# RSCwin

**Instruction Manual**
**Version   2.00**

JTEKT CORPORATION

Contents

## 1. Outline

RSCwin is a piece of PC software that comes together with the RSC (robot-motion safety controller) and provides the following functions:

(1) Editing of RSC parameters (attribute data groups necessary for RSC operation)
(2) Setting (writing) of RSC parameters to the RSC unit
(3) Displaying the current RSC status

This manual explains how the RSCwin is operated.

Descriptions in this manual are given based on the assumption that RSCwin has already been set up.
For the RSCwin setup method, refer to the "RSCwin Setup Manual."

## 2. Connecting RSCwin with RSC

In order to use the RSCwin to perform the below functions, use a USB cable to connect the RSC with the PC that contains the RSCwin software.

(1) RSC parameter loading
(2) RSC parameter writing
(3) RC parameter loading
(4) [Position Status] view
(5) [I/O Monitor] view
(6) [Error Log] view
(7) RSC version data view

* Connection with the RSC is unnecessary for other functions.
  Connection between RSCwin and RSC is not required to edit RSC parameters, save them in a file, or load them from a file.

Connect the USB cable at the following positions.

**On the PC side** -Connect to the same USB port that was used when the USB driver was installed.

**On the RSC side** Connect to the USB port marked "I/F" on the front panel.

RSCwin_manual

# 3. Basic Operation Methods

## 3.1. RSCwin View Transition

RSCwin consists of the following four views.

- Parameter Editor view
- Position Status view
- I/O Status view
- Error Log view
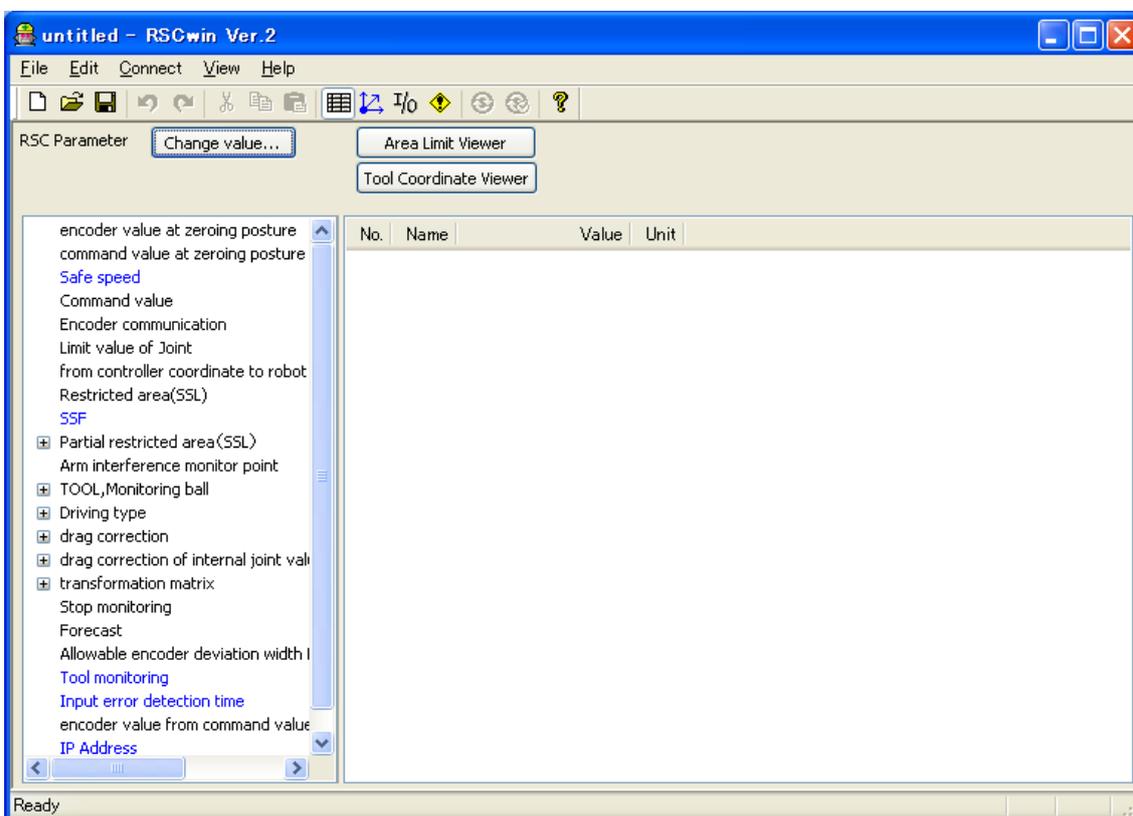


**Fig. 1 View immediately after boot-up**

The Parameter Editor view can be seen immediately following RSCwin boot-up.

Select the desired menu option in the [View] menu to open the desired view.

\* Buttons on the tool bar have the same function.
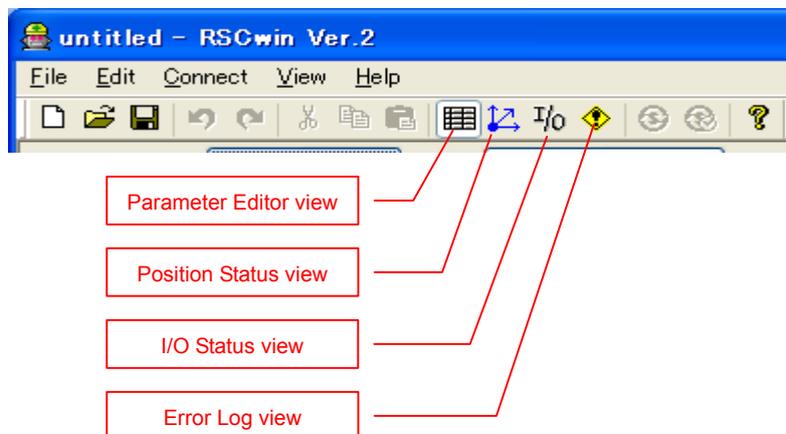
**Fig. 2 Tool Bar**

The four views have the following roles;

**• Parameter Editor view**

Editing RSC parameters. The following functions are provided.

Saving or loading RSC parameters from/to a file

Editing (viewing or modifying) RSC parameter settings

Wiring or loading RSC parameters to/from RSC unit

Loading RC parameters from robot or file

**• Position Status view**

Makes inquires about the current position data (TCP/flange position, etc.) of the robot to the RSC and the displays the results.

**• I/O Status view**

Makes inquiries about the current I/O port values (250_mon input, emergency stop relay output, etc.) of the RSC to the RSC and displays the results.

**• Error Log view**

The error log retained within the RSC is loaded and the data is displayed.

If the RSC issues an emergency stop signal, refer to the error log to determine the cause.

## 3.2. Creating or Writing RSC Parameters

This section will explain the procedures to create or edit RSC parameters and write them to the RSC.

### 3.2.1. Switching to Parameter Editor view

If the screen does not show the parameter editor view, select [View] - [Parameter Editor] from the menu bar to open.

Parameter Group List is arranged in a left column and Parameter List is arranged in a right column on the parameter edit screen.

All RSC parameters are classified by 'Parameter group' of the layered structure.

The list of 'Parameter group' is displayed in the parameter group list of the left side by the tree form.

When 'Parameter group' is selected by the parameter group listing the left side, the number, the name, the value, and the unit of the RSC parameter that belongs to the 'Parameter group' are displayed in the parameter list of the right side.

The user can edit the RSC peculiar parameter displayed in the parameter list.

Fig. 3 Parameter Editor view
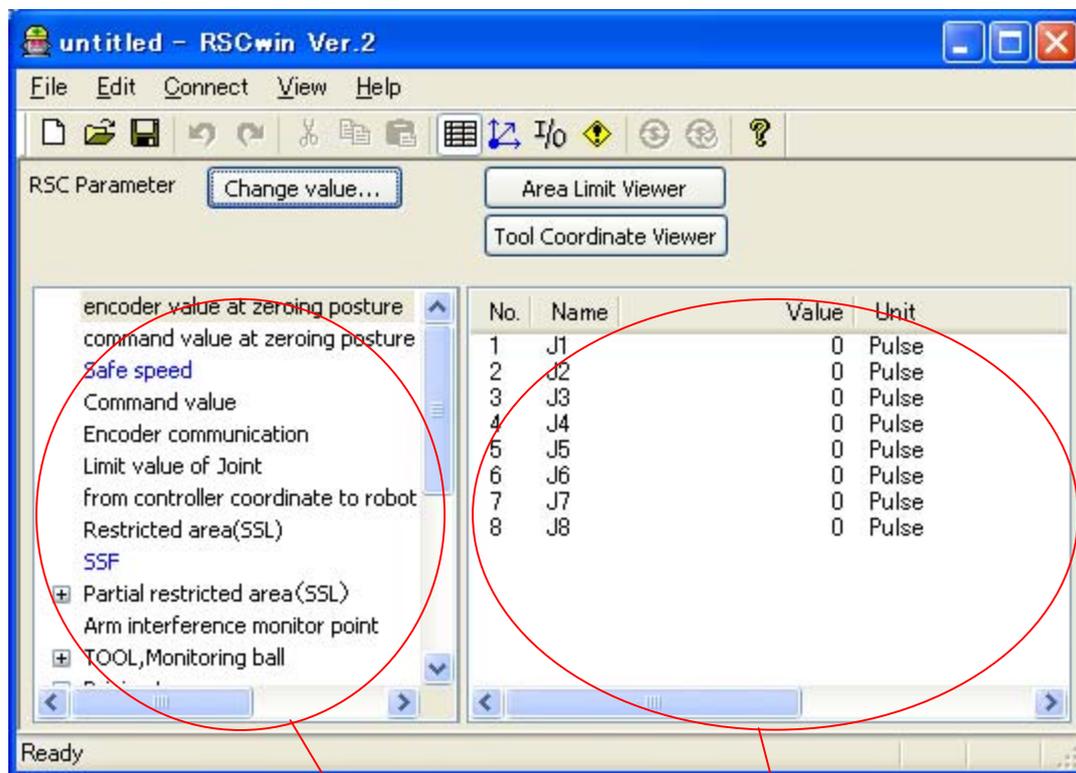
Parameter group list

Parameter list

The color of the character of the parameter list and the parameter group list has the following meanings.

- **Black character:    Robot dependence parameter .**
- **Blue character: RSC peculiar parameter.**

Refer to 3.3.1.1 for details of 'Robot dependence parameter' and 'RSC peculiar parameter'.

### 3.2.2.  Creating new RSC parameters

Select [File] - [New] from the menu. All parameters on the parameter editor view are reset to default values.

### 3.2.3.  Editing RSC parameters

The basic procedure for editing RSC parameters is described below.

* The examples shown below are applicable for data types I32, UI32, F32 or IPADDRESS.

(1) Select 'Parameter group' of the RSC parameter that changes from the parameter group list.

→ The list of the RSC parameter that belongs to the parameter group that selects it is displayed in the parameter list.

(2) Select the RSC parameter that changes from the parameter list.   Click the mouse, and make the parameter that changes a selective state (state that the item in the list is enclosed with the dotted line).

(3)  Press the [Change Value ...] button.

→ The [Change Value] dialog box opens.
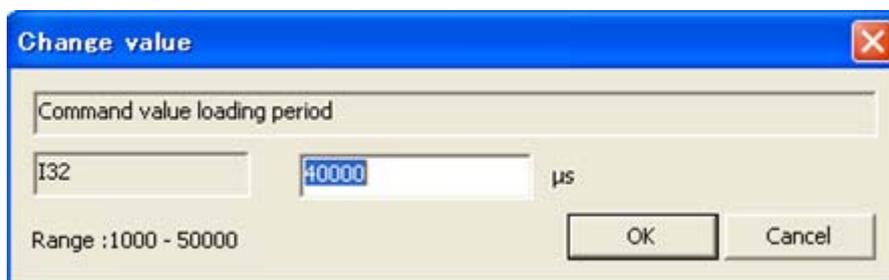


**Fig. 4    [Change Value] dialog box**

(4)  Enter the new value in the text box of the [Change Value] dialog box and press [OK].

→ The [Change Value] dialog box will close.

→ The entered value will be reflected in the [Parameter List].

With SELECT data type parameters, the [Change Value] dialog box looks as follows.
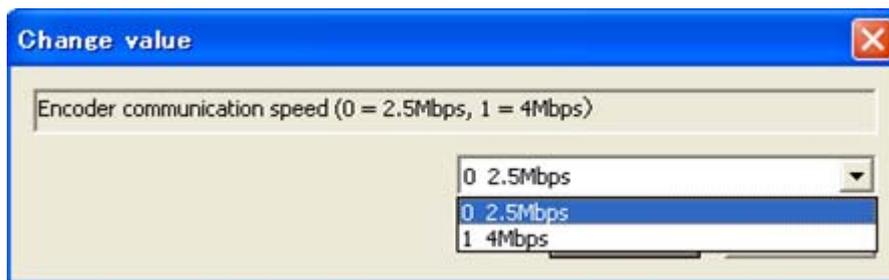
**Fig. 5 [Change Value] dialog box (SELECT)**

Select the desired setting and press [OK].

### 3.2.4. Writing RSC parameters

(1)  Select the [Connect] - [Write RSC Parameters] menu commands.
→ The [Enter Password] dialog box opens.



**Fig. 6    Enter Password dialog box**

(2)  [Enter Password] dialog box
Enter the password and press [OK].
→   If the password is correct, the [Write RSC Parameters - Warning] message box will
be displayed.
*   If the password is incorrect, a "Incorrect Password" message box will be displayed.
Enter the correct password.
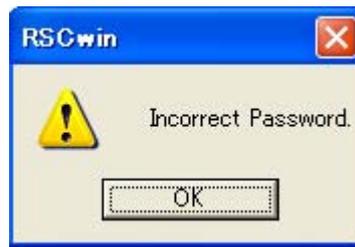
**Fig. 7 Incorrect Password message box**

(3) [Write RSC Parameters - Warning] message box

**"Writing RSC parameters causes an emergency stop of the robot in operation. To restart, you must turn the power off then on. Are you sure to continue to write RSC parameters?"**

The following message box will be displayed.
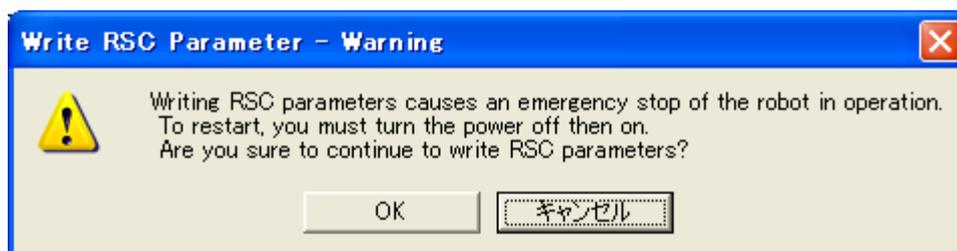
**Fig. 8　[Write RSC Parameters - Warning] message box**

To continue with writing, press [OK].

→　RSCwin will being writing RSC parameters through communications with the RSC. The "Communicating..." dialog box is displayed when communications are in progress.



**Fig. 9 [Communicating...] dialog box**

→　After RSC parameters have been written, the "Communicating..." dialog box will close. At this time, the LED on the RSC unit reads "2F."

If RSC parameter writing fails, an error message is displayed. For how to rectify, refer to Section "3.2.4.1.　　　If communication with RSC results in failure"

(4)　Turning the RSC off then on again

Parameters written by the [Write RSC Parameters] method become valid after the RSC is turned off once then started again. They are not valid until the RSC is restarted. Turn the RSC unit (and the robot) off then back on again.

### 3.2.4.1.　If communication with RSC results in failure

If communication with RSC fails, RSCwin will display the following error message.



**Fig. 10 "Failure to communicate" error message box**

### 3.2.4.1.1.　"Failure to communicate. Check for connection with RSC."

USB connection between RSC and RSCwin is not established.
Probable causes include the following.

**(1) RSC is not connected with PC.**

Connect the USB cable correctly.
Reference: 2.　Connecting RSCwin with RSC

**(2) RSC is turned off.**

Supply power correctly to the RSC.

**(3) RSC initialization is unsuccessful.**

In this case, the 7-segment LED of the RSC will blink showing a value between "30" and "4F."
Remove the reason for RSC initialization.

**(4) The RSC is in the boot mode.**

Check the RSC DIP switch.

### 3.2.4.1.2. "Receive timeout"

The RSC is not responding to requests made by the RSCwin (although USB connection is correct).
The probable causes include the following.

#### (1) RSC in initialization process

In this case, the 7-segment LED of the RSC shows a value between "01" and "1F."
The RSC does not respond to commands from the RSCwin during the initialization process.
Wait until the initialization process has finished. (2 minutes max)

#### (2) Ethernet connection between RSC and RC is not correct.

"Receive timeout" may occur when the [Read RC Parameters] operation is carried out on RSCwin if the Ethernet connection joining the RSC and RC is incorrect.
In such a case, check the Ethernet connection between the RSC and RC as well as the IP address setting.

### 3.2.4.1.3. " The RSC parameter version does not match with that of the RSC."

The RSC parameter version supported by RSCwin does not match with the "RSC parameter version" supported by the RSC unit.
Check the RSCwin version being used and that of the RSC unit and upgrade the earlier one.

Reference: 3.2.4.2.　　RSC parameter version

### 3.2.4.2. RSC parameter version

(RSC parameter version of the RSC unit and RSCwin)

The number of RSC parameters and arrangement of parameters vary according to the timing of their release.

RSC parameters specifications (number of parameters and arrangement) can be identified by the RSC parameter version number.

**There must be consistency in the RSCwin and RSC unit RSC parameter versions in order to enable the loading or writing of RSC parameters.**

To check the RSC parameter version supported by RSCwin as well as those supported by the RSC unit, refer to Section "<4.4> Version information".

### 3.2.4.3. Password (password of RSC writing)

(1)   'Password of the RSC writing' is being preserved on the ROM inside the RSC1.
   The password which the user inputted into the [password input] dialog when writing a RSC parameter, is collated by the RSC1.
   When you write the RSC parameter, input the password which is preserved on RSC1 to the password input dialog .

**(2) An initial value of 'Password of the RSC writing' is "robotsafety".**

(3) 'Password of the RSC writing' can be changed.
   However, when the password preserved now is not input, it doesn't become it when changing.
   Refer to "4.1.4. Change password (password of RSC parameter writing) " for the manner of operation.

【**Note**】   If the user has forgotten the password, it becomes impossible to write a RSC parameter into the RSC or to change a password. **Be careful of management of a password enough.**

### 3.2.5.   Saving RSC parameters in a file

Parameters edited on the [Parameter Editor] view can be saved in a file (RSC parameter file).

(1) Select the [File] - [Save As] menu commands.
   → The [Save As] dialog box will open.
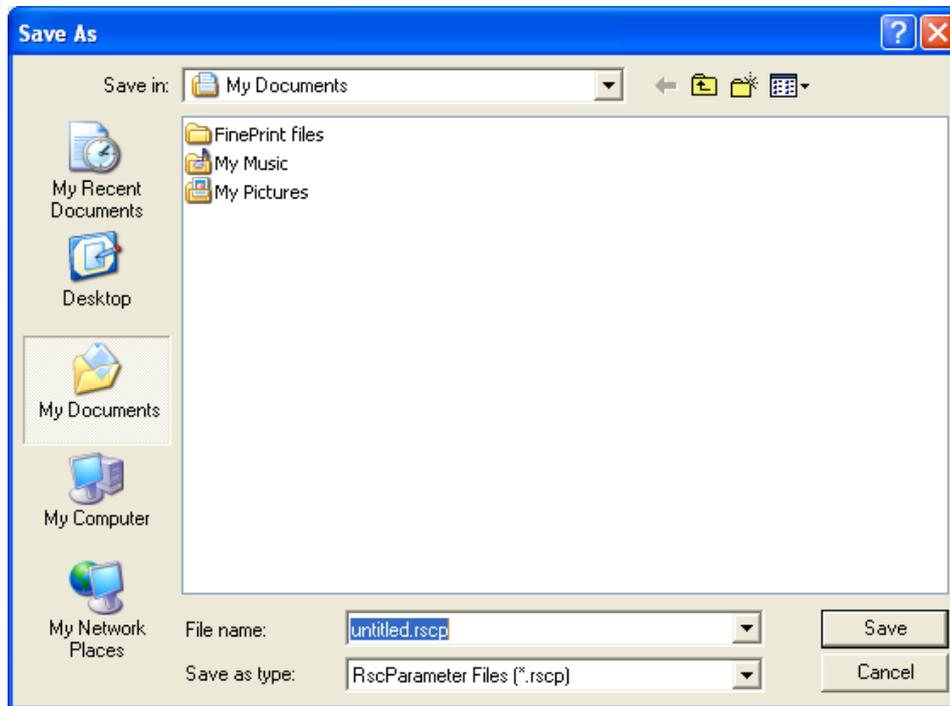


**Fig. 11 [Save As] dialog box**

(2) [Save As] dialog box

Designate the name of the RSC parameter file and press [Save].
   → The [Save As] dialog box will close. The edited RSC parameters are saved in the RSC parameter file.

## 3.3.  Operation Procedure at System Startup

During system startup (installation of RSC and robot), all RSC parameters must be entered and the parameters must be written in the RSC and validated.

RC provides default values for almost all RSC parameters.

### 3.3.1. RSC Parameters

#### 3.3.1.1.  Robot dependent parameters and RSC peculiar parameters

RSC parameters consist of multiple parameters. Parameters are divided into two groups.
• Robot dependent parameters
• RSC peculiar parameters

Whether each parameter is either can be distinguished by the color of the character of "Parameter Editor" view from among two above-mentioned.

- **Black character:  Robot dependence parameter .**
- **Blue character:   RSC peculiar parameter.**

Robot dependent parameters are parameters which can have the appropriate default settings supplied from the robot. The RSC handles these robot dependent parameters supplied from the robot as "RC parameters." The file containing RC parameters is called the "RC parameter file."

The data of the RC parameter file can be loaded and displayed in the [Parameter List] on the [Parameter Editor] view of RSCwin. With this function, the default robot dependent parameters are loaded in the [Parameter List].
In most cases, the value of the RC parameter file is simply adopted and becomes the robot dependent parameter.

Default values cannot be received from the robot for RSC peculiar parameters. However, most RSC peculiar parameters are common across the one production line. For this reason, once RSC peculiar parameters are entered and saved in the RSC parameter file, you can load the RSC parameter file to enter almost all values.

### 3.3.1.2. Edit permission of 'Robot dependence parameter'

'Robot dependence parameter' basically acquires the default value from the robot, and uses it. （Refer to "3.3.1.1. Robot dependent parameters and RSC peculiar parameters"）.

Therefore, editing the "robot dependence parameter" is not permitted.

### 3.3.2. Operation procedures

System startup is normally carried out by following the below procedures.

### 3.3.2.1. Acquiring RC parameters in parameter editor view

Acquire the contents of the RC parameter file from the [Parameter List] of the RSCwin [Parameter Editor View].

Below shows the two methods of acquiring RC parameters in the RSCwin [Parameter Editor View].

### 3.3.2.1.1. Loading RC parameters

In this method, the RC parameter file is loaded by communication between the RSCwin and RC via the RSC.
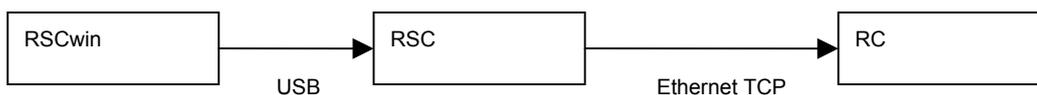


### 3.3.2.1.1.1. Preconditions

The following conditions must be satisfied for this method to be used.

(1) Of the RSC parameters, the following items have been specified and are made valid.

    IP address of RSC1

    Sub-net mask

    IP address of RC

(2) Ethernet communication between RSC and RC is normal.

**3.3.2.1.1.2.   Procedures**

(1)  Open the [Parameter Editor] view if it is not already shown.

(2)  Select the [Connect] - [Read RC Parameters] menu commands.

→   RSCwin starts to Read RC Parameters by means of communication between the RSC and the RC. The "Communicating with RSC" dialog box is displayed during communication. After RC parameters are loaded, the "Communicating with RSC" message box will close.

→   The contents of the loaded [RC Parameter File] will overwrite the data in the [Parameter List] of the parameter editor view. When this occurs, there will not be any change to values which have not been included in the RC parameter file. (Those edited immediately before are maintained.)

**3.3.2.1.2.   Importing RC parameter files**

**3.3.2.1.2.1.   Preconditions**

There are no preconditions for this method because communications with the RSC are not necessary.

**3.3.2.1.2.2.   Procedure**

(1)  Open the [Parameter Editor] view if it is not already shown on the screen.

(2)  Select the [File] - [Import RC Parameters] menu commands.

→   The [Open File] dialog box will be displayed.

(3)  [Open File] dialog box

Select the file name of the RC parameter file and press the [Open] button.

→   RSCwin loads the RC parameter file.

→   The contents of the loaded [RC Parameter File] overwrites the data in the [Parameter List] of the parameter editor view. Values not specified in the RC parameter file will not change. (Those edited immediately before are maintained.)

### 3.3.2.2. Loading RSC peculiar parameters from a file

The RSC peculiar parameters of the RSC parameters can be loaded from the RSC parameter file.

(Alternatively, the [Change Value] dialog box can be used to enter RSC peculiar parameters without using the above method.)

This operation does not affect robot dependent parameters.

(1) Select the [File] - [Load only RSC Peculiar Parameters] menu commands.
   → The [Open] dialog box will be displayed.

(2) [Open] dialog box
   Select the RSC parameter file name and press [Open].
   → RSCwin loads only the RSC peculiar parameters from the RSC parameter file.
   The loaded RSC peculiar parameters overwrite the contents of the [Parameter List] in the parameter editor view. During the procedure, robot dependent parameters do not change. (Those edited immediately before are maintained.)

### 3.3.2.3. Editing and writing RSC parameters

Edit RSC parameters if necessary. (Reference: <3.2.3> Editing RSC parameters)
Once editing is complete, write the RSC parameters. (Reference: <3.2.4> Writing RSC parameters)

## 3.4. Operation Procedure for Changing Data Held in The Robot

Parameters on the robot side may be changed after the RSC and robot system has been configured and the robot has begun to operate. In this case, robot dependent parameters among RSC parameters must be updated to reflect those changes made on the robot side.

In normal circumstances the following operational procedures are followed.

### 3.4.1. Loading RSC parameters from RSC

Read RSC Parameters from the RSC unit that is running into the RSCwin [Parameter Editor] view.

(1)  Switch to the [Parameter Editor] view if it is not already shown.

(2)  Select the [Connect] - [Read RSC Parameters] menu commands.
  →  RSCwin starts to Read RSC Parameters through communications with RSC. The "Communicating with RSC" dialog box is displayed during communication. After the RSC parameters are loaded, the "Communicating with RSC" message box will close.
  →  The loaded RSC parameters overwrite the [Parameter List] in the parameter editor view. (All parameters are overwritten)

### 3.4.2. Acquiring RC parameters in parameter editor view

Acquire the updated data of the RC parameter file in the [Parameter List] of the [Parameter Editor View] of RSCwin.
(Reference: <3.3.2.1> Acquiring RC parameters in parameter editor view)

### 3.4.3. Writing RSC parameters

Edit RSC parameters if necessary. (Reference: <3.2.3> Editing RSC parameters)
Once editing is complete, write the RSC parameters. (Reference: <3.2.4> Writing RSC

parameters)

## 3.5. When Changing Monitoring Conditions

Modification of RSC peculiar parameters may become necessary after the RSC and the robot system are configured and operation of the robot has begun.

In normal circumstances the following operational procedures are followed.

### 3.5.1. Loading all RSC parameters from a file

Read RSC Parameters from the RSC unit running to the [Parameter Editor] view of RSCwin.
(Reference: <3.4.1> Loading RSC parameters from RSC)

### 3.5.2. Editing RSC parameters

Edit parameters in the [Parameter Editor] view if necessary.
(Reference: <3.2.3> Editing RSC parameters)

### 3.5.3. Writing RSC parameters

After editing, write RSC parameters.
(Reference: <3.2.4> Writing RSC parameters)

## 3.6. Operation Procedures upon RSC Failure and Replacement

RSC hardware may need to be replaced due to RSC breakdown etc after the RSC and the robot system are configured and robot operation has begun.

To conduct the same motions on the new RSC as those of the original RSC, write parameters that were written to the original RSC into the new RSC.

In normal circumstances the following operational procedures are followed.

\* Prepare the RSC parameter file containing parameters of the original RSC.

### 3.6.1. Loading all RSC parameters from a file

(1) Switch to the Parameter Editor view if it is not already shown.

(2) Select the [File] - [Load all RSC Parameters] menu commands.
   → The [Open] dialog box will be displayed.

(3) [Open] dialog box

   Select the RSC parameter file name and press [Open].
   → RSCwin loads all parameters (both the RSC peculiar parameters and robot dependent parameters) from the RSC parameter file and displays them in the [Parameter List].

### 3.6.2. Writing RSC parameters

Write RSC parameters. (Reference: <3.2.4> Writing RSC parameters)

## 3.7. Referring to The Operation State of RSC

RSCwin contains a function for displaying RSC current status.

RSCwin can display the following three statuses.

(1) Position status
Operation state of the RSC itself, current position coordinates of the robot the RSC is monitoring, and speed
(2) I/O status
The current state of the I/O signals of RSC can be displayed.
(3) Error log
A record of the date and reason of the emergency stop signal found by the RSC monitoring of the robot or occurrence of a movement error of the RSC itself

## 3.7.1. Referring to position status

If the position status view is not shown, select [View] - [Position Status] from the menu to call it up.
If RSC is running and connected correctly to a PC, and if the position status view is displayed, the current position status (coordinates and speed of robot) will be displayed in the list.

**Fig. 12 Position status view**

* If communications with the RSC result in failure due to the RSC not being started or no connection between the RSC and PC, an error message such as "Failure to communicate. Check for connection with RSC." will be displayed.

  For details, refer to Section 3.2.4.1 If communication with RSC results in failure.

To update the Position Status view, select the [View] - [Refresh] menu commands.

### 3.7.2. Referring to I/O status

If the I/O status view is not displayed, select the [View] - [I/O Status] menu commands to do so.

If RSC is running and connected correctly with the PC, and the I/O status is displayed, the current I/O statuses (statuses of I/O signals of RSC) will be displayed in the list.
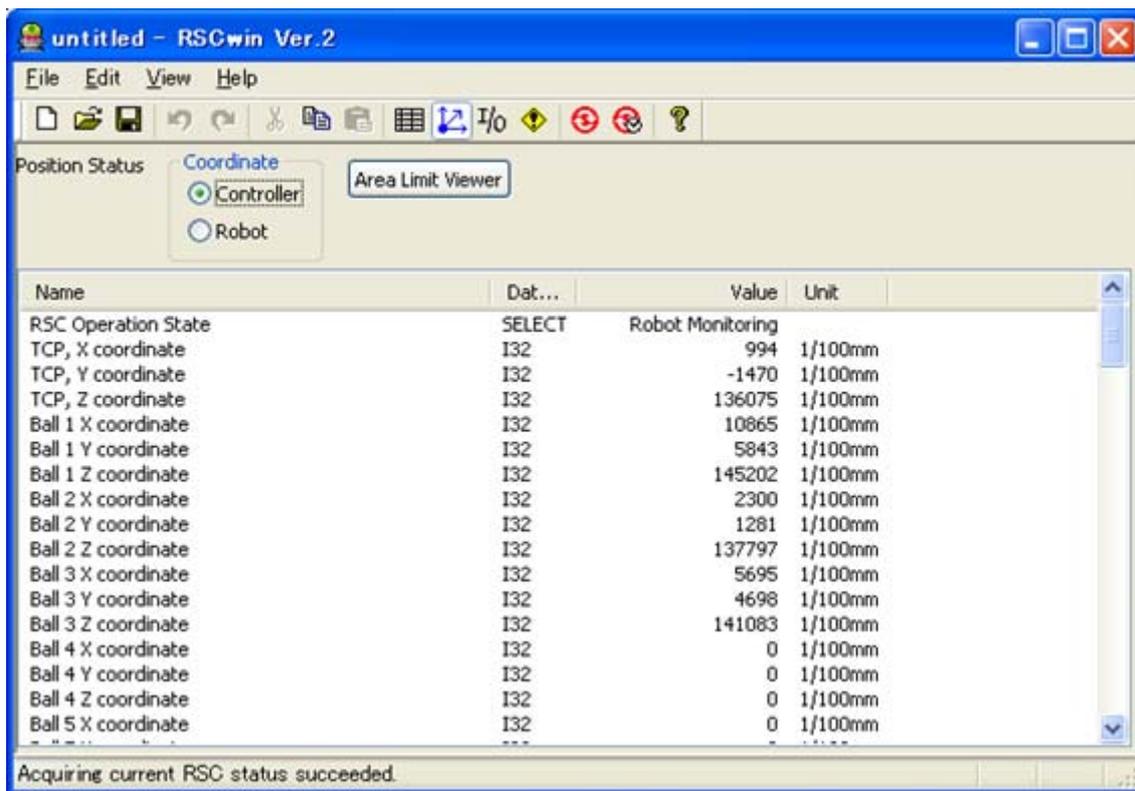
**Fig. 13 I/O status view**

\* If communications with the RSC result in failure due to the RSC not being started, no connection between the RSC and PC or other reasons, an error message such as "Failure to communicate. Check for connection with RSC." Will be displayed.

For details, refer to Section 3.2.4.1 If communication with RSC results in failure.

After the view changes to I/O Status, automatic update becomes possible. To stop automatic updating from occurring, select the [View]-[Auto Refresh] menu command. Select [View]-[Auto Refresh] again to restart automatic update.

### 3.7.3. Referring to the error log

If the error log view is not displayed, select [View] - [Error Log] from the menu to display. If RSC is running and connected correctly with the PC, the error log will be displayed in the current list once switching to the [Error Log] screen.

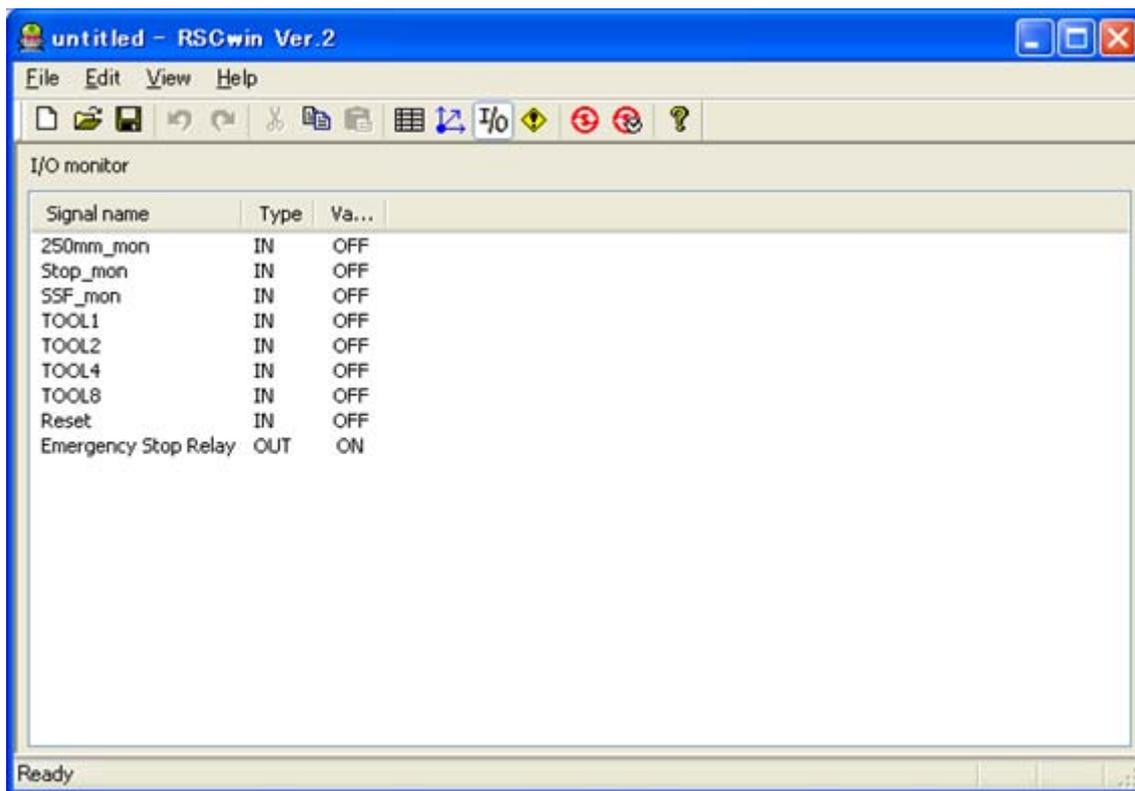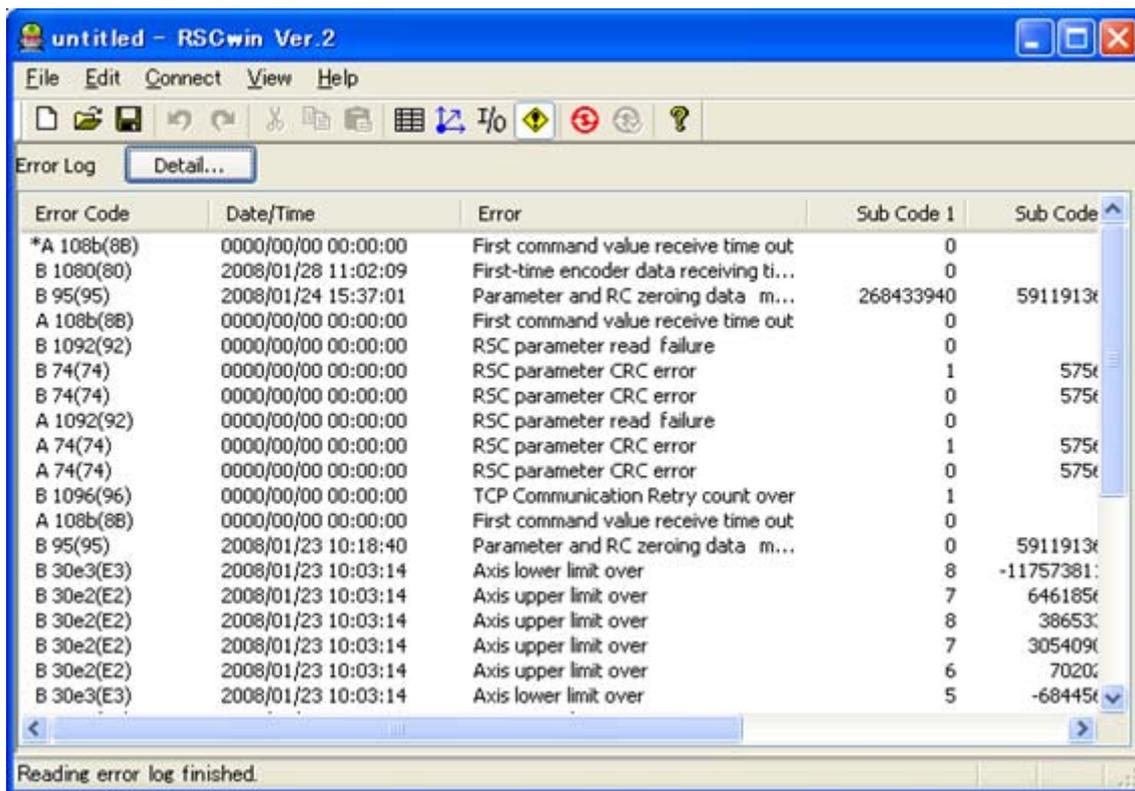**Fig. 14 Error log view**

\* If communications with the RSC result in failure due to the RSC not starting, no connection between RSC and PC or other reasons, an error message such as "Failure to communicate. Check for connection with RSC." is displayed.

For details, refer to Section 3.2.4.1 If communication with RSC results in failure.

To update the error log view, select the [View] - [Refresh] menu commands.

# 4. Other Functions

## 4.1. [Parameter Editor] View

### 4.1.1. Area limit viewer

The position relationship among the following parameters contained in the [Parameter Editor] view are visually displayed.

- Restriction straight line (red line)
- SSF (green line)
- Partial restricted area (figure filled in red)
- Robot installation position (green circle ○ and +)
- Restricted area reference point (green ▲)
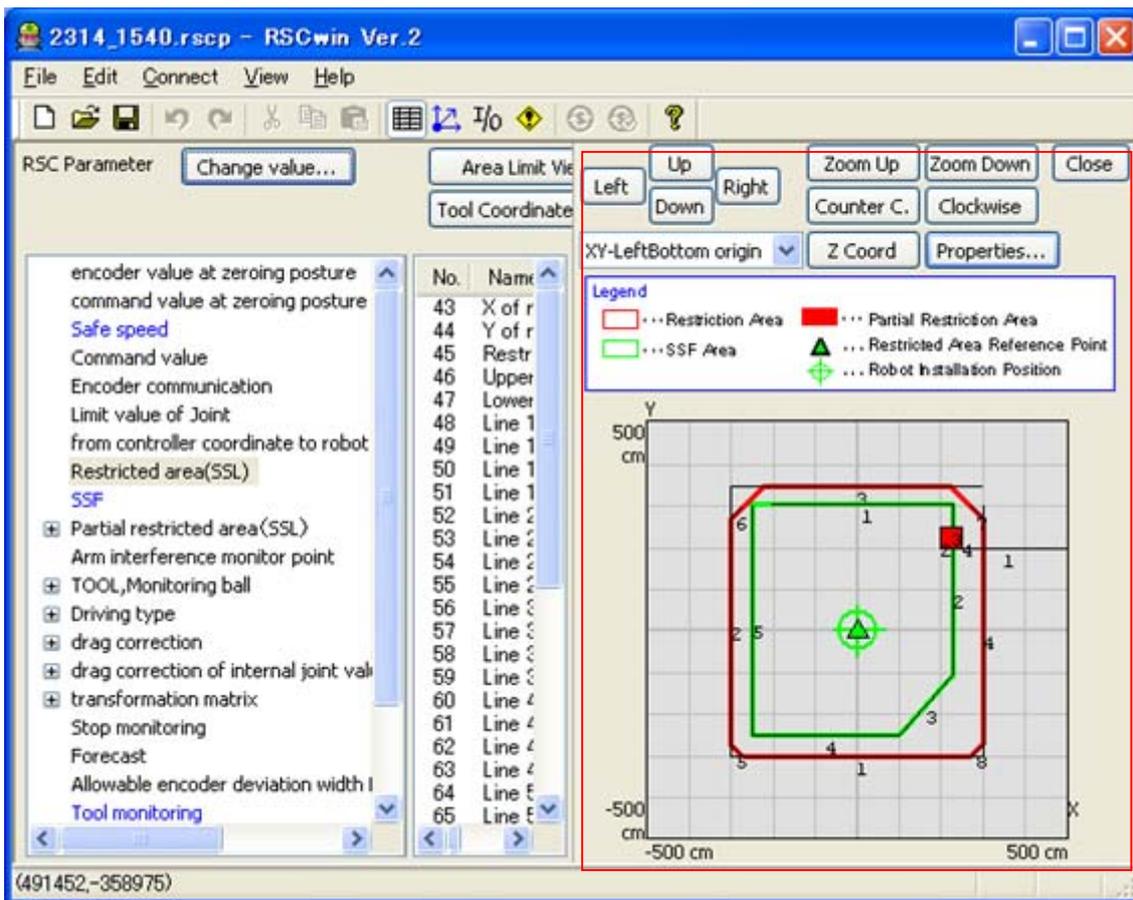


**Fig. 15 Area limit viewer**          Area limit viewer

The view helps to check the position relationship among areas hard to check with numerical representation of the [Parameter Editor] view.

#### 4.1.1.1.    Displaying method

Press the [Area Limit Viewer] pushbutton in the parameter editor view.

### 4.1.1.2.　Controls

#### 4.1.1.2.1.　[Up],[Down],[Left],[Right]buttons

The [Up],[Down],[Left],[Right] buttons moves the area limit viewer in the direction of the button.

#### 4.1.1.2.2.　[Zoom Up] and [Zoom Down] buttons

The [Zoom Up] and [Zoom Down] buttons enlarge or reduce the area limit viewer.

#### 4.1.1.2.3. [Counter.C ][Clockwise]buttons

Changes the coordinate system of "Area limit view".

#### 4.1.1.2.4. [Z Coord]button

Changes the coordinate system of "Area limit view".
It toggles the viewpoint between top and side.

#### 4.1.1.2.5. Coordinate system drop-down list

It changes the coordinate system of "Area limit viewer".
A display coordinate system can be chosen from the following inside.

- XY-LeftBottom origin
- YX-LeftTop origin
- XY-RightTop origin
- YX-RightBottom origin
- XZ-LeftBottom origin
- YZ-LeftBottom origin
- XZ-RightBottom origin
- YZ-RightBottom origin

#### 4.1.1.2.6. [Properties] button

The [Properties] button displays the [Area Properties of Area Limit Viewer] dialog box.

#### 4.1.1.2.7. [Close] button

The [Close] button closes the area limit viewer.

#### 4.1.1.3. [Properties of Area Limit Viewer] dialog box
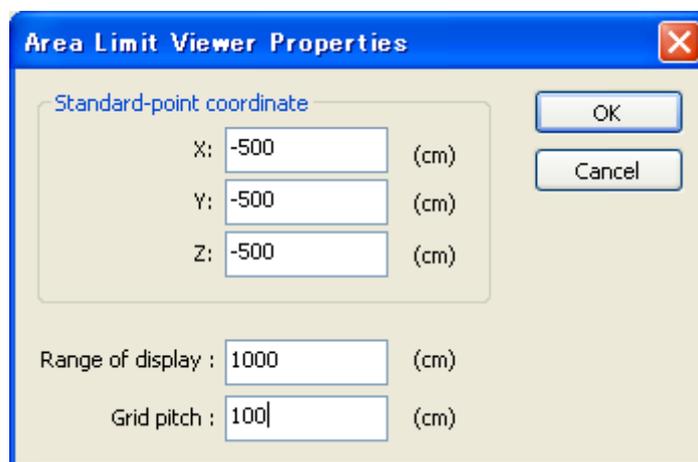


**Fig. 16 Area Limit Viewer Properties dialog box**

[Standard-point coordinate]   --Designates the coordinates of the standard-point of the area limit viewer. Function similar to that of the [Up], [Down], [Left], [Right] buttons .

[Range of display]   --------------Designates the display range of the area limit viewer. Function similar to that of the [Zoom Up] and [Zoom Down] buttons.

[Grid pitch]   -----------------------The interval of grids of the area limit viewer can be changed.

#### 4.1.1.4. Auxiliary display

#### 4.1.1.4.1.   "Partial restricted area"- Auxiliary display

To select parameter's group and the corresponding area blinks. The parameter group is

[Partial restricted area]-[area 1 ~ area 8].

### 4.1.1.4.2. Area of auxiliary conductor

To select the following parameter's group, the area of auxiliary conductor and the line number are showing.

　　　　　・[Restriction straight line]

　　　　　・[SSF]

　　　　　・[Partial restricted area]－[Area 1〜 Area 8 ]

The auxiliary conductor is shown in the X, Y plane only.

### 4.1.2. Tool coordinate viewer

The position relationship among parameters of the [Parameter Editor] view is displayed in this view.

- x, y, z and radius of tool sphere (gray circle ○)
- x, y and z of TCP (black x)
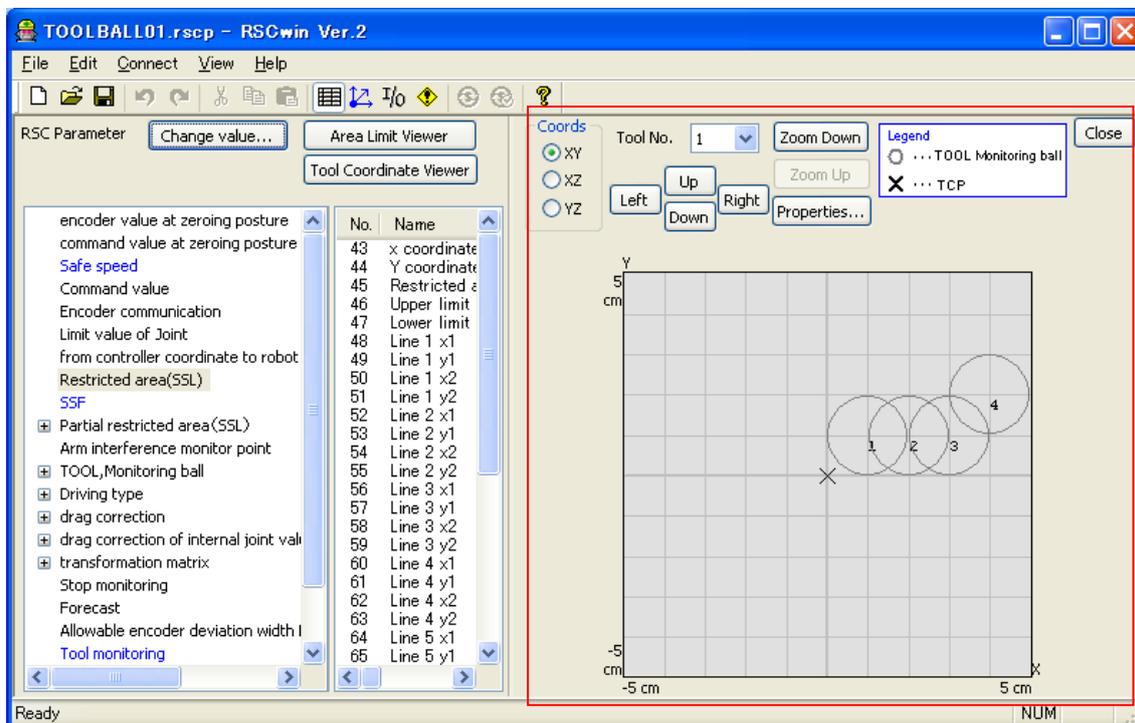
Fig. 17 Tool coordinate viewer   <span style="color:red">Tool coordinate viewer</span>

The view helps you check the position relationship among tool-related parameters that is hard to check using the numerical representation of the [Parameter Editor] view.

### 4.1.2.1.   Displaying method

Press the [Tool Coordinate Viewer] pushbutton in the parameter editor view.

### 4.1.2.2.   Controls

#### 4.1.2.2.1.   [Up],[Down],[Left],[Right]button

The [Up],[Down],[Left],[Right] buttons move the display range of a Tool Coordinate viewer.

#### 4.1.2.2.2.   Coords

Select the horizontal and vertical coordinate axes of the tool coordinate viewer from XY, XZ and YZ.

#### 4.1.2.2.3.   Tool No.

Designate the tool number displayed in the tool coordinate viewer.

#### 4.1.2.2.4.   [Zoom Up] and [Zoom Down] buttons

The [Zoom Up] and [Zoom Down] buttons enlarge or reduce the tool coordinate viewer.

#### 4.1.2.2.5.   [Properties] button

The [Properties] button displays the [Tool Coodinate Viewer Properties] dialog box.

#### 4.1.2.2.6.   [Close] button

The [Close] button closes the tool coordinate viewer.

**4.1.2.3.    [Tool Coordinate Viewer Properties] dialog box**
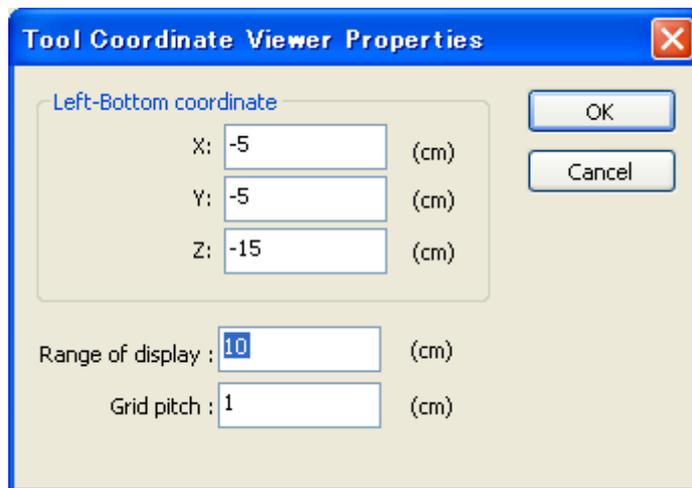


**Fig. 18 [Tool Coordinate Viewer Properties] dialog box**

Specify properties of the tool coordinate viewer.

[Range of display]        Designates  the  displaying  range  of  the  tool  coordinate  viewer.
                          Function similar to that of the [Zoom Up] and [Zoom Down] buttons.
[Grid pitch]  ------- The grid intervals of the tool coordinate viewer can be changed.

**4.1.2.4.   Tool-Ball Auxiliary display**

To  select  parameter  Tool-Ball  and  the  corresponding  Tool-Ball  blinks.  The  parameter
group is [Tool, Monitoring ball]. And Chosen Tool-Ball is a dot on the screen if you are
following, "+" flashing.

**4.1.3.   Exporting in CSV format**

The RSC parameters currently being edited can be output as a CSV file.

**[Note]    Unable to load the output CSV file.**

RSCwin_manual

(1)  Switch to the Parameter Edit view if not already shown on the screen..
(2)  Select the [File] - [Export in CSV] menu commands.
    → The [Save As] dialog box opens.
(3)  In the [Save As] dialog box, designate the desired file name and press the [Save] pushbutton.

**4.1.4. Change password (password of RSC parameter writing)**

The password of the RSC parameter writing can be changed.

**4.1.4.1. Manner of operation**

(1) Select menu command [Connect] – [Change Password].
   →[Change Password] dialog opens.

(2)[Change Password] dialog box



**図 1 [Change Password] dialog box**

Input as follows, and push OK.

- [Present password]: Password of RSC parameter writing set now
- [New password],[Confirmation input of new password]: Password newly set.

→The message box of "The password was changed." is displayed when succeeding in the change.

→When Present password is not correct, the password is not changed.

→ When neither New password nor Confirmation input of new password are corresponding, the password is not changed.

### 4.1.5. Undo, Redo

Menu command [Edit]-[Undo] cancels the parameter editing operation performed immediately before.
At the maximum, it can return to the state before seven editing operation.

Menu command [Edit]-[Redo] redoes the edit operation canceled by menu command [Undo] .

### 4.1.6. Collation of RSC Parameters

You can compare the parameter under present edit with a "RSC parameter file" or "RC parameter which received from RC." Thereby, changed parts can be checked.

### 4.1.6.1. Collates with saved RSC Parameter file.

Collates an editing RSC parameter with saved RSC parameter file.

1. Switch to the Parameter Edit view if not already shown on the screen..
2. Select the menu command [File]-[Collation...].
   →[Open] dialog box open.
3. In the [Open] dialog box, please specify a RSC parameter file to collate, and push [Open] button.

### 4.1.6.2. Collates with "RC Parameter" which received from RC.

Collates "robot dependence parameter" in the RSC parameter under edit with "RC parameter which received from RC".

※ There are some preconditions to acquire an RC parameter.（See：3.3.2.1.1. Loading RC parameters）

　1. Switch to the Parameter Edit view if not already shown on the screen..
　2. Select the Menu Command [Connect]-[Collate with RC Parameter].

### 4.1.6.3. Collation Result

● If there is no difference as a result of collation, "There is no difference" message box is displayed.
● If any difference is found, different parameters are displayed on a "Collation Result" dialog box.
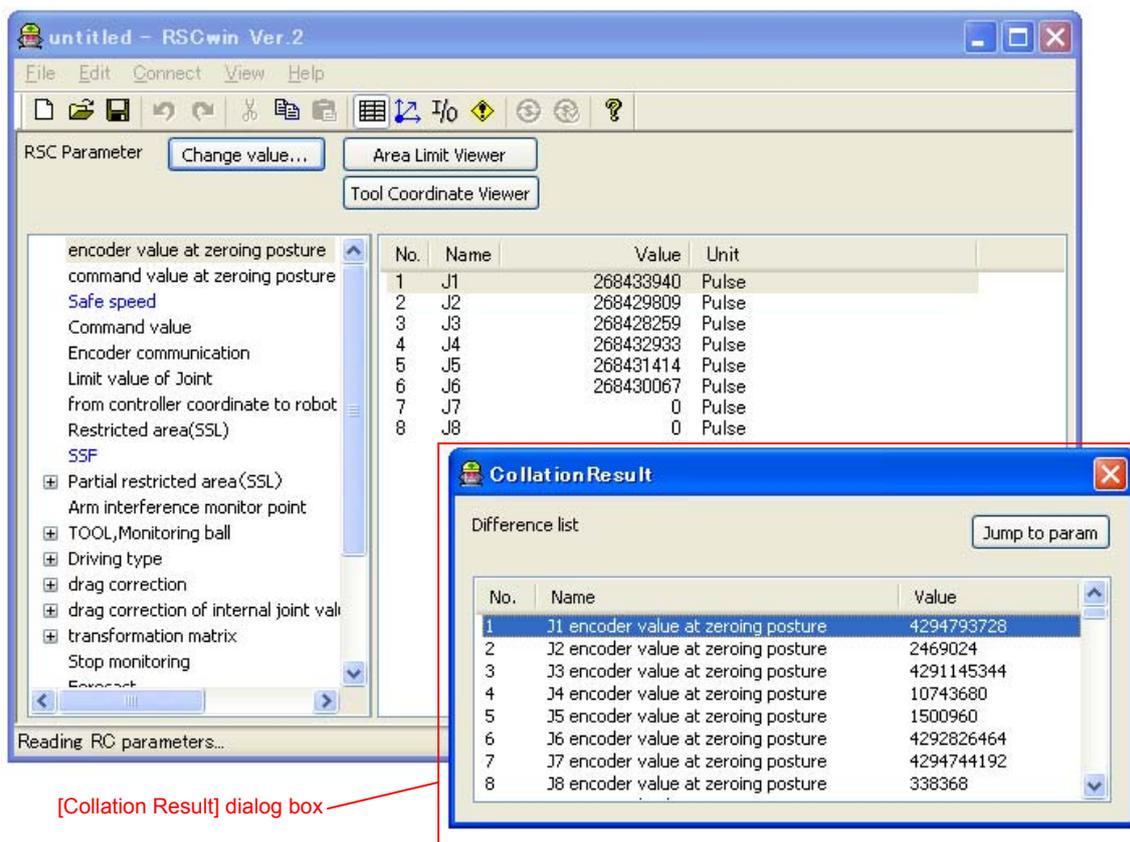


**Fig. 19 [Collation Result] dialog box**

If you choose the difference and push button, "parameter edit view" is opened.

　* You can double click in the difference list to achieve the same purpose.

## 4.2. [Position Status] View

### 4.2.1. Area limit viewer

The position relationship of the following values in the [Position Status] view is visually shown in this view.

- TCP(black x)
- Tool sphere (gray circle ○)
- Flange position (black +)
- Arm interference monitoring point (green ●)

In addition to the above, the position relationship of the following values are shown based on RSC parameters (*) currently being used by the RSC.
(*: RSC parameters are NOT those being edited in the [Parameter Editor] view.)

- Restriction line (red line)
- SSF (green line)
- Partial restricted area (figure filled in red)
- Robot installation position (green circle ○ and +)
- Restricted area reference point (green ▲)
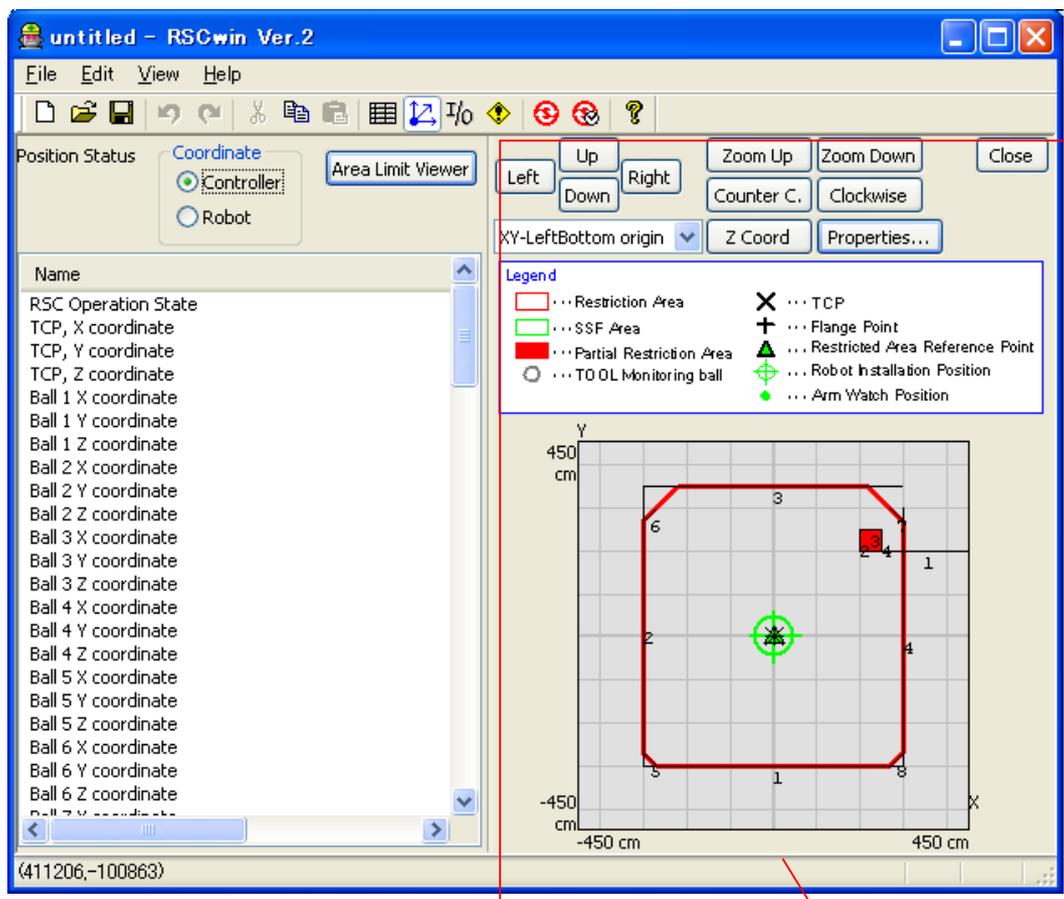
**Fig. 20 Area limit viewer**　　Area limit viewer

The viewer to check the current robot position that　is difficult to check using the numerical representation of the [Position Status] view.

### 4.2.1.1.　Operation

(1)　Switch to the Position Status view if it is not already displayed.

(2)　Press the [Area Limit Viewer] pushbutton.

### 4.2.2.　Auto Refresh

The position status view is automatically updated at a certain interval using the automatic update function.

The position status view is updated at intervals of one second when the automatic update function is in use.

Use the [View] - [Auto Refresh] menu commands to turn automatic update on or off.

* If a communication error with the RSC occurs when automatic update is turned on, Auto Refresh is turned off.
* Auto Refresh is turned off if the view is switched to any view other than position status.

## 4.3. [Error Log] View

### 4.3.1. [Error Log Details] dialog box

Select an error log from the error log list and press the [Detail ...] button to show detailed data about the error log.

* You can double click in the error log list to achieve the same purpose.
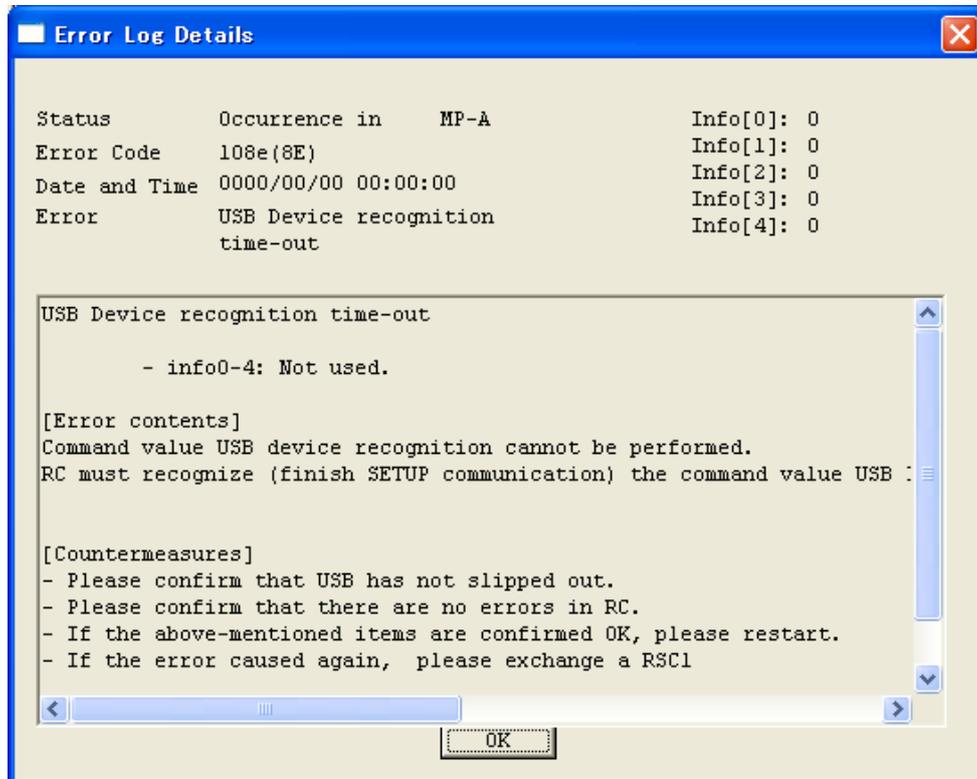


**Fig. 21 [Error Log Detail] dialog box**

RSCwin_manual

**4.3.2.  Saving the error log**

The error log data can be saved in a file.
The file is in the text format.

**4.3.2.1.    Operation**

(1)  Switch to the error log view if not already displayed on the screen.
(2)  Select the [File] - [Save Error Log] menu commands.
    → The [Save As] dialog box opens.
(3)  Designate the desired file name and press the [Save] pushbutton in the [Save As]
    dialog box.

**4.4.   Version Data**

RSCwin and RSC unit version data can be viewed.

**4.4.1.   Operation method**

(1)  Select the [Help] - [About RSCwin] menu commands.
    → The [About RSCwin] dialog box opens.
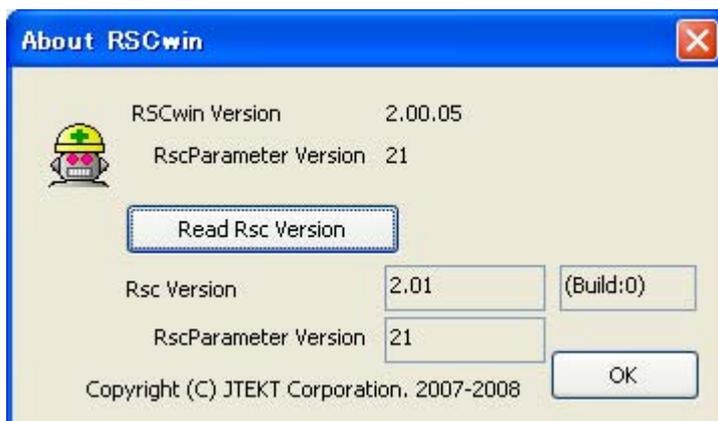


**Fig. 22 [About RSCwin] dialog box**

In the dialog box, the following items are displayed in the order shown.

44

45

1. Version number of RSCwin software
2. Version number of RSC parameters supported by RSCwin

3. Version number of RSC software
4. Version number of RSC parameters supported by RSC

Items 3 and 4 are not displayed in the default state.

Connect the RSC with RSCwin and press the [Read Rsc Version] button to display 3 and 4.

# 5. Reference

## 5.1. [Parameter Editor] View

### 5.1.1. [File]

#### 5.1.1.1. [New]

Values in the [Parameter List] contained in the [Parameter Editor] view are reset to default values.
Reference: <3.6.1> Loading all RSC parameters from a file

#### 5.1.1.2. [Load all RSC Parameters]

All parameters are loaded from the RSC parameter file and displayed in the [Parameter List].
Reference: <3.6> Operation Procedure upon RSC Failure and Replacement

#### 5.1.1.3. [Load only RSC Peculiar Parameters]

Only RSC peculiar parameters are loaded from the RSC parameter file and displayed in the [Parameter List].
This operation does not affect robot dependent parameters.

Reference: <3.3.2.2> Loading RSC peculiar parameters from a file

#### 5.1.1.4. [Save]

The RSC parameters displayed in the [Parameter List] are saved in the currently edited RSC parameter file (file displayed in the title bar).

#### 5.1.1.5. [Save As]

The RSC parameters displayed in the [Parameter List] are saved in an RSC parameter file. The desired file name can be designated.
Reference: <3.2.5> Saving RSC parameters in a file

### 5.1.1.6.    [Import RC Parameters]

Parameters are loaded from the RC parameter file and displayed in the [Parameter List]. This operation does not affect those values which are not specified in the RC parameter file.

Reference: <3.3.2.1.2> Importing RC parameter file

### 5.1.1.7.    [Exporting in CSV]

The RSC parameter data currently being edited can be output in a CSV file.

Reference: <4.1.3> Exporting in CSV format

### 5.1.1.8. [Collation...]

Collates an editing RSC parameter with saved RSC parameter file.

See :   4.1.6. Collation of RSC Parameters

### 5.1.1.9.    [Exit]

Application is terminated.

### 5.1.2.   [Edit]

### 5.1.2.1.    [Copy]

The parameter value currently selected in the [Parameter List] is duplicated to the clipboard in the text format.

### 5.1.2.2.    [Paste]

The value having been saved in the clipboard with the [Copy] operation overwrites the parameter currently selected in the [Parameter List].

### 5.1.2.3. [Undo]

It cancels the parameter editing operation performed immediately before.

### 5.1.2.4. [Redo]

It redoes the edit operation canceled by menu command [Undo] .

### 5.1.3.   [Connect]

### 5.1.3.1. [Read RSC Parameters]

RSC parameters are loaded from the RSC and displayed in the [Parameter List].

Reference: <3.4.1> Loading RSC parameters from RSC

### 5.1.3.2. [Write RSC Parameters]

The RSC parameters currently being edited in the [Parameter List] are written in the RSC.

Reference: <3.2.4> Writing RSC parameters

### 5.1.3.3. [Read RC Parameters]

The RC parameter file is loaded via the RSC during communications with RC and displayed in the [Parameter List].

This operation does not affect any values not specified in the RC parameter file.

Reference: <3.3.2.1.1> Loading RC parameters

### 5.1.3.4. [Collate with RC Parameter...]

It collates "robot dependence parameter" in the RSC parameter under edit with "RC parameter which received from RC".

See : 4.1.6. Collation of RSC Parameters

### 5.1.3.5. [Change Password...]

Change the password of the RSC parameter writing.

Reference: 4.1.4. Change password (password of RSC parameter writing)

### 5.1.4. [View]

### 5.1.4.1. [Position Status]

Switch to the [Position Status] view.

### 5.1.4.2. [I/O Status]

Switch to the [I/O Status] view.

### 5.1.4.3. [Error Log]

Switch to the [Error Log] view.

### 5.1.4.4. [Parameter Editor]

The focus (a control receiving keyboard input) moves to the [Parameter Editor] view if it is in somewhere else.

### 5.1.4.5. [Area Limit Viewer]

The [Area Limit Viewer] view will be displayed if it is not already.

If the [Area Limit Viewer] view is already displayed but the focus is somewhere other than in that view, the focus will be moved to the [Area Limit Viewer]

### 5.1.4.6. [Tool Coordinate Viewer]

The [Tool Coordinate Viewer] view is displayed if it is not already.

If the [Tool Coordinate Viewer] view is already displayed but the focus is somewhere other than in that view, the focus will be to the [Tool Coordinate Viewer].

### 5.1.4.7. [Tool Bar]

The tool bar is displayed or hidden.

### 5.1.4.8. [Status Bar]

The status bar is displayed or hidden.

### 5.1.5. [Help]

### 5.1.5.1. [About RSCwin]

The version data is displayed.

Reference: <4.4> Version Data

## 5.2. [Position Status] View

### 5.2.1. [File]

### 5.2.1.1.　[Exit]

Application is terminated.

### 5.2.2.　[Edit]

### 5.2.2.1.　[Copy]

If an item is selected in the position status list, the name, data type, value and unit of the selected item are copied to the clipboard in the text format.

### 5.2.3.　[View]

### 5.2.3.1.　[Parameter Editor]

Switch to the [Parameter Editor] view.

### 5.2.3.2.　[I/O Status]

Switch to the [I/O Status] view.

### 5.2.3.3.　[Error Log]

Switch to the [Error Log] view.

### 5.2.3.4.　[Position Status]

The focus (a control receiving keyboard input) moves to the [Position Status] view if it is not already there.

### 5.2.3.5.　[Area Limit Viewer]

The [Area Limit Viewer] view is displayed if it is not already.

If the [Area Limit Viewer] view is already displayed but the focus is not there it will be moved to the [Area Limit Viewer] view.

### 5.2.3.6.　[Refresh]

The position status view is updated to the latest data.

### 5.2.3.7.　[Auto Refresh]

Automatic update of the position status view is turned on or off.

**5.2.3.8.　[Tool Bar]**

The tool bar is displayed or hidden.

**5.2.3.9.　[Status Bar]**

The status bar is displayed or hidden.

**5.2.4.　[Help]**

**5.2.4.1.　[About RSCwin]**

The version data is displayed.

Reference: <4.4> Version Data

**5.3.　[I/O Status] View**

**5.3.1.　[File]**

**5.3.1.1.　[Exit]**

Application is terminated.

**5.3.2.　[Edit]**

**5.3.2.1.　[Copy]**

If an item is selected in the I/O status list, the signal name, type and value of the
selected item are copied to the clipboard in a text format.

**5.3.3.　[View]**

**5.3.3.1.　[Parameter Editor]**

Switch to the [Parameter Editor] view.

**5.3.3.2.　[Position Status]**

Switch to the [Position Status] view.

**5.3.3.3.　[Error Log]**

Switch to the [Error Log] view.

**5.3.3.4.    [Refresh]**

The I/O status view is updated to the latest data.


**5.3.3.5.    [Auto Refresh]**

Automatic update of the I/O status view is turned on or off.


**5.3.3.6.    [Tool Bar]**

The tool bar is displayed or hidden.


**5.3.3.7.    [Status Bar]**

The status bar is displayed or hidden.


**5.3.4.    [Help]**


**5.3.4.1.    [About RSCwin]**

The version data is displayed.

Reference: <4.4> Version Data


**5.4.    [Error Log] View**


**5.4.1.    [File]**


**5.4.1.1.    [Save Error Log]**

The currently displayed error log is saved in a file.

Reference: <4.3.2> Saving error log


**5.4.1.2.    [Exit]**

Application is terminated.


**5.4.2.    [Edit]**


**5.4.2.1.    [Copy]**

The error log currently selected in the [Parameter List] is copied to the clipboard in a text format.

### 5.4.3. [Connect]

### 5.4.3.1. [Delete Error Log]
The error log retained in the RSC is deleted.

### 5.4.4. [View]

### 5.4.4.1. [Parameter Editor]
Switch to the [Parameter Editor] view.

### 5.4.4.2. [Position Status]
Switch to the [Position Status] view.

### 5.4.4.3. [I/O Status]
Switch to the [I/O Status] view.

### 5.4.4.4. [Refresh]
The error log is updated to the latest data.

### 5.4.4.5. [Tool Bar]
The tool bar is displayed or hidden.

### 5.4.4.6. [Status Bar]
The status bar is displayed or hidden.

### 5.4.5. [Help]

### 5.4.5.1. [About RSCwin]
The version data is displayed.
Reference: <4.4> Version Data

**JTEKT** JTEKT CORPORATION

**MACHINE TOOLS & MECHATRONICS DIVISION**
**1-7, Kita-jizoyama, Nodacho, Kariya, Aichi-Pref., Japan**
**TEL: 81- 566- 21- 8611**
**FAX: 81- 566- 23- 6670**

| Instruction Manual No |
| --- |
| RE22E |