

Yottacontrol A Series Distributed Control System

A-118X

A-118x User Quick Manual

1. Hardware Vision



Item	Description
1	Inputs
2	Memory Card Slot
3	Indicator, Red: initial mode, Green: normal (run) mode, Spark: no program in controller
4	Inputs
5	Communication Port
6	Incoming Power
7	Buttons
8	LCD display
9	Outputs

2. Overview and Facility

Overview	Facility	
Function Block Diagram + Ladder Diagram system	Function Blocks	1024
Redundant function	Digital Inputs	256
Support Start-up Screen (108*64)	Digital Outputs	128
Multiple communication port	Flag	512
Password protection, copy protection	Analog Inputs	64
36 integrated functions, pre-tested functions	Text Box	16
Linking of 1024 function block is possible	Analog outputs	32
Display of message texts	Block names	256
Integrated data latch	Analog flags	512
Flexibly expandable up to 10000 points	Shift register	1
Support full Modbus protocol	Shift register bits	16
Free PC software“Yotta Edit”+“Yotta Utility”	Open connectors	128
Available adjust program parameter on the controller without a PC.	Timer/Counter	1024 / 1024

3. Accessories

ATP

DSCAB

AMB64

Remote Modules

For further information, please visit : www.yottacontrol.com

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4. Technical Specifications

Type	A-1188S A-1188S-T	A-1188 A-1188-T	A-1188D A-1188D-T	A-1189S A-1189S-T	A-1189 A-1189-T	A-1189D A-1189D-T
Digital Inputs	8			8		
Analog Inputs	--			4 (able to use in digital specification)		
Digital Outputs	4			4		
Input voltage range	Digital ON: 4~30VDC OFF:2VDC(max)			Digital ON: 4~30VDC OFF:2VDC(max)		
				Analog: 0~10VDC		
Continuous Current	Relay: 5 A for resistive load, 2 A for inductive load Transistor: NPN open collector, max. 100mA at 30 VDC					
Incoming Power	10~30 VDC					
Integrated time switches/reserve power	Yes / > 2 years					
Operation temperature	-20°C to +75 °C					
Storage temperature	-25 °C to +80 °C					
Linking of functions	1024(Max)					
Real time clock	Yes					
Protocols	Modbus RTU/Modbus ASCII					
Incorporate operator interface	Yes- with Modbus interface					
Expansion maximum I/O	More than 10000					
Input Operating frequency	15000HZ(DI0~DI3)					
Message text/ display	4 lines of 12 characters					
Communication Port	RS232*1	RS485*2 +RS232*1	RS485*2 +RS232*1	RS232*1	RS485*2 +RS232*1	RS485*2 +RS232*1
Type Instruction	A-118XS: Without LED indicator and LCD monitor, Relay output A-118XS-T : Without LED indicator and LCD monitor, Transistor output A-118X: LED indicator, Relay output A-118X-T : LED indicator, Transistor output A-118XD : LCD monitor, Relay output A-118XD-T : LCD monitor, Transistor output					

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5. Communicate with PC via Yottacontrol Converter or DSCAB

<p>Step1. Prepare controller and Converter or DSCAB</p>	<p>Step2. Turn the controller's status to 'init</p>
	
<p>Step3. Link controller to converter via twisted pair cable</p>	<p>Step4. Or linked DSCAB</p>
	
<p>Step5. Turn on the controller's power</p>	<p>Step6. Click Yottacontrol Utility and search the device</p>
	

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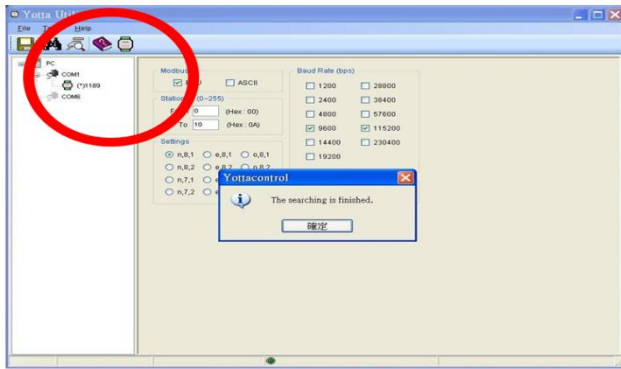
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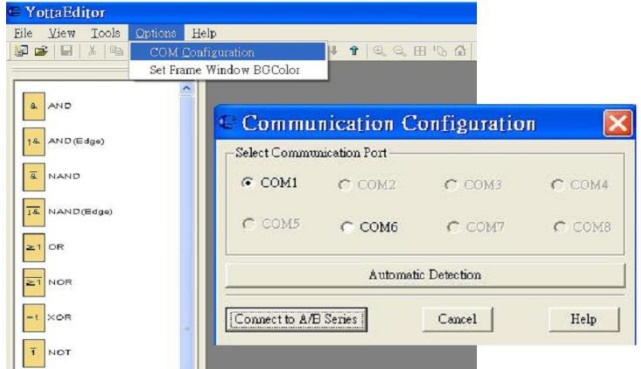
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5. Communicate with PC via Yottacontrol Converter or DSCAB

Step7. Searching is finished

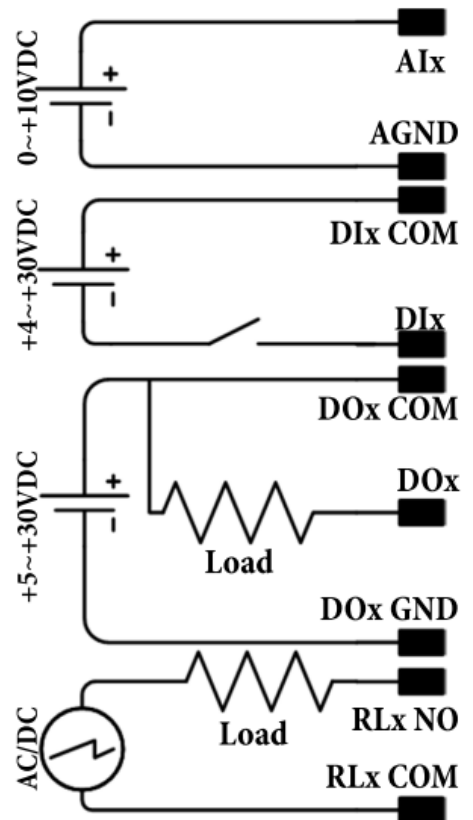
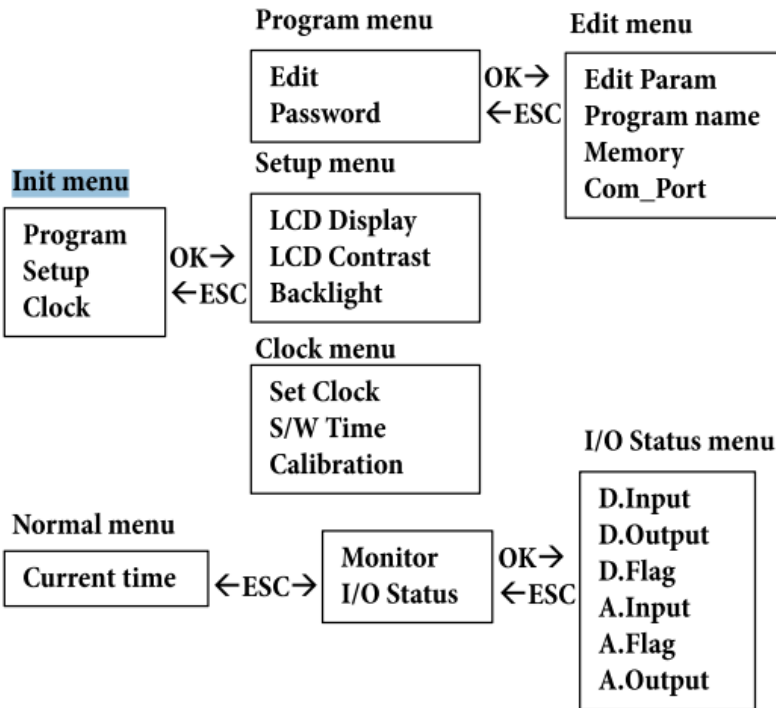


Step8. Click YottaEditor to confirm controller's com port



Step9. Now you can compile program via YottaEditor

6. Display menu structure and application wiring



Warning:

Hazardous voltage can cause electrical shock and burns. Disconnect power before proceeding with any work on this equipment.

Limitations:

When this product is used for the equipment with special safety requirements or on the important occasions, please pay attention especially to the safety of whole system and devices. If it is necessary, please install the safety device to do extra check and timing test and other safety precautions.

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7. YottaEditor

Item	Description	Main screen
1	Menu bar	
2	Standard toolbar	
3	Programming interface	
4	Information window	
5	Status bar	
6	Constants and connectors Basic functions Special functions	

In this tab, you can enter detailed information of a circuit program.

Properties-General

Properties

General | Comment | Parameter | Protect | COM0 | COM1 | COM2 | StartUp Bmp | Hardware

Creator:

Project Name:

Installation Name:

Customer:

Diagram no.:

Checked:

Version:

Show at new file

OK Cancel Help

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7. YottaEditor

All parameters are transferred between PC and controller, and then saved there after the circuit program is downloaded.

Properties-Parameter

The screenshot shows the 'Properties' dialog box with the 'Parameter' tab selected. The dialog contains the following fields and options:

- Program Name:** A text input field.
- Program Password:** A section containing three text input fields: 'Current password:', 'New Password:', and 'Repeat New Password:'.
- Redundancy:** A section containing a dropdown menu labeled 'None/Master/Slave' with 'None' selected, and a text input field for 'Synchronizing time' with the value '5000' and the unit 'ms'.

Buttons for 'OK', 'Cancel', and 'Help' are located at the bottom right of the dialog.

Program Name

A program name with up to 16 characters can be entered for the circuit program.

Program Password

A program password with up to 8 alphabetical characters can be assigned to protect the circuit program on controller. Enter 2 identical passwords in New Password and Repeat New Password text boxes separately to assign a new password for your circuit program. You can delete the assigned password by leaving New Password and Repeat New Password text boxes empty.

You can open or edit the circuit program from YottaEditor at any time no matter if the program is password-protected or not. For password-protected circuit programs, you have to enter the password to view or modify the program on controller, or to load the circuit program from controller to YottaEditor.

Redundancy

Controller provides redundancy to help you build a robust system. In case the server is going down there is a backup server that can take over the job.

There are 3 types for you to choose.

None: Redundancy is not available for this type.

Master: Connected controller is the main controller of the whole system. It communicates with Slave continuously.

Slave: Connected controller becomes Master automatically, if it doesn't receive signals from the Master after a period of time which is defined in the Synchronizing time text box in millisecond.

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7. YottaEditor

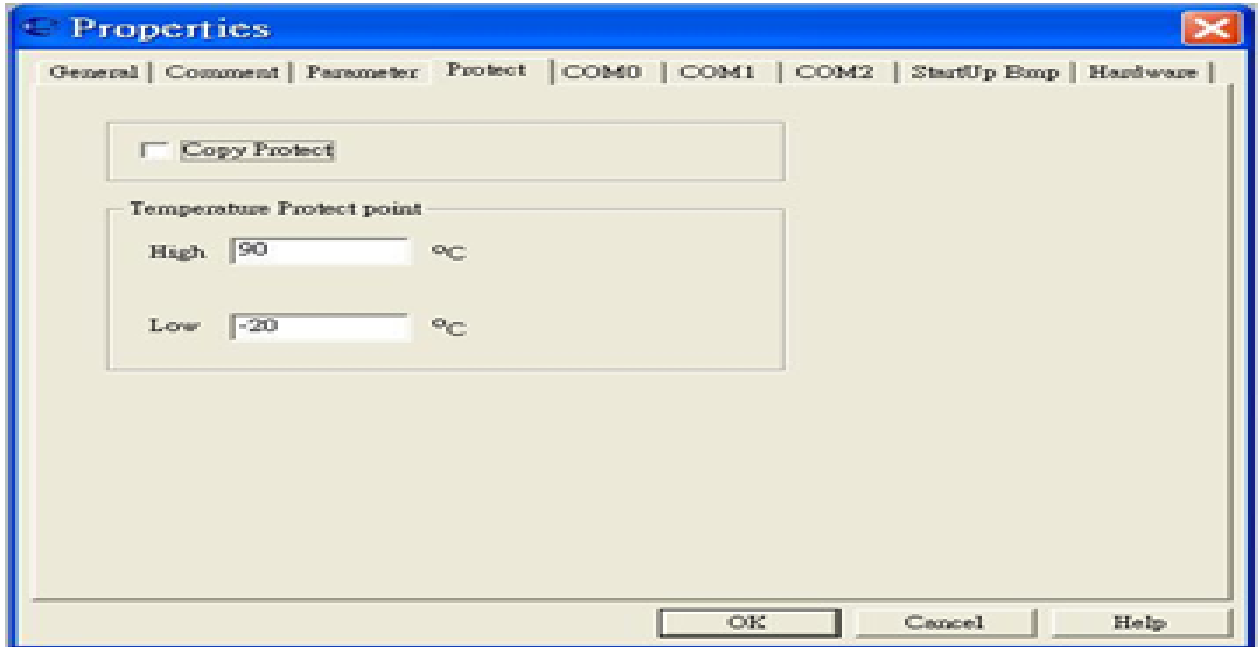
Copy Protect

When select this function, can protect program illegal download without the correct password.

Temperature Protect point

Set the temperature range. If work temperature surpasses the range, memory will record.

Properties-Protect



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7. YottaEditor

You can set the following parameters.

Model: Master, Slave, ATP (A series text panel)

Device address: From 1 to 255 (for slave only)

Protocol: Modbus-RTU, Modbus-ASCII

Baud rate: 1200, 2400, 4800, 9600, 14.4K, 19.2K, 28.8K, 38.4K, 57.6K, 115.2K, 230.4K (bps)

Parity/Data bit/ Stop bit: None, 8, 1/None, 8, 2/Odd, 8, 1/Odd, 8, 2/Even, 8, 1/Even, 8, 2

Timeout: In millisecond

Delay between polls: In millisecond

Data register index: High Low, Low High

Properties-COM

The screenshot shows the 'Properties-COM' dialog box with the following settings:

- Model:** Master (dropdown menu)
- Device Address:** 1 (text box, note: for slave func 1~255)
- Protocol:** RTU (dropdown menu)
- Baudrate:** 9600 (dropdown menu) bps
- Parity/Data bit/Stop bit:** None,8,1 (dropdown menu)
- Timeout:** 200 (text box) ms
- Delay Between Polls:** 0 (text box) ms
- Data Register Index:** High Low (dropdown menu)

Buttons at the bottom: OK, Cancel, Help.

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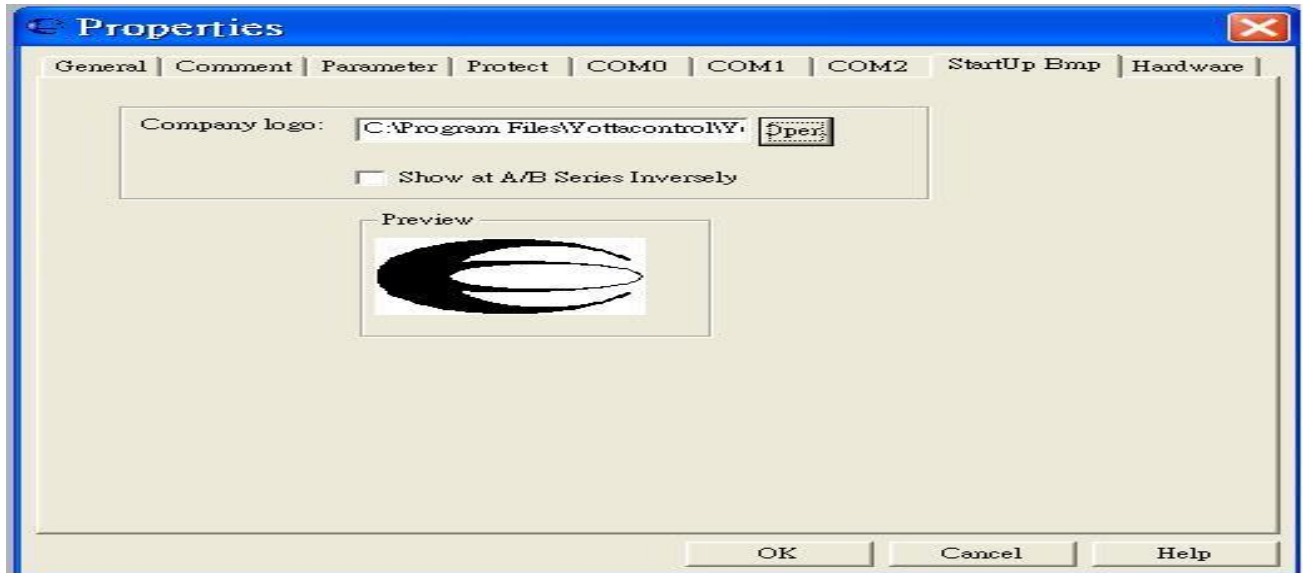
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7. YottaEditor

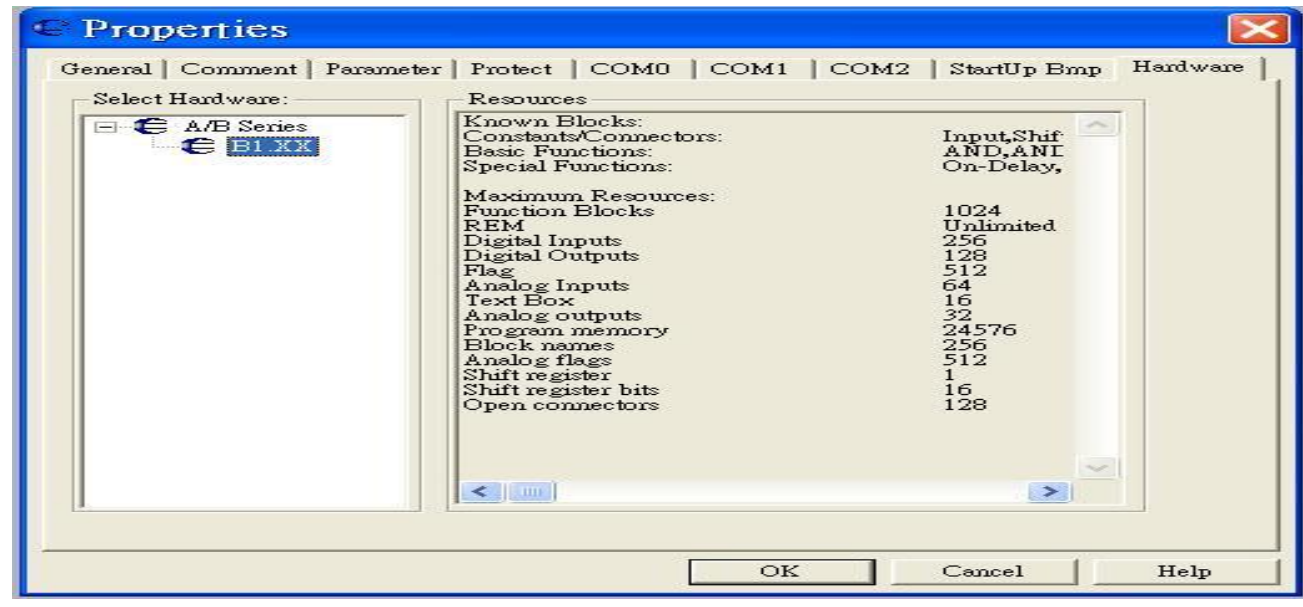
You can place any image into the controller in *.bmp format (108*64)

Properties-Startup Bmp



The device selection dialog shows you which blocks and memory resources are available to you. If you have already created a circuit program or are using some blocks, the hardware selection dialog offers you only the A/B-Series devices you can operate with the currently used blocks.

Properties-Hardware



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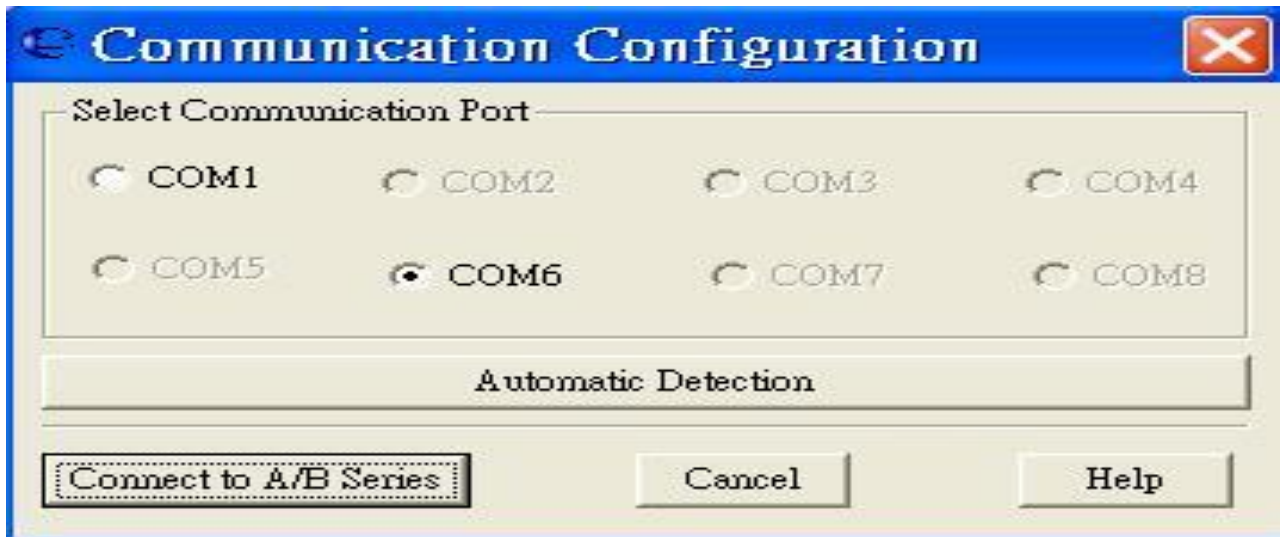
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7. YottaEditor

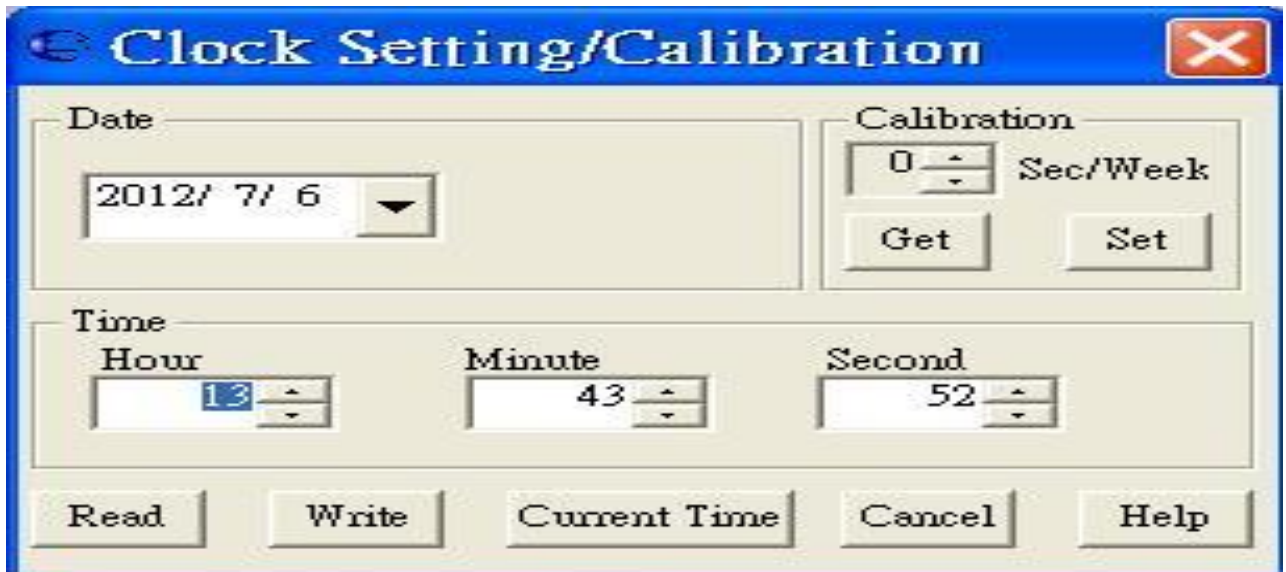
Choose a COM port from the list, if you know exactly which one connects to the controller. If you are not sure which COM port connects to the controller, you can let YottaEditor automatically detect the COM port.

Options-Communication Configuration



This command can be used to read and set the date and time of connected controller. Click on the Current Time button to apply the system time of PC in YottaEditor.

Tools-Transfer-Clock Setting/Calibration



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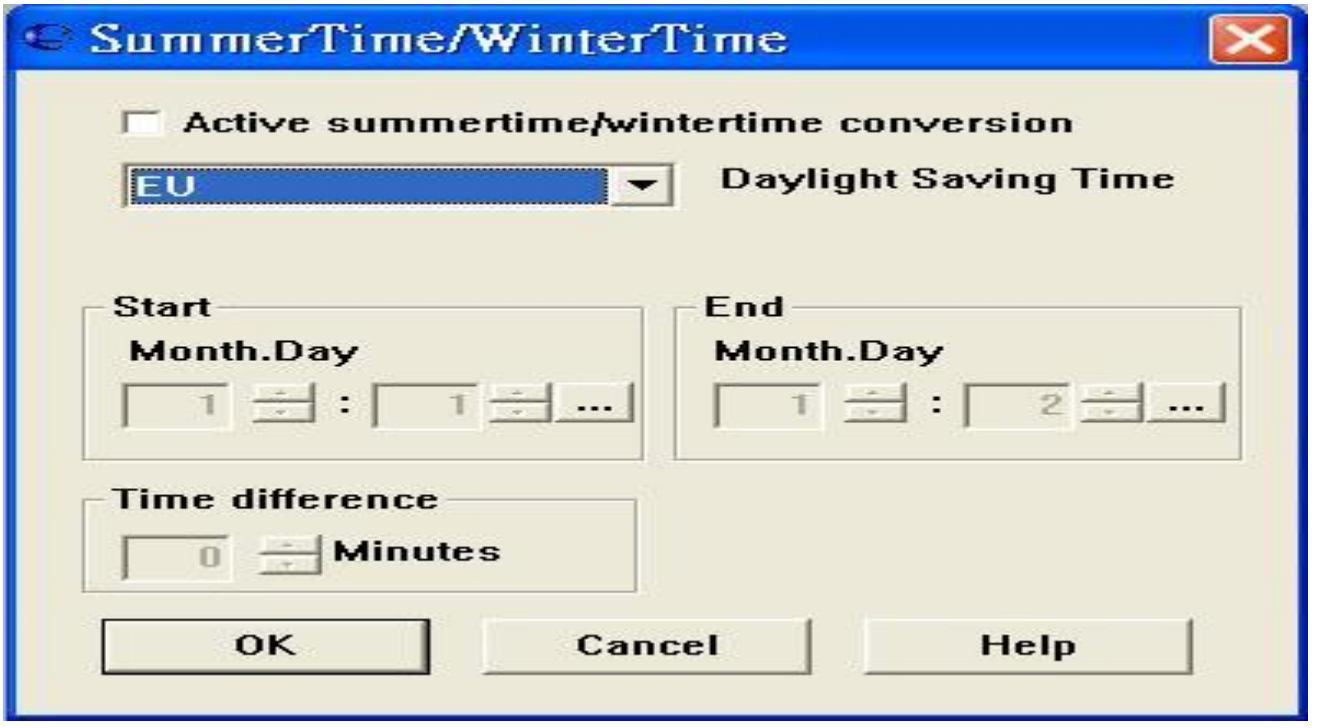
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7. YottaEditor

This menu command lets you set an automatic conversion of the summer and winter time for the controller's clock.

Tools-Transfer-SummerTime/WinterTime



When you enable summer/winter time conversion, you can specify a country-specific time conversion:

- *EU: European Union
- *UK: United Kingdom of Great Britain and Northern Ireland
- *US: United States of America
- *Australia
- *Tasmania
- *New Zealand
- *Freely adjustable: customized switchover dates and times

For the "Freely adjustable" selection, you specify the month and day of the switchover. The start time of summer time is 02:00 + the entered time difference; the end time is 03:00 – the entered time difference.

Note: The United States of America redefined the daylight saving time (summer time) / standard time (winter time) switchover dates in 2007. Controller, however, uses the switchover dates as they were prior to 2007. To use the new U.S. switchover times, you must configure a "Freely adjustable" setting that corresponds to the new rule where Daylight Saving Time is in effect from 2:00 a.m. on the second Sunday in March until 2:00 a.m. on the first Sunday in November according to the local time zone.

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7. YottaEditor

Simulation





Click on the Tools -> Simulation menu command or the simulation icon  in the standard toolbar to start simulation.

Simulation Toolbar

The simulation toolbar, which is shown as follows, is active when the program is in simulation mode. Use this tool to perform the simulation




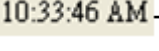



Simulation Control Icons

	Simulate a power failure.
	Start simulation.
	Stop simulation
	Suspend simulation. The Circuit program switches into suspend mode. Resume simulation

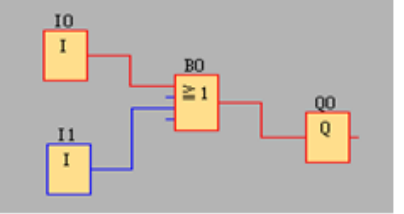
Time Control

For a time-sensitive circuit program, you can use the time control to observe the processes of the circuit program. This is a simple but effective way to predict the result of the program operation.

	Start/stop the simulation in stepping mode. It's available in suspend mode.
	Set a specific period of time or set a specific number of cycles. Depends on the below control.
	Choose one of the four modes: cycle, second, minute and hour.
	Display the current time in YottaEditor.
	Modify the current time in YottaEditor.

Status Display

The value of signal and corresponding connecting line is as follows:

The value of signal	The color of corresponding connecting line	
1	Red	
0	Blue	

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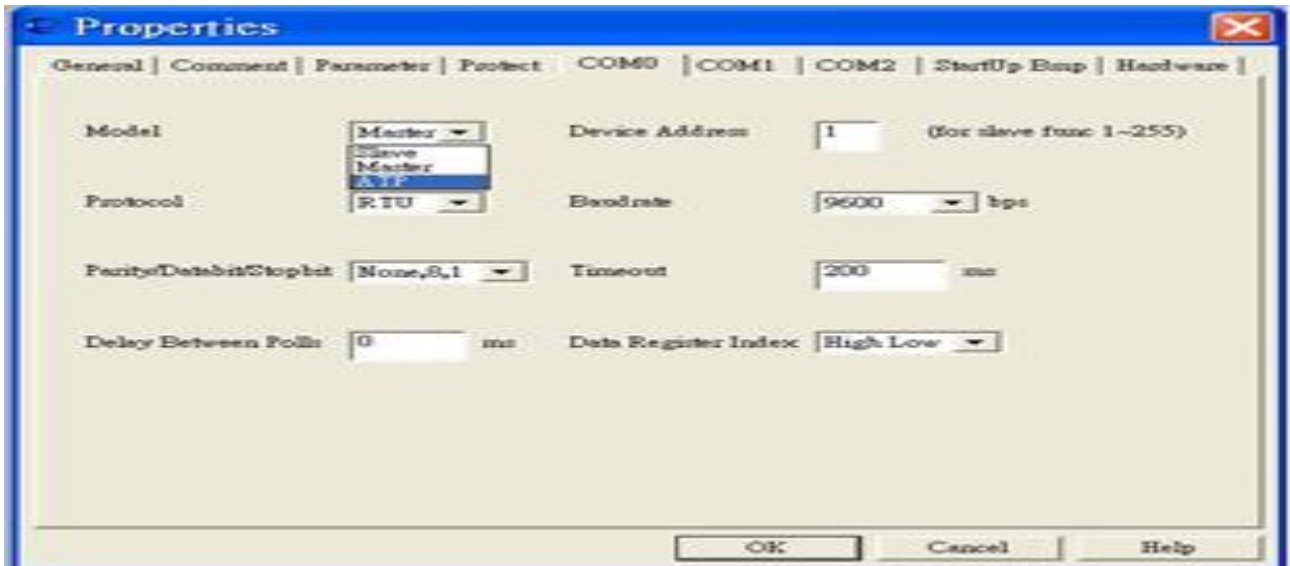
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7. YottaEditor

Connect ATP to Controller and select the COM model to ATP.

Yottacontrol A Series Text Panel (ATP)



Now available adjust program parameter in the ATP without a PC. And controller will show 'ATP Connect'.



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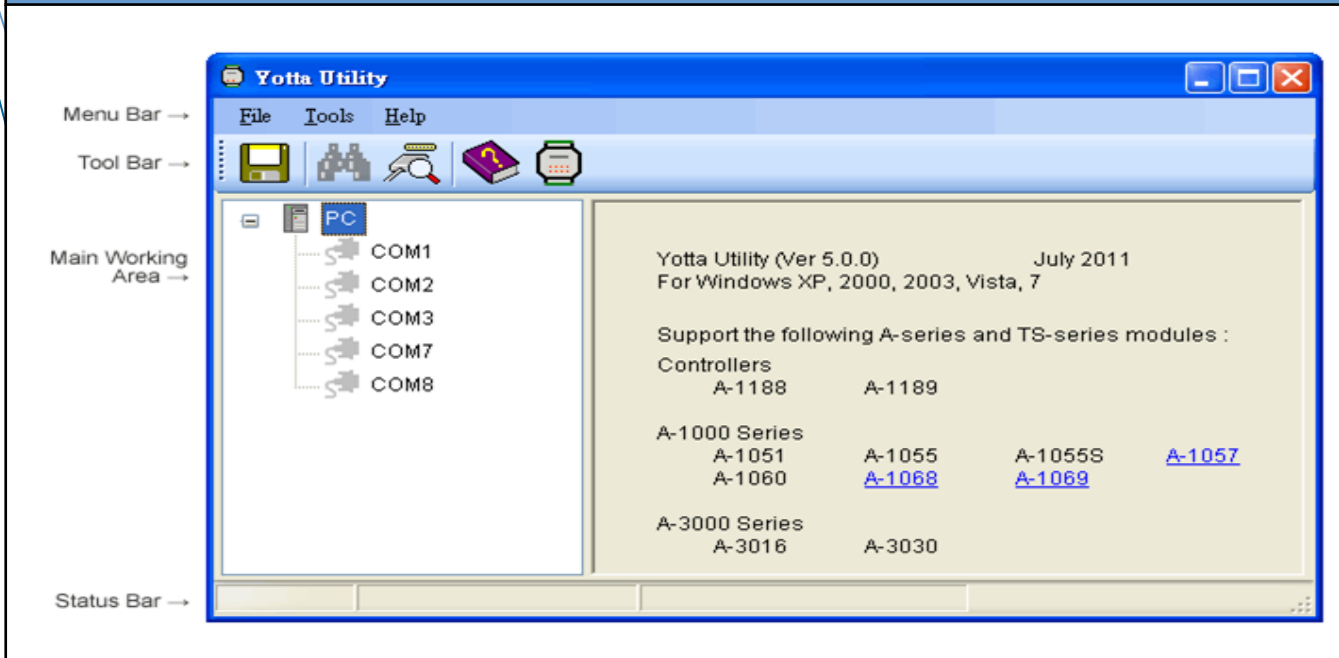
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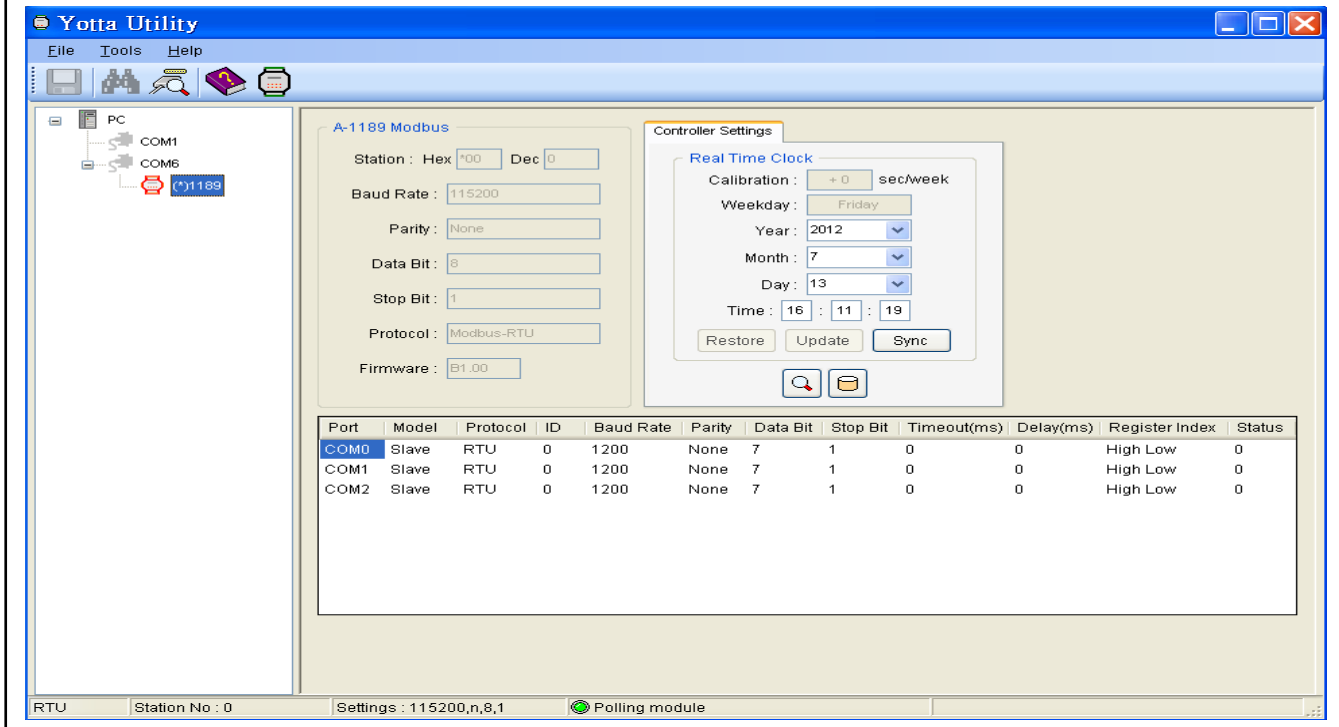
8. YottaUtility

Main screen



When the controller is in initial mode, you can see the following figure.

Initial mode



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8. YottaUtility

The general settings are read only.

The function of each button is as follows

General setting

A-1189 Modbus

Station : Hex Dec

Baud Rate :

Parity :

Data Bit :

Stop Bit :

Protocol :

Firmware :



You can find more information about the controller.



The database window shows up.

Calibration and Weekday are read only.

You can set Year, Month, Day and Time.
Press the Update button to store the changed values.
Press the Restore button to restore the RTC value from the controller's memory.
The Update and Restore buttons are available when the Weekday or Time values are changed.
Press the Sync button to synchronize the RTC time with PC.

Real Time Clock

Calibration : sec/week

Weekday :

Year :

Month :

Day :

Time : : :


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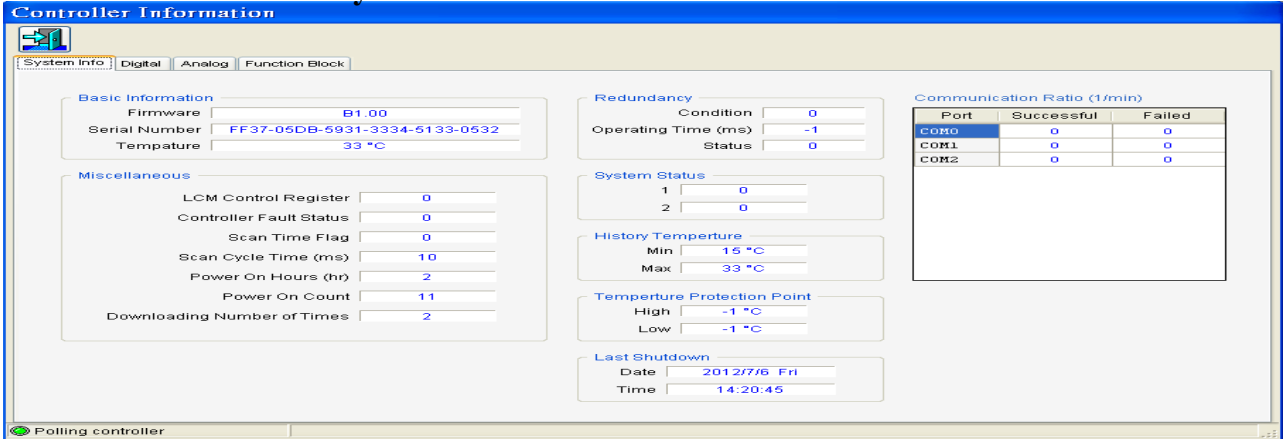
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8. YottaUtility

When the button  is pressed, you can see the following figure

This page lets you get a deep view of the information and status of the controller. The data read from the controller provide the information and status. The label on the left side of each data indicates the meaning of each data.

Controller Information-System Info



Controller Information

System Info | Digital | Analog | Function Block

Basic Information

- Firmware: B1.00
- Serial Number: FF37-05DB-5931-3334-5133-0532
- Temperature: 33 °C

Miscellaneous

- LCM Control Register: 0
- Controller Fault Status: 0
- Scan Time Flag: 0
- Scan Cycle Time (ms): 10
- Power On Hours (hr): 2
- Power On Count: 11
- Downloading Number of Times: 2

Redundancy

- Condition: 0
- Operating Time (ms): -1
- Status: 0

System Status

- 1: 0
- 2: 0

History Temperature

- Min: 15 °C
- Max: 33 °C

Temperature Protection Point

- High: -1 °C
- Low: -1 °C

Last Shutdown

- Date: 2012/7/6 Fri
- Time: 14:20:45

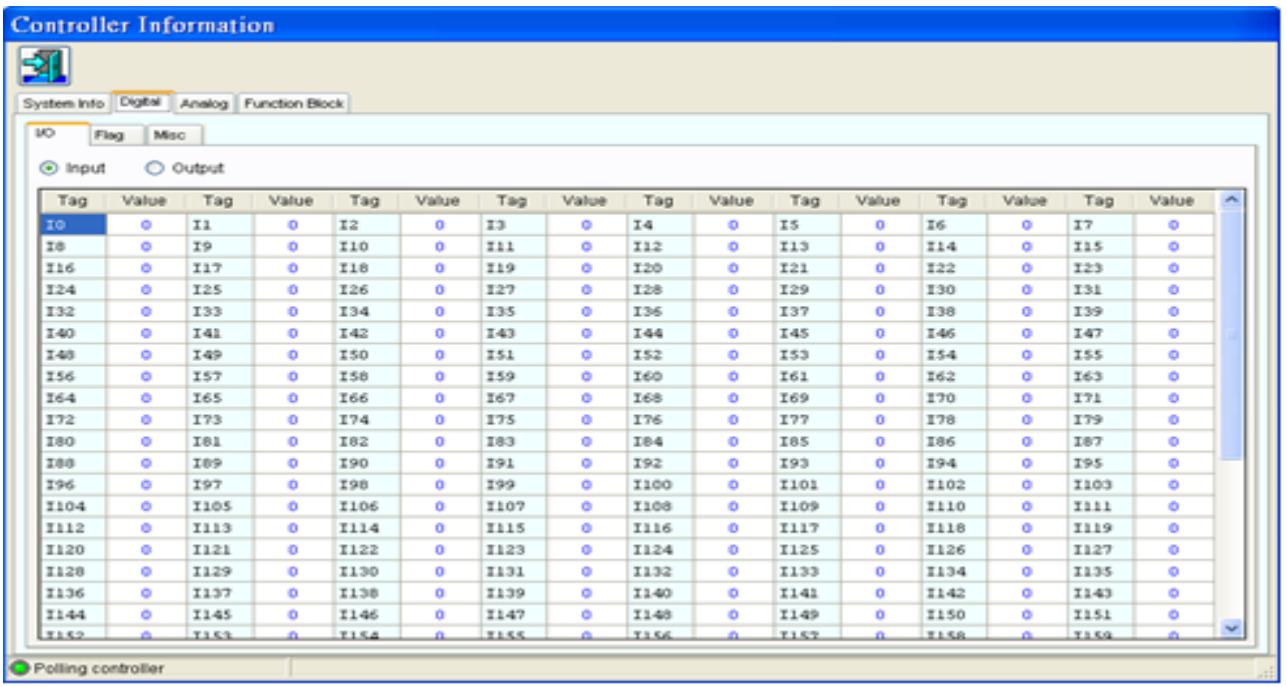
Communication Ratio (1/min)

Port	Successful	Failed
COM0	0	0
COM1	0	0
COM2	0	0

● Polling controller

This page provides the detailed information of digital signals, such as inputs, outputs, flags and shift registers

Controller Information-Digital



Controller Information

System Info | Digital | Analog | Function Block

IO | Flag | Misc

● Input ○ Output

Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value
I0	0	I1	0	I2	0	I3	0	I4	0	I5	0	I6	0	I7	0
I8	0	I9	0	I10	0	I11	0	I12	0	I13	0	I14	0	I15	0
I16	0	I17	0	I18	0	I19	0	I20	0	I21	0	I22	0	I23	0
I24	0	I25	0	I26	0	I27	0	I28	0	I29	0	I30	0	I31	0
I32	0	I33	0	I34	0	I35	0	I36	0	I37	0	I38	0	I39	0
I40	0	I41	0	I42	0	I43	0	I44	0	I45	0	I46	0	I47	0
I48	0	I49	0	I50	0	I51	0	I52	0	I53	0	I54	0	I55	0
I56	0	I57	0	I58	0	I59	0	I60	0	I61	0	I62	0	I63	0
I64	0	I65	0	I66	0	I67	0	I68	0	I69	0	I70	0	I71	0
I72	0	I73	0	I74	0	I75	0	I76	0	I77	0	I78	0	I79	0
I80	0	I81	0	I82	0	I83	0	I84	0	I85	0	I86	0	I87	0
I88	0	I89	0	I90	0	I91	0	I92	0	I93	0	I94	0	I95	0
I96	0	I97	0	I98	0	I99	0	I100	0	I101	0	I102	0	I103	0
I104	0	I105	0	I106	0	I107	0	I108	0	I109	0	I110	0	I111	0
I112	0	I113	0	I114	0	I115	0	I116	0	I117	0	I118	0	I119	0
I120	0	I121	0	I122	0	I123	0	I124	0	I125	0	I126	0	I127	0
I128	0	I129	0	I130	0	I131	0	I132	0	I133	0	I134	0	I135	0
I136	0	I137	0	I138	0	I139	0	I140	0	I141	0	I142	0	I143	0
I144	0	I145	0	I146	0	I147	0	I148	0	I149	0	I150	0	I151	0
I152	0	I153	0	I154	0	I155	0	I156	0	I157	0	I158	0	I159	0

● Polling controller

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8. YottaUtility

This page provides the detailed information of analog signals, such as inputs, outputs and flags

Controller Information-Analog

Controller Information

Hex Dec

System Info Digital Analog Function Block

MO Flag

Input Output

Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value	Tag	Value
AI0	0x0000	AI1	0x0000	AI2	0x0000	AI3	0x0000	AI4	0x0000	AI5	0x0000	AI6	0x0000	AI7	0x0000
AI8	0x0000	AI9	0x0000	AI10	0x0000	AI11	0x0000	AI12	0x0000	AI13	0x0000	AI14	0x0000	AI15	0x0000
AI16	0x0000	AI17	0x0000	AI18	0x0000	AI19	0x0000	AI20	0x0000	AI21	0x0000	AI22	0x0000	AI23	0x0000
AI24	0x0000	AI25	0x0000	AI26	0x0000	AI27	0x0000	AI28	0x0000	AI29	0x0000	AI30	0x0000	AI31	0x0000
AI32	0x0000	AI33	0x0000	AI34	0x0000	AI35	0x0000	AI36	0x0000	AI37	0x0000	AI38	0x0000	AI39	0x0000
AI40	0x0000	AI41	0x0000	AI42	0x0000	AI43	0x0000	AI44	0x0000	AI45	0x0000	AI46	0x0000	AI47	0x0000
AI48	0x0000	AI49	0x0000	AI50	0x0000	AI51	0x0000	AI52	0x0000	AI53	0x0000	AI54	0x0000	AI55	0x0000
AI56	0x0000	AI57	0x0000	AI58	0x0000	AI59	0x0000	AI60	0x0000	AI61	0x0000	AI62	0x0000	AI63	0x0000

Polling controller

This page provides the detailed information of function block. Please refer YottaUtility following table

Controller Information-Function Block

Controller Information

Hex Dec

System Info Digital Analog Function Block

B0 ~ B63
 B64 ~ B127
 B128 ~ B191
 B192 ~ B255
 B256 ~ B319
 B320 ~ B383
 B384 ~ B447
 B448 ~ B511
 B512 ~ B575
 B576 ~ B639
 B640 ~ B703
 B704 ~ B767
 B768 ~ B831
 B832 ~ B895
 B896 ~ B959
 B960 ~ B1023

Tag	Analog Values					Digital Values				
	Address	Addr	Addr + 1	Addr + 2	Addr + 3	Address	Addr	Addr + 1	Addr + 2	Addr + 3
B0	42001	0x0000	0x0000	0x0000	0x0000	02001	0	0	0	0
B1	42005	0x0000	0x0000	0x0000	0x0000	02005	0	0	0	0
B2	42009	0x0000	0x0000	0x0000	0x0000	02009	0	0	0	0
B3	42013	0x0000	0x0000	0x0000	0x0000	02013	0	0	0	0
B4	42017	0x0000	0x0000	0x0000	0x0000	02017	0	0	0	0
B5	42021	0x0000	0x0000	0x0000	0x0000	02021	0	0	0	0
B6	42025	0x0000	0x0000	0x0000	0x0000	02025	0	0	0	0
B7	42029	0x0000	0x0000	0x0000	0x0000	02029	0	0	0	0
B8	42033	0x0000	0x0000	0x0000	0x0000	02033	0	0	0	0
B9	42037	0x0000	0x0000	0x0000	0x0000	02037	0	0	0	0
B10	42041	0x0000	0x0000	0x0000	0x0000	02041	0	0	0	0
B11	42045	0x0000	0x0000	0x0000	0x0000	02045	0	0	0	0
B12	42049	0x0000	0x0000	0x0000	0x0000	02049	0	0	0	0
B13	42053	0x0000	0x0000	0x0000	0x0000	02053	0	0	0	0
B14	42057	0x0000	0x0000	0x0000	0x0000	02057	0	0	0	0
B15	42061	0x0000	0x0000	0x0000	0x0000	02061	0	0	0	0
B16	42065	0x0000	0x0000	0x0000	0x0000	02065	0	0	0	0
B17	42069	0x0000	0x0000	0x0000	0x0000	02069	0	0	0	0
B18	42073	0x0000	0x0000	0x0000	0x0000	02073	0	0	0	0
B19	42077	0x0000	0x0000	0x0000	0x0000	02077	0	0	0	0

Polling controller

For further information, please visit : www.yottacontrol.com

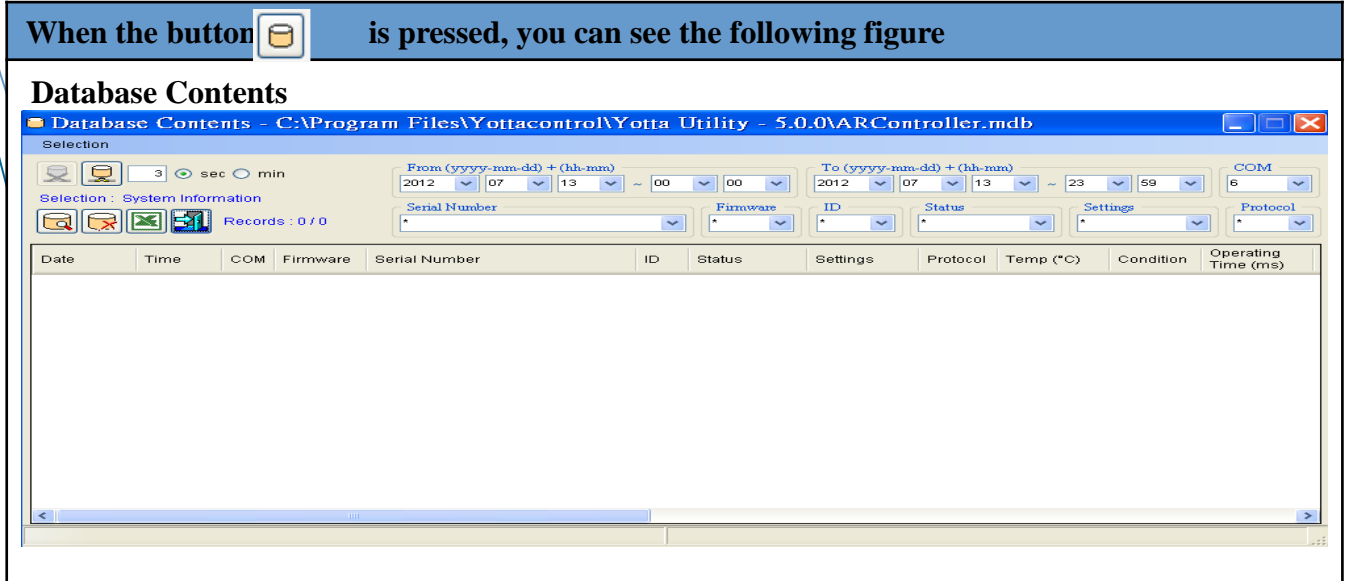
Yottacontrol A Series Distributed Control System

A-118X

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8. YottaUtility

When the button  is pressed, you can see the following figure



We provide users with database functions. Users can store the values of selected modules into the database. These data can be retrieved from the database for further analysis in the future.

Note: The database is a Microsoft Access file. The file name is **app_path\ARController.mdb**.

Note: The file backups automatically when its size exceeds 500 MB. The backup file name is **ARControllerYYYYMMDD.mdb**.

Note: The file **app_path\ARControllerTemplate.mdb** should not be modified and deleted.

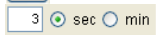
The below instructions show you how to manipulate the database.



Stop inserting data into the database.



Inserting data into the database.



Specify the time interval for inserting data into the database.

How to Use the Database

In the previous figure, users can retrieve and delete data from the database. The combination of all drop-down boxes is the criteria for retrieving and deleting data.

Note: The star sign (*) in drop-down boxes means all.

Note: If the number of retrieving data is more than 3000. You have to reset the selection criteria.

The below instructions show you more information about data manipulation.



Retrieve data from the database.



Delete data from the database.



Export data to Excel.



Close the form.

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