



QuickII SOFTWARE



QuickII: SOFTWARE FOR FAB Controller

Quick II is a programming software for a FAB controller (FAB), it is required to carry out programming and simulation on a computer. It can implement the preparation of a control program (function diagram) for FAB. It can also simulate the operation of the edited program and display the operation in a clear manner. The latter feature enables the accuracy of the edited program to be confirmed. QuickII can execute both short-distance and remote communication of FAB, and write an edited program into the EEPROM of the FAB.





Chapter I Brief Introduction to Quick II

In order to obtain a quick and initial understanding of Quick II we will, from this chapter forward, make a comprehensive introduction to Quick II with the help of visual pictures.

1.1 Operating interface

The operating interface of Quick II is friendly and all of its operations can be completed by clicking the mouse. By clicking **Start>Programs>Quick II** in the Windows taskbar, you can enter the main interface of Quick II, as shown in Fig. 1.2

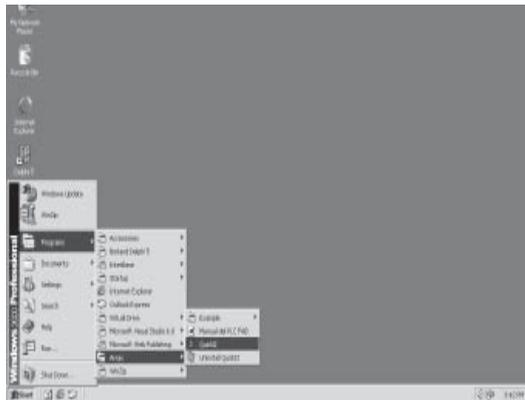


Fig. 1.1 Set up Quick II

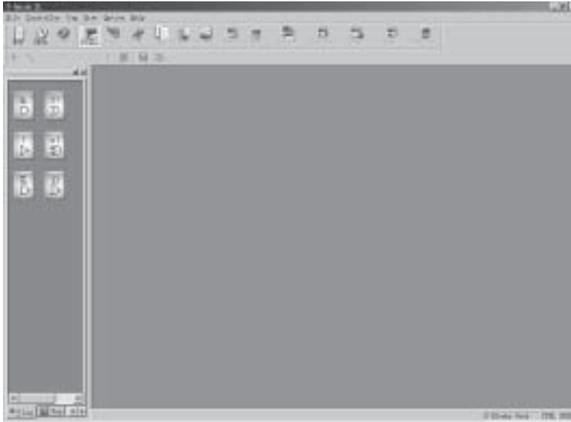


Fig. 1 . 2 Main Interface of Quick II

For Quick II, the operating methods of pull-down Instruction Tools and Quick icons are adopted. All function blocks are directly distributed in the window. Using a mouse with Windows operation, you can perform; creating and editing, simulation running and monitoring of a FAB program quickly.

1 . 2 Two types of editing windows

Click **NEW**, then set the controller type and simulation type depending on requirements. Select a file name for storing in the computer. Two cascaded editing windows, the Logical Diagram Editing window and Field Simulation Graph Editing window, will appear in the window. You may select either one for editing purposes.

1 . 2 . 1 FAB Logical Diagram Editing window

FAB Logical Diagram Editing window is as shown in Fig. 1.3. In this editing window, you can click the desired block in the block library on the left to draw the Logical Function Diagram and set the block property. After the function diagram is completed, simulation can be run in this window and the program can be downloaded to FAB.

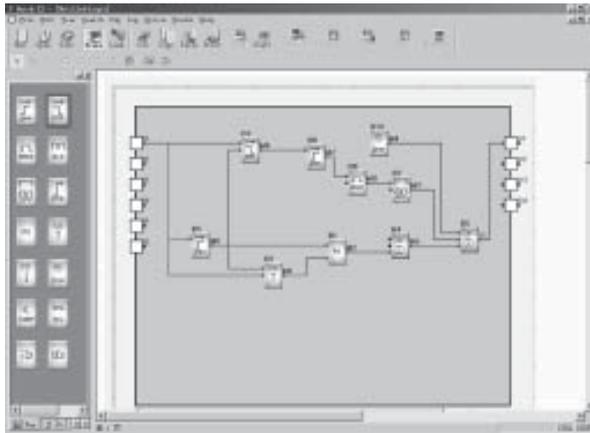


Fig. 1.3 FAB Logical Diagram Editing window

1.2.2 Simulation window

Quick II has two types of simulation window, the Standard Simulation window and the Simple Simulation window. The Standard Simulation (Graph editing) window is as shown in Fig.1.4. In this editing window, you can design the Field Simulation Graph with Draw, using the built in drawing tools, on the top of the editing window, based on the field device. The said Field Simulation Graph editing window is used to conform with the Function Diagram. When the Function Diagram and Field Simulation Graph are completed, you may activate simulation to execute real-time simulation of the field devices on the controlled site. The Simple simulation window is as shown in Fig.1.5, through which you can easily view the result of FAB operation.

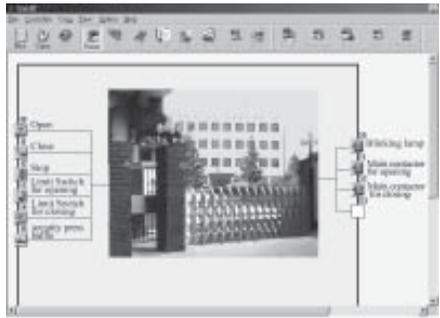


Fig. 1 . 4 Standard Simulation window

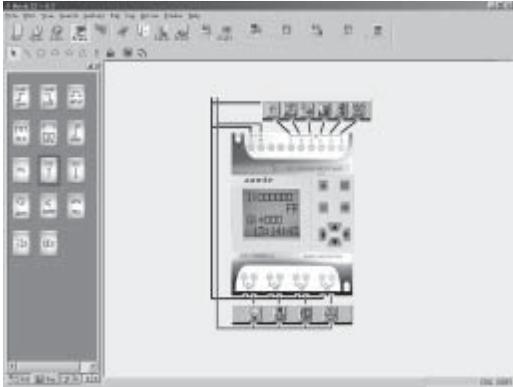


Fig. 1 . 5 Simple Simulation window

1 . 3 Main functions

1 . 3 . 1 Editing function

The main function of Quick II is programming for FAB. By using the Logical Function Editing window of Quick II, you can create and edit your desired FAB programs using various function blocks of FAB and can also perform file operations such as save, print, etc.



1.3.2 Simulation operation function

After the program is edited, you can view the program operation result on the computer and conveniently check if the said program meets your control requirements. Here Quick II provides you with a completely new off-line test function, through which you can debug the program without installing the FAB on site. With this function, many inconvenience of the site test can be avoided.

1.3.3 Real-time monitoring

Quick II has a Real-Time Monitoring window. You can view the process of the control system and the running conditions of all FABs and control remote FABs, by connecting the FAB communication port to the computer you can view the process of the control system.

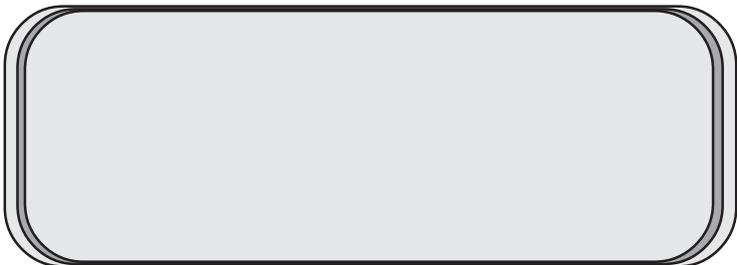
1.3.4 Communication with FAB

1.3.4.1 Local FAB communication.

Through use of an RS-232 communication port, communication between the FAB and a computer can be realized, allowing for easily downloading programs from the computer to FAB and uploading programs from FAB to the computer. Monitoring of operation conditions and controlling of FAB can also be carried out.

1.3.4.2 Remote FAB communication

In certain applications several sets of equipments may be located at disparate distances and far from each other. When frequent or urgent modification are needed, caused by unexpected events, during FAB operation, the problems can be easily solved by just connecting FAB to the telephone line through a modem.





Chapter II Installation and uninstallation

2.1 Installation of Quick II

The installation of Quick II is very simple. A prompt dialogue box will appear automatically and you will complete the installation smoothly on the computer under its' guidance. The main steps are as follows:

1. Insert the CD-ROM with Quick II into the CD Drive and Installation Guidance will appear automatically. Select **Install>Quick II**. The dialogue box, as shown in figure 2.1, will appear. Then wait for installation instructions.

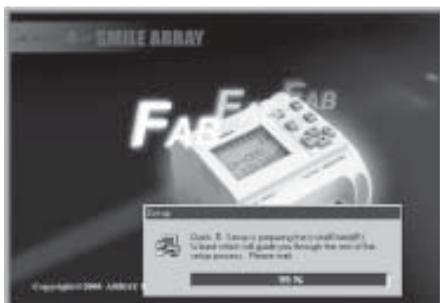


Fig 2.1 Installation-Guidance window

2. Enter the Installation window of Quick II, as shown in the figure 2.2.



Fig 2.2 Installation-Introduction window



If you click **NEXT** to enter the next step of installation, the User Name and Computer Name will be displayed, as shown in Fig. 2.3, and you can modify them. If you click **CANCEL**, the installation program will be terminated.

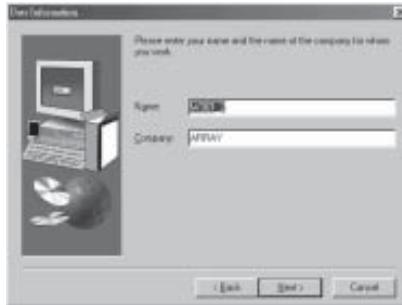


Fig 2 . 3 User Name Setting Window

3. Enter the Set Installation Path Setting dialogue Box, as shown in Fig.2.4. By clicking **BROWSE**, you can modify the current installation path (the original installation path is C:\ Program Files\Array\Quick II) to your desired installation path:

If you click **NEXT**, it will enter the next step of installation and enter the Setup Type window for selecting installation type, as shown in Fig.2.5. Installation Type selecting window

If you click **BACK**, the previous installation window will appear, as shown in Fig.2.3.

If you click **CANCEL**, the installation program will be terminated.



Fig 2 . 4 Installation Path Selection window

4. Enter Setup Type window, as shown in Fig.2.5 and select your desired installation type.

If the **Typical** option is selected, the Quick II normal program will be installed.

If the **Compact** option is selected, the Quick II basic program will be installed.

If the **Custom** option is selected, the user will be allowed to select the Quick II program components.



Fig 2 . 5 Installation Type Selection window

*Note: Selection of **Typical** option is recommended.*



5. If the **Custom** option is selected, it will enter Select Components window, as shown in Fig.2.6. Select and click the **element** you want to install, **I** will then appear in the corresponding box and the said element is selected and after being clicked again, it is cancelled (default of Quick II is to install all components when setup is completed).

Click **NEXT** to enter the next step of installation and the Setup Program Set Name dialogue box will appear, as shown in Fig.2.7.

Click **BACK**, the previous installation dialogue box will be displayed, as shown in Fig.2.5.

Click **CANCEL**, the installation program will be terminated.

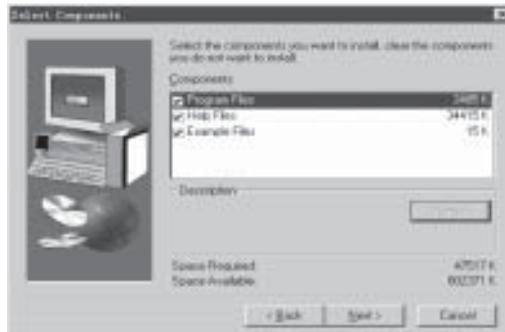


Fig 2 . 6 Installation Components Selection window

6. Set your desired program set name on the Set Up Program Set Name window as shown in Fig.2.7 (the original name is ARRAY). When setup is completed:

Click **NEXT**, installation of the program components will start, as shown in Fig.2.8.

Click **BACK**, the previous Selection window will be displayed to, as shown in Fig.2.6.

Click **CANCEL** and the installation program will be terminated.

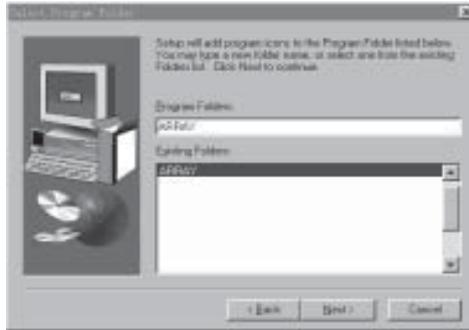


Fig 2 . 7 Program Folder Selection window

7. The installation program proceeds to the automated installation procedure. Click **CANCEL** if you want to terminate now.



Fig 2 . 8 Quick II Installation window

8. When the automated installation process is completed, the Setup Finished Window appears, as shown in Fig.2.9. Click **FINISH** to complete the installation process.



Fig 2 . 9 Setup Finished window



2 . 2 Uninstallation

There are two ways for the uninstallation of Quick II:

1. Remove from the program:

Under the Windows taskbar, click **>start >program>Array** and select the said program folder.

Click **UNINSTALL** under the said program folder with the left mouse button, as shown in Fig. 2.10;

When a Confirm Uninstall dialogue box appears, click **Yes**.

When a Remove Window, as shown in Fig. 2.11, appears, removal can be done.

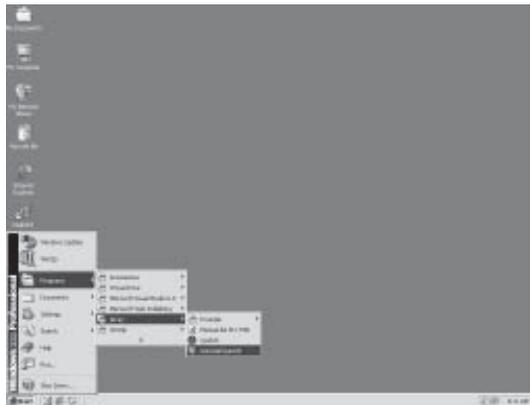


Fig 2 . 10 Uninstall window

This uninstallation method is more convenient for the users.

2. Remove from the console:

2.1 Under the Windows window, double click **My Computer** then open the **Control panel**, select **Add/Remove Program** on the Console Component and the Add/Remove Program dialogue box appears.



2.4 After selecting the ARRAY Quick II program folder in the said dialogue box, click **Add/Remove Program** and a dialogue box appears asking if you want to remove the program. Click **Yes** and the Remove window, as shown in Fig.2.10, appears.

2.5 Click **OK** to complete the removal and then close the Add/Remove Program window.



Fig 2 . 1 1 Remove window of Quick II





Chapter III Operation Instructions and Block Library

3.1 Function Instructions

When Quick II is used to edit FAB programs, some basic operations including files management, opening and closing of the Tool Bar and Status Bar access to Help information are completed by using pull-down menu under File, Controller, Communication, View, Option and Help. The Instruction Function list of.

Quick II is characterized by its flexibility and variation according to the main selection. It can be changed according to the current operation for convenience of your specific operations.

3.1.1 File

The instruction is mainly used for file management, including creation, opening, saving and printing of files.

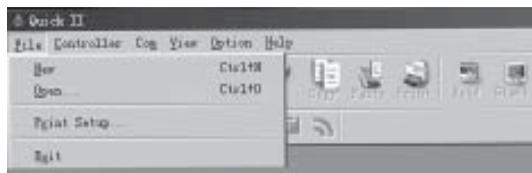


Fig 3.1 File Instructions Menu



Instruction Name	Function
New	Open a new file
Open	Open an old file
Close	Close the current active Window
Save	Save a file
Save As	Save current file to a new path and a new file
Print	Print a file
Print Preview	Preview the file printing result
Setup Print	Setup printing format
Exit	Exit Quick II

3.1.2 Controller

The instruction is mainly used for reading programs from FAB. Start QuickII after its operating interface appears, click **Controller Function List**. The following is displayed:

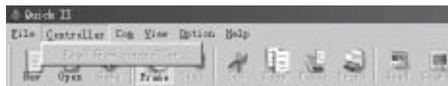


Fig 3.2 Controller Instruction Menu

3.1.3 Communication

The instruction is mainly used for on-line setup of FAB with the upper computer

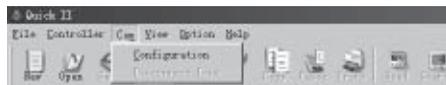


Fig 3.3 Communication Instruction Menu



1. Configure communication: selection of communication mode and setup of communication port.
2. Stop communication: when it is not necessary for FAB to communicate with the upper computer, click this option to stop communication.

3.1.4 Display

This instruction is mainly used for selection of the opening/closing of the Field Simulation Graph window and Logical Diagram window as well as selection of various Tool Bars.

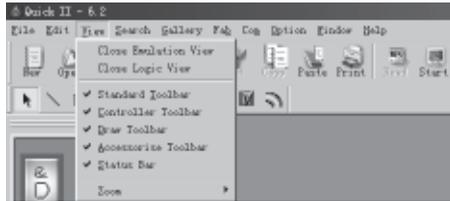


Fig 3.4 Display Instruction Menu

Instruction name	Function
Close Simulation View	Close Field Simulation View window
Open Simulation View	Open Field Simulation View window
Close Logical View	Close Logical View window
Open Logical View	Open Logical View window
Standard Tool Bar	Select Standard Tool Bar
Controller Tool Bar	Select Controller Tool Bar
Draw Tool Bar	Select Simulation view Tool Bar
Accessories Tool Bar	Select Block Library Tool Bar
Status Bar	Select Status Bar
Size zoom:	Zoom in or zoom out the window



3.1.5 Options:

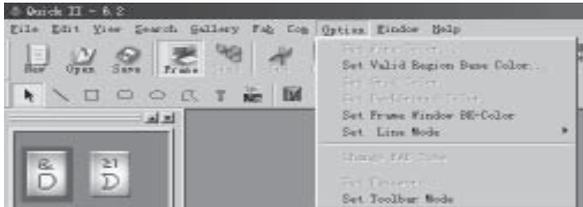


Fig 3.5 Options Instruction Menu

Instruction	Function
Set Wire Colour	Setup block on-line colour
Set Valid Regin Base Colour	Setup Function Diagram significant draw zone colour
Set Grid Colour	Setup Function Diagram grid point colour
Setup Frame Windows BK-colour	Setup Window background colour
Setup Line Mode	Setup block on-line types
Change FAB Time	Modify FAB time
Change FAB Address	Setup FAB address
Setup Password	Setup programming
Get FAB Address	Get FAB Address
Set Toolbar Mode	Set Toolbar Mode
Modify Output Status	Modify Output Status

3.1.6 Help:

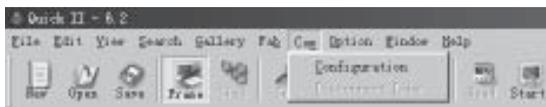


Fig 3.6 Access Help for Instruction Menu



- Contents: Contents and details of help.
- Search by subjects: Index of keywords.
- Use help: Instructions to help functions.
- About Quick II: Brief introduction to FAB.

3.1.7 Edit

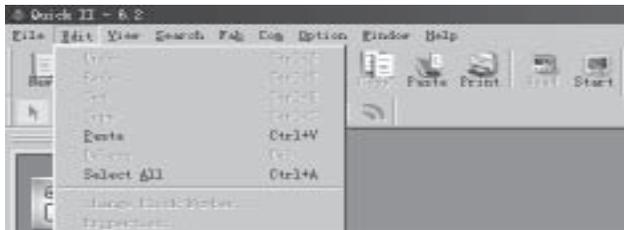


Fig 3.7 Edit Instruction Menu

Undo: Undo the previous step operation and support consecutive operations.

Redo: Recover the contents undone by the previous step of operation and support consecutive operations.

Cut: Cut the contents in the area highlighted with the cursor.

Copy: Copy the contents highlighted with the cursor.

Paste: Paste the contents cut or copied.

Delete: Delete various graphic components.

Select all: Select all the contents in the current window editing box and setup the label.



3.1.8 Search

This instruction is mainly used for finding blocks in the function diagram that meet certain conditions.



Fig 3.8 Search Instruction Menu

Search by Label: find according to the comments for the blocks.

Search by Signal No: find according to the block number.

3.1.9 Image Library

This function is mainly used for providing various types of icons for you to plot the Field Simulation Graph.

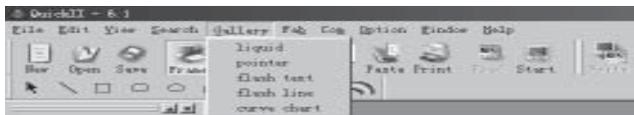


Fig 3.9 Image Library Instruction Menu

Liquid: storage Tank Icon.

Pointer: indicator Icon.

Flash Text: flashing Text Icon.

Flash line: streamline Icon.

Curve: curve Icon.



3.1.10 FAB operation



Fig 3.10 Operation Instruction Menu

Instruction name	Function
PC FAB	write the program edited on the computer to FAB
FAB PC	read the program existing in FAB to the computer
Diagnosis of FAB	detect the status of FAB
Simulation	simulate FAB run
Drive FAB	start/stop FAB
Read FAB Parameters	upload FAB parameters
Write FAB Parameters	download FAB parameters

3.1.11 Windows

This instruction is mainly used for the arranging of multiple opening windows. When more than two windows are opened, they can be arranged with this instruction;



Fig 3.11 Windows Instruction Menu



Cascade: Cascade sub-lists.

Tile: Display sub-lists in parallel.

Arrange: Arrange the sub-lists in the form of icons.

3.2 Tool Bar

After the Tool Bar is activated, the icon buttons of the Tool Bar will appear in the Edit window. You can use these icons directly without trying to locate them in the Function List. Tool Bar will let you complete your editing and drawing work faster and better.

3.2.1 Standard Tool Bar

Standard Tool Bar			
	New		Copy
	Open		Paste
	Save		Print
	Read Program from FAB		Block Link
	Block Library Display		Start Simulation
	Cut	X	X



3.2.2 Control Tool Bar

Control Tool Bar			
	Write Program to FAB		Run FAB
	Stop running FAB		Monitor FAB running status
	Diagnose FAB System Information.		

3.2.3 Draw Tool Bar for Field Simulation Graph

By means of this Draw Bar, you can plot your system control site flow chart according to your actual control requirements and then you can view the operation conditions of all of the FABs during the said control process via communication with the FABs.

Standard Tool Bar			
	Cancel Selection		Draw Arbitrary Graph
	Draw Straight Line		Input Text
	Draw Square		Insert Picture
	Draw Round Corner Square		Insert Animation
	Draw Circle		Draw Bend



3.3 Block Library



Fig 3 . 12 Block Library

Separating various kinds of blocks: LOG represents logical blocks, which will be displayed when the button is clicked with the mouse. FUN represents the special function blocks, which will be displayed when the button is clicked. IN represents the input blocks, which will be displayed when the button is clicked. OUT represents the output blocks, which will be displayed when the button is clicked. Please refer to Chapter IV for details of different blocks.

3 . 3 . 1 Block Library Operation

1. Click **LOG**, **FUN**, **IN**, **OUT** used for selecting block types under the Block Library , and corresponding blocks will be displayed in the Block Library Frame.
2. Move the cursor to the desired **block** and select it by clicking on it.
3. Click the corresponding **editing function block** in the Edit window and the selected block will be placed in the Logical Function Diagram.



3.3.2 Block classification

The blocks are classified into four types: Logical Block, Function Block, Input Block and Output Block. The Input and Output blocks are only used to graphically represent the input and output ends of FAB, without any actual functions. The key parts are the Logical Block and Function Block, the combination of which realizes several types of FAB control.

3.3.3 Setup of block property

It is necessary to setup the properties of the blocks in the plotting of logical diagrams. The block properties are divided into General property and Special property.

3.3.3.1 General Property



Fig 3.13 Setup of General property

The settings of General property mainly include:

1. Comment: for filling of a comment string, no more than 20 characters.
2. Middle Relay: for setting of the Intermediate Relay connected with the current block. If the Intermediate Relay is set up, the other blocks can no longer use this Intermediate Relay, which means that usage of a middle Relay is unique. The parameter values of the middle Relay range from 0 ~ 126, totally amounting to 127.



3. Special Input: X represents empty, HI represents high potential and LO represents low potential. When the input is X, this terminal allows connection with a lead from another block. When the input is HI, no lead from any other block can be connected to this terminal and its status is always at high level. When the input is LO, this terminal allows connection with no lead from any other block and its status is always at low level.

3.3.3.2 Setup of Special Properties

Among the blocks of FAB, there are some special blocks that have special properties, including RS Relay Block, D/W Clock Switch, TEL Block, Broadcasting Play Block and Voice Recording Block. Setup of the properties of different special blocks is described as follows respectively.

1. Blocks with timers

All of the blocks with timers, such as MPLR, DPR, DDR, CPG, RPR and so on, have timing function. Their Block properties Setup dialogue box is as shown in Fig.3.14:



Fig 3.14 Setting properties for blocks with Timers

Time type: Three units, namely second, minute and hour, are available for selection;

Input time: Input the value for timing, and the time can be accurate to 0.01 second. The properties of General Blocks shall be referred to for other settings.



2. Blocks with counters

Blocks with counters include UCN and DCN, whose Properties Setup dialogue box is as shown in Fig. 3.15:



Fig. 3.15 Setting Properties for Blocks with Counters

Number of counts: setup of the number of the counters, in the range of 1-999,999. The properties of General Blocks shall be referred to for other settings.

3. Properties of RS relay

The dialogue box of RS relay properties setting is as shown in fig. 3.16.



Fig. 3.16 Setting Properties for RS Relay

Special input: Please refer to general properties for X, HI and LO. P0 ~ P9 indicate the tone dial impulse input of 0 ~ 9 digit buttons on the telephone set. Please refer to general properties for other settings.



4. Property of TEL Block

The dialogue box is as shown in Fig. 3.17:

Phone code: Telephone number used for dial-up is keyed in here. The *,# functions of the telephone are not supported. The length of the telephone number shall not be greater than 25 digits. Please refer to general properties for other settings.



Fig 3 . 17 Setting TEL Block Property

5. Properties of CW Clock Switch Block

The Setup dialogue box is as shown in Fig.3.18.

Clock setup: In this setting, the status of output can be regularly changed. Two options, Date style and Week style, are provided to meet the particular requirements of users.



Fig 3 . 18 Setting CW Clock Switch Block Properties



If **Week Style** is selected, and **Set Time** is clicked, the frame of setting time will be on and you can set up to 127 intervals for the time switch. Please note that you should set the time according to a time sequence. You can set a time point for CW block in QuickII very easily. Please see the following figure 3.

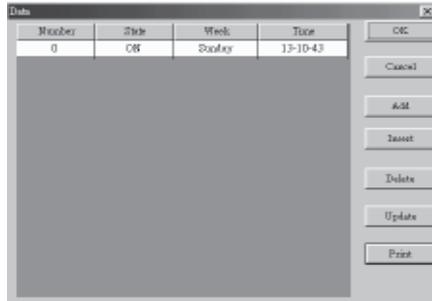


Fig. 3 . 19 Setting Clock Mode

In Fig. 3.19, there are some items such as Number, Start Week Time.

Time setting operations

Add: When you need to add a time, click **ADD** and a dialogue box will appear, as shown in Fig.3.20. Select the switch state ON/OFF and set the switch time. Then click **OK** and a time record is added.

Note: They must be set in a time sequence.

Insert: When you need to insert a time in the existing time setting combination, please click **INSERT** and a dialogue box will appear, as shown in Fig.3.20. Select the switch status **ON/OFF** and set the switch time. Then click **OK** and a time record is inserted.



Fig. 3 . 20 Setting Time

Delete: When you want to delete a time, put the cursor on the said time record and click **CANCEL**. When the Confirm Cancel frame appears, click **OK** to cancel the said time record.

Modify: When you want to modify a time, put the cursor on the said time record and click **MODIFY**. As a time setting frame, similar to that shown in Fig.3.20 appears, reset the time, click **OK** and the said time record is modified.

Print: When you want to print your set time on paper then click **PRINT**.

If **DATE STYLE** is selected, click **SETUP DATE**. As the Setup Date frame appears, the date and time can be set, as shown in Fig. 3.21.

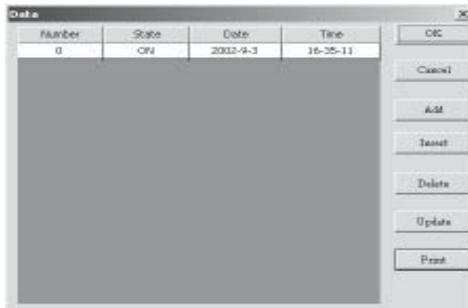


Fig. 3 . 21 Setting Block Property for CW Clock



You can key in a new time or make changes through the keyboard in this box. Number, State, Date and Time item are set in the Setup Time box shown in Fig. 3.21.

The time setting operations are as follows:

Add: When you need to add a time, please click **ADD** and a dialogue box will appear, as shown in Fig. 3.21. Select the switch state **ON/OFF** and set the date and time of switch. Then click **OK** and a time record is added.



Fig 3.22 Add A Time Record

It should be pointed out that Quick II provides you with the best date setting method. You will have a permanent calendar chart appear, as shown in Fig. 3.22, only by clicking once the **Page Down** arrow on the right of the Date box. You may select whatever date you want to set on this permanent calendar and click **OK** to complete setting of the date. Therefore FAB can realize real-time control without any limitation.

Insert: When you need to insert a time in the existing time setup combination please put the cursor on the said time, click **INSERT** and a dialogue box will appear, as shown in Fig. 3.21. Select the switch status **ON/OFF** and set the time and date of switch. Then click **OK** to finish the setup.

Delete: When you want to cancel a time, put the cursor on the said time record and click **CANCEL**. As the Confirm Cancel frame appears,



Click **OK** to delete the time record.

Modify: When you want to modify a time, put the cursor on the said time record and click **MODIFY**. As a time setting frame, similar to that shown in Fig. 3.22, appears, reset the state, date and time, then click **OK** and the said time record is modified.

Print: When you want to print your set time on paper, what you need to do is simply click **PRINT**.

Notes:

(1) *The time is arranged in an order from earlier to later and the time sequence shall be considered for adding or modifying any time record, for example: AM 9:00, AM 11:00, PM 3:00, PM 6:00, etc.*

(2) *In the case of multiple records, the said block will be divided into multiple blocks when it is written to FAB and you can view the number of blocks used by the current program in the State Bar of the Function Graph Edit Window.*

(3) *If the first time is set ON and the second time is set OFF, the two times share one common block, if two consecutive times are both set to ON or OFF, each of them should occupy a separate block.*

6. Properties of Voice broadcasting and Recording Blocks

The Setup Properties dialogue box of Voice Broadcasting Block and Voice Record Block is as shown in Fig. 3.21. Setting Output: Set the ports for voice broadcasting and recording. The port here is a memory space oriented at voice storage. There 1 ~ 98 such ports in total. In addition, there is a No. 99 port (for record block), whose function is to clear all of the voice contents in No. 0 ~ 98 ports, so please be careful when using it.



Fig. 3 . 23 Setup the Properties of Voice broadcasting
and Recording Blocks

7. Setup for Analog block.

The diagram of property of analog block AN is as fig 3.24.

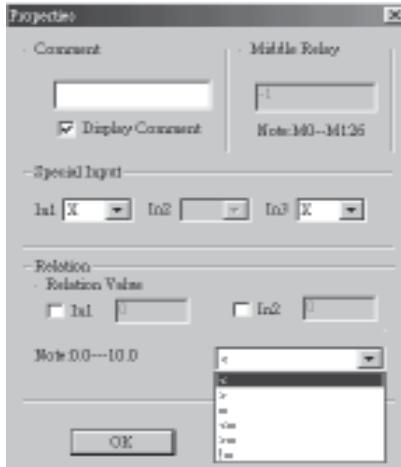


Fig 3 . 24 Setup of Property of Analog Block



The explanation of option listed in Fig 3.24 is as follows:

(1) comment: Users can add letters of explanation in this bar.

(2) Special input: HI, LO ,X, LM.

If X has been selected, this said port can be connected to Input port.

If LM has been selected, it means that this said port can be set to a fixed digital value. Please refer to (3) to know how to set the value.

(3) Relation Value

The range of LM is 0.0~10.0.

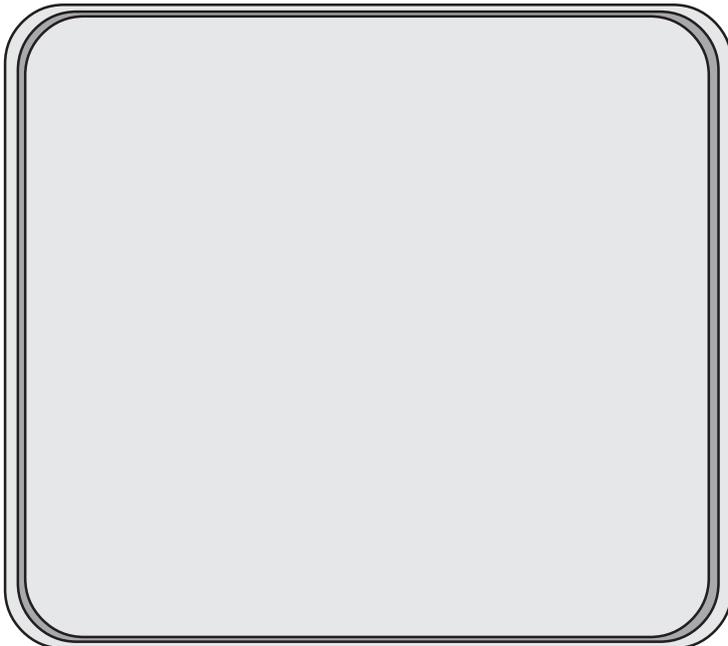
(4) Relation

It provides <,>=,>=<,<=,= 6 options. And this comparison block is for the comparison between input 1 and input 3.

For example.

When < has been selected,

if input 1<input 3, then Q=1. if input 1>input3, then Q=0.





Chapter IV Basic operations

This chapter introduces to you how to use Quick II to edit the Logical Function Diagram Program and draw the Field Environment Control Diagram, how to use it to simulate operation of the edited program and how to make the computer communicate with FAB so as to complete the writing of the program to FAB.

If you want to make a Function Diagram Program, you should first open a new empty file and put all the blocks required for satisfying the control requirements into the Edit Box. Then set the properties of different function blocks and link them up with lines according to their logical control relations, thus completing a Logical Function Diagram. Moreover, in order to help the user to find out if the edited function diagram can achieve the expected control effects, Quick II provides the user with a direct simulation function. You can run the simulation function either directly on the Function Diagram or on the Field Simulation Graph. In both cases, the detailed result of FAB running in accordance with the program can be observed, in the following, we will introduce QuickII with an example.

Example: using FAB to compose a multifunction switch for a staircase lighting system.

Control requirements:

1. Lighting is turned on upon pressing of the switch and automatically turned off after one minute.
2. Lighting flashes 5 seconds before automatically turning off.
3. Lighting is turned on upon twice pressing of the switch and maintained constantly on.
4. Lighting is turned off when the switch is pressed for 2 seconds and more.
5. Lighting is automatically turned on at 18:30 and off at 06:30 every day.



4.1 Open File

4.1.1 Open a new file

Operating method

1. To open a new file, click **NEW** option under the Function List file or the **icon** in the Tool Bar, as shown in Fig. 4.1.



Fig. 4.1. Open a new file

2. Now a dialogue box will appear, as shown in Fig. 4.2:



Fig. 4.2. Options box for controller type

In the above figure, controller type options are provided in the left box and you can select your desired **FAB** type by clicking on it.

c.6 input 4 output: FAB with 6 input and 4 output

d.12 input 8 output: FAB with 12 input and 8 output

In the above figure, Simulation type options are provided in the right box and you can select your desired **simulation type** and click on it.

- a. Standard type: DRAW tool or other picture transferring method (e.g. transferring of BMP, TIF or other pictures) can be to plot Field Simulation Graph in this Simulation window, as shown in Fig. 4.3.

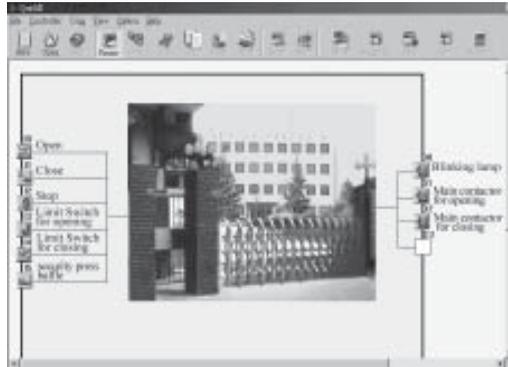


Fig. 4.3. Standard Simulation window

- b. Simple type: This Simulation window gives you a clear FAB outline diagram, with this you can view the status of each input and output after the simulation function is activated.

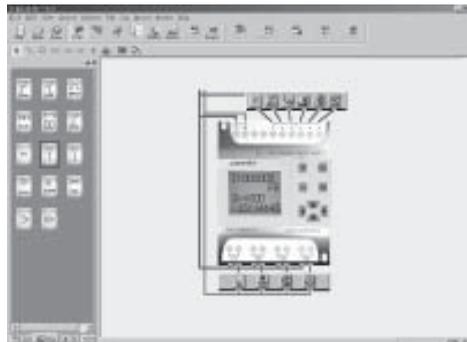


Fig 4.4 Simple Simulation window



3.(1). When the controller type and emulation type are selected, click **OK** to open a new group of Function Diagram Editing window and Control Field Simulation Graph Editing window, as shown in Fig.4.5.

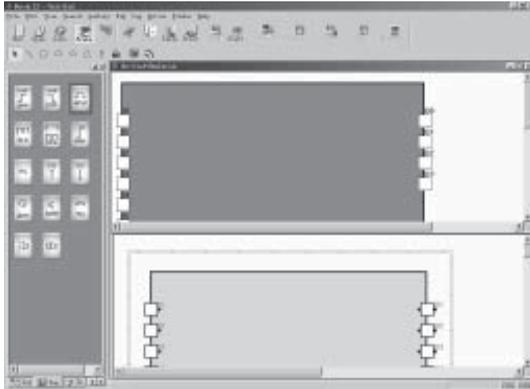


Fig. 4 . 5. Editing Window for new file

4 . 1 . 2 Open an existing file

Operating methods:

1. To open a file, click the **OPEN** option under the Function List or the icon on the Tool Bar with the left mouse button, as shown in Fig. 4.6.



Fig. 4 . 6 open an existing file

2. Click to open the **dialogue box**, as shown in Fig 4.7

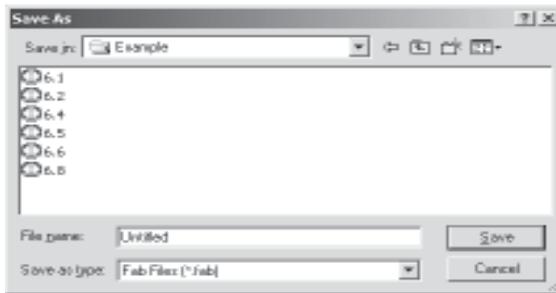


Fig. 4.7 Open an existing field dialogue box

3. Click the file to be opened and then click **OPEN** and the file opens. You can execute modification, print or other operations of the file.

4.2 Edit Function Diagram Program

4.2.1 Place blocks

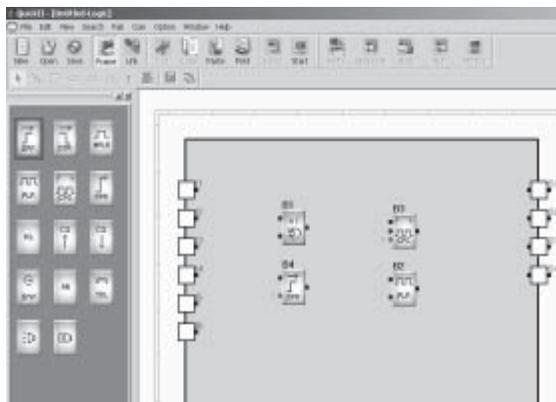


Fig. 4.8 Place blocks



The desired block can be directly selected from the Block Library on the left of the Edit window and dropped in the Edit in box using the mouse.

Operating procedure:

1. Select the corresponding block group. To select the Basic Block click **LOG**; to select the Special Block, click **FUN**.
2. Select your desired block by clicking on it.
3. Move the cursor to the proper position in the Function Diagram Editing box and then click on this position, thus the **block** is placed.
4. Place all required blocks by repeating the above mentioned steps.

Example: There are totally 10 blocks required for the staircase lighting system, as shown in Fig. 4.9. Place all these 10 blocks in the Edit box.

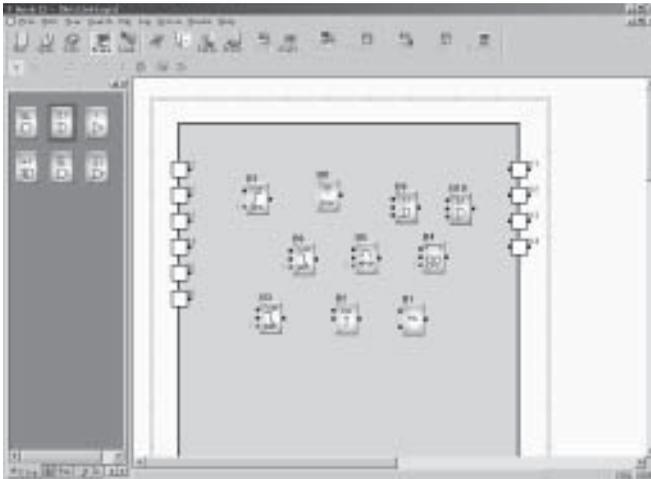


Fig 4 . 9. Put the blocks required in the Edit box

A brief description of the Block Library is given here:

The Block Library stores all of the Basic Function Blocks, Special Function Blocks and I/O Blocks required for editing the Function Diagram. Click **LOG** under the Block Library to display the Basic Function Blocks; click **FUN** to display Special Function Blocks; click **IN** to display Input Blocks and **OUT** to display Output Blocks, as shown in Fig. 4.10(A), 4.10(B), 4.10(C) and 4.10(D).



Fig. 4.10(A) Special Function Blocks



Fig. 4.10.(B) Basic Function



Fig. 4.10(C) Input Function Blocks



Fig. 4.10.(D) Output



The graphs in the In Library and Out Library are only for you to select the input and output devices corresponding to the actual equipment, as shown in Fig. 4.8, so that the simulation run will have a more straight forward feeling, without any actual logical operation function.

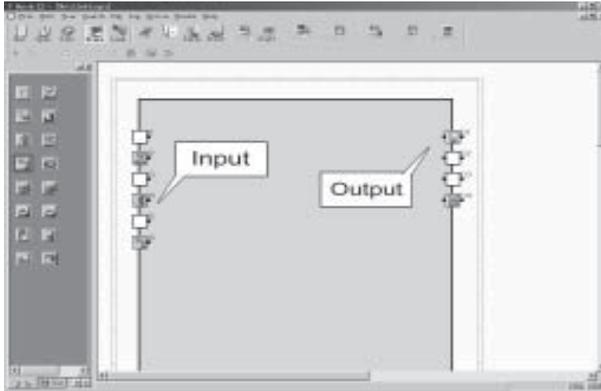


Fig 4 . 11. Usage of Input and Output Function Blocks

***Note:** The graphs in the In Library can only be placed in the Input Ports but not in the Output Ports; and vice versa, the graphs in the Out Library cannot place in the Input Ports.*

4 . 2 . 2 Edit block properties:

Different blocks have different properties, which may be set according to the control requirements.

Operating methods:

1. Select a **function block** in the Function Diagram Editing box and click on it. An Edit Function List appears, as shown in Fig. 4.12. Then select **Properties** in the function list. Or you may double click the said **function block** directly.

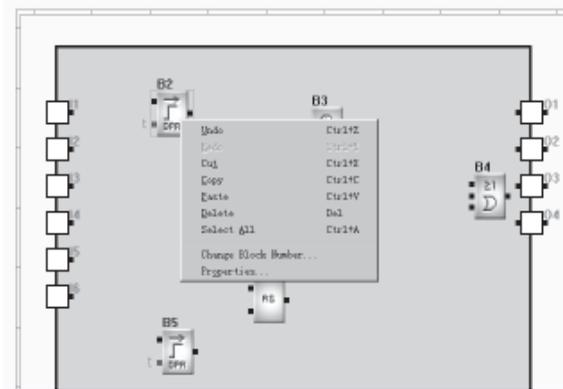


Fig. 4 . 12. Operation Menu of Blocks

2. A Setup Properties dialogue box appears, as shown in Fig. 4.13. Set the attributes according to your requirements.



Fig. 4 . 13 Dialogue box for setting block attributes

Comment: for filling in Comment String, no more than 20 characters.

Middle Relay: for setting the Middle Relay connected with the current block (the value range of the Middle Relay is 0 ~ 126).

Special Input: special input, in which X is empty, HI is high proportion and Lo is low proportion.



3. Click **OK** to complete the setup.
4. Set the properties of all blocks by repeating the above operating steps.

Note: Different blocks have different properties setup, especially the Special Function blocks. Please refer to Chapter III, Section 3.4 for details.

4.2.3 Link:

After the blocks required for plotting the whole Function Diagram are placed and their properties are setup, it is necessary to establish links according to the logical control relations so as to make a complete function diagram. This software provides two link modes, i.e. automatic link and manual link.

Operating method

1. Click the **Set line mode** option under the Option Function List with the left mouse button and then click the **Auto** or **Manual** in the sub-option, as shown in Fig. 4.14. The default mode is automatic link mode.

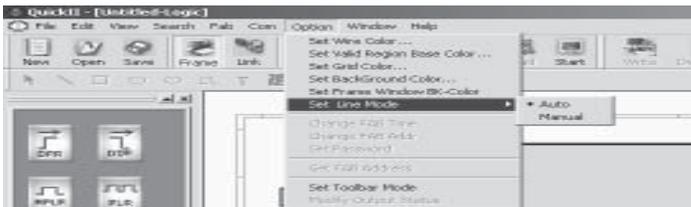


Fig. 4.14 Select the link mode

2. After the link mode is set up, click the icon  and the cursor changes to the shape of a pen, i.e. into the link status.
- 3 a. With automatic link selected in the first step, as the cursor is moved to the I/O ports of the blocks, its shape will change into a +, indicating that an **end point** can be determined through clicking the mouse. Now click the output **ports (or input ports)** of a block, requiring a link, then move to the input ports (or output ports) of the **next block** and click, thus the link is automatically established by the system.



When the shape of the mouse cursor changes into +, click on it. This method is suitable for the case in which the program is simple and the number of blocks is small.

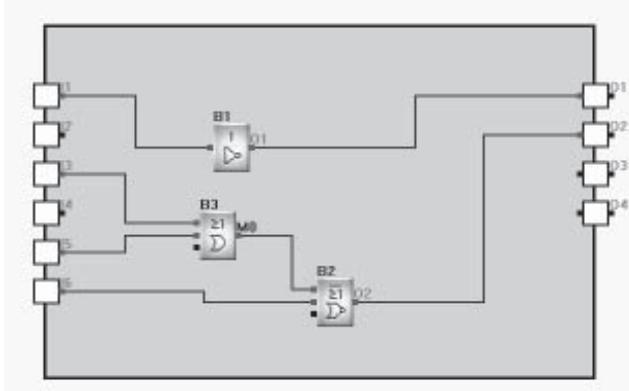


Fig 4 . 15 Link the line between blocks

3 b. Whether you select the manual link or automatic link in the first step, you can link the line as follows. Move the cursor to the start point of the connect line (it means that any input or output of a block), its shape will change into a + click and move the cursor to another **point**, and click again. At the ends of the lines, there will appear mark numbers, such as L5, L6 and so on, as shown in Fig 4.16.

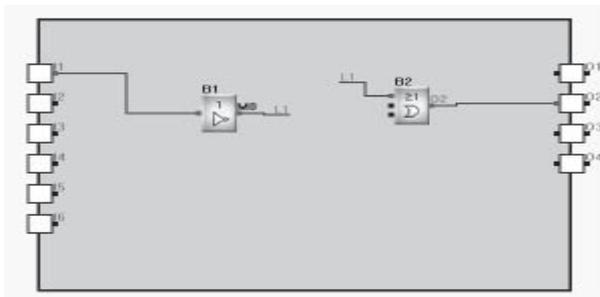


Fig 4 . 16



The operation is as follows:

Move the cursor to the **mark number** which needs change, click on it, Fig 4.17 will be shown. Select the change the line number, then Fig 4.18 will be shown. And you can modify the mark number in Fig 4.18.

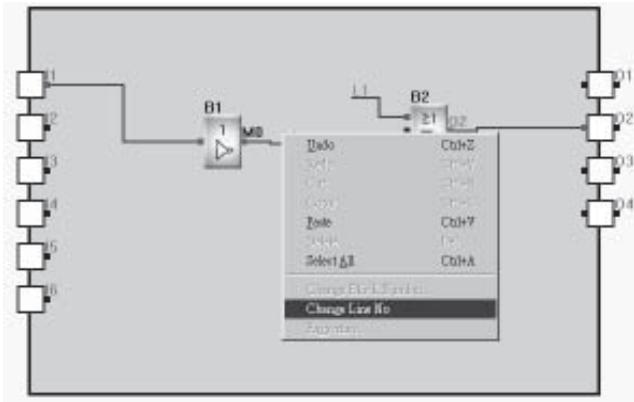


Fig 4 . 17 Change line No



Fig 4 . 18 Modify number

3 c. If the **manual link** is selected in the first step, click the **output port** of the former block, moving the mouse cursor according to your desired path, click at **turning**, thus forming a turning point, and go on moving the mouse cursor to the input port of the next block. And the link line can be set in the similar way.

4. Click again and the **link state** will be cancelled.



4.2.4 Move the link or block:

In case that there are a lot of links and blocks in your Function Diagram the diagram may be difficult to read due to so many crisscrossing lines, you can move some of the links or blocks to make the diagram tidy and easier to read.

Operating method:

1. Click the **link** or **block** to be moved and it will turn to a red colour.
2. Put the cursor on the **link** or **block** to be moved and drag it to the proper position.
3. Click again to complete the move.
4. Move all of the links and blocks that need to be moved with the same method to make the whole function diagram tidy and clear.

4.2.5 Delete block or link

When you want to delete unnecessary blocks or wrong links, the operation steps are as follows:

1. Select the link or block to be deleted.
2. Press **the Delete** key on the keyboard, or click the right mouse button and select the **Delete** option, thus the link or block is deleted.

4.2.6 Simulation operation

Quick II has an Simulation Run Function in addition to the editing of function diagram. When programming is completed, the Simulation Run Function may be activated for checking if the program meets your control requirements.

The operating method is as follows:

1. To activate simulation, Click the **Simulation** option under Instruction FAB Operation Menu and then click **Start**, as shown in Fig. 4.19, or directly click the **icon** in the Tool Bar. Now you can see the result of program running through the input and output status in the frame, as shown in Fig. 4.20.



Fig. 4 . 19. Start the Simulation Instruction

- 2. Please observe that your programs are running properly.
- 3. Click  again to terminate the simulation function.

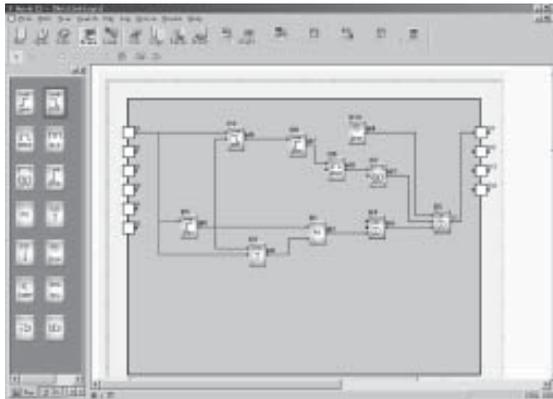


Fig. 4 . 20. The Simulation operation of FAB Program

In the above Simulation Graph, you can see the ON or OFF status of all inputs and outputs, as well as the input status and the current status of timing and counting of all blocks. So you can easily judge through this Simulation Function if the edited program meets the control requirements.

4.2.7 Save and print

Operating methods for files saving:

- 1. To save a program, click **Save** or **Save as** under the Function List with the left mouse button, as shown in Fig. 4.21, or click the **icon** on the Tool Bar;

2. The next dialogue box appears, as shown in Fig. 4.22, in which you can set the path and file name for save;
3. Click **Save** or **Save as** and save is completed.

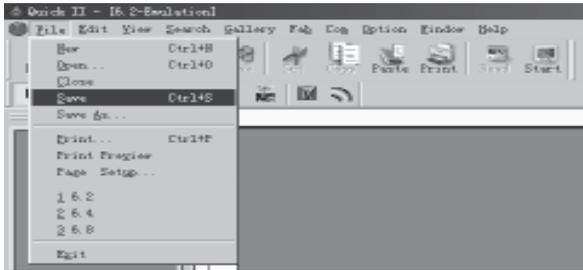


Fig. 4 . 21. Save file

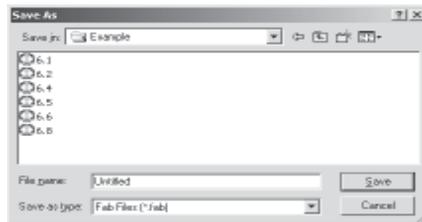


Fig. 4 . 22 Save the dialogue box

Operating methods for printing files:

1. Click the **Print** option under the File Menu.
2. A dialogue box appears, as shown in Fig. 4.23. Set your print requirements according to the prompt given on the frame.
3. Click **OK**.

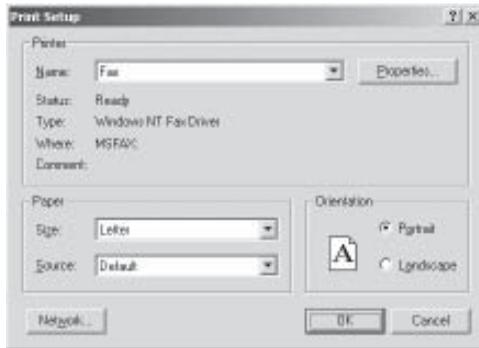


Fig. 4 . 23. Print file

4.2.8 Write/Read

When the program is edited and has been proved through the simulation test to meet your control requirements, the Com. port of the computer can be connected with FAB directly through the programming interface or through a modem and the interface. In this way, remote and local communication between the computer and FAB will be realized so that programs can be uploaded to and downloaded from FAB. All these operations are very simple in Quick II.



Fig. 4 . 24. FAB Communication Connection Frame

Operating methods is as follows:

1. Click **Configuration** option under the Communication Instructions Menu, as shown in Fig. 4.25.

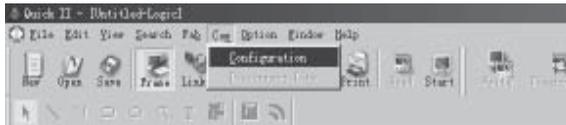


Fig. 4.2: Communication Configuration

2. A dialogue box appears, as shown in Fig. 4.26.



Fig. 4 . 26. Communication Configuration

3. Fill in the FAB address.
4. Setup the connection mode:
 - 1) For download, select modem mode by clicking on **Modem**.
(Note: the modem here is the modem already installed in your Windows) and select the telephone number for dial-up.
 - 2) For local writing, select **Serial Port** and then the Serial Port **selection** by clicking on it to prepare the com port.
 - 3) Click **OK** to complete the setup.
 - 4) If the communication link is still not established, a Prompt window will pop up for you to reselect another modem or communication port



5. Write/Read

1) Click **PC FAB** or the **FAB PC** option under the FAB Operation Menu, as shown in Fig. 4.27. A Confirm Password window will appear, as shown in Fig. 4.28.



Fig 4 . 27 Write/Read

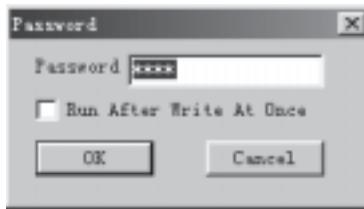


Fig. 4 . 28. Password Confirm

Notes:

1. The communication setup must be completed before communication can be established between the computer and FAB so as to complete the upload/download of the program.
2. During download from computer to FAB, if Run After Write At Once is selected, FAB will run the program, after download, at once. If the option of not running at once is selected, or when the power supply to hardware is lost and then reconnected, click RUN under FAB, and FAB will start the program execution.



4.3 Plot Field Simulation Graph

When the Standard Simulation Edit Window of Quick II is in activated status, you can directly draw in the Edit box using the icons in the Draw Bar or insert BMP or animation Picture using BMP or Animation in the Tool Bar. This makes Quick II more convenient for you and you can easily draw a desired Field Simulation Graph with it. If the Draw Bar is not displayed, it can be selected from the Instructions Function List.



Fig 4 . 29 Draw Bar in Simulation Frame

4.3.1 Plot with Draw Icons:

Operating method:

1. Click the Draw icon corresponding to the field environment in the Draw Bar:

	straight line icon		square icon		rounded corner square icon
	circle icon		polygon icon		The icons may be added with comments
	bend icon		draw icon		

2. Move the cursor into the **Editing box**, hold the left mouse button down and drag the mouse to make the graph in the desired nature and size;
3. Click to **fix the graph**;
4. If it is necessary to move a graph or change its shape and size, select the **graph to be changed** and drag the mouse cursor to move the graph or click the **boundary of the graph** to zoom it.



4.3.2 Insert Graph File directly

 is the icon for inserting a BMP File and  is the icon for inserting an Animation File.

Operating methods:

1. Select the icon  or .
2. Move the cursor into the editing box.
3. Click the left mouse button and an **Insert dialogue box** appears, as shown in Fig. 4.2:

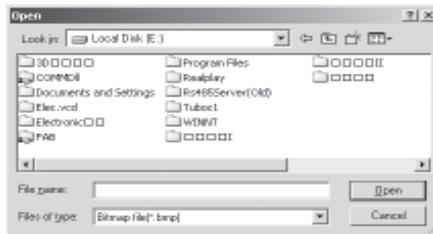


Fig. 4.30. Insert BMP file

4. Select the path for and name of the Picture File to be inserted.
5. Click **Open Old File** to insert the said picture into the Simulation Graph editing box. Draw a complete Field Simulation Graph as shown in Fig. 4.31.

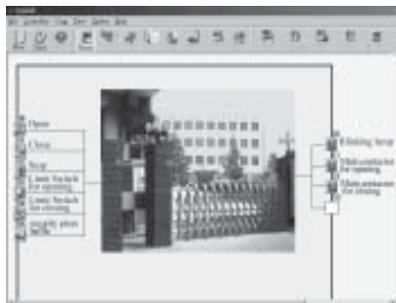


Fig. 4.31 Standard Field Simulation Graph

