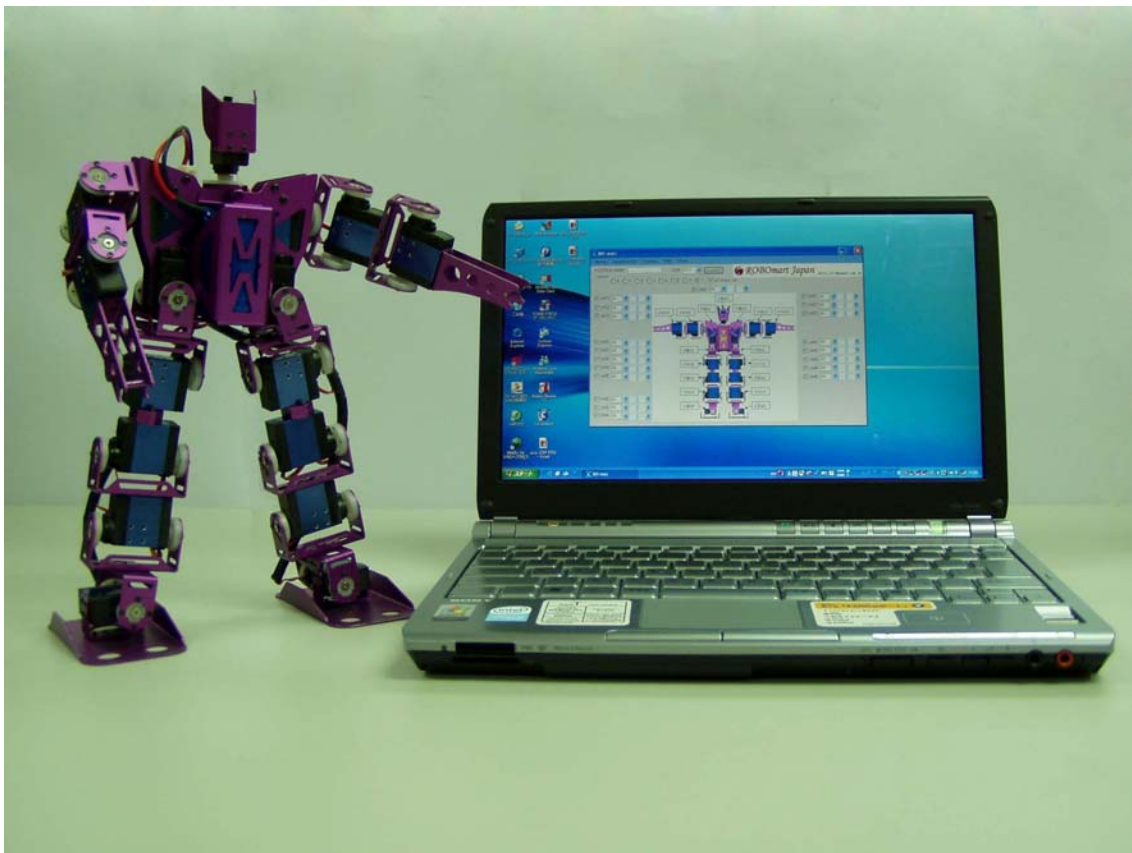


RCmart International, Inc.

NX-25Q Humanoid Robotics

NX-mini Instruction Manual
(Version 1.3.7.1)






RCmart International, Inc.

[Http://www.rcmart.com.tw](http://www.rcmart.com.tw)

Warning




Following the warning signs below to prevent the accidents

Improper operation




 注意 Caution	Improper operations caused by ignoring this sign may not cause serious injuries to operators or others, but still lead to a certain degrees of injuries.
 警告 Warning	Improper operations caused by ignoring this sign may lead to death or serious injuries to operators or others.
 危険 Danger	Improper operations caused by ignoring this sign will cause serious danger to operators or others.

Electrical Safety

■ **Using and Operating**

 危険 Danger	 危険 Danger	 危険 Danger
Avoid the usage within the babies or Children’s playing range. Do not let babies or Children operate the unit to prevent injuries.	Do not moisturize or spray on the unit. Do not drink around the unit to prevent fire caused by short circuit or electric shock.	Do not insert sharp objects like thumbtacks, pins or metal into the mechanical connecting parts or gaps of the unit to avoid short circuit or electric shock by touching the internal components.

■ **Power supply**

 危険 Danger	 危険 Danger	 危険 Danger
When charging, make sure that plug is inserted into the bottom of the socket. It may cause fire due to electric shock or overheated. Do not use damaged plugs or sockets.	Do not touch the power supply when hands are wet to prevent electric shock.	Turn off the power before touching the internal components or accident may happen due to careless actions. Never plug or unplug while the electricity is running, or it may cause electric shock or damage to the unit.

Warranty and service

Please read the following contents carefully.

1. Responsibilities of system adjustment and operation
 - 1.1. The customer should study the system completely and take the compatibility of operation when installing device or software to the unit.
 - 1.2. Our company will collect fees when customer requesting to study and test the applicability of the Customer's device and software
2. Warranty scope.
 - 2.1. Items not stated in the product specifications are not in the warranty scope.
 - 2.2. Product modifications and bug fix are not be notified.
 - 2.3. Our company will collect fees for repairing of malfunctions caused by self-installing software or device.
3. Warranty period
 - 3.1. Except special contracts, the warranty period is one week after the product is purchased.
 - 3.2. During warranty period, malfunctions caused by producing or bad parts will be repaired with Send Back method. (The customer needs to pay the transporting costs.)
 - 3.3. Under the following situations, the repairing fees are required even it's in the warranty period.
 - 3.3.1. Malfunctions and damages caused by operation mistakes.
 - 3.3.2. Malfunctions and damages caused by self-installing software.
 - 3.3.3. Malfunctions caused by fire, natural disaster, gas and voltage overload are anything not the responsibilities of our company.
 - 3.3.4. Self-repairing or transforming.
4. Compensation of second-time damage

Free substitutes or any compensation will not be provided for any second-time damage caused by the defects of this product or malfunctions.
5. Safety notices

This product does not cover human life related situations when designing. For accidents or losses that might be caused by the malfunctions of this product, customers need to take safety measures by themselves. Our company will not be responsible for any damage compensations.
6. Repairing
 - 6.1. Other than defects within the warranty period, repairing fees are required.
 - 6.2. No replacement will be loaned during repairing.
 - 6.3. The customer need to backup the software installed in the unit before repairing. All software installed might be restored to factory default setting, thus our company will not be responsible for software restoring.
 - 6.4. Our company will not be responsible for repairing for products might be infected by radiation, virus, or have been contaminated through placing in facilities that carry out hazardous to products.
 - 6.5. Except special contracts, the repairing of this product uses Send Back method. The returning charge shall be paid by the customer. If it requires a technician for repairing, part-replacing, or bring back malfunctioned products, additional fees will be charged.
7. Stop repairing service

Due to operation objectives, other parts / material allocation, or supply problems, our company has no choice but to stop parts manufacturing. Thus, our company will announce the deadline for production stop and the final date to accept repairing services.
8. Copyright
 - 8.1. The products and brand names described in this instruction manual are registered trademarks of respective companies and used for identification.
 - 8.2. The rights and necessary changes of this instruction manual belong to RCmart International, Inc. We will not be responsible for any mistakes or incorrect descriptions for the parts and instruction manuals of software used in this product.

Table of contents

1. Introduction.....	3
2. Software reference.....	5
2.1 Overall process.....	5
2.2 Main window (Position editing window).....	5
2.2.1 COM Port connection.....	5
2.2.2 Position editing.....	6
2.2.3 Speed adjustment.....	6
2.2.4 Position name.....	6
2.2.5 Motion menu bar.....	6
2.2.6 HomePosition menu bar.....	6
2.2.7 Scenario menu bar.....	7
2.2.8 Help.....	7
2.2.9 Close.....	7
2.3 Motion editing window.....	8
2.3.1 Position data operation.....	9
2.3.2 File menu bar.....	9
2.3.3 Record Motion data recording to NXQ-1.....	10
2.3.4 Send Position data transmission.....	10
2.3.5 Start Show the editing motion.....	10
2.3.6 Read Read motions data from NXQ-1.....	10
2.3.7 One Delete one motion of NXQ-1.....	10
2.3.8 All Delete all motions of NXQ-1.....	10
2.4 HomePosition editing window.....	11
2.4.1 Get HomePosition data from NXQ-1.....	11
2.4.2 Set current position as HomePosition.....	11
2.4.3 Open a file of saved HomePosition data.....	11
2.4.4 Save current HomePosition data to a file.....	11
2.5 Scenario editing window.....	12
2.5.1 File menu bar.....	12
2.5.2 Scenario menu bar.....	12
2.5.3 Get all.....	13
2.5.4 → Button.....	13
2.5.5 ↑ ↓ Button.....	13
2.5.6 Clear.....	13
2.5.7 Delete.....	13
Revision list.....	14

1. Introduction

NX-mini is the Windows application software for control NX-25Q humanoid robot via the NXQ-1 PWM board. This manual instruct user how to using software to generate and edit motions for NX-25Q robot. Users also can use NX-mini to control NXQ-1 for 20 degrees of freedom motions, every degree of freedom output PWM wave-width from 1.0 ~ 2.0 ms, that can moving servo motions between 0 ~ 180 degrees or can do other applications by customer design.

2. Software Reference

2.1 Overall process

The software configurations include the following :

- Main window (Position editing window)
- Motion editing window
- Home position editing window
- Scenario editing Window

The instructions for above four are as follows.

2.2 Main window (Position editing window)

You can connect NX-25Q robot and process the position editing and move to other editing windows under this main window.

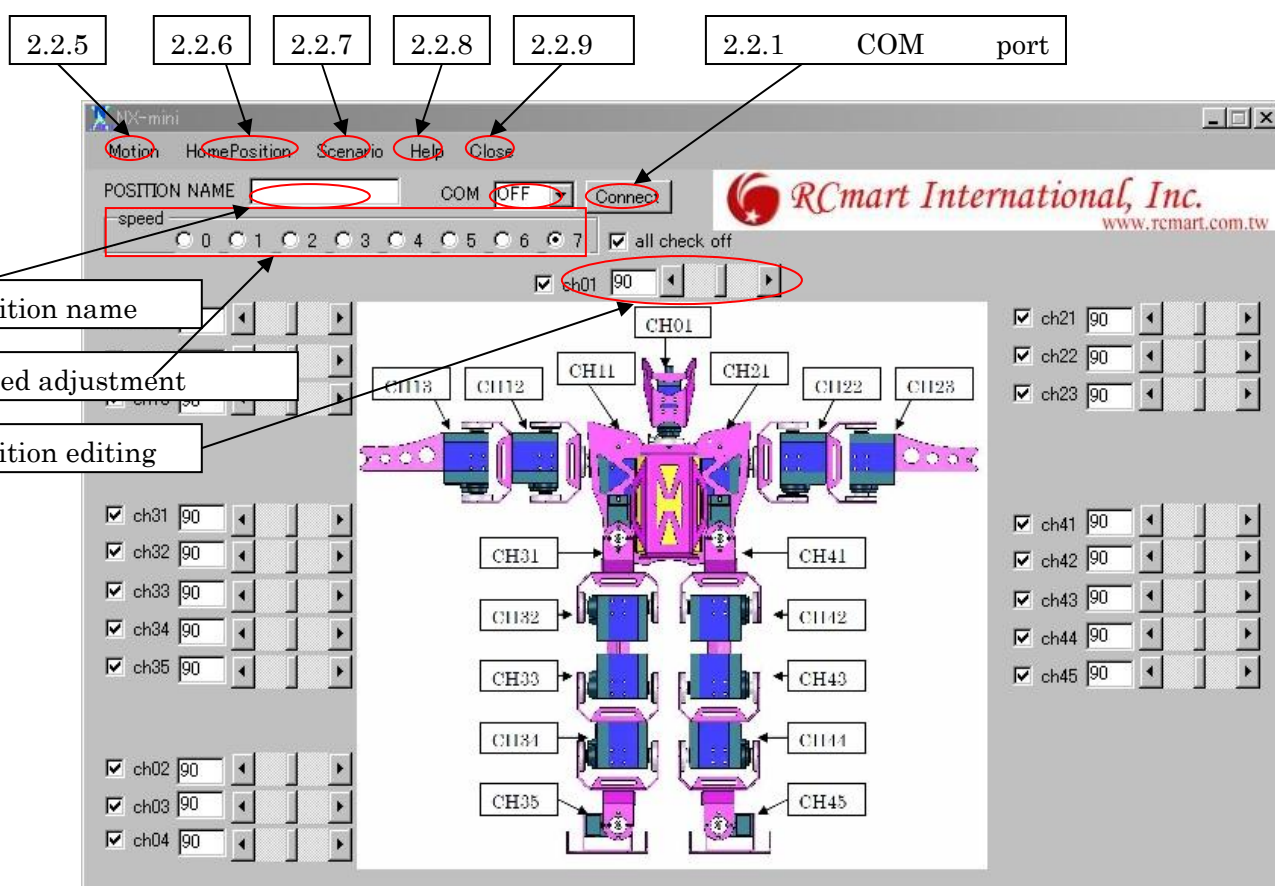


Fig. 1 Main window (position editing window)

2.2.1 COM port connection

After starting the NX-mini, please connect the COM port firstly. Select a COM Port no. on the computer which connect with NXQ-1 board and then press the “Connect” button.

2.2.2 Position editing  **注意** Caution

To process position editing.

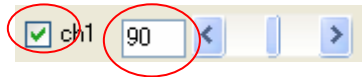


Fig. 2 Position editing

This screen uses 90 degrees to represent the positions of all servo's centre points. Using the scroll bar or press the arrow to adjust the angle value. When adjusting, a selection column on the left if be checked, the angle data and servo moving will be synchronized; servo will not moving if the column is not checked. Click on the column to repeat select or unselect. When all check off is selected; all servos are able to be synchronized.

2.2.3 Speed adjustment  **警告** Warning

Assign the speed of current editing position. The slowest speed is 7 and the fastest speed is 0.

2.2.4 Position name

Assign the name of current editing position.

2.2.5 Motion menu bar

Process the motion related editing.

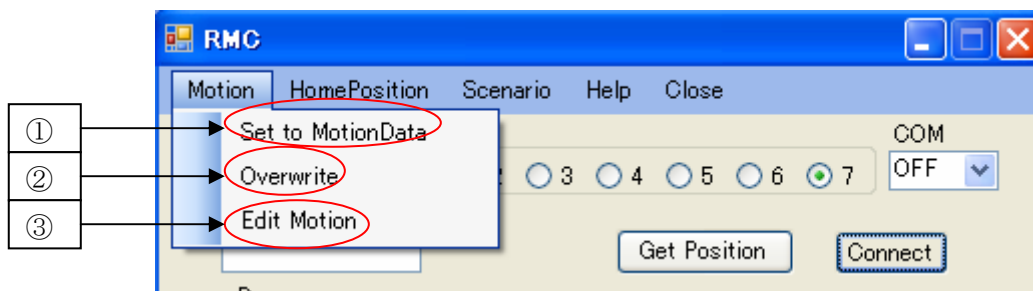


Fig. 3 Menu bar (Motion)

- ① Set to MotionData. Add the current position data into the current editing motion data.
- ② Overwrite. Overwrite data to the assigned position.
- ③ Edit Motion. Move to motion editing window.

2.2.6 HomePosition menu bar

Process the home position related editing.

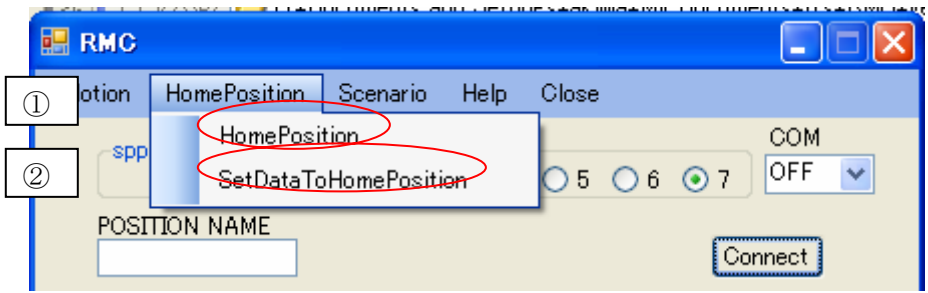


Fig. 4 Menu Bar (HomePosition)

- ① HomePosition. Move to Homeposition editing screen.



警告

Warning

- ② SetDataToHomePosition. Move NX-25Q to HomePosition and show the home position data to current position data.

2.2.7 Scenario menu bar

Move to Scenario editing window.

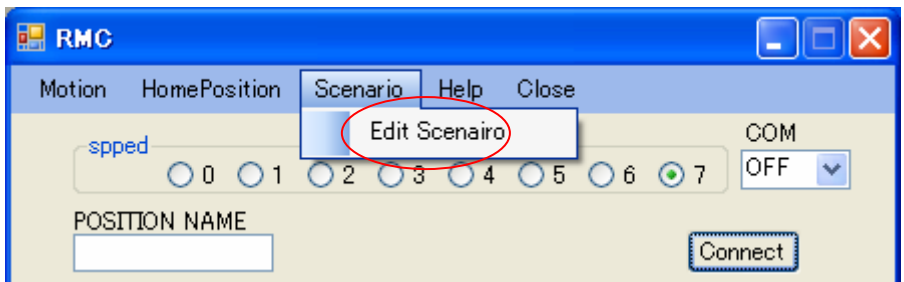


Fig. 5 Menu bar (Scenario)

2.2.8 Help

Display the software version information.

2.2.9 Close

Close NX-mini program.

2.3 Motion editing window

Process the Motion related editing.

After finish editing the position data on the Main window, next step is to editing motions data.

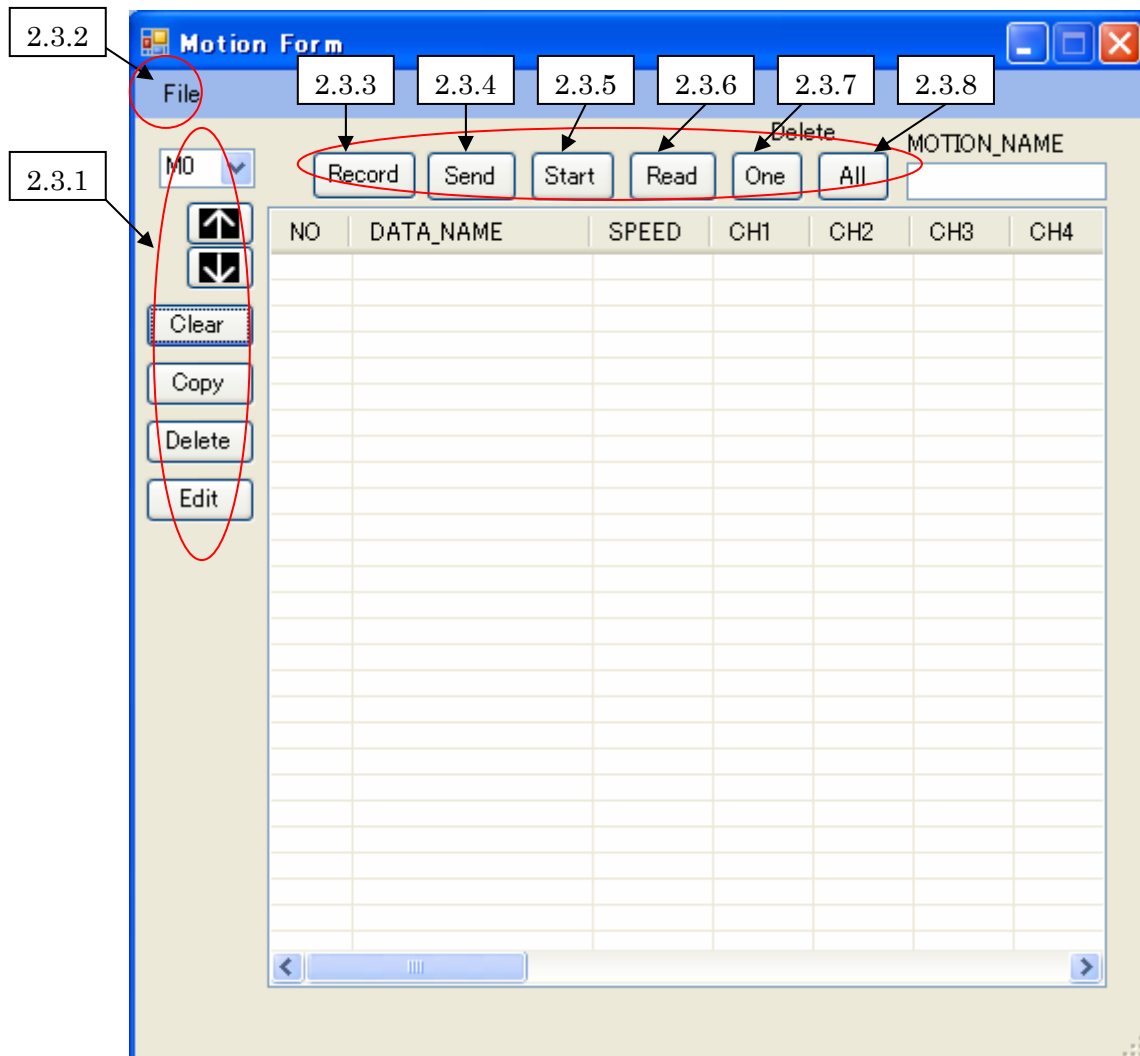


Fig. 6 Motion editing window

2.3.1 Motion data operation

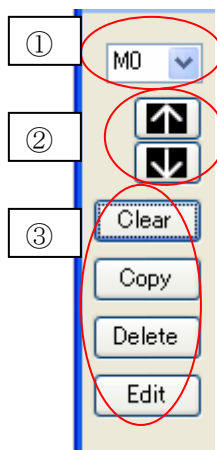


Fig. 7 Position Data operation

- ① Editing motion no..
- ② Upward or downward shift the position data.
- ③ a. After clicking the “Clear” button, all the position data in the list are erased.
 b. After clicking the “Copy” button, all selected position data in the list are copied and entered as the bottom data.
 c. After clicking the “Delete” button, the selected position data in the list are erased.



警告

Warning

- d. After clicking the “Edit” button, the user can edit the selected position data in the list.
 To following click the “Motion” → “Overwrite” steps to overwrite the edited data in the main (position) editing window.

2.3.2 File menu bar

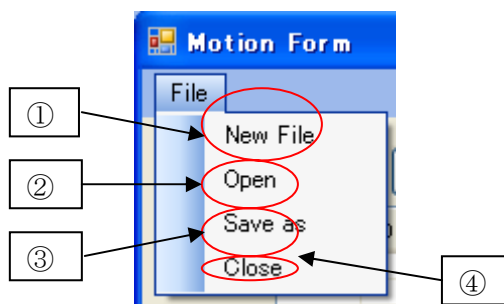


Fig. 8 File (Motion)

- ① New File. Create new Motion. The current position data list are deleted.
- ② Open. Open Motion from a file.
- ③ Save as. Store Motion data to a file.
- ④ Close. Close Motion editing window.

2.3.3 Record Motion data recording to NXQ-1

After clicking the “Record” button, the motions data will be transferred to NXQ-1 board of the NX-25Q robot.

2.3.4 Send Motion data transmission



警告

Warning

After clicking the “Send” button, the assigned position data will be transferred to NX-25Q, and the robot will show the assigned posture.

2.3.5 Start Show the editing motion



危険

Danger

Click the “Start” button, the robot show the motion according to current position data list.

2.3.6 Read Read motion data from NXQ-1

Click the “Read” button, the motions data will be read from the NXQ-1 board.

2.3.7 One Delete one motion of NXQ-1

Click the “One” button, the selected motion no. data will be erased from NXQ-1 board.

2.3.8 All Delete all motions of NXQ-1

Click the “All” button, all motions data on NXQ-1 board will be erased.

2.4 Homeposition editing window

Process HomePosition related editing.

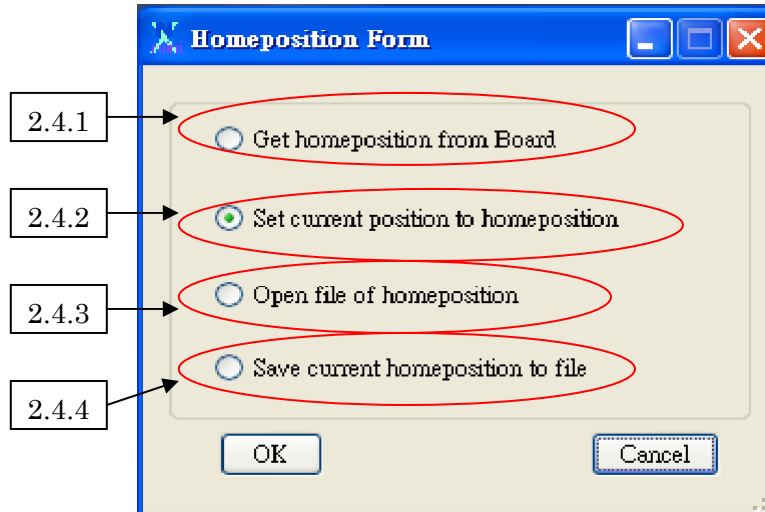


Fig. 9 HomePosition editing window

2.4.1 Get homeposition from Board

Get the HomePosition data from NXQ-1, and save it as current HomePosition data.

Note: This is not the current posture of NX-25Q. If want to set the current posture as HomePosition, please follow the HomePosition → SetDataToHomePosition steps in the Main (position) editing window.

2.4.2 Set current position to homeposition

Set the current Posture of NX-25Q as its HomePosition.

2.4.3 Open file of homeposition



警告

Warning

Read HomePosition data from a file, and move NX-25Q to Homeposition posture after the data is read.

2.4.4 Save current homeposition to file

Save current HomePosition data to a file.

2.5 Scenario editing window

Process Scenario related editing.

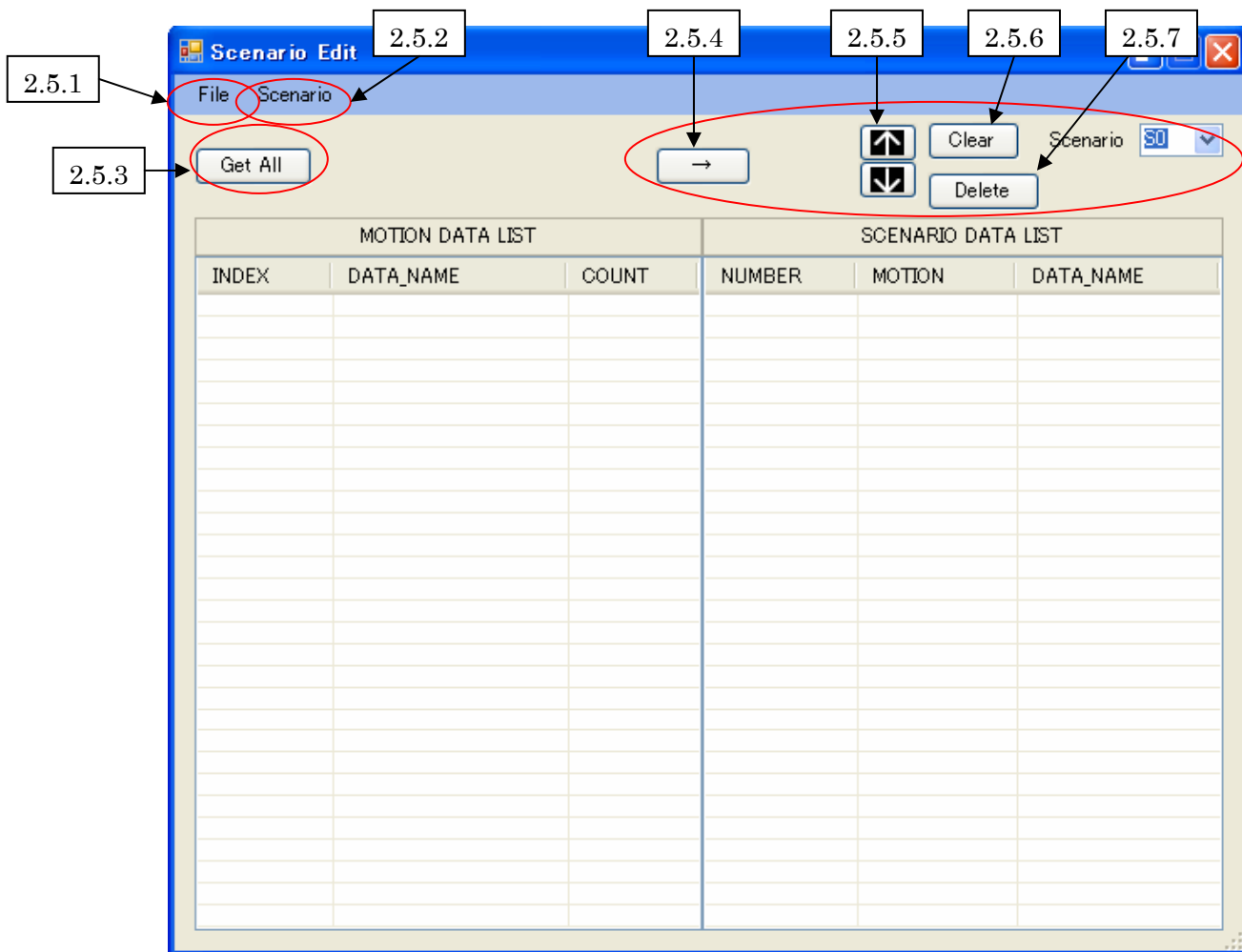


Fig. 10 Scenario editing window

2.5.1 File menu bar

Same as Motion editing window, the scenario data can be saved to a file or import from a saved scenario data file.

2.5.2 Scenario menu bar

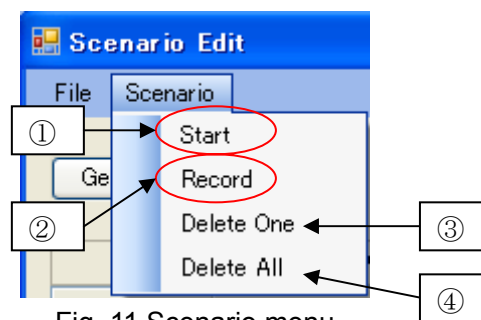


Fig. 11 Scenario menu



危険

Danger

① Start NX-25Q start to show the current editing scenario.

② Record Current editing scenario data transferred to NXQ-1 board.

Note : The S0 is the Demo scenario. It can be play while push the Demo button on the NX-25Q robot, no need to connecting RS232C cable with computer.

③ Delete One Delete the current editing scenario no. data from NXQ-1 board.

④ Delete All Delete all the scenario data from NXQ-1 board.

2.5.3 Get all

Click this button to read all motions and scenarios data on the NXQ-1 board.

2.5.4 → Button

Click this button to insert the selected motion to scenario data list.

2.5.5 ↑↓ Button

Click this button to upward or downward shift the selected motion data in the scenario data list.

2.5.6 Clear

Click this button to delete all current editing scenario data list.

2.5.7 Delete

Click this button to delete the selected motion data in the scenario data list.

***** End of This Manual *****

NX-mini Ver. 1.3.7.1

Revision list Version 1.3.7.1 November 2006

None

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