

HORIZONTAL ARTICULATED ROBOT

IX





V I S U A L I N D E X

Standard Type

NNN

P11

The standard type combines the best performance and user-friendliness in its class.

The selectable arm length (250 mm to 800 mm) provides the flexibility to accommodate a wide range of applications.



IX-NNN2515	.....	P11
IX-NNN3515	.....	P12
IX-NNN5020 (5030)	.....	P13
IX-NNN6020 (6030)	.....	P14
IX-NNN7020 (7040)	.....	P15
IX-NNN8020 (8040)	.....	P16

High-Speed Type

NSN

P17

The high-speed type offers enhanced performance in high-speed operation by combining a high-output motor with the standard body. It helps reduce cycle times.



IX-NSN5016	.....	P17
IX-NSN6016	.....	P18

Dustproof/ Splash-proof Type

NNW

P19

The dustproof/splash-proof type adopts a protective structure conforming to IP65. This robot can be used in environments subject to powder dust or water splashes.



IX-NNW2515	.....	P19
IX-NNW3515	.....	P20
IX-NNW5020 (5030)	.....	P21
IX-NNW6020 (6030)	.....	P22
IX-NNW7020(7040)	.....	P23
IX-NNW8020(8040)	.....	P24

Wall-Mount Type

TNN

P25

This robot is mounted on a wall for operation. The space below the robot can be utilized effectively, so you will have more freedom in designing your equipment.



IX-TNN3015	.....	P25
IX-TNN3515	.....	P26

**Wall-Mount
Inverse Type**

UNN

This robot is the same as the wall-mounting type (TNN), but it is installed upside down. UNN is ideal for applications where the robot must handle loads located above it.



P25

- IX-UNN3015 P25
- IX-UNN3515 P26

Ceiling Mount Type

HNN

This robot is mounted on a ceiling for operation. The space below the robot can be utilized effectively, so you will have more freedom in designing your equipment.



P27

- IX-HNN5020 P27
- IX-HNN6020 P28
- IX-HNN7020(7040) P29
- IX-HNN8020(8040) P30

**Ceiling Mount Inverse Type
(Tabletop Mount)**

INN

This robot is the same as the ceiling mount type (HNN), but it is installed upside down. INN is ideal for applications where the robot must handle loads located above it.



P27

- IX-INN5020 P27
- IX-INN6020 P28
- IX-INN7020(7040) P29
- IX-INN8020(8040) P30

Clean Room Type

NNC

This robot generates minimal particles and is ideal for operation in a clean room environment. The air inside the robot can be vacuumed if conformance to cleanliness class 10 is required.



P31

- IX-NNC2515 P31
- IX-NNC3515 P32
- IX-NNC5020 (5030) P33
- IX-NNC6020 (6030) P34
- IX-NNC7020 (7040) P35
- IX-NNC8020 (8040) P36

New Horizontal Articulated Robot IX Series Achieves Class Top Performance and High Cost Performance

The IX Series achieved the best-in-class specification in every aspect—from high-speed performance and load capacity to positioning repeatability—after reviewing and redesigning all the components of the conventional IH Series robots. The IX Series also outdistances its rivals in user-friendliness, lineup and cost performance.

High-Performance

1. Highest Speed, Load Capacity and Accuracy in Its Class

Standard cycle time: 0.44 sec (*1)

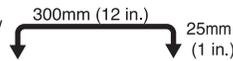
Positioning repeatability: ± 0.01 mm/ $\pm 0.005^\circ$ (*2)

Maximum load capacity: 20 kg (*3)

*1 The standard cycle time refers to the time required to cycle back and forth over a vertical distance of 25 mm and horizontal distance of 300 mm (rough positioning).

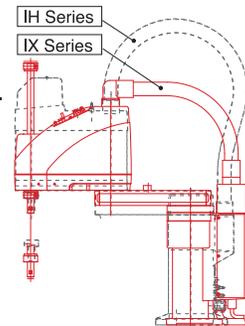
*2 If the arm length is 700/800, the repeatability becomes ± 0.015 mm/ $\pm 0.005^\circ$.

*3 Based on an arm length of 700/800.



2. Compact and Rigid

The IX Series is significantly smaller compared with the conventional IH Series robots.



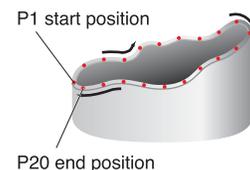
The IX Series achieved enhanced rigidity in a lightweight body by comprising arm 1 using aluminum extruded material. This helped reduce the inertial load.



3. Markedly Improved Tracing Accuracy and Interpolation Function

The IX Series offers a markedly improved tracing accuracy as a result of higher controller processing speed and rigid robot construction.

The robot can also perform three-dimensional arc/pass motions to allow for easy, accurate dispensing operation.



Path movement that consists of many points can be implemented with a single program line.

Command	Operand 1	Operand 2
PATH	P1	P20

Easy

4. Greater Ease of Use

An easy-to-use D-sub/25-pin connector is provided on top of the robot for user wiring. The user can also connect two $\phi 4$ tubes and two $\phi 6$ tubes to meet various tubing needs.

The brake-release switch on the robot lets you release the brake even when the controller power is off (*1). The alarm indicator alerts you on each error generated in the robot (*2).



*1 24 VDC power must be supplied regardless of whether or not the brake-release switch is used.

*2 The alarm indicator must be wired by the user.

5. Easy Programming

The IX Series adopts Super SEL Language, a well-known command language used by IAI Cartesian robots.

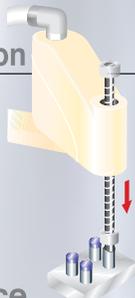
With Super SEL, complex operations can be programmed easily. You can create desired programs right away without much knowledge of robot language.



Plus α

6. Z-Axis Push Motion Function

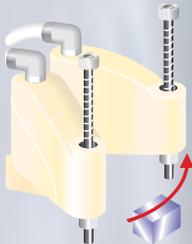
The Z-axis (vertical axis) can be pressed against the load, so you can use the robot to press-fit loads or control push force.



7. Simple Interference Check Zone Function

A maximum of 10 interference check zones can be set inside the robot's work envelope. When the load enters a check zone, the robot will inform you with a signal output. Use this function to conduct test operation at low speed.

* The load must remain inside a zone for at least 5 msec to ensure accurate detection.



8. Complete Absolute Operation

All models adopt a 17-bit serial absolute encoder, so accurate positioning can be performed without homing each time.

If a need arises, an absolute reset can be performed easily and accurately using a dedicated jig (refer to "Robot Options" on P. 8).

Variation

9. Widest Variations in the Industry

The IX Series provides the following six variations to choose from:

- Standard type
- High-speed type
- Clean room type
- Dustproof/splash-proof type
- Wall mount/inverse type
- Ceiling mount/inverse type

Select one that best suits your intended application.

Specifications

Type		Arm length (mm), maximum composite speed (mm/s)						Standard cycle time (sec)	Load capacity (*1)		Vertical axis stroke		Model	Page
		250 mm	350 mm	500 mm	600 mm	700 mm	800 mm		Rated (kg)	Maximum (kg)	Standard (mm)	Optional (mm)		
Standard type NNN		3142 mm/s						0.46	1	3	150	-	IX-NNN2515	P11
			3979 mm/s					0.53	1	3	150	-	IX-NNN3515	P12
				6283 mm/s				0.44	2	10	200	300	IX-NNN5020(5030)	P13
					7121 mm/s			0.52	2	10	200	300	IX-NNN6020(6030)	P14
						6597 mm/s		0.50	5	20	200	400	IX-NNN7020(7040)	P15
					7121 mm/s		0.52	5	20	200	400	IX-NNN8020(8040)	P16	
High-speed type NSN				4712 mm/s				0.29 to 0.30	1	3	160	-	IX-NSN5016	P17
					5236 mm/s				0.38 to 0.39	1	3	160	-	IX-NSN6016	P18
Dustproof splash-proof type NNW		3142 mm/s						0.51	1	3	150	-	IX-NNW2515	P19
			3979 mm/s					0.59	1	3	150	-	IX-NNW3515	P20
				6283 mm/s				0.49	2	10	200	300	IX-NNW5020(5030)	P21
					7121 mm/s			0.55	2	10	200	300	IX-NNW6020(6030)	P22
						6597 mm/s		0.52	5	20	200	400	IX-NNW7020(7040)	P23
					7121 mm/s		0.52	5	20	200	400	IX-NNW8020(8040)	P24	
Wall-mount type TNN		3560 mm/s						0.49	1	3	150	-	IX-TNN3015	P25
			3979 mm/s					0.53	1	3	150	-	IX-TNN3515	P26
Wall-mount inverse type UNN		3560 mm/s						0.49	1	3	150	-	IX-UNN3015	P25
			3979 mm/s					0.53	1	3	150	-	IX-UNN3515	P26
Ceiling-mount type HNN				6283 mm/s				0.44	2	10	200	-	IX-HNN5020	P27
					7121 mm/s			0.52	2	10	200	-	IX-HNN6020	P28
						6597 mm/s		0.50	5	20	200	400	IX-HNN7020(7040)	P29
							7121 mm/s	0.52	5	20	200	400	IX-HNN8020(8040)	P30
Ceiling-mount inverse type INN				6283 mm/s				0.44	2	10	200	-	IX-INN5020	P27
					7121 mm/s			0.52	2	10	200	-	IX-INN6020	P28
						6597 mm/s		0.50	5	20	200	400	IX-INN7020(7040)	P29
							7121 mm/s	0.52	5	20	200	400	IX-INN8020(8040)	P30
Clean room type NNC		3142 mm/s						0.49	1	3	150	-	IX-NNC2515	P31
			3979 mm/s					0.58	1	3	150	-	IX-NNC3515	P32
				6283 mm/s				0.47	2	10	200	300	IX-NNC5020(5030)	P33
					7121 mm/s			0.54	2	10	200	300	IX-NNC6020(6030)	P34
						6597 mm/s		0.52	5	20	200	400	IX-NNC7020(7040)	P35
					7121 mm/s	0.52	5	20	200	400	IX-NNC8020(8040)	P36		

(*1) The rated load capacity indicates the maximum load that can be carried at the maximum operating speed. The maximum load capacity indicates the maximum load that can be carried at a reduced acceleration rate.

IX Series Points to Note

<SCARA Type XI-NNN/NSN/NNW/TNN/UNN/HNN/INN/NNC>

(Note 1)
Positioning repeatability

“Positioning repeatability” refers to the positioning accuracy of repeated movements to a pre-stored position. This is not the same as “absolute positioning accuracy.”
The specified positioning repeatability is measured in an ambient temperature of 20°C constant.

(Note 2)
Maximum operating speed

The specified maximum operating speed represents the speed of PTP command operation. High-speed movement will be limited in CP command operation (interpolation operation).

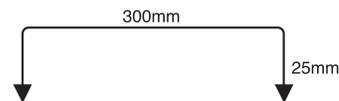
(Note 3)
Standard cycle time

“Standard cycle time” refers to the time required to cycle back and forth over a vertical distance of 25 mm and horizontal distance of 300 mm (rough positioning).

<Caution>

The specified cycle time is based on a 2-kg load (5-kg load if the arm length is 700/800) and the maximum operating speed.

~~The robot cannot operate continuously at the maximum speed.~~

**(Note 4)**
Axis 3 push force

“Axis 3 push force” represents the push force applied by the tip of the vertical axis. The value under “Push action” indicates the maximum push force to be applied when a programmed push command is executed. The value under “Maximum thrust” indicates the maximum thrust in a normal positioning operation. When a push action is performed during a normal positioning operation, a force corresponding to three times the maximum thrust may apply momentarily. When performing a push action, be sure to use a programmed push command.

(Note 5)
Axis 4 allowable inertial moment

“Axis 4 allowable inertial moment” indicates the allowable inertial moment of axis 4 (rotating axis) of the SCARA robot as calculated at the center of rotation.
The offset from the center of rotation of axis 4 to the tool gravity center must be within 40 mm. If the tool gravity center is further away from the center of axis 4, the speed and/or acceleration rate must be reduced as necessary.

(Note 6)
Alarm indicator

The alarm indicator is located on top of arm 2 of the SCARA robot.
The alarm indicator can be wired in such a way that it will illuminate in a certain condition such as when the controller generates an error. To use the alarm indicator, the user must provide a circuit that responds to the controller's I/O output signal to supply 24 VDC to the applicable LED terminal in the user wiring.

(Note 7)
Brake-release switch

The brake-release switch is also located on top of the robot's arm 2 near the alarm indicator.
To release the brake, 24 VDC power must be supplied regardless of whether or not the brake-release switch is used. (Supply 24 VDC from a dedicated power supply separate from the 24 VDC power used for driving the I/Os.)

(Note 8)
Cable length

The motor and encoder cables of the SCARA robot are directly connected to the robot. The IX Series doesn't use a cable joint, so changing the cable length on the delivered robot will be difficult.
Select either 5 m (code 5L) or 10 m (10L) as the desired cable length when ordering. (The air tube length is 150 mm.)

(Note 9)
Protection grade (protective structure)

This grade indicates the level of actuator protection against water and solid foreign matters.
IP65 The actuator is protected against solid foreign matters to a degree where dust will not enter the actuator.
The actuator is protected against water intrusion to a degree where the actuator will not be negatively affected by water injected at a given angle.

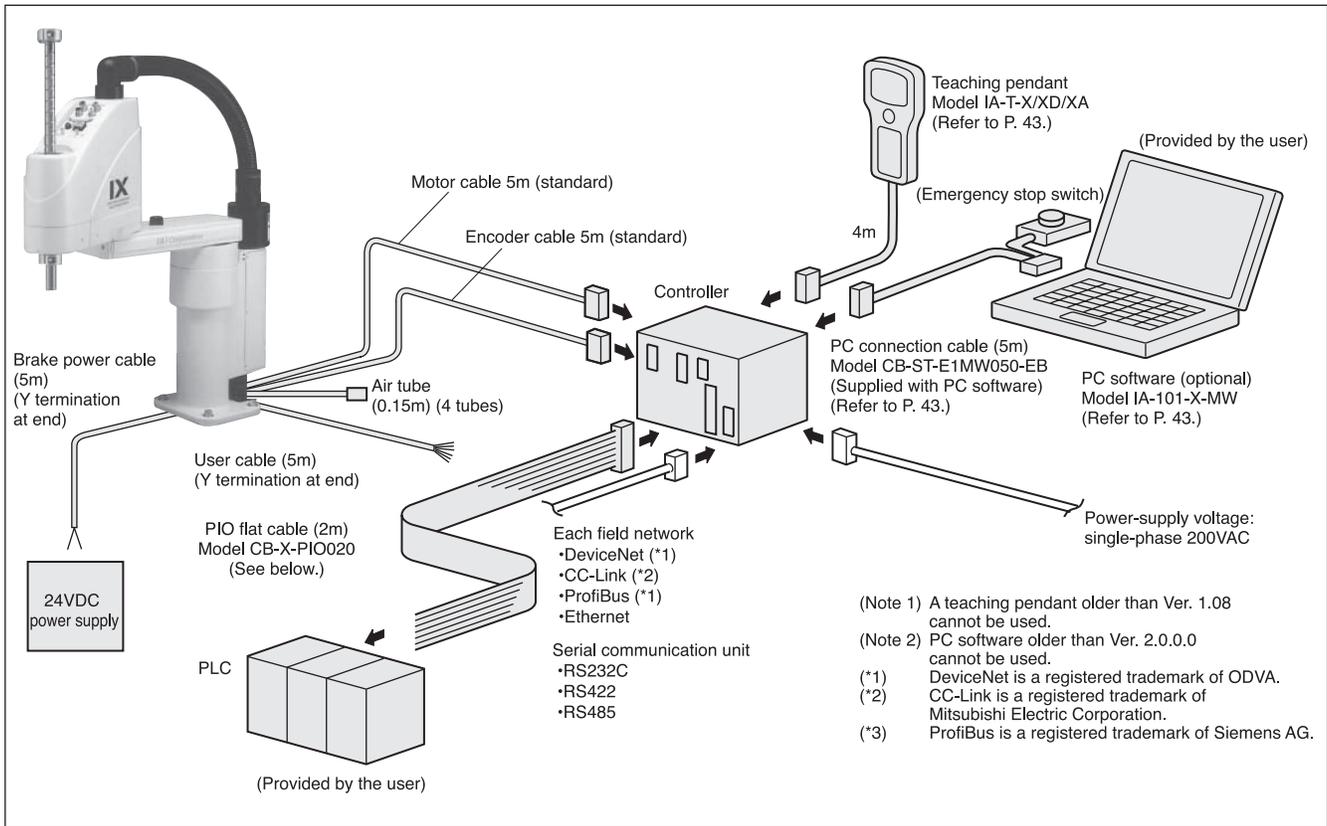
(Note 10)
Air purge pressure

To use the dustproof/splash-proof type in an IP65 environment, air must be supplied from the air inlet located at side (or back) of the robot base (to perform air purge). The air purge pressure must conform to the common specification applicable to all robot types. (Supplied air must be clean, dry air of atmospheric pressure with a dew-point temperature of -20°C or below.)

(Note 11)
Internal vacuuming

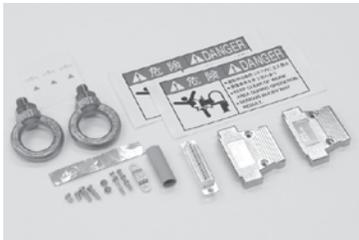
To use the clean type in an environment of cleanliness class 10, the air inside the robot must be vacuumed from the air suction outlet located at side (or back) of the robot base. The suction rate must conform to the common specification applicable to all robot types.

IX Series System Configuration Drawing



Robot Accessories

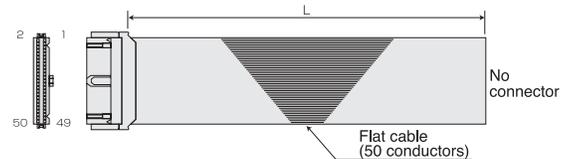
- Caution labels
- Positioning seals
- Eyebolts
- Service connectors



Controller Accessory

- PIO flat cable Model CB-X-PIO

※ Enter the desired cable length (L) of up to 10 m in ooo. Example) 080 = 8m



No.	Color	Wire	No.	Color	Wire	No.	Color	Wire
1	Brown 1		18	Gray 2		35	Green 4	
2	Red 1		19	White 2		36	Blue 4	
3	Orange 1		20	Black 2		37	Purple 4	
4	Yellow 1		21	Brown 3		38	Gray 4	
5	Green 1		22	Red 3		39	White 4	
6	Blue 1		23	Orange 3		40	Black 4	
7	Purple 1		24	Yellow 3		41	Brown 5	
8	Gray 1		25	Green 3		42	Red 5	
9	White 1	Flat cable	26	Blue 3	Flat cable	43	Orange 5	Flat cable
10	Black 1		27	Purple 3		44	Yellow 5	
11	Brown 2		28	Gray 3		45	Green 5	
12	Red 2		29	White 3		46	Blue 5	
13	Orange 2		30	Black 3		47	Purple 5	
14	Yellow 2		31	Brown 4		48	Gray 5	
15	Green 2		32	Red 4		49	White 5	
16	Blue 2		33	Orange 4		50	Black 5	
17	Purple 2		34	Yellow 4				

Robot Options

Name	Model	Description	Page
Absolute Data Storage Battery	AB-3	Battery for storing the encoder's absolute data	P8
Absolute Reset Adjustment Jig	JG-1~3	Jig needed to execute an absolute reset	
Flange	IX-FL-1~3	Flange used to install to the tip of the Z-axis	

Controller Options

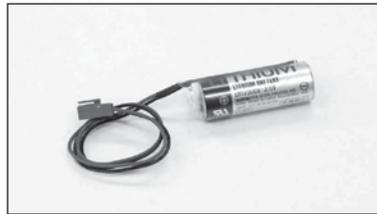
Name	Model	Description	Page
Teaching Pendant	IA-T-X	Allows for input and editing of position data, programs, parameters, etc., as well as manual operations.	P43
Teaching Pendant (With Deadman Switch)	IA-T-XD	IA-T-X equipped with a deadman switch	
Teaching Pendant (ANSI)	IA-T-XA	CE/ANSI-compliant type	
PC Software (DOS/V)	IA-101-X-MW	Allows for input and editing of position data, programs, parameters, etc., as well as manual operations.	
PC Software (PC98)	IA-101-X-CW		

Robot Options

Absolute Data Backup Battery

This battery is used to store the encoder's absolute data. (Install the battery inside the rear cover of the SCARA robot.)

Model	Remarks
AB-3	Common to all models

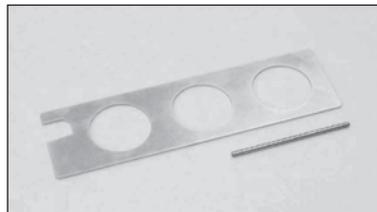


AB-3

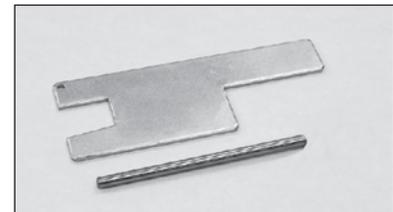
Absolute Reset Adjustment Jig

An appropriate adjustment jig is used to execute an absolute reset when the encoder's absolute data was lost.

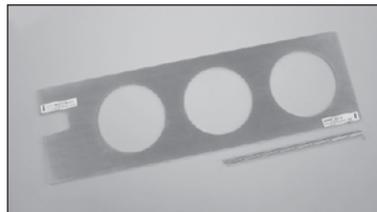
Model	Remarks
JG-1	Arm length 500/600
JG-2	Arm length 250/350
JG-3	Arm length 700/800



JG-1



JG-2

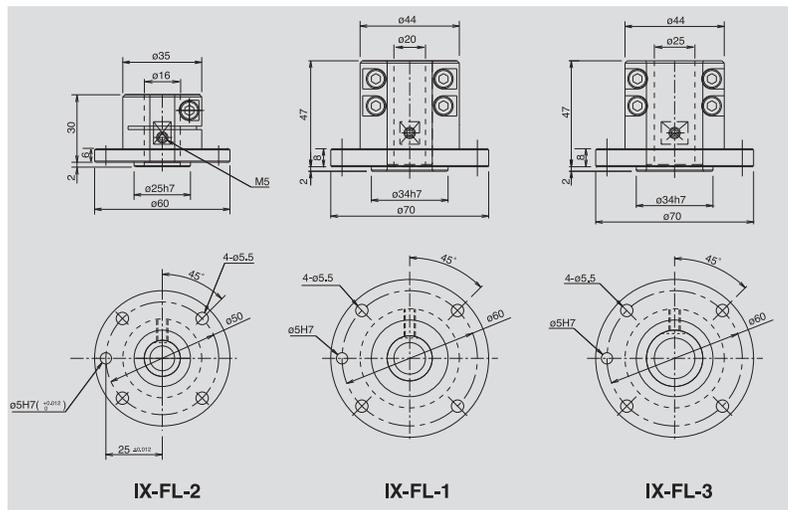


JG-3

Flange

Use an appropriate flange when mounting to the tip of the Z-axis arm.

Model	Remarks
IX-FL-1	Arm length 500/600
IX-FL-2	Arm length 250/350
IX-FL-3	Arm length 700/800



IX-FL-2

IX-FL-1

IX-FL-3

Unit Series Explanation of SCARA Robot Model Items

Refer to the opposite page for details on each model item (① through ⑧). The selection range for each item will vary depending on the robot type. For details, refer to the page corresponding to each model type.

		①	②	③	④	⑤	⑥	⑦	⑧
		Series	Model	Cable length	Controller type	Standard PIO	Expansion I/O	I/O flat cable length	Power-supply voltage
1	SCARA robot, standard type	IX	NNN2515 NNN3515 NNN5020 NNN5030 NNN6020 NNN6030 NNN7020 NNN7040 NNN8020 NNN8040	—	—	—	—	—	—
2	SCARA robot, high-speed type		NSN5016 NSN6016	—	—	—	—	—	—
3	SCARA robot, dustproof/splash-proof type		NNW2515 NNW3515 NNW5020 NNW5030 NNW6020 NNW6030 NNW7020 NNW7040 NNW8020 NNW8040	—	—	—	—	—	—
4	SCARA robot, wall-mount type (inverse type)		TNN3015 (UNN3015) TNN3515 (UNN3515)	—	—	—	—	—	—
5	SCARA robot, ceiling-mount type (inverse type)		HNN5020 (INN5020) HNN6020 (INN6020) HNN7020 (INN7020) HNN7040 (INN7040) HNN8020 (INN8020) HNN8040 (INN8040)	—	—	—	—	—	—
6	SCARA robot, clean room type		NNC2515 NNC3515 NNC5020 NNC5030 NNC6020 NNC6030 NNC7020 NNC7040 NNC8020 NNC8040	—	—	—	—	—	—
				5L 10L	KX JX	N1 N3 P1 P3 DV CC PR ET	EEE, etc.	2 3 5 0	2

Unlike other models, the SCARA robot is ordered as a combination of robot and controller.

Items ① through ③ specify the SCARA robot.

Items ④ through ⑧ specify the controller.

① Series

Indicate the name of each series.

③ Cable length

Indicate the length of the cable connecting the robot and the controller.

Select either 5L (5 m) or 10L (10 m).

Unlike a single-axis robot, the IX Series does not adopt a joint cable.

The cable comes out directly from the robot.

⑤ Standard PIO specification

Indicate the specification of the controller is standard I/O slot.

* N3 and P3 are dedicated options for the JX controller and cannot be specified for the KX controller.

N1 : [NPN standard PIO] An NPN PIO board with 32 input points and 16 output points is installed (standard).

N3 : [NPN multipoint PIO] An NPN multipoint PIO board with 48 input points and 48 output points is installed (dedicated option for the JX controller).

P1 : [PNP standard PIO] A PNP PIO board with 32 input points and 16 output points is installed.

P3 : [PNP multipoint PIO] A PNP multipoint PIO board with 48 input points and 48 output points is installed (dedicated option for the JX controller).

DV : [DeviceNet connection specification] A DeviceNet connection board with a maximum of 256 input points and 256 output points is installed.

CC : [CC-Link connection specification] A CC-Link connection board with a maximum of 256 input points and 256 output points is installed.

PR : [ProfiBus connection specification] A ProfiBus connection board with a maximum of 256 input points and 256 output points is installed.

ET : [Ethernet connection specification] An Ethernet connection board offering data communication capability is installed.

⑥ Expansion I/O specification

Indicate the specification of the controller's expansion slot.

An expansion board can be installed in slot 1, 2 or 3 of the KX controller, or in slot 1 of the JX controller.

Use a three-digit code (EEE) to specify the slot type. In the case of the JX controller having only one expansion slot, specify the slot using the first digit and leave "E" in the remaining two digits (□EE).

* C, N3, P3, SA, SB and SC are dedicated options for the KX controller and cannot be specified for the JX controller.

E : [Unused] Expansion board is not used.

C : [CC-Link connection specification] A CC-Link connection board with 16 input points and 16 output points is installed (dedicated option for the KX controller).

N1 : [NPN expansion PIO] An NPN PIO board with 32 input points and 16 output points is installed.

N2 : [NPN expansion PIO] An NPN PIO board with 16 input points and 32 output points is installed.

N3 : [NPN multipoint PIO] An NPN multipoint PIO board with 48 input points and 48 output points is installed (dedicated option for the KX controller).

P1 : [PNP expansion PIO] A PNP PIO board with 32 input points and 16 output points is installed.

P2 : [PNP expansion PIO] A PNP PIO board with 16 input points and 32 output points is installed.

P3 : [PNP expansion PIO] A PNP PIO board with 48 input points and 48 output points is installed (dedicated option for the KX controller).

SA : [Expansion SIO type A] An RS232C communication board is installed (dedicated option for the KX controller).

SB : [Expansion SIO type B] An RS422 communication board is installed (dedicated option for the KX controller).

SC : [Expansion SIO type C] An RS485 communication board is installed (dedicated option for the KX controller).

⑦ I/O flat cable length

Indicate the length of the cable used for transmitting signals between the controller and the PLC.

One cable is supplied with one I/O board installed in the standard slot or each expansion slot.

2: 2m

3: 3m

5: 5m

0: None (Specify this number if you have installed a network board instead of a standard I/O board.)

② Model

Indicate the model type (standard, high-speed, dustproof/splash-proof, wall-mount or ceiling-mount), arm length and Z-axis length.

NNN Standard type UNN Wall-mount type (inverse type)

NSN High-speed type HNN Ceiling-mount type

NNW Dustproof/splash-proof type INN Ceiling-mount type (inverse type)

TNN Wall-mount type

④ Controller type

Select a dedicated controller (KX or JX type) for the SCARA robot.

* Only the KX type may be specified if the arm length is 500 or longer.

⑧ Power-supply voltage

Indicate the main power-supply voltage for the controller. The power-supply voltage is fixed to single-phase 200 VAC for a SCARA controller.

IX-NNN2515

Small SCARA Robot Standard Type: Arm Length 250mm, Vertical (Z) Axis 150mm



Type / Standard type Arm length / 250mm Load capacity / 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
 (Example) IX - NNN2515 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

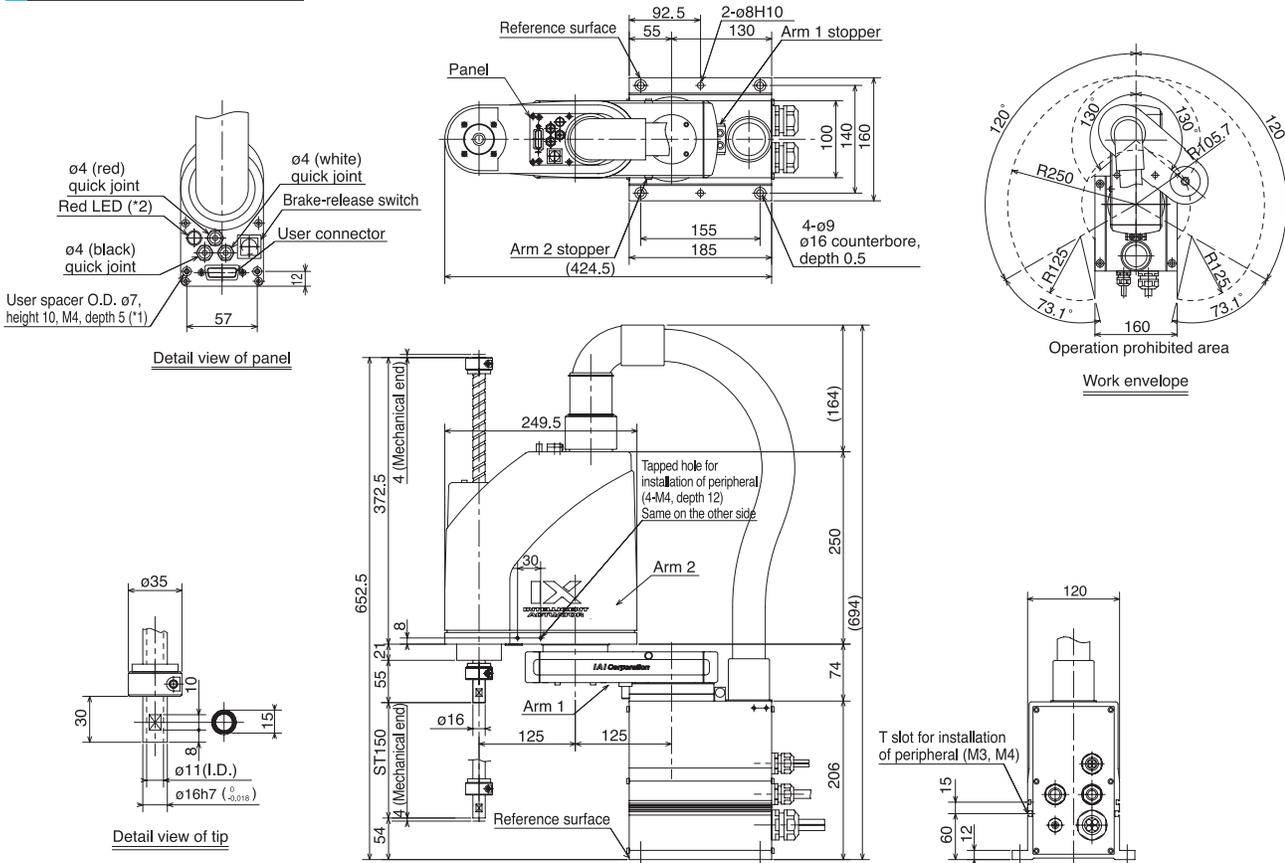
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNN2515-5L-□-□-□-□-2	Axis 1	Arm 1	125	200	±120°	±0.010	3142mm/s (Composite speed)	0.46	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±130°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	360°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	15-conductor AWG26 D-sub/15-pin connector with shield (socket)	Robot weight	17.1kg
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.

*2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Cables/tubes

- Motor/encoder cable 5m/10m
- User cable 5m/10m
- Brake power cable 5m/10m
- Air tube (3 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNN50

IX Medium SCARA Robot Standard Type:
Arm Length 500mm, Vertical (Z) Axis 200mm (300mm)



Type / Standard type Arm length / 500mm Load capacity / 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNN5020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

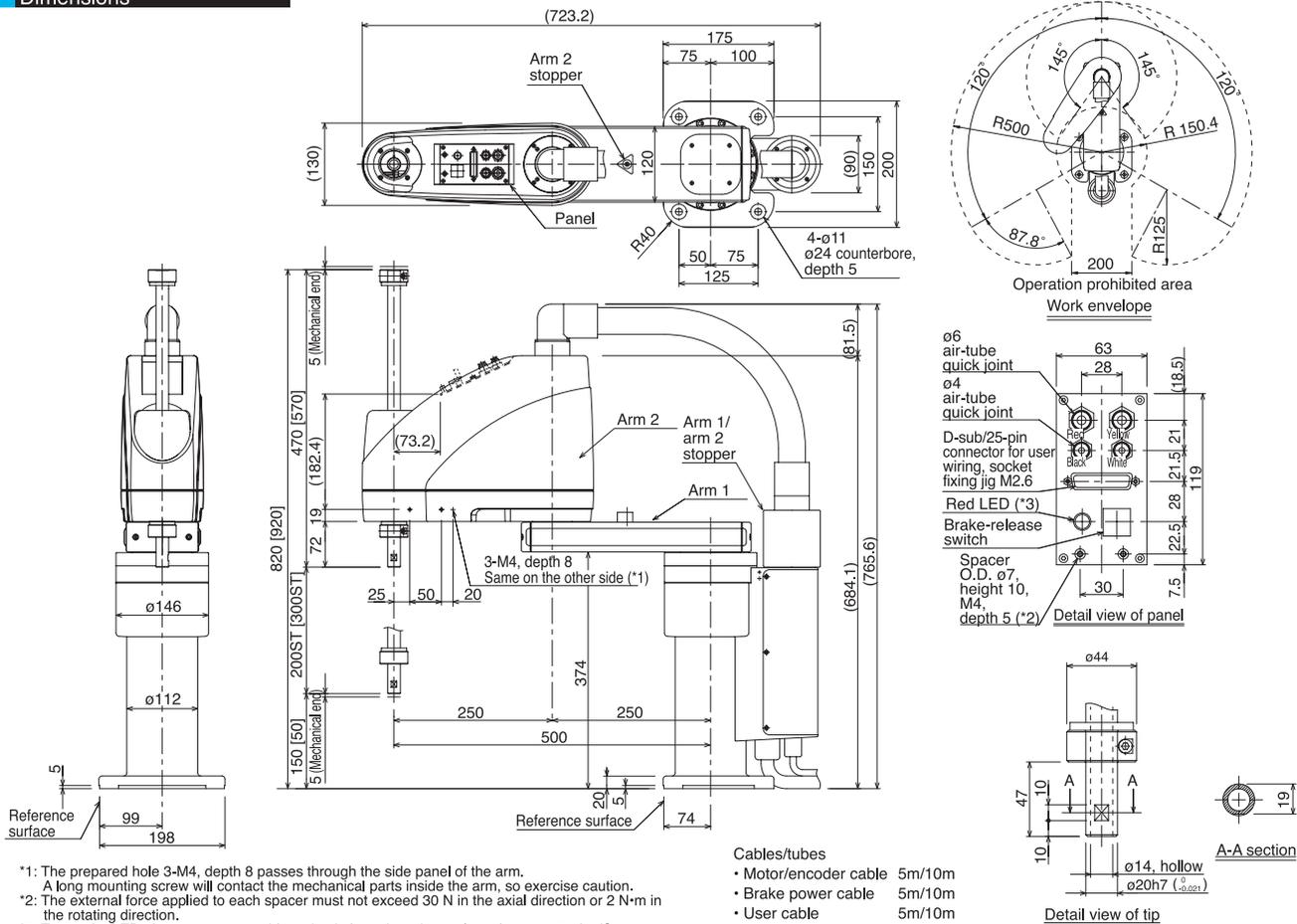
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNN5020-5L-KX-□-□-□-2 [IX-NNN5030-5L-KX-□-□-□-2]	Axis 1 Arm 1	250	400	±120°	±0.010	6283mm/s (Composite speed)	0.44	2	10	108	152	0.06	3.3
	Axis 2 Arm 2	250	200	±145°									
	Axis 3 Vertical axis	-	200	200mm [300mm]	±0.010	1393mm/s							
	Axis 4 Rotating axis	-	100	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	29.5kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



- *1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm. A long mounting screw will contact the mechanical parts inside the arm, so exercise caution.
- *2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
- *3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNN60

IX Medium SCARA Robot Standard Type:
Arm Length 600mm, Vertical (Z) Axis 200mm (300mm)



Type / Standard type Arm length / 600mm Load capacity / 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNN6020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

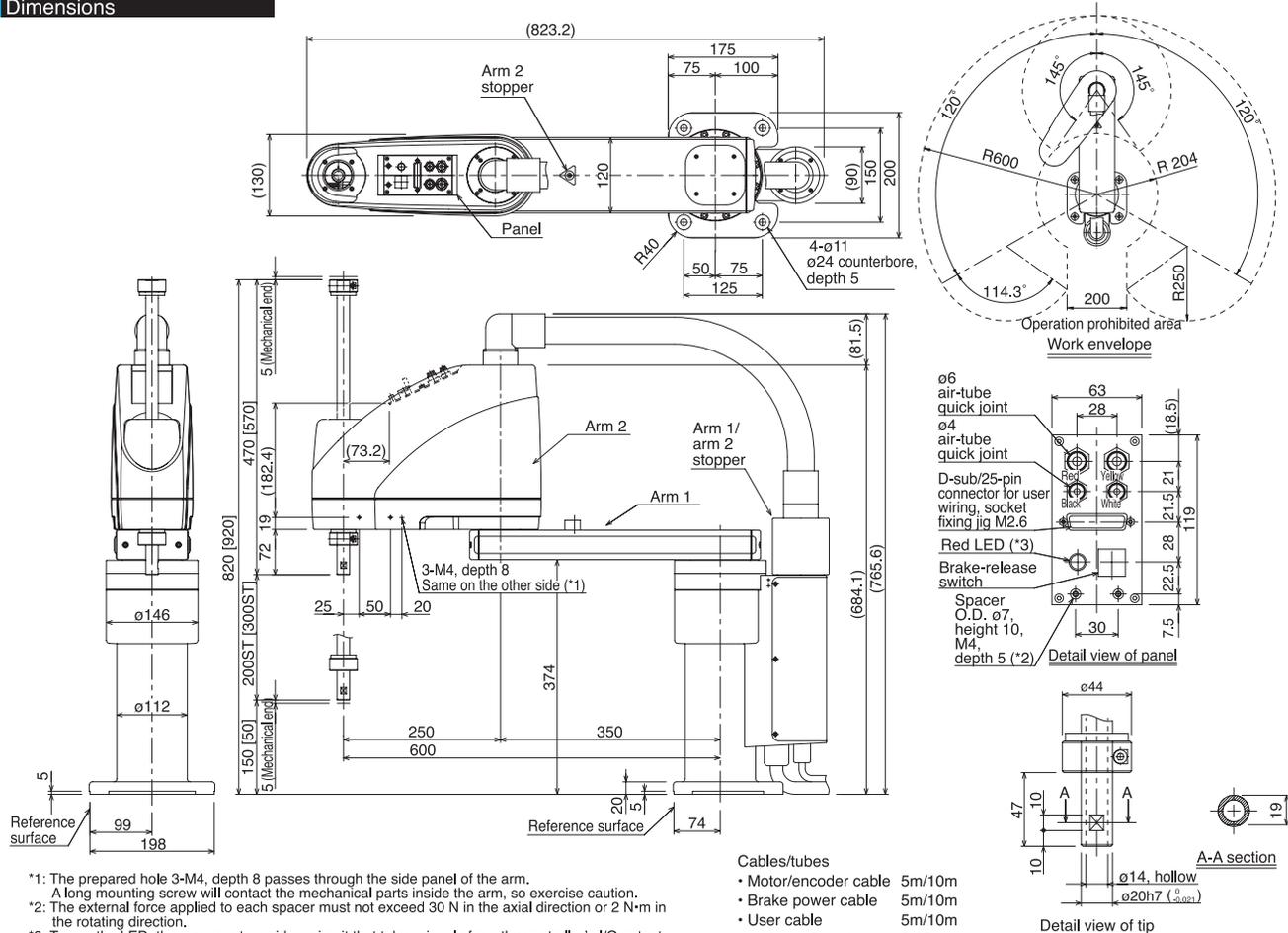
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNN6020-5L-KX-□-□-□-2 [IX-NNN6030-5L-KX-□-□-□-2]	Axis 1 Arm 1	350	400	±120°	±0.010	7121mm/s (Composite speed)	0.52	2	10	108	152	0.06	3.3
	Axis 2 Arm 2	250	200											±145°
	Axis 3 Vertical axis	-	200	200mm [300mm]	±0.010	1393mm/s							
	Axis 4 Rotating axis	-	100	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	30.5kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNN70

IX Large SCARA Robot Standard Type:
Arm Length 700mm, Vertical (Z) Axis 200mm (400mm)



Type / Standard type Arm length / 700mm Load capacity / 5kg rated/20kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNN7020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

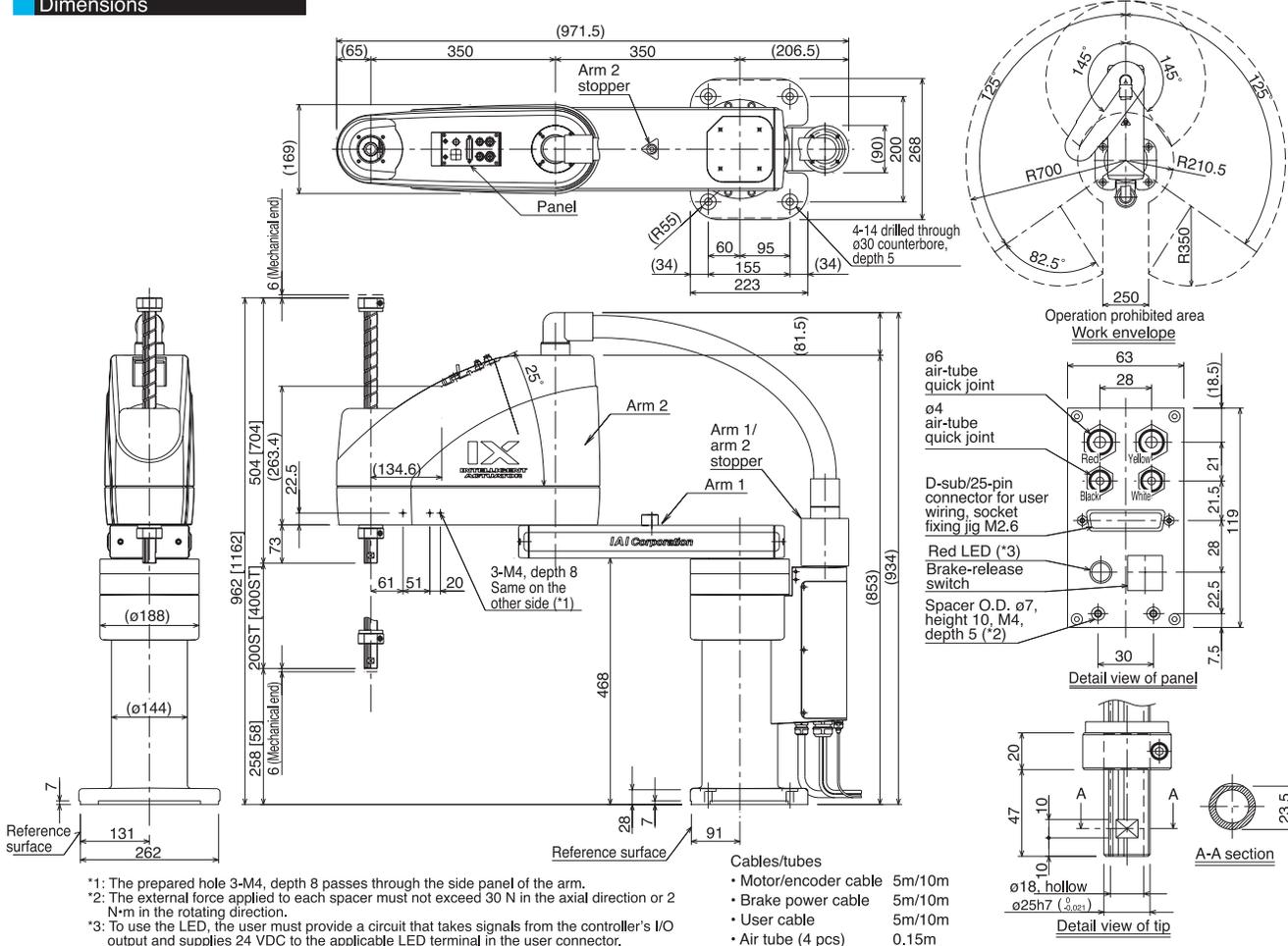
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNN7020-5L-KX-□-□-□-2 [IX-NNN7040-5L-KX-□-□-□-2]	Axis 1 Arm 1	350	750	±125°	±0.015	6597mm/s (Composite speed)	0.50	5	20	188	265	0.1	6.7
	Axis 2 Arm 2	350	400	±145°									
	Axis 3 Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4 Rotating axis	-	200	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	58kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNN80

IX Medium SCARA Robot Standard Type:
Arm Length 800mm, Vertical (Z) Axis 200mm (400mm)



Type / Standard type Arm length / 800mm Load capacity / 5kg rated/20kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNN8020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

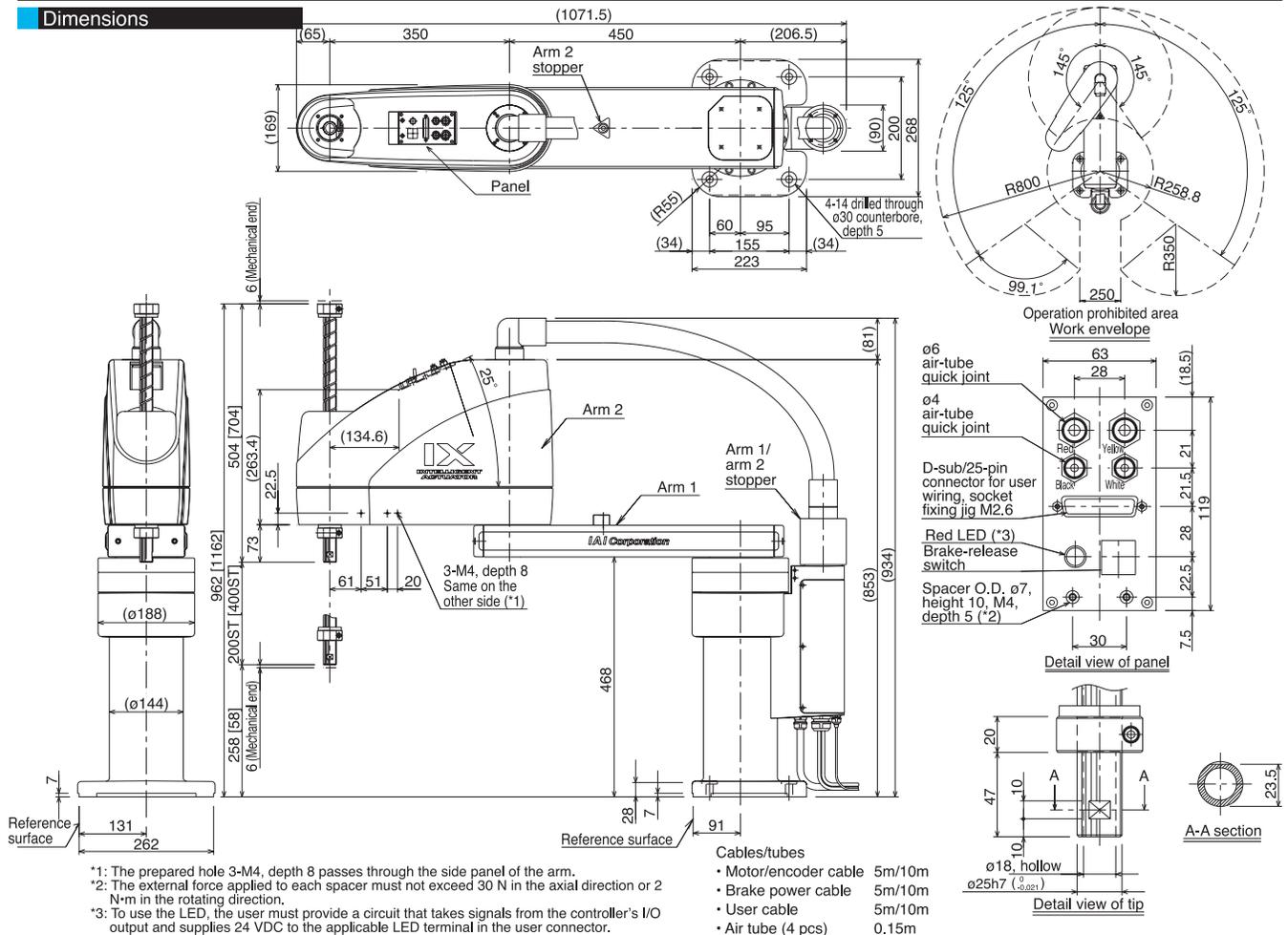
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNN8020-5L-KX-□-□-□-2 [IX-NNN8040-5L-KX-□-□-□-2]	Axis 1 Arm 1	450	750	±125°	±0.015	7121mm/s (Composite speed)	0.52	5	20	188	265	0.1	6.7
	Axis 2 Arm 2	350	400											±145°
	Axis 3 Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4 Rotating axis	-	200	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	60kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NSN5016

IX Medium SCARA Robot High-speed Type:
Arm Length 500mm, Vertical (Z) Axis 160mm



Type High-speed type Arm length 500mm Load capacity 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NSN5016 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

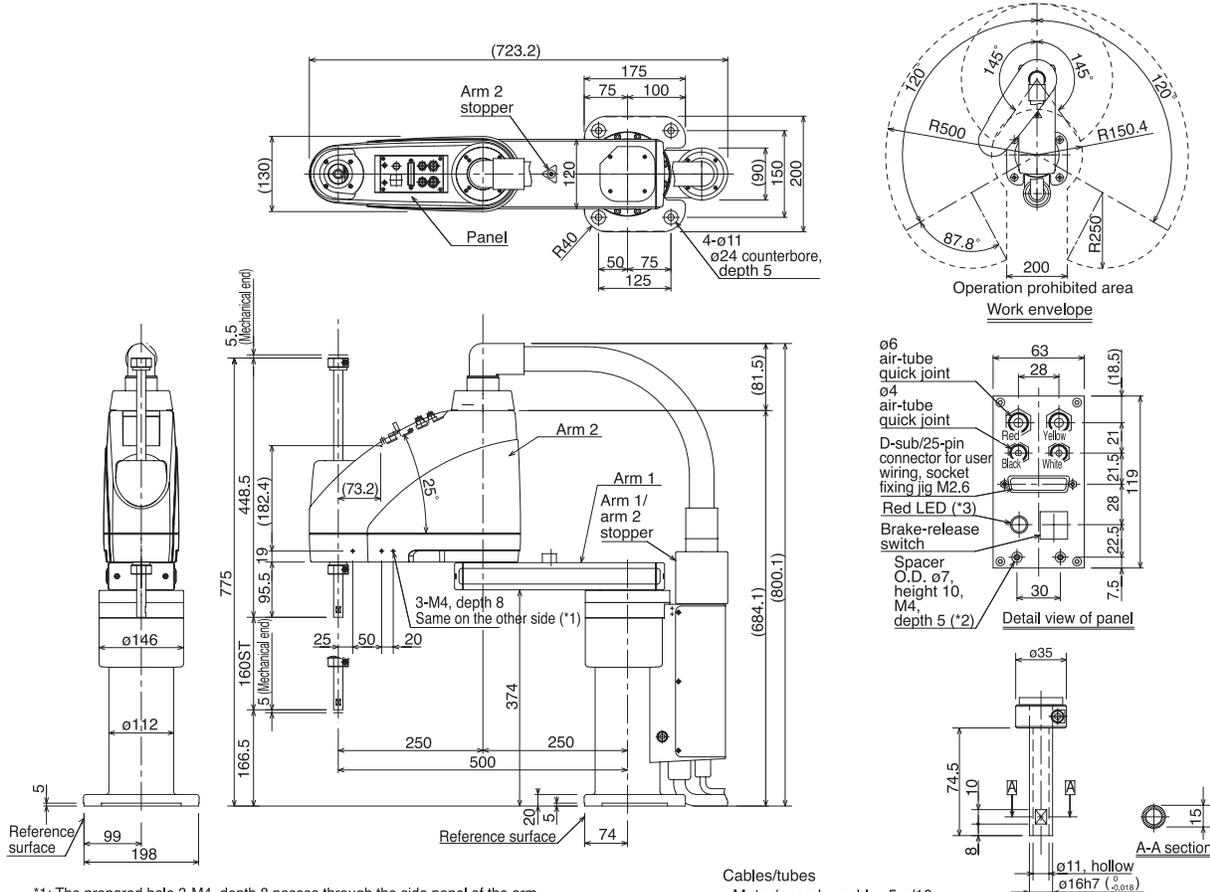
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NSN5016-5L-KX-□-□-□-2	Axis 1 Arm 1	250	750	±120°	±0.010	4712mm/s (Composite speed)	0.29 to 0.30	1	3	135	190	0.015	2.2
	Axis 2 Arm 2	250	600	±145°									
	Axis 3 Vertical axis	-	200	160mm	±0.010	1085mm/s							
	Axis 4 Rotating axis	-	100	±360°	±0.010	1800°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	32kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



*1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm. A long mounting screw will contact the mechanical parts inside the arm, so exercise caution.
*2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Detail view of tip

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NSN6016

IX Medium SCARA Robot High-speed Type:
Arm Length 600mm, Vertical (Z) Axis 160mm



Type / High-speed type Arm length / 600mm Load capacity / 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NSN6016 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

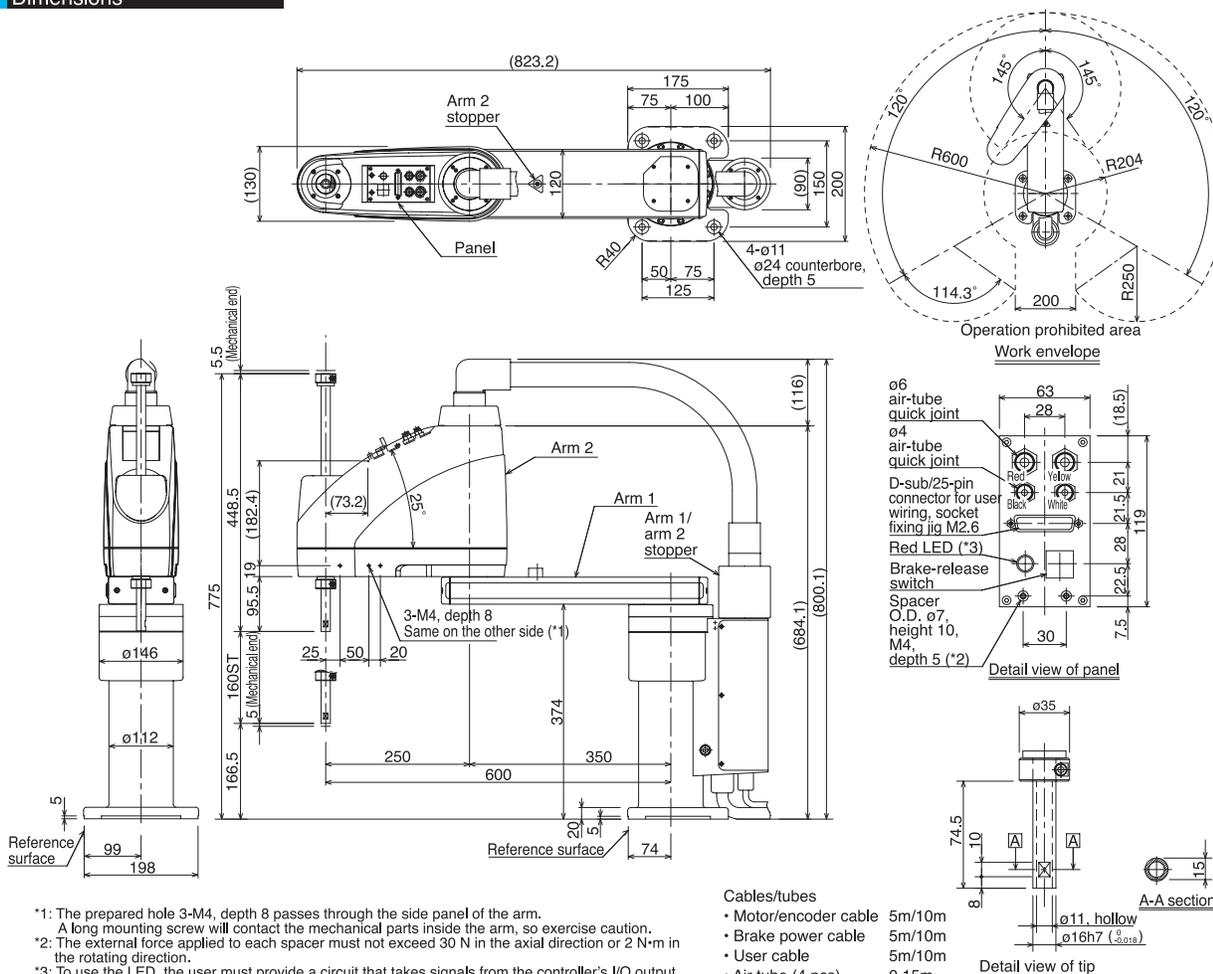
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NSN6016-5L-KX-□-□-□-2	Axis 1	Arm 1	350	750	±120°	±0.010	5236mm/s (Composite speed)	0.38 to 0.39	1	3	135	190	0.015	2.2
	Axis 2	Arm 2	250	600	±145°									
	Axis 3	Vertical axis	-	200	160mm	±0.010	1085mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.010	1800°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	33kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions



Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNW2515

Small SCARA Robot Dustproof/splash-proof type:
Arm Length 250mm, Vertical (Z) Axis 150mm



Type Dustproof/splash-proof type Arm length 250mm Load capacity 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNW2515 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

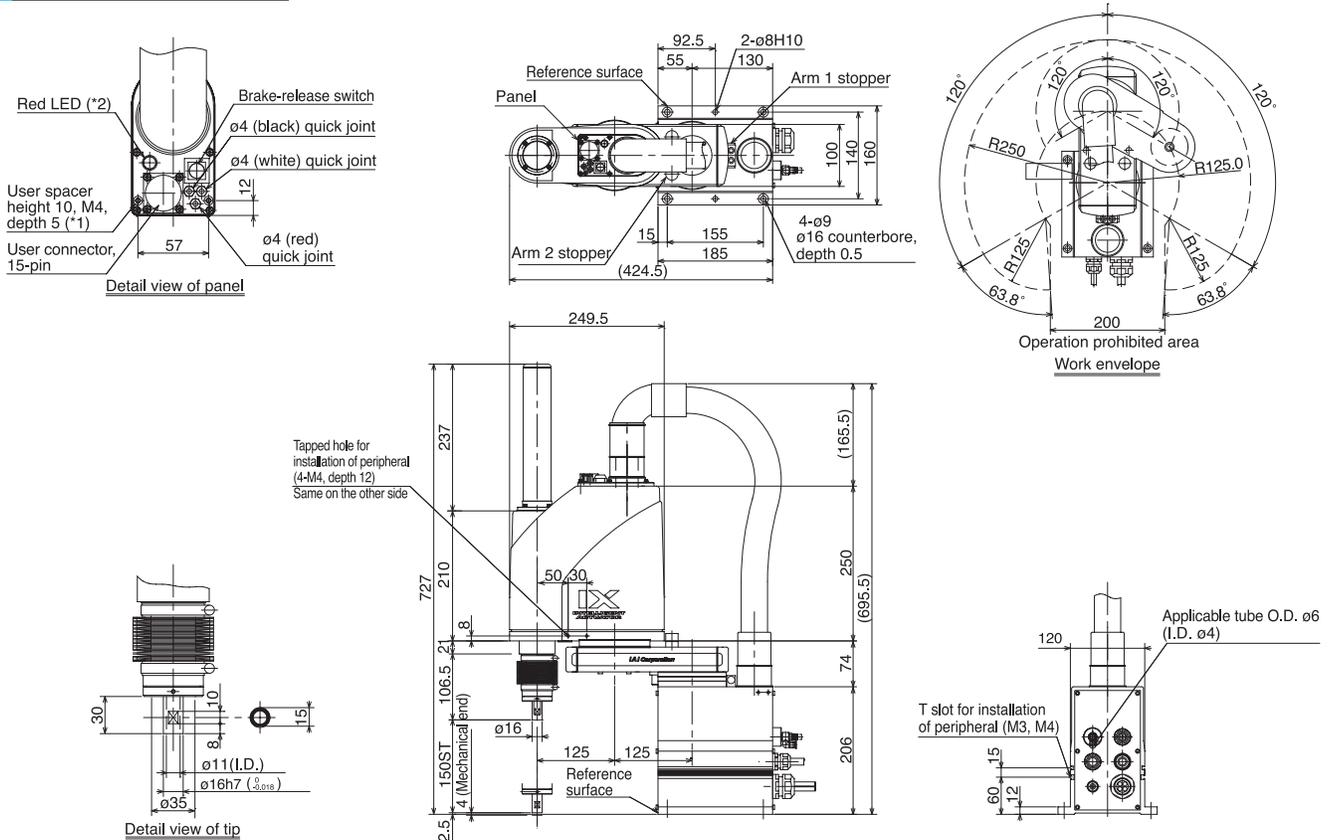
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNW2515-5L-□-□-□-□-2	Axis 1	Arm 1	125	200	±120°	±0.010	3142mm/s (Composite speed)	0.51	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±120°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	1600°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	15-conductor AWG26 waterproof connector with shield	Robot weight	21kg
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Protection grade (Note 9)	IP65 or equivalent□
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Air purge pressure (Note 10)	0.3MPa or above (0.6MPa maximum) (Clean, dry air)

Dimensions



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNW3515

Small SCARA Robot Dustproof/splash-proof type:
Arm Length 350mm, Vertical (Z) Axis 150mm



Type Dustproof/splash-proof type Arm length 350mm Load capacity 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNW3515 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

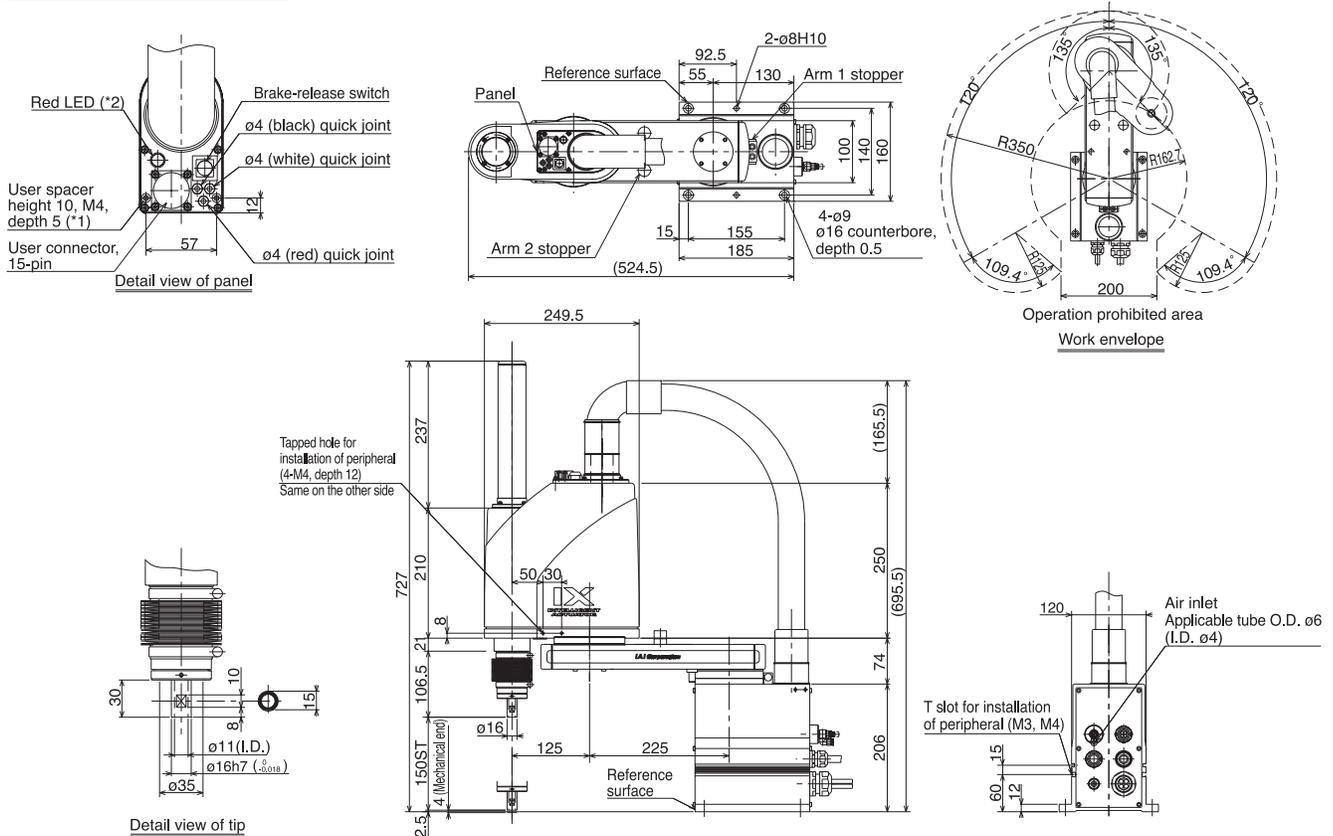
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNW3515-5L-□-□-□-□-2	Axis 1	Arm 1	225	200	±120°	±0.010	3979mm/s (Composite speed)	0.59	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±135°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	1600°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	15-conductor AWG26 waterproof connector with shield	Robot weight	22kg
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Protection grade (Note 9)	IP65 or equivalent
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Air purge pressure (Note 10)	0.3MPa or above (0.6MPa maximum) (Clean, dry air)

Dimensions



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (3 pcs) 0.15m

IX-NNW50

IX Medium SCARA Robot Dustproof/splash-proof type:
Arm Length 500mm, Vertical (Z) Axis 200mm (300mm)



Type Dustproof/splash-proof type Arm length 500mm Load capacity 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNW5020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

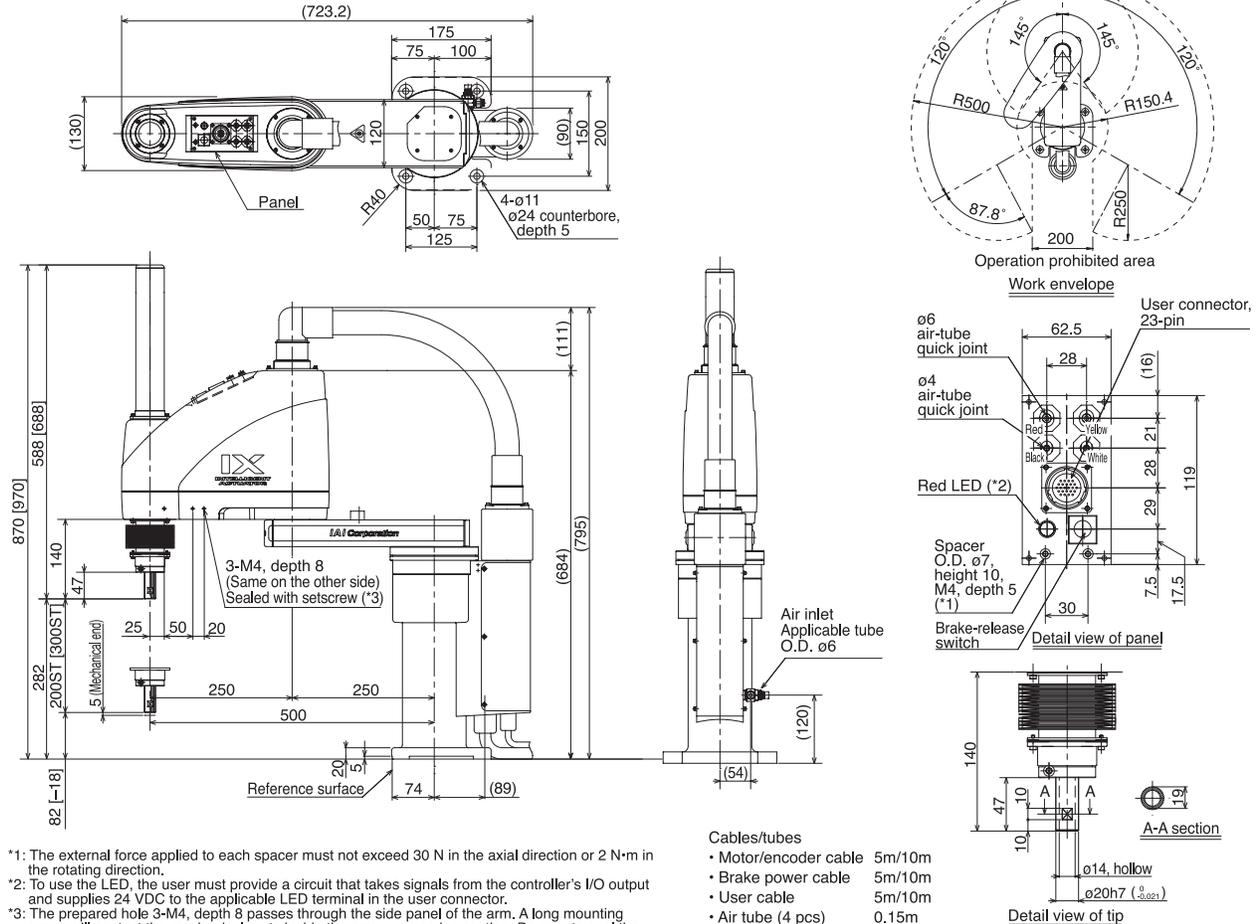
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNW5020-5L-KX-□-□-□-2 [IX-NNW5030-5L-KX-□-□-□-2]	Axis 1	Arm 1	250	400	±120°	±0.010	6283mm/s (Composite speed)	0.49	2	10	108	152	0.06	3.3
	Axis 2	Arm 2	250	200	±145°									
	Axis 3	Vertical axis	-	200	200mm [300mm]	±0.010	1393mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	23-conductor AWG26 waterproof connector with shield	Robot weight	32.5kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Protection grade (Note 9)	IP65 or equivalent
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Air purge pressure (Note 10)	0.3MPa or above (0.6MPa maximum) (Clean, dry air)

Dimensions



- *1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
- *2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.
- *3: The prepared hole 3-M4, depth 8 passes through the side panel of the arm. A long mounting screw will contact the mechanical parts inside the arm, so exercise caution. Be sure to seal the screw by attaching sealing tape, etc.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 10).

IX-NNW70

IX Large SCARA Robot Dustproof/splash-proof type:
Arm Length 700mm, Vertical (Z) Axis 200mm (400mm)



Type Dustproof/splash-proof type Arm length 700mm Load capacity 5kg rated/20kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNW7020 - 5L - KX - N - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNW7020-5L-KX-□-□-□-2 [IX-NNW7040-5L-KX-□-□-□-2]	Axis 1 Arm 1	350	750	±125°	±0.015 (XY)	6597mm/s (Composite speed)	0.52	5	20	188	265	0.1	6.7
	Axis 2 Arm 2	350	400	±145°									
	Axis 3 Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4 Rotating axis	-	200	±360°	±0.005	1200°/s							

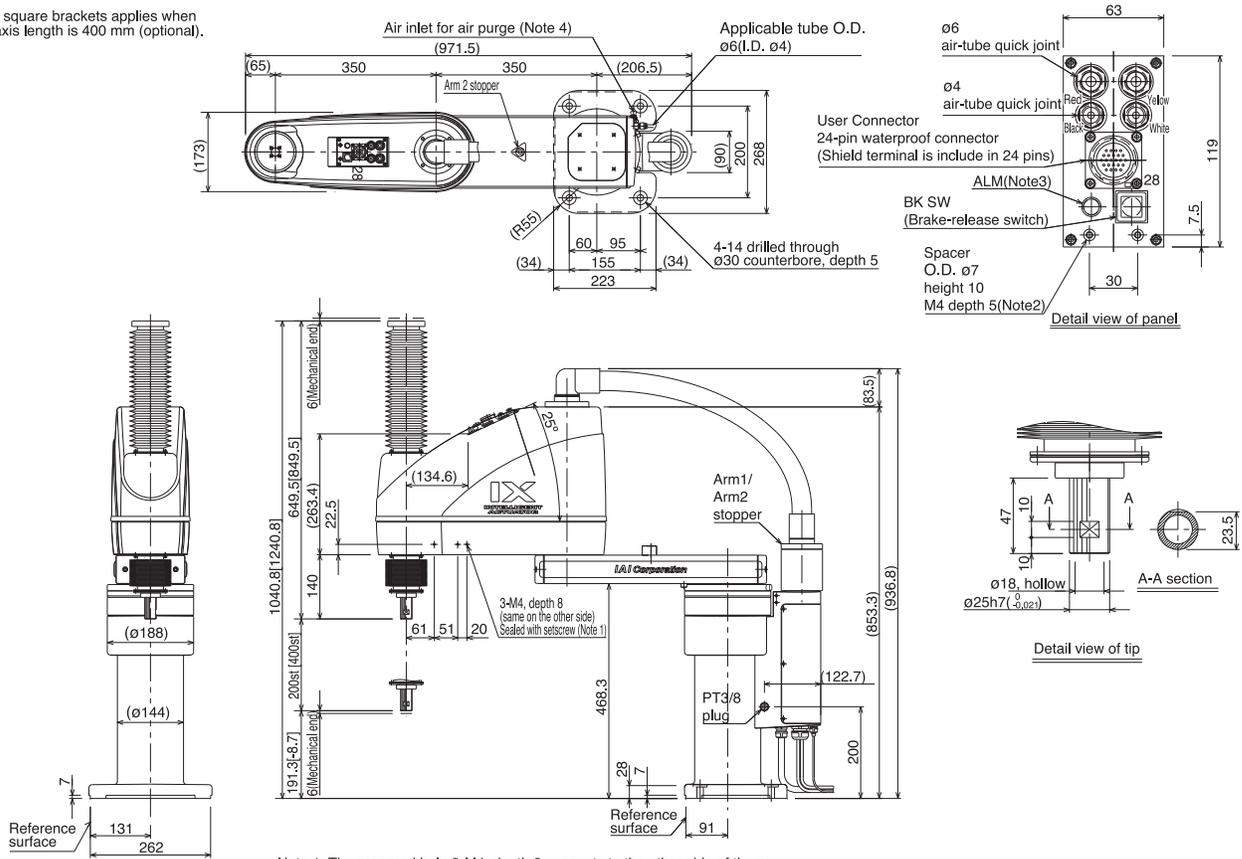
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	23-conductor AWG26 waterproof connector with shield	Robot weight	60kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Protection grade (Note 9)	IP65 or equivalent
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Air purge pressure (Note 10)	0.3MPa or above (0.6MPa maximum) (Clean, dry air)

Dimensions

* The value in square brackets applies when the vertical axis length is 400 mm (optional).



- Note 1: The prepared hole 3-M4, depth 8 connects to the other side of the arm.
- Note 2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 Nm in the rotating direction.
- Note 3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.
- Note 4: The air inlet can be installed in the reverse direction (by disconnecting the PT3/8 plug and swapping it with the joint).

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	Up to 192 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 10).

IX-TNN3515	Small SCARA Robot Wall-Mount Type: Arm Length 350mm, Vertical (Z) Axis 150mm																				
IX-UNN3515	Small SCARA Robot Inverse Type: Arm Length 350mm, Vertical (Z) Axis 150mm																				
Type	Wall-mount/inverse type	Arm length	350mm																		
		Load capacity	1kg rated/3kg maximum																		
<table border="1"> <tr> <td>Model items</td> <td>Series</td> <td>Model</td> <td>Cable length</td> <td>Controller type</td> <td>Standard I/O</td> <td>Expansion I/O</td> <td>I/O cable length</td> <td>Power-supply voltage</td> </tr> <tr> <td>(Example)</td> <td>IX</td> <td>-TNN3515</td> <td>-5L</td> <td>-KX</td> <td>-N1</td> <td>-EEE</td> <td>-2</td> <td>-2</td> </tr> </table>				Model items	Series	Model	Cable length	Controller type	Standard I/O	Expansion I/O	I/O cable length	Power-supply voltage	(Example)	IX	-TNN3515	-5L	-KX	-N1	-EEE	-2	-2
Model items	Series	Model	Cable length	Controller type	Standard I/O	Expansion I/O	I/O cable length	Power-supply voltage													
(Example)	IX	-TNN3515	-5L	-KX	-N1	-EEE	-2	-2													



* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-TNN3515-5L-□-□-□-□-2 IX-UNN3515-5L-□-□-□-□-2	Axis 1	Arm 1	225	200	±120°	±0.010	3979mm/s (Composite speed)	0.53	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±135°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	1600°/s							

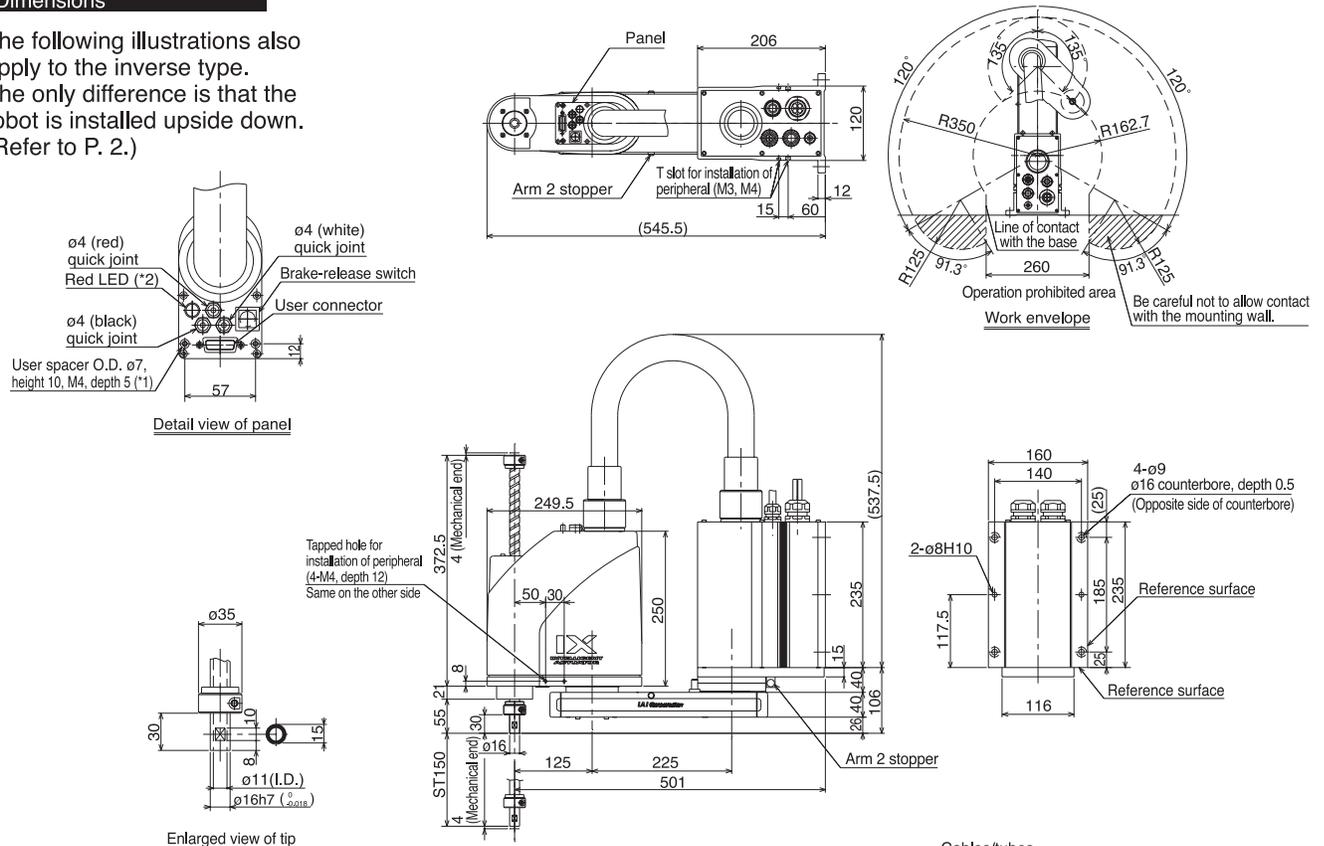
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	15-conductor AWG26 D-sub/15-pin connector with shield (socket)	Robot weight	21.9kg
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions

* The following illustrations also apply to the inverse type. The only difference is that the robot is installed upside down. (Refer to P. 2.)



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
 *2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
- Brake power cable 5m/10m
- User cable 5m/10m
- Air tube (3 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37

Caution Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-HNN5020

IX Medium SCARA Robot Ceiling-Mount Type:
Arm Length 500mm, Vertical (Z) Axis 200mm

IX-INN5020

IX Medium SCARA Robot Inverse Type:
Arm Length 500mm, Vertical (Z) Axis 200mm

Type Ceiling-mount/Inverse Arm length 500mm Load capacity 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - HNN5020 - 5L - KX - N1 - EEE - 2 - 2



* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-HNN5020-5L-□-□-□-□-2	Axis 1 Arm 1	250	400	±120°	±0.010	6283mm/s (Composite speed)	0.44	2	10	108	152	0.06	3.3
IX-INN5020-5L-□-□-□-□-2	Axis 2 Arm 2	250	200	±135°									
	Axis 3 Vertical axis	-	200	200mm	±0.010	1393mm/s							
	Axis 4 Rotating axis	-	100	±360°	±0.005	1200°/s							

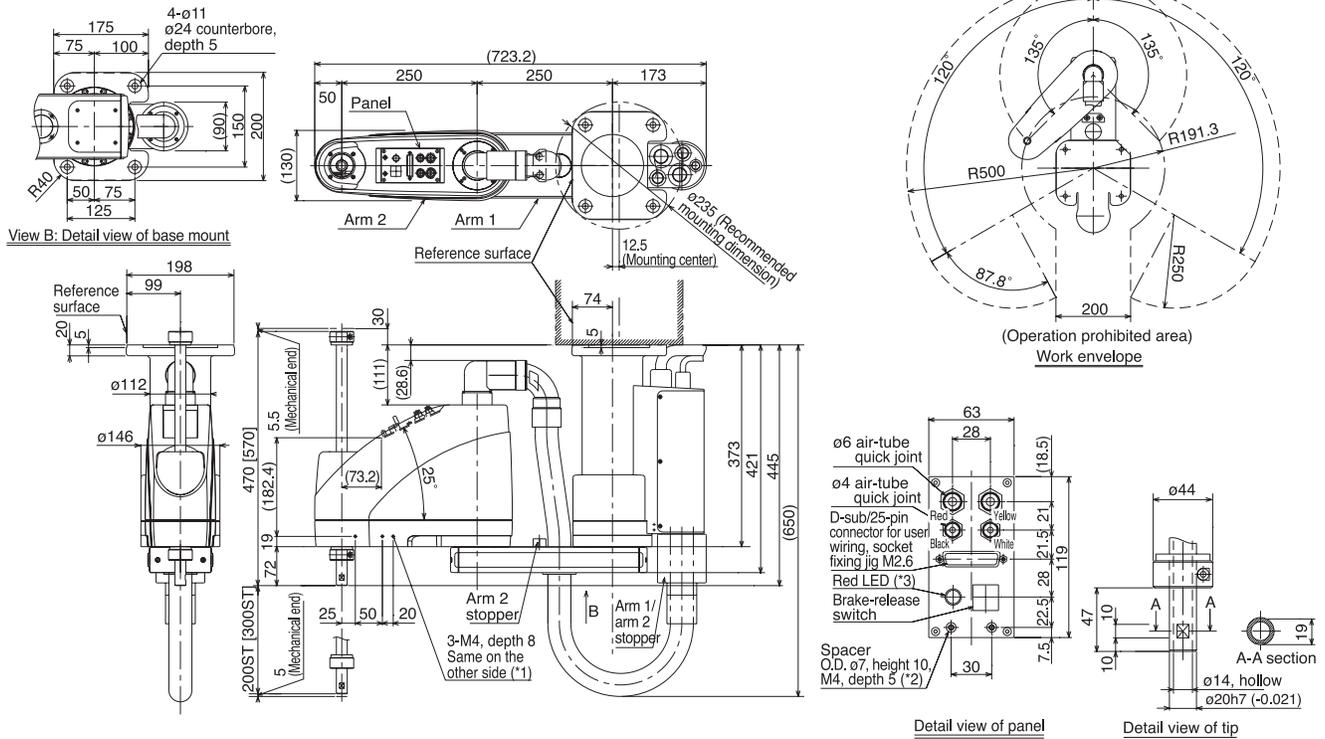
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	30.5kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions

* The following illustrations also apply to the inverse type.
The only difference is that the robot is installed upside down. (Refer to P. 2.)



*1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm. A long mounting screw will contact the mechanical parts inside the arm, so exercise caution.
*2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-HNN6020

IX Medium SCARA Robot Ceiling-Mount Type:
Arm Length 600mm, Vertical (Z) Axis 200mm

IX-INN6020

IX Medium SCARA Robot Inverse Type:
Arm Length 600mm, Vertical (Z) Axis 200mm

Type Ceiling-mount Inverse Arm length 600mm Load capacity 2kg rated / 10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - HNN6020 - 5L - KX - N1 - EEE - 2 - 2



* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-HNN6020-5L-□-□-□-□-2 IX-INN6020-5L-□-□-□-□-2	Axis 1	Arm 1	350	400	±120°	±0.010	7121mm/s (Composite speed)	0.52	2	10	108	152	0.06	3.3
	Axis 2	Arm 2	250	200	±145°									
	Axis 3	Vertical axis	-	200	200mm	±0.010	1393mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.005	1200°/s							

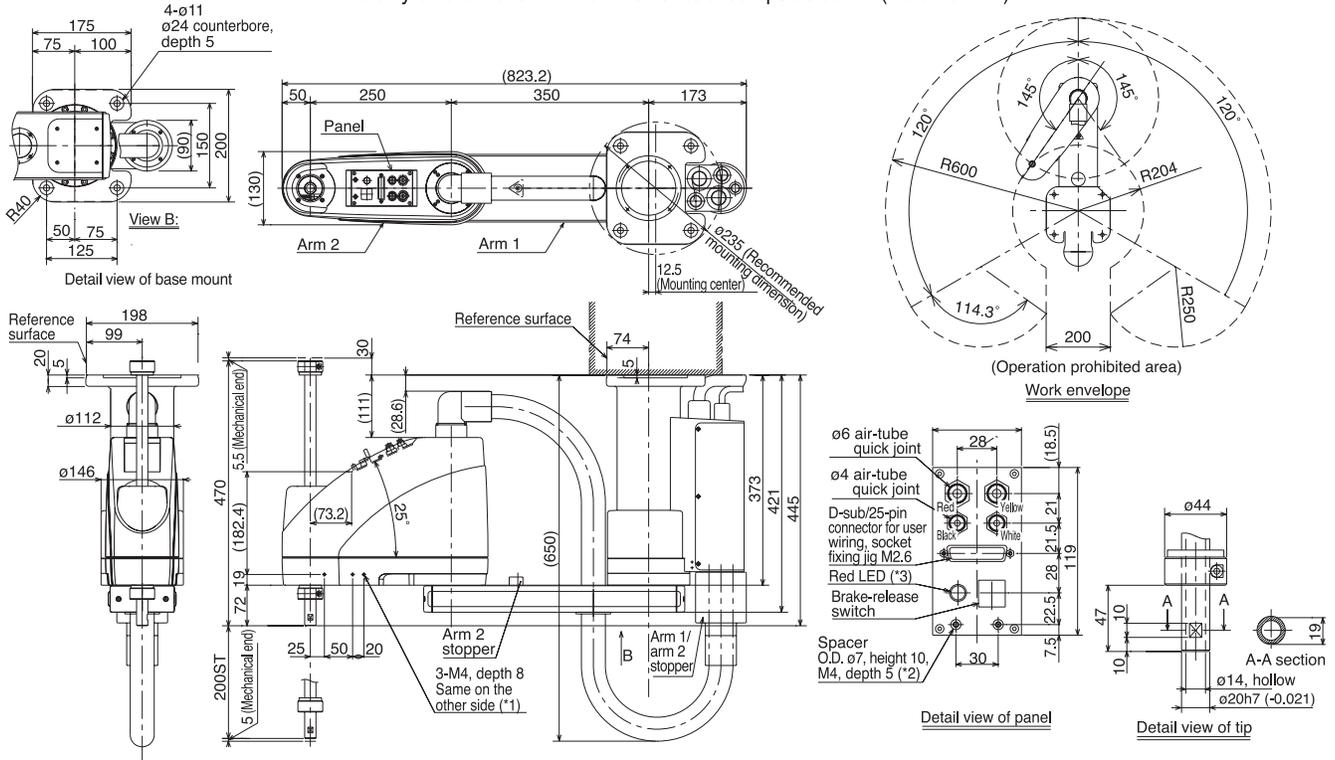
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	31.5kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions

* The following illustrations also apply to the inverse type.
The only difference is that the robot is installed upside down. (Refer to P. 2.)



*1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm. A long mounting screw will contact the mechanical parts inside the arm, so exercise caution.
*2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-HNN70	Large SCARA Robot Ceiling-Mount Type: Arm Length 700mm, Vertical (Z) Axis 200mm (400mm)							
IX-INN70	Large SCARA Robot Inverse Type: Arm Length 700mm, Vertical (Z) Axis 200mm (400mm)							
Type / Ceiling-mount/inverse type	Arm length / 700mm	Load capacity / 5kg rated/20kg maximum						
Model items	Series	Model	Cable length	Controller type	Standard I/O	Expansion I/O	I/O cable length	Power-supply voltage
(Example)	IX	- HNN7020	- 5L	- KX	- N	- EEE	- 2	- 2



* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-HNN7020-5L-KX-□-□-□-2 [IX-HNN7040-5L-KX-□-□-□-2] IX-INN7020-5L-KX-□-□-□-2 [IX-INN7040-5L-KX-□-□-□-2]	Axis 1 Arm 1	350	750	±125°	±0.015 (XY)	6597mm/s (Composite speed)	0.50	5	20	188	265	0.1	6.7
	Axis 2 Arm 2	350	400	±145°									
	Axis 3 Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4 Rotating axis	-	100	±360°	±0.005	1200°/s							

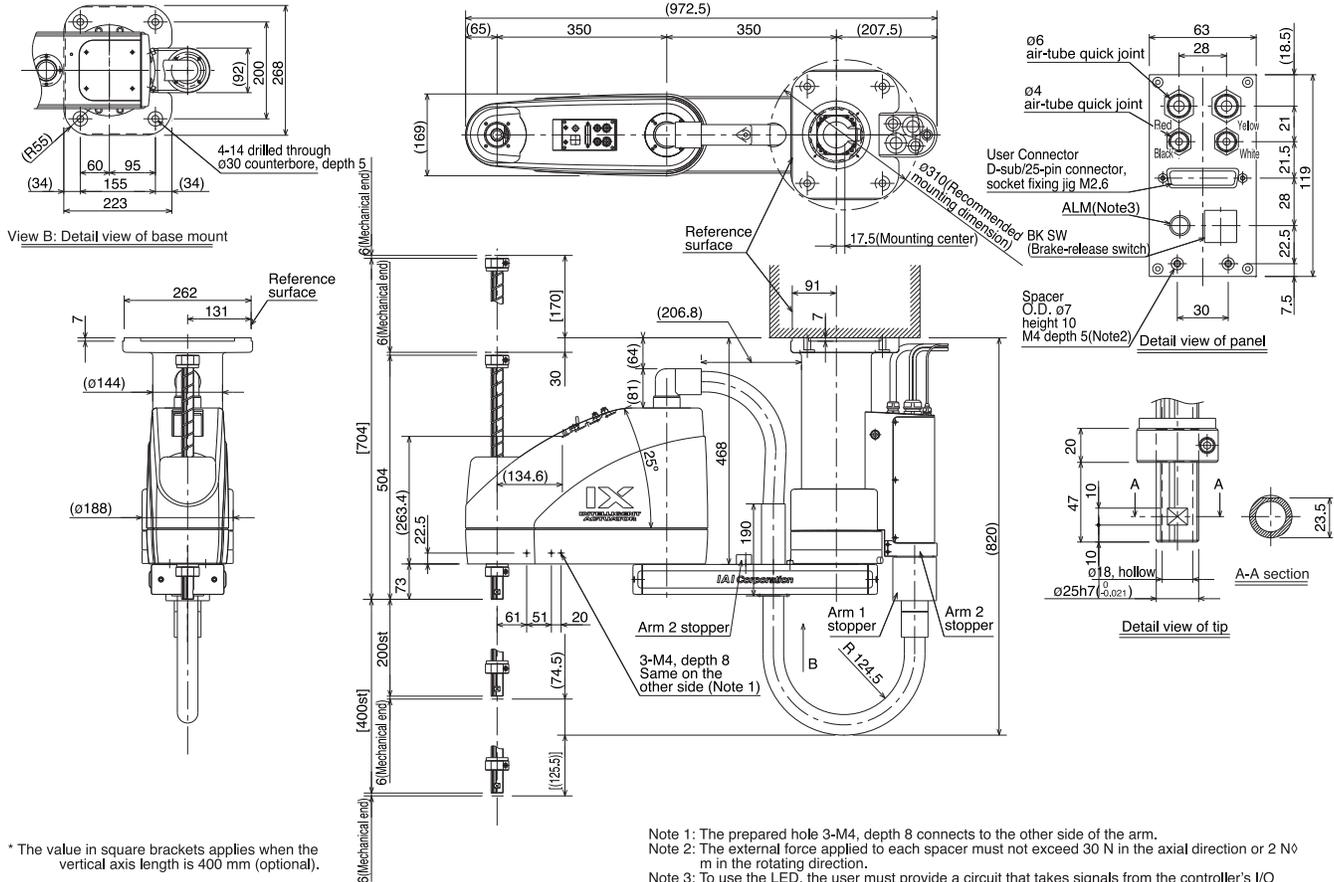
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	58kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions

* The following illustrations also apply to the inverse type. The only difference is that the robot is installed upside down. (Refer to P. 2.)



* The value in square brackets applies when the vertical axis length is 400 mm (optional).

- Note 1: The prepared hole 3-M4, depth 8 connects to the other side of the arm.
- Note 2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N in the rotating direction.
- Note 3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	Up to 192 points	Can be installed.	AC200V	P37

Caution Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-HNN80	Large SCARA Robot Ceiling-Mount Type: Arm Length 800mm, Vertical (Z) Axis 200mm (400mm)
IX-INN80	Large SCARA Robot Inverse Type: Arm Length 800mm, Vertical (Z) Axis 200mm (400mm)
Type	Ceiling-mount/inverse type
Arm length	800mm
Load capacity	5kg rated/20kg maximum
Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage (Example) IX - HNN8020 - 5L - KX - N - EEE - 2 - 2	



* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-HNN8020-5L-KX-□-□-□-2 [IX-HNN8040-5L-KX-□-□-□-2] IX-INN8020-5L-KX-□-□-□-2 [IX-INN8040-5L-KX-□-□-□-2]	Axis 1	Arm 1	450	750	±125°	±0.015 (XY)	7121mm/s (Composite speed)	0.52	5	20	188	265	0.1	6.7
Axis 2	Arm 2	350	400	±145°										
	Axis 3	Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.005	1200°/s							

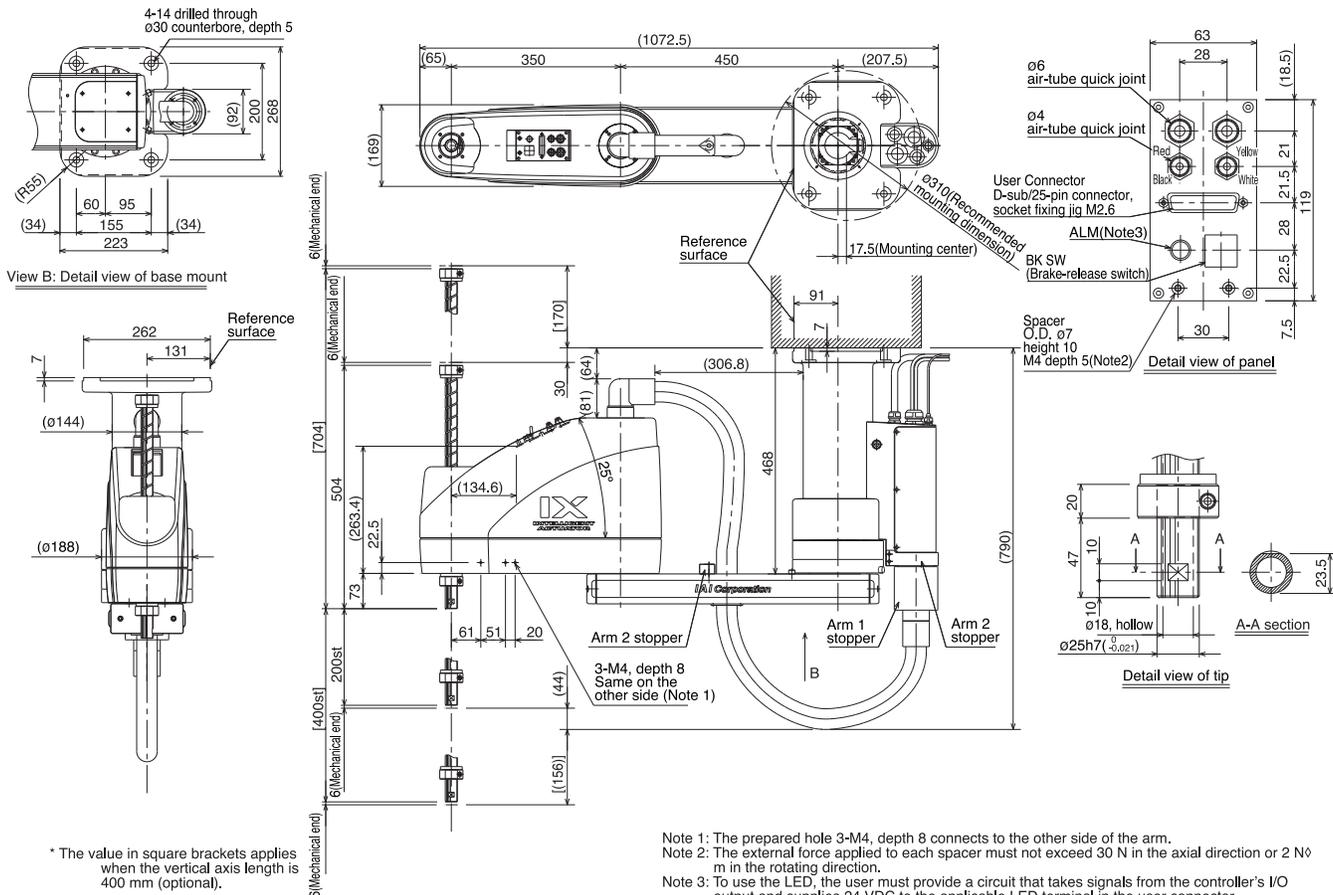
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Robot weight	58kg
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)		
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)		

Dimensions

* The following illustrations also apply to the inverse type. The only difference is that the robot is installed upside down. (Refer to P. 2.)



* The value in square brackets applies when the vertical axis length is 400 mm (optional).

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	Up to 192 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 8).

IX-NNC2515

Small SCARA Robot Clean Room type:
Arm Length 250mm, Vertical (Z) Axis 150mm



Type / Clean Room type Arm length / 250mm Load capacity / 1kg rated/3kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNC2515 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

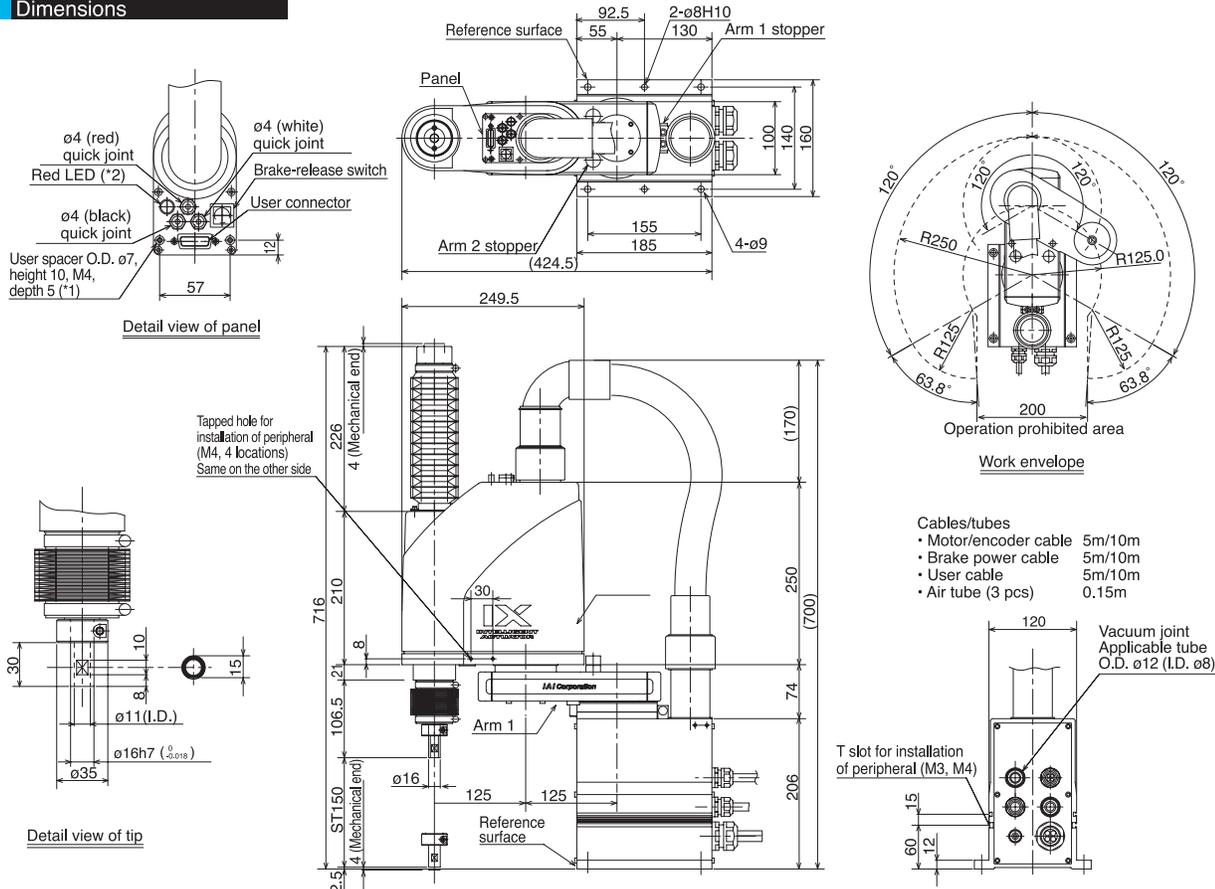
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNC2515-5L-□-□-□-□-2	Axis 1	Arm 1	125	200	±120°	±0.010	3142mm/s (Composite speed)	0.49	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±120°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	1600°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Vacuum joint	Applicable tube O.D. ø12
User wiring	15-conductor AWG26 D-sub/15-pin connector with shield (socket)	Suction rate (Note 11)	60NI/min
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cleanliness class	Conforming to class 10 (0.1µm)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Robot weight	19kg
		Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)

Dimensions



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.

*2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37



Refer to P. 6 for the explanations of (Note 1) to (Note 11).

IX-NNC3515

Small SCARA Robot Clean Room type:
Arm Length 350mm, Vertical (Z) Axis 150mm

Type / Clean Room type	Arm length / 350mm	Load capacity / 1kg rated/3kg maximum	
------------------------	--------------------	---------------------------------------	--

Model items
Series
Model
Cable length
Controller type
Standard I/O
Expansion I/O
I/O cable length
Power-supply voltage

(Example) IX - NNC3515 - 5L - KX - N1 - EEE - 2 - 2



* Refer to P. 10 for details on the model items. * The above model code represents a combination of robot and controller.

Model/Specifications

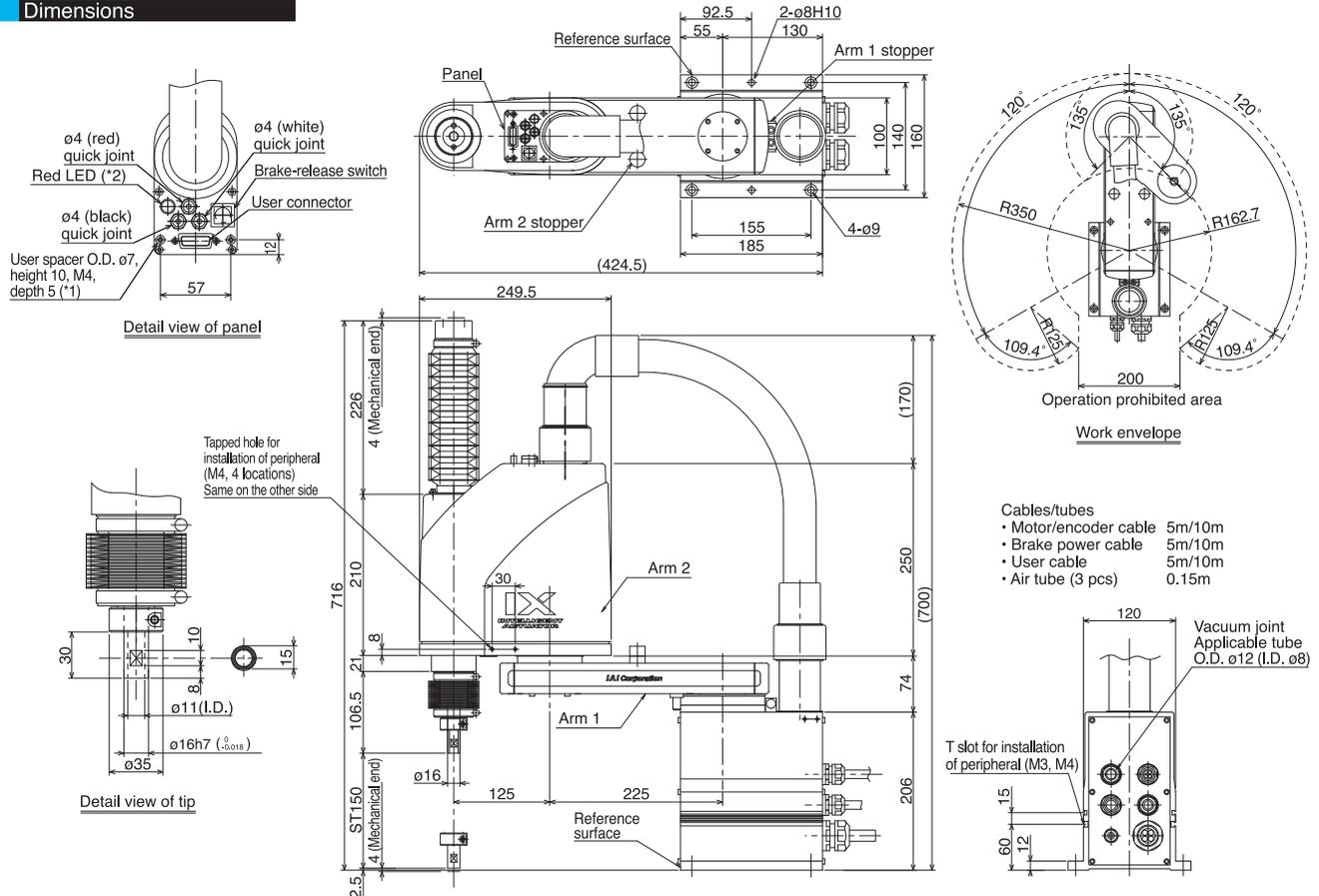
Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
									Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNC3515-5L-□-□-□-□-2	Axis 1	Arm 1	225	200	±120°	±0.010	3979mm/s (Composite speed)	0.58	1	3	65.3	90.9	0.015	1.9
	Axis 2	Arm 2	125	100	±135°									
	Axis 3	Vertical axis	-	100	150mm	±0.010	1106mm/s							
	Axis 4	Rotating axis	-	50	±360°	±0.005	1600°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Vacuum joint	Applicable tube O.D. ø12
User wiring	15-conductor AWG26 D-sub/15-pin connector with shield (socket)	Suction rate (Note 11)	60NI/min
User tubing	Air tube (O.D. ø4, I.D. ø2.5) x 3 (Normal working pressure 0.8MPa)	Cleanliness class	Conforming to class 10 (0.1µm)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Robot weight	20kg
		Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)

Dimensions



*1: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
*2: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37
XSEL-JX	Compact, space-saving type	80/64 points	Cannot be installed.		P37

Refer to P. 6 for the explanations of (Note 1) to (Note 11).

IX-NNC50

IX Medium SCARA Robot Clean Room Type:
Arm Length 500mm, Vertical (Z) Axis 200mm (300mm)



Type Clean Room type Arm length 500mm Load capacity 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNC5020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNC5020-5L-KX-□-□-□-2 [IX-NNC5030-5L-KX-□-□-□-2]	Axis 1	Arm 1	250	400	±120°	±0.010	6283mm/s (Composite speed)	0.47	2	10	108	152	0.06	3.3
	Axis 2	Arm 2	250	200	±145°									
	Axis 3	Vertical axis	-	200	200mm [300mm]	±0.010	1393mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.005	1200°/s							

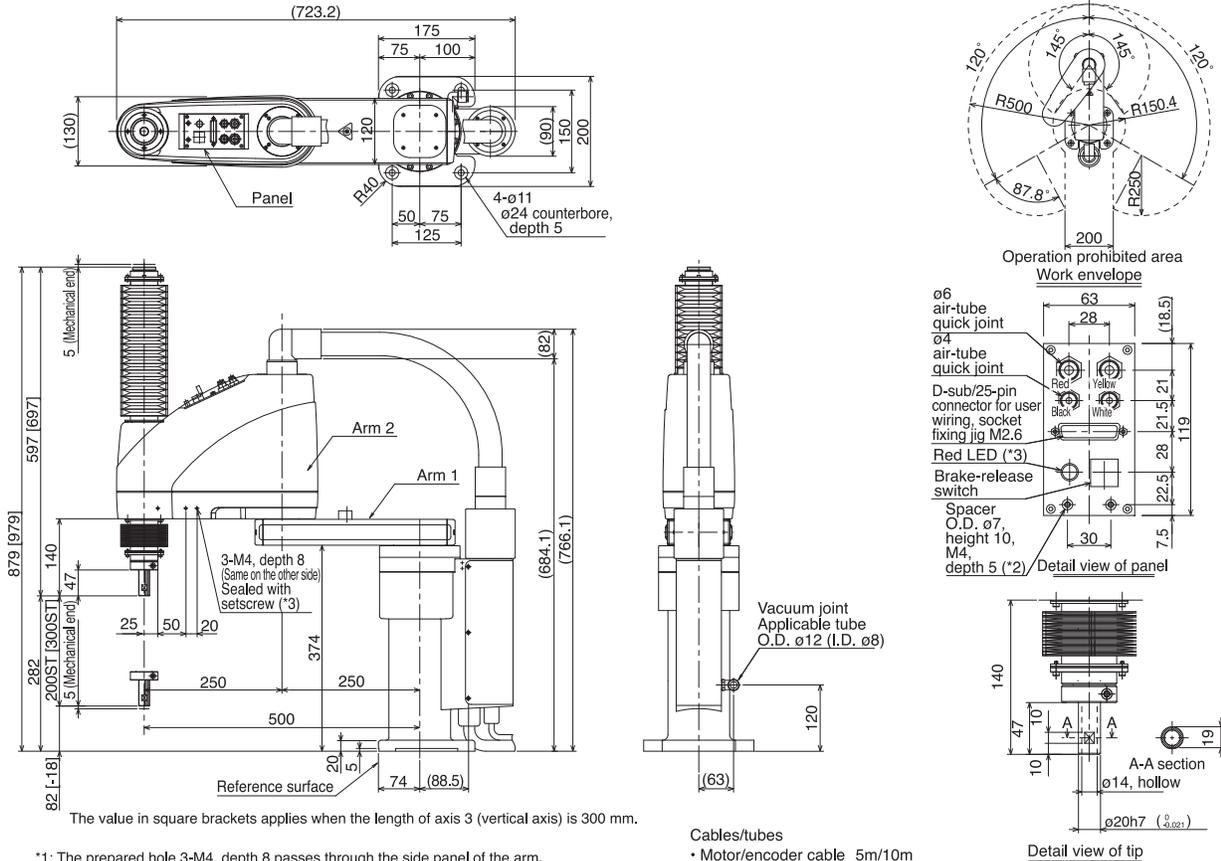
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

* The value in square brackets applies when the vertical axis length is 300 mm. Other specifications apply commonly to both the vertical axis lengths of 200 mm and 300 mm.

Common Specifications

Encode type	Absolute	Vacuum joint	Applicable tube O.D. ø12
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Suction rate (Note 11)	60NI/min
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cleanliness class	Conforming to class 10 (0.1µm)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Robot weight	31.5kg
		Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)

Dimensions



- *1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm.
- *2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
- *3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 11).

IX-NNC60

IX Medium SCARA Robot Clean Room Type:
Arm Length 600mm, Vertical (Z) Axis 200mm (300mm)



Type Clean Room type Arm length 600mm Load capacity 2kg rated/10kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNC6020 - 5L - KX - N1 - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

Model	Axis configuration		Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
	Axis 1	Axis 2							Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNC6020-5L-KX-□-□-□-2 [IX-NNN6030-5L-KX-□-□-□-2]	Axis 1	Arm 1	350	400	±120°	±0.010	7121mm/s (Composite speed)	0.54	2	10	108	152	0.06	3.3
	Axis 2	Arm 2	250	200	±145°									
	Axis 3	Vertical axis	-	200	200mm [300mm]	±0.010	1393mm/s							
	Axis 4	Rotating axis	-	100	±360°	±0.005	1200°/s							

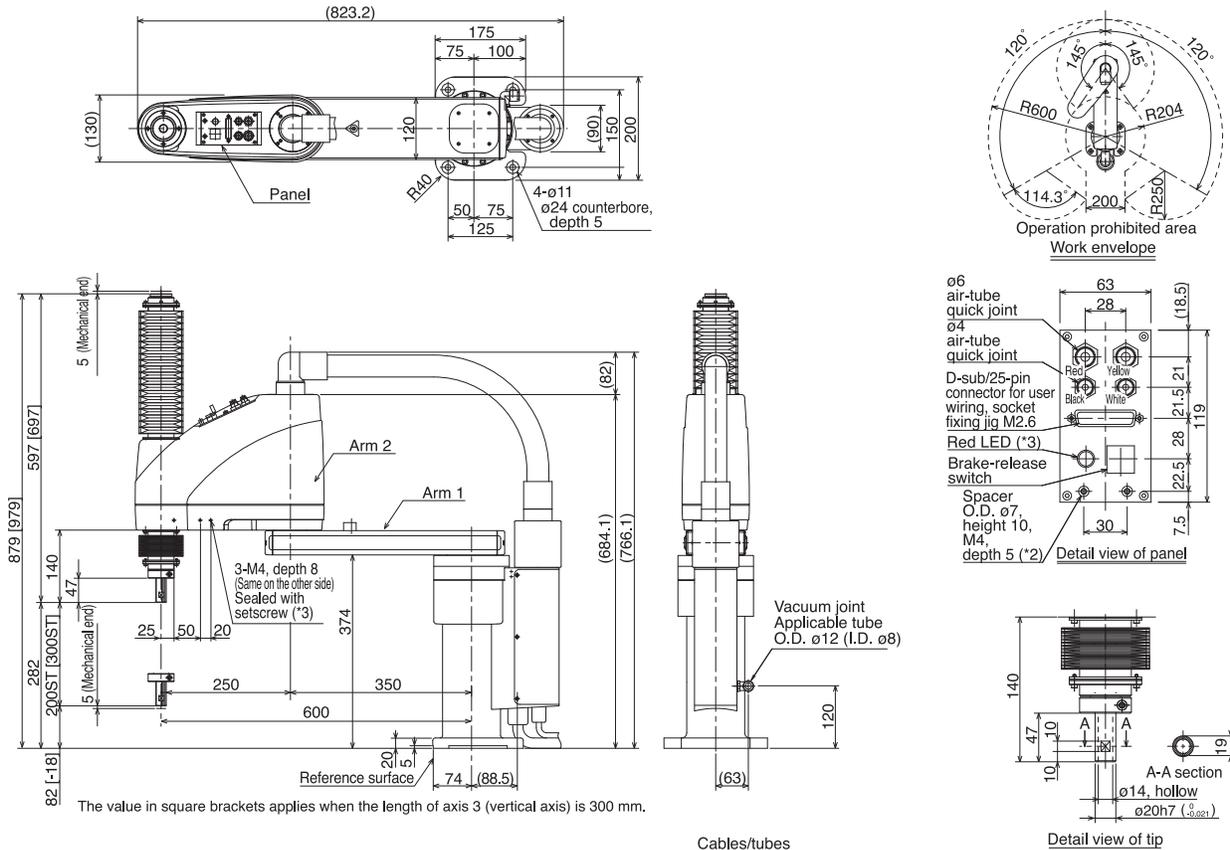
* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

* The value in square brackets applies when the vertical axis length is 300 mm. Other specifications apply commonly to both the vertical axis lengths of 200 mm and 300 mm.

Common Specifications

Encode type	Absolute	Vacuum joint	Applicable tube O.D. ø12
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Suction rate (Note 11)	60N/min
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cleanliness class	Conforming to class 10 (0.1µm)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Ambient temperature/humidity	Temperature: 0-40°C, humidity: 20-85%RH or below (non-condensing)
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Robot weight	32.5kg
		Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)

Dimensions



The value in square brackets applies when the length of axis 3 (vertical axis) is 300 mm.

- *1: The prepared hole 3-M4, depth 8 passes through the side panel of the arm.
- *2: The external force applied to each spacer must not exceed 30 N in the axial direction or 2 N·m in the rotating direction.
- *3: To use the LED, the user must provide a circuit that takes signals from the controller's I/O output and supplies 24 VDC to the applicable LED terminal in the user connector.

- Cables/tubes
- Motor/encoder cable 5m/10m
 - Brake power cable 5m/10m
 - User cable 5m/10m
 - Air tube (4 pcs) 0.15m

Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 11).

IX-NNC80

IX Medium SCARA Robot Clean Room Type:
Arm Length 800mm, Vertical (Z) Axis 200mm (400mm)



Type Clean Room type Arm length 800mm Load capacity 5kg rated/20kg maximum

Model items Series Model Cable length Controller type Standard I/O Expansion I/O I/O cable length Power-supply voltage
(Example) IX - NNN8020 - 5L - KX - N - EEE - 2 - 2

* Refer to P. 10 for details on the model items.

* The above model code represents a combination of robot and controller.

Model/Specifications

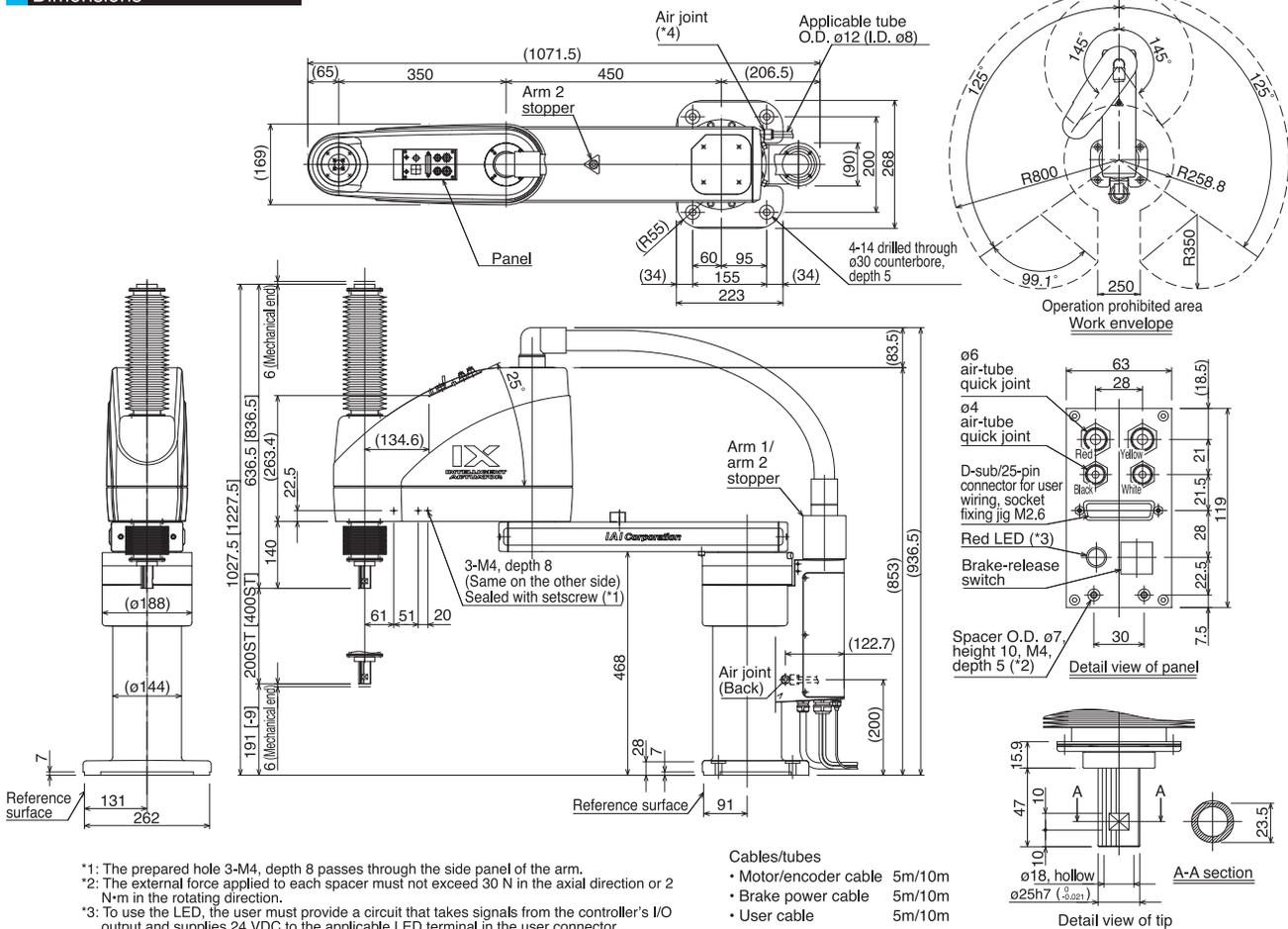
Model	Axis configuration	Arm length (mm)	Motor capacity (W)	Work envelope	Positioning repeatability (mm) (Note 1)	Maximum operating speed (Note 2)	Standard cycle time (sec) (Note 3)	Load capacity (kg)		Axis 3 push force (N)		Axis 4 allowable load	
								Rated	Maximum	Push action (Note 4)	Maximum thrust (Note 4)	Allowable inertial moment (kg·m ²) (Note 5)	Allowable torque (N·m)
IX-NNC8020-5L-KX-□-□-□-2 [IX-NNC8040-5L-KX-□-□-□-2]	Axis 1 Arm 1	450	750	±125°	±0.015	7121mm/s (Composite speed)	0.52	5	20	188	265	0.1	6.7
	Axis 2 Arm 2	350	400	±145°									
	Axis 3 Vertical axis	-	400	200mm [400mm]	±0.010	1583mm/s							
	Axis 4 Rotating axis	-	200	±360°	±0.005	1200°/s							

* In the above model code, specify the desired controller in □. For details, refer to "Explanation of SCARA Robot Model Items" (P. 10).

Common Specifications

Encode type	Absolute	Vacuum joint	Applicable tube O.D. ø12
User wiring	25-conductor AWG26 D-sub/25-pin connector with shield (socket)	Suction rate (Note 11)	80NI/min
User tubing	Air tube (O.D. ø6, I.D. ø4) x 2 (Normal working pressure 0.8MPa) Air tube (O.D. ø4, I.D. ø2.5) x 2 (Normal working pressure 0.8MPa)	Cleanliness class	Conforming to class 10 (0.1µm)
Alarm indicator (Note 6)	Red, small LED indicator x 1 (24 VDC must be supplied.)	Ambient temperature/humidity	Temperature: 0~40°C, humidity: 20~85%RH or below (non-condensing)
Brake-release switch (Note 7)	Brake-release switch to prevent the vertical axis from dropping (24 VDC must be supplied.)	Robot weight	62kg
		Cable length (Note 8)	5L: 5m (standard), 10L: 10m (optional)

Dimensions



Applicable Controller Specifications

Applicable controller	Features	Maximum I/O points (inputs/outputs)	Serial communication unit	Power-supply voltage	Page
XSEL-KX	General-purpose type offering excellent expandability	176/160 points	Can be installed.	AC200V	P37



Refer to P. 6 for the explanations of (Note 1) to (Note 11).

* Refer to P. 6 for other points to note.

XSEL-JX/KX Dedicated IX Controller

Operating mode	Program operation
Number of storable programs	64 programs (6000 steps)
Number of storable positions	3000 positions
Power-supply voltage	



1 Features

The JX/KX controller is a high-performance X-SEL controller customized exclusively for use with the IX Series. It combines the useful functions of the X-SEL controller with the dedicated IX Series commands to achieve a substantial improvement in utility.

1 Super SEL Language

The JX/KX controller adopts Super SEL Language, the same language used for our single-axis/Cartesian robots. Therefore, you can create programs just as easily as you do for your existing IAI controllers. If you are new to an IAI controller, the simple language structure will let you learn the necessary programming steps in no time.

2 Network Ready

The JX/KX controller supports DeviceNet (*1), CC-Link (*2), ProfiBus (*3), and Ethernet.

*1 DeviceNet is a registered trademark of ODVA.

*2 CC-Link is a registered trademark of Mitsubishi Electric Corporation.

*3 ProfiBus is a registered trademark of Siemens AG.

3 Multitasking

A maximum of 16 programs can be run at the same time, so you can transmit signals during operation or control a peripheral simultaneously.

4 Compact

The JX/KX controller is significantly smaller than the conventional M-SEL-IH controller.

2 Model

XSEL - KX - NNN5020 - N1 - EEE - 2 - 2

① ② ③ ④ ⑤ ⑥ ⑦

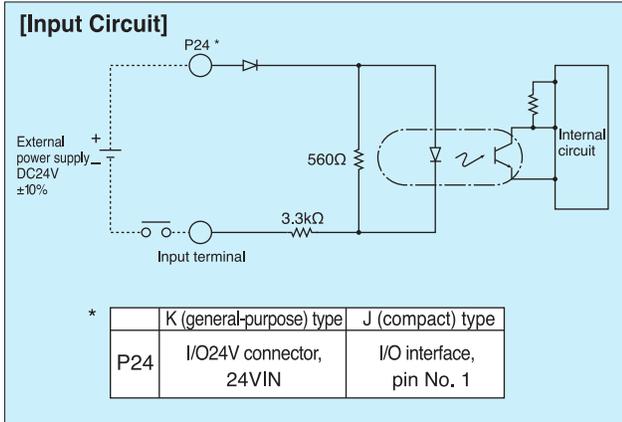
① Series	② Controller type	③ IX robot model	④ Standard I/O specification				⑤ Expansion I/O specification (Note 1)				⑥ I/O flat cable length (Note 2)	⑦ Power-supply voltage
			Slot 1	Slot 2	Slot 3	Slot 4	Slot 1	Slot 2	Slot 3	Slot 4		
XSEL	JX (compact type) KX (general-purpose type) KT (global specifications)	NNN2515~8040 (Standard Type)	N1 { 32 input/16 output } NPN board	E (not used)	E (not used)	E (not used)	E (not used)				2 : 2m 3 : 3m 5 : 5m 0 : None	2 : 200-V
		NSN5016~6016 (High-Speed Type)	N3 (Note 3) { 48 input/48 output } NPN board	C (Note 4) { CC-Link connection } 16/16 board	C (Note 4) { CC-Link connection } 16/16 board	C (Note 4) { CC-Link connection } 16/16 board	C (Note 4) { CC-Link connection } 16/16 board					
		NNW2515~8040 (Dustproof/Splash-proof Type)	P1 { 32 input/16 output } PNP board	N1 { Expansion I/O } PNP32/16	N1 { Expansion I/O } PNP32/16	N1 { Expansion I/O } PNP32/16	N1 { Expansion I/O } PNP32/16					
		TNN3015~3515 (Wall-Mount Type)	P3 (Note 3) { 48 input/48 output } PNP board	P1 { Expansion I/O } PNP16/32	P1 { Expansion I/O } PNP16/32	P1 { Expansion I/O } PNP16/32	P1 { Expansion I/O } PNP16/32					
		UNN3015~3515 (Wall-Mount Inverse Type)	DV { DeviceNet } 256/256 board	N3 (Note 4) { Multipoint I/O } PNP48/48	N3 (Note 4) { Multipoint I/O } PNP48/48	N3 (Note 4) { Multipoint I/O } PNP48/48	N3 (Note 4) { Multipoint I/O } PNP48/48					
		HNN5020~8040 (Ceiling Mount Type)	CC { CC-Link } 256/256 board	P1 { Expansion I/O } PNP32/16	P1 { Expansion I/O } PNP32/16	P1 { Expansion I/O } PNP32/16	P1 { Expansion I/O } PNP32/16					
		INN5020~8040 (Ceiling Mount Inverse Type)	PR { ProfiBus } 256/256 board	CC { Expansion I/O } PNP16/32	CC { Expansion I/O } PNP16/32	CC { Expansion I/O } PNP16/32	CC { Expansion I/O } PNP16/32					
		NNC2515~8040 (Clean Room Type)	ET { Ethernet } { data communication board }	P3 (Note 4) { Multipoint I/O } PNP48/48	P3 (Note 4) { Multipoint I/O } PNP48/48	P3 (Note 4) { Multipoint I/O } PNP48/48	P3 (Note 4) { Multipoint I/O } PNP48/48					
				SA (Note 4) { Expansion SIO } type A	SA (Note 4) { Expansion SIO } type A	SA (Note 4) { Expansion SIO } type A	SA (Note 4) { Expansion SIO } type A					
				SB (Note 4) { Expansion SIO } type B	SB (Note 4) { Expansion SIO } type B	SB (Note 4) { Expansion SIO } type B	SB (Note 4) { Expansion SIO } type B					
		SC (Note 4) { Expansion SIO } type C	SC (Note 4) { Expansion SIO } type C	SC (Note 4) { Expansion SIO } type C	SC (Note 4) { Expansion SIO } type C							

(Note 1) Use a three-digit code (EEE) to specify the expansion slot type. In the case of the JX controller having only one expansion slot, specify the slot (slot 2) using the leftmost digit and leave iEi in the remaining two digits (e.g., N1EE).
 (Note 2) An I/O flat cable is supplied with each standard I/O board, expansion I/O board (50-conductor type) or multipoint I/O board (100-conductor type). The standard cable for standard/ expansion I/O board is 2 m long, but you can also specify 3 m or 5 m. A cable of any length up to 10 m can be fabricated, but a length other than 2, 3 or 5 m will require a special order. If you require a length other than 2, 3 or 5 m, select 0 (None) and place a separate order by specifying the I/O cable model. If you have selected a board other than standard, expansion or multipoint I/O board, select i0i for the I/O flat cable length.
 (Note 3) This is a dedicated option for the JX controller. Use an expansion N3/P3 board for the KX controller.
 (Note 4) This is a dedicated option for the KX controller. C, N3, P3, SA, SB and SC cannot be specified for the JX controller.

3 I/O Wiring Diagrams

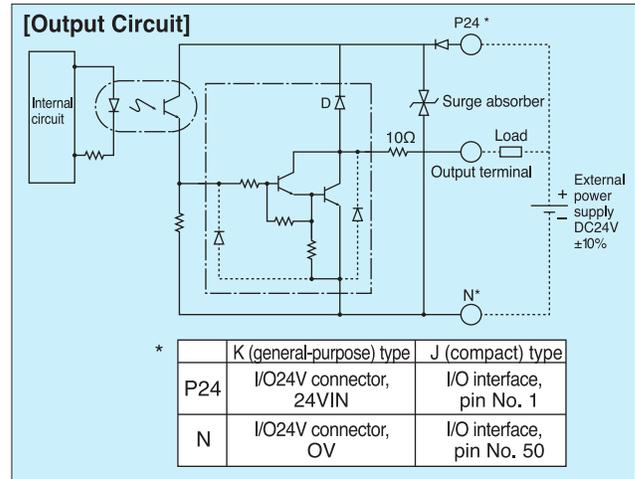
Input Part External input specifications (NPN specification)

Item	Specification
Input power supply	24VDC ±10%
Input current	7mA/ circuit
On/off voltage	On voltage --- 16 VDC minimum, Off voltage --- 5 VDC maximum
Insulation method	Photocoupler insulation
External devices	(1) No-voltage contact (with a minimum load of approx. 5VDC/1mA) (2) Photoelectric/proximity sensor (NPN type) (3) Sequencer transistor output (open-collector type) (4) Sequencer contact output (with a minimum load of approx. 5VDC/1mA)



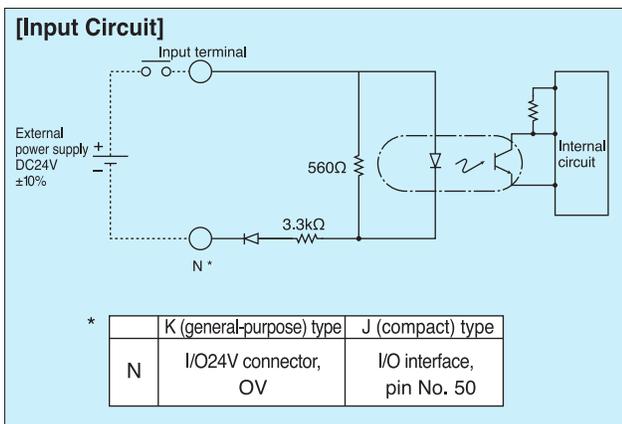
Output Part External output specifications (NPN specification)

Item	Specification
Load voltage	24VDC
Maximum load current	100mA/point, 400mA peak (total current)
Leak current	0.1mA/point maximum
Insulation method	Photocoupler insulation
External devices	(1) Miniature relay, (2) Sequencer input unit



Input Part External input specifications (PNP specification)

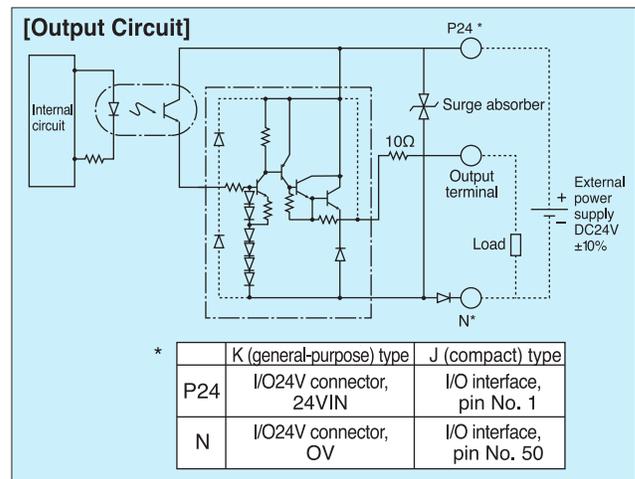
Item	Specification
Input power supply	24VDC ±10%
Input current	7mA/ circuit
On/off voltage	On voltage --- 8 VDC maximum, Off voltage --- 19 VDC minimum
Insulation method	Photocoupler insulation
External devices	(1) No-voltage contact (with a minimum load of approx. 5VDC/1mA) (2) Photoelectric/proximity sensor (PNP type) (3) Sequencer transistor output (open-collector type) (4) Sequencer contact output (with a minimum load of approx. 5VDC/1mA)



Output Part External output specifications (PNP specification)

Item	Specification
Load voltage	24VDC
Maximum load current	100mA/point, 400mA/8ports
Leak current	0.1mA/point maximum
Insulation method	Photocoupler insulation
External devices	(1) Miniature relay, (2) Sequencer input unit

Note) The maximum total load current for every eight ports from output port No. 300 is limited to 400 mA. (The total maximum load current for output port No. 300 + n to No. 300 + n + 7 becomes 400 mA, where n is 0 or a multiple of 8.)



4 I/O Signals

Standard I/O Signals

Pin No.	Category	Port No.	Standard setting
1		—	NC
2		000	Program start
3		001	General-purpose input
4		002	General-purpose input
5		003	General-purpose input
6		004	General-purpose input
7		005	General-purpose input
8		006	General-purpose input
9		007	Program specification (PRG No. 1)
10		008	Program specification (PRG No. 2)
11		009	Program specification (PRG No. 4)
12		010	Program specification (PRG No. 8)
13		011	Program specification (PRG No. 10)
14		012	Program specification (PRG No. 20)
15		013	Program specification (PRG No. 40)
16	Input	014	General-purpose input
17		015	General-purpose input
18		016	General-purpose input
19		017	General-purpose input
20		018	General-purpose input
21		019	General-purpose input
22		020	General-purpose input
23		021	General-purpose input
24		022	General-purpose input
25		023	General-purpose input
26		024	General-purpose input
27		025	General-purpose input
28		026	General-purpose input
29		027	General-purpose input
30	028	General-purpose input	
31	029	General-purpose input	
32	030	General-purpose input	
33	031	General-purpose input	
34	Output	300	Alarm output
35		301	Ready output
36		302	Emergency stop output
37		303	General-purpose output
38		304	General-purpose output
39		305	General-purpose output
40		306	General-purpose output
41		307	General-purpose output
42		308	General-purpose output
43		309	General-purpose output
44		310	General-purpose output
45		311	General-purpose output
46		312	General-purpose output
47		313	General-purpose output
48		314	General-purpose output
49		315	General-purpose output
50		—	NC

Expansion I/O Signals (IA-103-X-32)

Pin No.	Category	Port No.	Standard setting
1		—	NC
2		032	General-purpose input
3		033	General-purpose input
4		034	General-purpose input
5		035	General-purpose input
6		036	General-purpose input
7		037	General-purpose input
8		038	General-purpose input
9		039	General-purpose input
10		040	General-purpose input
11		041	General-purpose input
12		042	General-purpose input
13		043	General-purpose input
14		044	General-purpose input
15		045	General-purpose input
16		046	General-purpose input
17		047	General-purpose input
18		048	General-purpose input
19		049	General-purpose input
20		050	General-purpose input
21		051	General-purpose input
22		052	General-purpose input
23		053	General-purpose input
24		054	General-purpose input
25		055	General-purpose input
26		056	General-purpose input
27		057	General-purpose input
28		058	General-purpose input
29		059	General-purpose input
30		060	General-purpose input
31		061	General-purpose input
32		062	General-purpose input
33		063	General-purpose input
34	Output	316	General-purpose output
35		317	General-purpose output
36		318	General-purpose output
37		319	General-purpose output
38		320	General-purpose output
39		321	General-purpose output
40		322	General-purpose output
41		323	General-purpose output
42		324	General-purpose output
43		325	General-purpose output
44		326	General-purpose output
45		327	General-purpose output
46		328	General-purpose output
47		329	General-purpose output
48		330	General-purpose output
49		331	General-purpose output
50		—	NC

Expansion I/O Signals (IA-103-X-16)

Pin No.	Category	Port No.	Standard setting
1		—	NC
2		032	General-purpose input
3		033	General-purpose input
4		034	General-purpose input
5		035	General-purpose input
6		036	General-purpose input
7		037	General-purpose input
8		038	General-purpose input
9	Input	039	General-purpose input
10		040	General-purpose input
11		041	General-purpose input
12		042	General-purpose input
13		043	General-purpose input
14		044	General-purpose input
15		045	General-purpose input
16		046	General-purpose input
17		047	General-purpose input
18		316	General-purpose output
19		317	General-purpose output
20		318	General-purpose output
21		319	General-purpose output
22		320	General-purpose output
23		321	General-purpose output
24		322	General-purpose output
25		323	General-purpose output
26		324	General-purpose output
27		325	General-purpose output
28		326	General-purpose output
29		327	General-purpose output
30		328	General-purpose output
31		329	General-purpose output
32	Output	330	General-purpose output
33		331	General-purpose output
34		332	General-purpose output
35		333	General-purpose output
36		334	General-purpose output
37		335	General-purpose output
38		336	General-purpose output
39		337	General-purpose output
40		338	General-purpose output
41		339	General-purpose output
42		340	General-purpose output
43		341	General-purpose output
44		342	General-purpose output
45		343	General-purpose output
46		344	General-purpose output
47		345	General-purpose output
48		346	General-purpose output
49		347	General-purpose output
50	—	NC	

Multipoint I/O Signals (JX type with board installed in standard slot)

Pin No.	Category	Color	Port No.	Standard setting	Pin No.	Category	Color	Port No.	Standard setting
1		Brown 1	—	External 24VDC power supply for pin Nos. 2 to 25 and 51 to 74	51		Brown 1	300	Alarm output
2		Red 1	000	Program start	52		Red 1	301	Ready output
3		Orange 1	001	General-purpose input	53		Orange 1	302	Emergency stop output
4		Yellow 1	002	General-purpose input	54		Yellow 1	303	General-purpose output
5		Green 1	003	General-purpose input	55		Green 1	304	General-purpose output
6		Blue 1	004	General-purpose input	56		Blue 1	305	General-purpose output
7		Purple 1	005	General-purpose input	57		Purple 1	306	General-purpose output
8		Gray 1	006	General-purpose input	58		Gray 1	307	General-purpose output
9		White 1	007	Program specification (PRG No. 1)	59		White 1	308	General-purpose output
10		Black 1	008	Program specification (PRG No. 2)	60		Black 1	309	General-purpose output
11		Brown 2	009	Program specification (PRG No. 4)	61	Output	Brown 2	310	General-purpose output
12		Red 2	010	Program specification (PRG No. 8)	62		Red 2	311	General-purpose output
13		Orange 2	011	Program specification (PRG No. 10)	63		Orange 2	312	General-purpose output
14		Yellow 2	012	Program specification (PRG No. 20)	64		Yellow 2	313	General-purpose output
15		Green 2	013	Program specification (PRG No. 40)	65		Green 2	314	General-purpose output
16		Blue 2	014	General-purpose input	66		Blue 2	315	General-purpose output
17		Purple 2	015	General-purpose input	67		Purple 2	316	General-purpose output
18		Gray 2	016	General-purpose input	68		Gray 2	317	General-purpose output
19		White 2	017	General-purpose input	69		White 2	318	General-purpose output
20		Black 3	018	General-purpose input	70		Black 3	319	General-purpose output
21		Brown 3	019	General-purpose input	71		Brown 3	320	General-purpose output
22		Red 3	020	General-purpose input	72		Red 3	321	General-purpose output
23		Orange 3	021	General-purpose input	73		Orange 3	322	General-purpose output
24		Yellow 3	022	General-purpose input	74		Yellow 3	323	General-purpose output
25		Green 3	023	General-purpose input	75		Green 3	—	External power supply for pin Nos. 2 to 25 and 51 to 74
26		Blue 3	—	External 24VDC power supply for pin Nos. 27 to 50 and 76 to 99	76		Blue 3	324	General-purpose output
27		Purple 3	024	General-purpose input	77		Purple 3	325	General-purpose output
28		Gray 3	025	General-purpose input	78		Gray 3	326	General-purpose output
29		White 3	026	General-purpose input	79		White 3	327	General-purpose output
30		Black 3	027	General-purpose input	80		Black 3	328	General-purpose output
31		Brown 4	028	General-purpose input	81		Brown 4	329	General-purpose output
32		Red 4	029	General-purpose input	82		Red 4	330	General-purpose output
33		Orange 4	030	General-purpose input	83		Orange 4	331	General-purpose output
34		Yellow 4	031	General-purpose input	84		Yellow 4	332	General-purpose output
35		Green 4	032	General-purpose input	85		Green 4	333	General-purpose output
36		Blue 4	033	General-purpose input	86		Blue 4	334	General-purpose output
37		Purple 4	034	General-purpose input	87	Output	Purple 4	335	General-purpose output
38		Gray 4	035	General-purpose input	88		Gray 4	336	General-purpose output
39		White 4	036	General-purpose input	89		White 4	337	General-purpose output
40		Black 4	037	General-purpose input	90		Black 4	338	General-purpose output
41		Brown 5	038	General-purpose input	91		Brown 5	339	General-purpose output
42		Red 5	039	General-purpose input	92		Red 5	340	General-purpose output
43		Orange 5	040	General-purpose input	93		Orange 5	341	General-purpose output
44		Yellow 5	041	General-purpose input	94		Yellow 5	342	General-purpose output
45		Green 5	042	General-purpose input	95		Green 5	343	General-purpose output
46		Blue 5	043	General-purpose input	96		Blue 5	344	General-purpose output
47		Purple 5	044	General-purpose input	97		Purple 5	345	General-purpose output
48		Gray 5	045	General-purpose input	98		Gray 5	346	General-purpose output
49		White 5	046	General-purpose input	99		White 5	347	General-purpose output
50		Black 5	047	General-purpose input	100			Black 5	—	OV for pins 27–50 & 76–99

Multipoint I/O Signals (KX type with board installed in expansion slot)

Pin No.	Category	Color	Port No.	Standard setting	Pin No.	Category	Color	Port No.	Standard setting
1		Brown 1	—	External 24VDC power supply for pin Nos. 2 to 25 and 51 to 74	51		Brown 1	316	General-purpose ioutput
2		Red 1	032	General-purpose input	52		Red 1	317	General-purpose output
3		Orange 1	033	General-purpose input	53		Orange 1	318	General-purpose output
4		Yellow 1	034	General-purpose input	54		Yellow 1	319	General-purpose output
5		Green 1	035	General-purpose input	55		Green 1	320	General-purpose output
6		Blue 1	036	General-purpose input	56		Blue 1	321	General-purpose output
7		Purple 1	037	General-purpose input	57		Purple 1	322	General-purpose output
8		Gray 1	038	General-purpose input	58		Gray 1	323	General-purpose output
9		White 1	039	General-purpose input	59		White 1	324	General-purpose output
10		Black 1	040	General-purpose input	60		Black 1	325	General-purpose output
11		Brown 2	041	General-purpose input	61	Output	Brown 2	326	General-purpose output
12		Red 2	042	General-purpose input	62		Red 2	327	General-purpose output
13		Orange 2	043	General-purpose input	63		Orange 2	328	General-purpose output
14		Yellow 2	044	General-purpose input	64		Yellow 2	329	General-purpose output
15		Green 2	045	General-purpose input	65		Green 2	330	General-purpose output
16		Blue 2	046	General-purpose input	66		Blue 2	331	General-purpose output
17		Purple 2	047	General-purpose input	67		Purple 2	332	General-purpose output
18		Gray 2	048	General-purpose input	68		Gray 2	333	General-purpose output
19		White 2	049	General-purpose input	69		White 2	334	General-purpose output
20		Black 3	050	General-purpose input	70		Black 3	335	General-purpose output
21		Brown 3	051	General-purpose input	71		Brown 3	336	General-purpose output
22		Red 3	052	General-purpose input	72		Red 3	337	General-purpose output
23		Orange 3	053	General-purpose input	73		Orange 3	338	General-purpose output
24		Yellow 3	054	General-purpose input	74		Yellow 3	339	General-purpose output
25		Green 3	055	General-purpose input	75		Green 3	—	External power supply for pin Nos. 2 to 25 and 51 to 74
26		Blue 3	—	Note (CD24V)	76		Blue 3	340	General-purpose output
27		Purple 3	056	General-purpose input	77		Purple 3	341	General-purpose output
28		Gray 3	057	General-purpose input	78		Gray 3	342	General-purpose output
29		White 3	058	General-purpose input	79		White 3	343	General-purpose output
30		Black 3	059	General-purpose input	80		Black 3	344	General-purpose output
31		Brown 4	060	General-purpose input	81		Brown 4	345	General-purpose output
32		Red 4	061	General-purpose input	82		Red 4	346	General-purpose output
33		Orange 4	062	General-purpose input	83		Orange 4	347	General-purpose output
34		Yellow 4	063	General-purpose input	84		Yellow 4	348	General-purpose output
35		Green 4	064	General-purpose input	85		Green 4	349	General-purpose output
36		Blue 4	065	General-purpose input	86		Blue 4	350	General-purpose output
37		Purple 4	066	General-purpose input	87	Output	Purple 4	351	General-purpose output
38		Gray 4	067	General-purpose input	88		Gray 4	352	General-purpose output
39		White 4	068	General-purpose input	89		White 4	353	General-purpose output
40		Black 4	069	General-purpose input	90		Black 4	354	General-purpose output
41		Brown 5	070	General-purpose input	91		Brown 5	355	General-purpose output
42		Red 5	071	General-purpose input	92		Red 5	356	General-purpose output
43		Orange 5	072						

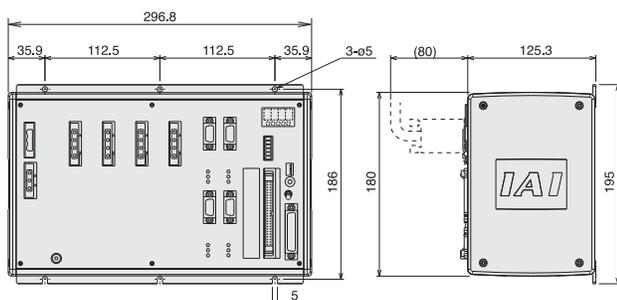
5 Specifications

Item	Description	
Controller series/type	JX	KX
Number of controlled axes	4 axes	
Maximum connection axis output (W)	MAX450W	MAX1750W
Weight	5.0kg	7.0kg
Power-supply voltage	Single-phase 200 – 230VAC (factory setting)	
Operating voltage range	±10%	
Power frequency	50/60Hz	
Power capacity	MAX1750VA	MAX3050VA
Operating temperature range	0° – 40°C	
Operating humidity range	30% – 85%	
Storage temperature range	-10° – 65°C	
Axis control method	AC full-digital servo	
Position detection method	17-bit incremental encoder (wire-saving type)	
Programming language	Super SEL Language	
Program steps	6000 steps (total)	
Number of positions	3000 positions (total)	
Number of programs	64 programs	
Multitasking	16 programs	
Storage device	Flash ROM + SRAM battery backup	
Data input method	Teaching pendant or PC software	
Standard inputs	32 points (total of dedicated inputs + general-purpose inputs)	
Standard outputs	16 points (total of dedicated outputs + general-purpose outputs)	
Expansion inputs/outputs	Expandable to a maximum of 144 input/output points in total using an expansion PIO board(s)	Expandable to a maximum of 336 input/output points in total using an expansion PIO board(s)
Serial communication	Not possible	Possible if an expansion SIO board is used (optional)
Other inputs/outputs	Emergency stop input, safety gate input, system ready output	
Protection functions	Motor overcurrent, overload, motor driver temperature check, overload check, encoder open-circuit detection, soft limit over, system error, battery error	
Accessory	I/O flat cable	
Options	Teaching pendant, PC software, expansion I/O board, expansion SIO board	

6 External Dimensions

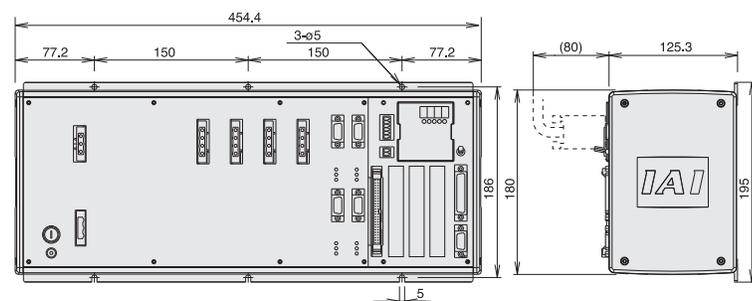
Controller

JX



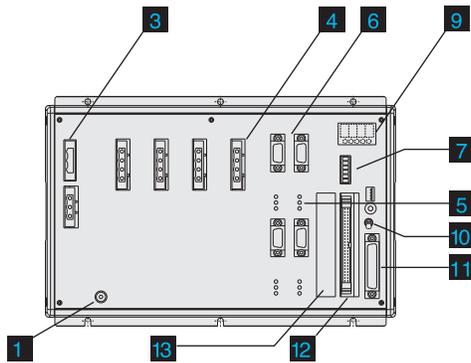
Controller

KX

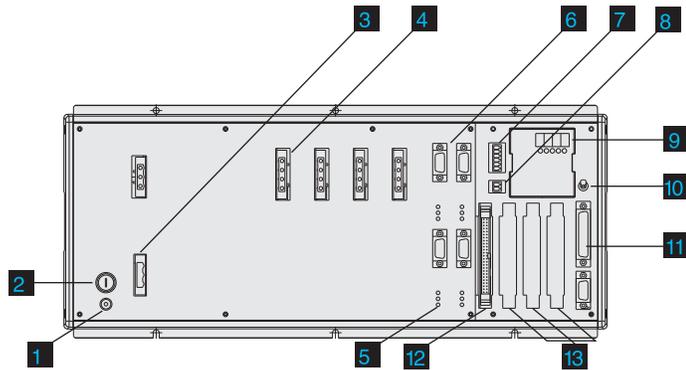


7 Name of Each Part

JX Type (Compact)



KX Type (General-purpose)



1 FG terminal

This terminal connects to FG of the enclosure. The enclosure is connected to PE in the AC input part via wiring inside the controller.

2 Fuse holder (KX type only)

It holds the half-cut fuse for overcurrent protection of the AC input part.

3 Main power input connector

A single-phase 200-VAC input connector (Supplied with a cable-end plug. Refer to the opposite page.)

4 Motor cable connector

It connects the actuator's motor power cable.

5 Axis driver status LEDs

These LEDs are used to monitor the status of the driver CPU controlling the motor drive.

The three LEDs specified below are available:

Name	Color	Meaning when the LED is lit
ALM	Orange	An error is detected in the driver.
SVON	Green	The motor is driven with the servo turned on.
BATT ALM	Orange	The absolute battery voltage is low.

6 Encoder cable connector

This 15-pin/D-sub connector connects the actuator's encoder cable.

7 System I/O connector

This connector connects two control inputs relating to controller operation and one system status output. (Supplied with a cable-end plug. Refer to the opposite page.)

Name		
EMG	Emergency stop input	Operation is enabled if this input is ON. If the input is turned OFF, an emergency stop will be actuated.
ENB	Safety gate input	Operation is enabled if this input is ON. If the input is turned OFF, the servo will turn off.
RDY	System ready relay output	The status of the controller is output. Cascade connection is supported. The system is ready if this output is shorted, and not ready if it is open.

8 I/O24V power connector (KX type only)

13 14 This connector supplies insulated I/O power externally when DI/DOs are installed in any I/O slot (12 or 13). (Supplied with a cable-end plug. Refer to the opposite page.)

9 Panel window

This panel provides the four-digit, seven-segment LED display showing the system status, as well as five LED lamps.

10 Mode switch

This alternate switch with lock is used to specify the controller operation mode. To operate the switch, pull it forward and tilt.

Tilt the switch upward to select the MANU (manual operation) mode or downward to select the AUTO (automatic operation) mode. Teaching operation can only be performed in the MANU mode. In the MANU mode, automatic operation using external I/Os is not permitted.

11 Teaching connector

This D-sub/25-pin connector is used to connect a teaching pendant or PC to input program positions.

12 Standard I/O slot (Slot 1)

A standard PIO board with 32 input points and 16 output points is installed in the standard specification.

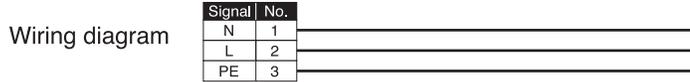
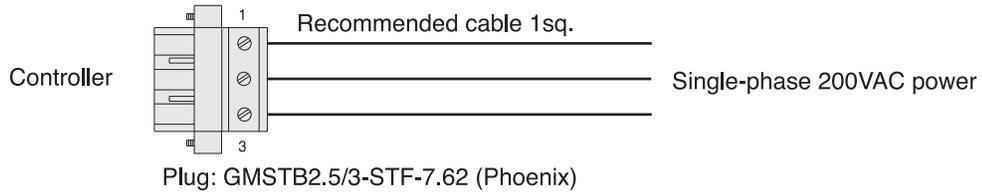
13 Expansion I/O slots (Slots 2, 3 and 4)

An expansion I/O board can be installed in any of these slots (optional).

PX/QX Type also available. Please contact your IAI America representative or refer to the PX/QX catalog.

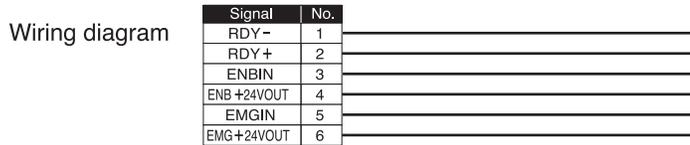
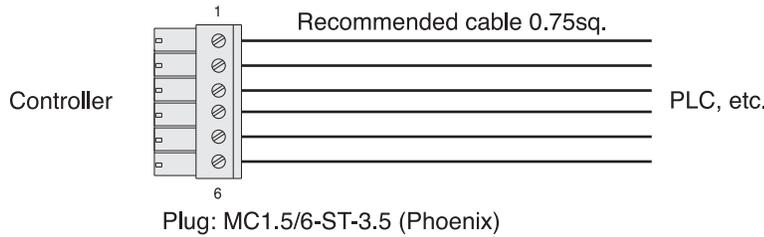
Main Power Input Connector

This connector is used to connect 100/200 VAC power.
(The cable is provided by the user.)



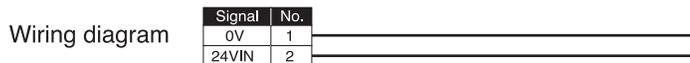
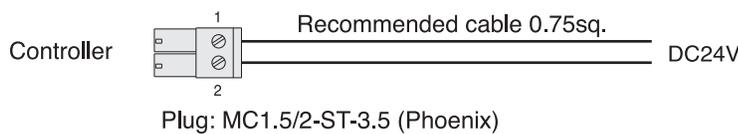
System I/O Connector

This connector is used to supply emergency stop, enable and system ready contacts from the controller to a PLC, etc.
(The cable is provided by the user.)



I/O24V Power Connector

This connector is used to supply 24V power when the controller's I/Os are used.
(The cable is provided by the user.)



8 Options

Teaching Pendant

Model **SEL-T**

Model **SEL-TD**

Features **ANSI robot standard / Safety category compliant**

SEL-TD is equipped with a 3-position enable switch compatible with ANSI robot standard. In addition, the emergency stop switch is able to respond to safety category class 4 by making circuits redundant.

Improved environmental resistance (Protective structure IP54)

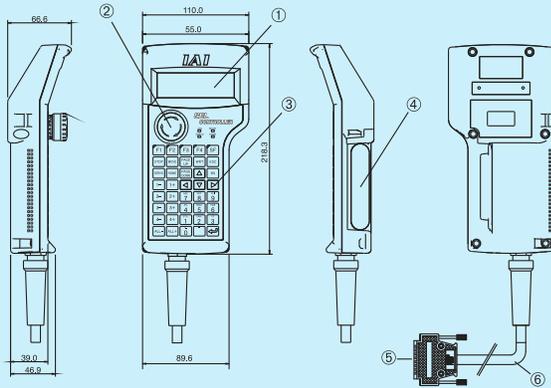
Due to IP54's protective structure, use in hostile environments is possible, where the likes of dust and the water spray are present.

Specifications

Item	Specification
3-position enable switch	No
ANSI Specification	Non-Compliant
Protective Structure	IP54
Cable length	5m
CE mark/UL Spec	Compliant

Specifications

Item	Specification
3-position enable switch	Yes
ANSI Specification	Compliant
Protective Structure	IP54
Cable length	5m
CE mark/UL Spec	Compliant



Dimensions



④ Connector converter cable
A converter cable is required when connecting SEL-T / SEL-TD to ASEL & SSEL controller.
(Cable length: 0.2 m)
Model: CB-SEL-SJ002

- ① LCD: 4 lines of 20 characters
- ② Emergency stop switch
- ③ Input key
- ④ Enable switch (SEL-TD limit)
- ⑤ Interface connector
- ⑥ cable (5m)

PC Software (Windows type only)

Model **IA-101-X-MW**(WIN2000/V version)
IA-101-X-CW(PC98 version)

Note
A product older than Ver. 2.0.0.0 cannot be used with a SCARA robot.

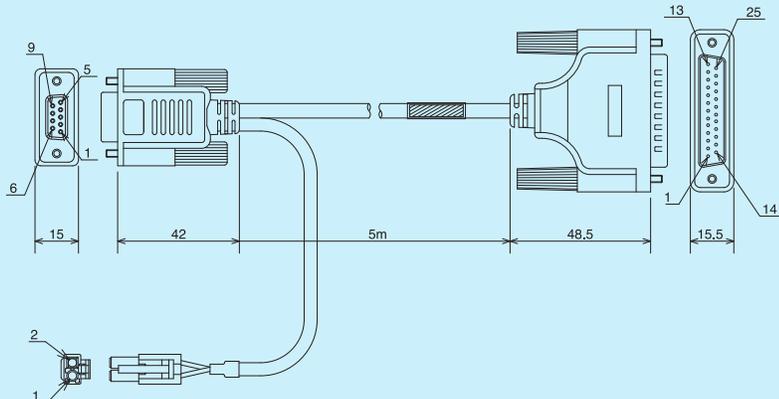
Features This startup assistance software provides functions for program/position input, test operation and monitoring. It significantly enhances the debugging functions to help reduce the startup time.

Description • Software (floppy disk)
(The software runs on Windows 95, 98, NT, 2000 and ME.)
• PC connection cable 5m + Emergency stop box (Model CB-ST-E1MW050-EB)

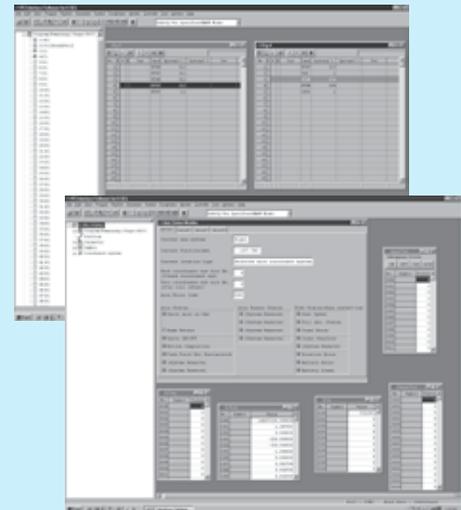
Dimensions

PC connection cable (Model CB-ST-E1MW050)

Note
If you are ordering a PC connection cable separately for maintenance purpose, specify CB-ST-E1MW050. If you are ordering a PC cable and an emergency stop box as a set, specify CB-ST-E1MW050-EB.



D-sub/9-pin socket		Wiring diagram		D-sub/25-pin plug	
Connector hood FG				Connector hood FG	
BROWN	2		2	BROWN	2
BROWN / BLACK	3		3	BROWN / BLACK	3
ORANGE	5		7	ORANGE	7
ORANGE / BLACK	5		7	ORANGE / BLACK	7
	4		4		4
	6		5		5
	7		6		6
	8		20		20
			18		18
			19		19
ELP - 02V			13	RED	13
RED	1		12	RED / BLACK	12
BLACK	2		1	Shielded FG	1



Connector Assignments of Dedicated Terminal Block for Multipoint I/O Board

This connector is used to connect an external I/O device. Each connector accepts 16 DIs and 16 DOs.
External I/O Connector Specifications

Item						
Connector	XG4A-4031(OMRON) 40-pin MIL flat connector					
DI	48 points					
DO	48 points					
Connected unit	External I/O device					
Connector name		CN2 connector	CN3 connector	CN4 connector		
Terminal-assigned inputs	1	Common	Common terminal (COM):	Common terminal (COM):	Common terminal (COM):	
	2	Common	For IN00 to IN07	For IN16 to IN23	For IN32 to IN39	
	3	General-purpose input	IN00	IN16	IN32	
	4	General-purpose input	IN01	IN17	IN33	
	5	General-purpose input	IN02	IN18	IN34	
	6	General-purpose input	IN03	IN19	IN35	
	7	General-purpose input	IN04	IN20	IN36	
	8	General-purpose input	IN05	IN21	IN37	
	9	General-purpose input	IN06	IN22	IN38	
	10	General-purpose input	IN07	IN23	IN39	
	11	General-purpose input	IN08	IN24	IN40	
	12	General-purpose input	IN09	IN25	IN41	
	13	General-purpose input	IN10	IN26	IN42	
	14	General-purpose input	IN11	IN27	IN43	
	15	General-purpose input	IN12	IN28	IN44	
	16	General-purpose input	IN13	IN29	IN45	
	17	General-purpose input	IN14	IN30	IN46	
	18	General-purpose input	IN15	IN31	IN47	
	Terminal-assigned outputs	19	Common	Common terminal (COM):	Common terminal (COM):	Common terminal (COM):
		20	Common	For IN08 to IN15	For IN24 to IN31	For IN40 to IN47
21		+24V	External 24V power input	External 24V power input	External 24V power input	
22		OV	For OUT00 to OUT07	For OUT16 to OUT23	For OUT32 to OUT39	
23		General-purpose output	OUT00	OUT16	OUT32	
24		General-purpose output	OUT01	OUT17	OUT33	
25		General-purpose output	OUT02	OUT18	OUT34	
26		General-purpose output	OUT03	OUT19	OUT35	
27		General-purpose output	OUT04	OUT20	OUT36	
28		General-purpose output	OUT05	OUT21	OUT37	
29		General-purpose output	OUT06	OUT22	OUT38	
30		General-purpose output	OUT07	OUT23	OUT39	
31		General-purpose output	OUT08	OUT24	OUT40	
32		General-purpose output	OUT09	OUT25	OUT41	
33		General-purpose output	OUT10	OUT26	OUT42	
34		General-purpose output	OUT11	OUT27	OUT43	
35		General-purpose output	OUT12	OUT28	OUT44	
36		General-purpose output	OUT13	OUT29	OUT45	
37		General-purpose output	OUT14	OUT30	OUT46	
38		General-purpose output	OUT15	OUT31	OUT47	
39		+24V	External 24V power input	External 24V power input	External 24V power input	
40		OV	For OUT08 to OUT15	For OUT24 to OUT31	For OUT40 to OUT47	



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