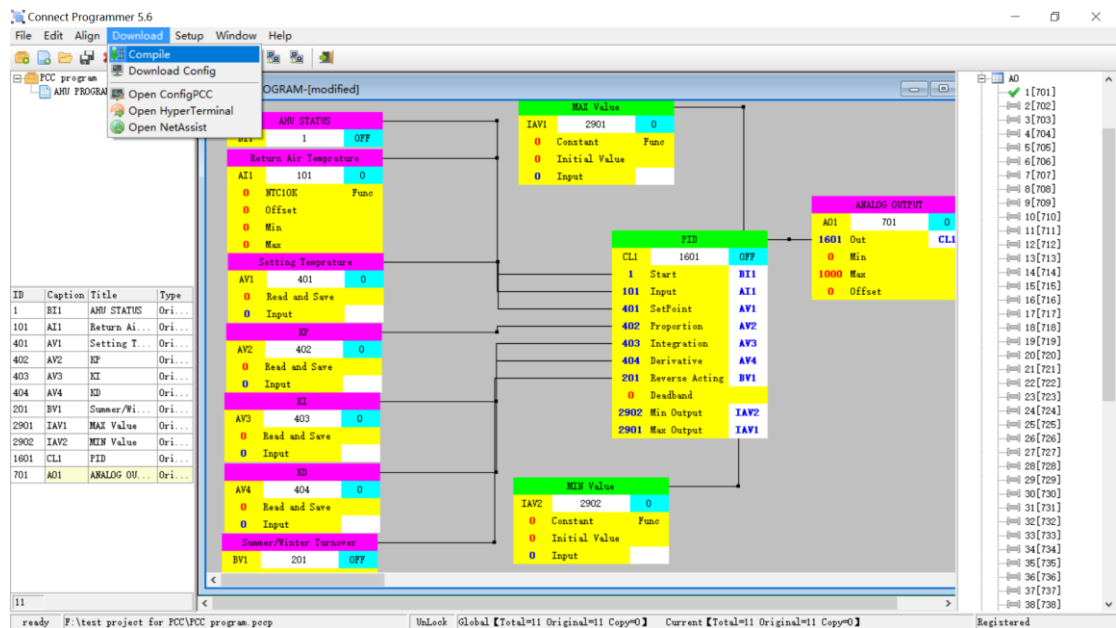
1. When Fan status(BI1) = 0, Water Valve Output(AO1) = 0;
2. BV1 for Cool/Heat mode: BV1 = 1(Cool mode); BV1 = 0(Heat mode);
3. AI1 for temperature input
4. AV1 for set point
5. AV2,AV3,AV4 for P,I,D parameter
6. IAV1,IAV2 for AO output, Minimum and Maximum output setting
7. AO for Water Valve control
8. The program for AHU water valve control by temperature



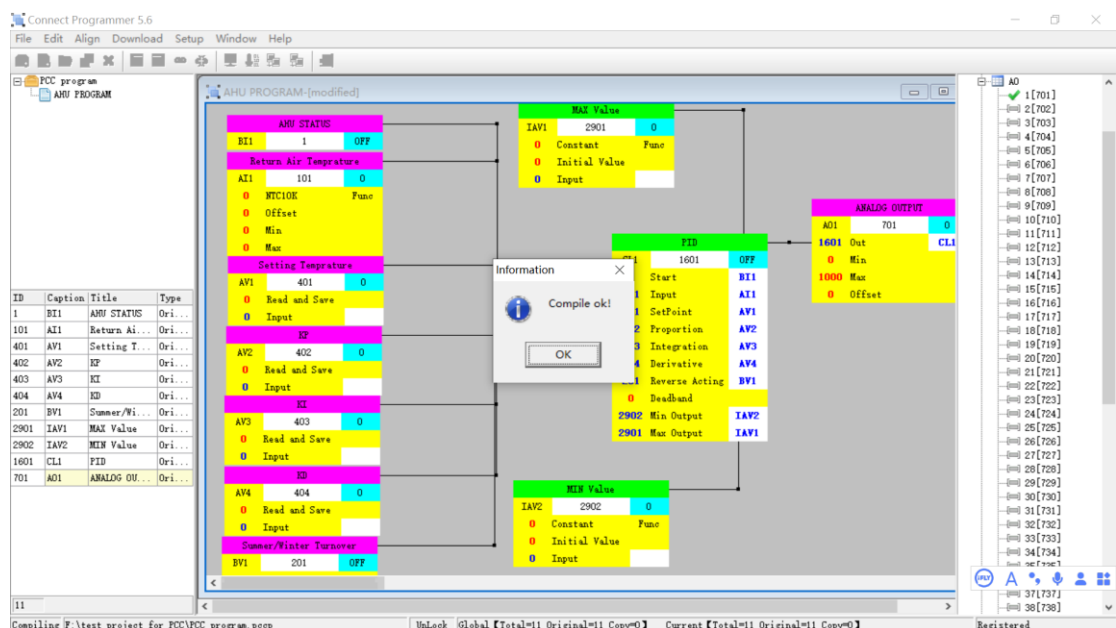
4. Program Download

4.1 Compile Program

When you complete the program and checked it, you can click the Menu “Download-Compile”, the program will be generate .BIN file in your program file.



When the compile complete the Compile ok will be display.



Now you can find the .bin file in the program file, the file path/testproject for PCC/binmerge

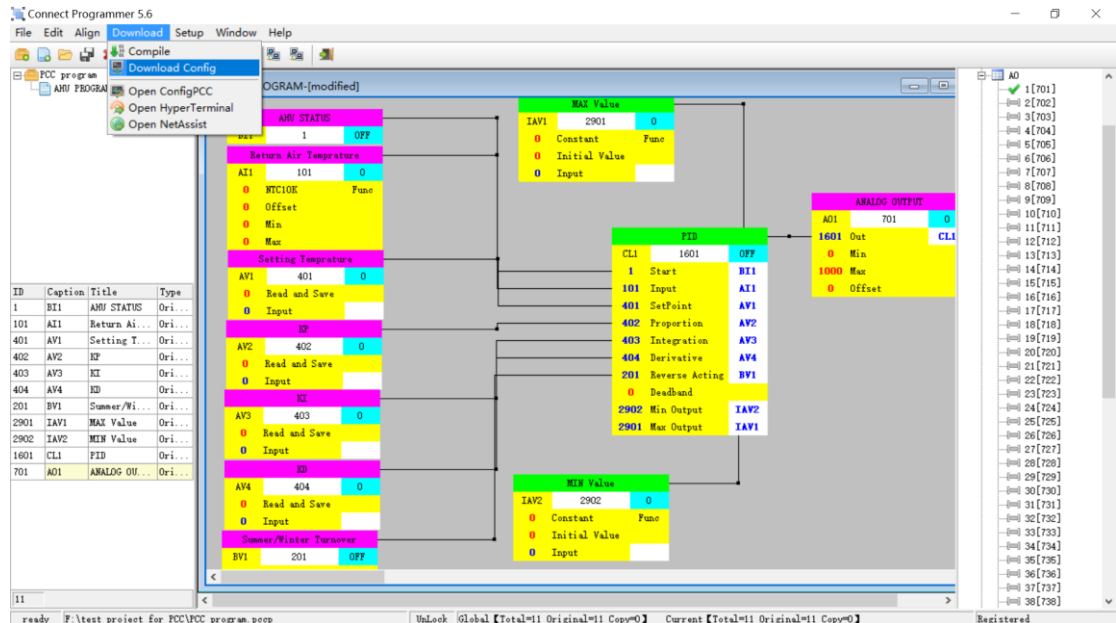
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4.2 Download Program

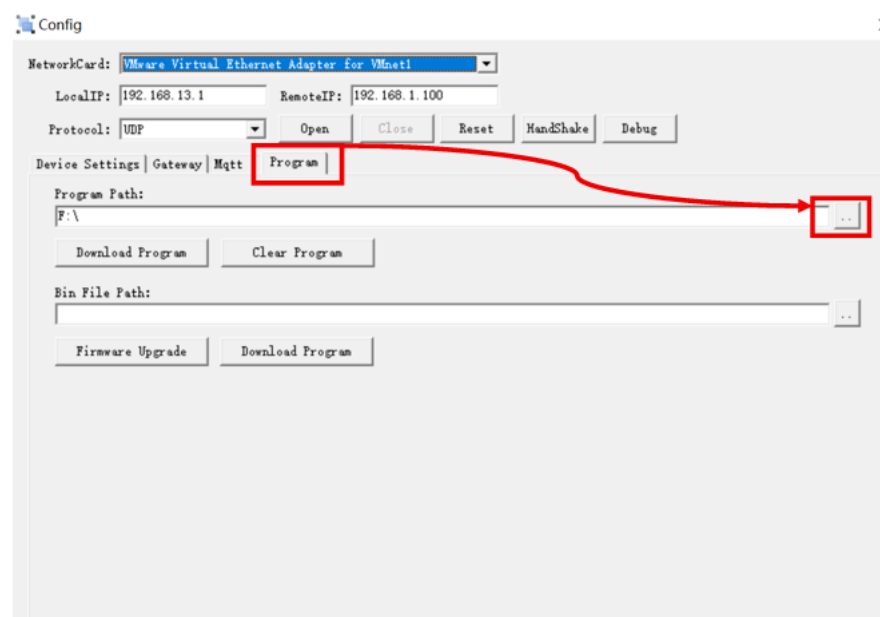
4.2.1 BACnet IP Controller

4.2.1.1 Download Program

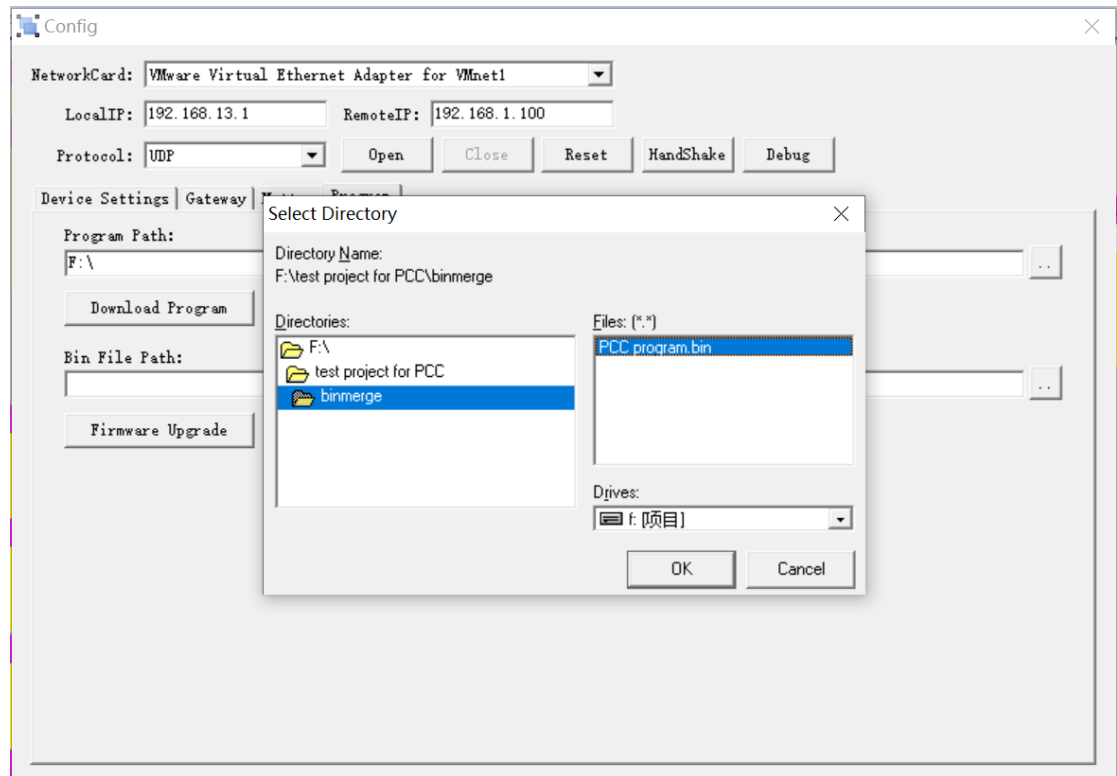
Click Download >Download Config



Click the Program Item and choice the download .bin file then click OK.

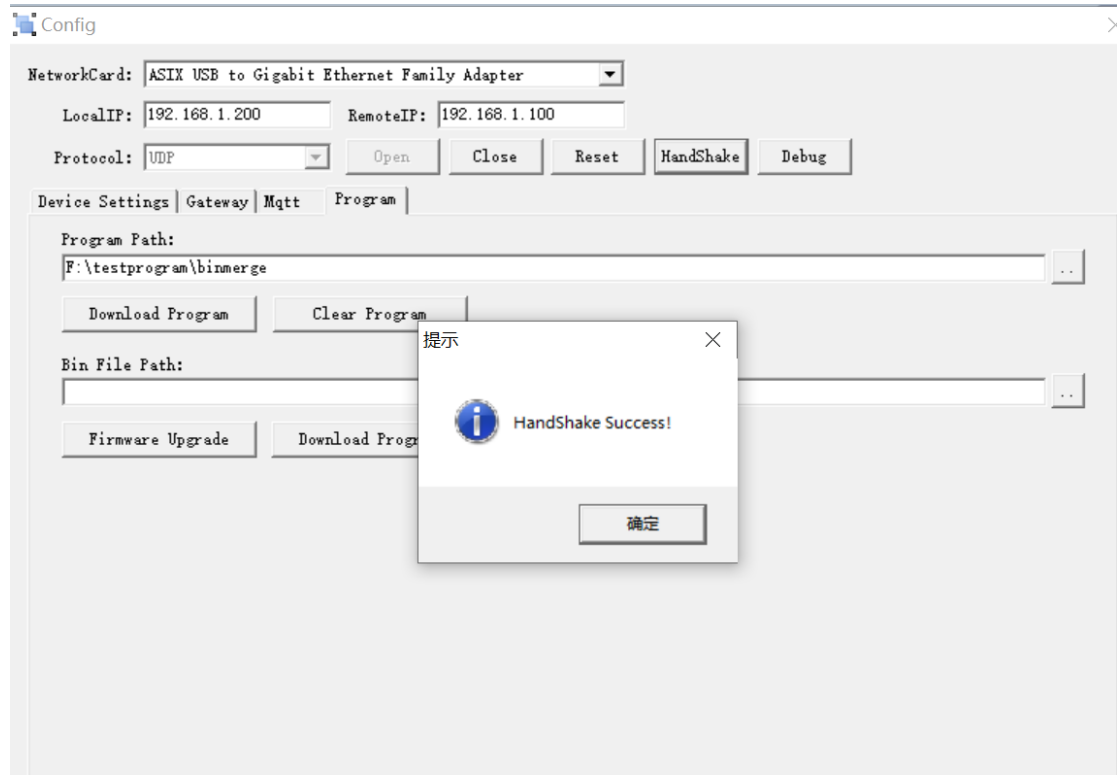


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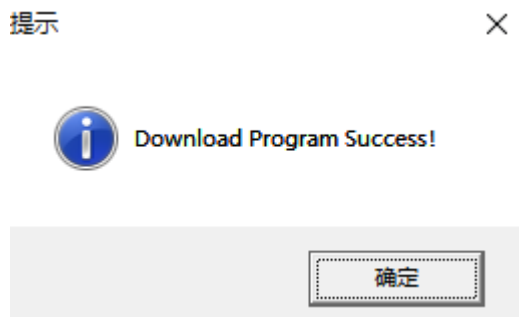


Now you should confirm your computer IP and controller IP on the same subnet. The controller default IP is 192.168.1.100 and Protocol select UDP. Click the Open then click the HandShake button, the config page will be display HandShake Success.

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Now you can click the Download program to controller,when Download the program success,the config page will be display as below.



When you download the program complete,you should reset the controller for program running.

4.2.1.2 Clear Program

You can click the Clear Program Button,when Clear the program success,the config page will be display as below:

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提示



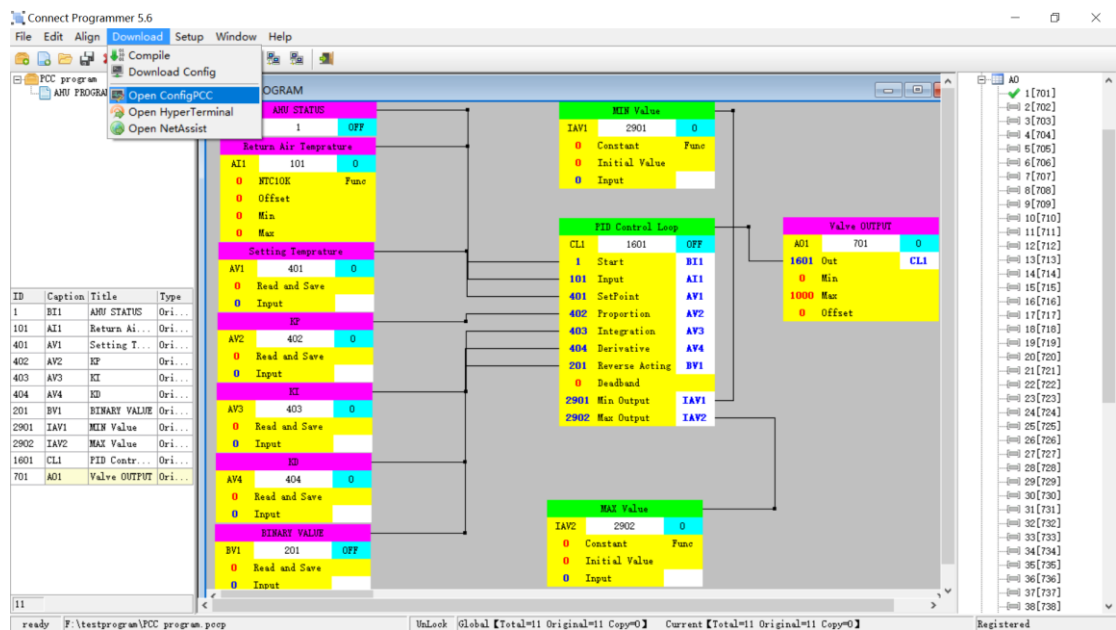
Clear Program Success!

确定

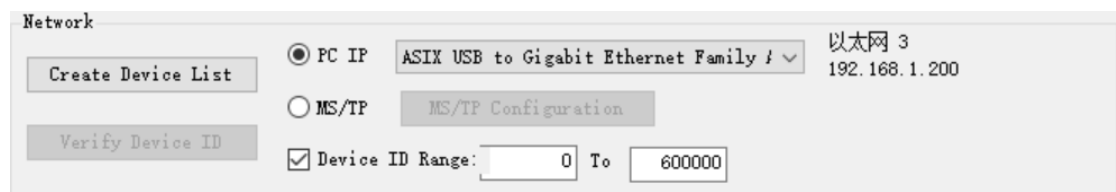
4.2.2 BACnet MS/TP Controller

4.2.2.1 Download Program

1). You should open the PccConfig as below:



This software is our config program for our BACnet MS/TP controller.



2). You click the Create Device List button, the config software will find all devices on the MS/TP bus and display all devices in the Devices frame as below (Remark: the BACnet MS/TP devices should connect BACnet Router, the Router connects to the computer)

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PCC Configuration Plus - Version 4.0f, July 7, 2021 W7

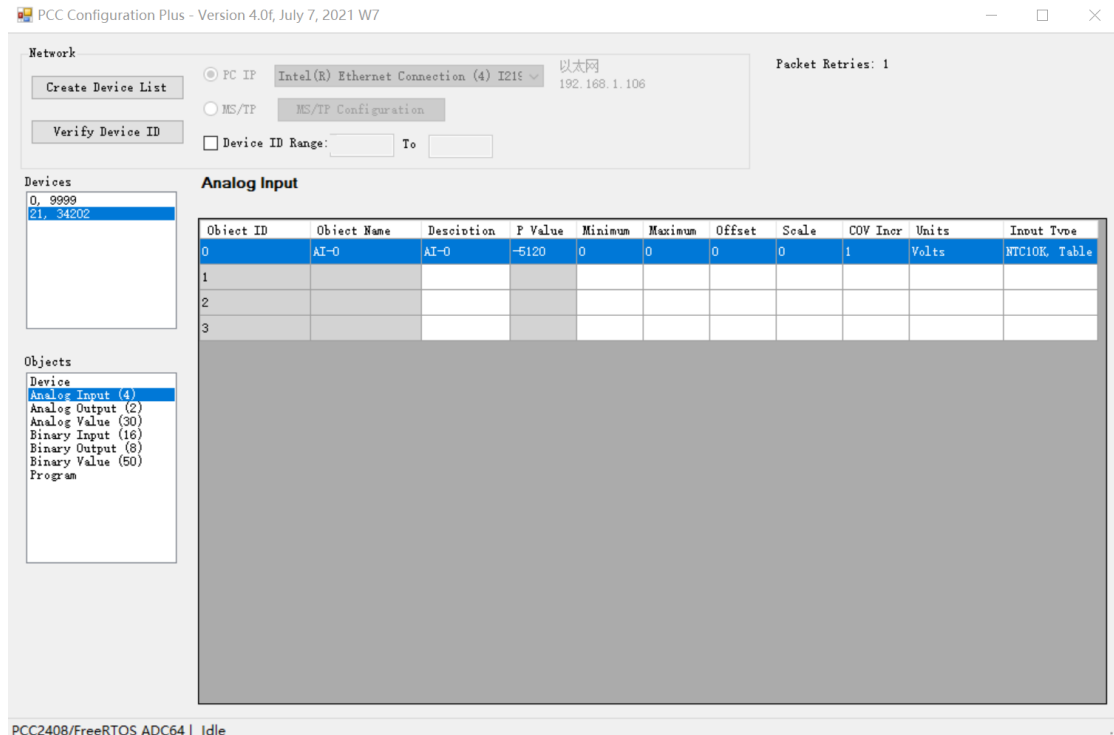
The screenshot shows the 'Network' section with a 'Create Device List' button highlighted. Below it is a 'Verify Device ID' button. The 'Devices' list contains two entries: '0, 9999' and '21, 34202'. The 'Objects' section is empty.

3).Select a device in the Devices frame and click the Verify Device ID,all Objects of Device display in the Objects frame as below:

The screenshot shows the 'Device' section with a 'Verify Device ID' button highlighted. The 'Device ID' is set to '34202'. The 'Objects' list contains the following items: 'Device', 'Analog Input (4)', 'Analog Output (2)', 'Analog Value (30)', 'Binary Input (16)', 'Binary Output (8)', 'Binary Value (50)', and 'Program'. The 'Device MS/TP Parameters' section is also visible, showing fields for Baud Rate, MAC Address, and Max Master, each with a 'Write' button.

4).You can setting the Device ID,Baud Rate,MAC address,Max Master on the page.(Attention:the Baud rate default 38400,Please don't change it at any time.) You can double click open the every objects and get more parameter detail as below:

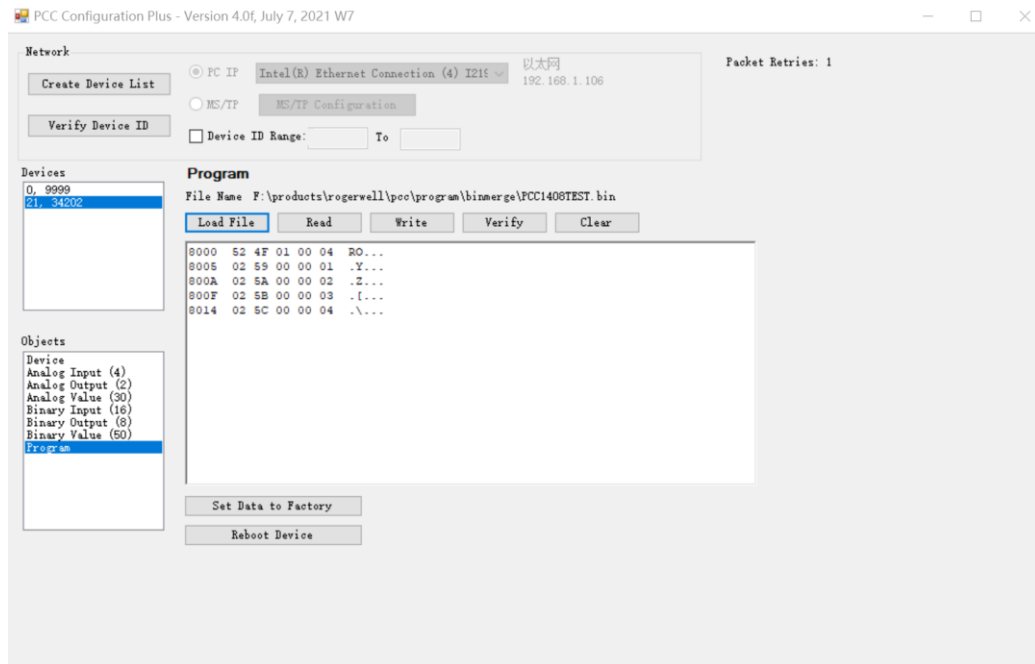
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(Remark:All AI and BI just read only point,you can't change the Present Value,Present Value of another Points such as AO,BO,AV,BV,you can Read/Write Value manually for testing.All AI,AO,AV,BI,BO,BV have 1~16 Priority,1 is Highest and 16 is Lowest).

5).You can choice the Program in the Objects frame to program download page,you can Load the .bin file and Read,Write,Verify,Clear program file in this page.Then you can Set data to factory or Restart Device.(Remark:you should choice the project program .bin file from the binmerge fold.When you download the program completely,you must Restart the device.)

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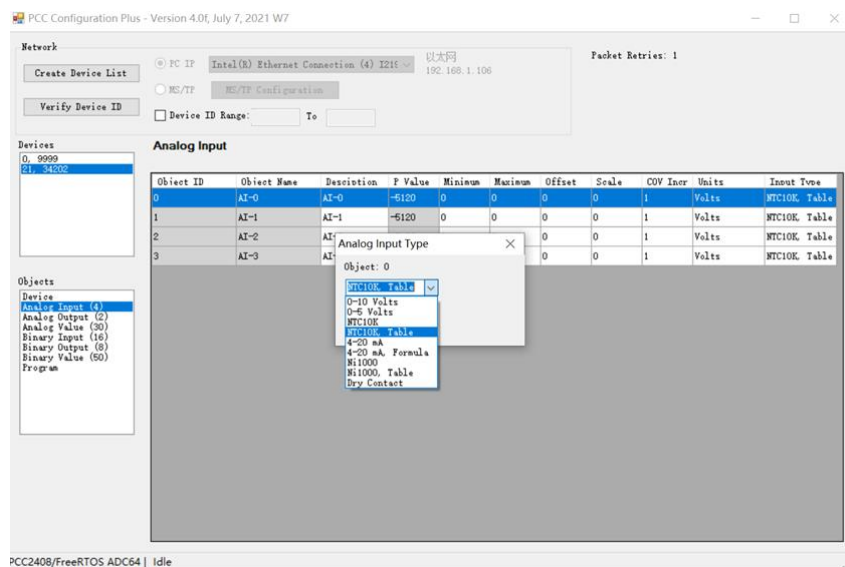


6).The AI configre for PCC BACnet MS/TP series controllers:

6.1Read the AI all parameter(Remark:All AI Present Value is *10).

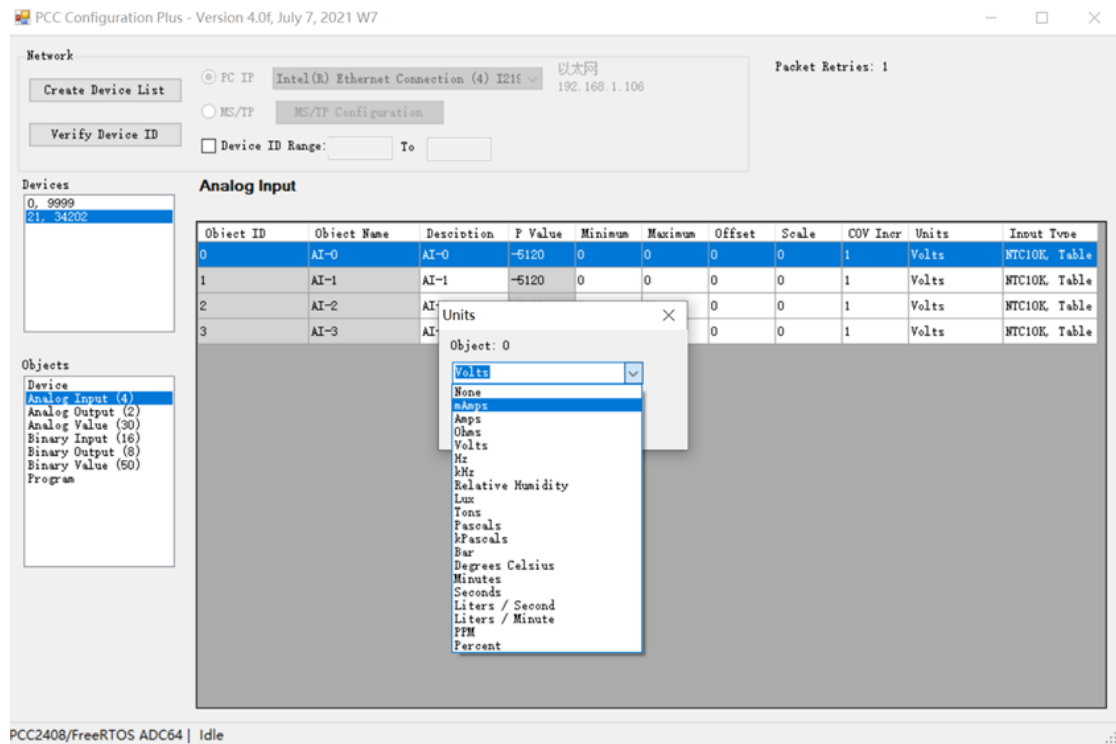
Analog Input										
Object ID	Object Name	Description	P Value	Minimum	Maximum	Offset	Scale	COV Incr	Units	Input Type
0	AI-0	AI-0	-5120	0	0	0	0	1	Volts	NTC10K, Table
1	AI-1	AI-1	-5120	0	0	0	0	1	Volts	NTC10K, Table
2	AI-2	AI-2	-5120	0	0	0	0	1	Volts	NTC10K, Table
3	AI-3	AI-3	-5120	0	0	0	0	1	Volts	NTC10K, Table

6.2AI Input Type Setting:double click the Input Type columne and choice the correct Input Type(Remark the Input Type must match the controller's jump setting.The default setting is NTC10K Table).



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6.3 The Unit of AI Setting: Double click the Unit column and choice the match Units for real point.



6.4 The MAX,MIN,Offset,Scale and COV parameter Setting: All of these parameter match the input 4-20mA and 0-10V.

MIN: Sensor minimum Range

MAX: Sensor maximum Range

Offset: When offset=0 match the input 0-10V or 0-20mA, When offset=-2 match the input 2-10V or 4-20mA.

Scale: $\text{Scale} = (\text{MAX} - \text{MIN}) / (10 + \text{Offset})$

For example as below:

AI0 0-10V Setting as 0-100% Humidity

AI1 4-20mA Setting as 0-2000Pa Pressure

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PCC Configuration Plus - Version 4.0f, July 7, 2021 W7

Network

Create Device List

Verify Device ID

Device ID Range: To

PC IP: ☐ Intel(R) Ethernet Connection (4) I218 ☐ MS/TP MS/TP Configuration 以太网 192.168.1.106

Packet Retries: 21

Devices

0, 9999

21, 34202

Objects

Device

Analog Input (4)

Analog Output (2)

Analog Value (30)

Binary Input (16)

Binary Output (8)

Binary Value (50)

Program

Analog Input

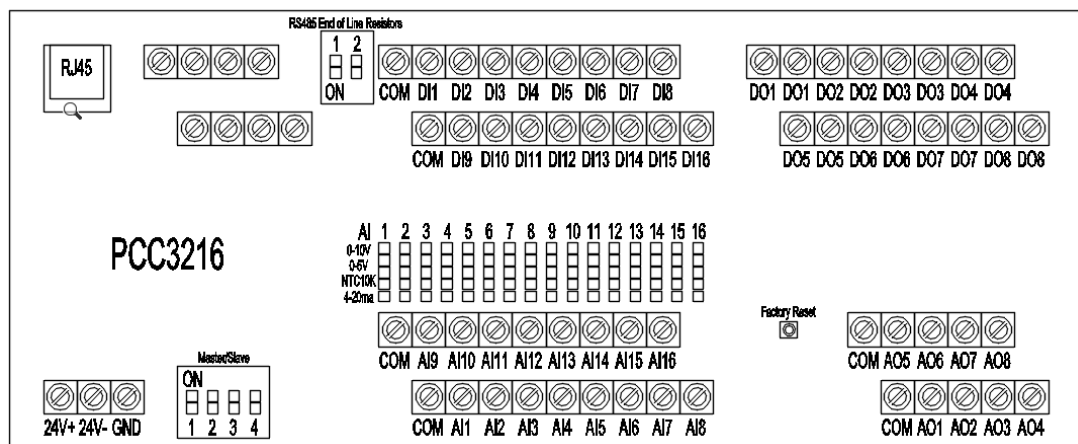
Object ID	Object Name	Description	P Value	Minimum	Maximum	Offset	Scale	COV Incr	Units	Input Type
0	AI-0	AI-0	0	0	100	0	10	1	Volts	0-10 Volts
1	AI-1	AI-1	-5000	0	2000	-2	250	1	Pascals	4-20 mA
2	AI-2	AI-2	-5120	0	0	0	0	1	Volts	NTC10K Table
3	AI-3	AI-3	-5120	0	0	0	0	1	Volts	NTC10K Table

PCC2408/FreeRTOS ADC64 | Idle

三、Controller Setting(Just for Controllers with Network & Gateway)

1. IO scheme

PCC3216:



RS485 End of Line Resistor 120Ω

Factory Reset Button: push button 10 second the controller will be restore the factory setting.

Master/Slave Setting

2. IP Setting

The default IP is 192.168.1.100,you can setting it via Download Config Page as below:

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1. Your computer and controller IP are same subnet.
2. Click the Open Button, open the UDP port.
3. Click the Button Read, read the controller's IP and Network parameter.
4. Change the Device IP, Netmask and Gateway. (Remark: you should have base knowledge of Network).
5. Click the Set Button then Reset the Controller, the new IP effective.

(Remark: Our Controllers with Network can be actor as a Master or Slave, the master can expansion 5 slave with it. The master Controller can change the IP address but the Slaves can't change the IP address)

3. BACnet ID Setting

All Controllers with Network has a default BACnet ID: 100001, the Factory reset can't restore the BACnet ID.

You can change the BACnet ID as below: (Remark: We must ensure the unique ID within the BACnet network.)

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Config

NetworkCard: Realtek PCIe GbE Family Controller

LocalIP: 192.168.1.10 RemoteIP: 192.168.1.100

Protocol: UDP Open Close Reset HandShake Debug

Device Settings Gateway Mqtt Program

IP Settings

Device IP: NetMask: GateWay: Read Set

Port1

Band: Data bits: Parity: Stop bit: Protocol: Read Set

Port2

Band: 9600 Data bits: 8 Parity: None Stop bit: 1 Protocol: SELF FAST Read Set

Device Settings

Device Version Read

Slave Number Read Set

MQTT Link Read Set

Device ID 100001 Read Set

Device Model Read Set

Read All

1. Make sure the controller connect with computer is OK.
2. Click the Read Button read the controller's BACnet ID.
3. Change the BACnet ID and click the set Button,the new BACnet ID effective.

4. RS485 port Setting

Rogerwell PCC series Controller with Network have 2 RS485 port.Its support different protocol such as:

Modbus Master/Slave

Rogerwell private protocol for expansion (Remark: Only Port2 support)

DLT645-1997/DLT645-2007/CJ/T188 (Remark: Just for China Market)

All of these protocol only support one protocol at same time and same Port.

The Port configuration as below:

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Config

NetworkCard: Realtek PCIe GbE Family Controller

LocalIP: 192.168.1.10 RemoteIP: 192.168.1.100

Protocol: UDP Open Close Reset HandShake Debug

Device Settings Gateway Mqtt Program

IP Settings

Device IP: NetMask: GateWay: Read Set

Port1

Band: 9600 Data bits: 8 Parity: None Stop bit: 1 Protocol: MB SLAVE Read Set

Port2

Band: 9600 Data bits: 8 Parity: None Stop bit: 1 Protocol: SELF FAST Read Set

Device Settings

Device Version Read

Slave Number Read Set

MQTT Link Read Set

Device ID Read Set

Device Model Read Set

Read All

You can read the RS485 port parameter when you ensure connect the controller and change the parameter for setting.

The default parameter as below:

Band:9600 Data bits:8 Parity:None Stop bit:1

The protocol remark:

MBM Modbus Master with always Write register

MBM-with Panel Modbus Master with Change Of Value Write register

DLT 645-2007

DLT 645-1997

CJ/T 188-2018

MB-SLAVE Modbus Slave

SELF FAST Rogerwell private protocol for expansion

5. Expansion Master & Slave Setting

Rogerwell PCC controllers with Network can expansion more than 5 slave modules

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via RS485 port2,all network controllers and BACnet MS/TP can actor as an expansion module.

1. Network controllers Setting:

The Network controllers have Master/Slave setting 4 bit switch,you can define the Master/Slave of controllers via switch as below:

开关 1	开关 2	开关 3	开关 4	主机/从机
OFF	OFF	OFF	OFF	主机
ON	OFF	OFF	OFF	从机 1
OFF	ON	OFF	OFF	从机 2
ON	ON	OFF	OFF	从机 3
OFF	OFF	ON	OFF	从机 4
ON	OFF	ON	OFF	从机 5

(Remark:Slave can't change the IP,BACnet ID and download the program via BACnet IP network.All logic program on the Master controller.All Salve controllers can't support BACnet IP and Modbus TCP communication when it actor as a Slave controller.But the Slave controller need setting the AI input Type.All Master need setting the Max Slave number and all Slave controller should setting the port2 parameter.)

The Setting page as below:

The screenshot displays the 'Config' window of the Rogerwell software. It features several tabs: 'Device Settings', 'Gateway', 'Mqtt', and 'Program'. The 'Device Settings' tab is active, showing two main sections: 'IP Settings' and 'Port Settings'.

IP Settings:

- NetworkCard: Realtek PCIe GbE Family Controller
- LocalIP: 192.168.1.10
- RemoteIP: 192.168.1.100
- Protocol: UDP
- Buttons: Open, Close, Reset, HandShake, Debug

Port Settings:

- Port1:** Band, Data bits, Parity, Stop bit, Protocol. Buttons: Read, Set.
- Port2:** Band: 9600, Data bits: 8, Parity: None, Stop bit: 1, Protocol: SELF FAST. Buttons: Read, Set.

Device Settings (Right Panel):

- Device Version: Read
- Slave Number: 1. Buttons: Read, Set.
- MQTT Link: Read, Set
- Device ID: Read, Set
- Device Model: Read, Set
- Read All button

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2. BACnet MS/TP Controllers Setting

All PCC BACnet MS/TP series actor as a Slave module,the controller should setting the Mac address from 1 to 5 and setting BV49 to 1.The setting page as below:

The top screenshot shows the 'PCC Configuration Plus - Version 4.20, 11-28, 2023 win7' window. The 'Network' tab is selected, and the 'Device ID Range' is set to 0 to 110000. The 'Device' section shows 'Device ID' as 43762 and 'Vendor' as 'Rogerwell Control System Ltd'. The 'Device MS/TP Parameters' section is expanded, showing 'Baud Rate' as 38400 and 'MAC Address' as 1. The 'MAC Address' field is highlighted with a red box.

The bottom screenshot shows the same window with the 'Binary Value' section expanded. The 'Binary Value' table is displayed, showing the following data:

Object ID	Object Name	Description	F Value
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49	BV-49	BV-49	1

The row for Object ID 49 is highlighted with a red box.

6. Gateway Setting & Download

All PCC controller with Network series controller have Gateway function. Now we are use the simple program method, just setting the source data and target data in the Excel as CSV formst.

The DATA format define as below:

	A	B	C	D	E	F	G	H	I	J	K
1	NOTE	H		16 SHEET_TYF	VALUE	BYTE ORD	VALUE	DATA TYPE	VALUE	OBJ	VALUE
2	NOTE	RD		1 MBM		1 ABCD		1 USHORT		1 AI	0
3	NOTE	WR		0 DTL 645-2		2 BADC		2 SHORT		2 AO	1
4	NOTE			188-WATE		3 CDAB		3 ULONG		3 AV	2
5	NOTE			DTL 645-1		4 DCBA		4 LONG		4 BI	3
6	NOTE							FLOAT		5 BO	4
7	NOTE									BV	5

Gateway DATA match mapping sheet as below:

	A	B	C	D	E	F	G	H	I	
9	SHEET_TYF		1							
10										
11	OBJ_CONFIG_START									
12	OBJ	OBJ_IDX	PORT	SLAVEADD	MBTYPE	OBJ_ADDR	OBJ_ADDR	DATATYPE	BYTEORDER	
13		2	100	1	1	3	0	1	1	1
14		2	101	1	1	3	0	2	1	1
15		2	102	1	1	3	0	3	1	1
16		2	103	1	1	3	0	4	1	1
17		2	104	1	1	3	0	5	1	1
18	OBJ_CONFIG_END									

Data message Segment sheet:

	A	B	C	D	E	F	G	H	I
19									
20	SEGMENT_CONFIG_START								
21	PORT	SLAVEADD	MBTYPE	DATATYPE	STARTOBJ	STARTOBJ	NUMOBJH	NUMOBJL	
22		1	1	3	1	0	1	0	5
23		1	1	6	1	0	1	0	1
24		1	1	6	1	0	2	0	1
25		1	1	6	1	0	3	0	1
26		1	1	6	1	0	5	0	1
27		1	2	3	1	0	1	0	5
28		1	2	6	1	0	1	0	1
29	SEGMENT_CONFIG_END								

Modbus RTU to BACnet IP Gateway data match mapping sheet format example:

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Bacnet对象名列	Bacnet对象ID列	网关物理Port列	从机地址列	功能码列	寄存器地址高8位列	寄存器地址低8位列	数据类型列	32位字节排序列
OBJ VALUE AI 0 AO 1 AV 2 BI 3 BO 4 BV 5	OBJ VALUE AI 0-99 AO 0-99 AV 0-199 BI 0-99 BO 0-99 BV 0-199	PORT VALUE Port1 1 Port2 2	SLAVEADD VALUE Slave Address 1-255	MBTYPE VALUE Read Coils 1 Read Discrete Inputs 2 Read Holding Registers 3 Read Input Registers 4 Write Single Coil 5 Write Single Register 6 Write Multiple Coils 15 Write Multiple Registers 16	OBJ ADDRH VALUE Decimal 0-255 Hexadecimal H00-HFF	OBJ ADDR L VALUE Decimal 0-255 Hexadecimal H00-HFF	DATA TYPE VALUE USHORT 1 SHORT 2 ULONG 3 LONG 4 FLOAT 5	BYTE ORDER VALUE ABCD 1 BAOC 2 CDAB 3 DCBA 4
OBJ CONFIG START	OBJ IDX	PORT	SLAVEADD	MBTYPE	OBJ ADDRH	OBJ ADDR L	DATATYPE	BYTEORDER
2	0	1	1	3	0	1	1	1
2	1	1	1	3	H00	H02	1	1
2	2	1	1	3	0	2	1	1
2	3	1	1	3	0	4	1	1
2	4	1	1	3	0	5	1	1
2	0	1	1	6	0	1	1	1
2	1	1	1	6	0	2	1	1
2	2	1	1	6	0	3	1	1
2	4	1	1	6	0	5	1	1
2	5	1	1	3	0	1	1	1
2	6	1	1	3	0	2	1	1
2	7	1	1	3	0	3	1	1
2	8	1	1	3	0	4	1	1
2	9	1	1	3	0	5	1	1
2	6	1	1	6	0	1	1	1
2	7	1	1	6	0	2	1	1
2	8	1	1	6	0	3	1	1
2	9	1	1	6	0	5	1	1

Remark:

1. All Modbus register default is Short type with 1 address,if use Long or Float type,we should leave 2 address for register.
2. For Coil or Holding Register type point,we need separate Read and Write point use Function 3 and 16 command mapping the point.
3. If mapping the Gateway Point to Network controllers with point,the Gateway point only mapping to BV and AV point in the controller.

Modbus RTU to BACnet IP Gateway data segment sheet format example:

网关物理Port列	从机地址列	功能码列	数据类型列	起始寄存器地址高8位列	起始寄存器地址低8位列	数据数值高8位列	数据数值低8位列
PORT VALUE Port1 1 Port2 2	SLAVEADD VALUE Slave Address 1-255	MBTYPE VALUE Read Coils 1 Read Discrete Inputs 2 Read Holding Registers 3 Read Input Registers 4 Write Single Coil 5 Write Single Register 6 Write Multiple Coils 15 Write Multiple Registers 16	DATA TYPE VALUE USHORT 1 SHORT 2 ULONG 3 LONG 4 FLOAT 5	STARTOBJADDRH VALUE Decimal 0-255 Hexadecimal H00-HFF	STARTOBJADDRL VALUE Decimal 0-255 Hexadecimal H00-HFF	NUMOBJH VALUE Decimal 0-355 Hexadecimal H00-HFF	NUMOBJL VALUE Decimal 0-255 Hexadecimal H00-HFF
SEGMENT CONFIG START	SLAVEADD	MBTYPE	DATATYPE	STARTOBJADDRH	STARTOBJADDRL	NUMOBJH	NUMOBJL
1	1	3	1	0	1	0	5
1	1	6	1	H01	1	0	1
1	1	6	1	0	2	0	1
1	1	6	1	0	3	0	1
1	1	6	1	0	5	0	1
1	2	3	1	0	1	0	5
1	2	6	1	0	1	0	1
1	2	6	1	0	2	0	1
1	2	6	1	0	3	0	1
1	2	6	1	0	5	0	1

1. The Segment sheet should match with the DATA mapping sheet.
2. All data message segment should list by sequence,one function code by one segment,if one function code point separate more segment,you should add more segment in the segment sheet.
3. The sheet of the START and END format can't change and delete.

Attention: The Gateway config Excel file must save as .CSV format.

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Gateway program Download page as below:

The screenshot shows a software window titled "Config" with a close button (X) in the top right corner. The window contains several configuration fields and buttons:

- NetworkCard:** A dropdown menu showing "Realtek PCIe GbE Family Controller".
- LocalIP:** A text box containing "192.168.1.10".
- RemoteIP:** A text box containing "192.168.1.100".
- Protocol:** A dropdown menu showing "UDP".
- Buttons:** "Open", "Close", "Reset", "HandShake", and "Debug".
- Tabs:** "Device Settings", "Gateway", "Mqtt", and "Program". The "Gateway" tab is currently selected.
- CSV File Path:** A text box containing "E:\PCC Pro\1208-4G\网关测试\DTL645_2007_05.csv" and a browse button "...".
- Buttons:** "Download Map Sheet", "Download Seg Sheet", and "Clear Sheet".
- PollTime:** A text box containing "1000" with "Read" and "Set" buttons.
- RetryTime:** A text box containing "3" with "Read" and "Set" buttons.
- StopTime:** A text box containing "1000" with "Read" and "Set" buttons.

You can choose the gateway item and load the Gateway program .CSV file then download the file. You should load the mappint sheet and segement file one by one download it. Then reset the controller for program effective.

RS485 port parameter setting default as: Polltime: 1000 ms, RetryTime: 3, StopTime: 1000 ms, you can change it by you project.

Attention: Before load the Gateway program .CSV file, make sure the controller connect with program computer and handshake.

7. Software Point Schedule

BO1-48 & BI1-96 Point Schedule

		Master Point				Master Point		
		Bacnet	Modbus TCP	Modbus RTU		Bacnet	Modbus TCP	Modbus RTU
	BO	BO	Coils 01	Holding Registers 03	BI	BI	Discrete Inputs 02	Holding Registers 03
本机	1	0	0	900	1	0	0	800
	2	1	0	902	2	1	1	801
	...	...	...	...	...	...	...	...
	7	6	6	906	15	14	14	814
	8	7	7	907	16	15	15	815
从机 1	1	8	8	908	1	16	16	816
	2	9	9	909	2	17	17	817
	...	...	...	...	...	...	...	...
	7	14	14	914	15	30	30	830
	8	15	15	915	16	31	31	831
从机 2	1	16	16	916	1	32	32	832
	2	17	17	917	2	33	33	833
	...	...	...	...	...	...	...	...
	7	22	22	922	15	46	46	846
	8	23	23	923	16	47	47	847
从机 3	1	24	24	924	1	48	48	848
	2	25	25	925	2	49	49	849
	...	...	...	...	...	...	...	...
	7	30	30	930	15	62	62	862
	8	31	31	931	16	63	63	863
从机 4	1	32	32	932	1	64	64	864
	2	33	33	933	2	65	65	865
	...	...	...	...	...	...	...	...
	7	38	38	938	15	78	78	878
	8	39	39	939	16	79	79	879
从机 5	1	40	40	940	1	80	80	880
	2	41	41	941	2	81	81	881
	...	...	...	...	...	...	...	...
	7	46	46	946	15	94	94	894
	8	47	47	947	16	95	95	895

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AO1-48 & AI1-96 Point Schedule

		Master Point				Master Point		
		Bacnet	Modbus TCP	Modbus RTU		Bacnet	Modbus TCP	Modbus RTU
	AO	AO	Holding Registers 03	Holding Registers 03	AI	AI	Input Registers 04	Holding Registers 03
本机	1	0	0	200	1	0	0	0
	2	1	0	202	2	1	2	2
	...	...	...	...	...	...	...	...
	7	6	12	212	15	14	28	28
	8	7	14	214	16	15	30	30
从机 1	1	8	16	216	1	16	32	32
	2	9	18	218	2	17	34	34
	...	...	...	...	...	...	...	...
	7	14	28	228	15	30	60	60
	8	15	30	230	16	31	62	62
从机 2	1	16	32	232	1	32	64	64
	2	17	34	234	2	33	66	66
	...	...	...	...	...	...	...	...
	7	22	44	244	15	46	92	92
	8	23	46	246	16	47	94	94
从机 3	1	24	48	248	1	48	96	96
	2	25	50	250	2	49	98	98
	...	...	...	...	...	...	...	...
	7	30	60	260	15	62	124	124
	8	31	62	262	16	63	126	126
从机 4	1	32	64	264	1	64	128	128
	2	33	66	266	2	65	130	130
	...	...	...	...	...	...	...	...
	7	38	76	276	15	78	156	156
	8	39	78	278	16	79	158	158
从机 5	1	40	80	280	1	80	160	160
	2	41	82	282	2	81	162	162
	...	...	...	...	...	...	...	...
	7	46	92	292	15	94	188	188
	8	47	94	294	16	95	190	190

Remark: All Analog Point 32bits Integer(ABCD).

Rogerwell

Virtual Point BV1-200 & AV1-200 Point Schedule

	Master Point				Master Point		
	Bacnet	Modbus TCP	Modbus RTU		Bacnet	Modbus TCP	Modbus RTU
BV	BV	Coils 01	Holding Registers 03	AV	AV	Holding Registers 03	Holding Registers 03
1	0	48	1000	1	0	96	400
2	1	49	1001	2	1	98	402
3	2	50	1002	3	2	100	404
4	3	51	1003	4	3	102	406
5	4	52	1004	5	4	104	408
6	5	53	1005	6	5	106	410
7	6	54	1006	7	6	108	412
8	7	55	1007	8	7	110	414
9	8	56	1008	9	8	112	416
10	9	57	1009	10	9	114	418
...	...	...	...	...	...	...	...
191	190	238	1190	191	190	476	780
192	191	239	1191	192	191	478	782
193	192	240	1192	193	192	480	784
194	193	241	1193	194	193	482	786
195	194	242	1194	195	194	484	788
196	195	243	1195	196	195	486	790
197	196	244	1196	197	196	488	792
198	197	245	1197	198	197	490	794
199	198	246	1198	199	198	492	796
200	199	247	1199	200	199	494	798

Remark: All Analog Point 32bits Integer(ABCD).

AV191-AV200 system reserved Registers,its can't use for logic proram.