

Ultra Compact SCARA Robot

IX-120/150

A Palm-Sized Unit Capable of Driving a Maximum Payload of 1 kg



The IX-120/150 assures a maximum work envelope of 300 mm in a small installation space of 47 mm in width and 132 mm in depth, enabling significant size reduction of your production line.

■ Rated load capacity of 0.2 kg and maximum load capacity of 1 kg (*1)

Despite its compact body, the IX-120/150 can transport a 0.2kg load at high speed. It can drive up to 1 kg if the acceleration is reduced.

(*1) The rated load capacity indicates the maximum weight that can be operated at the maximum speed and acceleration.

The maximum load capacity indicates the maximum weight that can be transported at lower speed and acceleration.

■ High-speed performance of 0.35 second in cycle time (*2)

Designed for enhanced dynamic performance with a highly rigid body, the IX-120/150 boasts outstanding high-speed performance that is among the best in its class.

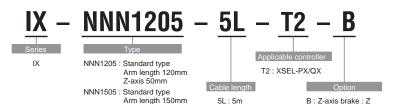
(*2) The cycle time is based on reciprocating movements carrying a 0.2-kg load over a horizontal distance of 100 mm and vertical distance of 25 mm.

Absolute encoder eliminates the need for home return

The IX-120/150 is equipped with an absolute encoder that retains the current position even after the power is turned off.

Model (Refer to the back cover for the controller model.)

Z-axis 50mm



Note

Even if the power is cut off, the Z-axis will not drop as long as the Z-axis load is within the rated load capacity (0.2 kg). If the Z-axis load exceeds the rating, however, the Z-axis may drop when the power is turned off or an emergency stop is actuated.

Options

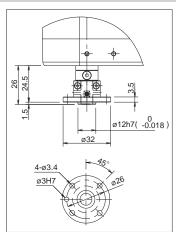
Quality and Innovation

Flange

Model: IX-FL-4

This flange is used to install a load to the Z-axis shaft of the IX-NNN1205 /IX-NNN1505 (weight: 12 g).

Z-Axis Brake



Absolute Reset Adjustment Jig

Model: JG-5 (For arm length of 120/150)
This adjustment jig is used when the absolute data in the encoder was lost and an absolute reset must be executed.

Teaching Pendant

Model : IA-T-X (Standard)
IA-T-XD (With deadman switch)
IA-T-XA (ANSI/ CE Mark compliant type)

This teaching device supports program/position input, test operation, monitoring, etc.

* IA-T-X/XD of version 1.20 or older and IA-T-XA of version 1.10 or older cannot be used with the PX/QX controllers

Absolute Data Backup Battery

Model: AB-6 (For arm length of 120/150)
This absolute data backup battery allows the current position to be retained even after the power is turned off.

PC Software

Model: IA-101-X-MW

With a PC connection cable (D-sub, 9-pin on the PC end): For Windows 95, 98, NT. 2000 and ME.

A startup support tool offering the functions needed to input programs /positions and perform debugging.

* Version 5.0.1.0 or older programs cannot be used with the PX/QX controllers.



Models/Specifications

Model	Axis configuration	Arm length cap	Motor	Motor apacity (W) Work envelope Positioning repeatability (mm)			Load capacity (kg) (Note 3)		Axis 3 Push thrust (N)		Axis 4 Allowable load			
					(mm)	speed (Note 1)	(Note 2)	Rated	Maximum	Push mode (Note 4)	Maximum thrust (Note 4)	inertial moment	Allowable torque (N•m)	
IX-NNN1205-5L-T2	Axis 1	Arm 1	45	12	±115°	±0.005	2053mm/ s							
	Axis 2	Arm 2	75	12	±145°	(XY)	(Composite speed)	0.35	0.2	1.0	9.8	17.8	0.000386	0.13
	Axis 3	Vertical axis	-	12	50mm	±0.010	720mm/ s	0.33	0.2	1.0	9.0	17.0	0.000366	0.13
	Axis 4	Rotating axis	-	60	±360°	±0.005	1800°/s							

Common Specifications

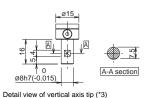
Encoder type	Absolute
User wiring	8-core, AWG26 cable with shield / Connector: SMP-08V-NC (JST)
User tubing	Air tube (O.D. ø3, I.D. ø2) x 2 (Normal working pressure 0.7MPa)
Alarm indicator (Note 6)	Small red LED indicator x 1 (24VDC must be supplied.)

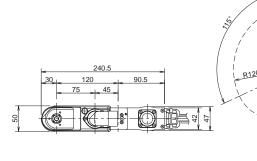
Operating temperature/humidity	Temperature 0~40°C, humidity 20~85% RH or less (non-condensing)
Robot weight	2.7 kg
Cable length	5L:5m

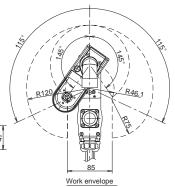
Dimensions

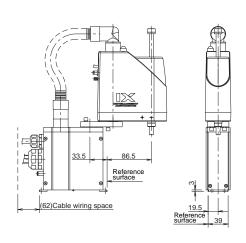
You can download CAD drawings from IAI's website

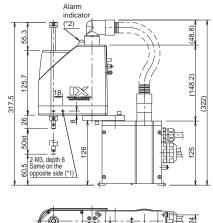


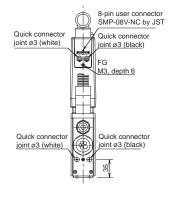


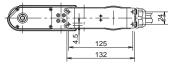












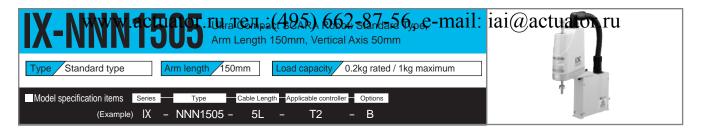
- *1: The 2-M3 hole (depth 6) passes through the arm. If the mounting screw is too long, the screw will contact the internal mechanical parts. Exercise caution.
- *2: To illuminate the alarm indicator, the user must provide a wiring that uses an I/O output signal from the controller to apply 24 VDC to the LED terminal in the user wiring connector.
 *3: The vertical axis does not come with a brake. If the power or servo is turned off, the vertical axis may drop. Exercise caution.

Applicable Controller Specifications

Applicable controller	Feature	Maximum I/O points (input/output)		Page
XSEL-PX	SCARA + 2 robot axes can be controlled.		Three-phase	→Back
XSEL-QX	Conform to safety category 4.	/192 points	200VAC	cover



- (Note 1) Based on PTP operation. In CP operation, the maximum speed is limited.
 (Note 2) The cycle time is based on reciprocating movements carrying a 0.2-kg load over a horizontal distance of 100 mm and vertical distance of 25 mm.
 (Note 3) The rated load capacity indicates the maximum weight that can be operated at the maximum speed and acceleration. The maximum load capacity indicates the maximum weight that can be transported at lower speed and acceleration.
 (Note 4) The thrust in the push mode indicates the force generated when a push command is executed from the program. The maximum thrust corresponds to the maximum force generated during normal positioning operation.
 (Note 5) The allowable inertial moment indicates an equivalent value measured at the rotational center of axis 4. The offset between the rotational center of axis 4 and the gravity center of the tool must not exceed 17.5 mm.
 (Note 6) To use the alarm indicator, the user must provide a circuit that uses an I/O output or other signal to apply 24 VDC to the LED terminal in the user wiring connector.



Models/Specifications

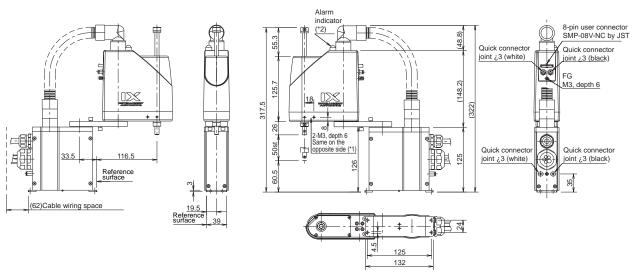
	Axis configuration	Arm length capa	Motor capacity	city Work re	Positioning repeatability (mm)		Cycle time (sec)	Load capacity (kg) (Note 3)		Axis 3 Push thrust (N)		Axis 4 Allowable load		
Model			(W)				(Note 2)	Rated	Maximum	Push mode (Note 4)	thrust	Allowable inertial moment (kg¥m2)(Note 5	Allowable torque (N¥m)	
IX-NNN1505-5L-T2	Axis 1	Arm 1	75	12	-125 _i	-0.005	2304mm/ s							
	Axis 2	Arm 2	75	12	-145 _i	(XY)	(Composite speed)	0.35	0.2	1.0	9.8	17.8	0.000386	0.13
	Axis 3 V	/ertical axis	-	12	50mm	-0.010	720mm/ s	0.33	0.2	1.0	9.0	17.0	0.000366	0.13
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Encoder type	Absolute
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Alarm indicator (Note 6)	Small red LED indicator x 1 (24VDC must be supplied.)

Operating temperature/humidity	Temperature 0~40¡C, humidity 20~85% RH or less (non-condensing)
Robot weight	2.7 kg
Cable length	5L : 5m

Dimensions You can download CAD drawings from IAI s website 270.5 150 90.5 _30 R150 A-A section ₹0.015)8h7(-0.015 Detail view of vertical axis tip (*3) Work envelope Alarm



- *1: The 2-M3 hole (depth 6) passes through the arm. If the mounting screw is too long, the screw will contact the internal mechanical parts. Exercise caution.
- *2: To illuminate the alarm indicator, the user must provide a wiring that uses an I/O output signal from the controller to apply 24 VDC to the LED terminal in the user wiring connector.
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Controller XSEL-PX/QX

Features

Capable of controlling a SCARA robot and up to two single-axis robots

The XSEL-PX/QX performs complex controls with ease, such as controlling a SCARA robot simultaneously with a single-axis robot assembled underneath, or operating a SCARA robot and two-axis cartesian robot at the same time.

Ultra compact size

Despite being a 6-axis controller, the XSEL-PX/QX comes in a slim body (W 340 mm H 195 mm D 125.3 mm), and these dimensions correspond to the size of IAI's 4-axis or smaller controller.

Direct connection to DeviceNet, CC-Link, ProfiBus or Ethernet

The XSEL-PX/QX can be directly connected to various field networks to perform centralized data control or exchange of signals with the various devices connected to the network.



Controller type

- NNN1205 - 200A - 100A - DV - N1 - EEE

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PX4: High-output 4-axis type

PX5: High-output 5-axis type PX6: High-output 6-axis type QX4 : 4-axis type conforming

to safety category QX5: 5-axis type conforming to safety category

QX6: 6-axis type conforming to safety category

20A~750AL : 20W~750W, absolute 20I~750IL

: 20W~750W, incremental

* Axis 5 can be used only when a 5-axis or 6-axis controller is used.

DV : DeviceNet CC : CC-Link : ProfiBus

ET: Ethernet (Blank)

: No network support

* Refer to the separate controller catalog.

3: Three-phase 200VAC

IX actuator type

NNN1205 : Standard type

Arm length 120mm Z-axis 50mm

NNN1505 : Standard type Arm length 150mm Z-axis 50mm

Motor output of axis 6 20A~750AL

20W~750W, absolute 20I~750IL

: 20W~750W, incremental * Axis 6 can be used only when a

Standard I/O N1: 32 input points/16 output points (NPN specification)

P1: 32 input points/16 output points (PNP specification)

E : Not installed

2:2m 3:3m 5:5m

0: Not supplied

I/O flat cable length

6-axis controller is used.

Specifications

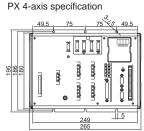
	Standard sp	ecification	Global specification				
	PX4	PX5 / PX6	QX4	QX5 / QX6			
Connectable axes	SCARA only	SCARA + single-axis robot	SCARA only	SCARA + single-axis robot			
Total output when maximum number of axes are connected	2400W						
Control power input	200/2	230VAC, sing	le-phase, -15	%, +10%			
Motor power input	200/2	230VAC, three	e-phase, -10%	%, + 10%			
Power capacity (*1)	310VA	3350VA	310VA	3350VA			
Safety circuit configuration	Redundant not supporte	configuration ed	Redundant configuration not supported				
Drive-source cutoff method	Internal cu	,	External safety circuit				
Enable input	Contact-B input (internal power supply type) (external power supply type)						
Position detection method	Incremental encoder / absolute encoder						
Speed setting (*2)		1mm/ sec ~ 2	2000mm/ sec				
Acceleration/deceleration setting		0.010	3 ~ 1G				
Programming language	Super SEL Language						
Number of program steps	6000 steps (total)						
Number of positions	4000 positions (total)						
Number of programs (multitasking)	64 programs (16 programs)						
Operating temperature / humidity	0~40Ci, 10~95% (non-condensing)						
Controller weight (*3)	5.2kg	5.7kg	4.5kg	5kg			

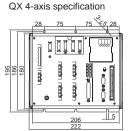
^{*1} For the PX4 and QX4, the value indicates the power capacity when one IX-NNN1205/1505 is operated. For the PX5, PX6, QX5 and QX6, the value indicates the power capacity when one IX-NNN1205/1505 and two 750-watt axes are operated.

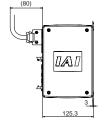
Chicago Office: 1261 Hamilton Parkway, Itasca, IL 60143

External Dimensions

The dimensions below do not include expansion I/Os Please contact IAI should you require expansion I/Os

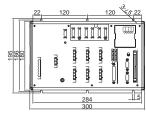


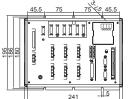




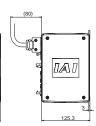
Side view (Common to PX/QX)

PX 6-axis specification





QX 6-axis specification



Side view (Common to PX/QX)



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Website: www.intelligentactuator.com The information contained in this catalog is subject to change without notice for the purpose of product improvement.



² The maximum limit varies depending on the actuator type.

^{*3} The controller weight includes the absolute battery, brake mechanism and expansion I/O box.