Changes for the Better



Mitsubishi Electric Corporation Industrial Robot

MELFA Technical News

BFP-A6079-0134E

October 2014

Subject: Report of RT ToolBox2 Version 3.20W release

Applicable to: F series, SQ series, SD series, S series (CR750/CRnQ-700/CRnD-700/CRn-500 series robot controller)

Thank you for your continued support of Mitsubishi industrial robot "MELFA".

This Technical news describes the new version 3.20W of the RT ToolBox2. 3D-11C-WINJ(E)/3D-12C-WINJ(E)

In order to use the functions described in this technical news, you need to download the latest version from MITSUBISHI ELECTRIC FA site, and upgrading the RT ToolBox2.

1. Program editor

• Corresponded to multiple undo/redo.

2. Maintenance

Added the function of "2D vision calibration"

Added the calibration function of the coordinate of the 2D vision sensor and the coordinate of the robot and did it.

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MITSUBISHI ELECTRIC CORPORATION

3. Operation panel

• The automatic driving function is added.

When RT ToolBox2 connects to the robot controller or the simulator, you can run the robot program.



Operating a controller screen



Operating a simulation screen

4. Simulator

• Open/Close operation of the hand is added.



• The function that moves specifying the coordinate value is added.

By directly specifying the XYZ coordinate values or joint, you can move the robot.

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• Corresponded to Z direction of the travel base.

If you set the [Z-] direction or [Z +] direction, the robot will move up and down.

Travel axis setting			x					
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8L @	☑ Display							
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Z -direction								
	Cancel							
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• Enable the additional axis parameter settings during simulation.

Select the [Set the additional axis parameter of the simulation automatically by the content of the above setting] checkbox in Project editor, the setting content of the traveling axis is applied to robot additional axis parameters of the simulation. To use setting parameters in the simulation, clear the checkbox.

Travel base setting for display										
Only travel base information for display is set here. To change the movement range of the travel axis, change the parameters.										
Travel base:	Not used	Detail								
Set the add by the cont	\fbox Set the additional axis parameter of the simulation automatically by the content of the above setting.									
Please clear th additional axis l	e checkbox when you set the paramete by manually.	r of the								

5.3D monitor

• Added the detailed robot model.

The robot model that displays in 3D monitor can be selected from "Detailed model" and "Simple model" with Version 3.20W or later of this software.

Recommended environment to display "Detailed model" is as follows.

Item	Recommended environment
CPU	Core2 Duo, Core i3 3 GHz or higher.
Main memory	2 GB min.



If you want to display a simple model, you can change the settings in the Edit workspace.



Added the function to switch the hand depending on the tool selected state and I/O.

It is now possible to grab the work automatically, switch the hand.

Hand file			×
✓ Display			
Title	Tool	Condition	File
✓ HandClose	0	IN#20->1bit=1	C:¥YHandClose.hpx
HandOpen	<u>С</u> ору	IN#20->1bit=0	C:¥ijs@ssifthriif)6\$¥HandOpen.hpx

• Added the function to display / hide the layout in the I / O state.

Test work								
		•						
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3D model	•							
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Added function to recode to record contents in the 3D monitor and save the AVI file.

At a frame rate 30/20/10, it can be saved AVI files of up to 500M bytes.

3D View Window Help	_	
Robot display option		
Hand Robot arrangement		REC. Option 1:RC1
REC.	REC. F3 Stop Alt+F3 Pause F3	Frame rate: 20 [FPS]
	Options	REC. Stop Pause

• Added function of display the spline curve.

Spline file being edit or spline file that is specified in the option screen will be displayed on the 3D monitor.

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6. I/O simulator

I/O simulator simulates the signal communication between robots. And this function can also interact with device of GX Simulator2.

• Simulator settings

Before starting I/O simulator, create a I/O simulator definition file.

Workspace	📇 Simula	tor setting								E	- 0 .	
3D Monitor	Signal connection:											
U Offline	Enable	Simulation operation	Signal type	Setting side	Start#	End#	Signal value	Condition1/Source	Start#	End#	Signal value	
		Signal value copy	PIO	1:RC1	[IN]0	[IN]0	-	1:RC1	[OUT]0	[OUT]0	-	
<u>∎</u> 1001		Only first	PIO	1:RC1	[IN]0	[IN]0	O(Dec)	-			-	
RC2		Specifying condition 1 and 2	PIO	1:RC1	[IN]0	[IN]0	O(Dec)	1:RC1	[OUT]0	[OUT]0	0(Dec)	
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• Starting I/O Simulator

Click [Start I/O simulator] button on toolbar to start I/O simulator during the simulation.

St	arting I/O simulator	ſ	
<u>छ</u> 🖗	I/O Simulator start		
	Please select the definit File: C:¥I	ion file used for the I/O Simulator. ¥test.xml OK Cancel	Browse