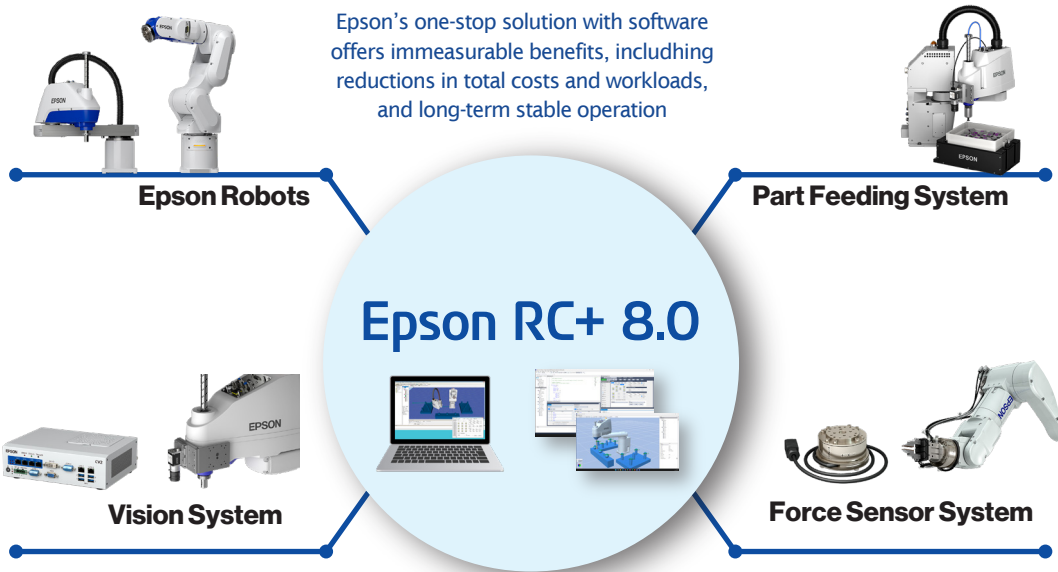


Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphic user interface, it helps you achieve maximum productivity with minimum programming overhead.

Software

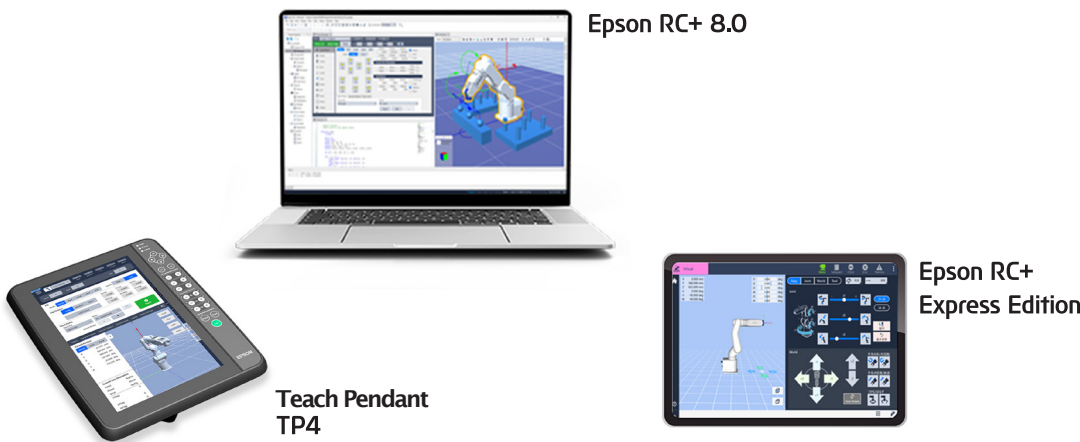
The Source of Epson Robot Ease of Use

Epson's software lineup has powerful, easy-to-use features for each of its user's demand. Minimize the time required to develop, debug, and operate and maintain robotic automation applications. In addition, unified usability allows users to move seamlessly back and forth between each software.



Unified and Sophisticated Usability

- Epson RC+ integrates a variety of options including Vision Guidance, Force Guidance, Conveyor Tracking, and Part Feeding.
- Epson RC+ Express Edition features an easy-to-learn, block-style robot teaching environment that is ideal for new users with limited coding experience.
- TP4, a highly functional Teach Pendant with built-in Epson RC+, is equipped with tools for intuitive teaching, program editing, debugging and creating GUI operate the workcell.

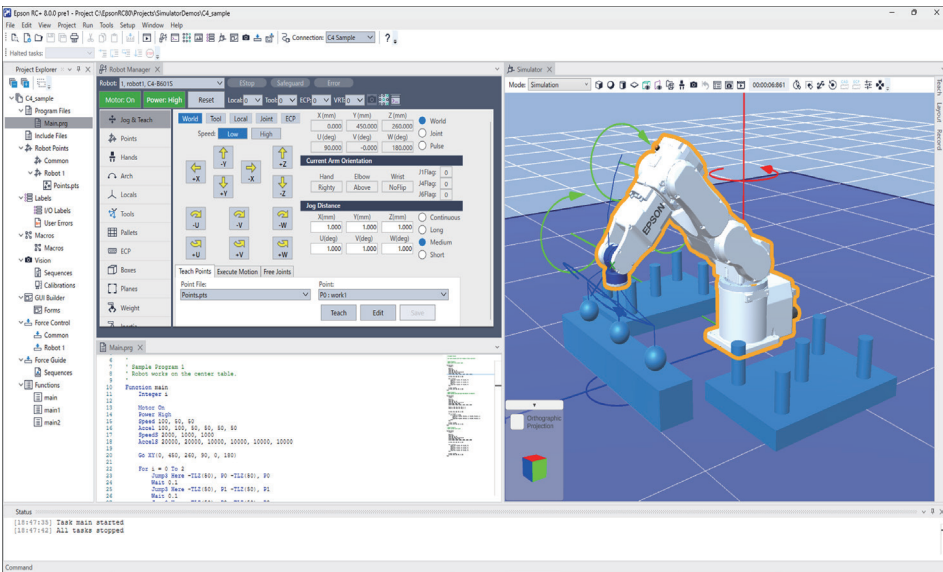


\*Users are required provide their own PCs and tablets.  
For recommended specifications, please check the manual.

Epson RC+ 8.0 NEW

About Epson RC+ 8.0

Epson RC+ is a software tool that supports various tasks from application conception and layout studies to operational design, debugging, and routine maintenance. An easy-to-understand GUI and a wealth of integrated options allow for maximum productivity with minimal programming workload.



The Integrated Development Environment (IDE) Pursuing Efficiency

Epson RC+ software includes the following selected features to assist users efficiently develop automation solutions. it is the Integrated Development Environment (IDE) for beginners and experts alike.

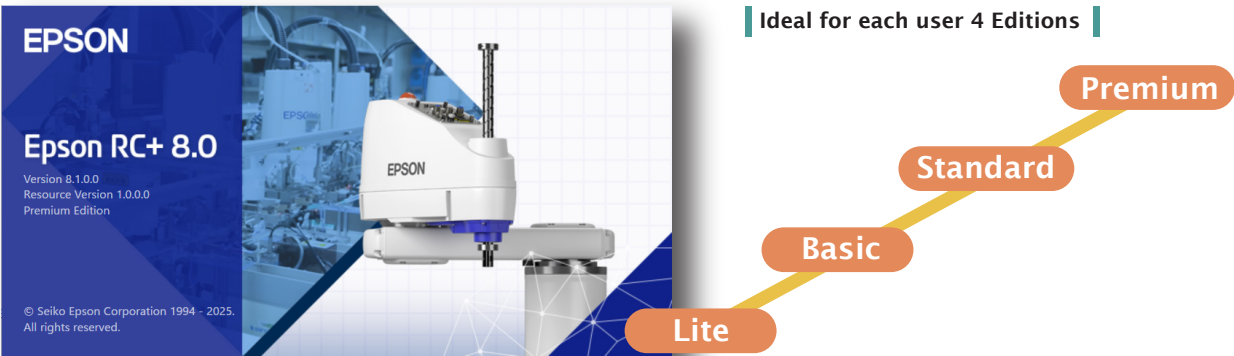
Epson RC+ functions		
Robot programming functions	SPEL+ language	Project Data & Explorer
	Approach check area / Approach check plane	Robot Manager
	Pallet handling	Task Manager
	Payload and effector eccentricity	Jog & Teach
	High-speed, high-precision 3D path accuracy	Run Window
	Multitasking	Operator Window
	Positioning completion timing	Coordinate Conversion Wizard
	Arch motion	Program Editor & Syntax Assist
	Parallel processing	3D Simulator
	Singularity point avoidance	I/O Monitor
	Remote control expansion I/O	Variable Monitor
	Operating speed and acceleration settings	
Options		
Software options		Force-sensing systems / GUI
Epson RC+ API GUI Builder ECP VRT		Force Guide
		Image processing systems / GUI
		Vision Guide Catch-On-Fly OCR
Simple teaching functions		
Jog & teach / Tool settings		
Local coordinate settings		
Maintenance and management functions		
Consumables management		
Controller settings backup		
Simulator functions		
Layout review / Interference checking		
programming / Debugging functions, etc.		

Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphic user interface, it helps you achieve maximum productivity with minimum programming overhead.

Edition

Epson RC+ Evolves to Empower Simpler, Smarter, and More Advanced Application Development

Epson has long supported customers in developing diverse and complex automation applications through its integrated development environment, Epson RC+. Today, we are proud to announce a major evolution of Epson RC+, designed to meet growing demands for simplicity, efficiency, and advanced capabilities.



Premium Edition

Ideal for advanced solution development and deployment for accelerating co-creation. This edition supports scalable team development by enabling the packaging and distribution of libraries and user interfaces. It enhances program quality and streamlines the delivery and use of solutions, making it perfect for professional-grade development environments.

Main target	Solution Developer, Automation devices vendor, IT / software vendor
-------------	---

Standard Edition

Designed for more efficient development, commissioning, and support for almost users including non-experts. It offers advanced and convenient tools for streamlined development and debugging, along with enhanced simulation capabilities in virtual environments. These features help accelerate development with confidence and improve overall workflow efficiency.

Main target	Engineers (concept design, detail design, setup, and maintenance) seeking efficiency and improvement
-------------	--

Basic Edition

Covers equipment development, design, and maintenance with essential features. This edition includes a virtual environment that enables seamless development from concept to deployment. It's well-suited for users who need a comprehensive toolset without relying on physical robot during the development process.

Lite Edition

A simple and ready-to-use environment for basic machine operation and maintenance. It provides the core functions required for running, starting up, and maintaining actual equipment, along with basic programming and teaching capabilities. Ideal for initial setup and maintenance use.

Edition Comparison Chart

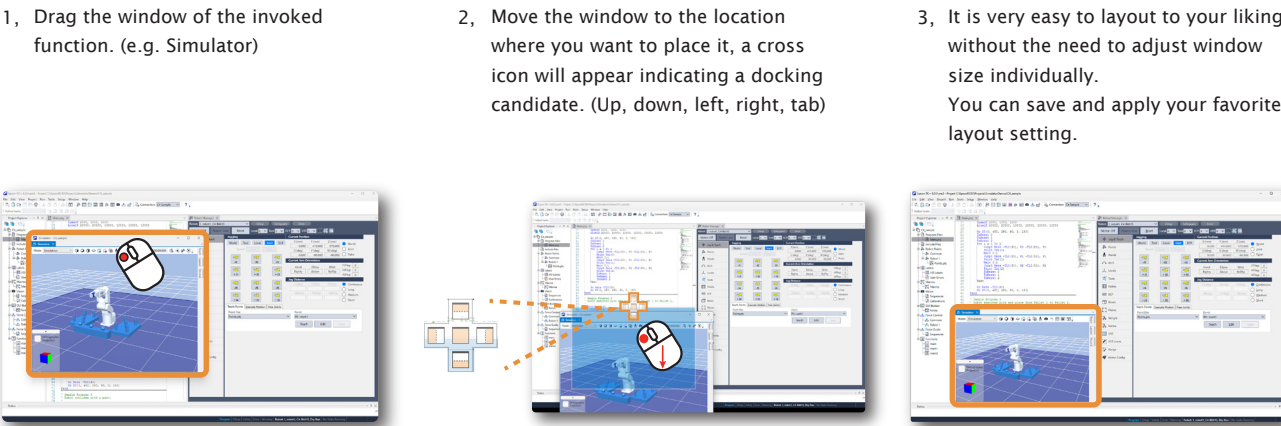
Features / Edition	Lite	Basic	Standard	Premium	
Offline programming	●	●	●	●	
3D Simulator	—	●	●	●	
Virtual Controller	—	●	●	●	
Teaching	○ <sup>*3</sup>	●	●	●	
I/O control	○ <sup>*3</sup>	●	●	●	
Dignostics	—	—	●	●	
Sharing simulator layout data	—	—	●	●	
Restore Contorller Parameter / imporved usability	—	—	●	●	
Weight / Inertia wizard	—	—	●	●	
Connectivity for external simulator by OPC-UA protocol for virtual environment	—	—	●	●	For higher efficiency
Simulator / Improved usability	—	—	●	●	
Conveyor Tracking / Improved usability	—	—	●	●	
GUI Builder / Improved new controls	—	—	●	●	
Safety function for virtual controller	—	—	●	●	
Conveyor tracking for virtual controller	—	—	●	●	
Library Builder (Library development using the SPEL language)	—	—	—	●	For co-creation
Use of solutions created through co-creation function	●	●	●	●	
Contorller Options	○ <sup>*2</sup>	● <sup>*1</sup>	● <sup>*1</sup>	● <sup>*1</sup>	
Vision Guide	○ <sup>*2</sup>	● <sup>*1</sup>	● <sup>*1</sup>	● <sup>*1</sup>	
GUI Builder	○ <sup>*2</sup>	● <sup>*1</sup>	● <sup>*1</sup>	●	

<sup>\*1</sup> A separete license is required when using with real controller. <sup>\*2</sup> Virtual controllers cannot be used. A separete license is required when using with real controller. <sup>\*3</sup> Requires connection to a real controller.

Epson RC+ 8.0 Features

Window Layout In the office, on site, anywhere

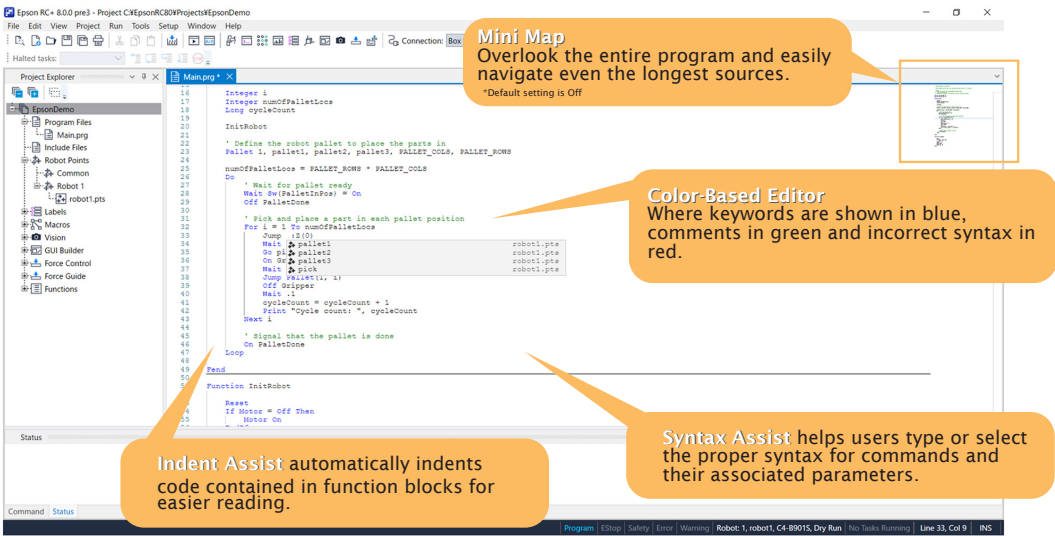
- Various information needed for debugging is displayed in any window layout.
- For better listing, variable displays and task status windows can be docked, and floating simulator screens can be displayed on multiple displays.
- You can register and recall your preferred layout.



Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphic user interface, it helps you achieve maximum productivity with minimum programming overhead.

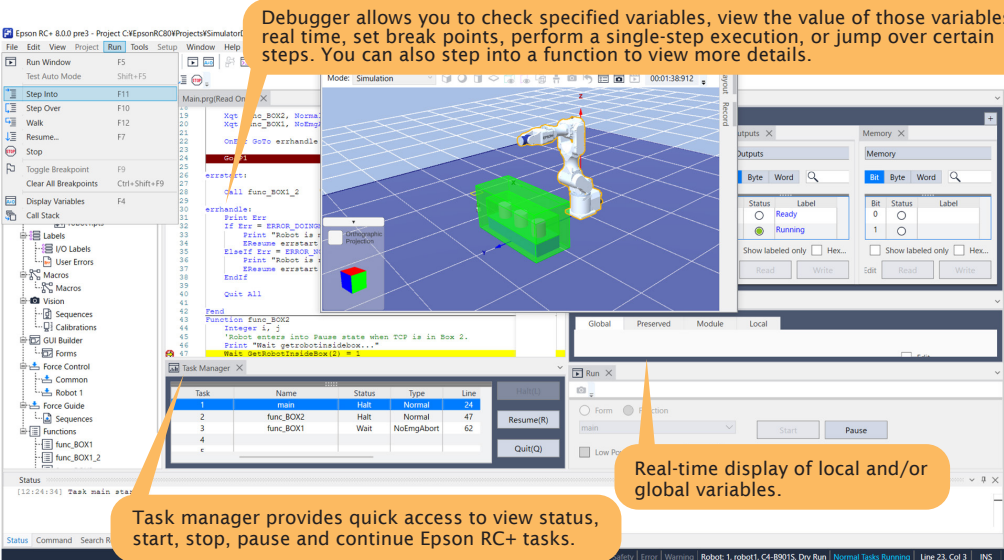
Editor Auto-assist makes editing easier than ever

Epson RC+ includes powerful editing capabilities to minimize mistakes and streamline program development. In addition to basics such as cut, copy and paste, it also includes indent assist, syntax assist, syntax highlighting, comment blocks, indent/outdent, find/replace and more.



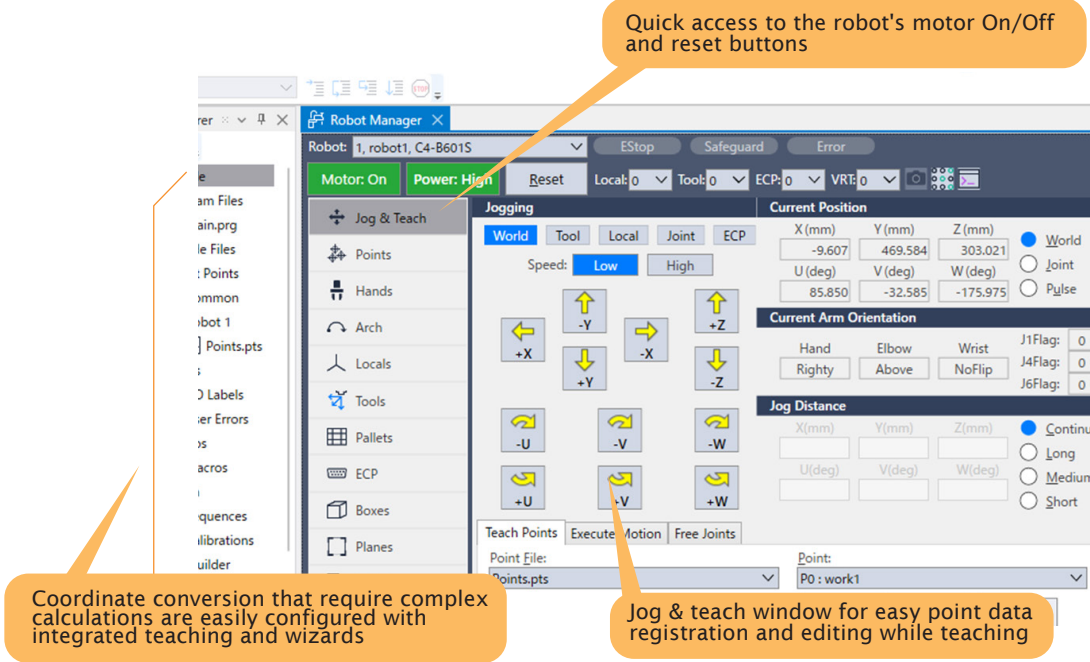
Integrated Debugger Easily test programs and identify problems

The integrated debugger offers many clever ways to check the status of your program or identify issues you may find while running it.



Robot Manager Simple and high functionality

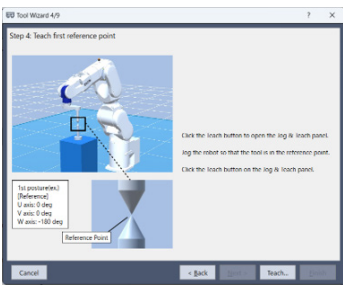
Robot Manager, integrates a variety of functions related to robot operation into a single system, is an intuitive graphical interface that enables users to manage functions and wizards to simplify automation tasks.



Palettes and entry area definitions can be easily configured with integrated teaching and wizards

Tool Wizard

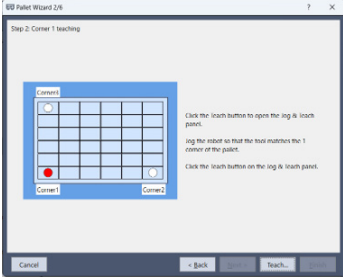
Enables you to define a tool - oriented coordinate, complicated end effector setting can be quickly.



Teach first reference point

Pallet Wizard

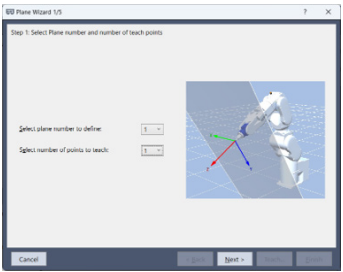
If parts are arranged in a square layout, spaced at regular intervals, the PALLET command can be used to quickly and precisely position the end effector.



Teach each corner

Plane Wizard

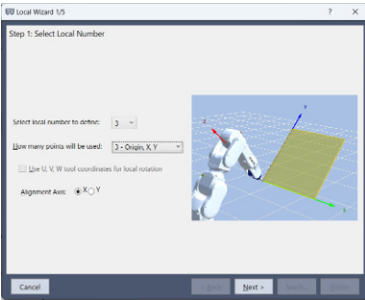
Enables you to check effector approach within an arbitrarily defined area or plane to prevent interference with other robots or peripheral equipment, and to restore effector position after an error occurs.



Teach plane origin point

Local Wizard

A local coordinate system can be defined relative to the base coordinate system, enabling you to define workspaces based on angled coordinate systems or CAD point data.



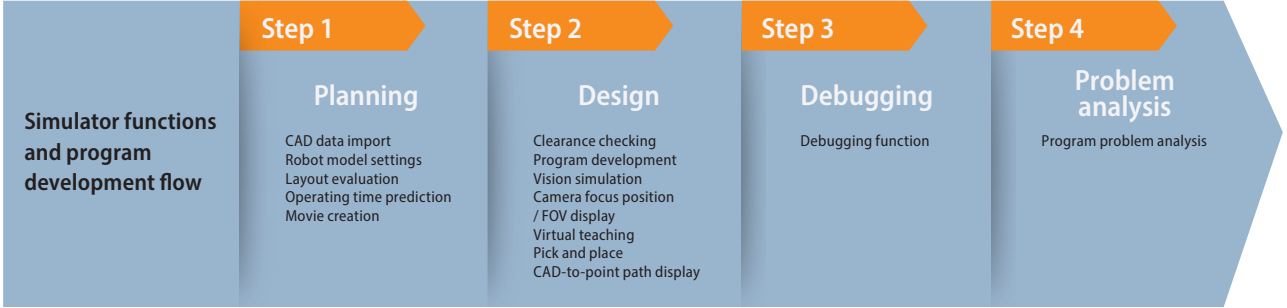


Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphic user interface, it helps you achieve maximum productivity with minimum programming overhead.

Simulator

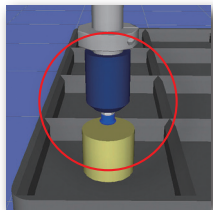
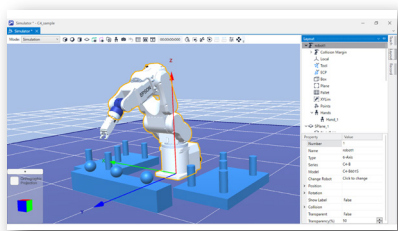
Lite Basic Standard Premium

The simulator displays a 3D view of the robot that enables you to thoroughly test programs and confirm robot motion and operating clearances in a virtual environment before putting them into use on the factory floor.



Layout evaluation

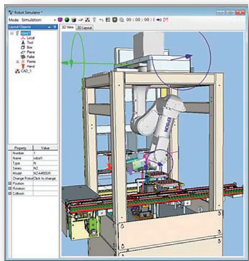
3D simulation of robot operation enables you to determine workcell space requirements and necessary clearances.



Enlarged view of effector

CAD data import

CAD data points for peripheral equipment and the effector can be imported directly to the simulator.

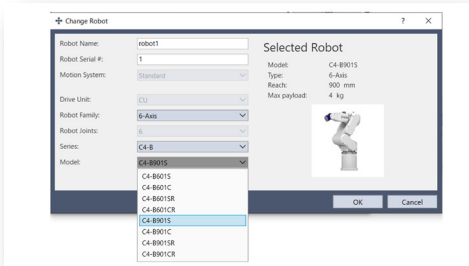


**Supported CAD data formats for 3D display**

- **VRML 2.0**  
Limitations: VRML 2.0 prototypes are not supported.
- **STEP (AP203/AP214)**  
Limitations: Only ASCII code files are supported. Face colors can be displayed only when specified in the imported data.
- **IGES**
- **DXF**  
AutoCAD® DXF formats (DXF R13, DXF R14, DXF 2000/2000i, DXF 2002)

Robot model settings

Workcell layout are easy because 3D data is built into the software.



Robot operating time prediction

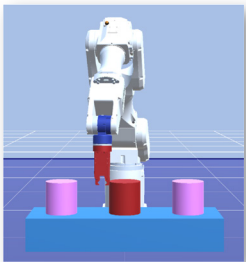
Robot operating time can be predicted based on motion speed and acceleration settings.

Still image / movie creation

Simulation results can be displayed as movies or still images that can be used as tools for evaluation, debugging, and information sharing.

Clearance checking

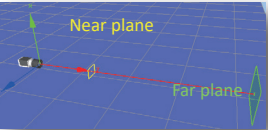
Clearances can be checked to ensure that the effector and arm do not interfere with the robot body or nearby equipment.



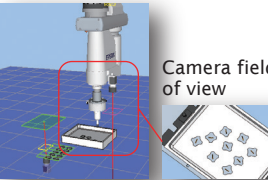
Program development

Programs can be written in SPEL+ and executed within the simulator.

Camera and field of view positioning



The simulator displays the position and angle of view for the selected camera and lens, making it easy to check camera positioning.

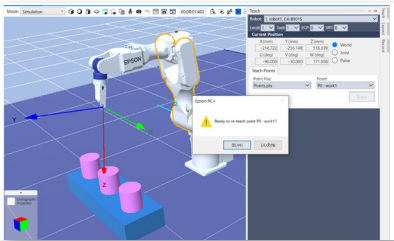


An image of the camera's field of view can also be displayed to facilitate positioning of workpieces and nearby equipment.

\*Please note that live camera image display and Vision Guide connectivity are not supported, and displayed images cannot be image processed.

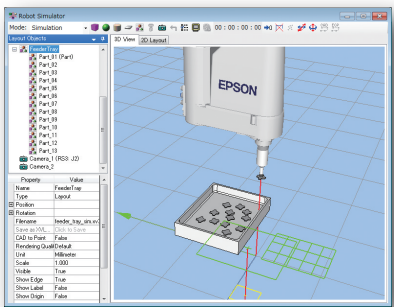
Virtual teaching

Teaching can be carried out within the simulator by positioning the robot with CAD data.



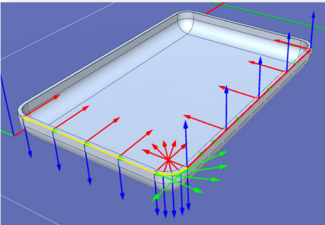
Pick and place

Pick and place program CAD data can be evaluated in the simulator to ensure nearby equipment does not interfere with arm movement.



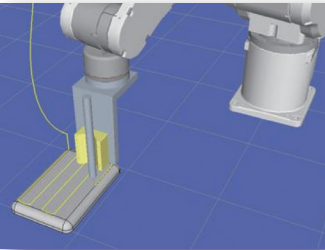
CAD-to-Point teaching

Teaching points can be set using imported CAD data.



Path display

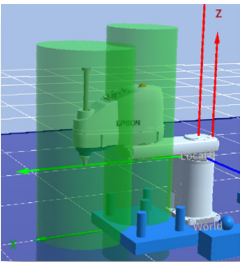
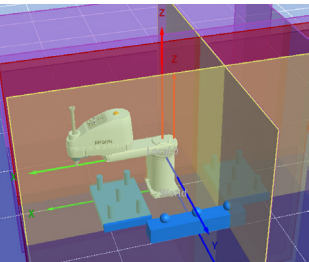
Robot motion paths can be displayed to confirm teaching points and programs.



Safety function

Lite Basic Standard Premium

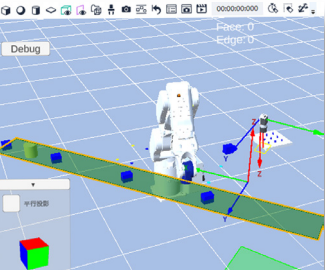
3D view for safety function allows you to check and modify safety function parameters (operating range and angle).



Conveyor tracking

Lite Basic Standard Premium

Conveyor tracking simulation allows you to build and execute it virtually and quickly validate productivity.

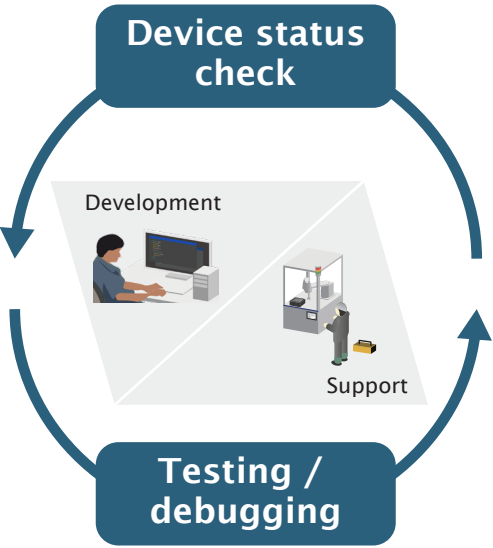


Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphic user interface, it helps you achieve maximum productivity with minimum programming overhead.

Diagnostics Function

Lite Basic Standard Premium

For more detailed information, please see the YouTube channel "Epson Robot Video Manuals."



What is Diagnostics function?

The toolset for efficient debugging, troubleshooting, and identifying optimization points in equipment development. These visualizes system configuration, program and I/O status.

- Quickly analyzes and resolves issues to minimize
- Downtime from unexpected failures or performance drops.

System

Component	Status	Name	Type	Model	Version	IP Address	Additional data
Epson RC+ 8.0 Software	Changed		Software		8.1.0.0	127.0.0.1	
Controller	OK		Virtual		RC801		
Robot 1	OK	CR_C-015	VirtualRobot	CR-CR015			
System Camera 1	Changed	Camera 1	ICVision	4000000-0000			
System Camera 2	OK	Camera 2	ICVision	4000000-0000			
Extended I/O Board 1	OK	Extended I/O Board					
Extended I/O Board 2	OK	Extended I/O Board					
Extended I/O Board 3	OK	Extended I/O Board					
Function Slave Board	OK	Function Slave Board					
Function Master Board	OK	Function Master Board					
Controller Setting	OK		Option				
EEP	OK		Option				
Robot Master	OK		Option				
CR Builder	OK		Option				
CCU	OK		Option				
CRS-0A	OK		Option				
IC Vision Option Center	OK		Option				
RC+ 8.0	OK		Option				
RC+ Express Advanced	OK		Option				
VST	OK		Option				

Easily grasp and compare system configurations

Displays a list of software and hardware components in the current robot system. Difference detection function streamlines development and troubleshooting by highlighting changes.

Profiler

Function	Profiling Enabled	Execution Count	Percent Total Time	Average Time (secs)	Minimum Time (secs)	Maximum Time (secs)
main	✓	1	100%	13.57	13.57	13.57
mytest1	✓	1	8%	11.21	11.21	11.21
PickPlacePartA	✓	2	29%	2.01	2.01	2.01
PickPlacePartB	✓	2	36%	2.51	2.51	2.51
WeighPart	✓	4	29%	1.01	1.01	1.01

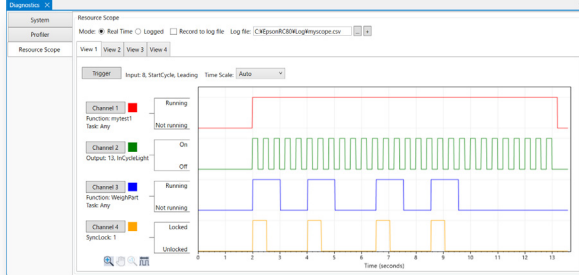
  

Function	Profiling Enabled	Execution Count	Percent Total Time	Average Time (secs)	Minimum Time (secs)	Maximum Time (secs)
main	✓	5	37%	1.44	1.44	1.44
PickPlacePartA	✓	5	40%	1.54	1.54	1.54
PickPlacePartB	✓	10	5%	1.11	1.11	1.11

Grasp and compare the execution time of each function

Detailed statistics on the execution time of each function can be recorded and displayed. It makes it easier to identify bottlenecks and optimization points. In addition, the average execution time can be compared, and the improvement effect can be quantitatively evaluated.

Resource Scope



Real-time monitoring of state changes

Monitors I/O and function execution in real time along a timeline.

- Up to four resources viewed simultaneously
- Per-task function tracking

Supports timing verification and detection of unexpected events boosting efficiency in development, debugging, and troubleshooting.

Library Builder Function

Library Creation, Distribution : Lite Basic Standard Premium  
Library Use : Lite Basic Standard Premium

For more detailed information, please see the YouTube channel "Epson Robot Video Manuals."



What is Library Builder function?

supports scalable team development by enabling the packaging and distribution of libraries and user interfaces. It enhances program quality and streamlines the delivery and use of solutions. Also, it allows you to focus on your strength for application building.

Issues

- Tightly coupled with the user program
- Cannot customize to suit the project
- Lack of documentation and related files
- Depends on the settings on IDE, Dynamic processing is not possible
- Malfunctions due to resource contention

Features and value by Library Builder

- Separation of user programs and libraries
- Customizable callback functions and error handling
- Integration of documentation and related files into the package
- Dynamically accessible commands
- Conflict avoidance through reservation/ use of dedicated resources

Library Builder helps you standardize and optimize at the same time on application development

How Library Builder function works



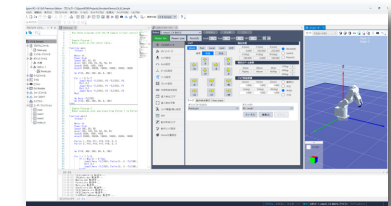
Connectivity for External Environment

Lite Basic Standard Premium

Seamless device integration and precise simulation in virtual environments

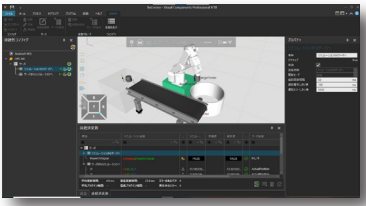
Virtual Commissioning with Epson RC+ and OPC UA Connectivity

Accurate reproduction and validation of robot behavior with Epson RC+ Integrated development and validation using external factory simulators



(1) Developed on Epson RC+

Layout, teach, and program including I/O interaction with peripheral devices, etc.



(2) OPC UA protocol makes it possible

to simulate an entire process with reproducing I/O interactions with peripheral devices, also precise robot cycle-time on an external simulator such as Visual Components.

Case Studies of Connecting with Visual Components\*  
(\* Visual Components is produced by Visual Components Oy.)

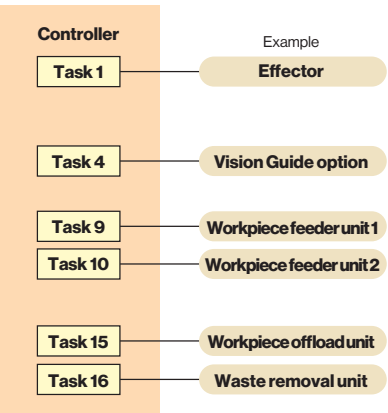


SPEL+ language

Easy-to-learn SPEL+ programming is similar to BASIC, and provides full support for multitasking, motion control, I/O control, and a wide range of other functions.

Multitasking function

With Epson's programming language, even complex multitask processes can be automated with ease. Up to 32 individual tasks can be seamlessly executed and controlled by a single program. Vision Guide machine vision, and pulse generator control of peripheral equipment can all be utilized to achieve full process automation.



Operating speed and acceleration/deceleration settings

Operating speed and acceleration/deceleration of the arm can be set in 100 steps.

- PTP motion** Maximum point-to-point speed is set as a percentage relative to the maximum acceleration speed. Ascent and descent speeds can also be set.
- CP motion** For continuous path motion, maximum effector speed and acceleration/deceleration speed can be set in mm/sec<sup>2</sup> increments.

Positioning completion time control for maximum efficiency

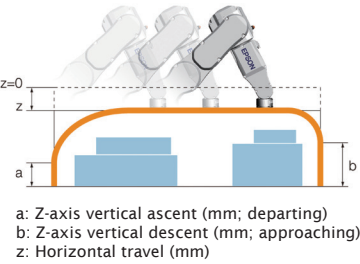
A time limit can be set for the completion of effector positioning to enable the next instruction to be executed even if the target point has not been reached. This allows you to maximize your yield by prioritizing takt (cycle) time over precision, or vice versa, according to the nature of the work to be done.

High repeatability with varying payloads and effector orientation

Once the operator has set workpiece and effector weight, weight range, and effector orientation, acceleration is automatically adjusted to reduce residual vibration and ensure high repeatability.

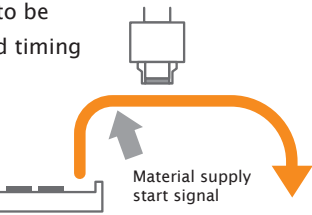
3D jump with variable arch for ultra-precise short-distance movement

Epson's SCARA robots and ProSix robots all support JUMP command movements in three-dimensional space, and the arch described by the approaching and departing effector can be set to suit the work environment. Deceleration/acceleration of the approaching or departing head can be regulated without interrupting operation, ensuring smooth, precise, short-distance motion that helps improve takt time and product quality stability.



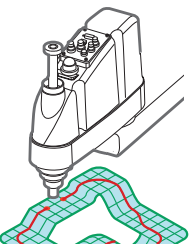
Parallel processing for higher speed and efficiency

Parallel processing enables you to control peripheral devices while the robot arm is in motion. It allows I/O operations to be performed at any desired timing to ensure synchronized control of multi-device processes for maximum throughput efficiency.



High-speed, high-precision, 3D continuous path control

All Epson robot systems offer the fast, precise, three-dimensional continuous path (CP) control needed for high-productivity coating and sealant application processes. Advanced linear interpolation, arch interpolation, and free curve motion enable precise effector control, and simple PASS commands can be used to evade obstacles within the workcell space. Programmed paths can reference either a tool-centered control point or an external control point.



Continuous path (CP) control

Configuration singularity avoidance function

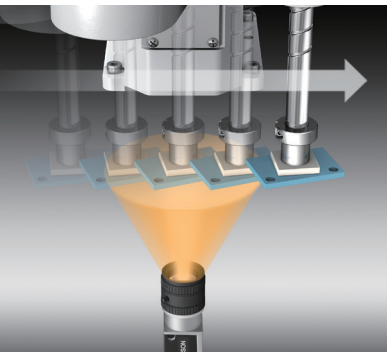
Continuous path operations that contain robot arm configuration singularities can cause joint-speed overrun. If the arm approaches such a configuration, the singularity avoidance function prevents overrun errors by maintaining joint speed until the arm has moved past the point of singularity.



On-the-fly pickup

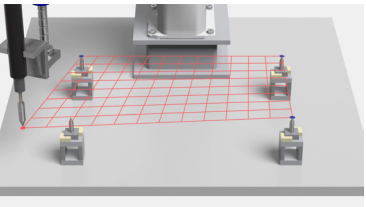
Workpiece pickup, alignment, and kitting can be carried out on-the-fly without pausing robot movement. Combined with an imaging system, it makes an ideal solution for high-speed alignment and handling of randomly arranged workpieces.

\* RC700 series and RC800 series only.



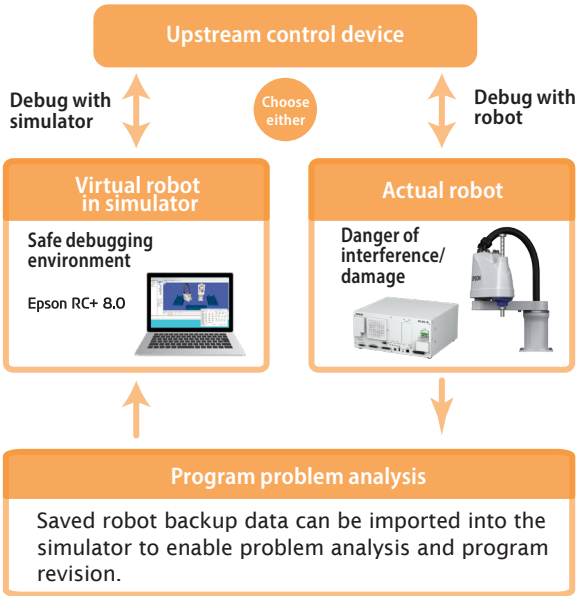
Area distortion correction

By using relationship between reference points on a drawing and actual teaching coordinate of these points, correct the target points bounded by the reference points. Re-teaching can be omitted even if absolute coordinates of target points are shifted due to change over and the like.



Debugging function

Programs can be run within the simulator, allowing full debugging without a robot. Virtual I/O control can be effected by entering values from a PC via RS-232C or TCP/IP.



Remote control expansion I/O

Using the remote control expansion I/O, the robot can be controlled simply by entering I/O commands — there's no need for complex program development.

Consumables management

Enables you to set recommended maintenance alarms based on operating time or distance for batteries, grease, timing belts motors, brakes, and ball screw splines.

Controller settings backup

Controller settings and programs can be backed up to a PC or USB memory to facilitate offline analysis and enable quick restoration when needed.

