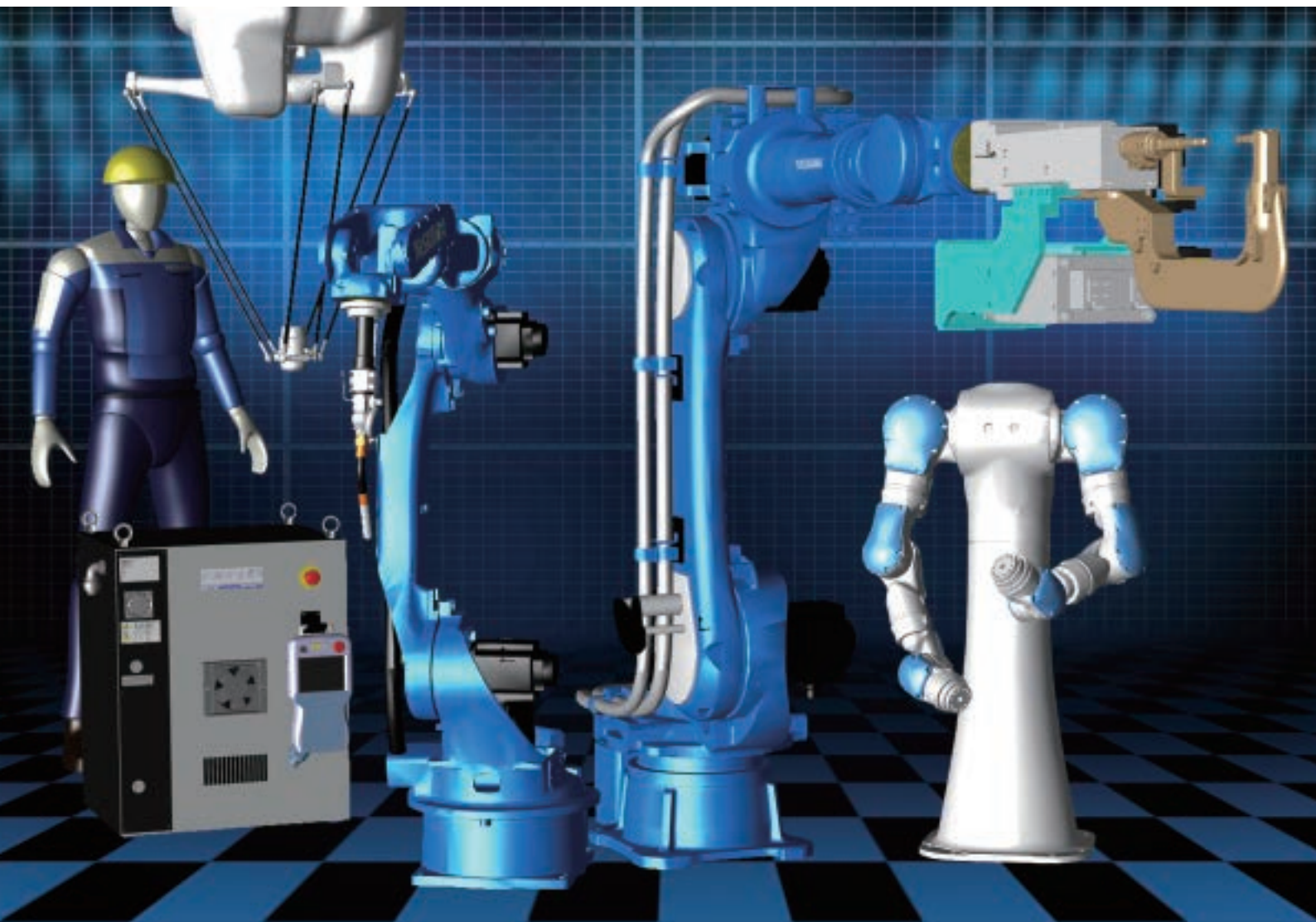


YASKAWA

HIGH-PRECISION ROBOT SIMULATOR FOR MOTOMAN ROBOTS **MotoSim EG-VRC**

For Windows 7/10

Compatible Controllers:
YRC1000, YRC1000micro, DX200
FS100, DX100, NX100



「Easy to Use」

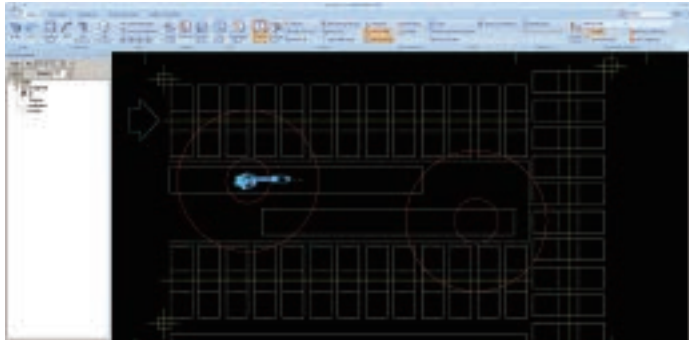
Makes All Operations Smarter

"Easy to Use" Advanced engineering fun

Modeling/Layout Functions

The modeling function allows you to import models of operators or workpieces and register the self-created unique models into the model library. The layout function allows you to easily and intuitively layout the models.

Importing two-dimensional layout drawings (DXF)



You can import a DXF formatted file of a two-dimensional layout drawing for a quicker and more accurate layout. In addition, the function of rotating the viewpoint + and -90 degrees allows you to more quickly check the layout.

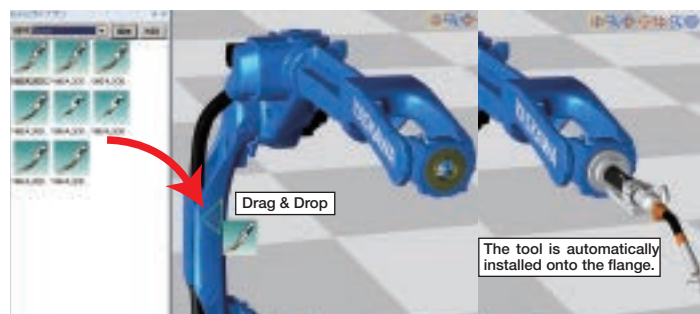
Supporting various CAD formats

Supported format	Extension	Supported CAD version	Applicability of CAM function
IGES	igs,iges	to 5.3	○
STEP	stp,step	203,214,242	○
Inventor	ipt	V11 to 2020	○
ProE/Creo	prt,asm	16 to Creo 6.0	○
Solidworks	sldprt,sldasm	2003 to 2019	○
CATIA V5	CATPart,CATProduct	R8 to R29(V5-6 R2019)	○
SAT	sat	R1 to R29(2019 1.0)	○
Parasolid	x_t,x_b	9.0.* to 31.1.*	○
DXF	dxf	2.5 to 2020	○
HSF	hsf	to 20.80	×
HMF	hmf	to 20.80	×
VRML	wrl	2.0	×
STL	stl	—	×
3DS	3ds	—	×
RWX	rwx	—	×
PLY	ply	—	×

* The versions listed above are the supported CAD versions as of the date when MotoSim EG-VRC Ver. 2020SP1 was released.

Model library

Models can be imported from the library



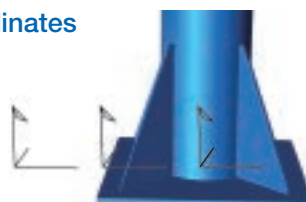
You can easily import a model by dragging and dropping it while checking the preview window showing the model. For tool models such as a torch, auto-configuration of the tool data is available in addition to the import, making it easier to mount tools.

You can also register self-created models in the library and use them for the cells created in the past.

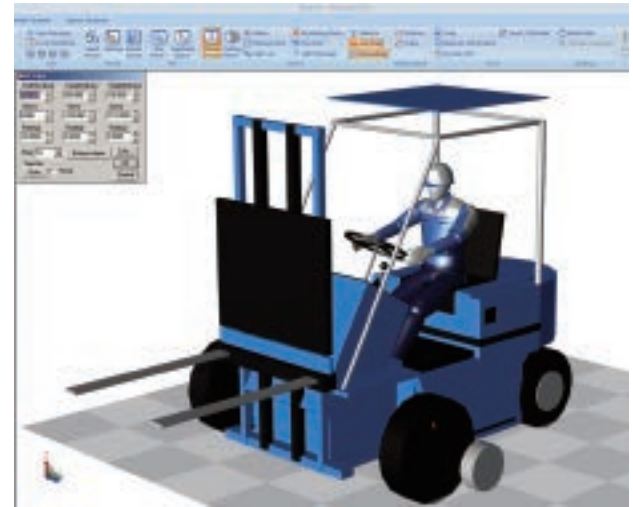
Changing the origin of coordinates on CAD data

This function allows you to freely change the origin of coordinates imported from external CAD data.

When you have difficulty in arranging models, use this function for easy model layout.



Modeling



You can easily create 3D models using a mouse and entering numerical values

You can easily create models of a torch and painting spray gun by combining basic parts such as cubes and cylinders.

Using the model simple layout function or model layout function allows you to quickly and intuitively create complex models and layouts.

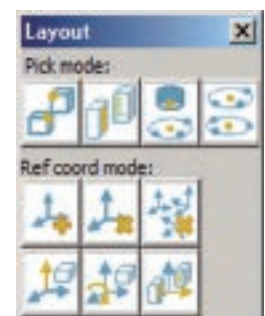
Intuitive operation of models

The layout operation is made easier and more intuitive.



· Simple layout of models

You can move and copy a model intuitively by operating the operation handle displayed at the origin position on the model coordinates using a mouse.



· Layout

The simulator is equipped with 10 functions that allow easy and accurate layout of models, including point-to-point matching, plane-to-plane matching, and creation of reference coordinates, which enable intuitive layout.

Optimizing 3D CAD data and reducing the data size

You can optimize an imported HSF* formatted 3D model with one click and reduce the data size easily just by changing the data accuracy (percentage) for further improved display rate.

* HSF (Hoops Stream File)



ctions are incorporated for greater ease of use

Programming/Debugging Functions

These functions allow you to automatically generate robot motion programs, and easily edit and analyze jobs.

CAM (multiple controllers supported)

Multifunctional teaching-free feature packed with professional teaching know-how

The teaching-free feature is to automatically generate robot motion programs based on the three-dimensional CAD data and processing operation conditions.

This feature is effective for workpieces requiring time to teach to a robot, such as curved complex weld lines; workpieces with many teaching points, such as polishing; and workpieces requiring a posture perpendicular to complex surfaces, such as painting. This CAM feature enables professional-level teaching without teaching know-how, including intervals between teaching points on curves and curved surfaces, interpolation types (straight lines, circular arcs), operating speed, welding conditions, and painting conditions.

Supported formats: IGES, STEP, Inventor, ProE/Creo, Solidworks, CATIA V5, SAT, Parasolid



Intuitive operation of a robot

The posture of a robot can be intuitively operated for smarter teaching.



· Operating individual axes

By dragging each part of a robot model, you can move the axis of a robot in a direction that you drag the mouse. You can also operate the station and base in the same way.

· TCP operation handle

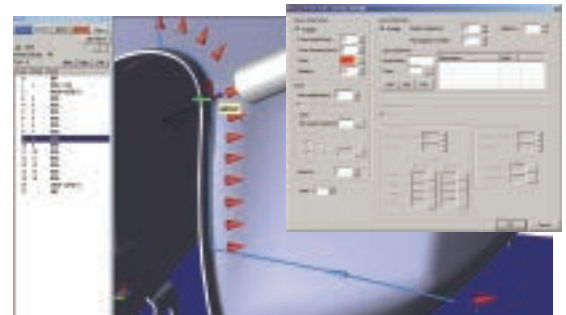
You can move TCP by operating the operation handle displayed at the robot's TCP frame position.

· Dragging OLP

You can move TCP to a point on a model located at the cursor position by dragging it with the mouse.

Visual path editor

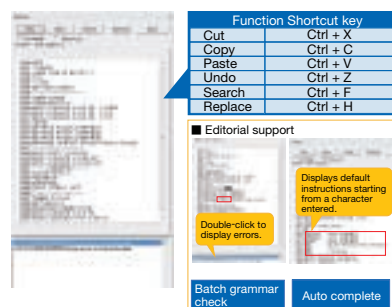
Can visually check and teach by displaying the job on screen.



With this function, a job is displayed on the screen allowing you to modify the teaching positions or adding/deleting teaching points jointly with the TCP handle and the smart pendant.

[Features]

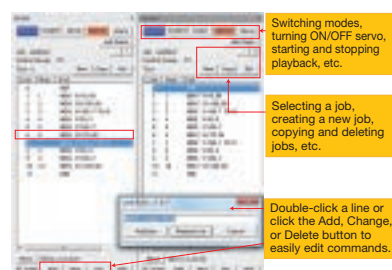
- Enables visual check and teaching of a job detail.
- In response to the command to move in synchronization with a conveyor, the displayed job is followed by the conveyor.
- This function, which enables the following operations, is more effective in painting applications.
 - 1 Modify anticipation of the SPYON/SPYOF commands by dragging the mouse.
 - 2 Edit the painting conditions command.
 - 3 Color-code paths according to the boundaries of the sections to be painted or the painting condition file numbers.



JobPad for editing jobs

This function is to edit complex jobs such as structured languages on JobPad, like scribbling on a notepad.

The JobPad is provided with the checker functions to collectively check grammatical errors and check multiple errors simultaneously and the auto complete function to display an instruction or tag starting from a character entered, allowing you to quickly edit complex jobs.



Smart pendant

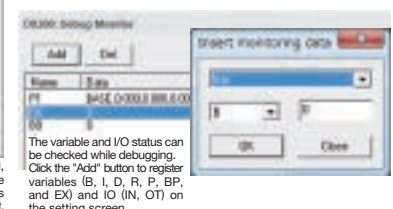
The smart pendant, which enables you to edit or play back a job without displaying virtual pendant, has become easier to use. The improved smart pendant allows you to arrange multiple windows on the screen and efficiently edit a job with many instruction lines by using the search and replace and bookmark functions.

Debugging

The debugging function is to analyze jobs. This function allows you to analyze jobs while checking the I/O and variable status of jobs by executing by line, executing between breakpoints, and stepping in CALL JOB. Breakpoints can be registered and deregistered on the smart pendant.



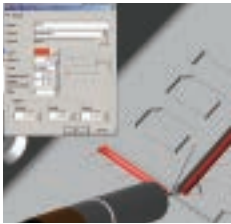
With the debugging mode enabled, execution is stopped at the point where a breakpoint is set. The robot stops while execution is stopped at a breakpoint.



The variable and I/O status can be checked while debugging. Click the "Add" button to register variables (B, I, D, R, P, BP, and EX) and IO (IN, OT) on the setting screen.

Simulation Functions

This function is to visually check a robot working.
You can play back the simulation verification results three-dimensionally by using Adobe Reader.



Working path

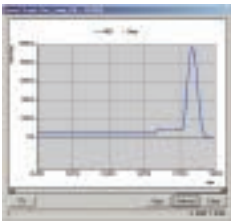
This function is to visually check a robot working on a welding or painting point. The function enables automatic response to ARCON and ARCOF and designation of drawing in a specified section with a comment command.

A working path can be selected among cylinder, line, and sheet and can be customized by setting various parameters, such as color, transmittance, and diameter.



Interference check

When interference is detected between the models within a group that you want to check interference of a workpiece or robot, the target model is highlighted instantly to visually notify of the interference. The pulse value of the robot when interference occurs or the name of the job being played back can also be checked on the interference log.



Speed graphs

This function is to display the speed of a tool tip in a waveform graph through playback. This function allows you to grasp the timing when IO signals are turned on/off on the graph.



Model script

This function is to synchronize animation of a peripheral such as a clamp or conveyor during playback with a robot and display it smoothly. After the end of the peripheral motion animation, you can output signals to interlock the peripheral and the robot.



Output of 3D PDF animation

With this function, you can easily output a 3D PDF animation file playable with Adobe Reader with one click.

You can play back the simulation verification results three-dimensionally, while operating the viewpoint with the mouse by using Adobe Reader even in an environment where MotoSim EG-VRC is not installed. You can also edit the title, company logo, and additional information.

Clicking the job list allows you to check teaching points, so that you can provide your customer with the detailed verification results.



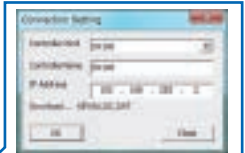
Virtual Robot Controller

The Virtual Robot Controller enables simulation of various functions incorporated into an actual controller (independent coordination system, touch sensing, weaving, etc.).

Online Functions

Online functions allow you to exchange data by connecting your PC to an actual controller via Ethernet. Simple operation on MotoSim EG-VRC enables automatic construction of Virtual Robot Controller (VRC), monitoring, and transmission and reception of files.

MotoSim EG-VRC



Just configure necessary settings such as a type and IP address to construct VRC equivalent to the actual controller.

Automatic construction of VRC

Automatic construction of VRC

This function is to import required files including parameters, condition files and job files from an actual controller through simple operation, to automatically construct VRC with system configuration equivalent to that of an actual controller.



Monitoring

Monitoring

This function allows you to monitor the mode and status of an actual controller and the status of current values of a robot. The robot position and posture on MotoSim EG-VRC are updated in real time when jog operation or playback operation is performed with the actual controller. Simultaneous monitoring of multiple controllers is also possible.



Transmission and reception of files

Transmission and reception of files

You can display and compare job files and condition files between MotoSim EG-VRC and an actual controller with a text editor. Sending and receiving files between MotoSim EG-VRC and the actual controller can be done by simple operation.



Makes All Operations Smarter

MotoSim EG-VRC

The robot simulator MotoSim EG-VRC can intuitively and quickly carry out operations, from supporting the construction of a robot system to its operation, using various functions. The CAM function imports native data directly from representative CAD software, which dramatically saves working time in comparison with the use of intermediate data, such as STEP and IGES. The visual path editor function visually checks job details and freely edits and teaches jobs. The JobPad can set characters, background colors, and fonts for job commands and perform batch grammar checks and auto complete, enabling users to edit jobs like writing by hand on a notepad. The MotoSim EG-VRC provides you with a wiser and smarter engineering environment.

Main Features

- 1 Equipped with the Virtual Robot Controller (VRC) function that has functions identical to that of an actual robot controller and the Virtual Programming Pendant (VPP) function.
- 2 Has robot data compatibility that can be offered only by the developer of MOTOMAN as well as the online functions that enable automatic construction of VRC, monitoring, and file transfer through the linkage with an actual controller.
- 3 Can quickly layout and create jobs using 3D-CAD data that supports various formats.
- 4 The CAM function supporting various applications allows even entry-level robot users to easily and quickly lay out and create jobs (CadPack **option**).
- 5 The VRC technology enables highly accurate verification of cycle time.
- 6 Supports the latest MOTOMAN models in all applications.

New Functions of MotoSim EG-VRC

Modeling / Layout Functions

Importing two-dimensional layout drawings (DXF), Supporting various CAD formats, Modeling, Model library, Intuitive operation of models, Changing the origin of coordinates on CAD data, Optimizing 3D CAD data and reducing the data size

Programming / Debugging Functions

CAM function, Intuitive operation of a robot, Visual path editor, JobPad for editing jobs, Smart pendant, Debugging

Simulation Functions

Working path, Interference check, Speed graphs, Model script, Output of 3D PDF animation, Virtual Robot Controller

Online Functions

Automatic construction of VRC, Monitoring, Transmission and reception of files



List of specifications

Item	Function name		Standard or option
Modeling/Layout Functions	Modeling		Standard
	Model library		Standard
	Intuitive operation of models		Standard
	Changing the origin of coordinates on the imported 3D CAD data		Standard
	Optimizing 3D CAD data and reducing the data size		Standard
	Paint spraying		Standard
	Displaying cross section		Standard
	Markup (note, dimension line)		Standard
	Customization of viewpoint operation with the mouse		Standard
	Template		Standard
	Importing two-dimensional layout drawings (DXF)		CadPack option
	Importing 3D CAD data (IGES, STEP, Inventor, ProE/Creo, Solidworks, CATIA V5 etc.)		CadPack option
Programming/Debugging Functions	Exporting 3D CAD data		CadPack option
	Intuitive operation of a robot		Standard
	Visual path editor		Standard
	JobPad for editing jobs		Standard
	Smart pendant		Standard
	Debugging		Standard
	Teaching in Offline Programming (OLP) tool		Standard
	Pulse limit warning display		Standard
	Job Browser		Standard
	Path planning		Standard
	Retrofit		Standard
	Equipped with CAM function	Arc welding/handling applications	CadPack option
		Laser applications (welding and cutting)	Option
		Painting applications	Option
Simulation/Online Functions	Planning extension		Option
	Working path		Standard
	Interference check		Standard
	Speed graphs		Standard
	Model script		Standard
	Output of 3D PDF animation		Standard
	AVI output		Standard
	Virtual Robot Controller		Standard
	Online Functions		Standard
	I/O monitor, variable monitor		Standard
	I/O connect, I/O event		Standard
	Interval time panel		Standard
	Pulse record		Standard
	Sensing		Standard
	Tracing		Standard
	Spot welding		Standard
	Conveyor synchronization		Standard
	High-speed picking simulation		Standard
	Displaying functionally safe region and editing files		Standard
	Displaying operation region of a robot		Standard
	Displaying cubic interference region		Standard
	Cable simulation		Standard
	Motor load factor estimation		Standard
	Life estimation		Standard

System requirements (recommended)

OS	[MotoSim EG-VRC 32-bit version] · Microsoft Windows 7 Service Pack1 (32-bit/64-bit version) · Microsoft Windows 10 (64-bit version) [MotoSim EG-VRC 64-bit version] · Microsoft Windows 7 Service Pack1 (64-bit version) · Microsoft Windows 10 (64-bit version) Only Japanese/English versions supported
CPU	Intel Core i7 or higher multi-core processor
Memory Capacity	4 GB or more
Free Hard Disk Space	500 GB or more
Monitor	Microsoft Windows-supported monitor (at least 256 colors)
Hardware Key	Single user For details, refer to the manual supplied with the product.
GPU	NVIDIA graphic card Quadro series, etc.

* MotoSim EG-VRC may not work properly depending on the type of the PC, graphic board, other connected peripherals, and the software installed.

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