EPSON®

Robots

Specifications Catalog

Why Epson Robots?

As precision automation specialists, the Epson Robots team has been building automation products for nearly four decades. An industry leader in small-parts-assembly applications, we've introduced many firsts. As a result, our innovative products are hard at work in thousands of manufacturing facilities throughout the world.

1

Leading Epson technology

- Epson is the #1 SCARA robot manufacturer in the world
- We introduced the world's first folding-arm 6-Axis robot
- Specialized integrated motion sensors help reduce vibration and increase performance

2

What you need, when you need it

- The Epson lineup features 6-Axis and SCARA robots with payloads up to 20 kg and a reach ranging from 175 mm to 1,400 mm
- We offer a wide range of fully integrated, optional solutions including vision guidance, conveyor tracking, flexible part feeding, force guidance and more

3

Intuitive programming software

- Epson RC+® software is extremely user-friendly, making automation setup fast and easy
- It includes time-saving features such as wizards, templates, smart tools and more

4

Reliability you can count on

- Dedicated to helping you find the best solution for your automation needs
- Epson robots are long-lasting and require little maintenance
- Over 150,000 robots sold worldwide

Forty Years of Innovation

1982	1986	1994	1997	2001	2009	2009	2016	2017	2019	2022
	INDUSTRY FIRST	INDUSTRY FIRST	INDUSTRY FIRST	INDUSTRY FIRST		INDUSTRY FIRST	INDUSTRY FIRST			
Epson SCARA robots introduced	ISO Class 1 cleanroom robots	Microsoft® Windows® OS support	Compact (under 500 mm reach) SCARA robot introduced PC-based robot controller	Wall-/ceiling-mount SCARA robots	Compact, high-speed C3 6-Axis robot	Ceiling-mounted RS3 SCARA robot with 360° rotation introduced	N2 6-Axis robot with folding-arm design introduced	Ultra low-cost T3 All-in-One SCARA robot with built-in controller introduced	Ultra low-cost VT6L All-in-One 6-Axis robot with built-in controller introduced	GX-Series high-power-density SCARA robots introduced

INDUSTRY FIRST
Anti-static robots

Table of Contents

Meet Epson's Award-Winning SCARA and 6-Axis Robots

SCARA

T-Series

Automate your factory without wasting time or money on complex slide-based solutions. These innovative All-in-One robots are available at an ultra low cost and offer fast, easy integration, taking less time to install than most automation solutions. With reach distances of 400 mm and 600 mm, they can handle payloads of 3 kg and 6 kg.

LS-Series

The perfect solution for factories looking for maximum value without sacrificing performance, the LS-Series offers fast, compact performers at a low cost. With reach distances ranging from 400 mm to 1,000 mm, and payloads from 3 kg to 20 kg, they feature cycle times starting at 0.38 seconds.

RS-Series

These zero-footprint robots are some of the most unique and flexible SCARA robots available on the market today. With reach distances of 350 mm and 550 mm, and payloads of 3 kg and 4 kg, they offer cycle times starting at 0.34 seconds.

GX-Series

With more than 300 models available, high-performance GX-Series robots are ideal for applications where fast cycle times and high precision are required. The Epson lineup offers reach distances ranging from 175 mm to 1,000 mm and payloads from 1 kg to 20 kg, plus cycle times starting at 0.28 seconds.

6-Axis

N-Series C-Series VT-Series

VT-Series

Offering next-level technology at an incredible price, VT-Series All-in-One 6-Axis robots ensure easy setup with a built-in controller. With a reach of 920 mm and payloads up to 6 kg, these robots are ideal for simple applications such as machine load/unload, packaging, assembly and more.

N-Series

Setting a new standard for 6-Axis robots, the N-Series includes a revolutionary folding-arm design for maximum motion efficiency. N-Series robots offer reach distances of 450 mm to 1,000 mm and payloads of 2.5 kg and 6 kg.

C-Series

C-Series robots offer excellent performance for the most demanding and complex tasks. Compact yet powerful, they deliver high repeatability and fast cycle times with reach distances ranging from 600 mm to 1,400 mm and payloads up to 12 kg.

Applications

Epson robots are extremely versatile and provide a wide range of automation possibilities:

Assembly
Pick and place
Material handling
Packaging
Kitting/Tray loading
Machine tending
Screwdriving
Dispensing
Palletizing
Lab automation
Inspection and testing
Finishing
Grinding

Industry Solutions

Epson Robots is a leading supplier to a wide variety of manufacturing industries including automotive, medical, electronics, consumer products, industrial and many more. Our customers range from large Fortune 100 companies to small manufacturing facilities.

Automotive

Brakes, clutch components, ignition systems, instrument panels, headlights, mirrors, locks, sensors and more

Life sciences

Contact lenses, glasses, dental instruments, dental implants, hearing aids, pacemakers, blood test systems and much more

Electronics

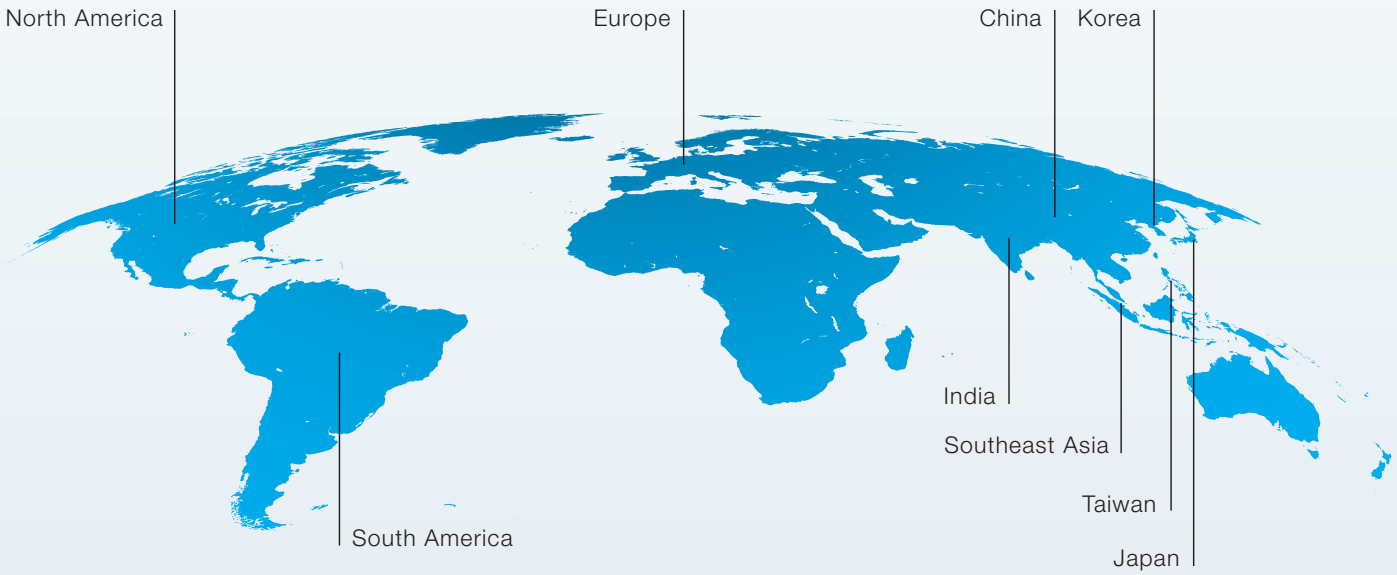
Chip handling and placement, encoder assembly, board and laser diode testing, wire bonding and more

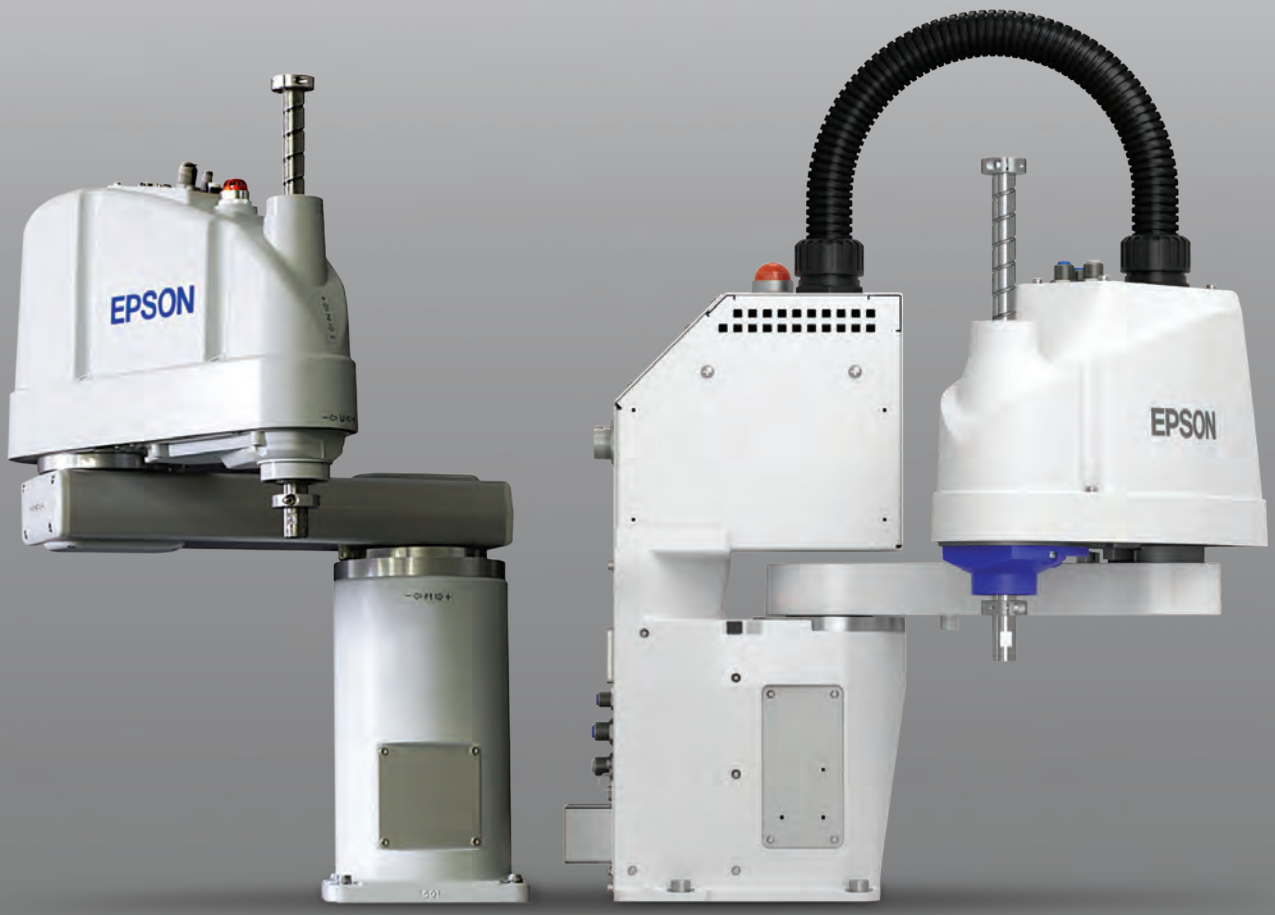
Consumer products

Smartphones, tablets, speakers, jewelry, watches, cosmetics, printers and more

Global high-quality support, when and where it's needed

At Epson, our reputation is built on the high quality of our products and services, and maintaining that quality is a worldwide priority. Our support network for robotic products includes nine regional centers, and we stand ready to meet the needs of customers in virtually every major market.





Why Epson SCARA Robots?

Epson's lineup of over 300 models gives users the power to choose the right robot for their application. It's just part of what makes us the #1 SCARA robot manufacturer in the world.

Hundreds of models available

- Sizes ranging from 175 mm to 1,000 mm in reach
- Payloads up to 20 kg
- Tabletop, wall- and ceiling-mount options

Fast speeds

- Extraordinary cycle times to maximize parts per hour

Extreme precision

- Repeatability down to 5 microns

SCARA

Epson is the #1 SCARA robot manufacturer in the world.

T-Series

T-Series All-in-One SCARA robots are the perfect alternative to complex slide-based solutions. These space-saving robots install in minutes. And, they include the same intuitive software and powerful features found in Epson's high-end robots.

LS-Series

LS-Series SCARA robots offer the high performance and great reliability that users have come to expect from Epson, but at a lower cost. LS-Series SCARAs were created for factories looking for maximum value without giving up performance.

RS-Series

RS-Series robots are some of the most unique and flexible SCARA robots available on the market today. With the ability to cross back under and reach behind themselves, RS-Series robots are able to utilize the entire workspace underneath the arm. As a result, there is no lost space in the center of the work envelope.

GX-Series

GX-Series SCARA robots feature a high-rigidity arm design that delivers high speed, high precision and low vibration. GX-Series SCARA robots offer a wide variety of sizes from 175 mm to 1,000 mm in reach, with up to 20 kg payloads.

T-Series All-in-One

Value without compromise

An innovative alternative to complex, slide-based systems, T3 and T6 All-in-One SCARA robots feature a built-in controller, power for end-of-arm tooling and 110 V or 220 V power.

T-Series
SCARA Robots

T3

All-in-One design is the ultimate slide alternative

T6

Higher payload and longer reach at an incredible value

ALL IN ONE
BUILT-IN CONTROLLER

T-Series All-in-One Specifications

		T3	T6
Arm length	Joint #1 + #2	400 mm	600 mm
Repeatability	Joints #1, #2	±0.020 mm	±0.040 mm
Payload	Rated	1 kg	2 kg
	Maximum	3 kg	6 kg
Standard cycle time[1]		0.52 sec	0.46 sec
Installation environment		Standard	
Available controllers		Built-in	

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).

T3

The ultimate slide alternative

- Arm length of 400 mm
- Easy to install
- Built-in controller
- Comes standard with 110 V and 220 V power
- No battery required for encoder

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Specifications

		T3-B-401
Mounting type		Tabletop
Arm length	Joint #1 + #2	400 mm
Weight (cables not included)		16 kg
Repeatability	Joints #1, #2	±0.020 mm
	Joint #3	±0.020 mm
	Joint #4	±0.020 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±141 deg
	Joint #3	150 mm
	Joint #4	±360 deg
Payload	Rated	1 kg
	Maximum	3 kg
Standard cycle time[1]		0.52 sec
Joint #4 allowable moment of inertia[2]	Rated	0.003 kg·m^2
	Maximum	0.010 kg·m^2
Joint #3 downward force		83 N
Electric lines		Hand I/O: IN6/OUT4 (D-sub 15-pin)/User I/O: IN18/OUT12
Pneumatic lines		ø6 mm × 2, ø4 mm × 1
Installation environment		Standard
Available controllers		Built-in
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 1 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

T6

The ultimate slide alternative— with longer reach and higher payload

- Arm length of 600 mm
- Easy to install
- Built-in controller
- Comes standard with 110 V and 220 V power
- No battery required for encoder

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Specifications

		T6-B-602
Mounting type		Tabletop
Arm length	Joint #1 + #2	600 mm
Weight (cables not included)		22 kg
Repeatability	Joints #1, #2	±0.040 mm
	Joint #3	±0.020 mm
	Joint #4	±0.020 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±150 deg
	Joint #3	200 mm
	Joint #4	±360 deg
Payload	Rated	2 kg
	Maximum	6 kg
Standard cycle time[1]		0.46 sec
Joint #4 allowable moment of inertia[2]	Rated	0.010 kg·m^2
	Maximum	0.080 kg·m^2
Joint #3 downward force		83 N
Electric lines		Hand I/O: IN6/OUT4 (D-sub 15-pin)/User I/O: IN18/OUT12
Pneumatic lines		ø6 mm × 2, ø4 mm × 1
Installation environment		Standard
Available controllers		Built-in
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

LS-Series

These fast, compact, low-cost solutions are ideal for factories looking for maximum value without sacrificing performance. With payloads ranging from 3 kg to 20 kg and cycle times starting at 0.38 seconds, LS-Series SCARA robots offer a variety of opportunities for manufacturers searching for a reduced-cost, high-performance automation solution with great reliability.

LS-Series
SCARA Robots

LS3

Fast, compact and low cost

LS6

Great performance at an affordable price

LS10

Powerful performance and a large payload at an affordable value

LS20

Remarkable value with long reach, high performance and heavy payload

LS-Series Specifications

		LS3	LS6	LS10	LS20
Arm length	Joint #1 + #2	400 mm	500/600/700 mm	600/700/800 mm	800/1,000 mm
Repeatability	Joints #1, #2	±0.010 mm	±0.020 mm	±0.020/±0.020/ ±0.025 mm	±0.025 mm
Payload	Rated	1 kg	2 kg	5 kg	10 kg
	Maximum	3 kg	6 kg	10 kg	20 kg
Standard cycle time[1]		0.42 sec	0.38/0.39/0.42 sec	0.39/0.41/0.44 sec	0.39/0.43 sec
Installation environments		Standard/Cleanroom ISO Class 4			
Available controllers		RC90B			

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).

LS3

Fast, compact and low cost

- Arm length of 400 mm
- Small footprint
- Built-in camera cable
- Cleanroom ISO Class 4 models available

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Specifications

		LS3-B401
Mounting type		Tabletop
Arm length	Joint #1 + #2	400 mm
Weight (cables not included)		14 kg
Repeatability	Joints #1, #2	±0.010 mm
	Joint #3	±0.010 mm
	Joint #4	±0.010 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±141 deg
	Joint #3 Std	150 mm
	Joint #3 Clean	120 mm
	Joint #4	±360 deg
Payload	Rated	1 kg
	Maximum	3 kg
Standard cycle time[1]		0.42 sec
Joint #4 allowable moment of inertia[2]	Rated	0.005 kg·m^2
	Maximum	0.050 kg·m^2
Joint #3 downward force		100 N
Electric lines		15 (15-pin: D-sub), 8 (8-pin: RJ45) Cat5e
Pneumatic lines		ø4 mm × 1, ø6 mm × 2
Installation environment		Standard/Cleanroom ISO Class 4
Available controllers		RC90B
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

LS6

Low cost and high performance

- Arm lengths of 500, 600 and 700 mm
- Built-in camera cable
- Fast cycle throughput
- Cleanroom ISO Class 4 models available

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Specifications

		LS6-B502	LS6-B602	LS6-B702
Mounting type		Tabletop		
Arm length	Joint #1 + #2	500 mm	600 mm	700 mm
Weight (cables not included)		17 kg	17 kg	18 kg
Repeatability	Joints #1, #2	±0.020 mm		
	Joint #3	±0.010 mm		
	Joint #4	±0.010 deg		
Max. motion range	Joint #1	±132 deg		
	Joint #2	±150 deg		
	Joint #3 Std	200 mm		
	Joint #3 Clean	170 mm		
	Joint #4	±360 deg		
Payload	Rated	2 kg		
	Maximum	6 kg		
Standard cycle time[1]		0.38 sec	0.39 sec	0.42 sec
Joint #4 allowable moment of inertia[2]	Rated	0.010 kg·m^2		
	Maximum	0.120 kg·m^2		
Joint #3 downward force		100 N		
Electric lines		15 (15-pin: D-sub), 8 (8-pin: RJ45) Cat5e		
Pneumatic lines		ø4 mm × 1, ø6 mm × 2		
Installation environment		Standard/Cleanroom ISO Class 4		
Available controllers		RC90B		
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)		

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

LS10

Powerful, fast and affordable

- Arm lengths of 600, 700 and 800 mm
- Built-in camera cable
- No battery required for encoder
- Cleanroom ISO Class 4 models available

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Specifications

		LS10-B60X	LS10-B70X	LS10-B80X
Mounting type		Tabletop		
Arm length	Joint #1 + #2	600 mm	700 mm	800 mm
Weight (cables not included)		22 kg	22 kg	23 kg
Repeatability	Joints #1, #2	±0.020 mm	±0.020 mm	±0.025 mm
	Joint #3	±0.010 mm		
	Joint #4	±0.010 deg		
Max. motion range	Joint #1	±132 deg		
	Joint #2	±150 deg		
	Joint #3 Std	200 mm or 300 mm		
	Joint #3 Clean	170 mm or 270 mm		
	Joint #4	±360 deg		
Payload	Rated	5 kg		
	Maximum	10 kg		
Standard cycle time[1]		0.39 sec	0.41 sec	0.44 sec
Joint #4 allowable moment of inertia[2]	Rated	0.020 kg·m²		
	Maximum	0.300 kg·m²		
Joint #3 downward force		200 N		
Electric lines		15 (15-pin: D-sub), 8 (8-pin: RJ45) Cat5e		
Pneumatic lines		ø4 mm × 1, ø6 mm × 2		
Installation environments		Standard/Cleanroom ISO Class 4		
Available controllers		RC90B		
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)		

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using the INERTIA command.

LS20

Long reach, heavy payload—all at a great value

- Arm lengths of 800 and 1,000 mm
- Fast cycle times
- Built-in camera cable
- Cleanroom ISO Class 4 models available

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Specifications

		LS20-B804	LS20-BA04
Mounting type		Tabletop	
Arm length	Joint #1 + #2	800 mm	1,000 mm
Weight (cables not included)		48 kg	51 kg
Repeatability	Joints #1, #2	±0.025 mm	
	Joint #3	±0.010 mm	
	Joint #4	±0.010 deg	
Max. motion range	Joint #1	±132 deg	
	Joint #2	±152 deg	
	Joint #3 Std	420 mm	
	Joint #3 Clean	390 mm	
	Joint #4	±360 deg	
Payload	Rated	10 kg	
	Maximum	20 kg	
Standard cycle time[1]		0.39 sec	0.43 sec
Joint #4 allowable moment of inertia[2]	Rated	0.050 kg·m²	
	Maximum	1.000 kg·m²	
Joint #3 downward force		250 N	
Electric lines		15 (15-pin: D-sub), 9 (9-pin: D-sub), 8 (8-pin: RJ45) Cat5e	
Pneumatic lines		ø4 mm × 1, ø6 mm × 2	
Installation environments		Standard/Cleanroom ISO Class 4	
Available controllers		RC90B	
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)	

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

RS-Series

RS-Series SCARA robots are unique and highly flexible. Offering payloads of 3 kg or 4 kg and cycle times starting at 0.34 seconds, they have the ability to cross under as well as reach behind themselves. RS-Series robots are able to utilize the entire workspace underneath the arm. As a result, there is no lost space in the center of the work envelope.

RS-Series

SCARA Robots

RS3

Compact SCARA robot with unique workspace design

RS4

High-performance, innovative workspace design with longer reach capabilities

RS-Series Specifications

		RS3	RS4
Arm length	Joint #1 + #2	350 mm	550 mm
Repeatability	Joints #1, #2	±0.010 mm	±0.015 mm
Payload	Rated	1 kg	1 kg
	Maximum	3 kg	4 kg
Standard cycle time[1]		0.34 sec	0.39 sec
Installation environments		Standard/Cleanroom ISO Class 3 with ESD	
Available controllers		RC700A	

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).

RS-Series

RS3

Compact with unique workspace design

- Arm length of 350 mm
- Payloads up to 3 kg
- Maximum motion efficiency
- Cleanroom ISO Class 3 models available

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Specifications

		RS3-351
Mounting type		Ceiling
Arm length	Joint #1 + #2	350 mm
Weight (cables not included)		17 kg
Repeatability	Joints #1, #2	±0.010 mm
	Joint #3	±0.010 mm
	Joint #4	±0.010 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 Std	130 mm
	Joint #3 Clean	100 mm
	Joint #4	±720 deg
Payload	Rated	1 kg
	Maximum	3 kg
Standard cycle time[1]		0.34 sec
Joint #4 allowable moment of inertia[2]	Rated	0.005 kg·m^2
	Maximum	0.050 kg·m^2
Joint #3 downward force		150 N
Electric lines		15-pin (D-sub)
Pneumatic lines		ø4 mm × 1, ø6 mm × 2
Installation environments		Standard/Cleanroom ISO Class 3 with ESD
Available controllers		RC700A
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive UL1740 ANSI/RIA R15.06 NFPA 79

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 1 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

RS4

High-performance, innovative workspace design

- Arm length of 550 mm
- Payloads up to 4 kg
- Superior cycle times
- Cleanroom ISO Class 3 models available

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Specifications

		RS4-551
Mounting type		Ceiling
Arm length	Joint #1 + #2	550 mm
Weight (cables not included)		19 kg
Repeatability	Joints #1, #2	±0.015 mm
	Joint #3	±0.010 mm
	Joint #4	±0.010 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 Std	130 mm
	Joint #3 Clean	100 mm
	Joint #4	±720 deg
Payload	Rated	1 kg
	Maximum	4 kg
Standard cycle time[1]		0.39 sec
Joint #4 allowable moment of inertia[2]	Rated	0.005 kg·m^2
	Maximum	0.050 kg·m^2
Joint #3 downward force		150 N
Electric lines		15-pin (D-sub)
Pneumatic lines		ø4 mm × 1, ø6 mm × 2
Installation environments		Standard/Cleanroom ISO Class 3 with ESD
Available controllers		RC700A
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive UL1740 ANSI/RIA R15.06 NFPA 79

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 1 kg payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command.

GX-Series

With a vast product lineup including reach options from 175 mm to 1,000 mm, GX-Series robots are rich in features and performance. With payloads ranging from 1 kg to 20 kg and cycle times down to 0.28 seconds, GX-Series robots offer the speed and overall performance to accomplish even the most difficult tasks. Featuring a unique high-rigidity arm design, which reduces vibration, these robots deliver fast speeds and high precision with no overshoot or ringing.

GX-Series
SCARA Robots

GX1

High-performance, high-precision mini SCARA robot

GX4

Compact, fast and powerful with straight or unique curved arm

GX8

Ultra fast speeds with extraordinary motion range

GX10

Provides high speed at heavy payloads

GX20

Long reach and high payloads with strong J4 inertia

GX-Series Specifications

		GX1	GX4	GX8	GX10	GX20
Arm length	Joint #1 + #2	175/225 mm	250/300/350 mm	450/550/650 mm	650/850 mm	850/1,000 mm
Repeatability	Joints #1, #2	±0.005/ ±0.008 mm	±0.008/ ±0.010 mm	±0.015 mm	±0.025 mm	±0.025 mm
Payload	Rated	0.5 kg	2 kg	4 kg	5 kg	10 kg
	Maximum	1 kg	4 kg	8 kg	10 kg	20 kg
Standard cycle time[1]		0.29 sec	0.33/0.34/0.35 sec	0.28/0.30/0.33 sec	0.34/0.37 sec	0.37/0.42 sec
Installation environments		Standard/Cleanroom ISO Class 3 with ESD		Standard/Cleanroom ISO Class 3 with ESD/Protected		
Available controllers		RC800A				

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical; G1: 100 mm horizontal, 25 mm vertical).

GX-Series

GX1

Powerful mini SCARA

- High-precision repeatabilities down to 0.005 mm
- Arm lengths of 175 and 225 mm
- Ultra compact, yet extremely powerful
- Cleanroom ISO Class 3 models available
- 3-Axis models available

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Specifications

		GX1-C17x	GX1-C22x
Mounting type		Tabletop	
Arm length	Joint #1 + #2	175 mm	225 mm
Repeatability	Joints #1, #2	±0.005 mm	±0.008 mm
	Joint #3	±0.01 mm	
	Joint #4	±0.01°	
Payload	Rated	0.5 kg	
	Maximum	1.0 kg	
Standard cycle time[1]		0.292 sec	0.288 sec
Max. motion range	Joint #1	±125 deg	
	Joint #2 Std	±140 deg	±152 deg
	Joint #2 Clean & ESD	±140 deg	±149 deg
	Joint #3 Std	100 mm	
	Joint #3 Clean & ESD	80 mm	
	Joint #4	±360 deg	
Joint #4 allowable moment of inertia[2]	Rated	0.0003 kg·m^2	
	Maximum	0.0004 kg·m^2	
Joint #3 downforce		50 N	
User electric lines		15-pin (D-sub), 9-pin (D-sub)	
User pneumatic lines		ø4 mm x 1, ø6 mm x 1	
Brakes		Z-axis only	
Power		AC 200 V – 240 V (single phase)	
Power consumption		0.5 kVA	
Power/signal cable length		3 m/5 m/10 m	
Weight (cables not included)		18 lb (8 kg)	
Applicable controller		RC800A	
Installation environments		Standard/Cleanroom ISO3[3] & ESD	
Safety standards		TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849	
What's included		GX1C robot and RC800A controller, E-Stop unit with cable and connector, cable with flying leads for controller E-Stop/Safety connection, connector set (I/O, hand I/O and safety circuit connectors)	

1 Cycle time based on round-trip arch motion (100 mm horizontal, 25 mm vertical) at rated payload (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command. | **3** Complies with ISO Class 3 (ISO 14644-1) and FED-STD-209D Class 1 cleanroom standards.

GX4

Compact and ultra powerful

- Arm lengths of 250, 300 and 350 mm
- Handles payloads up to 4 kg
- Fast cycle times for increased productivity
- Available with straight or curved arm
- Cleanroom ISO Class 3 models available

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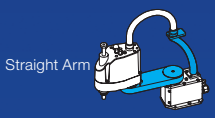

Specifications

			GX4-C251x	GX4-C301x		GX4-C351x	
Mounting type			Tabletop	Tabletop	Multiple	Tabletop	Multiple
Arm length		Joint #1 + #2	250 mm	300 mm		350 mm	
Repeatability		Joints #1 - #2	±0.008 mm	±0.01 mm			
		Joint #3	±0.01 mm				
		Joint #4	±0.005 deg				
Payload		Rated	2 kg				
		Maximum	4 kg				
Standard cycle time[1]			0.33 sec	0.34 sec		0.35 sec	
Max. motion range	Straight	Joint #1	±140 deg	±140 deg	±115 deg	±140 deg	±120 deg
		Joint #2 Std	±141 deg	±142 deg	±135 deg	±142 deg	
		Joint #2 Clean	±137 deg	±141 deg			
	Curved	Joint #1 Right Hand	–			-110 ~ 165 deg	–
		Joint #1 Left Hand				-165 ~ 110 deg	
		Joint #2 Right Hand Std & ESD				-120 ~ 165 deg	
		Joint #2 Right Hand Clean				-120 ~ 160 deg	
		Joint #2 Left Hand Std & ESD				-165 ~ 120 deg	
		Joint #2 Left Hand Clean				-160 ~ 120 deg	
	All Models	Joint #3 Std & ESD	150 mm				
		Joint #3 Clean	120 mm				
		Joint #4	±360 deg				
Joint #4 allowable moment of inertia[2]		Rated	0.005 kg·m²				
		Maximum	0.05 kg·m²				
Joint #3 downforce			150 N				
User electric lines			15-pin (D-sub), 8-pin (RJ45 Cat5e)				
User pneumatic lines			ø4 mm x 1, ø6 mm x 2				
Brakes			Z axis only				
Power			AC 200 V – 240 V (single phase)				
Power consumption			1.2 kVa				
Power cable length (cables ordered separately)			3 m/5 m/10 m (straight and angled cable end options)				
Bottom cable exit option (tabletop only)			Available	Available	–	Available	–
Weight (cables not included)			15 kg, 33 lb	15 kg, 33 lb	17 kg, 38 lb	16 kg, 35 lb	17 kg, 38 lb
Applicable controller			RC800A				
Installation environments			Standard/ESD/Cleanroom ISO Class 3[3] with ESD				
Safety standards			TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849				
What's included			GX4C robot and RC800A controller, E-Stop unit with cable and connector, cable with flying leads for controller E-Stop/Safety connection, connector set (I/O, hand I/O and safety circuit connectors)				

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload for tabletop model boost mode (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using INERTIA command. | **3** Complies with ISO Class 3 (ISO 14644-1) and FED-STD-209D Class 1 cleanroom standards.

GX-Series

GX8

Compact, fast and powerful

- Arm lengths of 450, 550 and 650 mm
- High-rigidity arm = ultra high speed
- Tabletop, wall- and ceiling-mount models available
- Cleanroom ISO Class 3 and Protected IP65 models available

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Specifications

		GX8-C45x			GX8-C55x			GX8-C65x		
Mounting type		Tabletop	Ceiling	Wall	Tabletop	Ceiling	Wall	Tabletop	Ceiling	Wall
Arm length	Joint #1 + #2	450 mm			550 mm			650 mm		
Repeatability	Joints #1 - #2	±0.015 mm								
	Joint #3	±0.010 mm								
	Joint #4	±0.005 deg								
Payload	Rated	4 kg								
	Maximum	8 kg								
Standard cycle time[1]		0.28 sec			0.30 sec			0.33 sec		
Max. motion range	Joint #1	±152 deg	±105 deg	±105 deg	±152 deg	±152 deg	±135 deg	±152 deg	±152 deg	±148 deg
	Joint #2 Std & ESD	Z: 0~-270 mm ±147.5 deg Z: -270~-330 mm ±145 deg	±125 deg		±147.5 deg			±147.5 deg		
	Joint #2 Clean/Protected	Z: 0~-240 mm ±147.5 deg Z: -240~-300 mm ±137.5 deg			Z: 0~-240 mm ±147.5 deg Z: -240~-300 mm ±137.5 deg		±145 deg			
	Joint #3 Std & ESD	200 mm/330 mm								
	Joint #3 Clean/Protected	170 mm/300 mm								
	Joint #4	±360 deg								
Joint #4 allowable moment of inertia[2]	Rated	0.01 kg·m^2								
	Maximum	0.16 kg·m^2								
Joint #3 downforce		150 N								
User electric lines		15-pin (D-sub), 9-pin (D-sub), 8-pin (RJ45 Cat5e)								
User pneumatic lines		ø4 mm x 2, ø6 mm x 2								
Brakes		Z axis only								
Power		AC 200 V – 240 V (single phase)								
Power consumption		2.2 kVa								
Power cable length (cables ordered separately)		3 m/5 m/10 m (straight and angled cable end options)								
Bottom cable exit option (tabletop only)		Available	–	–	Available	–	–	Available	–	–
Weight (cables not included)		33 kg, 73 lb		35 kg, 77 lb	34 kg, 75 lb		36 kg, 79 lb	35 kg, 77 lb		37 kg, 82 lb
Applicable controller		RC800A								
Installation environments		Standard/ESD/Cleanroom ISO Class 3[3] with ESD/Protected IP65								
Safety standards		TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849								
What's included		GX8C robot and RC800A controller, E-Stop unit with cable and connector, cable with flying leads for controller E-Stop/Safety connection, connector set (I/O, hand I/O and safety circuit connectors)								

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload for tabletop model boost mode (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using INERTIA command. | **3** Complies with ISO Class 3 (ISO 14644-1) and FED-STD-209D Class 1 cleanroom standards.

GX10

Long reach at high speeds

- Arm lengths of 650 and 850 mm
- Reduced residual vibration for faster accel./decel. rates
- Tabletop, wall- and ceiling-mount models available
- Cleanroom ISO Class 3 and Protected IP65 models available

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Specifications

		GX10-C65x			GX10-C85x		
Mounting type		Tabletop	Ceiling	Wall	Tabletop	Ceiling	Wall
Arm length	Joint #1 + #2	650 mm			850 mm		
Repeatability	Joints #1 - #2	±0.025 mm					
	Joint #3	±0.010 mm					
	Joint #4	±0.005 deg					
Payload	Rated	5 kg					
	Maximum	10 kg					
Standard cycle time[1]		0.34 sec			0.37 sec		
Max. motion range	Joint #1	±152 deg	±107 deg		±152 deg		±107 deg
	Joint #2 Std	±152.5 deg	±130 deg		±152.5 deg		
	Joint #2 Clean & Protected				Z: 0~-360 mm ±152.5 deg Z: -360~-390 mm ±151 deg		
	Joint #3 Std	180 mm/420 mm					
	Joint #3 Clean	150 mm/390 mm					
	Joint #4	±360 deg					
Joint #4 allowable moment of inertia[2]	Rated	0.02 kg·m^2					
	Maximum	0.25 kg·m^2					
Joint #3 downforce		250 N					
User electric lines		15-pin (D-sub), 9-pin (D-sub)					
User pneumatic lines		ø4 mm x 2, ø6 mm x 2					
Brakes		Joint #3 and Joint #4					
Power		AC 200 V – 240 V (single phase)					
Power consumption		2.5 kVa					
Power cable length		3 m/5 m/10 m (straight and angled cable end options)					
Weight (cables not included)		46 kg, 102 lb		51 kg, 112 lb	49 kg, 108 lb		53 kg, 117 lb
Applicable controller		RC800A					
Installation environments		Standard/Cleanroom ISO3[3] & ESD/Protected					
Safety standards		TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849					
What's included		GX10C robot and RC800A controller, E-Stop unit with cable and connector, cable with flying leads for controller E-Stop/Safety connection, connector set (I/O, hand I/O and safety circuit connectors)					

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload for tabletop model boost mode (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using INERTIA command. | **3** Complies with ISO Class 3 (ISO 14644-1) and FED-STD-209D Class 1 cleanroom standards.

GX20

Ultra long reach and heavy payload

- Arm lengths of 850 and 1,000 mm
- Unique design structure for high rigidity
- Tabletop, wall- and ceiling-mount models available
- Cleanroom ISO Class 3 and Protected IP65 models available

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Specifications

		G20-85x			G20-A0x		
Mounting type		Tabletop	Ceiling	Wall	Tabletop	Ceiling	Wall
Arm length	Joint #1 + #2	850 mm			1,000 mm		
Repeatability	Joints #1 - #2	±0.025 mm					
	Joint #3	±0.010 mm					
	Joint #4	±0.005 deg					
Payload	Rated	10 kg					
	Maximum	20 kg					
Standard cycle time[1]		0.37 sec			0.42 sec		
Max. motion range	Joint #1	±152 deg	±107 deg		±152 deg		±107 deg
	Joint #2 Std	±152.5 deg	±130 deg		±152.5 deg		
	Joint #2 Clean & Protected				Z: 0~-360 mm ±152.5 deg Z: -360~-390 mm ±151 deg		
	Joint #3 Std	180 mm/420 mm					
	Joint #3 Clean	150 mm/390 mm					
	Joint #4	±360 deg					
Joint #4 allowable moment of inertia[2]	Rated	0.05 kg·m^2					
	Maximum	0.45 kg·m^2					
Joint #3 downforce		250 N					
User electric lines		15-pin (D-sub), 9-pin (D-sub)					
User pneumatic lines		ø4 mm x 2, ø6 mm x 2					
Brakes		Joint #3 and Joint #4					
Power		AC 200 V – 240 V (single phase)					
Power consumption		2.5 kVa					
Power cable length		3 m/5 m/10 m (straight and angled cable end options)					
Weight (cables not included)		46 kg, 102 lb		53 kg, 117 lb	50 kg, 110 lb		55 kg, 121 lb
Applicable controller		RC800A					
Installation environments		Standard/Cleanroom ISO3[3] & ESD/Protected					
Safety standards		TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849					
What's included		GX20C robot and RC800A controller, E-Stop unit with cable and connector, cable with flying leads for controller E-Stop/Safety connection, connector set (I/O, hand I/O and safety circuit connectors)					

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload for tabletop model boost mode (path coordinates optimized for maximum speed). | **2** When payload center of gravity is aligned with Joint #4; if not aligned with Joint #4, set parameters using the INERTIA command. | **3** Complies with ISO Class 3 (ISO 14644-1) and FED-STD-209D Class 1 cleanroom standards.

Why Epson 6-Axis Robots?

Epson's space-saving 6-Axis robots enable a remarkable range of motion to maximize application possibilities.

World's first folding-arm design

- Epson's innovative N-Series offers significant advantages in motion and workspace efficiency

Proven technology

- Epson 6-Axis robots utilize the same controls, software and motion technologies found in our industry-leading SCARA robots

SlimLine design

- Saves valuable factory floor space and allows our robots to fit where other robots can't—without compromising power, speed or reach
- Compact wrist pitch enables our robots to access hard-to-reach places in confined spaces

6-Axis
Robots

VT-Series All-in-One

VT-Series All-in-One 6-Axis robots feature great performance at an ultra low price, offering many of the same features as Epson high-end robots. VT-Series robots include a built-in controller and simplified cabling, allowing fast, easy integration.

N-Series

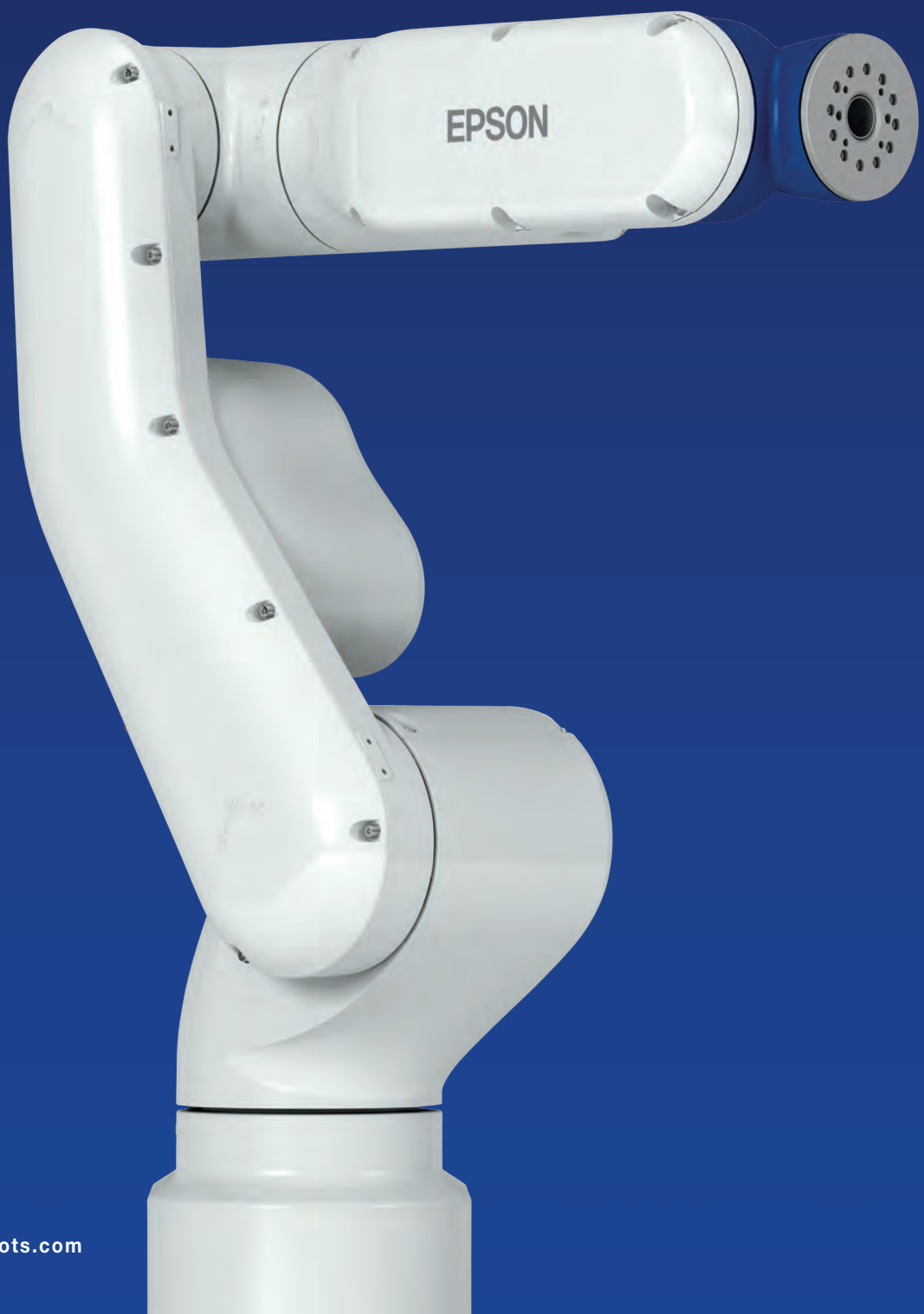
The **N-Series** lineup features a revolutionary compact folding-arm design that maximizes motion efficiency for faster cycle times. Packed with unique technology, the N-Series significantly reduces workspace requirements when compared to typical 6-Axis robots.

C-Series

C-Series 6-Axis robots provide great cycle times and a unique SlimLine design, backed by remarkable precision and motion range. These compact robots offer exceptional performance for even the most demanding and complex applications.

VT-Series All-in-One

With a built-in controller and simplified cabling, VT-Series All-in-One 6-Axis robots offer quick setup and installation. Featuring 110 V and 220 V power connections or a DC-powered version, they ensure easy integration—whether in a lab, an industrial environment or a mobile application.



VT-Series

6-Axis Robots

VT6L

A feature-packed performer
at a remarkably low cost

ALL IN ONE
BUILT-IN CONTROLLER

VT-Series All-in-One Specifications

		VT6L
Arm length		920 mm
Repeatability	Joints #1 – #6	±0.100 mm
Payload	Rated	3 kg
	Maximum	6 kg
Standard cycle time[1]		0.60 sec
Installation environments		Standard/Cleanroom ISO Class 4/Protected IP67
Available controllers		Built-in

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).

VT6L

Full-featured, ultra low cost

- Arm length of 920 mm
- Payloads up to 6 kg
- Built-in controller
- Available with 110 V and 220 V power or as a DC-powered version

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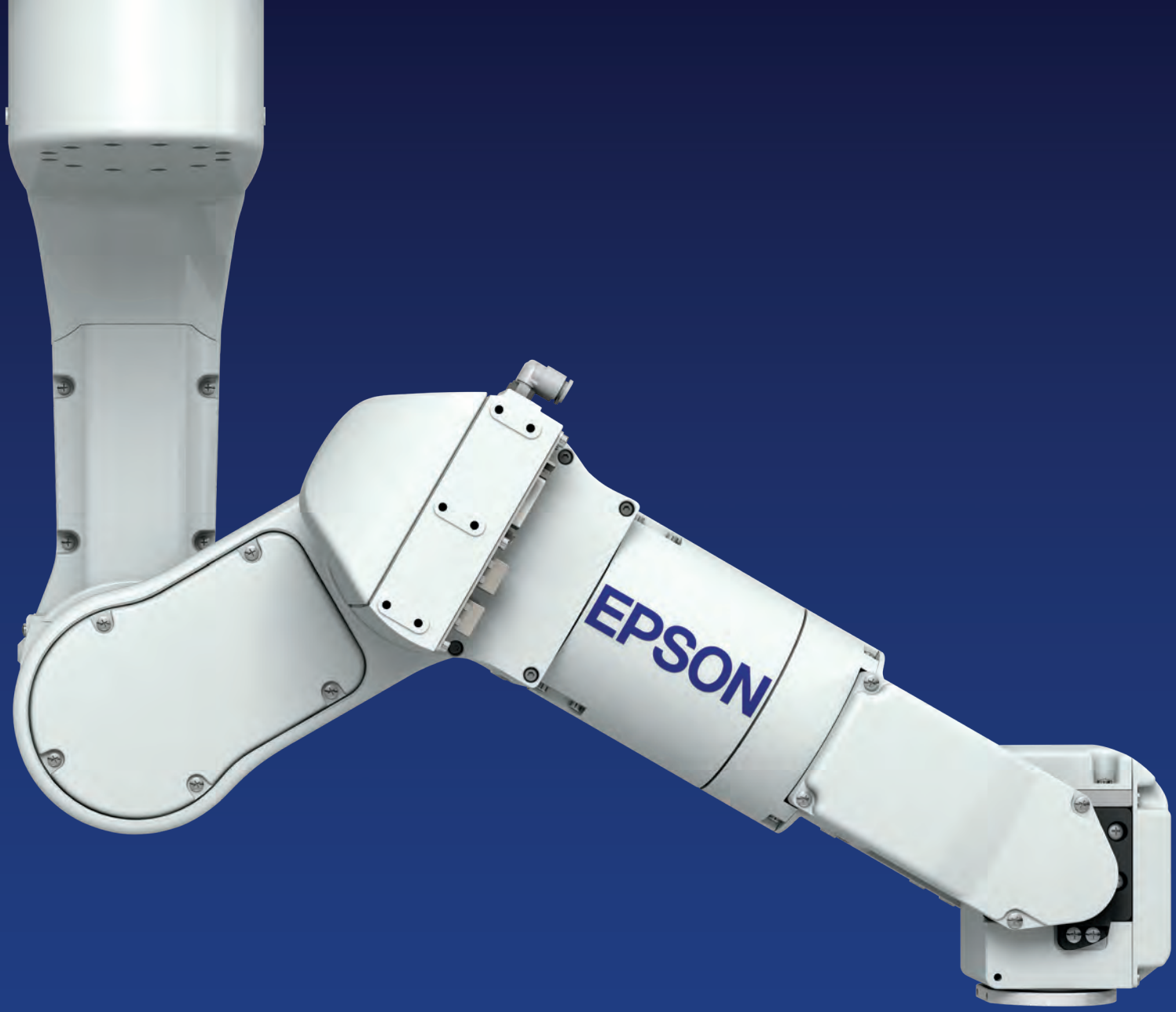
Specifications

		VT6-A901 (VT6L)			VT6-A901-DC (VT6L-DC)
Mounting type		Tabletop	Ceiling	Wall	Tabletop
Degree of freedom		6			6
Arm length	P Point: through the center of J4/J5/J6	920 mm			920 mm
Wrist flange surface		1,000 mm			1,000 mm
Weight (cables not included)		40 kg			40 kg
Repeatability	Joints #1 – #6	±0.100 mm			±0.100 mm
Max. motion range	Joint #1	±170 deg/±170 deg/±30 deg			±170 deg/±170 deg/±30 deg
	Joint #2	-160 ~ +65 deg (225 deg)			-160 ~ +65 deg (225 deg)
	Joint #3	-51 ~ +190 deg (241 deg)			-51 ~ +190 deg (241 deg)
	Joint #4	±200 deg			±200 deg
	Joint #5	±125 deg			±125 deg
	Joint #6	±360 deg			±360 deg
Payload	Rated	3 kg			3 kg
	Maximum	6 kg			6 kg
Standard cycle time[1]		0.60 sec			0.60 sec
Allowable moment of inertia[2]	Joint #4	0.300 kg·m^2			0.300 kg·m^2
	Joint #5	0.300 kg·m^2			0.300 kg·m^2
	Joint #6	0.100 kg·m^2			0.100 kg·m^2
Standard I/O		In: 24/Out: 16			In: 24/Out: 16
Installation environments		Standard/ Cleanroom ISO Class 4/ Protected IP67	Standard		Standard
Available controllers		Built-in			Built-in
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)			CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)
Power		110 and 220 VAC			48 VDC

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 2 kg payload (path coordinates optimized for maximum speed). | **2** If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using the INERTIA command.



N-Series

The N-Series offers revolutionary technology that provides significant advantages for more efficient workspace utilization than typical 6-Axis robots. Packed with unique technology exclusive to Epson, N-Series robots set a new standard in 6-Axis technology with the world's first folding-arm design.

N-Series
6-Axis Robots

N2

World's first folding-arm design, ideal for assembly and parts handling

N6

Higher payloads and longer reach for load/unload applications

N-Series Specifications

		N2	N6
Arm length		450 mm	850/1,000 mm
Repeatability	Joints #1, #2	±0.02 mm	±0.030 mm/±0.040 mm
Payload	Rated	1 kg	3 kg
	Maximum	2.5 kg	6 kg
Installation environments		Standard	Standard/Cleanroom ISO Class 5 with ESD
Available controllers		RC700A	

N-Series

N2

Space-saving, revolutionary design

- Arm length of 450 mm
- Payloads up to 2.5 kg
- World's first compact folding-arm design
- Reduces required workspace area vs. standard 6-Axis robots
- Maximizes motion efficiency for faster cycle times

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Specifications

		N2-A450	
Mounting type		Tabletop	Ceiling
Degree of freedom		6	
Arm length	P Point: through the center of J4/J5/J6	450 mm	
Wrist flange surface		507 mm	
Weight (cables not included)		19 kg	
Repeatability	Joints #1 – #6	±0.020 mm	
Max. motion range	Joint #1	±180 deg	
	Joint #2	±180 deg	
	Joint #3	±180 deg	
	Joint #4	±195 deg	
	Joint #5	±130 deg	
	Joint #6	±360 deg	
Payload	Rated	1 kg	
	Maximum	2.5 kg	
Allowable moment of inertia[1]	Joint #4	0.200 kg·m^2	
	Joint #5	0.200 kg·m^2	
	Joint #6	0.080 kg·m^2	
Electric lines		15 (15-pin: D-sub), 8 (8-pin: RJ45) Cat5e	
Pneumatic lines		ø6 mm × 2	
Installation environment		Standard	
Available controllers		RC700A	
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)	

1 If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using the INERTIA command.

N6

Long reach, revolutionary design

- Arm lengths of 850 and 1,000 mm
- Payloads up to 6 kg
- World's first folding-arm design
- Ideal for confined spaces and load/unload applications

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Specifications

		N6-A85x	N6-A10x
Mounting type		Ceiling	Tabletop/Ceiling
Degree of freedom		6	6
Arm length	P Point: through the center of J4/J5/J6	850 mm	1,000 mm
Wrist flange surface		960 mm	1,110 mm
Weight (cables not included)		64 kg	69 kg
Repeatability	Joints #1 – #6	±0.030 mm	±0.040 mm
Max. motion range	Joint #1	±180 deg	
	Joint #2	±180 deg	
	Joint #3	±180 deg	
	Joint #4	±200 deg	
	Joint #5	±125 deg	
	Joint #6	±360 deg	
Payload	Rated	3 kg	3 kg
	Maximum	6 kg	6 kg
Allowable moment of inertia[1]	Joint #4	0.420 kg·m^2	
	Joint #5	0.420 kg·m^2	
	Joint #6	0.140 kg·m^2	
Electric lines		15 (15-pin: D-sub), 8 (8-pin: RJ45) Cat5e	
Pneumatic lines		ø6 mm × 2	
Installation environment		Standard	
Available controllers		RC700A	
Safety standards		CE Mark: EMC Directive, Machinery Directive, RoHS Directive ANSI/RIA R15.06-2012 NFPA 79 (2007 Edition)	

1 If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using the INERTIA command.

C-Series

With exceptional flexibility and a slim, compact design, C-Series robots provide an innovative solution for 6-Axis applications. Their small footprint makes them ideal for factories that need to save space. And their long arms enable them to access hard-to-reach areas in the workplace.

C-Series
6-Axis Robots

C4

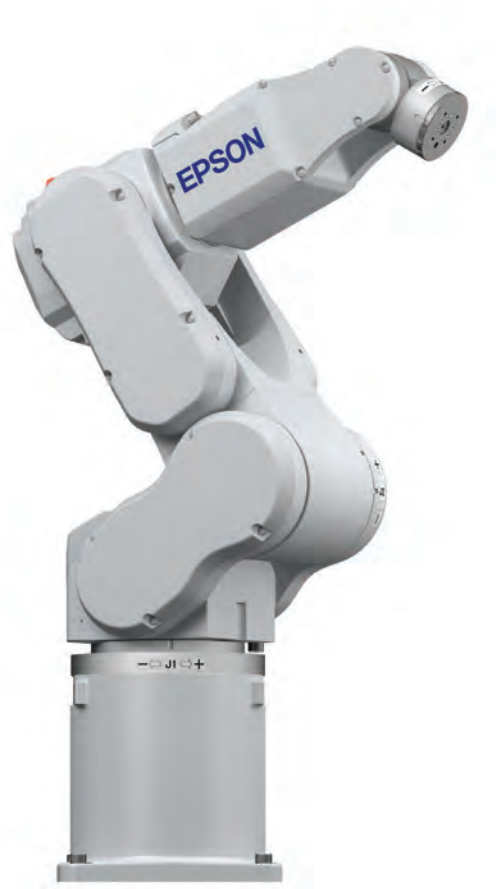
Compact robots with high repeatability and fast cycle times

C8

Powerful robots with long reach and heavy payloads

C12

High-performance robots with heavy payload and second-generation GYROPLUS™ Technology



C-Series Specifications

		C4	C8	C12
Arm length		600/900 mm	700/900/1,400 mm	1,400 mm
Repeatability	Joints #1 – #6	±0.020/±0.030 mm	±0.020/±0.030/±0.050 mm	±0.050 mm
Payload	Rated	1 kg	3 kg	3 kg
	Maximum	4 kg	8 kg	12 kg
Standard cycle time[1]		0.36 sec	0.31/0.33/0.51 sec	0.48 sec
Installation environments		Standard/Cleanroom ISO Class 3 with ESD	Standard/Cleanroom ISO Class 3 and 4 with ESD/Protected IP67	Standard/Cleanroom ISO Class 4 with ESD
Available controllers		RC700A/RC700E/RC800A		

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 1 kg payload (path coordinates optimized for maximum speed).

C4

High speed and exceptional flexibility

- Arm lengths of 600 and 900 mm
- Payloads up to 4 kg
- Slim design and compact wrist—fits in tight spaces
- Cleanroom ISO Class 3 models available

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Specifications

		C4B	C4LB
Mounting type		Tabletop, Ceiling	
Arm length	P Point: Joints #1 - #5 Center	600 mm	900 mm
	P Point: Joints #1 - #6 Flange Surface	665 mm	965 mm
Repeatability	Joints #1 – #6	±0.02 mm	±0.03 mm
Payload	Rated	1 kg	
	Maximum	4 kg	
Standard cycle time[1]		0.36 sec	
Max. motion range	Joint #1	±170 deg	
	Joint #2	-160 ~ +65 deg	
	Joint #3	-51 ~ +225 deg	
	Joint #4	±200 deg	
	Joint #5	±135 deg	
	Joint #6	±360 deg	
Allowable moment of inertia	Joint #4	0.15 kg·m^2	
	Joint #5	0.15 kg·m^2	
	Joint #6	0.10 kg·m^2	
User electric lines		9-pin (D-sub)	
User pneumatic lines		ø4 mm × 4	
Brakes		All Axes	
Power		AC 200 V - 240 V Single Phase	
Power consumption		1.7 kVA	
Power cable length		3 m/5 m/10 m	
Weight (cables not included)		27 kg	30 kg
Installation environments		Standard/Cleanroom (ISO 3)[2] ESD	
Available controller		RC700E	
Safety standards		TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849	

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) at rated payload setting of tabletop model boost mode (path coordinates optimized for maximum speed). | **2** Complies with ISO Class 3 (ISO 14644-1) cleanroom standards.

C8/C12

Long reach and heavy payload

- Arm lengths of 700, 900 and 1,400 mm
- Payloads up to 12 kg
- Slim design and compact wrist—fits in tight spaces
- Cleanroom ISO Class 3 (C8/C8L) and Class 4 (C8XL/C12XL) models available

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Specifications

		C8-A701 (C8)	C8LC	C8XLC	C12XLC
Mounting type		Tabletop/Ceiling/Wall			Tabletop
Arm length	P Point: through the center of J4/J5/J6	711 mm	901 mm	1,400 mm	
Weight (cables not included)		49 kg (Protected: 53 kg)	53 kg (IP: 57 kg)	63 kg (IP: 66 kg)	63 kg (IP: 67 kg)
Repeatability	Joints #1 – #6	±0.02 mm	±0.03 mm	±0.05 mm	
Max. motion range	Joint #1	±240 deg			
	Joint #2	-158 ~ +65 deg		-135 ~ +55 deg	
	Joint #3	-61 ~ +202 deg			
	Joint #4	±200 deg			
	Joint #5	±135 deg			
	Joint #6	±360 deg	±540 deg		
Payload	Rated	3 kg			
	Maximum	8 kg			12 kg
Standard cycle time[1,2]		0.31 sec	0.336 sec	0.512 sec	0.484 sec
Allowable moment of inertia[3]	Joint #4	0.470 kg·m²			0.700 kg·m²
	Joint #5	0.470 kg·m²			0.700 kg·m²
	Joint #6	0.150 kg·m²			0.200 kg·m²
Electric lines		15-pin (D-sub), 8-pin (RJ45), 6-pin (for Force Sensor)			
Pneumatic lines		ø6 mm x 2			
Installation environments		Standard/Cleanroom (ISO 3)[4] and ESD/ Protected IP67		Standard/Cleanroom (ISO 4)[5] and ESD/Protected IP67	
Available controllers		RC700A	RC800A		
Safety standards		–	TUV-certified to meet ISO 10218-1, UL 1740, CSA Z434, ISO 13849		

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with 1 kg payload (path coordinates optimized for maximum speed). | **2** Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) at rated payload setting of tabletop model boost mode (path coordinates optimized for maximum speed). | **3** If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using the INERTIA command. | **4** Complies with ISO Class 3 (ISO 14644-1) cleanroom standards. | **5** Complies with ISO Class 4 (ISO 14644-1) cleanroom standards.

Robot Controllers

Compact and intuitive, Epson controllers make automation configuration easy. Designed for use with both SCARA and 6-Axis robots, Epson's lineup provides advanced servo control for smooth motion and precise positioning. With integrated options available such as vision guidance, force guidance, conveyor tracking and more, Epson controllers provide true solution-based expandability.

Robot Controllers

All-in-One

Space-saving design with built-in controllers at an ultra low price

RC90B

Great performance at an affordable price

RC700A/E

Powerful feature set with ultra fast processing

RC800A

High-performance controller for our most advanced robots

Advanced controllers to meet your automation needs

- Powerful performance, compact design—built for space-constrained environments; able to support everything from simple to high-end robots
- Supports both SCARA and 6-Axis robots—simplifies the lineup with common platforms
- Full lineup of both SCARA and 6-Axis controllers—choose the one best suited for your application
- Easy to configure/setup—front access (RC90B, RC700A/E, RC800A); intuitive panel; consolidated controls, all on one side, for easy changeouts
- Advanced servo control system—enables the robot to quickly perform smooth, precise motions
- Slots for optional components—supports a wide variety of fully integrated options

Specifications

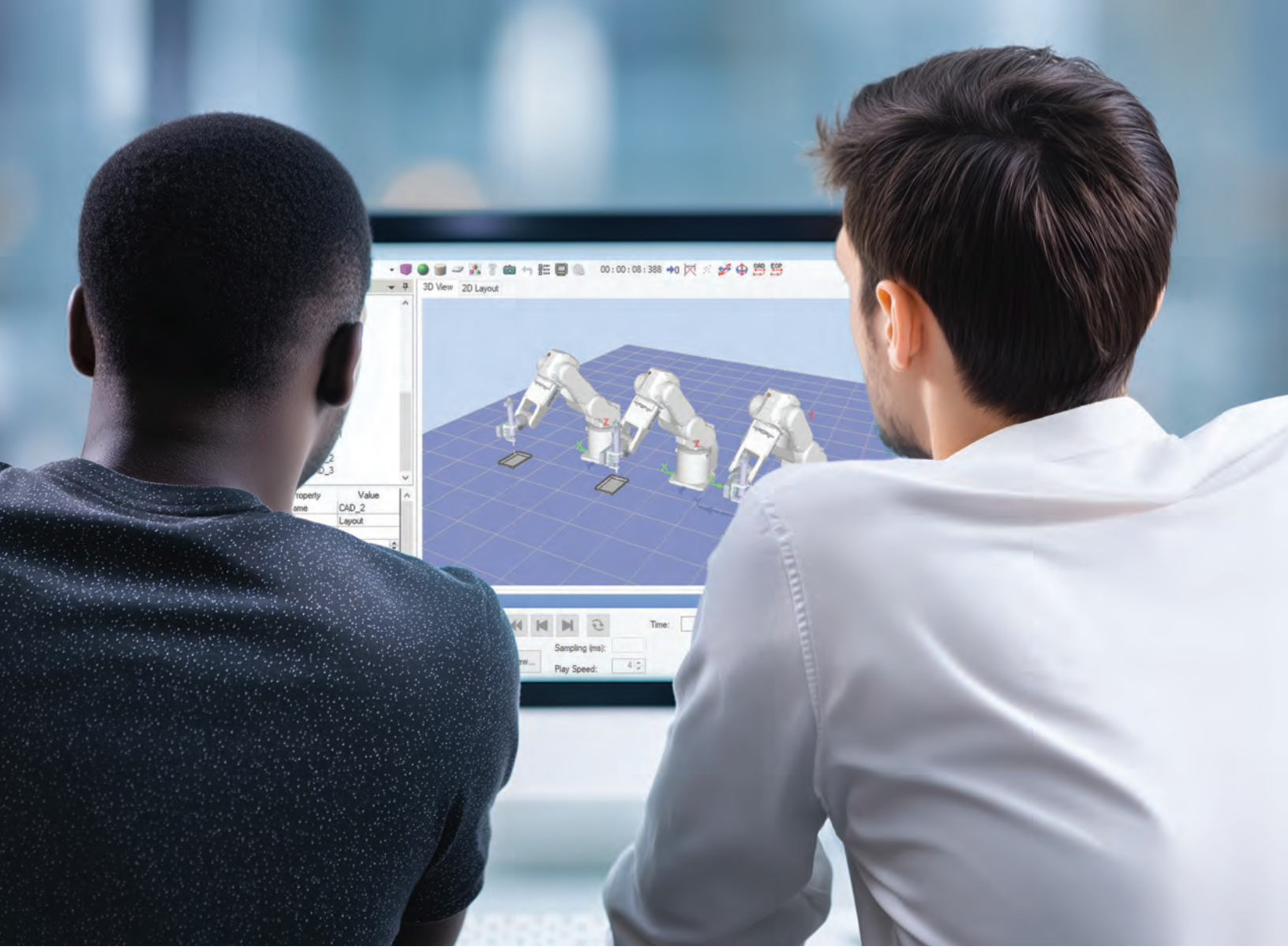
Model		All-in-One		RC90B	
Robot manipulator control	Joint control	Up to six (6) joints simultaneous control, Software AC servo control		Up to four (4) joints simultaneous control, Software AC servo control	
	Speed control	PTP motion: Programmable in the range of 1% to 100% CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% CP motion: Programmable (actual value to be manually entered)	
	Acceleration/ deceleration control	PTP motion: Programmable in the range of 1% to 100% Automatic CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% Automatic CP motion: Programmable (actual value to be manually entered)	
	Number of manipulators	1		1	
Positioning control		PTP (Point-To-Point)/CP (Continuous Path)		PTP (Point-To-Point)/CP (Continuous Path)	
Memory capacity		Maximum object size: 8MB Point data area: 1,000 points (per file) Backup variable area: Max. 400KB (includes the memory area for the management table) Approx. 4,000 variables (depends on the size of array variables)		Maximum object size: 8MB Point data area: 1,000 points (per file) Backup variable area: Max. 400KB (includes the memory area for the management table) Approx. 4,000 variables (depends on the size of array variables)	
External input/output signals (standard)	Standard Input Output	VT-Series: Input: 24/Output: 16 T-Series: In: 18/Out: 12/ Hand: In: 6/Out: 4	Including 8 inputs, 8 outputs with remote function assigned; assignment change allowed	Input: 24 Output: 16	Including 8 inputs, 8 outputs with remote function assigned; assignment change allowed
	Standard I/O drive unit	—		—	
Communication interface (standard)	Ethernet	1 channel		1 channel	
	USB	1 port		1 port	
Option boards (special slot)	I/O	—		Input: 24 per board Output: 16 per board	Maximum of 2 boards allowed
	Analog I/O	—		1 channel	
	Euromap 67	—		Input: 15 per board/Output: 16 per board	
	RS-232C	—		2 channels/board	Maximum of 2 boards allowed
	Fieldbus I/O slave	PROFINET PROFIBUS-DP DeviceNet® CC-Link® EtherNet/IP® EtherCAT®	Maximum of 1 board allowed	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP EtherCAT	Maximum of 1 board allowed
	Pulse generator	—		4 axes/board	Maximum of 2 boards allowed
Option boards (PCI or PCIe slots)	Fieldbus I/O master	PROFIBUS-DP DeviceNet EtherNet/IP	—	1 channel/board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum of 1 board allowed
Safety features		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection	
Power source		AC 110 V to AC 220 V/Single phase 50/60 Hz		AC 200 V to AC 240 V/Single phase 50/60 Hz	
Weight		Varies per robot model		7.5 kg	

RC700A		RC700E		RC800A	
Up to six (6) joints simultaneous control, Software AC servo control		Up to six (6) joints simultaneous control, Software AC servo control		Up to six (6) joints simultaneous control, Software AC servo control	
PTP motion: Programmable in the range of 1% to 100% CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% CP motion: Programmable (actual value to be manually entered)	
PTP motion: Programmable in the range of 1% to 100% Automatic CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% Automatic CP motion: Programmable (actual value to be manually entered)		PTP motion: Programmable in the range of 1% to 100% Automatic CP motion: Programmable (actual value to be manually entered)	
4		1		1	
PTP (Point-To-Point)/CP (Continuous Path)		PTP (Point-To-Point)/CP (Continuous Path)		PTP (Point-To-Point)/CP (Continuous Path)	
Maximum object size: 8MB Point data area: 1,000 points (per file) Backup variable area: Max. 400KB (includes the memory area for the management table) Approx. 4,000 variables (depends on the size of array variables)		Maximum object size: 8MB Point data area: 1,000 points (per file) Backup variable area: Max. 400KB (includes the memory area for the management table) Approx. 4,000 variables (depends on the size of array variables)		Maximum object size: 4MB Point data area: 1,000 points (per file) Backup variable area: Max. 400KB (includes the memory area for the management table) Approx. 4,000 variables (depends on the size of array variables)	
Input: 24 Output: 16	Including 8 inputs, 8 outputs with remote function assigned; assignment change allowed	Input: 24 Output: 16		Input: 24 Output: 16	
Input: 24 Output: 16	Per drive unit	—		—	
1 channel		1 channel		1 channel	
1 port		1 port		1 port	
Input: 24 per board Output: 16 per board	Maximum of 4 boards allowed	Input: 24 per board Output: 16 per board	Maximum of 3 boards allowed	Input: 24 per board Output: 16 per board	Maximum of 3 boards allowed
1 channel		1 or 4 channels			
Input: 15 per board/Output: 16 per board		–		–	
2 channels/board	Maximum of 2 boards allowed	2 channels/board	Maximum of 2 boards allowed	2 channels/board	Maximum of 2 boards allowed
1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP EtherCAT	Maximum of 1 board allowed	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP EtherCAT	Maximum of 1 board allowed	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP EtherCAT	Maximum of 1 board allowed
4 axes/board	Maximum of 4 boards allowed	4 axes/board	Maximum 3 boards allowed	4 axes/board	Maximum of 3 boards allowed
1 channel/board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum of 1 board allowed	1 channel/board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum of 1 board allowed	1 channel/board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum of 1 board allowed
Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection	
AC 200 V to AC 240 V/Single phase 50/60 Hz		AC 200 V to AC 240 V/Single phase 50/60 Hz		AC 200 V to AC 240 V/Single phase 50/60 Hz	
11 kg		12 kg		11 kg	

Development Software:

Epson RC+ and Epson RC+ Express

Epson RC+ and Epson RC+ Express offer the ultimate selection of powerful, easy-to-use features, reducing the time needed to develop automated robot solutions. Epson RC+ advanced software includes fully integrated options such as vision guidance, force guidance, conveyor tracking, part feeding and more. Epson RC+ Express features an easy-to-learn, block-style robot teaching environment, ideal for new users with little or no coding experience.



Epson RC+ Express

Intuitive, no-code, visual-based robot teaching environment

Epson RC+

Comprehensive suite of advanced tools and features in one convenient, integrated environment

The perfect choice for automation experts and new users alike, Epson makes it easy to create an array of industrial robot solutions with two powerful development environments.

- Software options for simple or complex applications
- Easy-to-learn programming (Epson RC+) or no-code programming environment (Epson RC+ Express)
- Intuitive and easy to learn
- 3D simulator
- Quick deployment of your robotic system

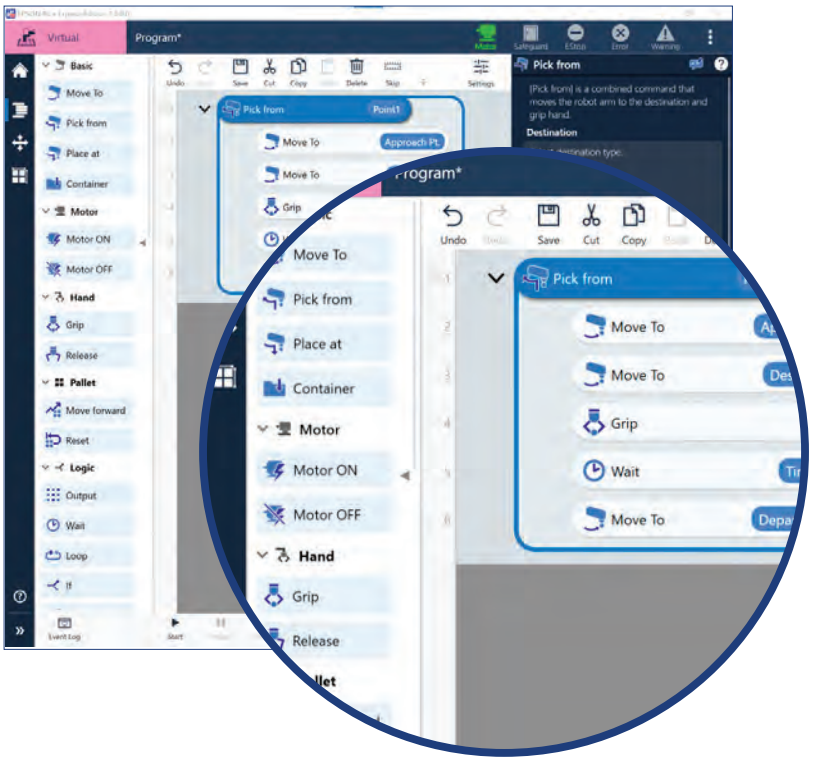
Epson RC+ Express

Get your robot system up and running fast

Epson RC+ Express is a simple, visual-based teaching environment built for users who are new to robot automation and have little to no programming experience.

No-Code, Easy-to-Use Robot Teaching Environment

Get the power and flexibility of a scripted-text language with an easy-to-use robot programming environment. Epson RC+ Express is designed for use with Epson SCARA and 6-Axis robots, from the All-in-One T-Series and VT6L to the highest-performance GX- and C-Series.



Simple to Navigate

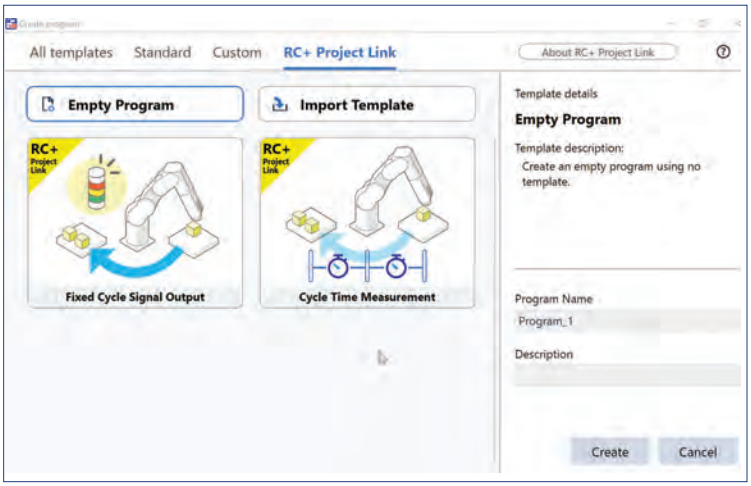
Clear, intuitive, visual user interface makes it easy to learn and manage key functions, such as jogging, gripper control and motion. Take advantage of easy jog when manipulating 6-Axis robots, move effortlessly between linear and joint motion, and easily align the robot tool face to different planes with a single click.

Robot recovery has never been easier—by using the rollback feature after an event, the robot can be returned to a previous known position, allowing an easy restart to the system.

Extended Capabilities

Experienced Epson RC+ users can take advantage of the extended SPEL+ commands to simplify programs and complete more advanced tasks, while retaining the simple yet powerful Epson RC+ Express interface.

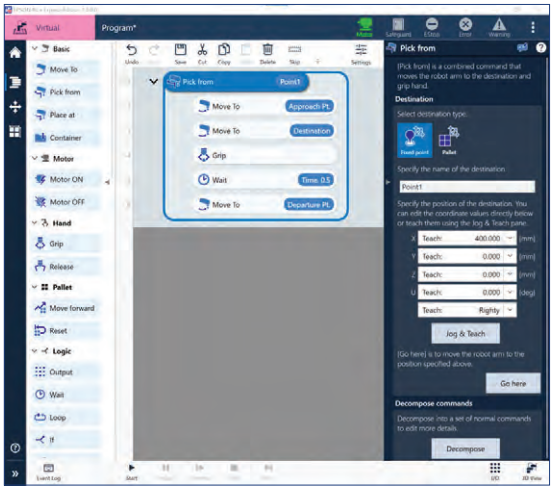
The optional Epson RC+ Project Link allows users to create advanced functions—such as vision guidance or force guidance—in Epson RC+ and then bring them into Epson RC+ Express programs. Additionally, Epson RC+ Express commands can be translated to the SPEL+ language, allowing easy transition from Epson RC+ Express to Epson RC+.



Quick Setup

Epson's proprietary Focus Assist technology provides quick-teach tools with auto-generated fields for fast application setup. Visual indicators highlight missing inputs to complete the function, such as quickly teaching a point. Wizards take users step-by-step to easily teach tools and pallets.

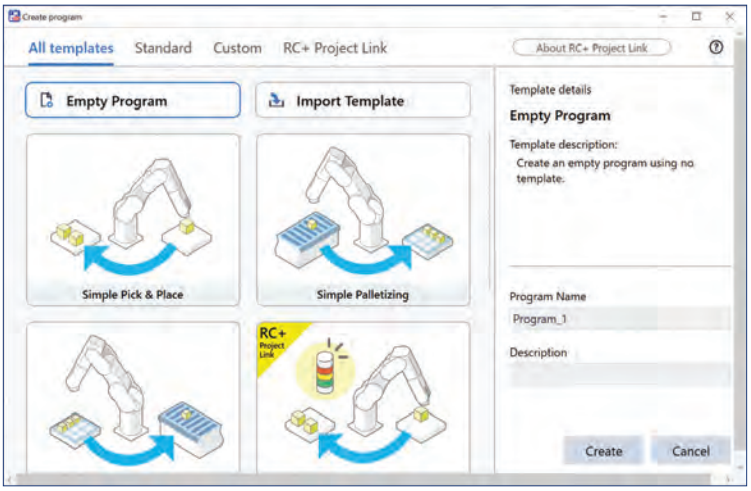
Once running, programs can be protected to reduce the risk of accidental program changes, all while allowing points to be re-taught to account for normal production variability.



Common Application Templates

Quickly create common applications, such as pick and place or palletizing and depalletizing, with premade, ready-to-use template programs. Learn on your own using the online tutorials with step-by-step instructions for Epson RC+ Express.

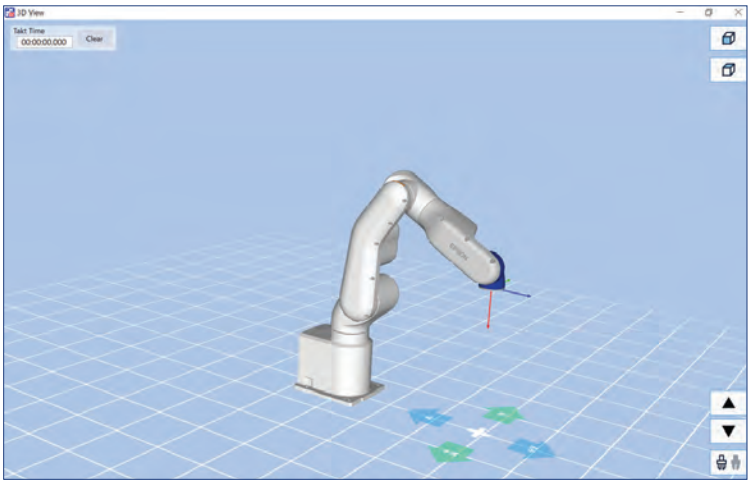
Templates are even provided for the optional Project Link, which allows the use of more advanced options, such as vision guidance, force guidance and part feeding.



3D Simulator

Conveniently program and fine-tune applications with the built-in 3D simulator before your hardware has even arrived. Teach points, create motion commands and even simulate inputs and outputs to develop your application offline.

Rehearsal Mode allows the robot to be operated at low power and speed, and if an unexpected motion or action occurs, the robot can be stopped by lifting your finger from the touchpad, reducing risk of damage to the robot and the workcell.



Tablet-Based Windows OS Environment

Compatible with touchscreen devices to easily create robot applications. Drag and drop functions and easily change their order by sliding them around. Cut and paste commands and points to speed application development. Use sliders to easily configure the robot speed to meet your throughput requirements.

Epson RC+

The ultimate choice for robot system development

Epson RC+ offers a powerful set of tools and features that redefine automation efficiency. A comprehensive solution for virtually any application, Epson RC+ provides seamless integration, with all components working together in one integrated environment.

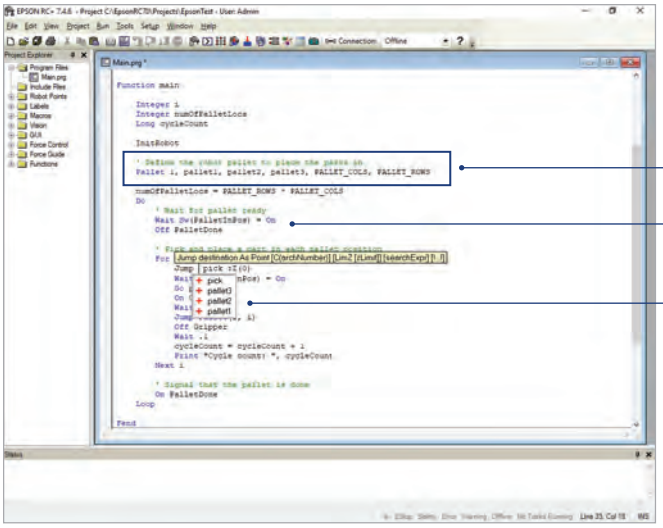
All-inclusive development environment

- Projects
- Robot manager
- Task manager
- Run window
- Operator window
- Jog and teach window
- I/O monitor
- Offline development
- Wizards
- Project explorer
- Toolbar customization
- 3D simulator

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 Syntax Assist, auto-indent, color-based command usage, comment blocks, indent/outdent, find/replace and more.



Color-based editor where keywords are blue, parameters are black, comments are green and incorrect syntax is red.

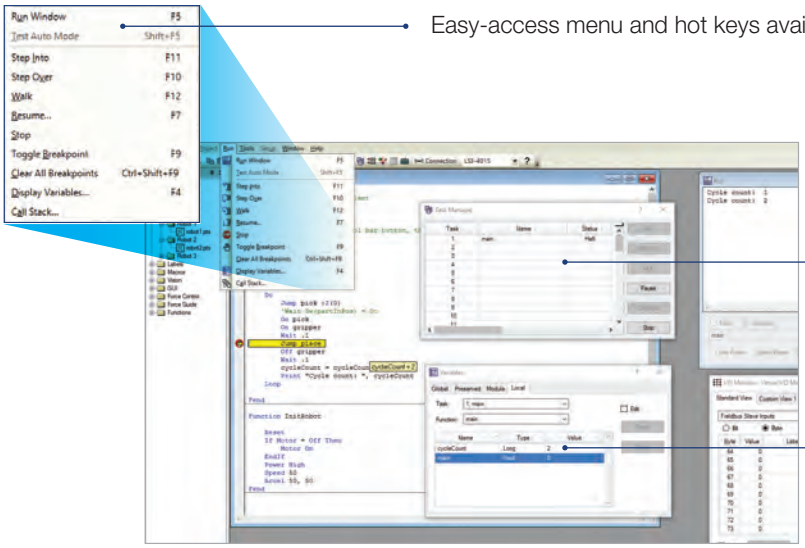
Automatic indenting of code contained in a function block for easy readability.

Syntax Assist helps users type or select the proper syntax for commands and their associated parameters.

Integrated Debugger

Easily identify issues in record time

The integrated debugger offers many clever ways to check the status of your program or identify issues you may find while running it. The Epson debugger allows you to check specified variables, view the value of those variables in real time, set break points, perform a single-step execution or jump over certain steps. You can also step into a function to view more details.



Easy-access menu and hot keys available for commonly used debugging tools.

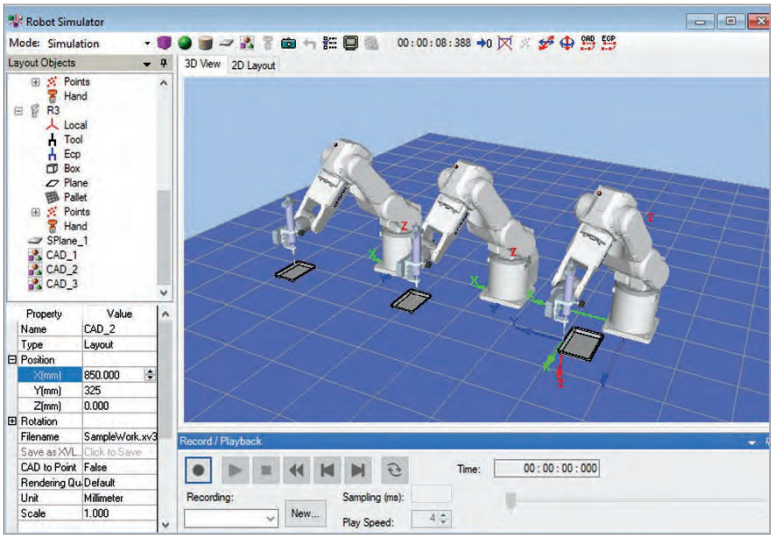
Task manager provides quick access to view status, start, stop, pause and continue Epson RC+ tasks.

Real-time display of local and/or global variables.

3D Simulator

Build and fine-tune your application before hardware setup

Take automation development to the next level with a virtual test run. Epson's workcell simulator means you can program your workcell, even before your hardware has arrived. See a 3D simulation of your application in action—in real time. You can even add additional components that may be a part of the workcell, such as a table, feeder or various types of guarding. Add a tool to the robot's arm and implement your program to examine the efficiency of the application.



Need to examine how multiple robots might affect productivity? Give it a test run with a detailed, simulated workcell.

Full-featured simulator supports up to three robots and peripherals such as guarding, tools, parts and more.

Cycle-time calculation

- Calculate cycle time based on real application execution

Offline application checking

- Program can be created and debugged from standalone PCs
- Debugged programs can be rolled out directly to plant floor workcells

Machine vision simulation

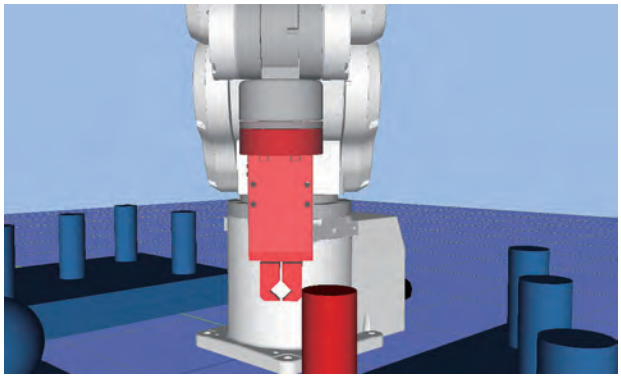
- Machine vision image processing input can also be used within simulations

Record and playback functions

- Recording and playback functions make it easy to include still images and movies in presentations

Clearance checking

- Choosing the right robot is easy because you can check all necessary workcell and peripheral equipment



Vision Guide simulation supported with Epson RC+ 7.0

SPEL+ Robot Language

Epson's SPEL+ is a powerful yet easy-to-learn-and-use programming language for robot automation applications. With 500+ commands and statements, including motion functions, I/O control, variables and data types, program control and more, SPEL+ can be used for both complex and simple applications.

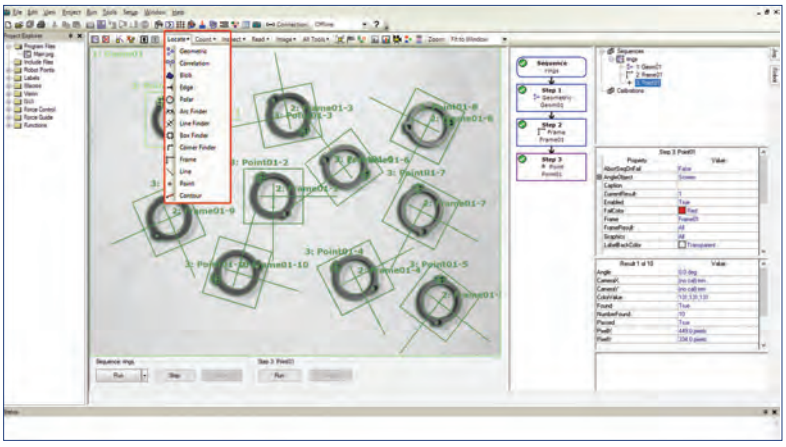
Example Program

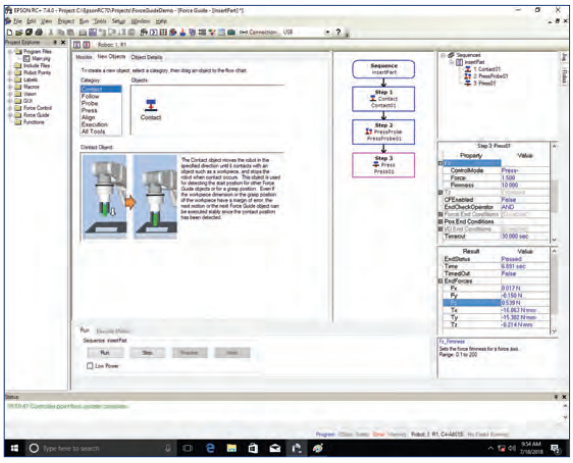
```
Function main
    Motor   On              *turn motor power on
    Power   High            *Power mode set high
    Speed   100             *Speed 100%
    Accel   100, 100        *Acceleration/Deceleration 100%

    If Sw(partok) = On Then *Checking if good part
        Jump  goodparts     *move arm to goodpart pile
    Else
        Jump  badparts      *move arm to bad part pile
    EndIf

Fend
```

Integrated Environment

One source, one comprehensive solution

Epson software offers easy integration of Epson robots with various automation options, including vision guidance, force guidance, IntelliFlex part feeding, conveyor tracking and more. Built as a comprehensive solution for any given application, it provides seamless integration, allowing all components to interface with one another in a single environment.





Vision guidance and force guidance are just two of the many integrated options available with Epson RC+.

Fully Integrated, Optional Solutions

Enhance your robot automation solution with integrated options such as vision guidance, force guidance, IntelliFlex part feeding and more. These powerful solutions make it easy to quickly build various applications without having to worry about peripheral communication setups and development from multiple environments. Instead, you can focus on maximizing the efficiency of your application.

Vision Guide

Integrated vision guidance with easy configuration and collaboration

IntelliFlex

High-performance part-feeding solution with easy integration

Force Guide

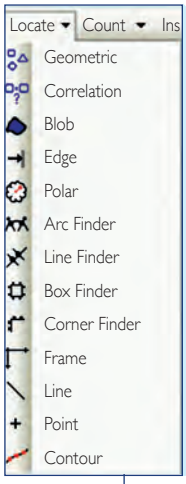
Intuitive robot force guidance for high-precision performance

Vision Guide

Vision guidance made easy

Epson Vision Guide makes precision robotic guidance easy to use. Fully integrated within the Epson RC+ development environment for easy configuration and calibration, this intuitive solution features a point-and-click interface that makes it simple for users of all levels. It also features wizards and auto calibration methods, plus a combination robot/vision simulator for rapid offline testing. With a common software environment for both robots and vision guidance, Epson Vision Guide allows for fast development and simplified maintenance. An efficient and versatile solution, it also includes tools for inspection, gauging, barcode reading and much more.

Vision Guide Program

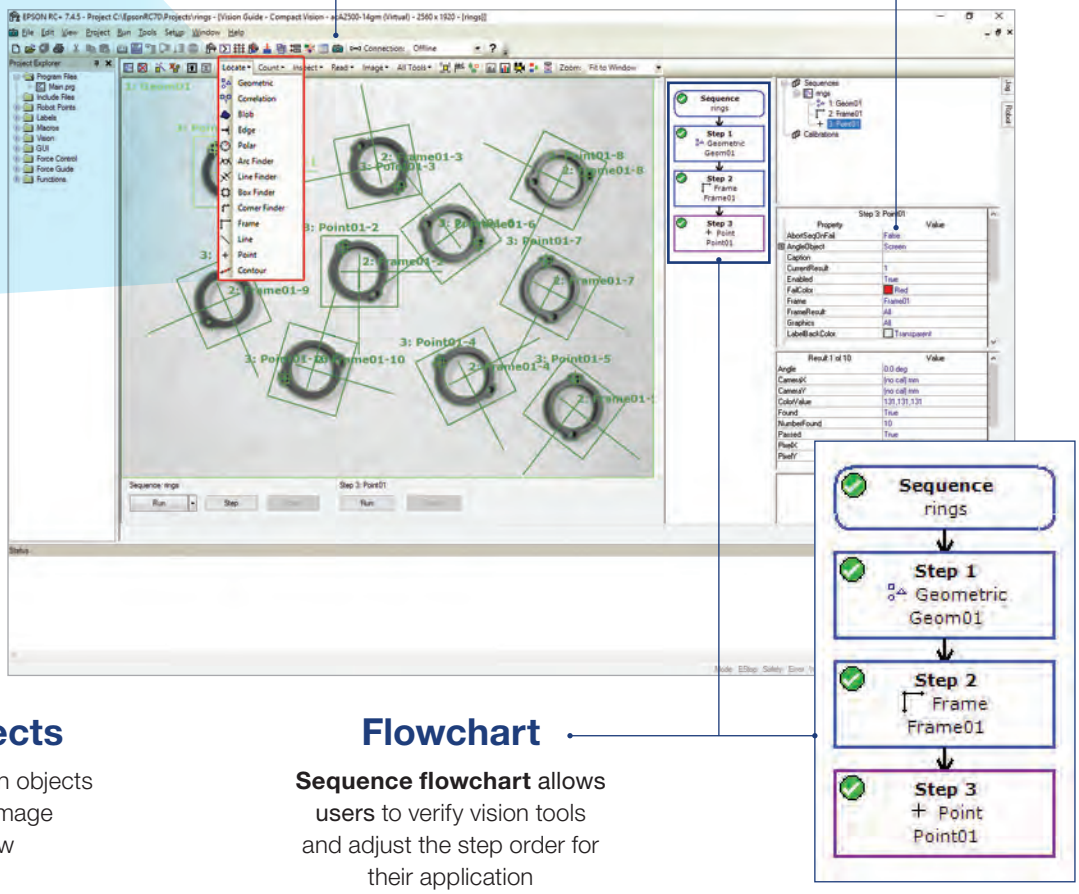


Vision Button

Launch Vision Guide directly from Epson RC+

Object Properties and Results

Users can easily input and adjust data; the software automatically generates associated results based on input parameters



Vision Objects

Drag and drop vision objects directly onto the image display window

Flowchart

Sequence flowchart allows users to verify vision tools and adjust the step order for their application

True robot geometry-based calibration

Unlike common mapping-based calibration, Epson Vision Guide uses a powerful geometric-based calibration solution to improve the precision of camera-to-robot-coordinate system translation. Reduce calibration time and improve consistency with the integrated calibration wizard and easy step-by-step instructions. Multiple calibrations for both 6-Axis and SCARA robots, including fixed-downward, fixed-upward and those with mobile-joint-mounted cameras, are supported.

Versatile tool set

Geometric
Finds a model based on geometric features. Used for determining position and orientation.

Blob
Computes geometric, topological and other image features. Used for determining presence/absence, size, positioning and orientation.

Correlation
Measures quality compared to previously trained features for alignment, inspection, position and orientation.

Edge
Locates edges by identifying changes in grey value from dark to light or light to dark.

ImageOp
Performs morphology, convolution, flip, binarize, rotate and more for a region of interest.

Polar
Uses correlation of a rotational area to determine object orientation.

OCR
Optical Character Recognition is used to recognize character strings in an image.

CodeReader
Reads bar or two-dimensional codes, including data matrix and others.

ColorMatch
Detects user-defined colors.

LineFinder
Determines the location of a line in an image.

LineInspector
Identifies deviations on a linear path between two points.

ArcFinder
Determines the radius and center point of an arc or major/minor axes and the angle of an ellipse.

ArcInspector
Determines abnormalities in the arc of a circle/ellipse.

DefectFinder
Compares a template image to an input image to identify defects.

Frame
Provides dynamic position reference for other vision objects.

Line
Defines a line between two objects.

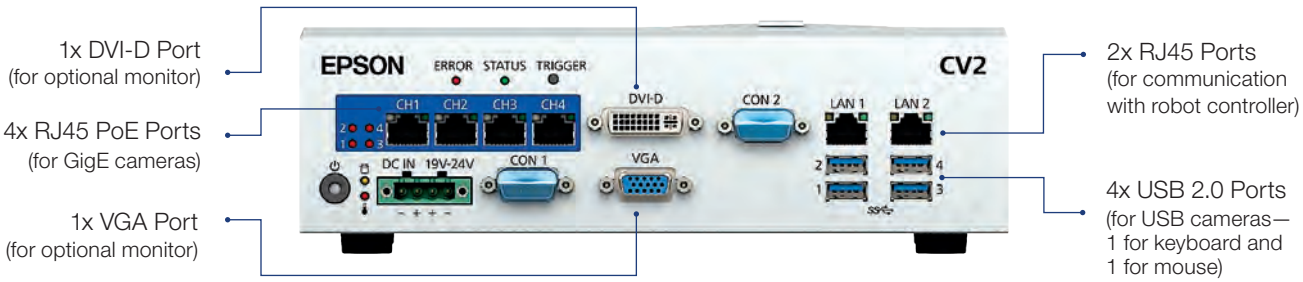
Point
Defines reference positions for other objects.

BoxFinder
Determines the center of an object.

CornerFinder
Identifies the intersection position of two lines that form a corner.

Contour
Generates a contour based on the external shape of an object.

Full-featured, integrated solution



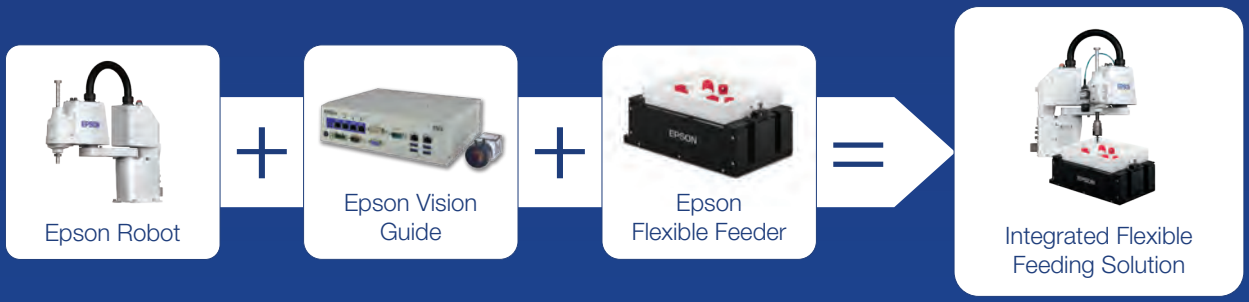
Specifications

System		CV2-S	CV2-H
Cameras supported (Epson cameras only)		GigE: Mono (0.3MP – 10MP) and Color (2MP – 10MP) USB: Mono (0.3MP – 5MP) and Color (1.3MP – 5MP)	GigE: Mono (0.3MP – 20MP) and Color (2MP – 20MP) USB: Mono (0.3MP – 5MP) and Color (1.3MP – 5MP)
Quantity of connectable cameras		Up to 6 cameras	
Image processing speed		Standard	High-speed
Safety standards		CE, UL, KC	
Dimensions W x D x H (excluding rubber feet)		232 mm x 175 mm x 70 mm	
Operating temperature and humidity		5 deg ~ 40 deg C, 20% ~ 80% (non-condensing)	
Direction of installation		Horizontal or Vertical	
Power source voltage		DC: 19 V ~ 24 V	
Rated electric current		11.57 A (at 19 V DC) ~ 9.16 A (at 24 V DC)	
Weight		2.1 kg	
Interface (connection)	Ethernet (for communication with robot controller)	RJ45: 2 ports (10 Mbps/100 Mbps). Pre-bridge setting for the 2 ports. Can be connected to HUB or Switch.	
	Ethernet (for GigE camera)	RJ45: 4 ports (1000 Mbps). Power over Ethernet (PoE) supported. Cannot connect to HUB or Switch.	
	USB 2.0	USB 2.0: 4 ports (for USB Camera, USB Memory, Mouse, Keyboard)	
	Monitor connection	VGA: 1 port, DVI-D: 1 port (SXGA fixed)	
	CON1, CON2	Not available	
CV2 standard accessories		Mounting Plates (1 set), Power Supply Connector (1 piece)	

IntelliFlex

The smarter parts singulation solution

Powered by Epson robots, IntelliFlex Software and Vision Guide, the IntelliFlex Feeding System delivers a simplistic feeding solution to accommodate a wide variety of parts. Integrated with Epson RC+ Development Software, the IntelliFlex Feeding System offers easy setup and configuration. Its point-and-click interface helps reduce the typical development time required for advanced applications. With four feeder sizes available (IntelliFlex 80, 240, 380 and 530), the system can accommodate part sizes ranging from 3 mm to 150 mm. The IntelliFlex system also offers intelligent auto-tuning for fast setup and flexible parts changeover. And multi-axis vibration technology provides optimized parts control and singulation.



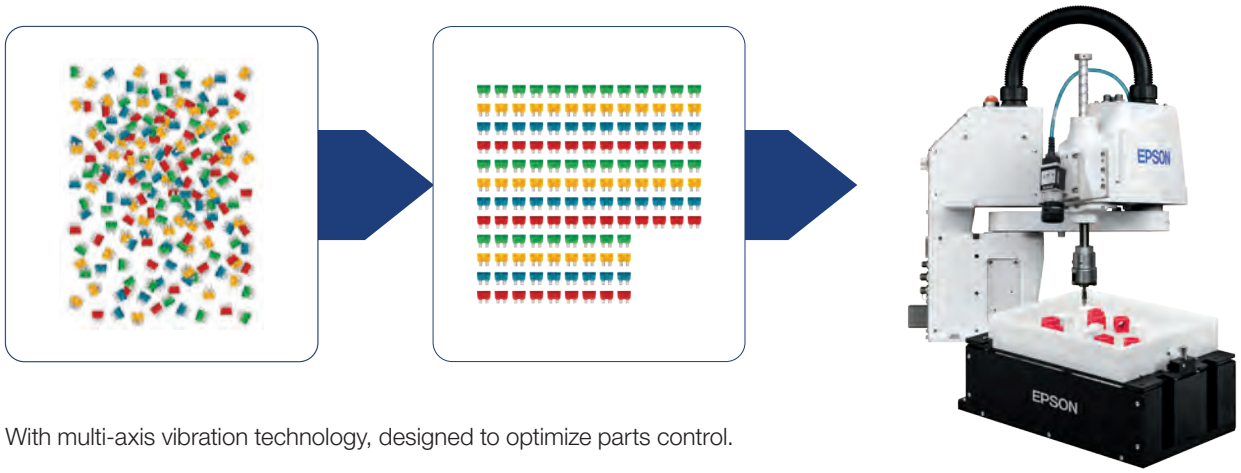
IntelliFlex 240—Ideal for parts ranging from 5 mm – 40 mm

IntelliFlex 80—Ideal for parts ranging from 3 mm – 15 mm

Point-and-click setup and configuration

Fully integrated with the Epson RC+ Development Software, the IntelliFlex Feeding System makes setup and configuration easier than ever. Featuring a point-and-click interface, it can help reduce development time for advanced applications, often taking it from weeks down to days.

Turn this… Into this… **With this.**



With multi-axis vibration technology, designed to optimize parts control.

System setup: Epson Setup vs. Typical Setup

EPSON SYSTEM SETUP

1 Vision Programming
- Built-in robot-to-vision calibration and point-and-click programming

2 Parts Tuning
- Automatic parts tuning with vision feeder integration

3 Parts Control Adjustment
- Configuration wizard for defining part separation pickup area and more

TYPICAL SYSTEM SETUP

1 Feeder Communications
- Low-level protocol using feeder command set

2 Feeder Tuning
- Getting parts to move properly

3 Vision Setup and Calibration
- Calibrating vision system to robot

4 Vision Programming
- Finding parts reliably

5 System Programming
- Robot + Feeder + Vision coordination

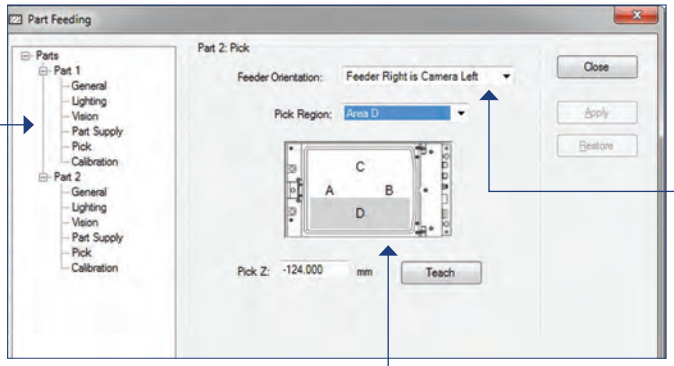
6 Optimization
- Fine-tuning and performance optimization

Precision parts calibration with smart auto-tuning

Epson RC+ Development Software also features an intuitive wizard to guide users through customized calibration. Step by step, this wizard automatically determines the exact values needed for optimum tuning and calibration.

Part pickup regions maximize parts throughput

Easily set parameters specific to each part, no coding required

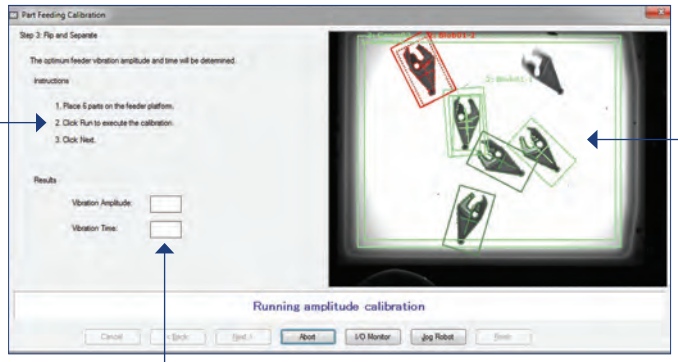


Configures feeder orientation to properly select the pickup area without needing to modify the physical application layout

Defines parts pickup area to optimize cycle time

Parts calibration (tuning) wizard reduces tuning time

3 simple steps to set up calibration parameters



Integrated image display window to show part separation results

Automatically computes and displays the tuning parameters, vibration amplitude and vibration time

Specifications

Flexible Feeder Specifications							
Series		IntelliFlex-IF				IntelliFlex-IF-A	
Model		IF-80	IF-240	IF-380	IF-530	IF-A1520	IFA-2330
Part size dimensions		3 – 15 mm	5 – 40 mm	15 – 60 mm	30 – 150 mm	5 – 40 mm	15 – 60 mm
Max. surface load per feeder		0.05 kg	0.40 kg	1.5 kg	2.0 kg	0.40 kg	1.5 kg
Communication		Ethernet (TCP/IP)					
Power supply		24 V/6 A	24 V/8 A	24 V/20 A	24 V/20 A	24 V/8 A	24 V/9 A
Vibration platform (length x width)		65 x 52 mm	195 x 150 mm	254 x 325 mm	427 x 371 mm	195 x 150 mm	300 x 230 mm
Footprint (length x width x height)		320 x 65 x 140 mm	300 x 171 x 132 mm	499 x 257 x 307 mm	600 x 372 x 320 mm	300 x 172 x 129 mm	480 x 292 x 249 mm
Software Features							
Max. # of feeders supported per robot controller	All-in-Ones	2					
	RC90/RC700/ RC800	4					
Max. # of robots sharing the same feeder at the same time	All-in-Ones	1					
	RC90/RC700/ RC800	2					
Max. # of unique parts per feeder running at the same time		4					
Max. # of parts per development environment project (Epson RC+)		32					
Purge software function (IF-80 requires purge calibration)		Supported					
Options							
Purge hardware		Optional hardware required					
Integrated backlight options		Single color (White, Red, Infrared, Green or Blue)				Two color selectable (White/Red)	
Tray configuration options		Black, Anti-Rolling, ESD (Anti-Static), Anti-Stick			Black, Anti-Rolling, Anti-Stick	Anti-Rolling	
Hopper sizes		0.16 L	1 L/2 L/3 L/7 L	1 L/2 L/3 L/7 L/14 L		1 L/2 L/3 L/7 L	1 L/2 L/3 L/ 7 L/14 L
What's included		Flexible Feeder, IntelliFlex Software, Power and Communication Cables					

Force Guide

Intuitive robot force guidance for high-precision performance

Powered by proprietary Epson Quartz Technology, Epson Force Guide enables Epson robots to detect six axes of force with precision down to 0.1 N. Driven by real-time servo system integration, Force Guide delivers fast, tactile feedback to guide robots for high-precision parts placement. Easy to set up, Force Guide features a point-and-click interface with pre-configured solutions and built-in objects, reducing the development time for precision applications.

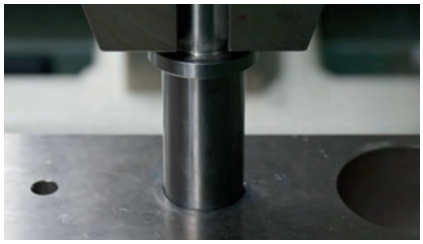
Advantage Epson

Drawing on our global expertise in robotic solutions, Epson created Force Guide as a tool to achieve higher productivity in automated manufacturing processes. Epson Force Guide features proprietary Quartz Technology, which provides remarkable rigidity and powerful performance, allowing customers to complete automation tasks that were previously not possible.

- Epson Quartz Technology
- High rigidity
- Powerful performance

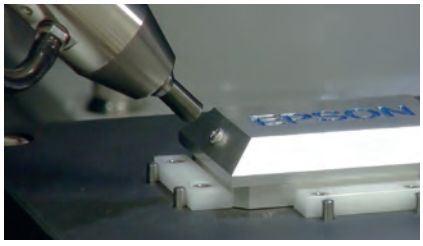
Force Guide applications

Force and torque sensors are an increasingly significant component for material testing, assembly, development and quality assurance. Because of their accuracy, versatility and reliability, they are being used by more and more companies around the world. Epson Force Guide provides a wide range of automation possibilities:



Parts and connector insertion

With Epson Force Guide, parts and connector insertion can be easily automated for everything from pin-in-socket insertion to high-precision valve assembly. Epson sensors detect misalignment. And, because of high sensitivity, the part or connector is easily inserted, damage-free.



Screw driving

Thanks to real-time force/torque feedback, the smallest of screws can be easily tightened, even when there is deviation in angle or location. By detecting the force, the robot can successfully execute the task while preventing any stripping of the threads.

Delicate parts handling

Because of its tight integration with the servo system, Epson Force Guide makes it easy to handle glass and other delicate materials. Our quartz-based sensors allow for soft placement in applications that would otherwise result in breakage of glass or other fragile materials.

Grinding/polishing

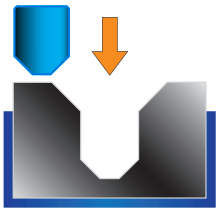
Deburring and grinding of parts to accurately remove excess flash is possible with Epson Force Guide, despite deviations in casting or dimensions. The tool remains on its path, due to real-time force feedback. Similarly, polishing can be automated so as to keep the tool pressing with constant and precise force to the part.

Gear meshing

On assembly operations, Epson Force Guide provides the robot with the tools and data necessary to align and match the faces of various components, including multiple gears.

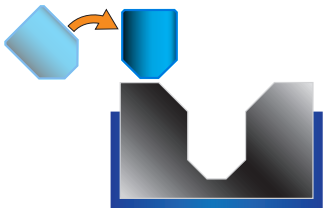
Force Guide tools

Pre-configured force guidance object tools provide a simple method for creating robot force-based motions and applications.



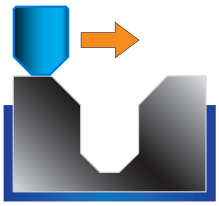
1 Contact

Find the object



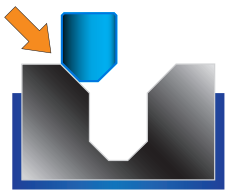
2 Align

Align the object, as needed



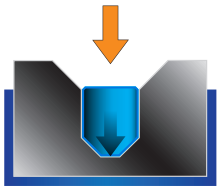
3 Probe

Find the holes or steps needed



4 Follow

Move the robot based on the force detected

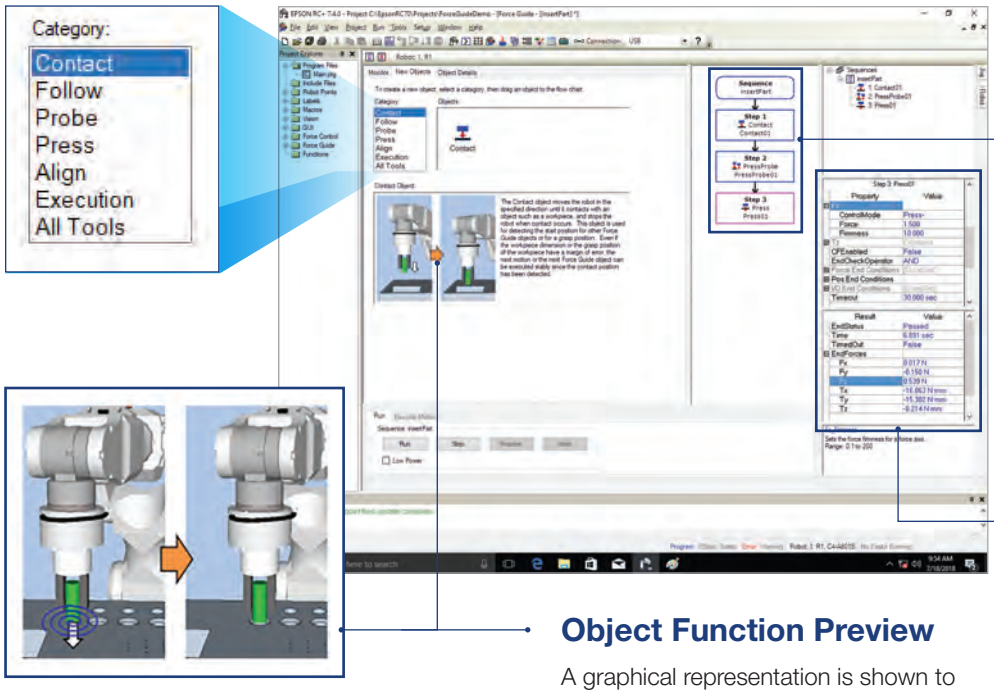


5 Press

Continue to apply the necessary force to the object to complete placement of the part

Intuitive interface

Fully integrated in the Epson RC+ development environment, Epson Force Guide applications can be created and tested in an easy-to-use point-and-click fashion.



Force Guide Sequence

The Force Guide sequence flowchart provides a simple drag-and-drop mechanism for defining the force guidance operational flow (ordering of steps). This reduces the amount of programming required for Force Guide applications.

Object Properties and Results

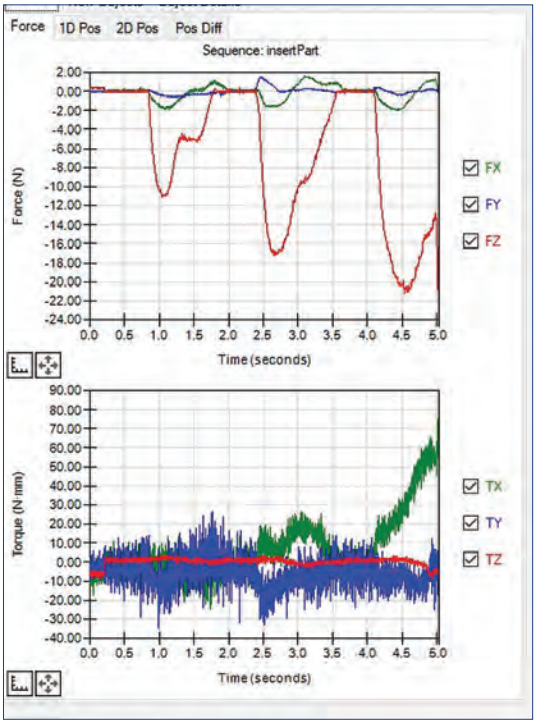
Users can input and adjust force and torque data. The software automatically generates associated results based on input parameters.

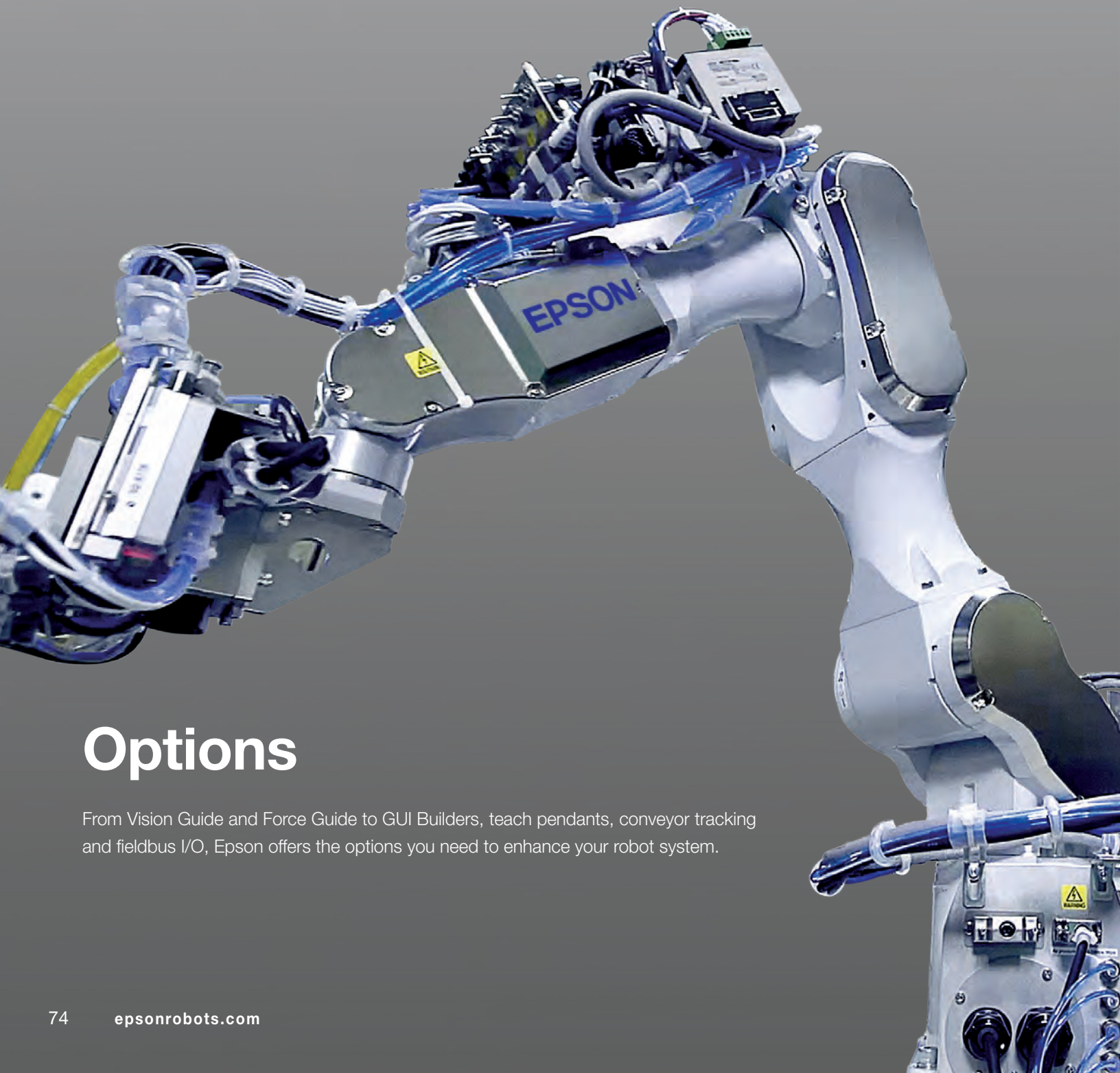
Object Function Preview

A graphical representation is shown to illustrate the robot motions associated with specific Force Guide tools.

Real-time Force Guide monitoring

Epson Force Guide provides real-time graphical representations of both force and torque, allowing users to see and adjust force guidance based on object parameters. Epson Force Guide also provides visual feedback and records and displays data logs to ensure operational reliability.





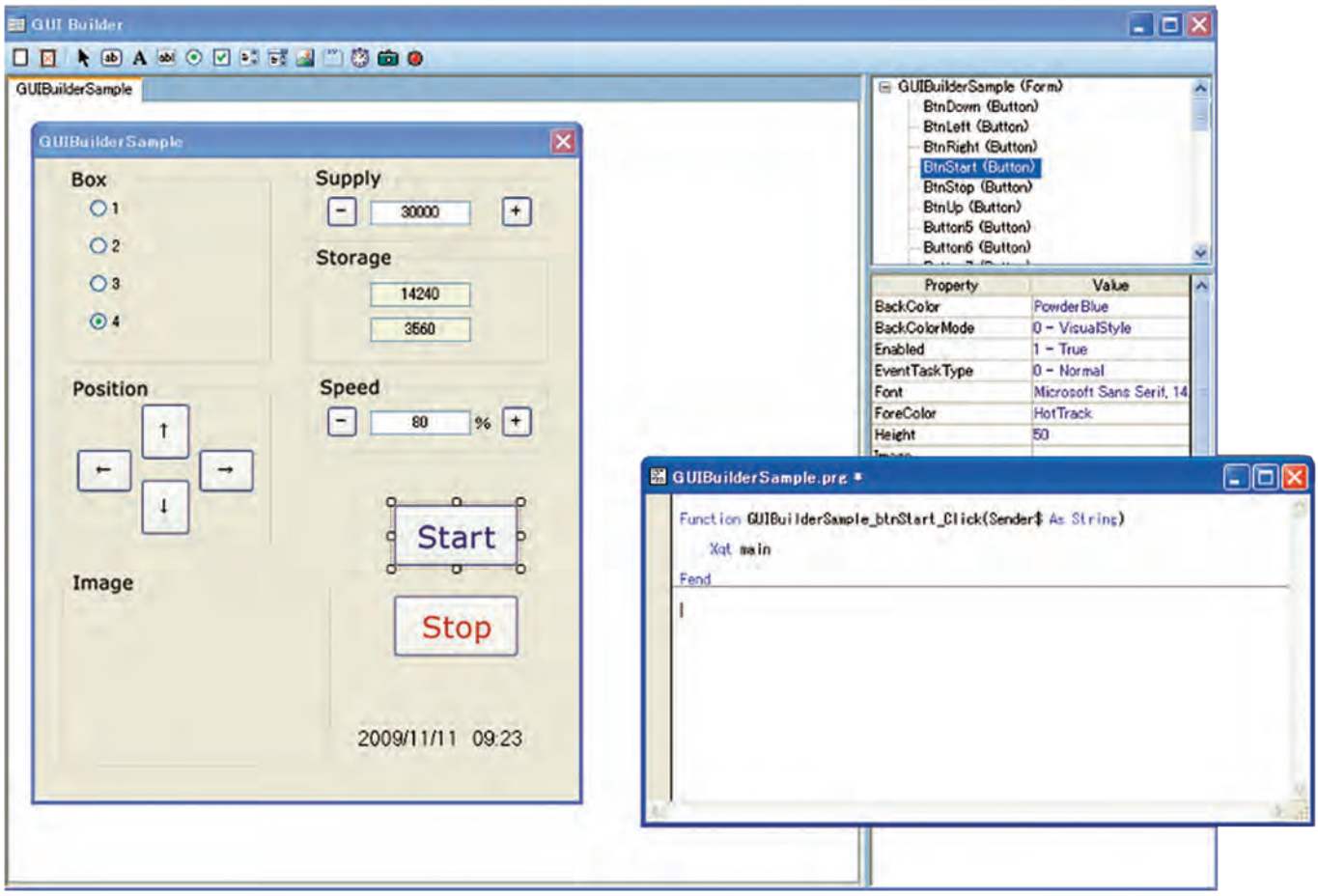
Options

From Vision Guide and Force Guide to GUI Builders, teach pendants, conveyor tracking and fieldbus I/O, Epson offers the options you need to enhance your robot system.

GUI Builder

Easily create a Graphical User Interface (GUI) for operators

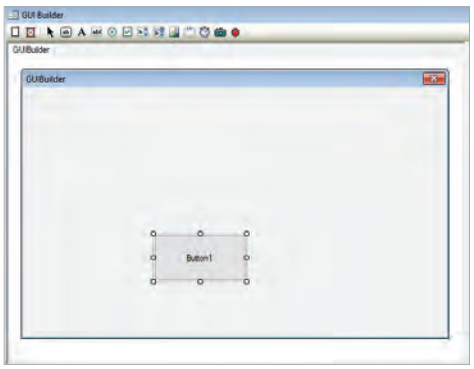
- Fully integrated within Epson RC+ to reduce overall development time
- Create GUIs without Visual Studio or other third-party software tools
- Create and debug GUI forms from your Epson RC+ Project
- Form and Control Events are executed as SPEL+ tasks
- Perfect for novices and experts alike
- Works with RC700A, RC700D, RC90B and All-in-One controllers



Steps to Use GUI Builder

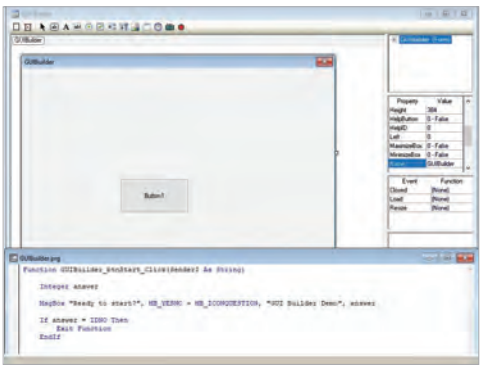
Step 1

Create a new form, click the Button control from the GUI Builder toolbar and drag it to the form.



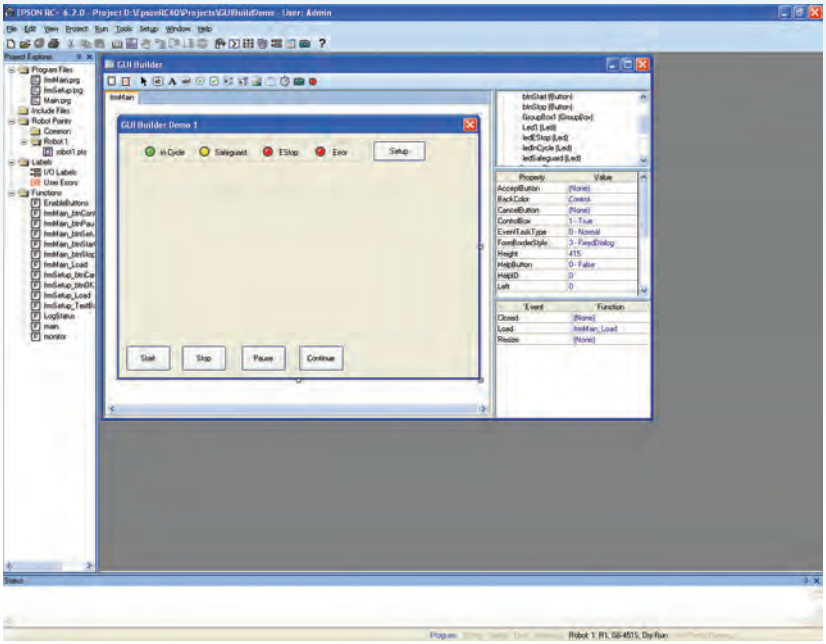
Step 2

Double-click the button and the Code Editor will appear. Add the SPEL+ code you want to execute when the button is clicked from your application.



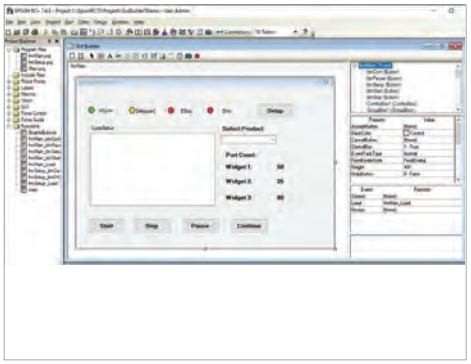
The GUI Builder Window

GUI Builder has five main areas of use for creating and modifying user GUIs.
These include: Toolbar Buttons, Design Area, Forms Explorer, Property Grid and Events Grid.



Step 3

Add more graphic components on your form and associated SPEL+ codes as required for your application.



Step 4

Run the application from the Epson RC+ Run window or set it up to have the GUI come up automatically. You can also bring up Epson RC+ dialogs like the I/O monitor shown here.

GUI Builder area definitions

Toolbar Buttons

Contains the various controls to be put on a GUI Builder form. Many of the common controls are supported, such as Button, Label, Textbox, Radio Button and Checkbox. However, there are also some controls unique to Epson that help reduce development time for items routinely needed for robot systems. Some of these unique controls include the Video Box control (to display the Vision Guide image) and the LED control (to interface with the Epson robot I/O).

Design Area

Where forms are displayed at design time. Each opened form is displayed on its own tab. You can easily switch between forms by clicking on the tab or double-clicking the form in the Forms Explorer.

Forms Explorer

A tree that contains each form for the current project and its associated controls. When a new form or control is created, it is added to the tree. Double-clicking on a form opens the form in its own tab in the design area.

Property Grid

Used to display and edit forms and control properties. When you select a form or control, the associated properties are displayed in the grid. You can edit the values for properties, thus changing the characteristics of the specific control.

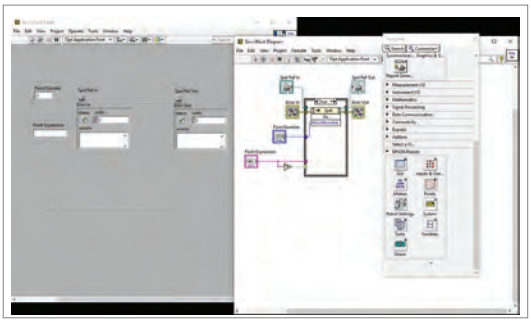
Events Grid

Used to display and change events for the associated form or control. Each event has a user function (written in SPEL+ code) that is called when the event occurs. This gives the user complete flexibility to program what happens when specific events occur.

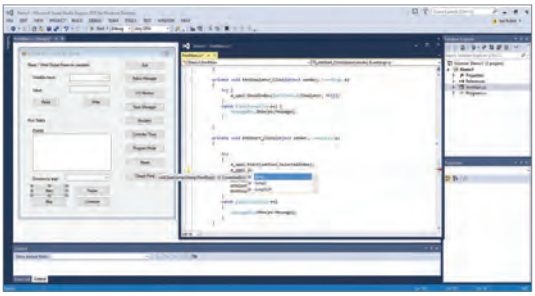
RC+ API

Program and execute robot applications in a familiar MS Windows OS environment

- Robots can be controlled using Visual Basic, Visual C++,® Visual C#, LabVIEW® and other third-party programming languages
- Robot status and variable values can be captured
- Vision Guide integration for easy image display on user GUIs
- Third-party .Net interface and database design tools can also be used for program development
- The following Epson RC+ windows and dialogs can be called from within a .Net application:
  - Robot Manager
  - I/O Monitor
  - Task Manager
  - Maintenance Dialog
  - Simulator
  - Force Monitor



LabVIEW



Visual C

Ad-On instructions (AOI) for Allen-Bradley®

For integration with systems using Allen-Bradley PLC-based programming[1]

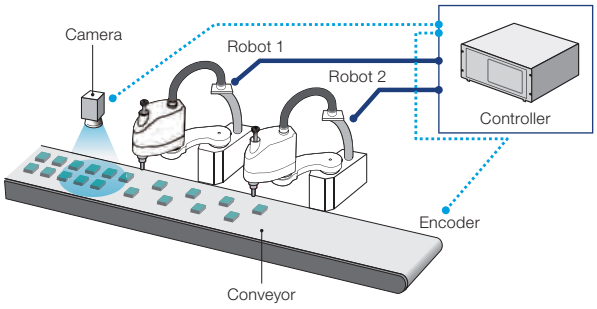
- Ideal for both basic and complex programming tasks—initiates simple solutions or highly structured programs, all with ladder-logic programming
- Single point of control—machine control via a PLC

1 An EtherNet/IP board is required to enable communication between the robot controller and the programmable logic controller.

Conveyor Tracking

Precision tracking for high-productivity pick-and-place operation

- Supports vision- or sensor-based conveyor tracking
- Vision Guide software detects moving parts for pick-and-place handling
- Multi-conveyor, multi-tool setups are supported
- Automate manual kitting/packaging tasks and help maintain productivity with continuous conveyor operation; ideal for product assembly



Fieldbus I/O (Master)

Bidirectional high-speed peripheral connectivity

- Support for DeviceNet, PROFIBUS and EtherNet/IP networked peripherals (1,024-point I/O)
- Requires user PC for master board
- Must be connected to robot controller during operation

Fieldbus I/O (Slave)

High-speed peripheral connectivity

- Support for DeviceNet, PROFIBUS, CC-Link, EtherNet/IP, EtherCAT and PROFINET networked peripherals (256-point I/O)

Teach Pendant TP2

Easy-to-use pendant

- Universal design ensures ease of use for both right-handed and left-handed operators

Teach Pendant TP4

Control, program and monitor your way with the powerful, yet easy-to-use TP4 Teach Pendant

Teach points and monitor status

- Displays simulated 3D model of the robot
- Displays current robot operating conditions
- Edit programs and build functions on pendant
- Verify programs in speed-controlled, hold-to-run test mode

Consistent environment on PC and pendant

- Equipped with the easy-to-use programming environment—Epson RC+
- Program directly on the teach pendant in the text-based programming language SPEL+
- Write, change and update robot settings and programs directly from the pendant

Create custom HMI for your application

- Create a custom user panel with GUI builder
- Monitor the data you need customized for your application
- Develop interfaces specific to your operation

Ergonomic design

- Large 10.1-inch capacitive multi-touch screen

Camera Mounting Bracket

Easily mount cameras to robot arm

Bracket design varies according to robot; please specify model when ordering.

OCR

Optical Character Recognition (OCR) of text on parts and labels

- For use with optional Vision Guide system
- Enables you to specify the font, font size and number of characters of text that you want to read from an image
- A font creation function lets you create SEMI fonts and user-defined fonts from imaged characters or ASCII conversion files

PG Motion System

Control peripheral devices for fully integrated process automation*

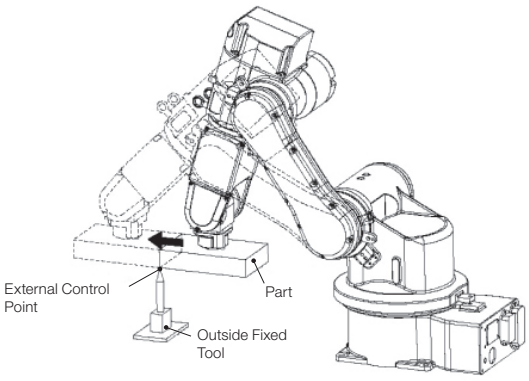
- Epson RC+ Software and pulse generator (PG) cards enable control of multiple third-party drives and motors
- PG robots and standard Epson RC+ system robots can be operated simultaneously and controlled using the same commands
- PG cards can be used to control X/Y tables, slides, rotary tables and a wide range of other production/inspection line peripherals
- Each PG card has 4 channels and can support from 1 to 4 robots; up to 4 cards can be installed on the RC700A

* Drivers and motors for third-party devices not included.

ECP

External Control Point (ECP) operation for precise positioning

- For processes requiring the workpiece to be moved against a fixed tool, external control points can be used to ensure precise positioning
- Up to 16 external control points can be set



RC700A DU Drive Unit

Control multiple robots with a single RC700A controller

Emergency Cable Kit

Convenient wiring of the safety circuit

- Cable and connectors for easy connection of the emergency stop switch

I/O Cable Kit

Cables and connectors for easy connectivity with no soldering required

- A wide range of I/O cables and connectors are available

RS-232C Cards

Expanded Serial port connectivity

- 2-port RS-232C cards to connect to Serial interface devices

I/O Expansion Cards

Expanded input/output flexibility

- 24 inputs/16 outputs per board

Camera Mounting Bracket

Simplifies wiring when mounting end-effector options

- Enables easy, on-site connection of external wiring by users
- Ideal for connecting Vision Guide system camera cables or other wiring

Tool Adapters/ISO Flanges

Enhances handling/processing versatility and simplifies end-effector changes

Brake Release Units

Releases brakes so robot arm can be moved by hand when power is off

Certified Epson Robots Training Courses

Epson offers a wide variety of high-quality, certified courses designed to help you learn how to quickly and effectively program and operate our robot and vision products. Students can attend courses online or in-person at our Epson Training Center in California or at any of our regional Certified Training Centers. All courses are taught by Epson-certified instructors in a structured environment designed for hands-on learning.

Available Courses

Epson RC+ Core 1 Robot Training

Core 1 provides in-person instruction and hands-on labs to get students quickly comfortable using the Epson RC+ environment and Epson SPEL+ programming language, which is used on all Epson SCARA and 6-Axis robots.

Epson RC+ Core 2 Advanced Robot Training

Core 2 focuses on integration of Epson robots into today's complex automation systems. Advanced use of motion control, logic and integration are emphasized in this two-day course.

Epson Vision Guide Training

Designed to get users up and running with the Epson Vision Guide system to create vision sequences for robot motion guidance, inspection and gauging. In this two-day course, students will learn how to configure vision tools and objects and perform calibrations.

Epson RC+ Express No-Code Robot Training

Epson RC+ Express training provides students with hands-on experience creating robotic applications using the latest no-code teaching environment from Epson. This one-day course is ideal for users who are new to automation.

Contact Information

Epson Robots
3131 Katella Ave.
Los Alamitos, CA 90720

epson.com/robottraining

EPSON®

Epson Business Solutions

Driven by a relentless pursuit of innovation and market leadership, Epson empowers organizations to achieve their unique goals through a wide breadth of precision-engineered solutions. With a full suite of efficient and compact products ranging from printers to projectors and robots to microdevices, Epson is uniquely positioned to provide enduring partnerships and world-class expertise to those we serve every step of the way.

Discover how Epson can support your business at **epson.com/forbusiness**

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