

JC-3 Series

Cartesian Robot



The User-friendliness and Functionality of Our Desktop R

Consisting of a robot unit and dedicated controller, the JC-3 Series are user-friendly multifunctional 3 and 4 axes Cartesian robots. Based upon specifying positions using JOG movement and operation selection, the JC-3's teaching system is easy even for new users, making for smooth setup in your facility.

You can also use the many helpful functions such as the camera adjustment function to reduce your setting time.

From its short setup time to its easy adjustability after installation, the JC-3 Series is designed with your overall cost in mind.

Robot Unit

Uses Just the Right Motors to Meet Your Needs

The JC-3 Series uses feedback control stepping motors on the X and Y axes to carry a load up to 8kg, with a maximum acceleration of 5000mm/s² and a top speed of 800mm/s.



Single Sided Type

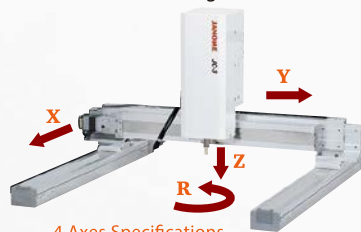
Double Sided Type

Full Lineup

Choose between two types, single or double sided, with a wide range of X, Y, Z axes combinations. Add a rotary axis to the double sided type for a 4 axes specification robot. The JC-3 Series is declared CE compliant.

<4 Axes Specifications>

Through the synchronous control of 4 axes, jobs which are difficult for a 3 axes robot such as dispensing or soldering on the wall of a cylindrical workpiece become much easier. Adding a 4th axis opens the door to even greater manufacturing possibilities.



4 Axes Specifications



Dispensing with 4 Axes

Controller

All-in-One

The controller for both the 3 and 4 axes types comes with our user-friendly teaching software installed. Connect our large display screen teaching pendant for simple, interactive teaching and smooth path traceability.

Comprehensive Interfacing

An Ethernet port (LAN) and 3 COM ports (RS232C) are standard equipment. Install an optional Fieldbus port (such as DeviceNet, CC-Link, PROFIBUS, PROFINET, CANopen and EtherNet/IP).

Not only can you specify a program number and run it from the PLC, you can also specify position coordinates and move the robot axes, as well as rewrite the position coordinates in existing programs.

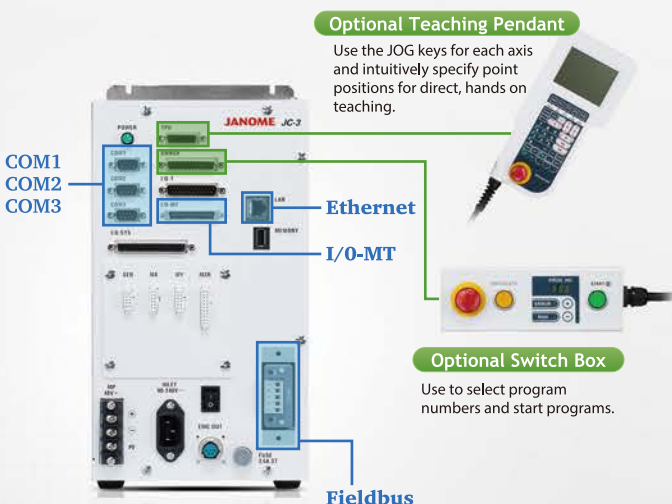
Ample Programming Capacity

With room for up to 32,000 total points in up to 999 total programs, the JC-3 Series has plenty of capacity for small lot production of many different products. Assign a name to each program for easy call-up. Take advantage of a built-in simple sequencer function which operates independently of the robot's movement.

Program Selection Screen

Registered program numbers and names appear on the pendant display.

Select Item	
001	Electrolyte Bath Dispense 1
002	Electrolyte Bath Dispense 2
003	Electrolyte Bath Dispense 3
004	Electrolyte Bath Dispense 4
100	LCD Panel A Dispense
110	LCD Panel B Dispense
120	LCD Panel C Dispense
121	LCD Panel C Dispense Ver. 2
200	Top Cover Dispense
210	Front Seal
220	Pressure Sensor Adhesion 1
225	Pressure Sensor Adhesion 2



Optional Teaching Pendant

Use the JOG keys for each axis and intuitively specify point positions for direct, hands on teaching.

Optional Switch Box

Use to select program numbers and start programs.

I/O-MT Function for up to 2 Additional Motors (Optional)

Teach up to 2 external pulse string input motors the same as with the robot axes to control an elevated angular motor axis or control a conveyor for transporting workpieces.

An example using the I/O-MT

Here is a 4 axes robot with a motor attached for changing the dispensing syringe angle.



Multilingual Teaching Display

Switch freely among 11 different languages on the teaching pendant display.

Display Language	
English	English
Japanese	Japanese
German	German
Italian	Italian
Spanish	Spanish
French	French
Korean	Korean
Simplified Chinese	Simplified Chinese
Czech	Czech
Vietnamese	Vietnamese
Traditional Chinese	Traditional Chinese

Display Language Changing Screen

Robots Loaded Into Versatile 3 & 4 Axes Cartesian Robots.

Software

Easy Teaching

<Dispensing Specifications>

Dispensing application dedicated software is installed in the robot, so there is no need to learn a robot language when teaching basic jobs such as point dispensing, straight line or arc dispensing. Just make JOG movements and select your positions, input your parameters and create your program. With synchronous control of the 3 or 4 axes, and smooth path traceability, high precision dispensing is easy. The "fill-in dispensing function", needs teaching for just a few positions and the setting of wait times before moving and at the program's end to prevent fragmented dispensing, are just two of many convenient functions included in our specialized software.

<Screw Tightening Specifications>

Specialized software also makes teaching screw tightening jobs easy. Set "screw tightening parameters" such as the tightening position(s), screw pitch and length and you have a program. To tighten screws of different lengths in the same program, make multiple settings in the screw tightening conditions. Also, the robot is equipped with error detection functions to alert you when "screw stop errors" and "screw float errors" occur.

*Screw Tightening Specifications are available for 3 axes types only.
(Recommended screw sizes M1.0~M5.0; maximum tightening torque 4.9N·m)

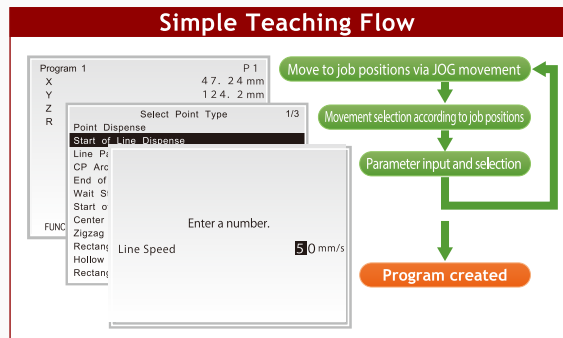
<Standard Specifications>

Setting a line of points and moving the robot axes is the main principle for our Standard Specifications, with the operation done at each point set by using a "point job command".

This robot is useful for PC Board cutting, soldering or as testing device.

<Common Features>

For making position adjustments with a camera, sending signals to an external device or making complicated movements at each point, the robot's language has "point job commands". These consist of easy to learn command strings as well as a full set of individual commands. Other helpful functions such as "customizing functions" and "simple PLC functions" are also built-in.



Fill-in Dispensing Function
Just set 2 or 3 points and fill in an area

Screw Tightening Condition 1	
Type	Full Tightening(With Pickup)
Thread Pitch	0. 2.5 mm
Rotate Speed	6.5 0rpm
Screw Length	8mm
Check Precision	Normal
Float Amount	0. 5 mm
Time after tighten	0. 2sec
Draw Amount	0mm
Screw Amount	0mm
Feeder	
Stop After Feeding	NO
Error Retry	YES



Screw Tightening Conditions Setting Screen

Screw Tightening Robot

Point Job 1	2/3
014	Id DispenserSignalType==1
015	then
016	waitCondTime 500
017	Id #genIn1
018	timeUp
019	reset #genOut1
020	jump L1
021	endWait
022	endif
023	delay DispenseTime*1000
024	reset #genOut1

PLC 1	1/3
001	Id #genIn3
002	and #genIn5
003	out #genOut1
004	mps
005	Id #mv(1)
006	or #mv(2)
007	and #genIn2
008	out #genOut2
009	out #mv(3)
010	mrd
011	and #mv(3)
012	set #genOut3

Point Job Command Setting Screen

Simple PLC Settings Screen

Functions

USB Camera Teaching (PC Software JR C-Points II)

By connecting a store-bought USB camera* to your PC, you can display enlarged images on your PC and set program points. Select movements using the icons for simple, accurate teaching.

Programming Area

Camera Imaging Area
The robot moves to center itself over the position you click on the camera display!
(3 Axes models only)

Basic Operations Area

Robot Operations Area

PC Software JR C-Points II Screen Display
For information about compatible USB cameras, please contact us.

Needle Adjuster (Dispensing Specs Only)

When replacing a syringe or needle tip in the Dispensing Specifications, this function detects the amount of displacement from the original needle tip position and makes a position adjustment. Set up a simple adjustment program once, run it after needle replacement and it makes adjustments automatically. This function is usable with both 3 and 4 axes types.



4 Axes Needle Adjuster
In some cases, adjustments cannot be made due to the needle's condition. Please contact us for details.

Error History Display

This function displays the error history on the screen. Time and date are specified, which is helpful in cause analysis. The error history maintains a record of the most recent 1,000 errors.

Error History		2/2
15/ 7 2014	11:35:32	Error No.082
15/ 7 2014	12:20:45	Error No.007
16/ 7 2014	09:14:20	Error No.103

Error History Display

Error Description		Error No.007
15/ 7 2014	12:20:45	Error No.007
Position is out of range		

Error Description Display

Point Graphic Editing

Use the "graphic editing function" found in the "JR C-Points II" PC software and import CAD data (DXF, Gerber) to create coordinate data graphically. You can also refer to JPEG data and create coordinates, as well graphically map the program path you set to check and edit it.

DXF Data Gerber Data

JPEG Data

Coordinate Data

JC-3 Series Common Specifications

		3 Axes				4 Axes	
Item		JC-3A00-0T3 (Single Sided)		JC-3A00-0H3 (Double Sided)		JC-3B01-0H4 (Double Sided)	
Number of Control Axes		3 (Synchronous Control)				4 (Synchronous Control)	
Stroke	X-Axis Stroke in 100mm Increments	5 lengths, 200 to 600		4 lengths, 300 to 600		4 lengths, 300 to 600	
	Y-Axis Stroke (mm)	200/300		300/400/500		300/400/500	
	Z-Axis Stroke (mm)	50/100/150/200		50/100/150/200		100/150	
	R-Axis Stroke (deg)	N/A		N/A		±360	
Drive Motor		Stepping Motor				Stepping Motor	
		X, Y, Z Axes (Feedback Control)				X, Y Axes (Feedback Control) Z, R Axes (Open Loop Control)	
Maximum Portable Load (kg)		4		8		3	
Max. Speed (PTP Drive) *1	X-Axis Stroke	200~400	500/600	300/400	500/600	300/400	500/600
	X-Axis (mm/sec)	700	800	700	800	700	800
	Y-Axis (mm/sec)	800				800	
	Z-Axis (mm/sec)	400				400	
	R-Axis (deg/sec)	N/A				900	
R-Axis Acceptable Moment of Inertia (kg/cm ²)		N/A				90	
Repeatability *2	X, Y-Axis (mm)	±0.02				±0.02	
	Z-Axis (mm)	±0.02				±0.01	
	R-Axis (deg)	N/A				±0.008	
External Dimensions (mm) (excl. cables and protrusions)	Robot	W : Y-Axis Stroke + 319mm D : X-Axis Stroke + 309mm H : Z-Axis Stroke + 357mm		W : Y-Axis Stroke + 426mm D : X-Axis Stroke + 309mm H : Z-Axis Stroke + 357mm		W : Y-Axis Stroke + 426mm D : X-Axis Stroke + 309mm H : Z-Axis Stroke + 334mm	
	Controller	W170×D310×H300				W170×D310×H300	
Control Method		PTP (Point to Point), CP (Continuous Path)					
Interpolation		3-dimensional linear and arc interpolation					
Teaching Method		Remote Teaching (JOG), Manual Data Input (MDI)					
Teaching Pattern		Direct teaching using optional teaching pendant; Offline teaching using JR C-Points II (optional PC Software) via PC: CAD Data (DXF, Gerber, jpeg) compatible					
Screen Display Options	Measurement Unit	mm, inch					
	Language	English, Japanese, German, Italian, Spanish, French, Korean, Simplified Chinese, Traditional Chinese, Czech, Vietnamese					
Program Capacity		Maximum 999 Programs					
Database Capacity *3		Maximum 32,000 Points					
Simple PLC Function		Maximum 100 Programs (Maximum 1,000 steps/program)					
External Input/Output	I/O-SYS	16 Inputs/ 16 Outputs					
	I/O-1	8 Inputs/ 8 Outputs					
	I/O-MT	Motor Control, Auxiliary Axes 2 Channels (Optional)					
	Fieldbus	CC-Link/DeviceNet/PROFIBUS/PROFINET/CANopen/EtherNet/IP (Optional)					
	COM Port (RS232C)	COM1, COM2, COM3 (for connecting to external devices)					
	EMG OUT	Emergency Stop Signal Input (for connecting to an external safety circuit; set up by the end-user)					
	MEMORY	USB Memory Connector (for saving and reading out teaching & customizing data, and for upgrading system software)					
LAN	PC Connector via the Ethernet (for robot control via control commands and for connection to JR C-Points II PC software)						
Power Supply *4		AC90~240V (single phase) 50/60Hz + external DC48V (depending upon facility supply)					
Power Consumption		150W (AC power supply), 300W (DC48V, motor drive power supply)					
Operating Environment Temperature		0~40 °C					
Relative Humidity		20~85% (non condensing)					
Storage Temperature		-10 °C~50 °C					

<Notes>

- *1 This value reflects the maximum portable load when measured with all the axes assembled. For details about acceleration rates, please contact us or visit our website.
Maximum speed may be unreachable depending upon the tool attachment setup. The X and Y axes individual unit speed and acceleration are 800mm/s and 5000mm/s² respectively.
- *2 Repeatability measured at a constant temperature, so absolute precision is not guaranteed.
- *3 Point memory capacity reduces as additional function data/point job data/sequencer data are added, due to the shared data storage area.
- *4 Please prepare a power supply of AC100V/200V or DC48V on the your side.

<Standard Accessories>

- Power Cable • Teaching Pendant Short Connector • Switch Box Short Connector • EMG-OUT Connector • Operation Manual (CD-ROM) • Controller Wall Attachment Plate

<Options>

- Teaching Pendant (w/Emergency Stop Switch or w/Emergency Stop Switch & Enable Switch) • Cable Set (Robot Unit to Controller Connection Cable) 3m or 5m
- Cableveyor Set (for X and Y Axes) • Switch Box (4 types available; w/ or w/o Select Switch and/or Option Switch) • Internal Power Supply for I/O (24V) • I/O-SYS Cable (2m, 3m or 5m w/connector)
- I/O-1 Cable (2m, 3m or 5m w/connector) • I/O-MT Optional Cord • Screwdriver Unit (for electrical screwdriver attachment) • Microjector (for suction pickup of screws) • Needle Adjuster
- PC Software (JR C-Points II) Windows® 7/Windows® 8.1/Windows® 10 Compatible

- We ship the robot disassembled, packing each axis as an individual unit. Please assemble the robot upon delivery.
- It is possible this robot can meet other specifications not included on this chart. Please contact us for more information.
- Specifications may change without notice to improve product quality.

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