Controller User Manual

V1.10 Edit: 2017.5.23

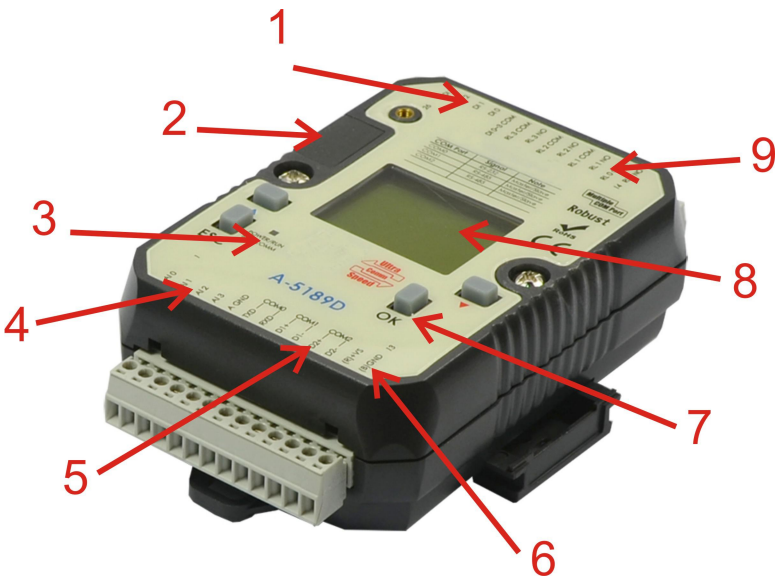
Contents

1. Product Overview

1.1 Initial parameter

ATC A-51 series Controller and A1 series Remote I/O modules' initial setting parameter are as below: MODBUS RTU, ID Address: 01, Baud Rate:9600, Parity: None, Data Bit:8, Stop Bit:1.

1.2 Controller Description



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 (USB Port)
6	Incoming Power
7	Buttons
8	LCD Display
9	Outputs

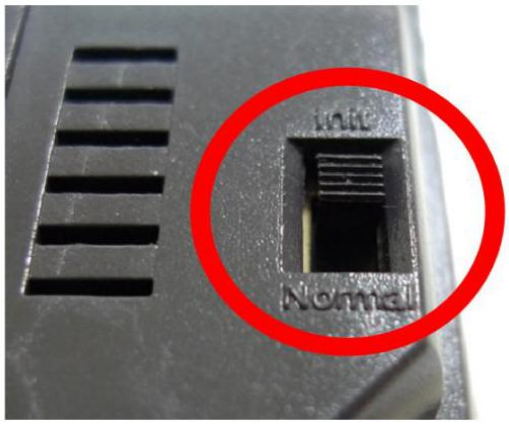
2. Communication

When you got ATC A-1188/1189、A-5188/5189 series Controllers or A1 series Remote IO Modules, can via ATC Utility to realize device parameter.

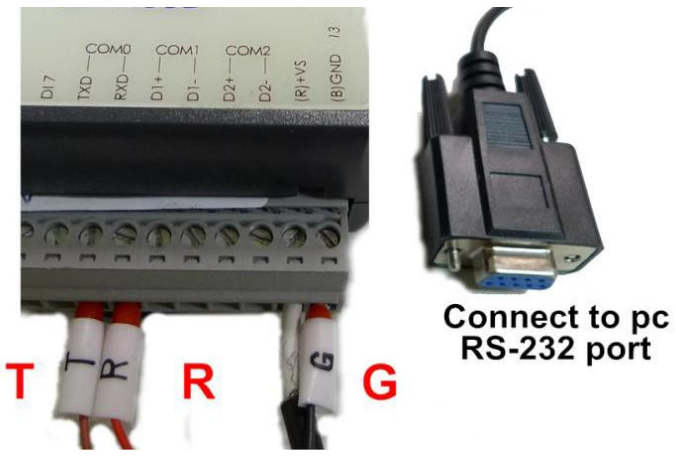
2.1 Controller communicates with the PC

A series Controller can connect via cables to communicate with PC's RS-232 port or USB port, or can via Converter to communicate with a PC.

1. Prepare Controller and Converter or DSCAB connect cable.
2. Turn the Controller's switch to 'Init' status.

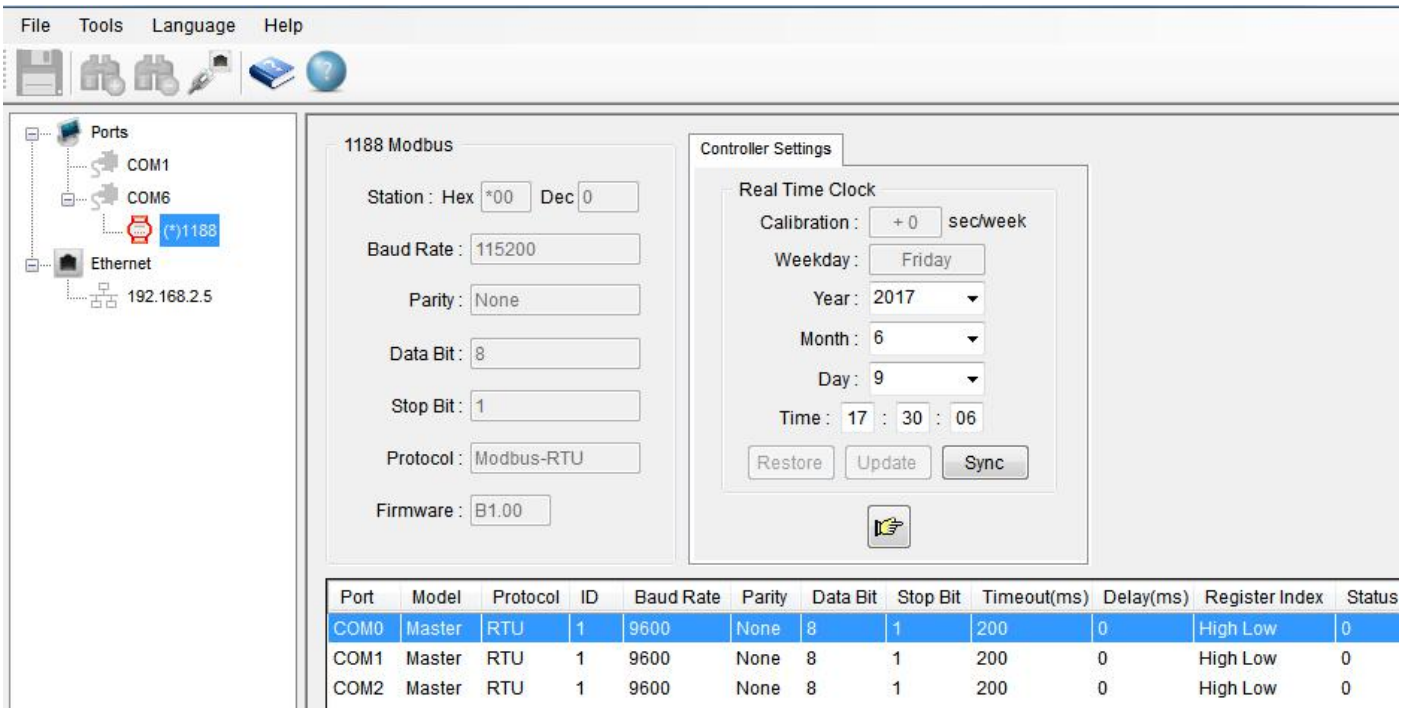


3. Link Controller to Converter via twisted pair cable.
4. Or linked DSCAB connect cable.



5. Turn on the Controller's power.
6. Open Utility and click **Refresh COM ports** to check PC's com ports, then choose Controller's COM port. And click **Search for modules** to search Controller.

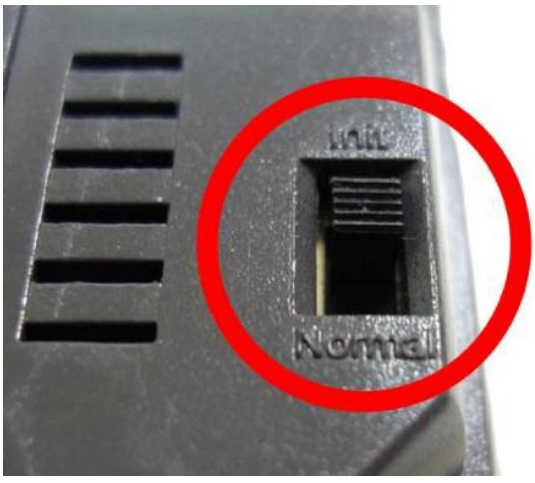
7. When correct to search Controller, Utility will show below figure. We can detect the Controller's all com ports' parameters.



2.2 A1 series Remote IO module communicates with the PC

1. A1series Remote IO module build-in MODBUS RS-485 port, can via Converter to connect to PC. (Device DATA+ connect to Converter DATA+, device DATA- connect to Converter DATA-)

2. Turn the Remote IO Module's switch to 'Init' status.

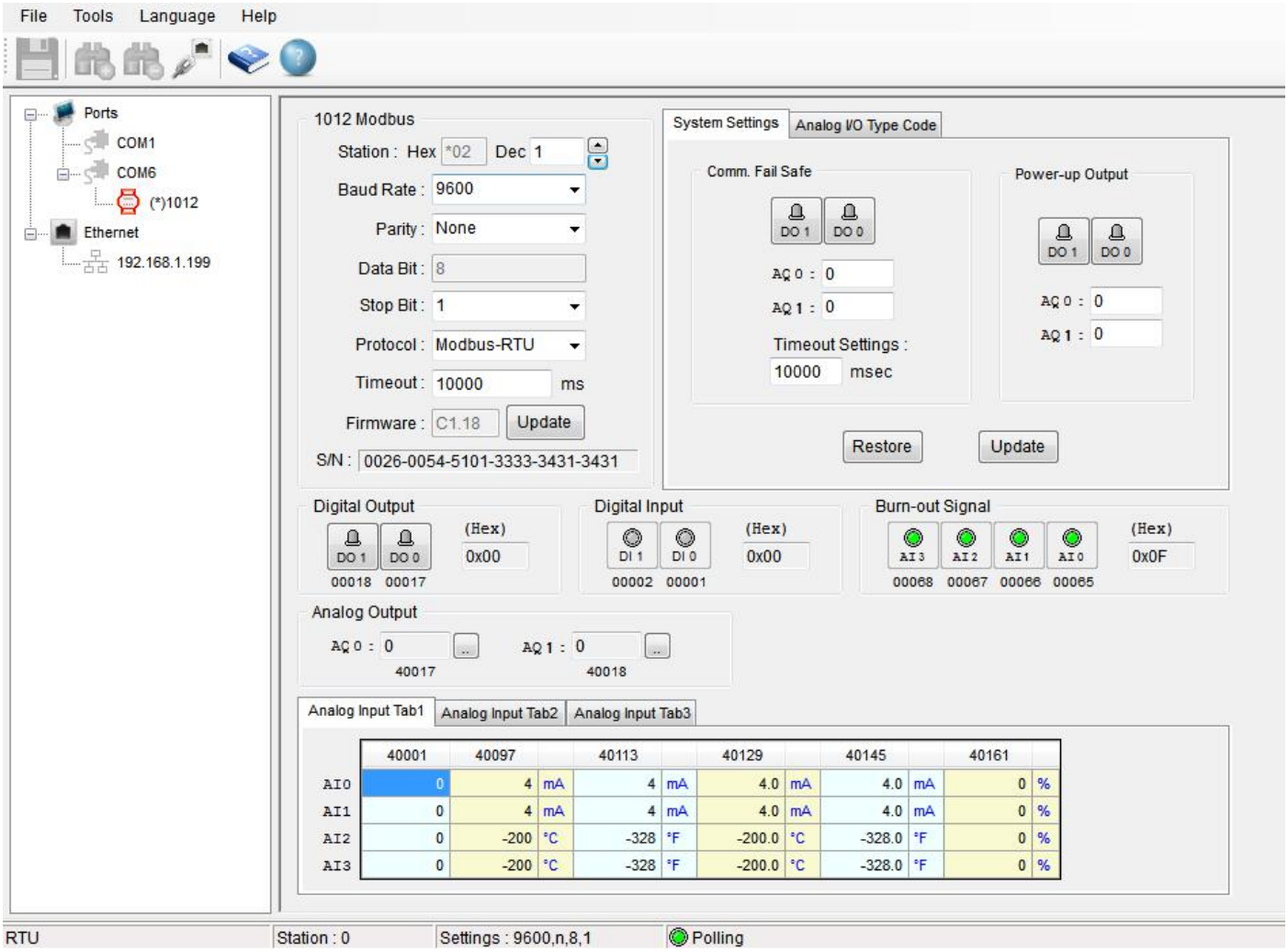


3. Power on the Remote IO Module

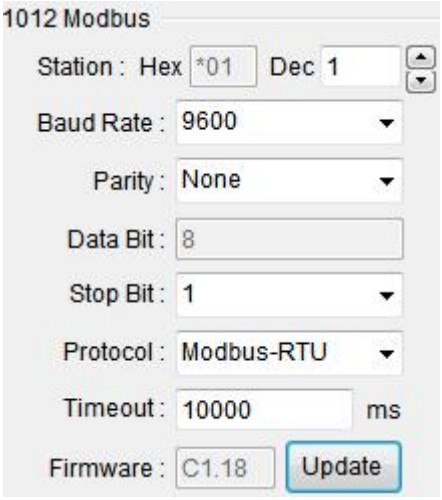
4. Open Utility and click **Refresh COM ports**  to refresh PC com port, and choose Remote IO Module's com port. Then click **Search for modules**  to search device.

5. When correct to search Controller, Utility will show below figure. We can detect the Remote IO Module's

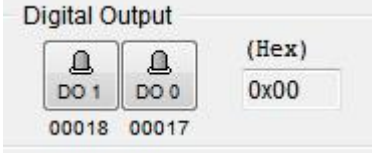
parameters.



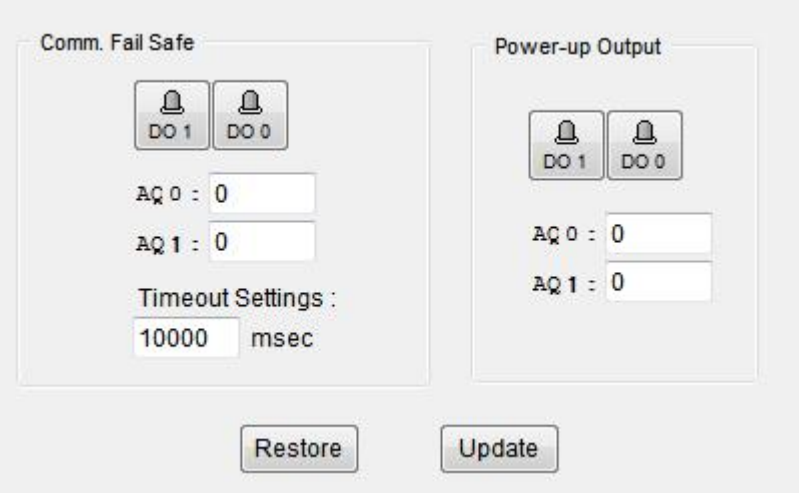
6. We can set the communication parameter as below figure. For example, **DEC**(ID Address)range is 1-255. When finish the parameter setting, can press **Update** to save the setting.



7. Or can click **Digital Output** to test device hardware's LED indicator.

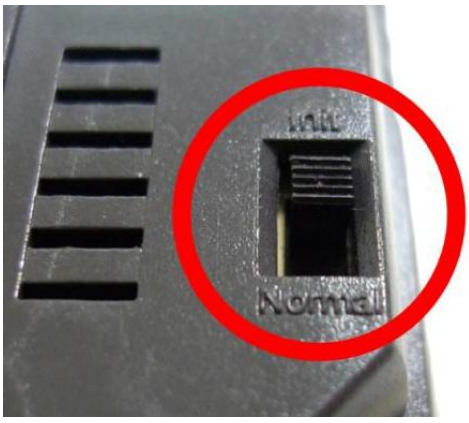


8. Remote IO Module via MODBUS RS-485 to communicate to other devices (PLC, HMI, Data Logger, etc.). To communicate fail warning, we can set related notify in Comm. Fail Safe. When finish it, press **Update** to save. Or can click **Restore** to restore device's current data.



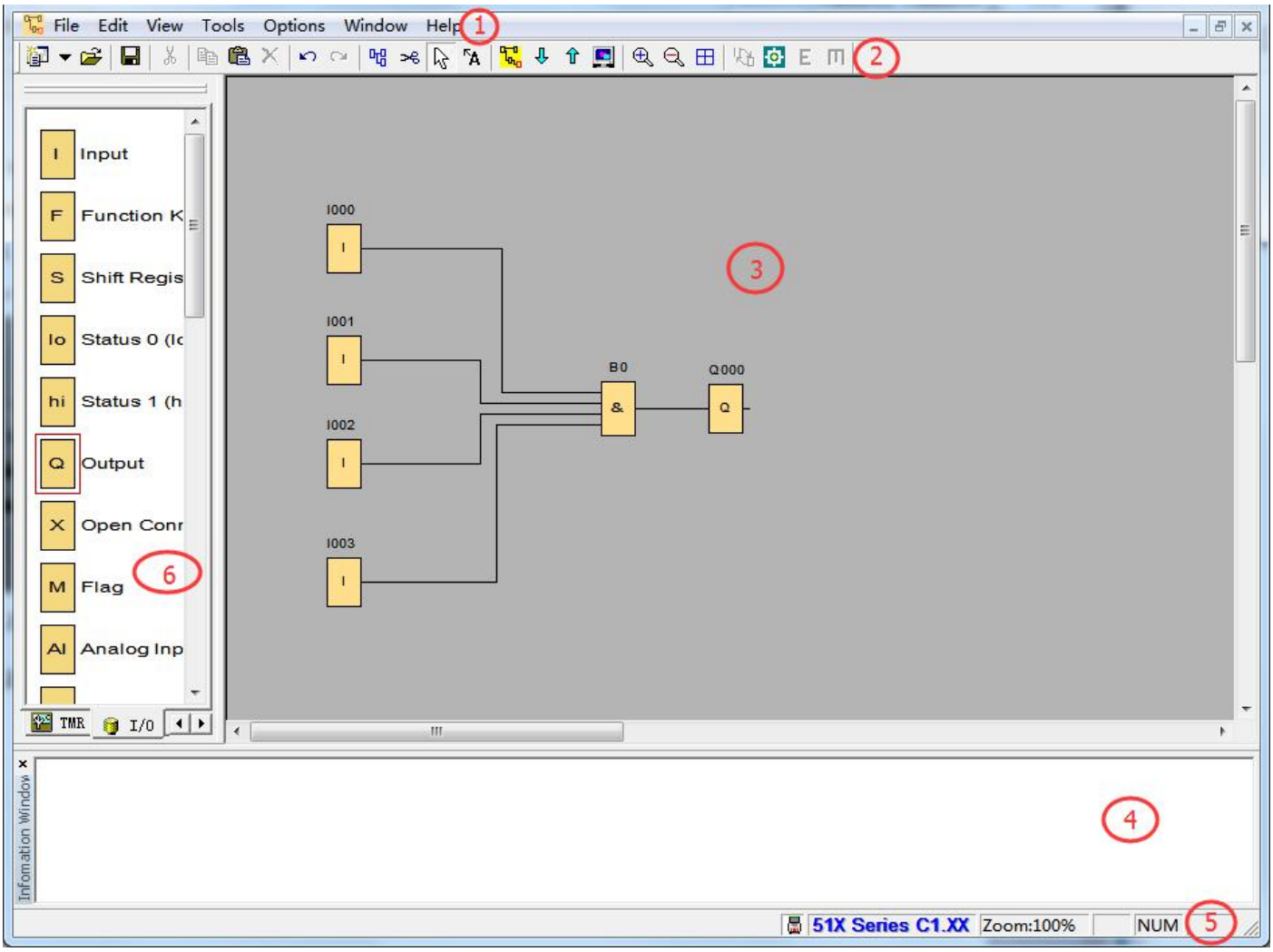
9. When turn on the Remote IO Module's power, can set the power on output indicator via **Power On Digital Output**. When finish it, press Update to save. Or can click Restore to restore device's current data.

10. When complete above setting steps, turn the Remote IO Module's switch to 'Normal' status and re-turn on the power can finish the setting.



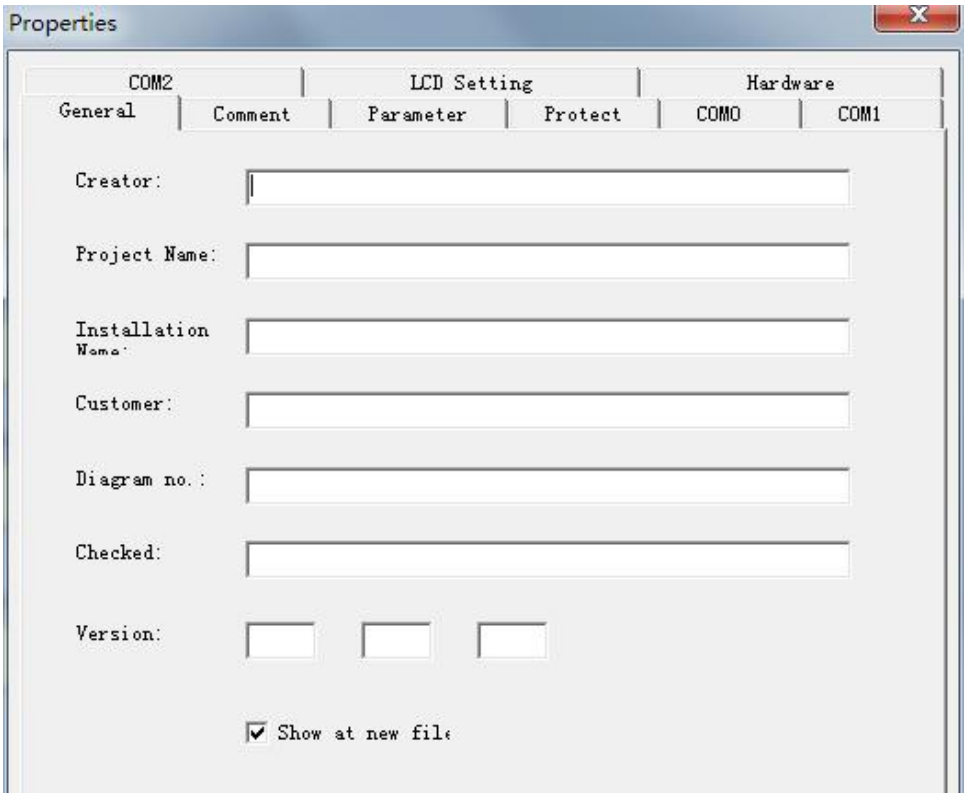
2. Editor overview

3.1 Main screen



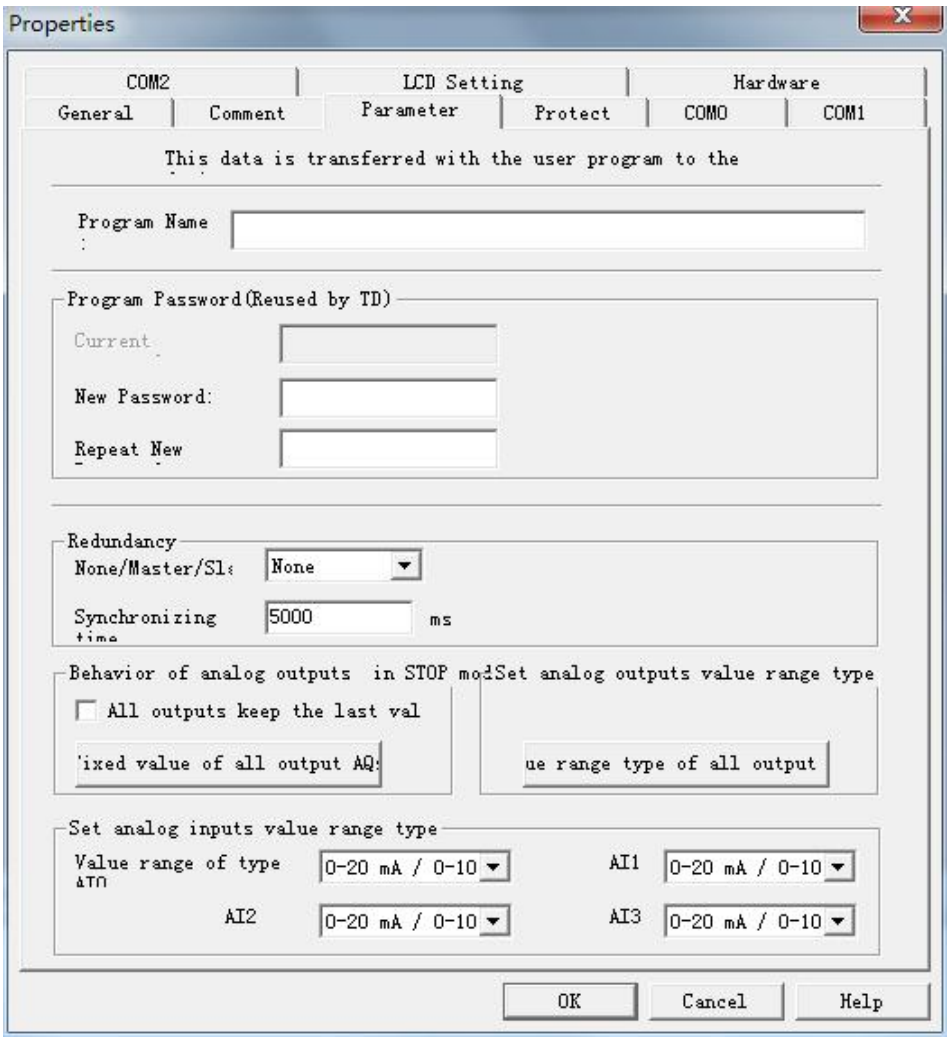
Item	Description
1	Menu bar
2	Standard toolbar
3	Programming interface
4	Information on window
5	Status bar
6	Constants and connectors. Basic functions. Special functions

3.2 Properties-General



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

3.3 Properties-Parameter



Program Name

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

Program Password

A program password with up to 8 alphabetical characters can be assigned to protect the circuit program on the controller. Enter 2 identical passwords in the 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 Editor 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 the controller, or to load the circuit program from controller to Editor.

Redundancy

The 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.

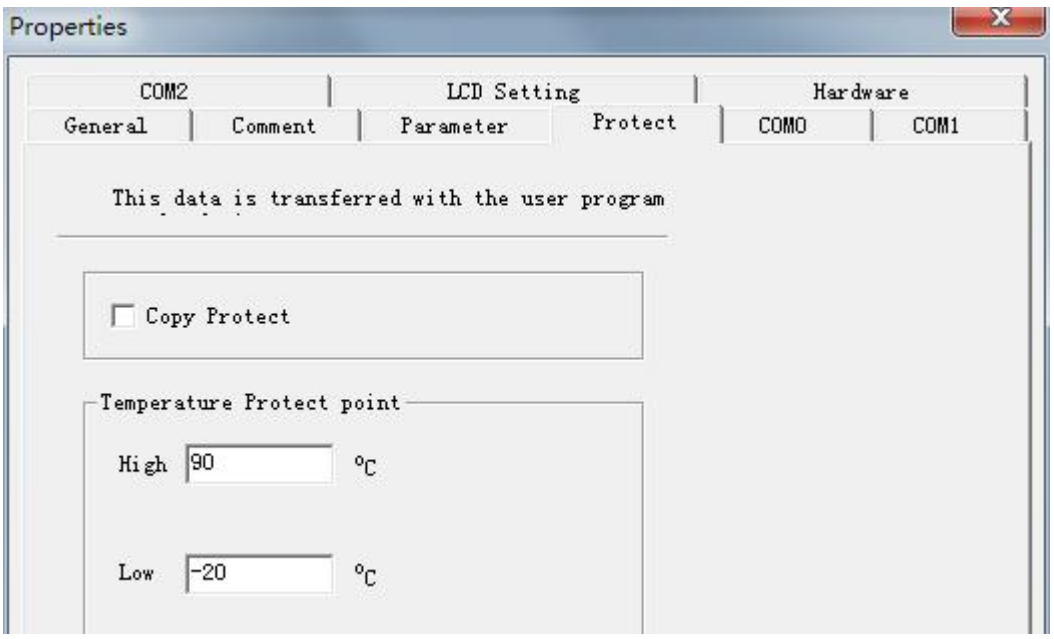
There are 3 types for you to choose.

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 over a period of time which is defined in the Synchronizing time text box in milliseconds.

3.4 Properties-Protect



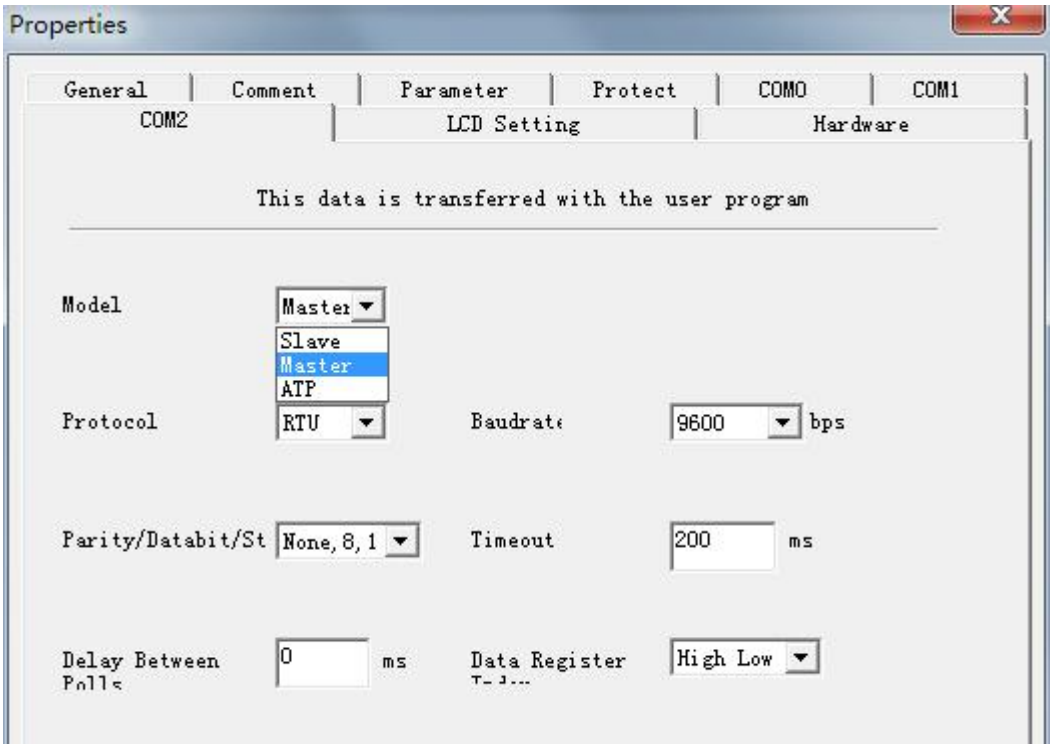
Copy Protect

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.

3.5 Properties-COM



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)

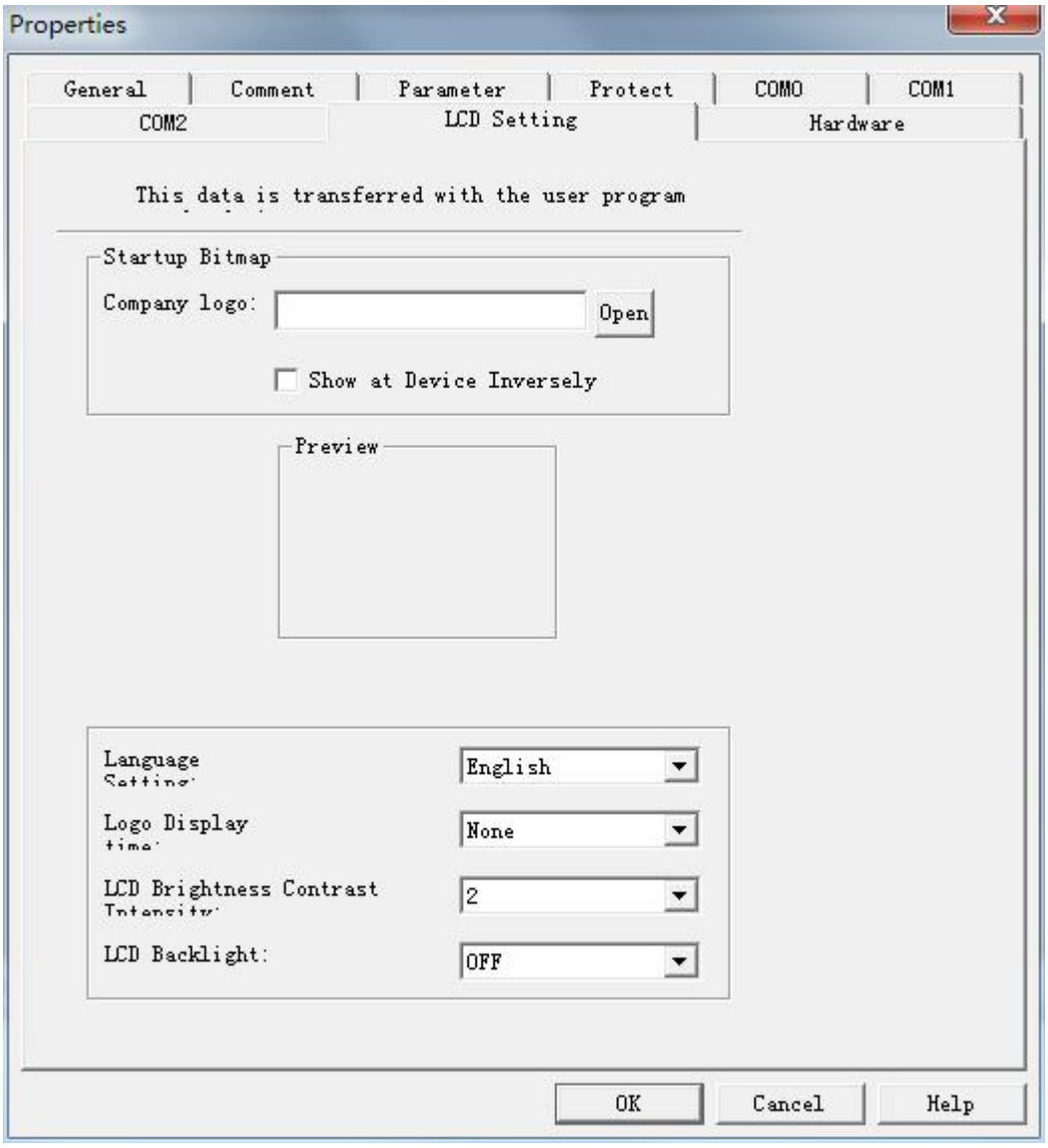
Parity/Data bit/ Stop bit: None, 8, 1/None, 8, 2/Odd, 8, 1/Odd, 8, 2/Even, 8, 1/Even , 8, 2

Timeout: In millisecond

Delay between polls: In millisecond

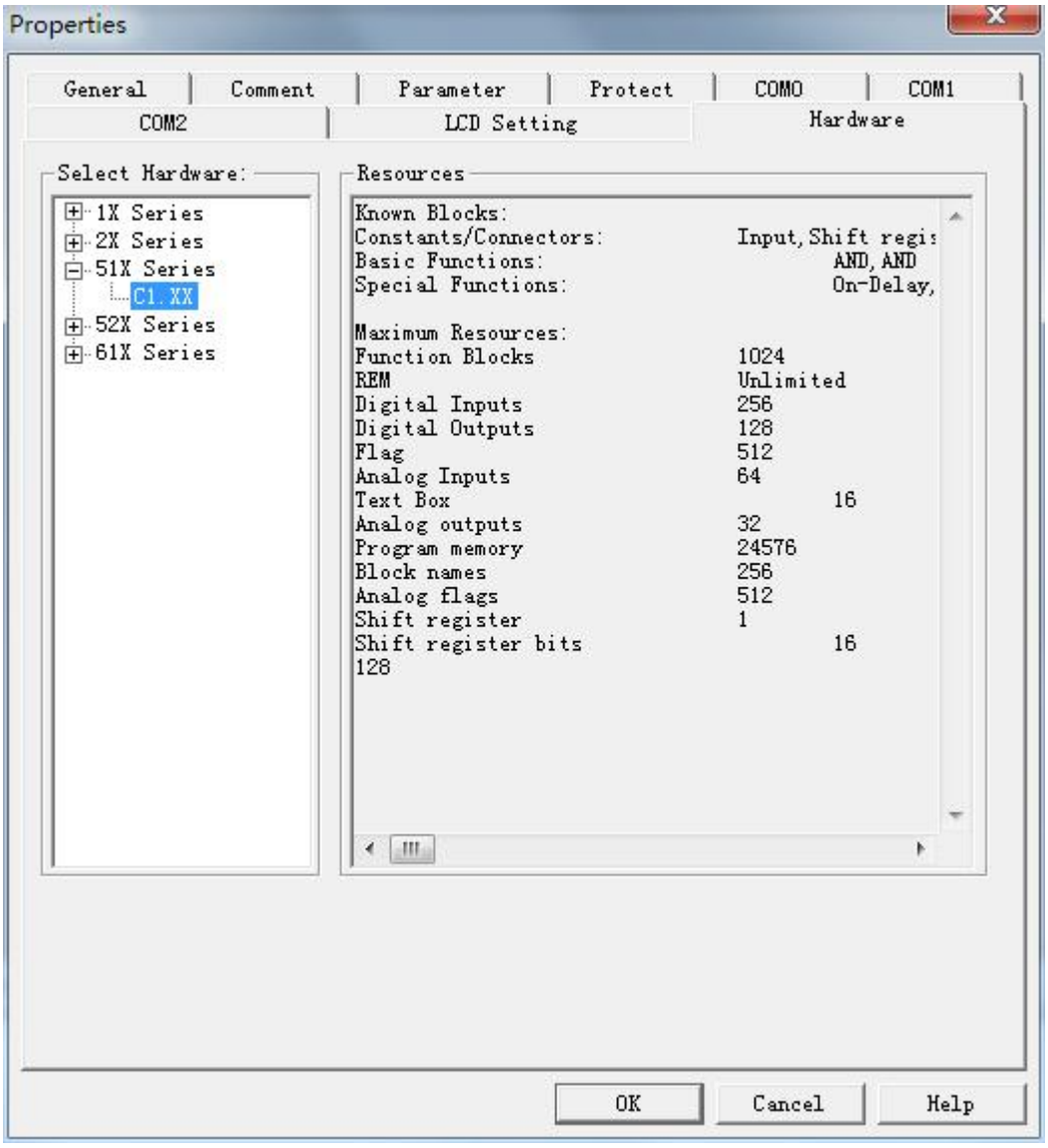
Data register index: High Low, Low High

3.6 Properties-LCD Setting



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

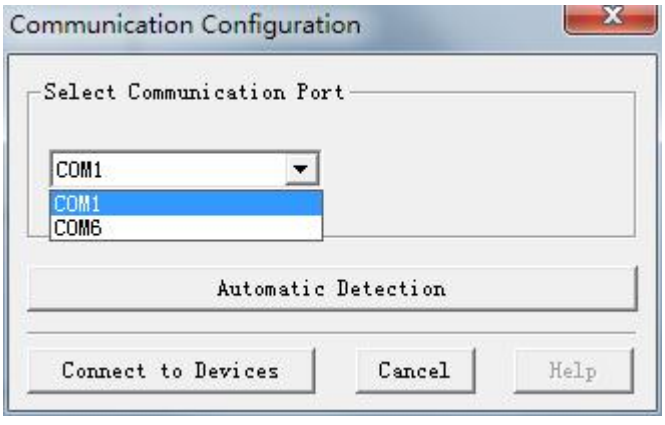
3.7 Properties-Hardware



The device selection dialogue shows you which blocks and memory resources are available to you. **Please choose correct Controller type in this dialogue.**

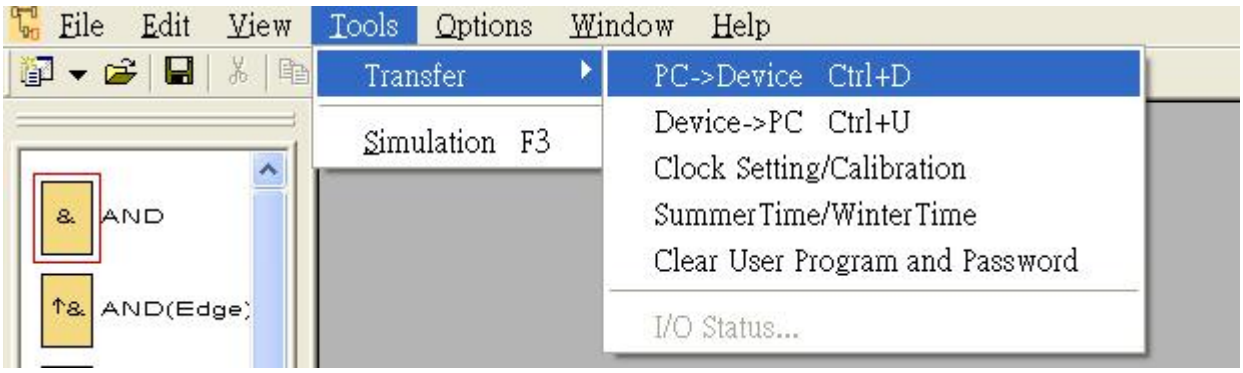
3.8 Communication Configuration

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 Editor automatically detect the COM port.



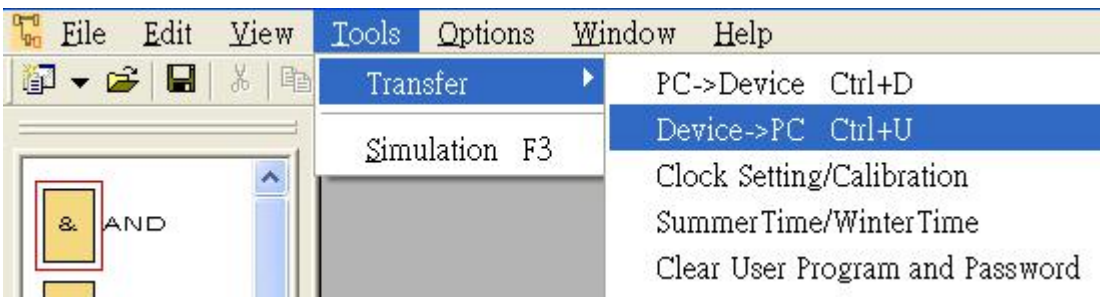
3.9 PC -> Device

When complete the program, operate **Tools -> Transfer -> PC -> Device** to download program into the controller. Or press Ctrl+D



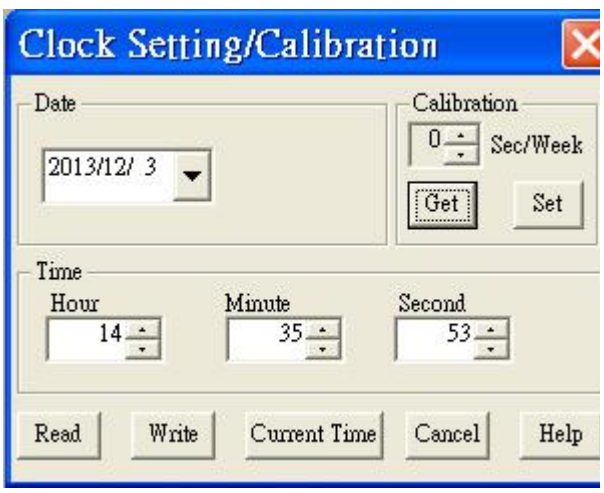
3.10 Device->PC

If you would like upload controller program to controller, operate **Tools -> Transfer -> Device->PC**. Or press Ctrl+U



3.11 RTC

This command can be used to read and set the date and time of connected controller, operate **Tools -> Transfer -> Clock Setting/Calibration**

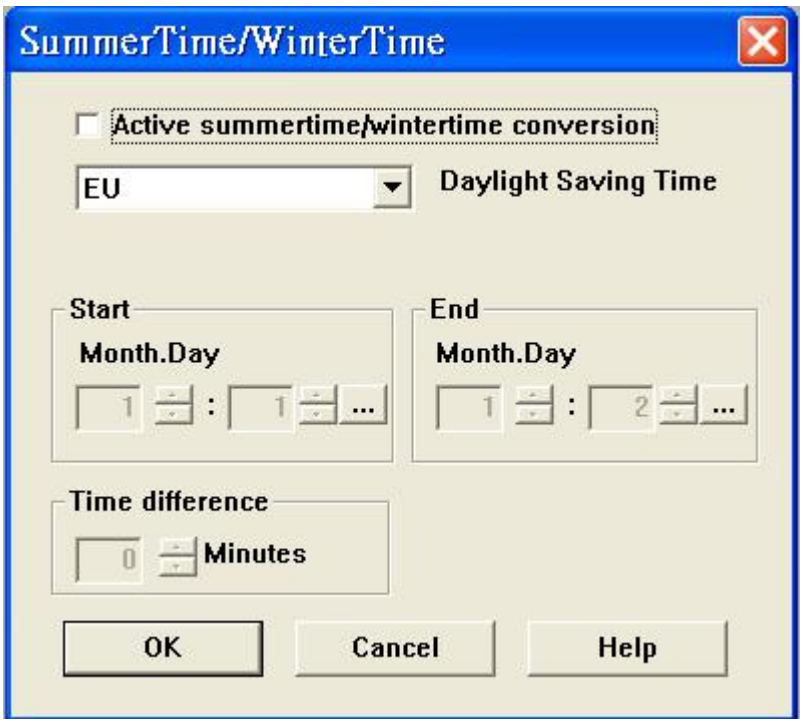


Calibration (Sec/week)	**Get** : Read controller calibration value
	Set : Save calibration value into the controller
Clock Setting	**Read** : Read controller RTC date and time
	Write : Save RTC date and time into controller
	Current Time : Read PC's current time and date

3.12 Summer Time and Winter Time

This menu command lets you set an automatic conversion of the summer and winter time for the

controller’s clock.



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 switch over dates and times

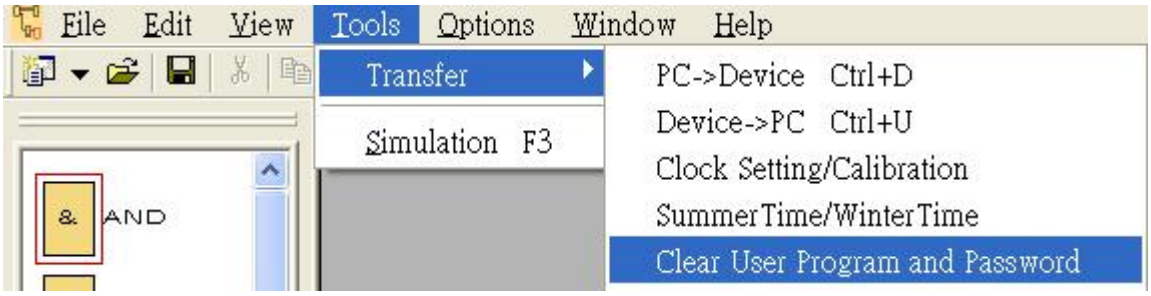
For the "Freely adjustable" selection, you specify the month and the day of the switch over. The start time of summer time is 02:00 + the entered time difference; the end time is 03:00 –the entered time difference.

Note: The United States of America redefined the daylight saving time (summer time) / standard time (winter time) switch over dates in 2007. Controller, however, uses the switch over dates as they were prior to 2007. To use the new U.S. Switch over 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.

3.13 Clear User Program and Password

In 3.3 **Properties-Parameter** mention about password protection. If you would like to clear the program

and password can use this function. **Tools -> Transfer -> Clear User Program and Password**



3.14 Simulation

Click on the **Tools -> Simulation**, or press F3or click 

Simulation Toolbar

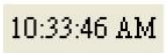
The simulation toolbar, which is shown as follows, is active when the program is in simulation mode. Use this tool to perform the simulation

Simulation Control Icons

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

Time Control

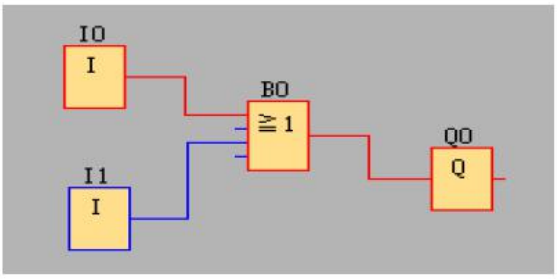
For a time-sensitive circuit program, you can use the time control to observe the processes of the circuit program. This is a simple but effective way to predict the result of the program operation.

	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.
	Current time
	Modify the current time

Status Display

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

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



If you need more help, please click on the software help documentation