New product information



Maximum payload

4 kg

Efficiency In Production

High performance

Standard cycle time

0.41 sec

Backed by Yamaha's 43-year experience of robot making High reliability

Economy Model

For improved efficiency and reliability in production at affordable price

YK400XE

🛞 YAMAHA

LOW COST HIGH PERFORMANCE MODEL

400 mm Arm reach Compact SCARA robot



Standard type: Small type



Ordering method



Note. For details about controller, refer to the RCX340 catalog or view YAMAHA's website

Specification

opecifications							
			X-axis	Y-axis	Z-axis	R-axis	
Axis	Arm length		225 mm	175 mm	150 mm	-	
specifications	Rotation angle		+/-132 °	+/-150 °	-	+/-360 °	
AC servo motor output			200 W	100 W	100 W	100 W	
Deceleration mechanism	Transmission	Motor to speed reducer	Direct-coupled Tim		Timin	ng belt	
	method	Speed reducer to output	Direct-coupled		Timing belt		
Repeatability Note 1			+/-0.01 mm		+/-0.01 mm	+/-0.01 °	
Maximum speed			6 m/sec		1.1 m/sec	2600 °/sec	
Maximum payload			4 kg (Standard specification), 3 kg (Option specifications Note 4)				
Standard cycle time: with 2kg payload Note 2			0.41 sec				
R-axis tolerable moment of inertia Note 3			0.05 kgm ² (0.5 kgfcms ²)				
User wiring			0.2 sq × 10 wires				
User tubing (Outer diameter)			φ 4 × 3				
Travel limit			1.Soft limit 2.Mechanical stopper (X,Y,Z axis)				
Robot cable length			Standard: 3.5 m Option: 5 m, 10 m				
Weight			17 kg				

Note 1. This is the value at a constant ambient temperature. (X,Y axes) Note 2. When reciprocating 300nm in horizontal and 25mm in vertical directions and performing the coarse positioning arch operation.

Note 3. It is necessary to input the moment of inertia in the actual operating environment. Note 4. Maximum payload of option specifications (with user wiring/tubing through spline type) is 3kg.

5

(Stroke end specification)

When performing return-to-origin, move the X-axis and Y-axis counterclockwise and clockwise, respectively in advance from the position shown above.

YK400XE-4 188 (Base size) $4-M3 \times 0.5$ through-hole (No phase relation to R-axis origin.) 60 . 0 6 H7 ^{+0.012} (J_ As this hole is intended for the wiring/tubing clamp, do not attach a large load to it. ්දු 60 50 8 0 140 160 R115 R115 φ27 ↓ **B** 0 60 7.8 7.8 R17 2 View of B 00 <u>φ6</u>H7^{+0.012} 20 6-φ9 M8 bolt for installation. 00 1-00 16+/-0.05 4 or more bolts are used. 30 15 90 74 74 180 Maximum 350 during arm rotation 48 175 225 Working envelope 62.5 652.7 (123.5) (512) X-axis mechanical 495 Maximum 530 during arm rotation stopper position : 134° Y-axis mechanical stopper position : 154° 124.7+/-2 User tubing 1 (¢4 black) Option User wiring and tubing routed through spline shaft. User tubing 2 User wiring connector (Numbers 1 to 10 are usable.) (\$4 red) J.S.T. Connector 10 Holon daneer of 1 SM connector: SMR-11V-B Pin: SYM-001T-P0.6 is across 263 WAMAHA attached. Use AP-K2N for the Width flat 15 crimping machine. 187.8 181 174.8 User tool installation range Cross section A-A 174.3 144 139 134 ٦ 命 User wiring connector (Numbers 1 to 10 are usable.) 124.7+/-2 (Z-axis origin position) J.S.T. Connector SM connector: SMR-11V-B Pin: SYM-001T-P0.6 is 10 10 7.20° ×1.3° 150 stroke Z-axis upper end mechanical stopper position 10mm rise during φ16 h7 -0.018 Đ ł 10 attached. Use AP-K2N for the crimping machine. Z axis s φ35 (Installation 75.5 (); hole seat) return-to-origin 0 M4 ground terminal Standard type User tubing 1 (\phi4 black) User tubing 2 (\phi4 red) 1470+1-20 Tapped hole for user wiring: 6-M4 × 0.7 Depth 8 The weight of the tool attached here should be added to the tip mass. 1 20 19.5 Z-axis lower end mechanical stopper position 4-φ9 User tubing 3 (\$4 blue) Min. cable bending radius R27(*) *Do not move the cable 40 7 25 Keep enough space for the maintenance 00 * 00 work at the rear of the base 5 **(** XY-axis origin position F 2 ē

.009 51

Controller

Controller	Power capacity (VA)	Operation method
RCX340	1000	Programming / Remote command / Operation using RS-232C communication

Note. The movement range can be restricted by adding the X- and Y-axis mechanical stoppers. (The maximum movement range

Y-axis mechanical stoppers. (The maximum movement ran-was set at shipment.) See our robot manuals (installation manuals) for detailed information. To set the standard coordinates with high accuracy, use a standard coordinate setting jig (option). Refer to the user's manual (installation manual) for more details. Note.

Our robot manuals (installation manuals) can be downloaded from our website at the address below: https://global.yamaha-motor.com/business/robot/ LOW COST HIGH PERFORMANCE MODEL



Automating manufacturing process in various fields:

Assembly

Packaging

Palletizing

Sorting

Inspection

С УАМАНА

Labelling

Soldering

Improvement of productivity by high-speed operation

A standard cycle time of 0.41 sec. that is approx. 10% shorter than the conventional model is achieved by reviewing the arm structure to reduce the vibration or optimizing the workpiece motion. High-speed, less-vibration, and agile operation contributes to improvement of the productivity.



Note. For details about the operating conditions, check the basic specifications.

For a wide variety of applications

The maximum payload is 1.4 times larger than the conventional model.

With a totally redesigned drive system and arm structure, maximum payload capacity of YK400XE is now 4 kg. This is 1.4 times larger than current economy type SCARA and will widen a range of application.

Maximum payload





Providing Efficiency and Quality in p

Affordable Price and Improved Performance

Same price range as economy YK400XR, its payload capacity, dynamic performance, and tracking accuracy are drastically improved.



Improved performance in tracking

The tracking accuracy is improved by using optimal parameters for the performance area (actual usage area) and improving the performance of the controller "RCX340". The robot is optimal for precision assembly and sealing operation.

Tracking at a weight of 2 kg and a speed of 750 mm/sec.



In Yamaha YK400XE Acceleration/Deceleration is optimized automatically.

The optimal acceleration and deceleration are automatically selected from the arm posture at the time of operation start and the arm posture at the time of operation end.

The motor peak torque or the tolerable peak torque of the speed reducer is not exceeded by inputting only three parameters*. The full power of the motor is always output to maintain the high acceleration/deceleration.

* Payload, R-axis moment of inertia, and offset amount of R-axis moment of inertia

Inertia of extended arm can be as high as 5 times of that of folded arm



This optimization feature helps:

- Extends service/maintenance period
- Minimizes vibration during operation
- Controllability in motion
- Keeps peak torque within a tolerance to prevent premature failure

Compatible with various field networks

The robot is compatible with full field networks such as CC-Link, EtherNet/IP™, DeviceNet™, PROFIBUS, PROFINET, and EtherCAT.









roduction with Affordable Pricing.

Easier operation in combination with the RCX340 controller

RCX340 comprehensive controller brings out maximum potential of YK400XE robot system. Optional integrated vision system "iVY2" provides simplified image processing. Choice of PC Programming Software or Teaching Pendant available.



Drop-In upgrade by common platform design

Common mounting hole layout enables simple drop-in replacement



Reliability backed by 43-year experience of SCARA robot development

Originally developed in-house to provide durable and accurate motion control in harsh environment of motorcycle manufacturing, Yamaha SCARA robot has been "road tested" and proven over 43 years in various fields.

* The product release was 1984.



Application Examples





Robotics Operations FA Section

127 Toyooka, Kita-ku, Hamamatsu, Shizuoka 433-8103, Japan Tel. +81-53-525-8350 Fax. +81-53-525-8378

URL https://global.yamaha-motor.com/business/robot/ E-MAIL robotn@yamaha-motor.co.jp