# **VIP** Windows

Getting Started...

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This document contains operation guide and supplementary information of VIP Windows. Be sure to read this document before using this software.

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## [1] Installation Guide

#### **Precautions**

- (\*) As a rule, separate software sets should be purchased for each computer.
- (\*) This software, help and manual may not be used or reproduced in part or in their entirety without permission.
- (\*) Responsibility is not accepted for any situations that may occur as a result of using this software, help or manual.
- (\*) The specifications of this software, and information contained in manual and help, may be updated without notice.
- (\*) The contents of this product are considered to be fully adequate and satisfactory. Should the user have any questions or concerns, however, about this software or information contained in help and manual, please contact your agent.
- (\*) Prepare to enter emergency stop input for safe when moves any axis by using automatic operation, step operation, manual movement and trace operation.
- (\*) Prepare MPB/RPB programming box to setup robots, because MRC/QRC/RCX robot controllers are not designed to use only from VIP (via RS232C).

## About VIP Windows

This application is assistant software for MRC/QRC/RCX robot controller and robots. This application can be used in the following ways:

- (\*) Backup current data from robot controller.
- (\*) Restore previously saved data to robot controller.
- (\*) Operate robot controller and robots directly.
- (\*) Modify robot controller data directly.
- (\*) Modify various data as file on your computer.

#### [A type of robot controller]

2 axes robot controller:	RCX22x
4 axes robot controller:	QRC, QRCA, QRCH, QRCH-E, QRCX RCX40, RCX14x
8 axes robot controller:	MRC, MRCA, MRCH, MRCH-E, MRCX

# Package contents [Setup disk] CD-ROM

[Serial communication cable (Option)] 9 pins – 25 pins (for IBM-PC/AT or compatibles) P/N: KR7-M538F-100 (for POPCOM/VIP/CUP)

	5501		01)	
Robot Co	ntrol	ler Side Con	nputer	Side
(25 pins:	Plug	) (9 p	ins: So	cket)
Signal	Pins		Frame	
F.G	1		Signal	Pins
TXD	2		TXD	3
RXD	3	K	RXD	2
RTS	4		RTS	7
CTS	5	K	CTS	8
D.G	7		D.G	5
HSTCHK	12		DSR	6
HSES1	18		DCD	1
HSES2	21		DTR	4
DSR	6	K T		
DCD	8	₩ ∕		
DTR	20	<b> </b>		

Memo

(\*) Prepare a 25 pins (Socket) - 9 pins (Plug) straight serial conversion adapter (P/N: KAX-M657E-010) for RCX robot controller.

Prease refer below wiring diagram when using standard serial conversion adapter that is on the market.

Robot ( 9 pins	Conti : Plug	roller Side Computer g) (25 pins: S	Side ocke
Frame		Frame	
Signal	Pins	Signal	Pins
DCD	1	F.G	1
RXD	2	TXD	2
TXD	3	RXD	3
DTR	4		4
D.G	5	CTS	5
DSR	6	DSR	6
RTS	7	D.G	7
CTS	8		8
RI	9	DTR	20
		RI	22

## **Required system environment**

#### [Personal Computer]

PC with an 80386-processor minimum

32MB of RAM minimum

2MB of available hard-disk space minimum

CD-ROM drive x4 speed or more

Serial communication port

(\*) USB-Serial adapter that can through any control code and manage XON/XOFF flow control can be used.

## [Operation Software]

Microsoft Windows 95, NT 4.0 or later operating system

#### [Robot Controller]

MRC/QRC/RCX series

(\*) To operate robot from your computer, it is necessary to connect robots to robot controller and complete to setup robot controller for robots.

#### Install and Un-install

Installing to hard disk on your computer is necessary for operating VIP Windows. If previous version of VIP Windows was installed on your computer, please remove it before installing.

#### [Install]

- 1. Insert disk into the CD-ROM drive. The setup program should start automatically. If the setup program does not start, double-click install.exe from the directory window for your CD-ROM drive.
- 2. Follow the instructions on your screen.
- (\*) From V1.6.1, the default installation folder is changed from C:\VIPWIN to C:\Program Files\VIPWIN. [Un-install]
  - 1. Using Add/Remove Programs in Control Panel to remove [VIP Windows].
  - 2. Follow the instructions on your screen.

#### [Un-install Manually]

- 1. Delete folder (C:\Program Files\VIPWIN) where VIP Windows was installed.
- 2. Delete configuration settings file Vipwin.ini file in the Windows folder.
- 3. Click [Taskbar and Start Menu] under [Settings] on [Start] menu.
- 4. Click [Advanced] tab in [Taskbar and Start Menu Properties] dialog box, then click [Advanced...] button in [Start menu] group.
- 5. Expand [Programs] and delete [VIP Windows] folder.

#### **Directory structure**

When setup was completed, files are installed in the specified folder. **VIPWIN.EXE** CHECKQRC.DLL CHECKRCX.DLL CHECK9XX.DLL VIPWIN.HLP README.TXT UPDATE.TXT

## Start and Exit

[Start]

- Click [VIPWIN] item in [VIP Windows] under [Programs] on [Start] menu.
   [Select] dialog box of VIP windows is shown.

Select	×
Create New File	OK
C Connect Robot Controller	Cancel
	Help

- 3. Click [Cancel] button to open an empty [Main] window.
  - (\*) If VIP needs too many time to startup, please check "Run in separate memory space" in advanced properties of the shortcut for Windows 2000/XP.

#### [Exit]

- 1. Click [Exit] command in [File] menu to guit the application. Or, double click system menu box in [Main] window.
- 2. When unsaved data is existing in [File Editor] window, a message box which suggest saving data to file is shown.
- 3. When [Robot Operate] window is opened with automatic operation, a message box which suggest to stop running is shown.

# [2] Backup current data from robot controller There are two methods to backup robot controller data listed below. (\*) Use System - Save command in [Robot Operate] window. (\*) Use [Download] command in empty [File Editor] window.

- Use System Save command in [Robot Operate] window
  1. Stop running in robot controller and connect serial port on your computer with robot controller by using serial communication cable. Then, Click [Connect Robot Controller...] command in [File] menu.
  - 2. [Select Port] dialog box is shown.

Select Port	×
Serial Port	OK
© COM1	Cancel
C COM2	
C COMA	пеф
C COM5	
C COM6	
C Dummy	Conditions

Select serial port where a robot controller is connected and select communication conditions using [Conditions...] button. Then click [OK] button.

3. [Robot Operate] window is shown.

× COM1	
Robot Controller Mode: System	
Manual Mode	
Origin Manual	
Auto Mode	
Exe. Program: TEST	
Exe. Task:	
Exe. Speed: 50	
Start Reset Break	
Stop	
Step Next Skip	
🗖 Sho <del>w</del> Exe. Program	
System Mode	
System Online Edit	
DIO Watch Utility	
EMG:off UKG:off SKV:off SEQ:off	

Click [System...] button.

[System - Information] dialog box is shown. 4.

System - Information 🛛 🔀					
Version:	V8.11,R1019-V5.01-V1.01/V1	V8.11,R1019-V5.01-V1.01/V1.01/V1.01/V1.01////			
Configure:	YK500X-XYZR-SRAM/196kB,DIO_N-DIO_N(1/2)			Help	
Memory:	195661/98060				
- Load Option(No	- Load Option(Normally Overwrite or Append) -				
<b>Ignore Entire</b>	Parameters	Load	Initialize	Diagnose	
🗖 Ignore Program Comment		Save	Std.Coord	History	
Minimize Prog	gram Spaces				

Click [Save...] button.

5. [Warning] message box is shown.

6.

[warning] message box i	5 SHOWH.	
VIP Windows		×
Perform save data ? Receive data from the ro	bot controller, and overwrite or a	append them to the specified file.
Γ	OK Cancel	
Click [OK] button. [Save As] dialog box is sl	hown.	
Save As		? ×
File <u>n</u> ame:	<u>F</u> olders:	ОК
rcx40.all	c:\vipwin	
A	🔄 c:\	Cancel
	🤄 vip <del>w</del> in	<u>H</u> elp
		N <u>e</u> twork
		<b>v</b>

Save file as type: Drives: System C: win95us

- Enter a new filename (Ex: rcx40.all) and click [OK] button.
- 7. [Communicating...] dialog box is shown while saving data specified by file extension and write them to the specified file.
- 8. [OK] message box is shown if completed.

/IP Windows 🛛 🕑		
⚠	OK	
	OK	

Click [OK] button.

9. <u>If System (\*.all) file is selected for MRC/QRC series robot controller</u>, [Warning] message box is shown because palette data is excluded in System (\*.all) file.

VIP Wind	lows X
	Perform save palette data ? Receive data from the robot controller, and overwrite or append them to the specified file.
	OK Cancel

Click [OK] button if palette data is used. Otherwise, click [Cansel] button. Then, [System - Information] dialog box is shown again.Click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

10. [Save As] dialog box that is initialized with same file name as System (\*.all) file and extension is changed for palette data is shown.

Save As		? ×
File <u>n</u> ame: qrcx.plt	<u>F</u> olders: c:\vipwin	OK Cancel
<u> </u>		<u>H</u> elp <u>Ne</u> twork
Save file as type:	Dri <u>v</u> es:	

Click [OK] button.

- 11. [Communicating...] dialog box is shown while saving data specified by file extension and write them to the specified file.
- 12. [OK] message box is shown if completed.



Click [OK] button.

13. [System - Information] dialog box is shown again. Then, click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

- Use [Download] command in empty [File Editor] window
  1. Stop running in robot controller and connect serial port on your computer with robot controller by using serial communication cable. Then, Click [Connect Robot Controller...] command in [File] menu.
  - 2. [Select Port] dialog box is shown.

Select Port	×
Serial Port	OK
© COM1 C COM2	Cancel
C COM2	Help
C COM4	
C COM5	
С СОМ6	
☐ Dummy	Conditions

Select serial port where a robot controller is connected and select communication conditions using [Conditions...] button. Then click [OK] button.

3. [Robot Operate] window is shown.

×сом1	
Robot Controller Mode: System	
Manual Mode	
Origin Manual	
Auto Mode	
Exe. Program: TEST	
Exe. Task:	
Exe. Speed: 50	
Start Reset Break	
Stop	
Step Next Skip	
🗖 Show Exe. Program	
System Mode	
System Online Edit	
DIO Watch Utility	
EMQ:011 UNQ:011 SNY:011 SEQ:011	

Click [New...] command in [File] menu.

[Select Robot Controller Type] dialog box is shown. 4.

Select Robot Controller Type	×
C MRC (1601points)	OK
C MRC, MRCA, MRCH (4001points)	Cancel
C QRC,QRCA,QRCH,QRCX	
C RCX40 (4001points)	Help
C RCX40 (10000points)	
C RCX14x	
• RCX22x	

Select type of robot controller.

5. [Select File Type] dialog box is shown.

Select File Type	×
🖲 System (*.all)	OK
C Program (*.pgm)	Canool
C Point (*.pnt)	Lancer
C Point Comment (*.pcm)	Help
C Parameter (*.prm)	
C Shift (*.sft)	
C Hand (*.hnd)	
C Palette (*.plt)	

Select System (\*.all) and click [OK] button.6. [Input Program name] dialog box is shown.

nput Program name	×
	OK
	Cancel
	Help

Program name(max 8 characters) is composed by alphanumeric and underline(\_).

Click [Cancel] button. 7. An empty [File Editor] window is shown.

🗧 Editor1		l ×
Program	Point	
Point	P0 =	
Point Comment	P1 =	
Parameter	P2 =	
Shift	P3 =	
Hand		
Palette		
	P10 =	
	P11 =	
	P12 =	
<b>n</b> 0/100	P13 =	
Programs: 0/100	P14 =	
Total Bytes: 0/196608	P15 =	
Current Butee: 0/112028	P16 =	
current bytes.	P17 =	
	P18 =	
	P19 =	
	P20 =	<b>_</b>

Click [Download...] command in [Edit] menu.

8. [Select Port - Download] dialog box is shown.

Select Port - Download	×
COM1	OK
	Cancel
	Help
Receive data from the robot controller, and overwrite to the active document.	te or append them

A list of serial port connected to robot controllers is shown. Select a port to backup data and click [OK] button.

9. [Select Data - Download] dialog box is shown.

Select Data - Download				×
A11				OK
Progran 1o*TEST	5	41	RV	Cancel
Point			i i	Help
Point Connent Paraneter				пор
Shift				
Hand Palette				
T die cce				
4			•	

A list of data contained in the specified robot controller is shown. Select data to backup to [File Editor] window and click [OK] button.

- 10. [Communicating...] dialog box is shown while saving data specified by file extension. Received data to [File Editor] window from robot controller are appended or over-written if existed.
- 11. [OK] message box is shown if completed.



Click [OK] button to return to [File Editor] window .

- 12. Then, click [Save As...] command in [File] menu.
- 13. [Save As] dialog box is shown.

Gave As		? >
File <u>n</u> ame: rcx40. all	Eolders: c:\vipwin	OK Cancel <u>H</u> elp N <u>e</u> twork
Save file as <u>t</u> ype: System	Dri <u>v</u> es:	<b>_</b>

Enter a new filename (Ex: rcx40.all) and click [OK] button. Entire data in [File Edit] window is saved as a file and a caption of [File Editor] window is changed to specified filename.

14. Click [Close] command in [File] menu to close [File Editor] window. Then returns to [Robot Operate] window. Normally, click [Close] command in [File] menu to close [Robot Operate] window.

15.	If palette data	, which is excluded in	System (*.all) file	e, is used on	MRC/QRC series robot controlle		
	click [System	.] button on [Robot Ope	rate] window. [Sys	stem - Informa	ation] dialog box is shown.		
	System - Information 🔀						
	Version:	V8.11,R1019-V5.01-V1.01/V	1.01/V1.01/V1.01/	-111	Close		
	Configure:	YK500X-XYZR-SRAM/196kB	,DIO_N-DIO_N(1/2)		Help		
	Memory:	195661/98060					
	Load Option(No	ormally Overwrite or Append)-		1-34-15	Disease 1		
	Ignore Entire	Parameters	Load	Initialize	Diagnose		
	Ignore Progra	am Comment	Save	Std.Coord	. History		
	I Minimize Pro	gram Spaces					
	Click [Save]	button.					
16.	[Warning] mes	sage box is shown.					
	VIP Windows			×			
		save data ?					
	- 🕒 Receive	data from the robot controller, and o	overwrite or append them t	o the specified file.			
		OK	Canaal				
			Cancer				
	Click [OK] butt	on.			-		
17.	[Save As] dialo	og box is shown.					
	Save As			? ×			
	File <u>n</u> ame:	<u>F</u> olders:		οκ			
	qrcx.plt	c:\vipwin	_				
		📥  🗎 📥		Cancel			
		🔄 vipwin		Help			
			]	etwork			
		<b>v</b>	<b>V</b>				
	Save file as tun	e: Drives:					
	Palette		ius 🔻				
	1						
	Enter a new fil	ename (Ex: qrcx.plt) and	d click [OK] button				

- 18. [Communicating...] dialog box is shown while saving data specified by file extension and write them to the specified file.
- 19. [OK] message box is shown if completed.



Click [OK] button.

20. [System - Information] dialog box is shown again. Then, click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

# [3] Restore previously saved data to robot controller There are two methods to restore robot controller data listed below. (\*) Use System - Load command in [Robot Operate] window. (\*) Use [Upload] command in [File Editor] window.

#### Use System - Load command in [Robot Operate] window

- 1. Stop running in robot controller and connect serial port on your computer with robot controller by using serial communication cable. Then, Click [Connect Robot Controller...] command in [File] menu.
- 2. [Select Port] dialog box is shown.

Select Port	×
Serial Port	OK
C COM2	Cancel
C COM3	Help
C COM4	
C COM5	
С СОМ6	
C Dummy	Conditions

Select serial port where a robot controller is connected and select communication conditions using [Conditions...] button. Then click [OK] button.

3. [Robot Operate] window is shown.

🗯 COM1	
Robot Controller Mode: System	
Manual Mode	
Origin Manual	
Auto Mode	
Exe. Program: TEST	
Exe. Task:	
Exe. Speed: 50	
Start Reset Break	
Stop	
Step Next Skip	
🗆 Show Exe. Program	
System Mode	
System Online Edit	
DIO Watch Utility	
EMG:off ORG:off SRV:off SEQ:off	

Click [System...] button.

4. [System - Information] dialog box is shown.

System - Information 🔀					
Version:	V8.11,R1019-V5.01-V1.01/V1	Close			
Configure:	YK500X-XYZR-SRAM/196kB,	Help			
Memory:	195661/98060				
- Load Option(Normally Overwrite or Append) -					
✓ Ignore Entire	Parameters	Load	Initialize	Diagnose	
🗌 🗌 Ignore Progr	am Comment	Save	Std.Coord	History	
🗆 Minimize Pro	gram Spaces				

Click [Load...] button.

5. [Warning] message box is shown.

/IP Wind	IP Windows 🛛 🕅				
⚠	Perform load data ? Read data in the specified file, and overwrite or append them to the robot controller.				
	CAUTION: Entire parameters are ignored while loading.				
	<u>Yes</u> <u>N</u> o				

#### Click [OK] button. 6. [Open] dialog box is shown.

Open		? ×
File <u>n</u> ame: *.pcm;*.prm;*.sft;*.hnd;*.plt rcx40.all	Eolders: c:\vipwin	OK Cancel <u>H</u> elp N <u>e</u> twork
List files of <u>type:</u> Vip <del>win</del>	Dri <u>v</u> es: c: win95us	

Select a filename (Ex: rcx40.all) and click [OK] button.

- 7. [Communicating...] dialog box is shown while restoring data to robot controller from previously saved file in your computer. Transmitted data to robot controller are appended or over-written if existed.
- 8. [OK] message box is shown if completed.



Click [OK] button.

9. <u>If System (\*.all) file is selected for MRC/QRC series robot controller</u>, [Warning] message box is shown because palette data is excluded in System (\*.all) file.

VIP Wind	lows 🗙
⚠	Perform load palette data ? Read data in the specified file, and overwrite or append them to the robot controller.
	OK Cancel

Click [OK] button if palette data is used. Otherwise, click [Cansel] button. Then, [System - Information] dialog box is shown again.Click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

10. [Open] dialog box that is initialized with same file name as System (\*.all) file and extension is changed for palette data is shown.

Open		? ×
File <u>n</u> ame: qrcx.plt qrcx.plt	Eolders: c:\vipwin	OK Cancel <u>H</u> elp N <u>e</u> twork
List files of <u>type</u> : Palette	Dri <u>v</u> es:	•

Click [OK] button.

- 11. [Communicating...] dialog box is shown while restoring data to robot controller from previously saved file in your computer. Transmitted data to robot controller are appended or over-written if existed. 12. [OK] message box is shown if completed.



Click [OK] button.

13. [System - Information] dialog box is shown again. Then, click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

## Use Upload command in [File Edit] window

- 1. Stop running in robot controller and connect serial port on your computer with robot controller by using serial communication cable. Then, Click [Connect Robot Controller...] command in [File] menu.
- 2. [Select Port] dialog box is shown.

Select Port	×
Serial Port	OK
⊙ COM1	Cancel
C COM3	Heln
C COM4	
C COM5	
C COM6	
C Dummy	Conditions

Select serial port where a robot controller is connected and select communication conditions using [Conditions...] button. Then click [OK] button.

3. [Robot Operate] window is shown.

DIM COM1	
Robot Controller Mode: System	
Manual Mode	
Origin Manual	
_Auto Mode	
Exe. Program: TEST	
Exe. Task:	
Exe. Speed: 50	
Start Reset Break	
Stop	
Step Next Skip	
🗖 Show Exe. Program	
System Mode	
System Online Edit	
DIO Watch Utility	
EMG:off ORG:off SRV:off SEQ:off	

Click [Open...] command in [File] menu.

## 4. [Open] dialog box is shown.

Open		? ×
File <u>name:</u> *.pcm;*.prm;*.sft;*.hnd;*.plt rcx40. all	Eolders: c:\vipwin C:\ C:\ yipwin	OK Cancel <u>H</u> elp N <u>e</u> twork
List files of <u>type:</u> Vip <del>w</del> in	Dri <u>v</u> es: c: win95us	×

Select a filename (Ex: rcx40.all) and click [OK] button.

5. [Select Robot Controller Type] dialog box is shown.

Select Robot Controller Type	1×
C MRC (1601points)	OK
C MRC,MRCA,MRCH (4001points)	Cancel
C RCX40 (4001points)	Help
C RCX40 (10000points)	
C RCX14x	
• RCX22x	

Select type of robot controller.

6. [File Editor] window contained with previously saved data is shown.

RCX40.ALL		
Program <test> Point Commen Parameter Shift Hand Palette</test>	t	TEST 0001: *LABEL: 0002: P10=100.00 100.00 20.00 0.00 0.00 0003: P11=150.00 100.00 20.00 0.00 0.00 0004: P12=150.00 150.00 20.00 0.00 0.00 0005: P13=100.00 150.00 20.00 0.00 0.00 0006: MOVE P,P10 0006: MOVE C,P11,P12 0008: MOVE C,P13,P10 0009: MOVE C,P13,P10,XY 0010: MOVE C,P13,P10,XY 0011: HALT
Programs:	1/100	
Total Bytes:	947/196608	
Current Bytes:	247/98304	

Click [Upload...] command in [Edit] menu.

7. [Select Port - Upload] dialog box is shown.

Select Port - Upload	×
COM1	OK
	Cancel
	Help
Transmit data in the active document, and overwrit to the robot controller.	te or append them

A list of serial port connected to robot controllers is shown. Select a port to restore data and click [OK] button.

8. [Select Data - Upload] dialog box is shown.

Select Data - Upload	8
A11	OK
Progran <test></test>	Cancel
Point	
Point Connent	Help
Parameter	
Shift	
Hand	
Palette	
Cut Program Comment	
Minimize Program Spaces	

A list of data contained in [File Editor] window is shown. Select data to restore to the specified robot controller and click [OK] button.

- 9. [Communicating...] dialog box is shown while restoring data to robot controller from previously saved data in [File Editor] window. Transmitted data to robot controller are appended or over-written if existed.
- 10. [OK] message box is shown if completed.



Click [OK] button to return to [File Editor] window .

- 11. Click [Close] command in [File] menu to close [File Editor] window. Then returns to [Robot Operate] window. Normally, click [Close] command in [File] menu to close [Robot Operate] window.
- 12. If palette data, which is excluded in System (\*.all) file, is used on MRC/QRC series robot controller, click [System...] button on [Robot Operate] window. [System Information] dialog box is shown.

System - Informa	ation			<u>×</u>
Version:	V8.11,R1019-V5.01-V1.01/V1.01/V1.01/V1.01////			Close
Configure:	YK500X-XYZR-SRAM/196kB,	YK500X-XYZR-SRAM/196kB,DIO_N-DIO_N(1/2)		
Memory:	195661/98060	]		
-Load Option(N	lormally Overwrite or Append) —			
✓ Ignore Entire Parameters		Load	Initialize	Diagnose
☐ Ignore Program Comment		Save	Std.Coord	History
Minimize Pr	ogram Spaces		·	
Click [Load]	button.			
[Warning] me	ssage box is shown.			

13.	[Warnir	ng] message box is shown.
	VIP Wine	do <del>w</del> s 📃
		Perform load data ? Read data in the specified file, and overwrite or append them to the robot controller.
		CAUTION: Entire parameters are ignored while loading.
		( <u>Y</u> es) <u>N</u> o

Click [OK] button.

14. [Open] dialog box is shown.

Open		? ×
File <u>n</u> ame: qrcx.plt qrcx.plt	Eolders: c:\vipwin	OK Cancel <u>H</u> elp N <u>etwork</u>
List files of <u>type:</u> Palette	Dri <u>v</u> es:	<b>•</b>

Select a filename (Ex: qrcx.plt) and click [OK] button.

- 15. [Communicating...] dialog box is shown while restoring data to robot controller from previously saved file in your computer. Transmitted data to robot controller are appended or over-written if existed.
- 16. [OK] message box is shown if completed.



Click [OK] button.

17. [System - Information] dialog box is shown again. Then, click [Close] button to return to [Robot Operate] window, and click [Close] command in [File] menu to close [Robot Operate] window.

## [4] Operate robot controller and robots directly To operate or observe status of robots connected to robot controller can be used. Prepare to enter emergency stop

input when executing automatic operation, step operation, manual movement and trace operation.

- (\*) Connect a robot controller
   (\*) Return to the origin position
   (\*) Move various axes manually
   (\*) Start automatic operation
   (\*) Initialize robot controller data

#### **Connect a robot controller**

[Robot Operate] window is needed to operate or observe status of robots connected to robot controller.

- 1. Stop running in robot controller and connect serial port on your computer with robot controller by using serial communication cable. Then, Click [Connect Robot Controller...] command in [File] menu.
- 2. [Select Port] dialog box is shown.

Select Port	×
Serial Port	OK
© COM1	Canaal
C COM2	
C COM3	Help
C COM4	
C COM5	
C COM6	
C Dummy	Conditions

Select serial port where a robot controller is connected and select communication conditions using [Conditions...] button. Then click [OK] button. (\*) If an error message box with "E0006: Receive timeout" is shown, some of communication conditions are

- (\*) If an error message box with "E0006: Receive timeout" is shown, some of communication conditions are mismatched between robot controller and your computer. Please confirm communication conditions in robot controller using MPB [System] – [CMU] command.
- 3. [Robot Operate] window is shown.

DOM1	
Robot Controller Mode: System	
Manual Mode	
Origin Manual	
- Auto Mode	
Exe. Program: TEST	
Exe. Task:	
Exe. Speed: 50	
Start Reset Break	
Stop	
Step Next Skip	
Show Exe. Program	
System Mode	
System Online Edit	
DIO Watch Utility	
EMG:off ORG:off SRV:off SEQ:off	

#### Return to the origin position

When axes controlled by incremental encoder is used, returning to the origin is needed before executing operation after power turning on.

- 1. Click [Origin...] button in [Robot Operate] window.
- 2. [Origin] dialog box is show

[Ongin] ulaio	y box is shown.			
Origin				
Status:	INCOMPLETE			OK
Motor Type: Axis:	Incremental Incremental Incremental Incremental Incremental Incremental	C Absolute Y: C SX: C SY:		Close
Reference(%	)			Help
0%	0%	0%	0%	DIO
	-			Utility
Search Meth	od V Sensor V	Sensor	▼ Sensor ▼	

A current origin status is shown.

3. Click [Motor Type: Incremental] radio button to start only axes controlled by incremental encoder return to the origin.

4.	[Moving] dialog box is shown.	
		ł

Moving		×				
Escape from robot movable areas and prepare to input the EMG. signal for safe. @ORIGIN						
Go!	Cancel	Help				

Click [Go!] button to start moving. [Go!] button changes to [Stop !] button while moving to stop axes.

5. After returning to the origin, [OK] message box is shown. Click [OK] button to return to [Origin] dialog box.

Origin	×
Status: COMPLETE	0K
Motor Type: © Incremental C Absolute Avie: © All C MX: C MY: C SX: C SY:	Close
Reference(%)	Help
57% 76% 58% 58%	DI0
	Utility
Sensor Sensor Sensor Sensor	

- An origin status and machine references are updated.
- 6. Click [Close] button to return to [Robot Operate] window.

#### Move various axes manually

- 1. Click [Manual...] button in [Robot Operate] window.
- 2. [Manual] dialog box is shown.

Manual		
Group:	🔽 Main 🔲 Sub	Close
Unit	Pulse Mil	Help
Shift:	0	
Hand:	0	DIU
Manual Speed(%):	50 💌	Utility
POS 0 0	0 0 0 0	
Joa:		Position Trace
		Point Trace
		Interpolate Trace

Escape from robot movable areas and prepare to input the EMG. signal for safe.

A current robot position with specified group, unit, shift coordinate and hand definition, and also manual movement speed.

- 3. Click [DIO...] button to monitor or operate robot I/O.
- 3-1. [DIO] dialog box is shown.

#### DIO - COM1



- Each signal box shows robot I/O name automatically when mouse moves on box. A signal box which (\*) background colored gray shows current status. A signal box which background colored white shows current status and toggle status.
- Click [Update] button to reload robot I/O status. (\*)
- (\*) Click [Reset] button to clear all of the robot I/O outputs which can be operated.

- 4. Click [Utility...] button to release emergency status or change servo status.
- 4-1. A message box which suggest to release emergency stop status is shown when robot controller is in emergency stop status.

	emergency	stop statu	IS.			
	VIP Windows			×		
	Perf Clos	orm cancel em e D100 and rel OK	ergency statu: ease emergen Cancel	s ? cy swtch.		
	Click [OK] b	utton.				
4-2.	[Utility] dialo	a box is s	shown.			
	Utility	3	-			
	Motor	. <b>E ON</b>			1	Update
	MX		⊠ Brake	Eree		Close
	MY:		I Brake	Free		Help
	MZ:	□ ON	🔽 Brake	Free		
	MR:	I ON	🗹 Brake	Free Free	Acce:	ss Level
					Execu 0	ite Level
	Main Gr. Arm Type				Langu	lage
	Current:	I Right	y ∏ Left 	ty	🗌 🗖 Јар	anese
	Reset:	🔽 Right	y ⊑Lef	ty	🛛 🔽 Eng	glish
	Sub Gr. Arm	Туре			1	
	Current:					
	Reset:					
	Sequence					
	3.3:Program	doesn't exi	st			
	Execution:		Disable	🗖 Enable	🗖 Ena	able(Reset DO)
	Status:	[	DISABLE			Compile
	When seque syncronized	nce status i by DI10.	is ENABLE,	<sequenc< th=""><th>:E&gt; progr</th><th>am start and st</th></sequenc<>	:E> progr	am start and st

- (\*) Click check box in [Motor] group to change servo motor status. For axes provided with a brake, brake can be canceled with [Free] check box. Since especially heavy vertical movement axes, use caution to prevent axis from falling due to brake cancellation procedure.
- (\*) Click check box in [Main Gr. Arm Type] or [Sub Gr. Arm Type] group to change arm shape to execute movement command. When using scara type robot with millimeter unit, robot arm moves toward cartesian coordinate system which was already set by standard coordinate setting.
- (\*) Click check box in [Sequence] group to change sequencer status.
- (\*) Click combo box in [Access Level] group to change security level to modify data in robot controller.
- (\*) Click combo box in [Execute Level] group to change execution level to execute program in robot controller.
- (\*) Click [check box in [Language] group to change language which is used to response communication message from robot controller and also display in MPB.
- 4-3. Click [Close] button to return to [Manual] dialog box.
- 5. Use [-] or [+] button to move axis directly as Teaching-Playback. Click button to move inching distance. Hold down button to move smoothly. When button is released, axis stops immediately.
- 6. Press EMERGENCY button on top panel of robot controller or MPB to move axis directly by hand as Direct-Teaching. Click [POS] button to update robot position.
  - (\*) Click [Utility...] button to release emergency stop status.

7. Click [Position Trace...] button to move axis where specified by value.

#### 7-1. [Position Trace] dialog box is shown.

Position Trace		X
Group:	🖓 Main 🔲 Sub	Close
Unit:	🔽 Pulse 🔲 Mil	Help
Shift:	0	пор
Hand:	0	DI0
Exe. Speed(%):	50 🗸	Utility
POS 0 0	0 0 0 0	
Туре:	C Absolute C Relative	Go!
Axis:	⊙All(ExceptAux) Cx Cy Cz Cr Ca Cb	
Position:		
Arch Axis:	Ox Cy Cz Cr Ca Cb	
Arch Pos.:		

Specify movement condition and position, then click [Go!...] button.

(\*) Click [Utility...] button to specify arm shape to execute movement command.

7-2. [Moving...] dialog box is shown.

Moving 🔀						
Escape from robot movable areas and prepare to input the EMG. signal for safe.						
@MOVE P,0 0 0 0 0,S=50						
Go!	Cancel	Help				

Click [Go!] button to start moving. [Go!] button changes to [Stop !] button while moving to stop axes.

- 7-3. Click [Close] button to return to [Manual] dialog box.
- 8. Click [Point Trace...] button to move axis where specified by point number.
- 8-1. [Point Trace] dialog box is shown.

Point Trace		<u>×</u>
Group:	Main Sub	Close
Unit:	Pulse Mil	Help
Shift:		
Hand:	0	DIU
Exe. Speed(%):	50 💌	Utility
POS 0 0	0 0 0 0	
Туре:	Absolute     C Relative	Go!
Axis:	ିAll(ExceptAux) ିx ିy ିz ିr ିa ିb	
P#1		
Arch Axis:	@None CxCyCzCrCaCb	
Arch Pos.:		

Specify movement condition and point number, then click [Go!...] button. (\*) Click [Utility...] button to specify arm shape to execute movement command.

8-2. [Moving...] dialog box is shown.

Moving		×
Escape from robot movable a safe.	areas and prepare to	input the EMG. signal for
@MOVE P,P0,S=50		
Go!	Cancel	Help

Click [Go!] button to start moving. [Go!] button changes to [Stop !] button while moving to stop axes.

8-3. Click [Close] button to return to [Manual] dialog box.

 Click [Interpolate Trace...] button to move axis where specified by point number with linear or circular interpolation.
 9-1. [Interpolate Trace] dialog box is shown.

. [Interpolate Trace] dialog box is shown.	
Interpolate Trace	×
Group: 🛛 Main 🗖 Sub	Close
Unit: 🔽 Pulse 🔽 Mil	Help
Shift: 0	
Hand: 0	DI0
Exe. Speed(2): 50	Utility
POS 0 0 0 0 0	
Type: C Linear C Circular	Go!
P#1	
P#2	
P#3	
P84	
Specify even points for circular interpolation.	

Specify movement condition and position, then click [Go!...] button.

(\*) Click [Utility...] button to specify arm shape to execute movement command.

9-2. [Moving...] dialog box is shown. Moving... Escape from robot movable areas and prepare to input the EMG. signal for safe. @MOVE L.P0.P1.S=50 Go! Cancel Help

Click [Go!] button to start moving. [Go!] button changes to [Stop !] button while moving to stop axes.

- 9-3. Click [Close] button to return to [Manual] dialog box.
- 10. Click [Close] button to return to [Robot Operate] window.

#### Start automatic operation

1. Click [Show Exe.Program] check box to show currently execution program steps in right side of window.

TEST         Manual Mode       0001:       *LABEL:         0002:       P10=180.00       180.00       20.00       0.00       0.00         Auto Mode       0003:       P11=150.00       180.00       20.00       0.00	XCOM1	
Manual Mode       0001: *LABEL:         Origin       Manual         Auto Mode       9002: P10=100.00 100.00 20.00 0.00 0.0         Auto Mode       P11=150.00 150.00 20.00 0.00 0.0         Exe. Program:       TEST         Exe. Task:       T1         Exe. Speed:       50         Start       Reset         Start       Break         Start       Reset         Start       Break         Start       Dolline Edit	Robot Controller Mode: Auto	TEST
Origin       Manual         Origin       Manual         Auto Mode       11=150.00         Exe. Program:       TEST         Exe. Program:       TEST         Exe. Speed:       50         Start       Break         Start       Break         Start       Break         Start       Break         Start       Doline Edit	– Manual Mode	0001: <b>*</b> LABEL:
Auto Mode       9893: P11=158.88 198.88 28.88 8.8         Auto Mode       9894: P12=158.08 150.08 20.08 0.08 0.8         Exe. Program:       TEST         Exe. Task:       T1         Exe. Speed:       50         Start       Break         Start       Break         Start       Break         Start       Break         Start       Break         Start       Break         Start       Online Edit	Origin Manual	0002: P10=100.00 100.00 20.00 0.00 0.00
Auto Mode       0004. P12-150.00 150.00 20.00 0.00 0.00         Exe. Program:       TEST         Exe. Task:       T1         Exe. Speed:       50         Start       Break         Start       Break         Stop         Step       Next         Start       Skip         Stop         Start       Dolline Edit	Mariua	
Auto Mode         Exe. Program:       TEST         Exe. Task:       T1         V       0006:         Exe. Speed:       50         Start       Break         Start       Break         Stop       Next         Step       Next         Stystem Mode       Online Edit	4	
Exe. Program:       IEST       V         Exe. Task:       T1       V         Exe. Speed:       50       V         Start       Break       0007:         Start       Break       0009:         Stop       Next       Skip         ✓ Show Exe. Program       Online Edit		10005. 110-100.00 150.00 20.00 0.00
Exe. Task:       T1       •         Exe. Speed:       50       •         Start       Break       0008:       MOUE C,P13,P10         Start       Break       0010:       MOUE C,P13,P10,XY         Start       Break       0011:       HALT         Stop       •       •       •       •         System Mode       •       •       •       •         System       Online Edit       •       •       •	Exe. Program: TEST	► 0007: MOUE C.P11.P12
Exe. Speed:       50         Start       Break         Start       Break         Stop       MOUE C,P13,P10,XY         Online Edit       MOUE C,P13,P10,XY	Exe. Task: T1	▼ 0008: MOVE C.P13.P10
Start     Reset     Break       Start     Reset     Break       Stop     Next     Skip       Show Exe. Program     System Mode       System     Online Edit	Euro Concordo 50	0009: MOVE C,P11,P12,XY
Start     Reset     Break       Stop     Stop       Step     Next       Show Exe. Program       System Mode       System	Exe. Speed: 50	🔟 0010: MOVE C,P13,P10,XY
Stop       Step     Next       Show Exe. Program       System Mode       System       Online Edit	Start Reset Break	0011: HALT
Step     Next     Skip       Show Exe. Program       System Mode       System	Stop	
System Mode       System       Online Edit	Step Next Skip	
System Mode  System  Online Edit	☑ Show Exe. Program	
System Online Edit	– System Mode – – – – – – – – – – – – – – – – – – –	
	System Online Edit	
DIO Watch Utility	DIO Watch Utility	
EMG:off ORG:off SRV:off SEQ:off	EMG:off ORG:off SRV:off SE0:off	
		×

- (\*) A current step is background colored yellow.
- (\*) A breakpoint is character colored red.
- (\*) Press [F9] key after placing cursor position to set or clear breakpoint status.
- 2. Click [Exe.Program] combo box to change to a new execution program. When program was changed, whole outputs and variables will be cleared.
- 3. Click [Exe.Task] combo box to change to a new task.
- 4. Click [Exe.Speed] combo box to enter a new robot moving speed.
- 5. Click [Start...] button to start automatic operation and click [Stop] button to stop automatic and step operation.
- 6. Click [Reset...] button to reset operation. When program reset was executed, whole outputs and variables will be cleared and program step will be return to top step of first executed program.
- 7. Click [Break...] button to refer or clear breakpoint. If break point was set, program step can be paused at step while automatic and step operating.
- Click [Step] button to execute current step. One program command statement of current step is executed, and current step is moved to next line after execution. If command statement is a sub-routine or subprocedure, it is executed in top line.
- 9. Click [Next] button to execute current step to next step. One program command statement of current step is executed, and current step is moved to next line after execution. If command statement is a sub-routine or sub-procedure, it is executed in one batch.
- 10. Click [Skip] button to skip current step. One program command statement of current step is skipped without execution, and current step is moved to next line.

#### Initialize robot controller data

Initialize various data contained in robot controller.

- 1. Click [System...] button in [Robot Operate] window.
- 2. [System Information] dialog box is shown.

System - Information 🛛 🕅					
Version:	V8.11,R1019-V5.01-V1.01/V1	Close			
Configure:	YK500X-XYZR-SRAM/196kB,DIO_N-DIO_N(1/2)			Help	
Memory:	195661/98060				
- Load Option(No	ormally Overwrite or Append)—				
✓ Ignore Entire Parameters		Load	Initialize	Diagnose	
☐ Ignore Program Comment		Save	Std.Coord	History	
Minimize Pro	gram Spaces				

Click [Initialize...] button. [Initialize] dialog box is shown. 3.

[Initialize] dialog box is shown.	
Initialize	×
🗌 Program	ок
Point	
Point Comment	0.030
Parameter	Help
🗖 Shift	
Hand	
Palette	
Vision	
Generation	

- Check check box for each data to be initialized and click [OK] button. An initialized data cannot be recover.
   Click [Close] button to return to [System Information] window.
   Click [Close] button to return to [Robot Operate] window.

[5] Modify robot controller data directly To create and edit program, point, parameter, shift and/or hand data directory used with robot controller. (Online Editing)

- diting)
  (\*) How to use [Online Edit] dialog box
  (\*) Add a new program
  (\*) Modify program step
  (\*) Modify point data
  (\*) Modify parameter data
  (\*) Modify shift coordinate data
  (\*) Modify hand definition data
  (\*) Modify palette data

#### How to use [Online Edit] dialog box

- 1. Click [Online Edit...] button in [Robot Operate] window.
- 2. [Online Edit] dialog box is shown.

Online Edit				×
Program			<b></b>	Close
No. Name 10*TEST	Line 11	Byte 247	RW/RC RW	Help
Point Point Comment				
Shift				Append
Hand				Modify
Palette PL0				Сору
PL1 PL2			_	Delete
PL3				Rename
Programs:	1/100			Attrib
Memory:	195661/9	8060		

(\*) List of entire data which contains in robot controller is displayed in [Directory] list box. Function buttons are enabled or disabled by selected item in list box.

	Append	Modify	Сору	Delete	Rename	Attrib
Program	0	Х	Х	Х	Х	Х
Program name	Х	0	0	0	0	0
Point	Х	0	Х	Х	Х	Х
Point Comment	Х	0	Х	Х	Х	Х
Parameter	Х	0	Х	Х	Х	Х
Shift	Х	0	Х	Х	Х	Х
Hand	Х	0	Х	Х	Х	Х
Palette	Х	Х	Х	Х	Х	Х
Palette number	Х	0	Х	0	Х	Х

(\*) A number of programs and maximum numbers of programs are shown in [Programs] edit box.

(\*) Sum of program and point bytes which were currently used and program object bytes which was compiled are shown in [Memory] edit box.

(\*) Sum of program and point bytes exclude program name, end of line code counts as 1 and one point data count as 28 bytes for RCX or 25 bytes for MRC/QRC.

#### Add a new program

- 1. Select [Program] item and click [Append...] button in [Online Edit] dialog box.
- 2. [Input Program name] dialog box is shown.

Input Program name	×				
WORKTEST	OK				
	Cancel				
	Help				
Program name(max 8 characters) is composed by alphanumeric and underline(_).					
Enter a new program name and click [OK] button					

a new program name and click [OK] button.
An empty [Online Edit - Program] dialog box is shown

An empty [Online Eult - Program] dialog box	IS SHOWH.
Online Edit - WORKTEST	
	Update
	Close
	Help
	Append
	Modify
	Delete
Steps: 1/0	<b>⊽</b> Function

 (\*) A specified program name is shown in caption (top of dialog box).
 (\*) Already registered program steps are shown in list box. Function buttons are enabled or disabled by selected item in list box.

	Append	Modify	Delete
Data line	0	0	0
Bottom line	0	Х	Х

- (\*) A current selected step and a number of steps exclude bottom line is shown in [Steps] edit box.
- 4. In the case of adding a new program step.
- 4-1. Check [Function] check box and click [Append...] button.
- 4-2. [Function bar] dialog box is shown.

· · · ·	
Function bar	$\times$
IFENDIF	<b></b>
INPUT <variable,></variable,>	
INPUT <prompt>;<variable,></variable,></prompt>	
LO0( <bit,>)=<expression></expression></bit,>	_
LO( <port&bit,>)=<expression></expression></port&bit,>	
MO <port>(<bit,>)=<expression></expression></bit,></port>	
MO( <port&bit,>)=<expression></expression></port&bit,>	
MOVE P, <point definition,=""></point>	
MOVE P,S= <expression></expression>	
MOVE P,X= <expression></expression>	
MOVE P,Y= <expression></expression>	
MOVE P,Z= <expression></expression>	_
MOVE PR= <expression></expression>	

Select opecode in list box and click [O] button.

4-3. [Function bar - Option] dialog box for the specified opecode is shown. (Ex: MOVE)

Function bar - Option		×
MOVE P, <point definition,<="" th=""><th>OK</th></point>	OK	
<point definition,=""></point>	PO	Cancel
		Help

Enter options for the specified opecode and click [OK] button.

4-4. A new program step is added to [Online Edit - Program] dialog box.

then program etep is added t	
Online Edit - WORKTEST	
MOVE P,P0	Update
	Close
	Help
	Append
	Modify
	Delete
Steps: 2/1	Function

- In the case of modifying program step.
   Select program step in list box and click [Modify...] button.
- 5-2. [Line Edit] dialog box is shown.

Online Edit - WORKTEST		×
MOVE P,P0		Update
	OX?	Close
		Help
		Append
		Modify
		Delete
Steps: 1/1	<b>N</b>	Function

Edit specified program step and click [O] button.

- 6. In the case of removing program step.
- 6-1. Select program step in list box and click [Delete...] button.
- 7. Click [Update] button to register all of the changes to robot controller.

#### Modify program step

- 1. Select [Program name] item and click [Modify...] button in [Online Edit] dialog box.
- 2. [Online Edit Program] dialog box is shown.

Dnline Edit - TEST 🛛 🕅						
*LABEL:	Update					
P10=100.00 100.00 20.00 0.00 0.00 0.00 P11=150.00 100.00 20.00 0.00 0.00 0.00	Close					
P12=150.00 150.00 20.00 0.00 0.00 0.00	Help					
P13=100.00 150.00 20.00 0.00 0.00 0.00 MOVE P.P10						
MOVE C,P11,P12	Append					
MOVE C,P13,P10 MOVE C.P11_P12_XY	Modify					
MOVE C,P13,P10,XY	Delete					
HALT						
	]					
Steps: 1/11	Function					

- (\*) A specified program name is shown in caption (top of dialog box).
- (\*) Already registered program steps are shown in list box. Function buttons are enabled or disabled by selected item in list box.

	Append	Modify	Delete
Data line	0	0	0
Bottom line	0	Х	

- (\*) A current selected step and a number of steps exclude bottom line is shown in [Steps] edit box.
- 3. In the case of adding a new program step.
- 3-1. Check [Function] check box and click [Append...] button.
- 3-2. [Function bar] dialog box is shown.



Select opecode in list box and click [O] button.

3-3. [Function bar - Option] dialog box for the specified opecode is shown. (Ex: MOVE)

Function bar - Option			×
MOVE P, <point definition,<="" th=""><th>ОК</th><th>]</th></point>	ОК	]	
<pre><point definition,=""></point></pre>	P0	Cancel	1
		Help	

Enter options for the specified opecode and click [OK] button.

- 4. In the case of modifying program step.4-1. Select program step in list box and click [Modify...] button.4-2. [Line Edit] dialog box is shown.

Online Edit - TEST	×
*LABEL:	Update
	Close
P12=150.00 150.00 20.00 0.00 0.00 0.00 P13=100.00 150.00 20.00 0.00 0.00 0.00	Help
MOVE P,P10 MOVE C,P11,P12	Append
MOVE C,P13,P10 MOVE C,P11,P12,XY	Modify
MOVE C,P13,P10,XY Halt	Delete
Steps: 1/11	Function

- Edit specified program step and click [O] button.
  5. In the case of removing program step.
  5-1. Select program step in list box and click [Delete...] button.
  6. Click [Update] button to register all of the changes to robot controller.

#### Modify point data

- 1. Select [Point] item and click [Modify...] button in [Online Edit] dialog box.
- 2. [Online Edit Point] dialog box is shown.

Online	Edit	- Point							×
P 0	=	0	8	8	6	0	0		Update
P1	=	1	1	1	1	1	1		
P2	=	2	2	2	2	2	2		Close
P3	=	3	3	3	3	3	3		
P4	=	4	4	4	4	4	4		Help
P5	=	5	5	5	5	5	5		
P6	=	6	6	6	6	6	6		
P7	=	7	7	7	7	7	7		Modifu
P8	=	8	8	8	8	8	8		modily
P9	=	9	9	9	9	9	9		Сору
P10	=	0.00	0.00	0.00	0.00	0.00	0.00 0		
P11	=	1.00	1.00	1.00	1.00	1.00	1.00 0		Delete
P12	=	2.00	2.00	2.00	2.00	2.00	2.00 0		
P13	=	3.00	3.00	3.00	3.00	3.00	3.00 0		
P14	=	4.00	4.00	4.00	4.00	4.00	4.00 0	_	Teaching
P15	_	5 88	5 00	5 00	5 00	5 00	5 00 0		roaching

3. In the case of modifying point data.

3-1. Select point data in list box and click [Modify...] button.

3-2. [Line Edit] dialog box is shown.

-		1							
Online	Edit	- Point							×
P0	Ē	0	0	0	0	0	0		Update
P2							OX?	<u>ข</u>	Close
P3	=	3	3	3	3	3	3		
P4	=	4	4	4	4	4	4		Help
P5	=	5	5	5	5	5	5		
P6	=	6	6	6	6	6	6		
P7	=	7	7	7	7	7	7		Modifu
P8	=	8	8	8	8	8	8		inodity
P9	=	9	9	9	9	9	9		Сору
P10	=	0.00	0.00	0.00	0.00	0.00	0.00 0		
P11	=	1.00	1.00	1.00	1.00	1.00	1.00 0		Delete
P12	=	2.00	2.00	2.00	2.00	2.00	2.00 0		
P13	=	3.00	3.00	3.00	3.00	3.00	3.00 0		
P14	=	4.00	4.00	4.00	4.00	4.00	4.00 0		Teaching
P15	-	5 00	5 00	5 00	5 00	5 00	5 00 0	_	<b>_</b>

Edit specified point data and click [O] button.

4. In the case of copying range of point data.

4-1. Click [Copy...] button.

4-2. [Point Copy] dialog box is shown.

Specify source ranges where copied from and destination number where copied to, then click [OK] button.

5. In the case of removing range of point data.

5-1. Click [Delete...] button.

5-2. [Point Delete] dialog box is shown. Specify ranges and click [OK] button.

- 6. In the case of teaching point data by current robot position.
- 6-1. Select point data in list box and click [Teaching...] button.
- 6-2. [Point Teaching Position] dialog box is shown.

Point Tea	oint Teaching - Position 🗙								
P0 =	0	0	0	0	0	0			ОК
Axis:		₩ ×	₩ y	⊽z ⊽	r 🖂 a		)		Cancel
Arm Type:		🗹 Nor	18	🗖 Bigh	ty E	Lefty	,		Usta
Check axi	s chec	k box to	effec	t current	robot po	sition	to the point data.		нер
Group:		🔽 Mai	in	🗆 Sub					Manual
Unit:		Pul	se	🗆 Mil					
POS	0	0 0	0	0	0				]

A new point data is shown in edit box.

- 6-3. Click [Manual...] button.
- 6-4. [Manual] dialog box is shown.

Move robot axis manually by Teaching-Playback or Direct-Teaching.

- 6-5. Click [Close] button in [Manual] dialog box and returns to [Point Teaching Position] dialog box.
- 6-6. Specify teaching axis in [Axis: x/y/z/r/a/b] check box and click [OK] button. Then returns to [Online Edit Point] dialog box.
- 6-7. Specify arm type for scara robot under millimeter unit in [Arm Type: None/Righty/Lefty] check box and click [OK] button. Then returns to [Online Edit Point] dialog box.
- 7. Click [Update] button to register all of the changes to robot controller.

#### Modify parameter data

- 1. Select [Parameter] item and click [Modify...] button in [Online Edit] dialog box.
- 2. [Online Edit Parameter] dialog box is shown.



- 3. In the case of modifying parameter data.
- 3-1. Select parameter data in list box and click [Modify...] button.
- 3-2. [Line Edit] dialog box is shown.



Edit specified parameter data and click [O] button.

- Modify shift coordinate data
  Select [Shift] item and click [Modify...] button in [Online Edit] dialog box.
  [Online Edit Shift] dialog box is shown.

			1 analog a				
Online	Edit	- Shift					×
S Ø	=	0.00	0.00	0.00	0.00	<b></b>	Update
SPO	=	0.00	0.00	0.00	0.00		
SMO	=	0.00	0.00	0.00	0.00		Close
S1	=	0.00	0.00	0.00	0.00		
SP1	=	0.00	0.00	0.00	0.00		Help
SM1	=	0.00	0.00	0.00	0.00		
S2	=	0.00	0.00	0.00	0.00		
SP2	=	0.00	0.00	0.00	0.00		Modifu
SM2	=	0.00	0.00	0.00	0.00		modily
\$3	=	0.00	0.00	0.00	0.00		
SP3	=	0.00	0.00	0.00	0.00		
SM3	=	0.00	0.00	0.00	0.00		
S4	=	0.00	0.00	0.00	0.00		Disarting
SP4	=	0.00	0.00	0.00	0.00		Direction
SM4	=	0.00	0.00	0.00	0.00	-	Position
22	-	0 00	0 00	0 00	0 00	<u> </u>	

(\*) Already registered shift coordinate data are shown in list box. Function buttons are enabled or disabled by selected item in list box.

	Modify	Direction	Position
S line	0	0	0
SP/SM line	0	Х	Х

3. In the case of modifying shift coordinate data.

3-1. Select shift coordinate data in list box and click [Modify...] button.

3-2. [Line Edit] dialog box is shown.

Online	Ec	lit - Shift					×
50	-[	0.00	0.00	0.00	0.00	▲ Update	٦.
SP0 Sm0	1						1
S1	-	0.00	0.00	0.00	0.00		4
SP1	=	0.00	0.00	0.00	0.00	Help	
SM1	=	0.00	0.00	0.00	0.00		
S2	=	0.00	0.00	0.00	0.00		
SP2	=	0.00	0.00	0.00	0.00	Modify	
SM2	=	0.00	0.00	0.00	0.00		
\$3	=	0.00	0.00	0.00	0.00		
SP3	=	0.00	0.00	0.00	0.00		
SM3	=	0.00	0.00	0.00	0.00		
54	=	0.00	0.00	0.00	0.00	Direction	
584	=	0.00	0.00	0.00	0.00		-
504	=	0.00	0.00	0.00	0.00		
SM4 55	-	0.00	0.00	0.00	0.00	Position	

Edit specified shift coordinate data and click [O] button.

- Modify hand definition data
  1. Select [Hand] item and click [Modify...] button in [Online Edit] dialog box.
  2. [Online Edit Hand] dialog box is shown.

•			al arare 3 .		•	
Onlin	e Edit	- Hand				×
HØ	=	6	0.00	0.00		Update
H1	=	0	0.00	0.00		 
H2	=	0	0.00	0.00		 Close
H3	=	0	0.00	0.00		 
H4 -	=	0.00	0.00	0.00		 Help
H5	=	0.00	0.00	0.00		
H6	=	0.00	0.00	0.00		
H7	=	0.00	0.00	0.00		Modify
<u> </u>						 
H <sub>0</sub> to	5 H3 ft	or Main Gr.	. H4 to H7	for Sub Gr.		Teaching

- 3. In the case of modifying hand definition data.
- 3-1. Select hand definition data in list box and click [Modify...] button.3-2. [Line Edit] dialog box is shown.

	Lait	Jululogic	07 13 3110	VVII.		
Onlin	e Edil	- Hand				×
HØ	Ē	0	0.00	0.00		Update
H1 H2					OX?	Close
H3 HA	=	0 0 0	0.00 0 00	0.00		Help
H5	=	0.00	0.00	0.00		
H6 H7	=	0.00 0.00	0.00 0.00	0.00 0.00		
						Modify
						i
HO to	) H3 f	or Main Gr.	, H4 to H7	for Sub Gr.		Teaching

Edit specified hand definition data and click [O] button.

- Modify palette data
  Select [Palette number] item and click [Modify...] button in [Online Edit] dialog box.
  [Online Edit Palette] dialog box is shown.

	× Normal State (State State				dit - PLO	Online E
PLN=XV         Update           NX=         10           NY=         10           NZ=         10           P[1]=         100.00         100.00         0.00         0.00         0.00         0.00           P[2]=         200.00         100.00         0.00         0.00         0.00         0.00         0.00         0.00           P[3]=         100.00         200.00         0.00 <th>Update Update Uodate Close Help .00 0.00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0 .00 Teaching</th> <th>0.00 0.00 0.00 0.00 0.00 0.00</th> <th>0.00 0.00 0.00 0.00 100.00</th> <th>100.00 100.00 200.00 200.00 100.00</th> <th>Y 10 10 10 200.00 200.00 100.00 100.00</th> <th>PLN=XI NX= NY= P[1]= P[2]= P[3]= P[4]= P[5]=</th>	Update Update Uodate Close Help .00 0.00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0.00 0 .00 0.00 0 .00 Teaching	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 100.00	100.00 100.00 200.00 200.00 100.00	Y 10 10 10 200.00 200.00 100.00 100.00	PLN=XI NX= NY= P[1]= P[2]= P[3]= P[4]= P[5]=

- 3. In the case of modifying palette data.
- 3-1. Select palette data in list box and click [Modify...] button.3-2. [Line Edit] dialog box is shown.

Online Edit - PLO	,						X
PLN=XY NX: 10							Update
NZ: P[1]= 100.00 P[2]= 200.00	100.00 100.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0 × ? 0	Help
P[3]= 100.00 P[4]= 200.00 P[5]= 100.00	200.00 200.00 100.00	0.00 0.00 100.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0 0 0	Modify
							Teaching

Edit specified palette data and click [O] button.

(f) Modify various data as file on your computer.
To create and edit program, point, parameter, shift and/or hand data as a file used with robot controller on your computer. (Off-line Editing)

(\*) Create a new file
(\*) Open a previously created file
(\*) Add a new program
(\*) Modify program step
(\*) Modify point data
(\*) Modify shift coordinate data
(\*) Modify shift coordinate data
(\*) Modify hand definition data
(\*) Check modified data

#### Create a new file

- Click [New...] command in [File] menu.
   [Select Robot Controller Type] dialog box is shown.

Select Robot Controller Type	X
C MRC (1601points)	OK
C MRC,MRCA,MRCH (4001points)	Cancel
C RCX40 (4001points)	Help
C RCX40 (10000points)	
C RCX14x	
• RCX22x	

Select type of robot controller. 2. [Select File Type] dialog box is shown.

Select File Type	×
💿 System (*.all)	OK
C Program (*.pgm)	Cancel
© Point (".pnt) © Point Comment (".pcm)	Help
C Parameter (*.prm)	
C Shift (*.sft)	
C Hand (*.hnd)	
C Palette (*.plt)	

Select file type and click [OK] button. (Ex: System (\*.all))

3. [Input Program name] dialog box is shown.

Input Program name	×
	OK
	Cancel
	Help
Program name(max 8 characte	rs) is composed by

Click [Cancel] button. 4. An empty [File Editor] window is shown.

Point 🔺
PØ =
P1 =
P2 =
P3 =
P10 =
P11 =
P12 =
P13 =
P14 =
P15 =
P16 =
P17 =
P18 =

# Open a previously created file1. Click [Open...] command in [File] menu.2. [Open] dialog box is shown.

File <u>n</u> ame: *.pcm;*.prm;*.sft;*.hnd;*.plt rcx40.all	Eolders: c:\vipwin	OK Cancel
		<u>H</u> elp <u>Ne</u> twork
List files of <u>t</u> ype:	Dri <u>v</u> es:	

- Select a filename (Ex: rch40.all) and click [OK] button.
- 3. [Select Robot Controller Type] dialog box is shown.

Select Robot Controller Type	2
C MRC (1601points)	OK
C MRC, MRCA, MRCH (4001points)	Cancel
C QRC,QRCA,QRCH,QRCX	Curren
C RCX40 (4001points)	Help
C RCX40 (10000points)	
C RCX14x	
• REX22x	

Select type of robot controller.
 File Edit] window is shown.

RCX40.ALL							- 🗆 🗡
Program <test> Point Comment Parameter Shift Hand Palette</test>		TEST 0001: 0002: 0003: 0004: 0005: 0006: 0007: 0008: 0009: 0009: 0010: 0011:	*LABEL: P10=100.00 P11=150.00 P12=150.00 P13=100.00 MOVE C,P11 MOVE C,P13 MOVE C,P13 MOVE C,P13 MOVE C,P13 HALT	) 100.00 ) 100.00 ) 150.00 ) 150.00 ) ,P12 ,P10 ,P12,XY ,P10,XY	20.00 20.00 20.00 20.00	0.00 0.00 0.00 0.00	0.00 ( 0.00 ( 0.00 ( 0.00 (
Programs: Total Bytes: Current Bytes:	1/100 947/196608 247/98304						ł

- Add a new program
   1. Click [Program Create...] command in [Edit] menu.
   2. [Input Program name] dialog box is shown.

Input Program name	×
PLACE	OK
	Cancel
	Help
Program name(max 8 characters) is con alphanumeric and underline(_).	nposed by

Enter a new program name and click [OK] button.
3. Specified program name is added in [Sheet Selector] pane window on left side of [File Editor] window and an empty [Sheet Editor] pane window is shown on right side.

📒 Editor1		
Program <place> Point Commen Parameter Shift Hand Palette</place>	t	PLACE 0001:
Programs: Total Bytes: Current Bytes:	1/100 2/196608 2/98304	

#### Modify program step

- 1. Click [Program name] item in list box on [Sheet Selector] pane window on left side of [File Editor] window.
- 2. Entire program steps are shown in [Sheet Editor] pane window is shown on right side of [File Editor] window.

Program     PLACE <place< td="">     0001:       Point     0001:       Point Comment     Parameter       Shift     Hand</place<>	
Palette	
Programs: 1/100	
Total Bytes: 2/196608	
Current Bytes: 2/98304	

- (\*) Press [F1] key to show context sensitive help.
- (\*) Standard editing commands are prepared in [Edit] menu.
- 3. Click [Sheet Editor] pane window to edit program step directly by using keyboard.
- 4. In the case of adding a new program step, click [Sheet Editor] pane window and click [Function bar] command in [View] menu.
- 4-1. [Function bar] dialog box is shown.



Select opecode in list box and click [O] button.

4-2. [Function bar - Option] dialog box for the specified opecode is shown. (Ex: MOVE)

Function bar - Option		×
MOVE P, <point definition,.<="" th=""><th>&gt;</th><th>OK</th></point>	>	OK
<point definition,=""></point>	PO	Cancel
		Help

Enter options for the specified opecode and click [OK] button.

4-3. A new program step is added to [Sheet Editor] pane window.

🗧 Editor1		
Program <place> Point Commen Parameter Shift Hand Palette</place>	t	PLACE 0001: MOVE P,P0
Programs:	1/100	
Total Bytes:	11/196608	
Current Bytes:	11/98304	

4-4. Click [Function bar] dialog box to specify new program steps.

- Modify point data
   Click [Point] item in list box on [Sheet Selector] pane window on left side of [File Editor] window.
   Entire point data are shown in [Sheet Editor] pane window is shown on right side of [File Editor] window.

RCX40.ALL							_ 🗆 🗵
Program		Poir	it				<b></b>
<tēst></tēst>		P0	=	0	0	0	0
Point		P1	=	1	1	1	1
Point Comment	t	P2	=	2	2	2	2
Parameter		P3	=	3	3	3	3
Shift		P4	=	4	4	4	4
Hand		IP5	=	5	5	5	5
Palette		P6	=	6	6	6	6
		P7	=	7	7	7	7
		P8	=	8	8	8	8
		P9	=	9	9	9	9
		P10	=	0.00	0.00	0.00	0.00
		P11	=	1.00	1.00	1.00	1.00
		P12	=	2.00	2.00	2.00	2.00
Programs.	1/100	P13	=	3.00	3.00	3.00	3.00
rogramo.	0.47.14.00000	P14	=	4.00	4.00	4.00	4.00
Total Bytes:	9477196608	P15	=	5.00	5.00	5.00	5.00
Current Bytes:	700/112028	P16	=	6.00	6.00	6.00	6.00
ounoin oftoo.		P17	=	7.00	7.00	7.00	7.00
		P18	=	8.00	8.00	8.00	8.00
		P19	=	9.00	9.00	9.00	9.00
		P20	=				-
		P21	1 =	I			

(\*) Press [F1] key to show context sensitive help.
(\*) Standard editing commands are prepared in [Edit] menu.
3. Click [Sheet Editor] pane window to edit point data directly by using keyboard.

- Modify parameter data
   Click [Parameter] item in list box on [Sheet Selector] pane window on left side of [File Editor] window.
   Entire parameter data are shown in [Sheet Editor] pane window is shown on right side of [File Editor] window.

RCX40.ALL			
Program <test> Point Comment Parameter Shift Hand Palette</test>		Parameter           \RBTNUM\         'Robot number (V8.11/R101'           R1=         2003 R2=         100           \AXES \         'Number of Axes           R1=         6 R2=         0           \AXSNUM\         'Axis number (V1.01/V1.01           A1=         2003 A2=         2003 A3=           A5=         0 A6=         0 A7=           \ATTRIB\         'Axis attrib.         A1=           A5=         0 A6=         0 A7=           \ATTRIB\         'Axis attrib.         A1=           A1=         32768 A2=         32768 A3=         3:           A5=         0 A6=         0 A7=           /WEIGHT/         'Tip weight[kg]         R1=         10           /ORIGIN/         'Origin sequence         10	/U1. 200: 1 276{ 1
Programs:	1/100	R1= 312456  /RORIEN/ 'R axis orientation	
Total Bytes:	947/196608		
Current Bytes:	0/0	/ARMTYP/ 'Armtype at PGM reset R1= 0 /CPVMAX/ 'MOVE L Max. Speed[mm/sec R1= 750 /CPACCL/ 'MOVE L Acceleration[mm/s: R1= 23/A	] ≤] ▶

(\*) Press [F1] key to show context sensitive help.
(\*) Standard editing commands are prepared in [Edit] menu.
3. Click [Sheet Editor] pane window to edit parameter data directly by using keyboard.

## Modify shift coordinate data

- Click [Shift] item in list box on [Sheet Selector] pane window on left side of [File Editor] window.
   Entire shift coordinate data are shown in [Sheet Editor] pane window is shown on right side of [File Editor] window.

RCX40.ALL							- 🗆 ×
Program		Shif	t				<b></b>
		50	=	0.00	0.00	0.00	0.00
Point		SPO	=	0.00	0.00	0.00	0.00 🗂
Point Comment	:	SMO	=	0.00	0.00	0.00	0.00
Parameter		S1	=	0.00	0.00	0.00	0.00
Shift		SP1	=	0.00	0.00	0.00	0.00
Hand		SM1	=	0.00	0.00	0.00	0.00
Palette		S2	=	0.00	0.00	0.00	0.00
		SP2	=	0.00	0.00	0.00	0.00
		SM2	=	0.00	0.00	0.00	0.00
		23	=	0.00	0.00	0.00	0.00
		SP3	=	0.00	0.00	0.00	0.00
		SM3	=	0.00	0.00	0.00	0.00
		54	=	0.00	0.00	0.00	0.00
Programs:	1/100	SP4	=	0.00	0.00	0.00	0.00
r rograms.		SM4	=	0.00	0.00	0.00	0.00
Total Bytes:	9477196608	\$5	=	0.00	0.00	0.00	0.00
Current Bytes:	0/0	SP5	=	0.00	0.00	0.00	0.00
		SM5	=	0.00	0.00	0.00	0.00
		56	=	0.00	0.00	0.00	0.00
		SP6	=	0.00	0.00	0.00	0.00
		SM6	=	0.00	0.00	0.00	0.00
			=		0 00	0 00	
							<u> </u>

(\*) Press [F1] key to show context sensitive help.
(\*) Standard editing commands are prepared in [Edit] menu.
3. Click [Sheet Editor] pane window to edit shift coordinate data directly by using keyboard.

## Modify hand definition data

- Click [Hand] item in list box on [Sheet Selector] pane window on left side of [File Editor] window.
   Entire hand definition data are shown in [Sheet Editor] pane window is shown on right side of [File Editor] window.

RCX40.ALL							_ 🗆 🗵
Program	t	Hann H0 H1 H2 H3 H4 H4 H5 H6 H7		0 0 0 0 . 00 0 . 00 0 . 00 0 . 00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
Programs: Total Bytes: Current Bytes:	1/100 947/196608 0/0		1				

(\*) Press [F1] key to show context sensitive help.
(\*) Standard editing commands are prepared in [Edit] menu.

3. Click [Sheet Editor] pane window to edit hand definition data directly by using keyboard.

## Check modified data

3.

- Click [Data Check...] command in [Edit] menu to start checking entire data in [Sheet Editor] pane window which is shown on right side.
   [Output] window is shown.

🗐 Output	
Jutput	
C:\VIPWIN\RCX40.ALL	
IK	
d=1	
an error was detected, a window is shown below.	
an error was detected, a window is shown below.	
an error was detected, a window is shown below. Output utput	
an error was detected, a window is shown below. Output utput :\VIPWIN\RCX48.ALL	
an error was detected, a window is shown below. Output ULTPUT CUIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error"	
an error was detected, a window is shown below. Dutput ULTUI :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" IG: 1 error(5)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" IG: 1 error(5)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output utput :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output ULTPUT :\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" IG: 1 error(s)	
an error was detected, a window is shown below.           Output           Uutput           :\UIPWIN\RCX40.ALL           TEST > line:2 "5.1:Syntax error"           IG: 1 error(s)	
an error was detected, a window is shown below.           Output           Uutput           ::\UIPWIN\RCX40.ALL           TEST > line:2 "5.1:Syntax error"           IG: 1 error(s)	
an error was detected, a window is shown below. Output Dutput StyUIPWIN\RCX40.ALL CTEST > line:2 "5.1:Syntax error" G: 1 error(s)	
an error was detected, a window is shown below. Output Dutput S:\UIPWIN\RCX40.ALL TEST > line:2 "5.1:Syntax error" WG: 1 error(s)	
an error was detected, a window is shown below. Dutput StylPWIN\RCX40.ALL (TEST > line:2 "5.1:Syntax error" HG: 1 error(s)	
an error was detected, a window is shown below.  Dutput Utput CTEST > line:2 "5.1:Syntax error" HG: 1 error(s)	
an error was detected, a window is shown below.	

3-1. Press [F1] key to show error message help for cursor blinking line.

3-2. Press [Enter] key or click [Jump] command in [Edit] menu to jump error occurrence line.