

INDUSTRIAL ROBOTS

SCARA robots for industrial applications



» Reliable and versatile

» Simple programming and quick set-up

» Economical and efficient

A win-win mechatronics proposition

Simplify your machines and reduce the manufacturing time using Scara robots. Flexibility and very wide range allow you to choose exactly the right model for your needs.

Mechanical features based on a simple (optimized) design offer high quality at a very competitive price. Easy programming and minimum maintenance reduce application start-up time and increase machine reliability.

Your benefits:

- Higher reliability (no belts in XG series, no electronic parts in movement)
- Higher precision and speed
- Minimum maintenance
- Easier to use
- Lower cost
- Higher rigidity
- Very compact design



A complete solution for your application

As a machine control specialist, we can offer a more complete mechatronics solution to automate your machine. Our Scara robots simplify applications such as pick & place, assembly, inspection, etc., and they work around the clock, reducing production costs, in accordance with our motto “never stop, never fail”. They also reduce design time by simplifying machine construction and wiring.

Furthermore, their compactness makes their integration into machines easy, while powerful motion-control functions make all applications straightforward. You get the best solution for your application at a very competitive price.



**MINIMUM
MAINTENANCE**



Control, connectivity and vision in one

The RCX240 is the smallest robot controller able to control the complete Scara line-up. It is easy to use because it implements application functions while being a powerful tool that enables low-level programming.

Key features and benefits:




- Simple programming by teaching pendant or software
- Advanced motion functions
- Absolute data
- Separate power source system: control + main power
- Up to 4 optional boards for increased functionality
- Integrated vision system and conveyor tracking function (optional)



RCX240: ONE CONTROLLER FOR ALL ROBOT-MODELS				
Motion	Drive method	PTP (point-to-point) motion, arch motion, linear interpolation, circular interpolation		
	Coordinates	Indirect coordinates, Cartesian coordinates		
	Position indication units	Pulses, mm (millimetres), deg (degrees)		
	Acceleration setting	Automatic acceleration setting based on robot model type and end mass parameter Setting based on acceleration and deceleration parameter (Setting by 1% unit, changeable in the programme) Zone control (optimum speed suitable for the arm position of the SCARA robot)		
Programming	Programme language	Pseudo-Basic (Conforming to JBS B8439 SLIM language)		
	Multitasks	8 tasks	Sequence programme 1 programme	
	Memory size	364 KB: Total of programme and point data, 84KB: Size for programme when maximum numbers of points is used		
	Programmes	100 programme 9,999: maximum lines per programme 98KB: maximum capacity per programme		
	Points	10,000 points: maximum numbers of points		
I/O	Point-data input method	Manual data input (coordinate data input). Direct teaching. Teaching playback, off-line teaching (data input from outside)		
	Memory backup	Lithium battery (service life 4 years at 0°C to 40°C)		
	STD. DIO	I/O Input	General input: 16 points, dedicated input 9 points (NPN/PNP specifications selectable)	
		I/O output	General output: 8 points, dedicated output 11 points	
	SAFETY	Emergency stop input	Relay contact	
		Service mode input	1 point (NPN/PNP specifications is set according to STD. DIO setting)	
	Brake output	Relay contact		
External communications	RS232C: 1CH (D-SUB9 (female)) RS422: 1CH (for RPB only)			
Basic specifications	Maximum power consumption	2500VA	Capacity of the connected motor 1600W	
	Dimensions/Weight	W180 x H250 x D235 mm (main unit only) / 6,5 kg (main unit only)		
	Power supply voltage	Single phase AC200 to 230V, +/- 10% maximum (50/60 Hz)		
	Operating temperature	0°C to 40°C	Storage temperature -10°C to 65°C	
	Operating humidity	35% to 85% RH (non-condensing)	Noise resistance capacity IEC61000-4-4 Level 3	
	Battery for absolute data backup	Lithium battery, data retention time of 1 year		
Options	Parallel DIO board	General purpose input 24 points/board General purpose output 16 points/board (4 boards maximum, compatible with NPN/PNP specifications)		
	CC-Link, DeviceNet, Profibus	Dedicated input 11 points, dedicated output 11 points	General input 96 points, general output 96 points	
	Ethernet	Conforming to IEEE802.3, 10 Mbps (10BASE-T)		
	IVY board	Camera input (2ch), camera trigger input, PC connection input		
	Tracking board	AB phase input, lighting trigger input, PC connection input		
	Lighting control board	Lighting trigger input, lighting power input/output		
	Teaching pendant	RPB, RPB-E	Software for PC	VIP+
PROGRAMMING TOOLS:				
TEACHING PENDANT				
	Display	40 characters 15 lines	Enabling switch Optional	
	Emergency stop switch	Normally closed contact point (with lock function)		
	Serial interface	RS-422: 1CH (dedicated to communication with controllers)		
	Operating temperature	0 to 40°C	Operating humidity 35 to 80% RH (non-condensing)	
	Weight	600g	Cable length 5m, 12m (option)	
	Dimensions	W 180 x H 250 x D 50 mm (Note: projection of emergency stop button is not included.)		
SOFTWARE				
	VIP+	Programming, setup and backup function.		

Wide range providing the performance you need

The wide reach and payload ranges from 120 mm to 1200 mm and from 1 kg to 50 kg, allowing for precise adjustment of the robot to your application. Special versions, such as clean-room and dust/drip-proof types enable installation in critical environments for applications in the food and pharmaceutical industries.

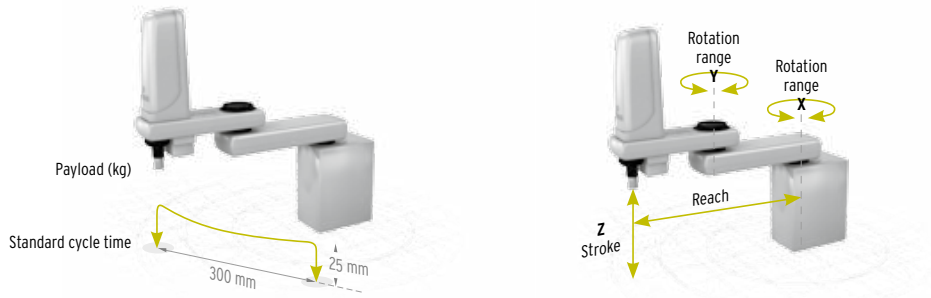
												
STANDARD MODELS		Tiny Robots				X series						
		YK120XG	YK150XG	YK180XG	YK220X	YK250X(H)	YK350X(H)	YK400X(H)				
Max. payload (kg)		1	1	1	1	3	3	3				
Reach (mm)		120	150	180	220	250	350	400				
Repeatability (mm) *1	X,Y ±(mm)	0,005	0,005	0,005	0,01	0,01	0,01	0,01				
	Z ±(mm)	0,01	0,01	0,01	0,01	0,01	0,01	0,01				
	R ±(°)	0,004	0,004	0,004	0,01	0,005	0,005	0,005				
Axis specifications	X	Arm length (mm)	45	75	105	111	125	225	225			
		Rotation range ±(°)	125	125	125	120	115	115	115			
	Y	Arm length (mm)	75	75	75	109	125	125	175			
		Rotation range ±(°)	145	145	145	140	140	140	140			
	Z	Stroke (mm)	50	50	50	100	150	150	150			
	R	Rotation range ±(°)	360	360	360	360	360	360	360			
Maximum speed	X,Y Combined (mm/s)	3300	3400	3300	3400	4000	5000	6000				
	Z (mm/s)	900	900	900	700	1000	1000	1000				
	R (°/s)	1700	1700	1700	1700	1020	1020	1020				
Standard time cycle (sec)		0.33(*2)	0.33 (*2)	0.33 (*2)	0.46 (*2)	0.54 (*3)	0.54 (*3)	0.49 (*3)				
Weight (kg)		6	6,1	6,2	7	15	15	15				
Regeneration unit		N.A.	N.A.	N.A.	N.A.	H: Stroke =300						
												
SPECIAL MODELS		Clean type										
		YK250X(H)	YK350X(H)	YK400X(H)	YK500XC	YK600XC	YK700XC	YK800XC	YK1000XC	YK250XP	YK350XP	
Max. payload (kg)		3	3	3	10	10	20	20	20	3	3	
Reach (mm)		250	350	400	500	600	700	800	1000	250	350	
Repeatability (mm) *1	X,Y ±(mm)	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,01	0,01	
	Z ±(mm)	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	
	R ±(°)	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	
Axis specifications	X	Arm length (mm)	125	225	225	250	350	350	450	550	125	225
		Rotation range ±(°)	115	115	115	120	120	120	120	120	115	115
	Y	Arm length (mm)	125	125	175	250	250	350	350	450	125	125
		Rotation range ±(°)	130	128	143	142	145	145	145	145	130	130
	Z	Stroke (mm)	150	150	150	200(300)	200(300)	200(400)	200(400)	200(400)	150	150
	R	Rotation range ±(°)	360	360	360	360	360	360	360	360	360	360
Maximum speed	X,Y Combined (mm/s)	4000	5000	6000	4900	5600	6700	7300	8000	4000	5000	
	Z (mm/s)	1000	1000	1000	1700	1700	1700	1700	1700	1000	1000	
	R (°/s)	1020	1020	1020	876	876	600	600	600	1020	1020	
Standard time cycle (sec)		0.54 (*3)	0.54 (*3)	0.66 (*3)	0.53 (*3)	0.56 (*3)	0.57 (*3)	0.57 (*3)	0.6 (*3)	0.54 (*3)	0.54 (*3)	
Weight (kg)		16	16	16	31	33	57	58	59	15	15	
Regeneration unit		User wiring: 0.2 sq x 10 wires; User tubing: ø 4 x 3			User wiring: 0.2 sq x 20 wires; User tubing: ø 6 x 3					User wiring: 0.2 sq x 20 wires; User tubing: ø 6 x 3		
		Class 10; Suction volume (NI/min) = 60;										
Regeneration unit		N.A.	N.A.	N.A.	RGU2	RGU2	RGU2	RGU2	RGU2	N.A.	N.A.	

*1 This is the value at constant ambient temperature

*2 With 0.1 kg payload. When reciprocating 100mm in horizontal and 25mm in vertical directions.

*3 With 2 kg payload. When reciprocating 300mm in horizontal and 25mm in vertical directions.

eed...



XG series							Special X
YK500XG	YK600XG	YK600XGH	YK700XG	YK800XG	YK900XG	YK1000XG	YK1200X
10	10	20	20	20	20	20	50
500	600	600	700	800	900	1000	1200
0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,05
0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02
0,004	0,004	0,004	0,004	0,004	0,004	0,004	0,005
200	300	200	300	400	500	600	600
130	130	130	130	130	130	130	125
300	300	400	400	400	400	400	600
145	145	150	150	150	150	150	150
200(300)	200(300)	200(400)	200(400)	200(400)	200(400)	200(400)	400
360	360	360	360	360	360	360	360
7600	8400	7700	8400	9200	9900	10600	7400
2300(1700)	2300(1700)	2300(1700)	2300(1700)	2300(1700)	2300(1700)	2300(1700)	750
1700	1700	1020	1020	1020	1020	1020	600
0.45 (*3)	0.46 (*3)	0.47 (*3)	0.42 (*3)	0.48 (*3)	0.49 (*3)	0.49 (*3)	0.91 (*3)
30	31	48(50)	50(52)	52(54)	54(56)	56(58)	124
RGU3	RGU3	RGU3	RGU3	RGU3	RGU3	RGU3	RGU2

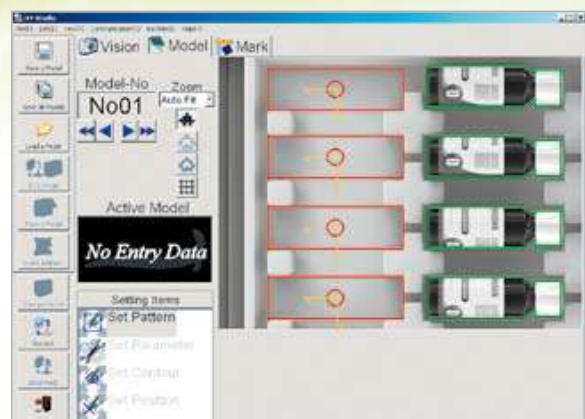
Dust-proof & drip-proof type						Ceiling-hanging type & Inverse type						
YK400XP	YK500XP	YK600XP	YK700XP	YK800XP	YK1000XP	YK300XS	YK400XS	YK500XS	YK600XS	YK700XS	YK800XS	YK1000XS
3	10	10	20	20	20	3	3	10	10	20	20	20
400	500	600	700	800	1000	300	400	500	600	700	800	1000
0,01	0,02	0,02	0,02	0,02	0,02	0,01	0,01	0,02	0,02	0,02	0,02	0,02
0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005
225	250	350	350	450	550	175	225	250	350	350	450	550
115	120	120	120	120	120	115	115	120	120	120	120	120
175	250	250	350	350	450	125	175	250	250	350	350	450
140	145	145	145	145	145	140	140	135	145	145	145	145
150	200(300)	200(300)	200(400)	200(400)	200(400)	150	150	200(300)	200(300)	200(400)	200(400)	200(400)
360	360	360	360	360	360	360	360	360	360	360	360	360
6000	4900	5600	6700	7300	8000	4400	6000	4900	5600	6700	7300	8000
1000	1700	1700	1700	1700	1700	1000	1000	1700	1700	1700	1700	1700
1020	876	876	600	600	600	1020	1020	876	876	600	600	600
0.66 (*3)	0.53 (*3)	0.56 (*3)	0.57 (*3)	0.57 (*3)	0.6 (*3)	0.54 (*3)	0.66 (*3)	0.53 (*3)	0.56 (*3)	0.57 (*3)	0.57 (*3)	0.6 (*3)
15	30	32	56	57	58	15	15	30	32	56	57	58
User wiring: 0.2 sq x 20 wires; User tubing: ø 6 x 3						User wiring: 0.2 sq x 10 wires; User tubing: ø 4 x 3						
N.A.	RGU2	RGU2	RGU2	RGU2	RGU2	N.A.	N.A.	RGU2	RGU2	RGU2	RGU2	RGU2

Vision and conveyor tracking



Vision plus synchronisation

The iVY vision system and the conveyor tracking function simplify the programming of pick & place applications. A robot programme may include robot control, vision processing and conveyor tracking function. Furthermore, the vision system's contour search algorithm can be used in various lighting conditions. And by using the wizard (included), calibration takes just one minute.



The iVY Studio software enables the vision system to be set up in a few steps via a user-friendly interface.

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