

Robot Tools

Virtual Teach Pendant (RC8)
User's Guide

ver.1.1.5

© 2015 DENSO WAVE INCORPORATED

All rights reserved.

No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.

Specifications are subject to change without prior notice.

All products and company names mentioned are trademarks or registered trademarks of their respective holders

CONTENTS

1. Outline.....	4
1.1. Conditions for Use.....	4
2. Part Names (RC8).....	5
2.1. Main Window.....	5
2.2. Menu.....	6
2.2.1. File menu.....	6
2.2.2. Edit menu.....	6
2.2.3. View menu.....	6
2.2.4. Tool menu.....	6
2.2.5. Help menu.....	7
2.3. Tool bar.....	8
3. Part Names (COBOTTA).....	9
3.1. Main Window.....	9
3.2. Tool bar.....	10
3.3. Operation panel (Left).....	11
3.4. Operation panel (Right).....	12
4. Connecting to Robot Controller.....	13
4.1. Preparation for Robot Controller.....	13
4.1.1. Configure Ethernet Connection Settings.....	13
4.2. Connecting PC to Robot Controller.....	13
4.3. Connection Settings for Virtual TP.....	14
4.3.1. History of connection controller.....	14
4.3.2. Delete target controller.....	14
4.4. Connection for Virtual TP(COBOTTA).....	15
5. Disconnecting to Robot Controller(COBOTTA).....	16
6. Operation that can be Performed with Virtual TP (RC8).....	17
6.1. Function that Virtual TP (RC8) can Use.....	19
6.1.1. Snapshot function.....	19
6.1.2. Zoom function.....	19

1. Outline

This manual provides instruction on how to use the application to operate some of teach pendant functions on the PC (Virtual TP).

Virtual TP is an application that recreates teach pendant on the PC screen. It is easy to use as its buttons and touch panel operations are exactly the same as teach pendant.

When used with the mini pendant, Virtual TP provides great convenience as it can perform the operations that are not possible by mini pendant, such as making various settings, monitoring, creating programs.

Note: You cannot move robots except COBOTTA (e.g. teaching) with Virtual TP.

1.1. Conditions for Use

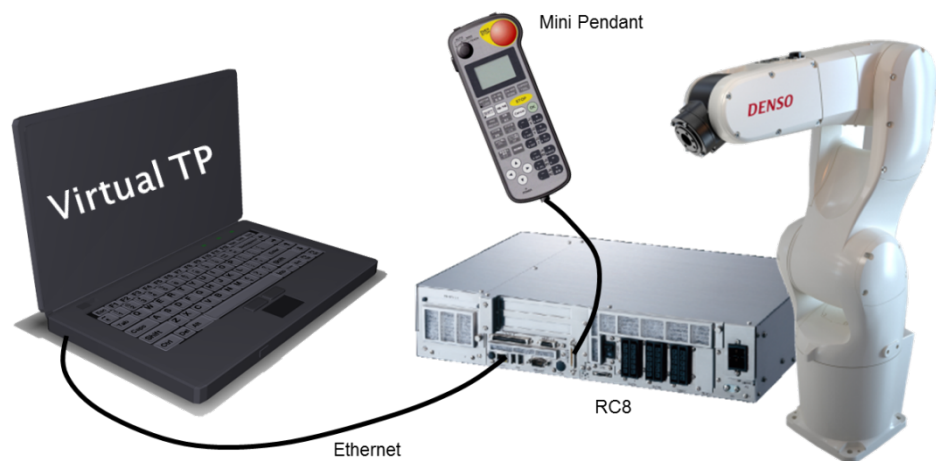
System requirement

PC

OS:	Windows 7 Windows 8 Windows 10
Screen size:	XGA (1024 x 768) or larger

Robot Controller

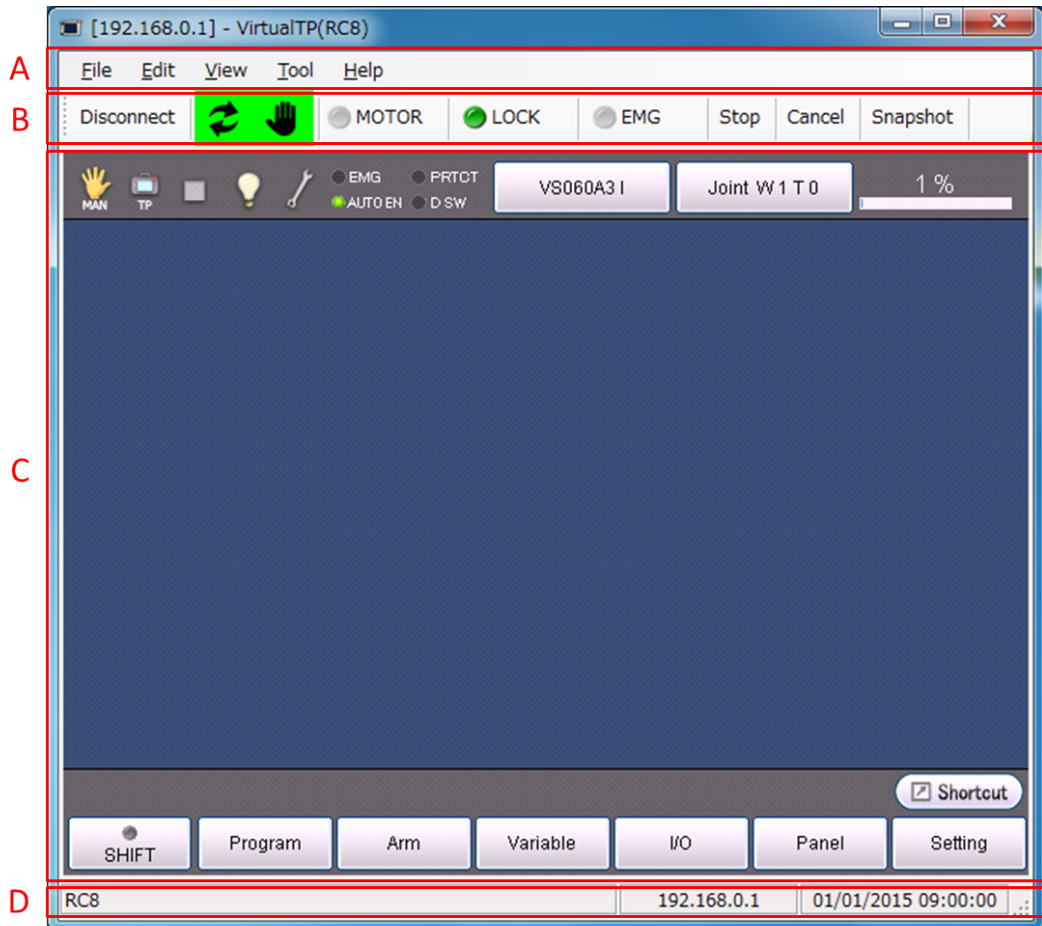
RC8	Ver.1.10.3 or later
COBOTTA	Ver.2.4.0 or later



2. Part Names (RC8)

2.1. Main Window

The controller is RC8, Virtual TP uses the following general screen layout.



A : Menu

For each menu's function, see "2.2 Menu".

B : Tool bar

For each tool's function, see "2.3 Tool bar".

C : Main view

You can use buttons on this area by clicking with a mouse.

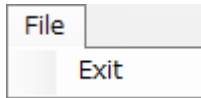
D : Status bar

Display the connection destination IP address, note, and current time.

2.2. Menu

This section explains respective menu items of Virtual TP.

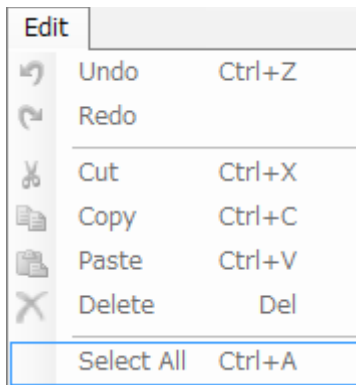
2.2.1. File menu



[Exit]

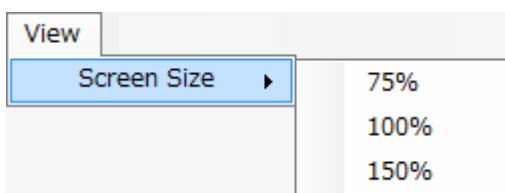
Exit Virtual TP.

2.2.2. Edit menu



*Unused.

2.2.3. View menu



[Screen Size]

Change the size of Main view.

2.2.4. Tool menu



[Key]

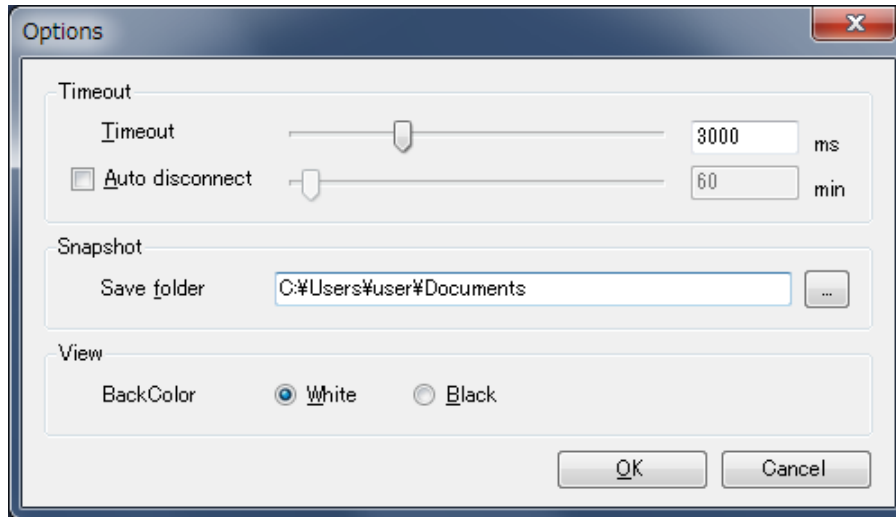
Execute [Shift + Cancel]

[Snapshot]

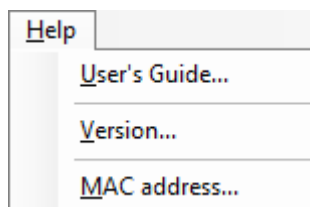
Save the displayed main window in specified format.

[Options]

This menu provides timeout setting at the startup and automatic disconnection setting.



2.2.5. Help menu



[User's Guide]

Display the User's Guide of Virtual TP.

[Version]

Display the version information of Virtual TP.

[MAC address]

Display the MAC address of the network adapter enabled on the computer.

It is used to check which operation device is connected.

Also, in the case of COBOTTA, it is used to register operation devices that can be connected to COBOTTA.

2.3. Tool bar

This section explains respective buttons on the tool bar of Virtual TP.



A : Connect button

Connect to or disconnect from the destination controller.

B : Connection indicator

Display the connection condition: Full operation, Display only, or Disconnected (connection not available).

C : MOTOR indicator

Indicate the motor state. This light turns on when the motor is ON.

D : LOCK button

Switch the machine lock between ON and OFF.
This light turns on when the machine lock is ON.

E : Emergency Stop indicator

Indicate the emergency stop state. This light turns ON when in an emergency stop state.

F : Stop key

Execute "Stop".

G : Cancel key

Execute "Cancel".

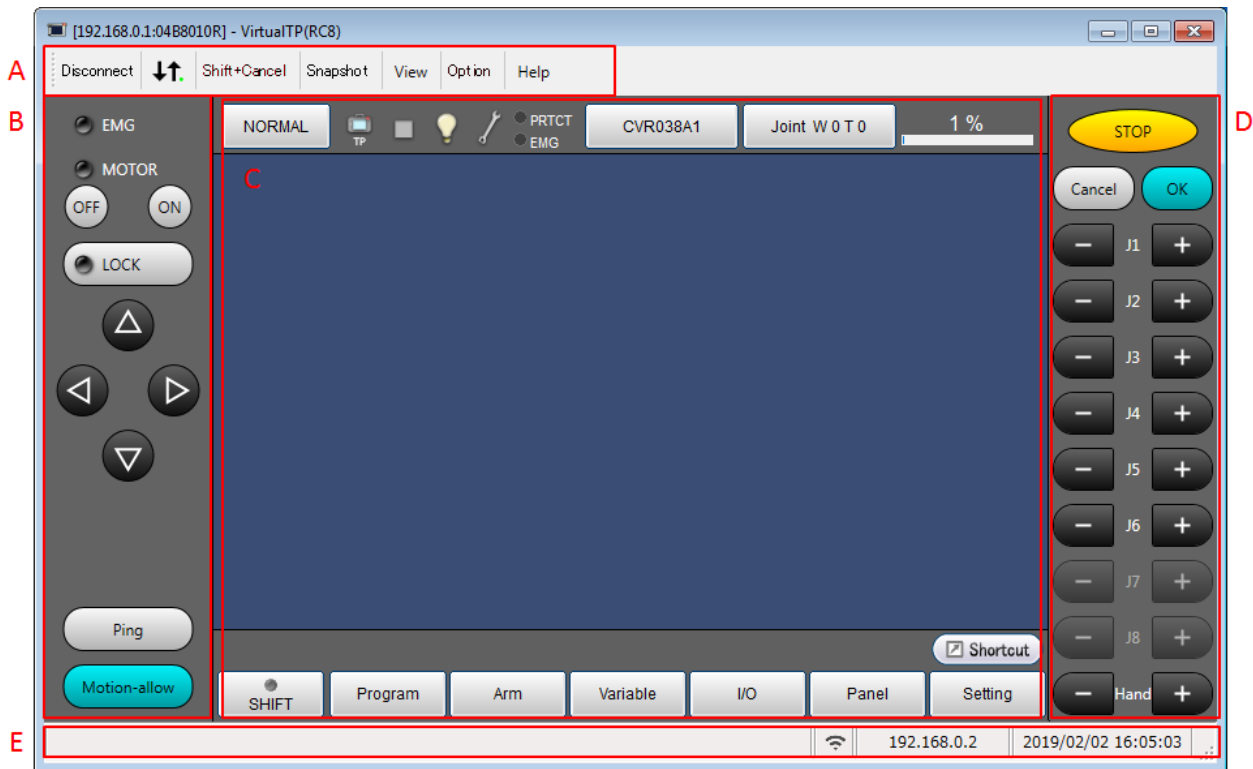
H: Snapshot button

Save the displayed main window in specified format.

3. Part Names (COBOTTA)

3.1. Main Window

The controller is COBOTTA, Virtual TP uses the following general screen layout.



A : Tool bar

For each tool's function, see "3.2 Tool bar".

B : Operation panel (Left)

For each button's function, see "3.3 Operation panel (Left)".

C : Main view

You can use buttons on this area by clicking with a mouse.

D : Operation panel (Right)

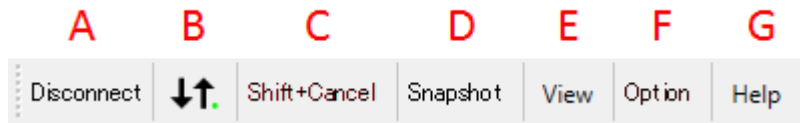
For each button's function, see "3.4 Operation panel (Right)".

E : Status bar

Display note, connection type(wired / wireless)the connection destination IP address, and current time.

3.2. Tool bar

This section explains respective buttons on the tool bar of Virtual TP.



A : Connect button

Connect to or disconnect from the destination controller.

B : Connection indicator

Display the connection status.

While connecting, the lamp at the lower right of the icon flashes.

C : Shift+Cancel button

Execute [Shift + Cancel].

D : Snapshot button

Save the displayed main window in specified format.

E : View button

Change the size of Main view.

F : Option button

Provides timeout setting at the startup and automatic disconnection setting.

G: Help button

Display the User's Guide or the version information of Virtual TP.

3.3. Operation panel (Left)



A: Emergency Stop indicator

Indicate the emergency stop state. This light turns ON when in an emergency stop state.

B: MOTOR button

Switch the machine motor between ON and OFF. This light turns on when the motor is ON.

C: LOCK button

Switch the machine lock between ON and OFF. This light turns on when the machine lock is ON.

D: Direction button

Send direction key to the COBOTTA.

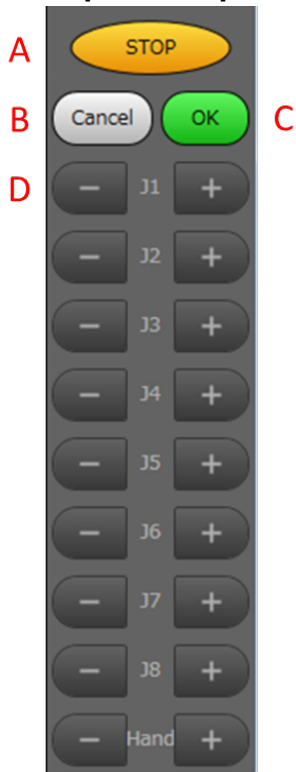
E: Ping button

Check the connecting COBOTTA. Press this button, the COBOTTA's LED will blink with green.

F: Motion-allow

It can also be used with a touch panel compatible PC. It is a press button when operating a robot like "Moving a Robot by Specifying a Variable".

3.4. Operation panel (Right)



A: Stop button

Execute "Stop".

B: Cancel button

Execute "Cancel".

C: OK button

Execute "OK".

It has to hold down the Motion-allow button (Shift key) to move the robot by pressing this button like "Moving a Robot by Specifying a Variable".

D: Joint button

Move each joints.

To move the robot, hold down the Motion-allow button (Shift key).

4. Connecting to Robot Controller

To connect Virtual TP to the controller, follow the instructions below.

- 1 Make necessary settings on the robot controller.
- 2 Connect the PC to the robot controller via Ethernet.
- 3 Make connection settings for Virtual TP.

4.1. Preparation for Robot Controller

To connect the Virtual TP and a robot controller, use Ethernet connection. Virtual TP is an application utilizing ORiN, and that can be used during other ORiN-using application execution.

This shows an example of Ethernet connection. The following settings are necessary for the robot controller side.

The robot controller requires making the following settings.

- Configure Ethernet connection settings

4.1.1. Configure Ethernet Connection Settings

Set/check the IP address of the “Communications permission settings” of the robot controller. Check that the IP address of the PC on which Virtual TP is running is not identical with that of the robot controller.

For detailed information about checking/setting procedure, see “RC8 Provider User's guide 2. Environment Setup for Application Development”.

The default IP address of the controller is "192.168.0.1".

4.2. Connecting PC to Robot Controller

Connect the PC to the robot controller via Ethernet.

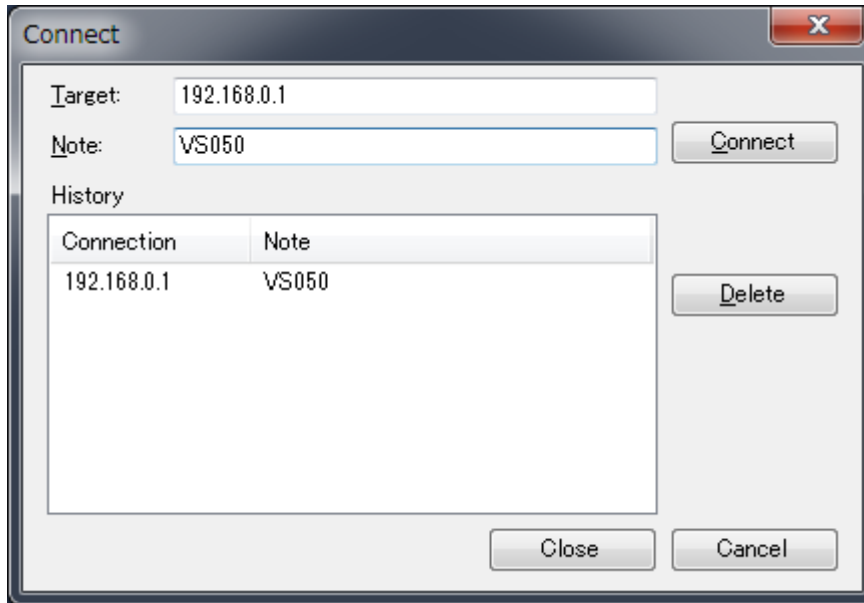
Use crossing cable if the PC is directly connected to the robot controller.

4.3. Connection Settings for Virtual TP

Specify the target robot controller to be connected to Virtual TP.

Upon clicking [Connect] button, connection setting window appears.

Enter IP address of the controller in [Target] box.



Click [Connect] to connect.

The same screen as the real teach pendant is displayed on the Virtual TP screen.

4.3.1. History of connection controller

Enter an IP address of the robot controller and a controller name in [Target] text box and [Note] text box, respectively. Pressing [Connect] button will register these data in [Connection] and [Note] on the [History] area. If the IP address entered in the [Target] text box has already been registered in [History] area, that of [Note] column is updated.

In contrast, on the [History] area, selecting an IP address you want to connect will enter the selected IP address and Note in the [Target] text box and [Note] text box, respectively.

4.3.2. Delete target controller

Select controller to be deleted from [History], and press [Delete] button to delete the controller from history.

4.4. Connection for Virtual TP(COBOTTA)

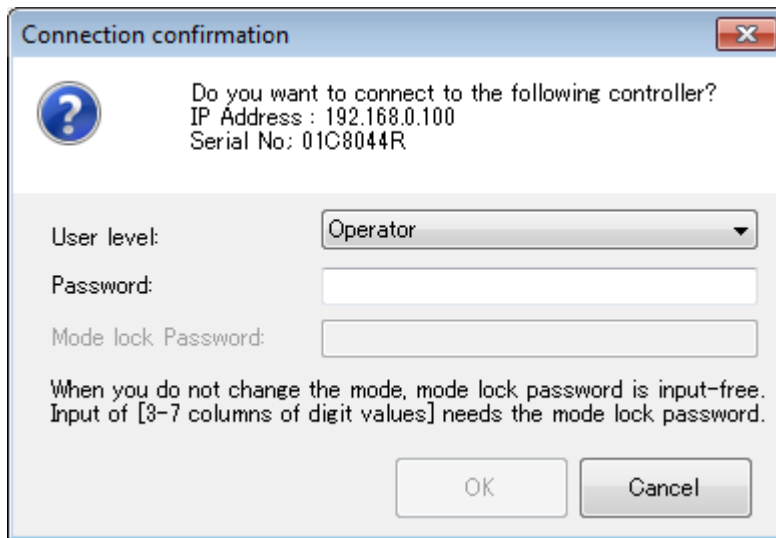
Wireless TP function was added in COBOTTA's Ver 2.7.2.

In Ver 2.7.2 and later, Virtual TP is connected as a wireless TP when the wireless network connection of the personal computer is enabled. (Even if you are communicating via wire, it will be recognized as a wireless TP.)

When connecting to COBOTTA as wireless TP, it is necessary to start Virtual TP with Windows administrator's privilege.

When connecting to COBOTTA, the following screen will be displayed. Please select user level and input a password.

Set the mode lock password of mode lock if necessary(Display from COBOTTA Ver 2.8.0 or later). Refer to "COBOTTA User Manuals" ID:7878 for more information on mode lock.

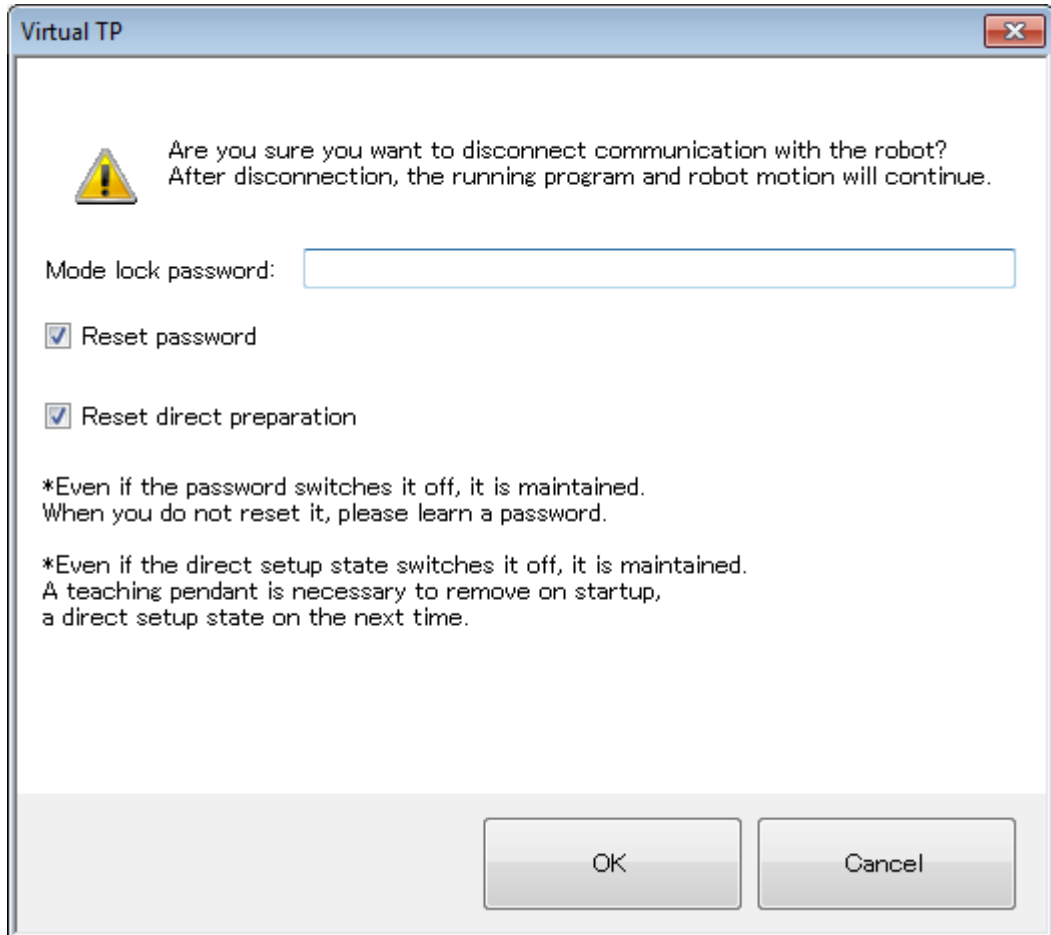


*The initial passwords of COBOTTA are shown below.

[Operator]	5593551
[Programmer]	5596045
[Maintainer]	5596060


5. Disconnecting to Robot Controller(COBOTTA)

You can reset the mode lock password and the direct preparation when disconnecting Virtual TP in COBOTTA's Ver 2.8.0 or later. When you press the Virtual TP disconnect button, the screen below is displayed. Enter mode lock password and check the items you want to execute. Refer to "COBOTTA User Manuals" ID:7878 for more information on mode lock.



The image shows a Windows-style dialog box titled "Virtual TP". It contains a warning icon and the following text: "Are you sure you want to disconnect communication with the robot? After disconnection, the running program and robot motion will continue." Below this is a text input field for the "Mode lock password:". There are two checked checkboxes: "Reset password" and "Reset direct preparation". At the bottom, there are "OK" and "Cancel" buttons. Two asterisked notes are present: "*Even if the password switches it off, it is maintained. When you do not reset it, please learn a password." and "*Even if the direct setup state switches it off, it is maintained. A teaching pendant is necessary to remove on startup, a direct setup state on the next time."

Virtual TP

 Are you sure you want to disconnect communication with the robot?
After disconnection, the running program and robot motion will continue.

Mode lock password:

Reset password

Reset direct preparation

*Even if the password switches it off, it is maintained.
When you do not reset it, please learn a password.

*Even if the direct setup state switches it off, it is maintained.
A teaching pendant is necessary to remove on startup,
a direct setup state on the next time.









OK Cancel

6. Operation that can be Performed with Virtual TP (RC8)

Though Virtual TP is an application that recreates teach pendant on the PC screen, its functions are limited for safety reasons.

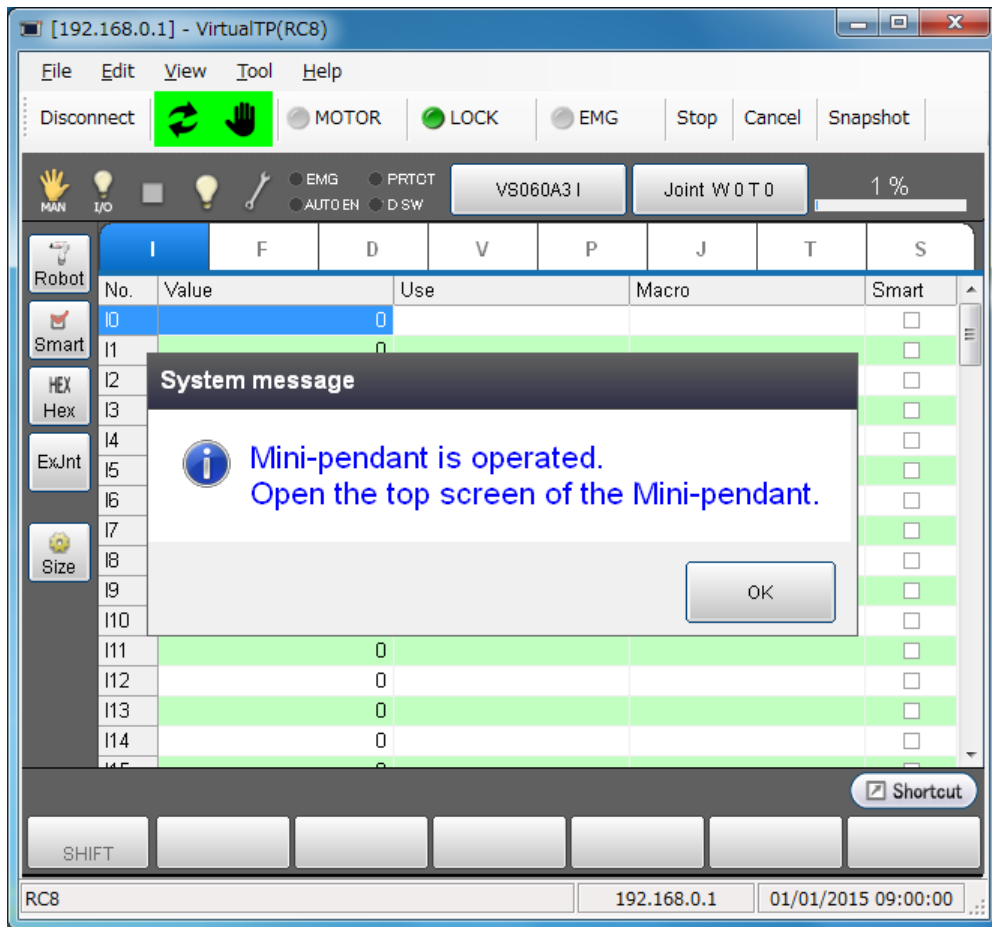
Virtual TP cannot operate the hardware-wired switches, i.e., Enabling switch (Dead-man switch), Emergency stop button, and Mode selection switch.

For safety reasons, you can operate Virtual TP only in manual mode. When the target controller is set to Automatic mode or Teach Check mode, Virtual TP cannot be connected.

Connected Pendant Operation Mode		Teach Pendant	Mini Pendant	Pendant-less mode
		Automatic Mode	Executable Token Ethernet , I/O	 Disconnected
Executable Token Any , TP	 Disconnected		 Display Only	 Display Only
Manual Mode		 Full Operation *1	 Full Operation*1*2	—
Teach Check Mode		 Disconnected	 Display Only	—

*1 If the Dead-man switch is pressed, this will be “Display only” state.

*2 If you operate both a Mini-pendant and VirtualTP, the following message may be displayed.



*3 If RC8 is less than Ver.2.1.0, this will be "Display Only" state.

- Note**
- If the operation state of the VirtualTP is in "Full Operation" during AUTO mode, speed and variables becomes editable. Please be careful not to cause any damage to operators and other devices if you change these settings.
 - It might have an effect on cycle time to connect Virtual TP when the robot is in motion.
-

6.1. Function that Virtual TP (RC8) can Use

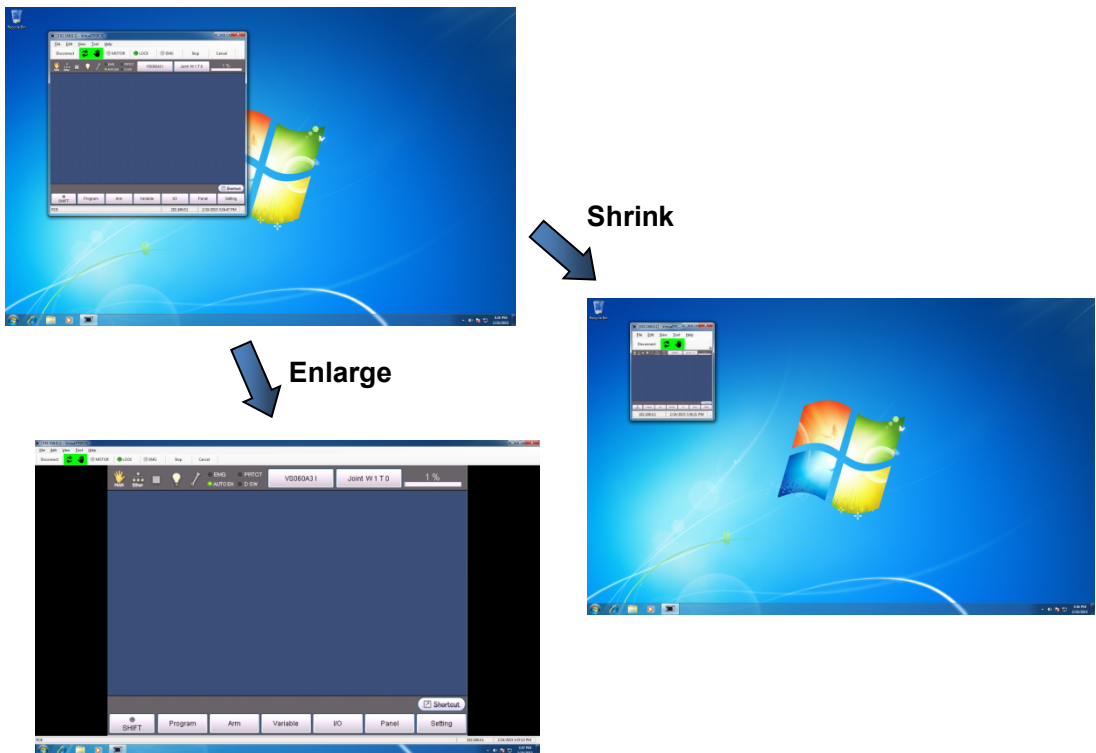
6.1.1. Snapshot function

Saves displayed screen images as bitmaps.

Helps make procedure manuals.

6.1.2. Zoom function

Enlarge and shrink the main window by changing the window size. This function allows you to display respective windows without cascading each other if you use multiple virtual TPs.



Revision History

Date	Version	Description
02/27/2015	1.0.0	First edition
03/17/2016	1.0.1	Optimize view updating
11/01/2016	1.0.2	Change connection condition about Mini Pendant Add snapshot option and back color option
03/27/2018	1.1.0	Support COBOTTA
04/17/2018	1.1.1	Updated System requirement(OS)
11/20/2018	1.1.2	Added functions for COBOTTA
02/06/2019	1.1.3	Support COBOTTA Ver.2.7.1
03/26/2019	1.1.4	Support wireless TP for COBOTTA
05/15/2019	1.1.5	Support COBOTTA Ver.2.8.0

The purpose of this manual is to provide accurate information in the handling and operating of the robot. Please feel free to send your comments regarding any errors or omissions you may have found, or any suggestions you may have for generally improving the manual.

In no event will DENSO WAVE INCORPORATED be liable for any direct or indirect damages resulting from the application of the information in this manual.