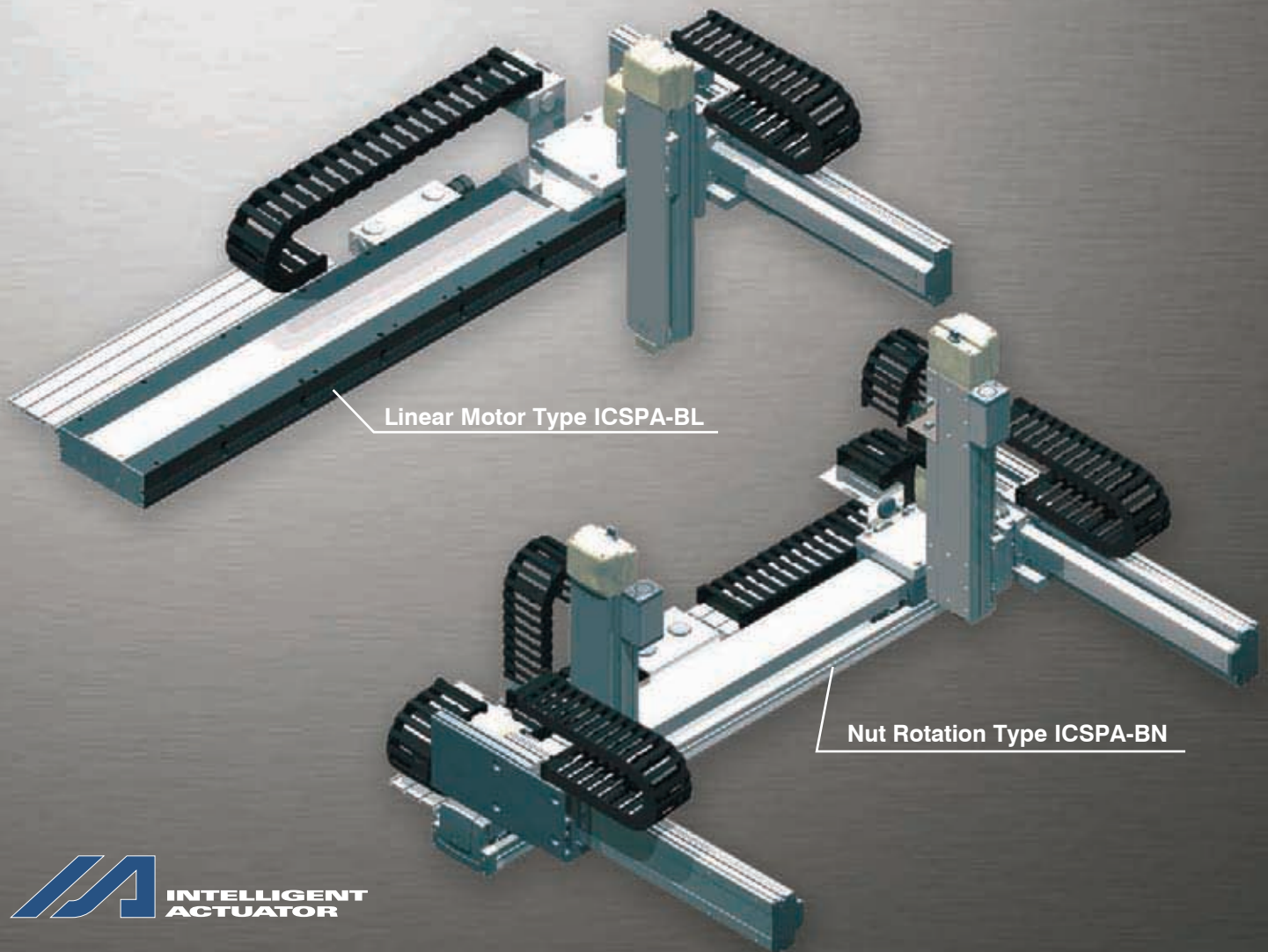


NUT ROTATION ACTUATOR CARTESIAN SYSTEM

LINEAR MOTOR CARTESIAN SYSTEM

**NS-ISPA
LSA-ISPA**

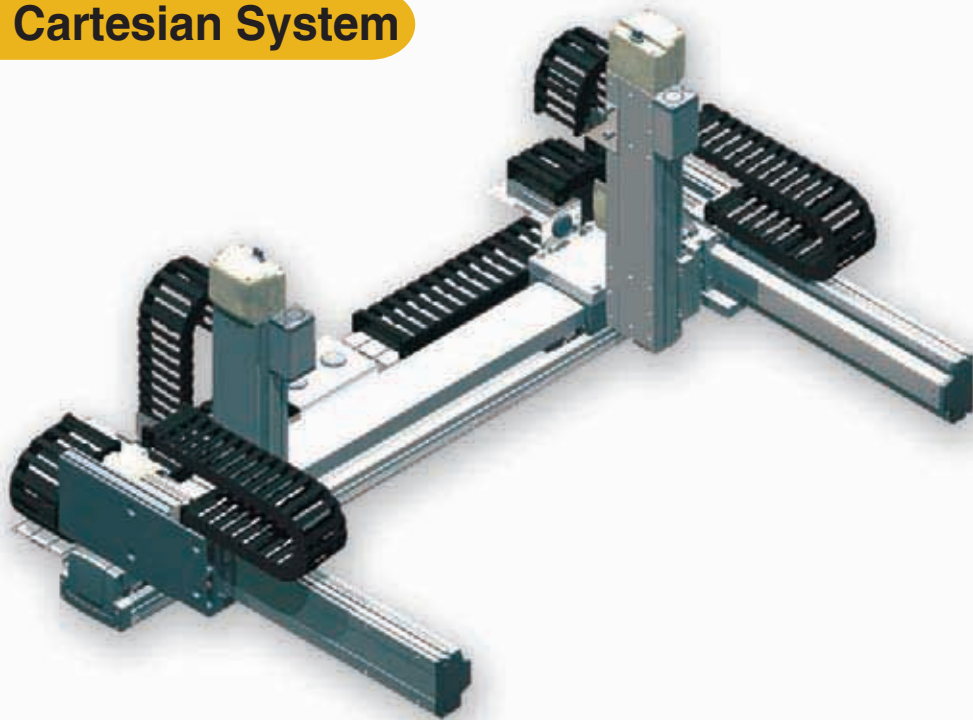
Introducing Two Multi-slider Type Cartesian Robots ^{*1}

*1 A multi-slider robot consists of two sliders installed in one axis, where both sliders can be operated independently.

Combined actuator units of nut rotation type offering excellent transfer capability

The built-in servo motor in the slider turns the nut to move the actuator. Accordingly, heavy loads can be operated at high speed even at a long stroke. A desired combination can be selected from 2-axis, 3-axis, 4-axis (2 axes + 2 axes) and 6-axis (3 axes + 3 axes) configurations.

NS - ISPA Cartesian System



Combined actuator units of linear motor type offering excellent acceleration/deceleration performance

High-thrust linear motors enable operation requiring a long stroke (up to 4155 mm) and high acceleration/deceleration (rating: 1 G). A desired combination can be selected from 2-axis, 3-axis, 4-axis (2 axes + 2 axes) and 6-axis (3 axes + 3 axes) configurations.

LSA - ISPA Cartesian System

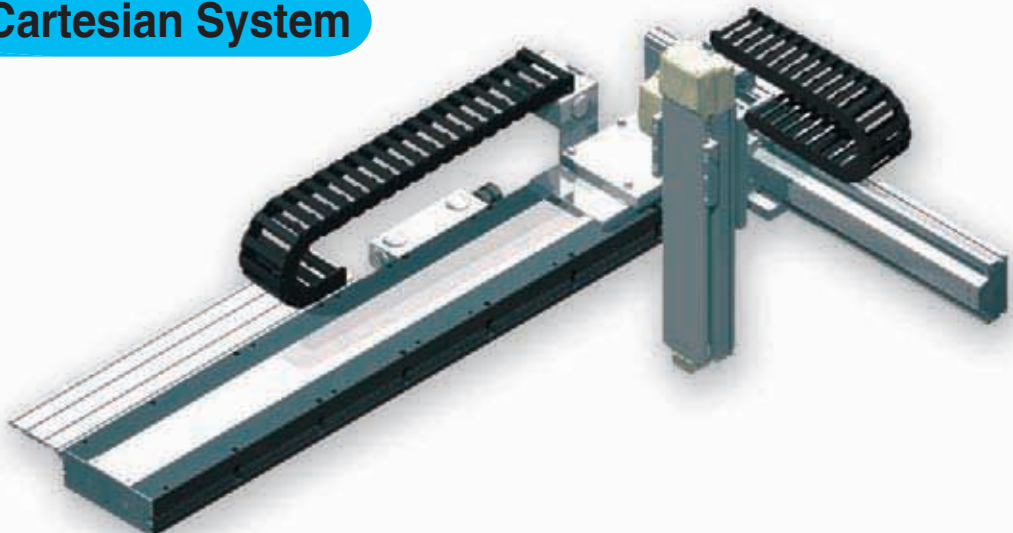
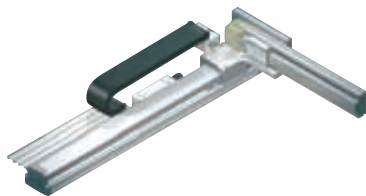
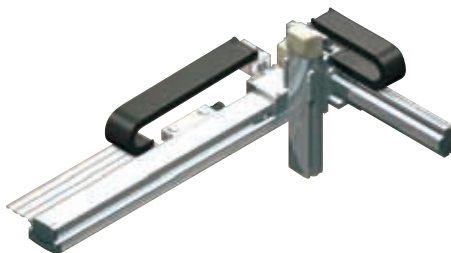


Table of Contents

Z-axis			X-axis		Model	Page	
Nut rotation actuators	2-axis combo		Single-slider type	High-speed type	ICSPA2-B1N□H	P5	
				Medium-speed type	ICSPA2-B1N□M	P7	
			Long-stroke type (single slider)	High-speed type	ICSPA2-B2N□H	P9	
				Medium-speed type	ICSPA2-B2N□M	P11	
	3-axis combo Z-axis base mount		Single-slider type	High-speed type	ICSPA3-B1N□HB3□	P13	
				Medium-speed type	ICSPA3-B1N□MB3□	P15	
			Long-stroke type (single slider)	High-speed type	ICSPA3-B2N□HB3□	P17	
				Medium-speed type	ICSPA3-B2N□MB3□	P19	
	Z-axis slider mount		Single-slider type	High-speed type	ICSPA3-B1N□HS3M	P21	
				Medium-speed type	ICSPA3-B1N□MS3M	P23	
			Long-stroke type (single slider)	High-speed type	ICSPA3-B2N□HS3M	P25	
				Medium-speed type	ICSPA3-B2N□MS3M	P27	
	4-axis combo (2 axes + 2 axes)		Multi-slider type	High-speed type	ICSPA4-B3N1H	P29	
				Medium-speed type	ICSPA4-B3N1M	P31	
	6-axis combo Z-axis base mount (3 axes + 3 axes)		Multi-slider type	High-speed type	ICSPA6-B3N1HB3□	P33	
				Medium-speed type	ICSPA6-B3N1MB3□	P35	
			Z-axis slider mount	Multi-slider type	High-speed type	ICSPA6-B3N1HS3M	P37
					Medium-speed type	ICSPA6-B3N1MS3M	P39
Linear motor actuators	2-axis combo		Single-slider type	ICSPA2-B1L□H		P41	
	3-axis combo	Z-axis base mount	Single-slider type	ICSPA3-B1L□HB3□		P43	
		Z-axis slider mount	Single-slider type	ICSPA3-B1L□HS3M		P45	
	4-axis combo (2 axes + 2 axes)		Multi-slider type	ICSPA4-B2L1H		P47	
	6-axis combo (3 axes + 3 axes)	Z-axis base mount	Multi-slider type	ICSPA6-B2L1HB3□		P49	
		Z-axis slider mount	Multi-slider type	ICSPA6-B2L1HS3M		P51	
Options	Actuator options					P53	
Controllers	2-axis controller				SSEL	P54	
	6-axis controller				XSEL	P64	

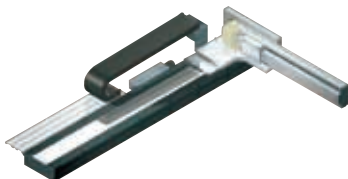
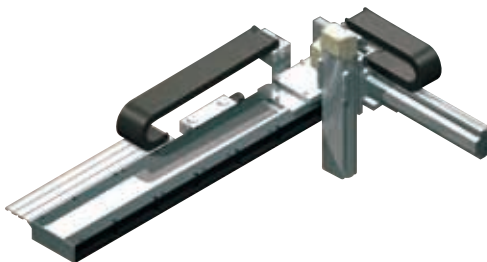
Cartesian Robots Using Nut Rotation Actuators / Large Linear Motors - Supporting Long Strokes, High-speed Moves and Multiple Sliders

NS (Nut Rotation Actuator) + ISPA

Number of combined axes		2 axes				3 axes								
Z-axis installation method		—				Z-axis base mount								
Series		ICSPA2				ICSPA3								
Type		B1N□H	B1N□M	B2N□H	B2N□M	B1N□HB3H	B1N□HB3M	B1N□MB3H	B1N□MB3M	B2N□HB3H	B2N□HB3M	B2N□MB3H	B2N□MB3M	
Exterior View														
Stroke (mm)	X-axis	500~2200		2250~3000		500~2200				2250~3000				
	Y-axis	200~700				200~700								
	Z-axis	—				100~500								
Speed (mm/s)	X-axis	2400	1300	2400	1300	2400		1300		2400		1300		
	Y-axis	1200	1200	1200	1200	1200		1200		1200		1200		
	Z-axis	—	—	—	—	1200	600	1200	600	1200	600	1200	600	
Maximum Load Capacity (kg) *1		21.2	40.0	21.2	40.0	9.0	11.2	9.0	19.0	9.0	11.2	9.0	19.0	
Page		P.5	P.7	P.9	P.11	P.13		P.15		P.17		P.19		

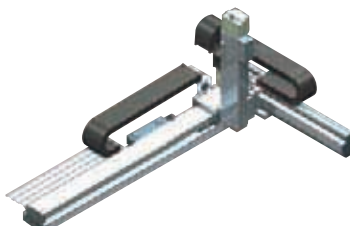
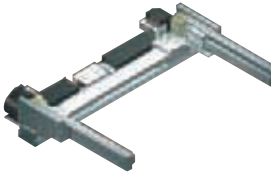
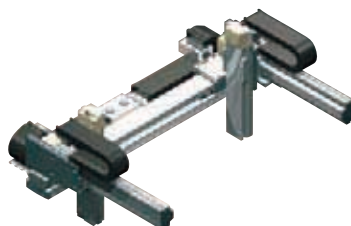
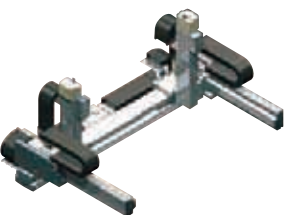
*1 : The load capacity changes according to the Y-axis stroke and Z-axis stroke. For details, check the page describing the type you are interested in.

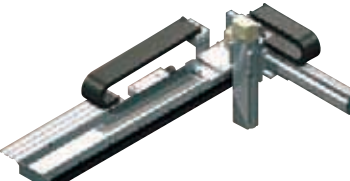
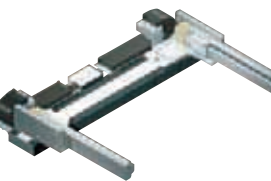
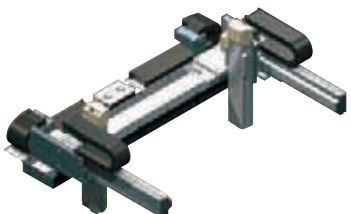
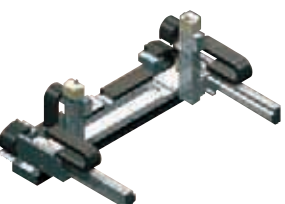
LSA (Linear Motor) + ISPA

Number of combined axes		2 axes		3 axes		
Z-axis installation method		—		Z-axis base mount		
Series		ICSPA2		ICSPA3		
Type		B1L□H		B1L□HB3H	B1L□HB3M	
Exterior View						
Stroke (mm)	X-axis	1050~4155		1050~4155		
	Y-axis	200~400		200~400		
	Z-axis	—		100~400		
Speed (mm/s)	X-axis	2500		2500		
	Y-axis	1200		1200		
	Z-axis	—		1200	600	
Maximum Load Capacity (kg) *1		21.2		9.0	11.2	
Page		P.41		P.43		

*1 : The load capacity changes according to the Y-axis stroke and Z-axis stroke. For details, check the page describing the type you are interested in.

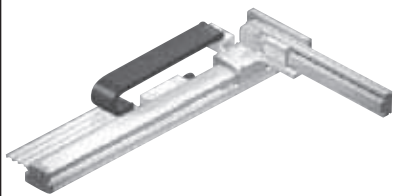


	3 axes				4 axes (2 axes + 2 axes)		6 axes (3 axes + 3 axes)					
	Z-axis slider mount				—		Z-axis base mount				Z-axis slider mount	
	ICSPA3				ICSPA4		ICSPA6					
	B1N□HS3M	B1N□MS3M	B2N□HS3M	B2N□MS3M	B3N1H	B3N1M	B3N1HB3H	B3N1HB3M	B3N1MB3H	B3N1MB3M	B3N1HS3M	B3N1MS3M
												
	500~2200		2250~3000		250~2250		250~2250					
	200~700				200~700		200~700					
	100~400				—		100~500				100~400	
	2400	1300	2400	1300	2400	1300	2400		1300		2400	1300
	1200	1200	1200	1200	1200	1200	1200		1200		1200	1200
	600	600	600	600	—	—	1200	600	1200	600	600	600
	11.5	13.0	11.5	13.0	21.2	40.0	9.0	11.2	9.0	19.0	11.5	13.0
	P.21	P.23	P.25	P.27	P.29	P.31	P.33		P.35		P.37	P.39

	3 axes	4 axes (2 axes + 2 axes)	6 axes (3 axes + 3 axes)		
	Z-axis slider mount	—	Z-axis base mount		Z-axis slider mount
	ICSPA3	ICSPA4	ICSPA6		
	B1L□HS3M	B2L1H	B2L1HB3H	B2L1HB3M	B2L1HS3M
					
	1050~4155	730~3835	730~3835		
	200~400	200~400	200~400		
	100~300	—	100~400		100~300
	2500	2500	2500		
	1200	1200	1200		
	600	—	1200	600	
	11.5	21.2	9.0	11.2	11.5
	P.45	P.47	P.49		P.51

ICSPA2-B1N□H

Cartesian robot/Nut rotation type + ISA (2 axes)
XYB (Y-axis base mount)/X-axis high-speed type



Model Designation **ICSPA2** — **B1N□H** — — — — — **T2** — —

Series — Type — Encoder Type — X-axis stroke Options — X-axis stroke Options — T2: Applicable Controller — Cable Length — Y-axis cable wiring
 ICSPA2: High-precision, 2-axis specification — Refer to the "Model Details" table below. — A: Absolute specification I: Incremental specification — 50:500 mm 220:2200 mm (50 mm increments) — Refer to the "Options" table below 20:200 mm 70:700 mm (50 mm increments) — T2: SCON SSEL XSEL-P/Q — 3L: 3 m 5L: 5 m □L: Specified length — CT: Cable track

Model Details

Encoder Type	XY combination direction*	Model**
Absolute	1	ICSPA2-B1N1H-A- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B1N2H-A- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B1N3H-A- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B1N4H-A- ①AQRT- ②AQ-T2- ③-④
Incremental	1	ICSPA2-B1N1H-I- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B1N2H-I- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B1N3H-I- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B1N4H-I- ①AQRT- ②AQ-T2- ③-④

* Refer to the figure below for the XY combination directions.

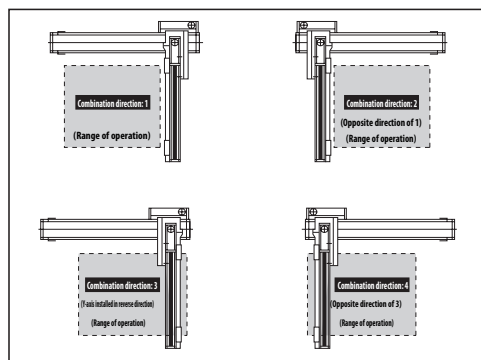
** Refer to the table on the right for the details of ① to ④ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	50 : 500mm 220 : 2200mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
④	Y-axis cable wiring	CT : Cable track

※ The above explains the details of ① to ④ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.

If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, CS equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	300	400	500	600	700	800~2200
X-axis	—	—	—	2400			
Y-axis	1200						—

Component Axes

Component Axes	Model
X-axis	NS-LXMS- ①-400-40- (Stroke) -T2-AQ- ②RT
Y-axis	ISPA-MYM- ①-200-20- (Stroke) -T2-AQ

* Enter A (Absolute) or I (Incremental) into ① above.

* Enter NT1 or NT2 into ② above.

NT1: Enter for cartesian combination direction 1 or 3

NT2: Enter for cartesian combination direction 2 or 4

(Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	21.2	20.3	19.4	18.4	17.5	16.6
	0.4	12.2	11.3	10.4	9.4	8.5	7.6
	0.5	7.7	6.8	5.9	4.9	4.0	3.1
	0.6	3.2	2.3	1.4	—	—	—
	0.7	—	—	—	—	—	—
	0.8	—	—	—	—	—	—
	0.9	—	—	—	—	—	—
	1.0	—	—	—	—	—	—



Caution

(Note 1) Strokes are indicated in cm (centimeters) in model names.

(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.

(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

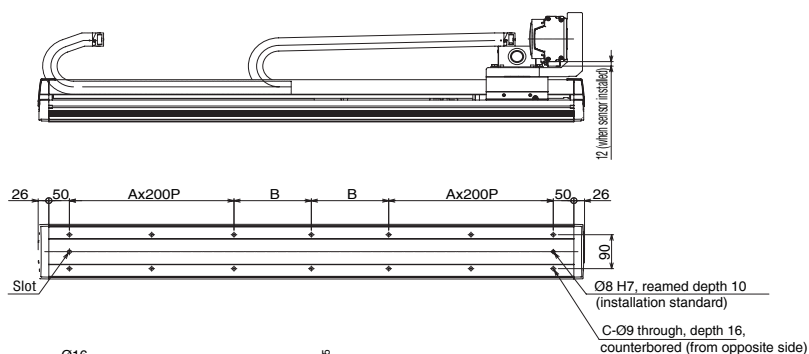
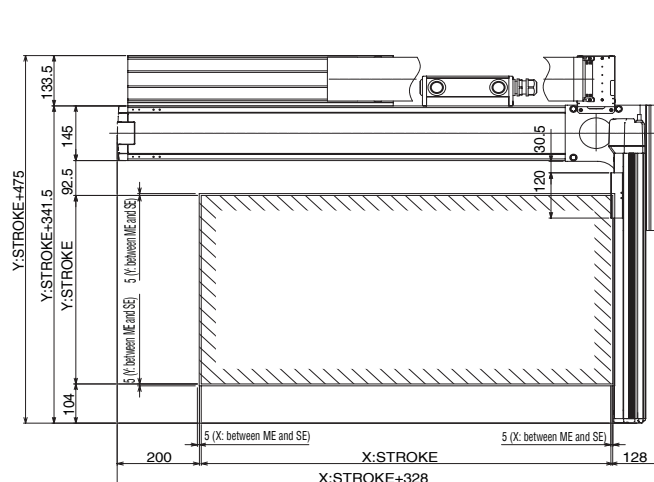
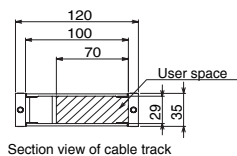
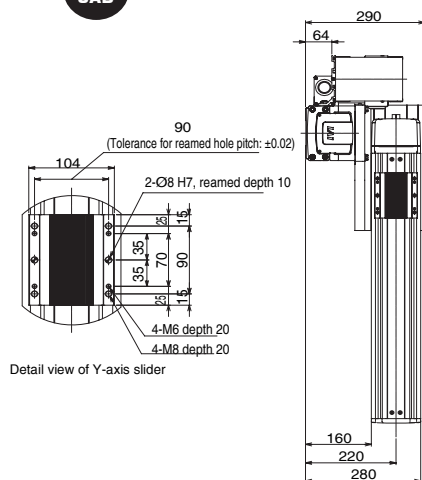
ICSPA2-B1N□H

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end

2D
CAD



Detail view of X-axis base mounting hole

X stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

ICSPA2-B1N□M

Cartesian robot / Nut rotation type + ISA (2 axes)
XYB (Y-axis base mount) / X-axis medium-speed type

Model Designation

ICSPA2 — B1N□M — — — — — T2 — — —

Series — Type — Encoder Type — X-axis stroke — Options — Y-axis stroke — Options — Applicable Controller — Cable Length — Y-axis cable wiring

ICSPA2: High-precision, 2-axis specification

Refer to the "Model Details" table below.

A: Absolute specification
I: Incremental specification

50:500 mm
220:2200 mm
(50 mm increments)

Refer to the "Options" table below

20:200 mm
70:700 mm
(50 mm increments)

Refer to the "Options" table below

T2:SCON
SSEL
XSEL-P/Q

3L: 3 m
5L: 5 m
□L: Specified length

CT: Cable track

Model Details

Encoder Type	XY combination direction [°]	Model**
Absolute	1	ICSPA2-B1N1M-A- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B1N2M-A- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B1N3M-A- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B1N4M-A- ①AQRT- ②AQ-T2- ③-④
Incremental	1	ICSPA2-B1N1M-I- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B1N2M-I- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B1N3M-I- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B1N4M-I- ①AQRT- ②AQ-T2- ③-④

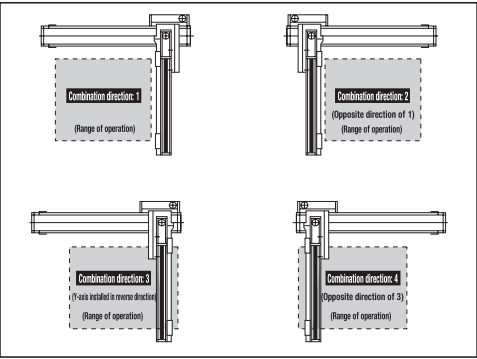
* Refer to the figure below for the XY combination directions.
**Refer to the table on the right for the details of ①to④ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	50 : 500mm 220 : 2200mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
④	Y-axis cable wiring	CT : Cable track

* The above explains the details of ① to ④ in the model names shown to the left.

XY Combination Direction



Component Axes

Component	Model
X-axis	NS-LXMS- ①-400-20 -(Stroke) -T2-AQ- ②-RT
Y-axis	ISPA-MYM- ①-200-20 -(Stroke) -T2-AQ

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT 1 or NT2 into ② above.
NT 1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
(Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	40.0	40.0	33.0	27.3	22.9	19.3
	0.4	30.0	30.0	30.0	27.3	22.9	19.3
	0.5	21.6	21.6	21.6	21.6	21.6	19.3
	0.6	18.0	18.0	18.0	18.0	17.5	16.6
	0.7	15.3	14.9	14.0	13.0	12.1	11.2
	0.8	12.2	11.3	10.4	9.4	8.5	7.6
	0.9	9.5	8.6	7.7	6.7	5.8	4.9
	1.0	6.8	5.9	5.0	—	—	—

Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	300	400	500	600	700	800~2200
X-axis	—	—	—	1300			
Y-axis	1200						—

(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

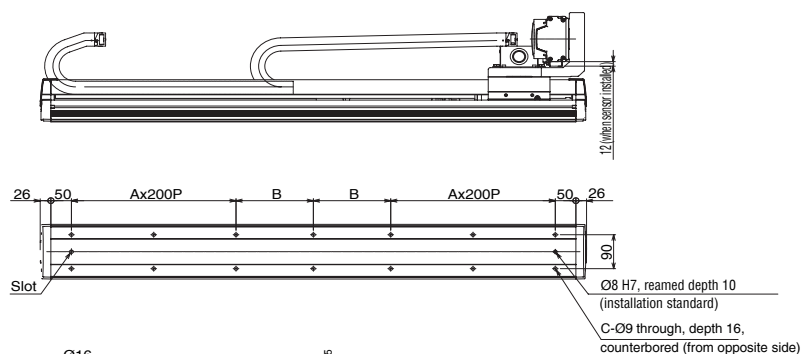
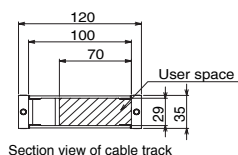
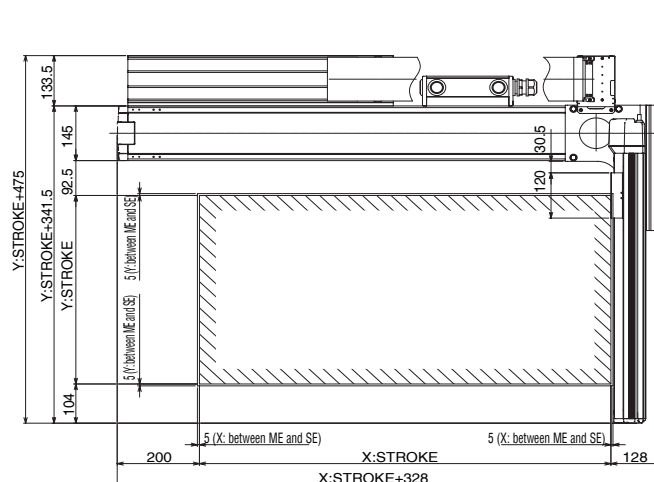
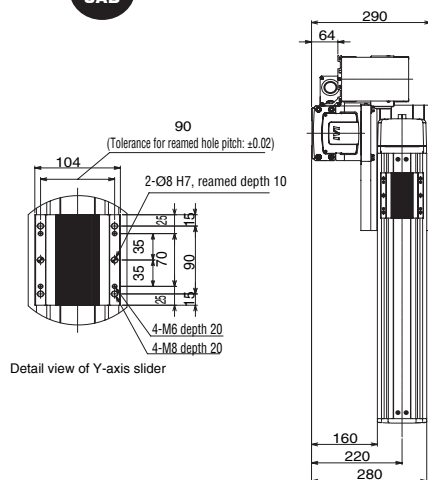
ICSPA2-B1N□M

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end

2D
CAD



Detail view of X-axis base mounting hole

X stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

ICSPA2-B2N□H

Cartesian robot / Nut rotation type + ISA (2 axes)
XYB (Y-axis base mount) / X-axis long-stroke, high-speed type

Model Designation

ICSPA2 — B2N□H — □ — □ — □ — □ — □ — T2 — □ — □

Series — Type — Encoder Type — X-axis stroke — Options — Y-axis stroke — Options — Applicable Controller — Cable Length — Y-axis cable wiring

ICSPA2: High-precision, 2-axis specification

Refer to the "Model Details" table below.

A: Absolute specification
I: Incremental specification

50:500 mm
300:3000 mm (50 mm increments)

Refer to the "Options" table below

20:200 mm
70:700 mm (50 mm increments)

Refer to the "Options" table below

T2:SCON
SSEL
XSEL-P/Q

3L: 3 m
5L: 5 m
□L: Specified length

CT: Cable track

Model Details

Encoder Type	XY combination direction (*)	Model**
Absolute	1	ICSPA2-B2N1H-A- ①AQRT- ②AQ-T2- ③- ④
	2	ICSPA2-B2N2H-A- ①AQRT- ②AQ-T2- ③- ④
	3	ICSPA2-B2N3H-A- ①AQRT- ②AQ-T2- ③- ④
	4	ICSPA2-B2N4H-A- ①AQRT- ②AQ-T2- ③- ④
Incremental	1	ICSPA2-B2N1H-I- ①AQRT- ②AQ-T2- ③- ④
	2	ICSPA2-B2N2H-I- ①AQRT- ②AQ-T2- ③- ④
	3	ICSPA2-B2N3H-I- ①AQRT- ②AQ-T2- ③- ④
	4	ICSPA2-B2N4H-I- ①AQRT- ②AQ-T2- ③- ④

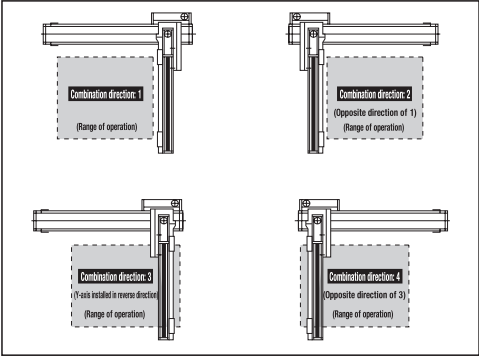
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to④in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
④	Y-axis cable wiring	CT : Cable track

* The above explains the details of ① to ④ in the model names shown to the left.

XY Combination Direction



Component Axes

Component	Model
X-axis	NS-LXMS- ①-400-40 -(Stroke) -T2-AQ- ②-RT
Y-axis	ISPA-MYM- ①-200-20 -(Stroke) -T2-AQ

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	21.2	20.3	19.4	18.4	17.5	16.6
	0.4	12.2	11.3	10.4	9.4	8.5	7.6
	0.5	7.7	6.8	5.9	4.9	4.0	3.1
	0.6	3.2	2.3	1.4	—	—	—
	0.7	—	—	—	—	—	—
	0.8	—	—	—	—	—	—
	0.9	—	—	—	—	—	—
	1.0	—	—	—	—	—	—

Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	300	400	500	600	700	2250~3000
X-axis	—	—	—	—	—	—	2400
Y-axis	1200						—

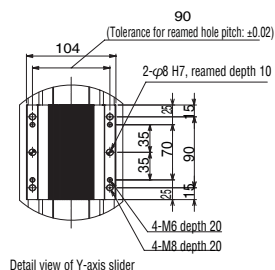
(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the Y-axis can operate at accelerations of up to 1 G, the acceleration is limited to 0.3 G for the X-axis. (Contact IAI for Y-axis load capacities at higher accelerations.)

ICSPA2-B2N□H

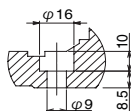
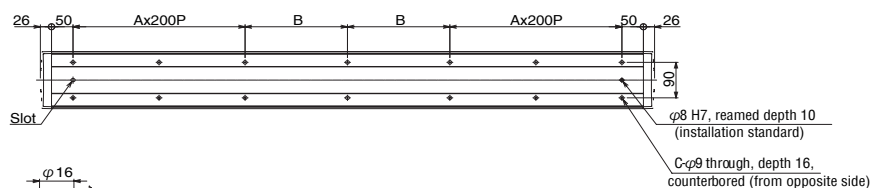
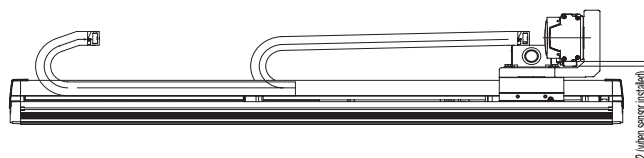
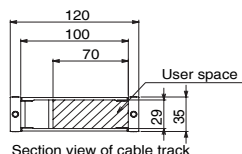
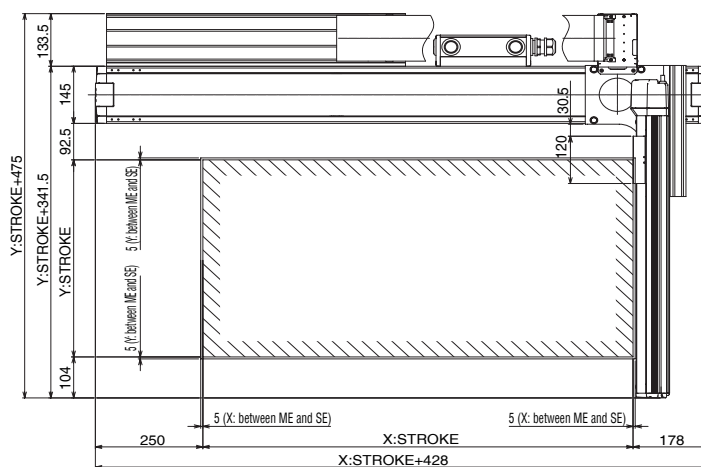
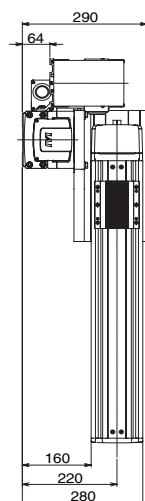
Dimensions

You can download CAD drawings from our website.

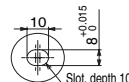
2D
CAD



ME: Mechanical end
SE: Stroke end



Detail view of X-axis base mounting hole



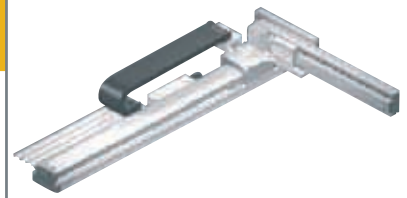
Detail view of slot in X-axis base

X stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA2-B2N□M

Cartesian robot / Nut rotation type + ISA (2 axes)
XYB (Y-axis base mount) / X-axis long-stroke, medium-speed type

Model Designation	ICSPA2	B2N□M							T2		
	Series	Type	Encoder Type	X-axis stroke	Options	Y-axis stroke	Options	Applicable Controller	Cable Length	Y-axis cable wiring	
	ICSPA2: High-precision, 2-axis specification	Refer to the "Model Details" table below.	A: Absolute specification I: Incremental specification	50:500 mm 300:3000 mm (50 mm increments)	Refer to the "Options" table below	20:200 mm 70:700 mm (50 mm increments)	Refer to the "Options" table below	T2:SCON SSEL XSEL-P/Q	3L: 3 m 5L: 5 m □ L: Specified length	CT: Cable track	



Model Details

Encoder Type	XY combination direction (*)	Model**
Absolute	1	ICSPA2-B2N1M-A- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B2N2M-A- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B2N3M-A- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B2N4M-A- ①AQRT- ②AQ-T2- ③-④
Incremental	1	ICSPA2-B2N1M-I- ①AQRT- ②AQ-T2- ③-④
	2	ICSPA2-B2N2M-I- ①AQRT- ②AQ-T2- ③-④
	3	ICSPA2-B2N3M-I- ①AQRT- ②AQ-T2- ③-④
	4	ICSPA2-B2N4M-I- ①AQRT- ②AQ-T2- ③-④

* Refer to the figure below for the XY combination directions.

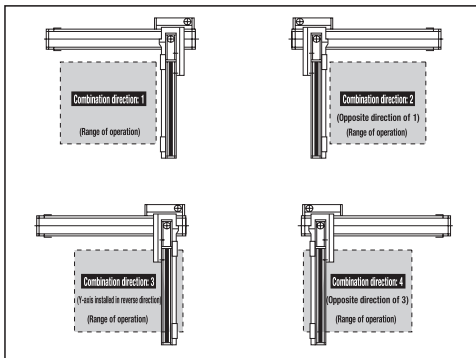
** Refer to the table on the right for the details of ① to ④ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □m
④	Y-axis cable wiring	CT : Cable track

* The above explains the details of ① to ④ in the model names shown to the left.

XY Combination Direction



Component Axes

Component	Model
X-axis	NS-LXMS- ①-400-20 -(Stroke) -T2-AQ- ②-RT
Y-axis	ISPA-MYM- ①-200-20 -(Stroke) -T2-AQ

* Enter A (Absolute) or I (Incremental) into ① above.

* Enter NT1 or NT2 into ② above.

NT1: Enter for cartesian combination direction 1 or 3

NT2: Enter for cartesian combination direction 2 or 4

(Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	40.0	40.0	33.0	27.3	22.9	19.3
	0.4	30.0	30.0	30.0	27.3	22.9	19.3
	0.5	21.6	21.6	21.6	21.6	21.6	19.3
	0.6	18.0	18.0	18.0	18.0	17.5	16.6
	0.7	15.3	14.9	14.0	13.0	12.1	11.2
	0.8	12.2	11.3	10.4	9.4	8.5	7.6
	0.9	9.5	8.6	7.7	6.7	5.8	4.9
	1.0	6.8	5.9	5.0	—	—	—

Options

Specify each applicable option code after the stroke of each axis.

If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	300	400	500	600	700	2250~3000
X-axis	—	—	—	—	—	—	1300
Y-axis	1200						—



Caution

(Note 1) Strokes are indicated in cm (centimeters) in model names.

(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.

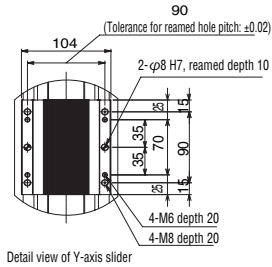
(Note 3) The rated acceleration is 0.3 G. Although the Y-axis can operate at accelerations of up to 1 G, the acceleration is limited to 0.3 G for the X-axis. (Contact IAI for Y-axis load capacities at higher accelerations.)

ICSPA2-B2N□M

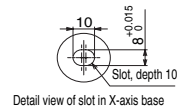
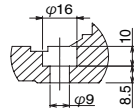
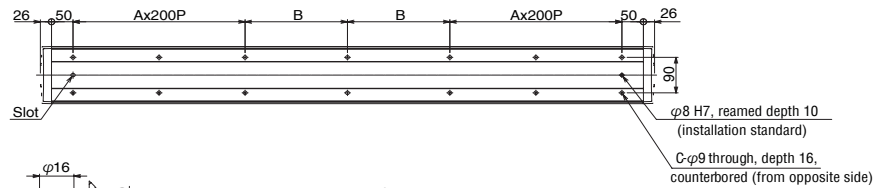
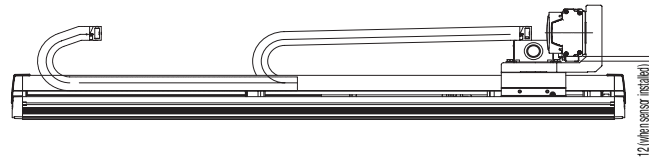
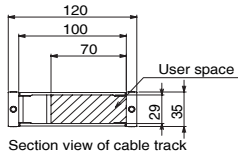
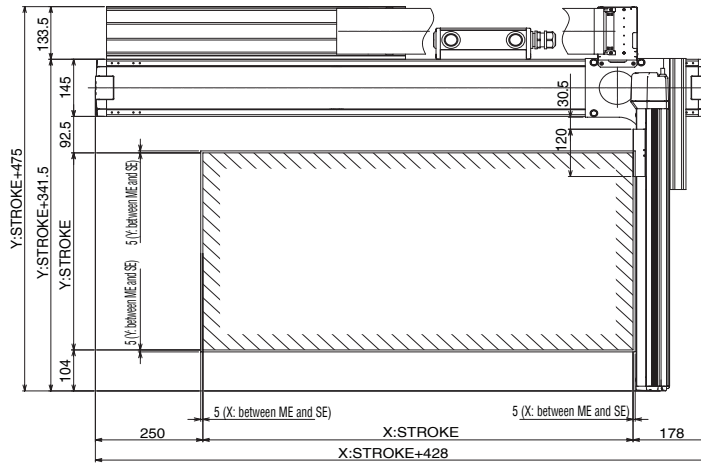
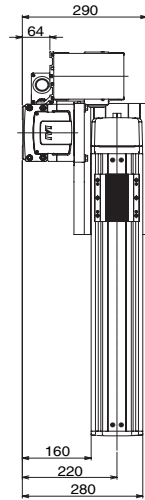
Dimensions

You can download CAD drawings from our website.

2D
CAD



ME: Mechanical end
SE: Stroke end



X stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA3-B1N□HB3□

Cartesian robot / Nut rotation type + ISA (3 axes)
X-axis high-speed type Z-axis base mount

■ Model Designation **ICSPA3- B1N□HB3□** - □ - □ - □ - □ - □ - □ - □ - □ - **T2** - □ - □ - □

Series - Type - Encoder Type - X-axis stroke Options - Y-axis stroke Options - Z-axis stroke Options - Applicable Controller - Cable Length - Y-axis cable wiring - Z-axis cable wiring

ICSPA3: High-precision, 3-axis specification Refer to the "Model Details" table below.

A: Absolute specification 50:500 mm Refer to the "Options" table below 20:200 mm Refer to the "Options" table below 10:100 mm Refer to the "Options" table below

I: Incremental specification 220:2200 mm Refer to the "Options" table below 70:700 mm Refer to the "Options" table below 50:500 mm Refer to the "Options" table below

T2: SSEL XSEL-P/Q □ L: Specified length

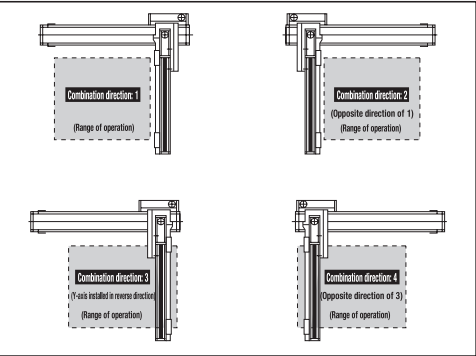
3L: 3 m 5L: 5 m CT: Cable track (standard)

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	H	ICSPA3-B1N1HB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N1HB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	2	H	ICSPA3-B1N2HB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N2HB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	3	H	ICSPA3-B1N3HB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N3HB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	4	H	ICSPA3-B1N4HB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N4HB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
Incremental	1	H	ICSPA3-B1N1HB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N1HB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	2	H	ICSPA3-B1N2HB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N2HB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	3	H	ICSPA3-B1N3HB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N3HB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
	4	H	ICSPA3-B1N4HB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤
		M	ICSPA3-B1N4HB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④- ⑤

* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to⑤ in the model names shown above.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/20 mm (10 mm)

* The value in parentheses applies to the Z-axis medium-speed specification.

Component Axes

Component Axes	Model
X-axis	NS-LXMS-①-400-40- (Stroke)-T2-AQ- ② -RT
Y-axis	ISPA-MYM-①-200-20- (Stroke)-T2-AQ
Z-axis	ISPA-MXM-①-200-20 (10)-(Stroke)-T2-AQ-B

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA3-B1N□HB3□

Load Capacity (kg)

■B1N□HB3H

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	9.0			8.2	7.2	6.2
	~200	9.0			8.3	7.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

Maximum Speed by Stroke (mm/s)

■B1N□HB3H

		Stroke						
		100	200	300	400	500	600	700
X-axis	—	—	—	—	—	2400	—	—
Y-axis	—	1200					—	—
Z-axis	—	1200			—	—	—	—

■B1N□HB3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	11.2	10.2	9.2	8.2	7.2	6.2
	~200	10.2	9.3	8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

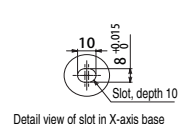
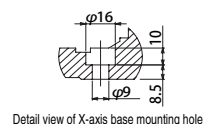
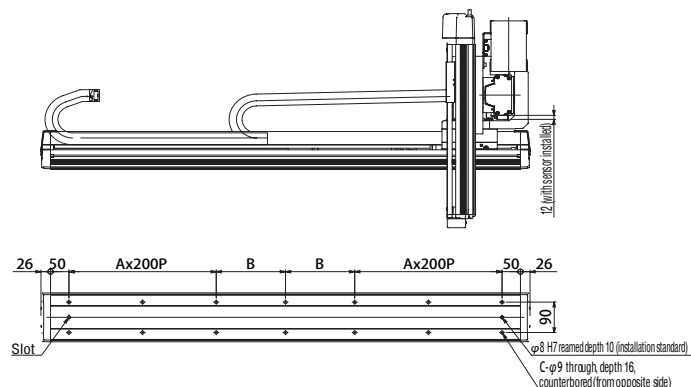
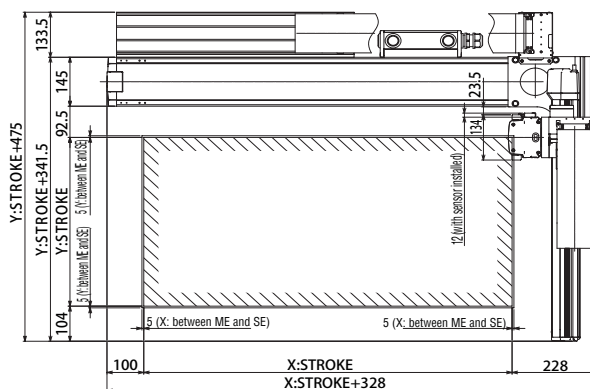
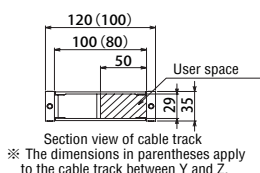
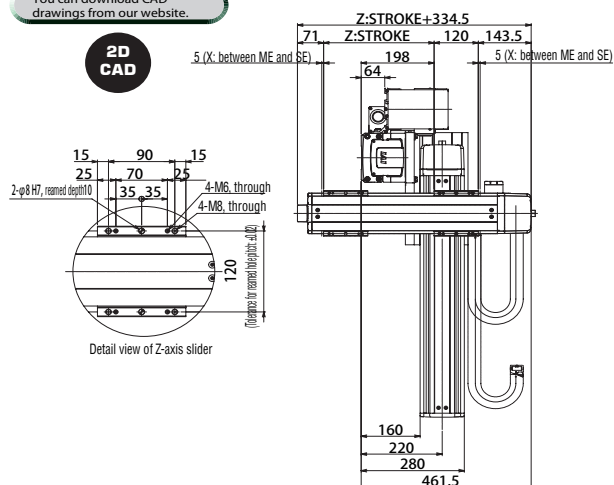
■B1N□HB3M

		Stroke						
		100	200	300	400	500	600	700
X-axis	—	—	—	—	—	2400	—	—
Y-axis	—	1200					—	—
Z-axis	—	600			—	—	—	—

Dimensions

You can download CAD drawings from our website.

2D CAD



X Stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X Stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

ICSPA3-B1N□MB3□

Cartesian robot / Nut rotation type + ISA (3 axes)
X-axis medium-speed type Z-axis base mount

Model Designation **ICSPA3- B1N□MB3□ - □ - □ - □ - □ - □ - □ - □ - T2 - □ - □ - □**

Series - Type - Encoder Type - X-axis stroke Options - Y-axis stroke Options - Z-axis stroke Options - Apply Controller - Cable Length - Y-axis cable wiring - Z-axis cable wiring

ICSPA3: High-precision, 3-axis specification Refer to the "Model Details" table below.

A: Absolute specification
I: Incremental specification

50:500 mm
220:2200 mm (50 mm increments)

Refer to the "Options" table below

20:200 mm
70:700 mm (50 mm increments)

Refer to the "Options" table below

10:100 mm
50:500 mm (50 mm increments)

Refer to the "Options" table below

T2:SCON
XSEL-P/Q

3L: 3 m
5L: 5 m
□ L: Specified length

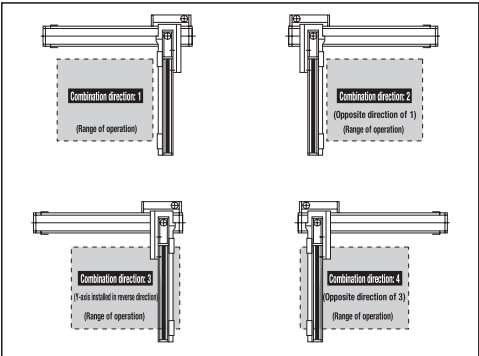
CT: Cable track (standard)

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	H	ICSPA3-B1N1MB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N1MB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	2	H	ICSPA3-B1N2MB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N2MB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	3	H	ICSPA3-B1N3MB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N3MB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	4	H	ICSPA3-B1N4MB3H-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N4MB3M-A- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
Incremental	1	H	ICSPA3-B1N1MB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N1MB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	2	H	ICSPA3-B1N2MB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N2MB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	3	H	ICSPA3-B1N3MB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N3MB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
	4	H	ICSPA3-B1N4MB3H-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤
		M	ICSPA3-B1N4MB3M-I- ①AQRT- ②AQ- ③AQB-T2- ④ ⑤

* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ① to ⑤ in the model names shown above.

XY CombinationDirection



Component Axes

Component Axes	Model
X-axis	NS-LXMS-①-400-20-{Stroke}-T2-AQ- ② -RT
Y-axis	ISPA-MYM-①-200-20-{Stroke}-T2-AQ
Z-axis	ISPA-MXM-①-200-20 {10}-{Stroke}-T2-AQ-B

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
* The value in parentheses applies to the Z-axis medium-speed spe cification.
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	50 : 500mm 220 : 2200mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 50 : 500mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output /lead	400 W/20 mm
Y-axis motor output /lead	200 W/20 mm
Z-axis motor output /lead	200 W/20 mm {10 mm}

* The value in parentheses applies to the Z-axis medium-speed spe cification.

(Note 1)Strokes are indicated in cm (centimeters) in model names.
(Note 2)The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3)The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA3-B1N MB3

Load Capacity (kg)

B1N MB3H

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	9.0					8.9
	~200	9.0					7.9
	~300	9.0					6.9
	~400	9.0					5.9
	~500	9.0				8.5	4.8

Maximum Speed by Stroke (mm/s)

B1N MB3H

		Stroke						
		100	200	300	400	500	600	700
X-axis	—	—	—	—	—	—	—	—
Y-axis	—	1200						—
Z-axis	—	1200						—

B1N MB3M

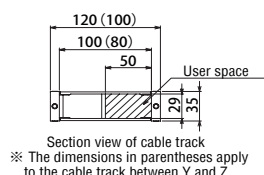
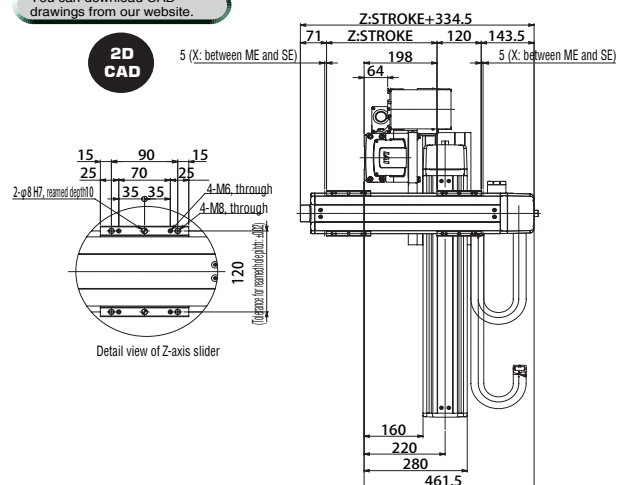
		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	19.0					17.0
	~200	19.0					16.1
	~300	19.0					15.1
	~400	19.0					14.1
	~500	19.0				18.8	13.0

B1N MB3M

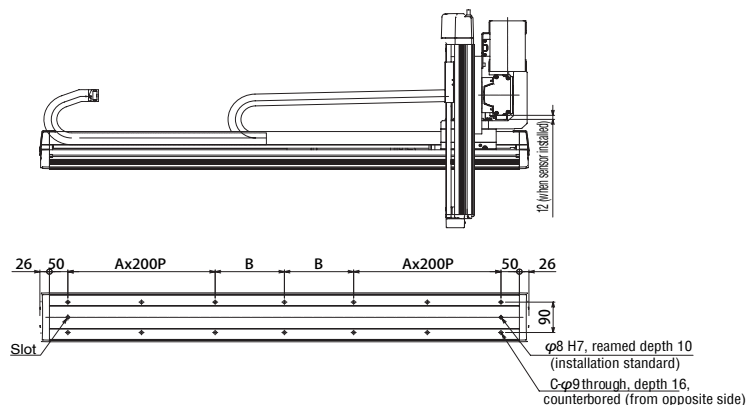
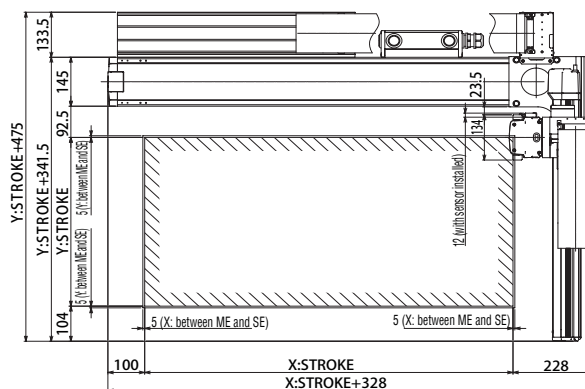
		Stroke						
		100	200	300	400	500	600	700
X-axis	—	—	—	—	—	—	—	—
Y-axis	—	1200						—
Z-axis	—	600						—

Dimensions

You can download CAD drawings from our website.



ME: Mechanical end
SE: Stroke end



Detail view of X-axis base mounting hole

Detail view of slot in X-axis base

X Stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X Stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

Encoder Type	XY combination direction (°)	Z-axis speed type	Model **
Absolute	1	H	ICSPA3-B2N1HB3H-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N1HB3M-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	2	H	ICSPA3-B2N2HB3H-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N2HB3M-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	3	H	ICSPA3-B2N3HB3H-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N3HB3M-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	4	H	ICSPA3-B2N4HB3H-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N4HB3M-A- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
Incremental	1	H	ICSPA3-B2N1HB3H-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N1HB3M-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	2	H	ICSPA3-B2N2HB3H-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N2HB3M-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	3	H	ICSPA3-B2N3HB3H-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N3HB3M-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
	4	H	ICSPA3-B2N4HB3H-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤
		M	ICSPA3-B2N4HB3M-I- ①AQRT- ②AQ- ③AGB-T2- ④ ⑤

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm } 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm } 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm } 50 : 500mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/20 mm (10 mm)

Component Axes	Model
X-axis	NS-LXMXS- <u>1</u> -400-40-(Stroke)-T2-AQ- <u>2</u> -RT
Y-axis	ISPA-MYM- <u>1</u> -200-20-(Stroke)-T2-AQ
Z-axis	ISPA-MXM- <u>1</u> -200-20 (10)-(Stroke)-T2-AQ-B

(Note 1) Strokes are indicated in cm (centimeters) in model names.

(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.

(Note 3) The rated acceleration is 0.3 G. Although the Y-axis can operate at accelerations of up to 1 G, the acceleration is limited to 0.3 G for the X-axis. (Contact IAI for Y-axis load capacities at higher accelerations.)

ICSPA3-B2N□HB3□

Load Capacity (kg)

■ B2N□HB3H

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	9.0			8.2	7.2	6.2
	~200	9.0		8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

■ B2N□HB3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	11.2	10.2	9.2	8.2	7.2	6.2
	~200	10.2	9.3	8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

Maximum Speed by Stroke (mm/s)

■ B2N□HB3H

	Stroke						
	100	200	300	400	500	600	700
X-axis	—	—	—	—	—	—	2400
Y-axis	—	1200					—
Z-axis	1200			—	—	—	—

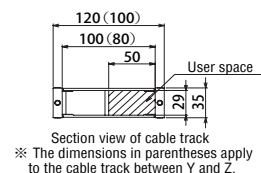
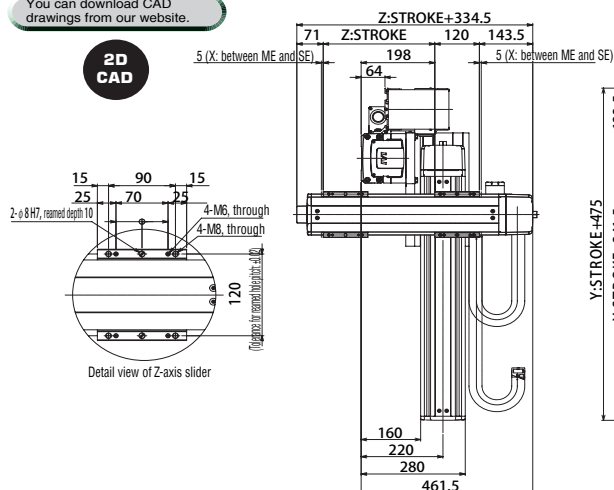
■ B2N□HB3M

	Stroke						
	100	200	300	400	500	600	700
X-axis	—	—	—	—	—	—	2400
Y-axis	—	1200					—
Z-axis	600			—	—	—	—

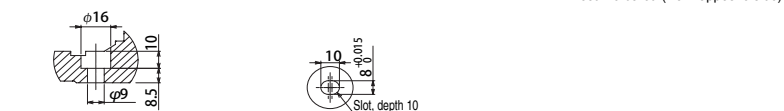
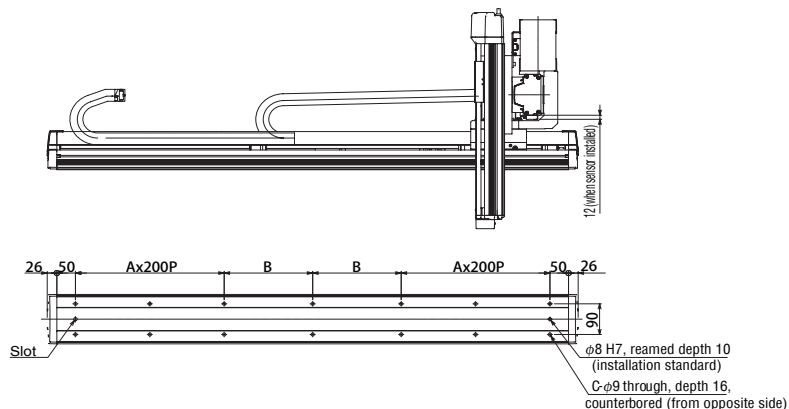
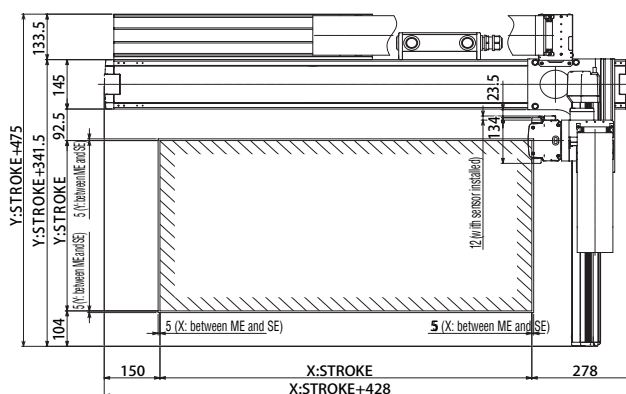
Dimensions

You can download CAD drawings from our website.

2D CAD



ME: Mechanical end
SE: Stroke end



X Stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA3-B2N MB3

Cartesian robot / Nut rotation type + ISA (3 axes)
X-axis long-stroke, medium-speed type Z-axis base mount

Model Designation **ICSPA3-B2N MB3** - - - - - **T2** - - - - -

Series - Type - Encoder Type - X-axis stroke Options - Y-axis stroke Options - Z-axis stroke Options - Apply Controller - Cable Length - Y-axis cable wiring - Z-axis cable wiring

ICSPA3: High-precision, 3-axis specification Refer to the "Model Details" table below.

A: Absolute specification 225 : 2250mm Refer to the "Options" table below 20:200 mm Refer to the "Options" table below 10:100 mm Refer to the "Options" table below

I: Incremental specification 300 : 3000mm Refer to the "Options" table below 70:700 mm Refer to the "Options" table below 50:500 mm Refer to the "Options" table below

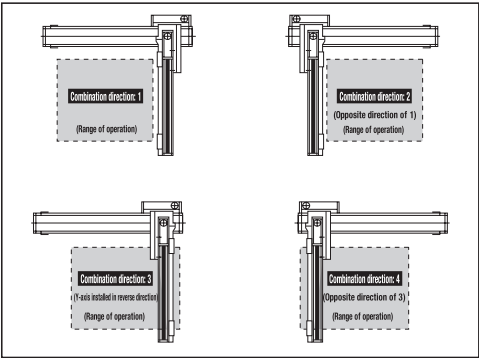
3L : 3 m 5L : 5 m CT: Cable track (standard) XSEL-P/Q L: Specified length

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	H	ICSPA3-B2N1MB3H-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N1MB3M-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	2	H	ICSPA3-B2N2MB3H-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N2MB3M-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	3	H	ICSPA3-B2N3MB3H-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N3MB3M-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	4	H	ICSPA3-B2N4MB3H-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N4MB3M-A- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
Incremental	1	H	ICSPA3-B2N1MB3H-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N1MB3M-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	2	H	ICSPA3-B2N2MB3H-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N2MB3M-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	3	H	ICSPA3-B2N3MB3H-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N3MB3M-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
	4	H	ICSPA3-B2N4MB3H-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤
		M	ICSPA3-B2N4MB3M-I- ①AQRT- ②AQ-③AGB-T2- ④ ⑤

* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ① to ⑤ in the model names shown above.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output /lead	400 W/20 mm
Y-axis motor output /lead	200 W/20 mm
Z-axis motor output /lead	200 W/20 mm (10 mm)

* The value in parentheses applies to the Z-axis medium-speed specification.

Component Axes

Component Axes	Model
X-axis	NS-LXMXS- ①-400-20-{Stroke}-T2-AQ-②-RT
Y-axis	ISPA-MYM-①-200-20-{Stroke}-T2-AQ
Z-axis	ISPA-MXM-①-200-20 {10}-{Stroke}-T2-AQ-B

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
* The value in parentheses applies to the Z-axis medium-speed specification.
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 50 : 500mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □ m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left. X-axis.

■ B2N □ MB3H

■ B2N □ MB3M

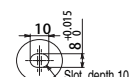
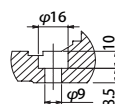
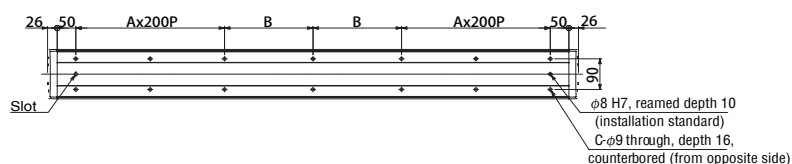
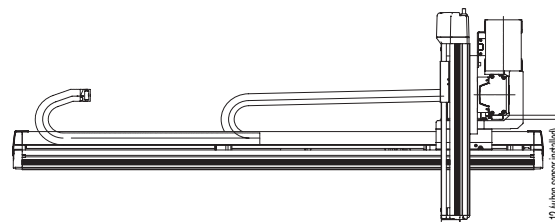
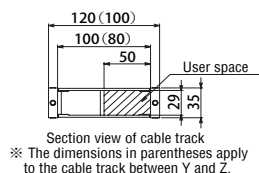
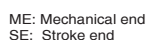
Maximum Speed by Stroke (mm/s)

■B2N□MB3H

■B2N□MB3M

	Stroke							
	100	200	300	400	500	600	700	2250—3000
X-axis	—	—	—	—	—	—	—	1300
Y-axis	—	1200						—
Z-axis	600					—	—	—

You can download CAD drawings from our website.



Detail view of X-axis base mounting hole

Detail view of slot in X-axis base

X Stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA3-B1N□HS3M

Cartesian robot / Nut rotation type + ISA (3 axes)
X-axis high-speed type Z-axis slider mount

Model Designation

ICSPA3-B1N□HS3M

Series

Type

Encoder Type

X-axis stroke

Options

Y-axis stroke

Options

Z-axis stroke

Options

Applicable Controller

Cable Length

Y-axis cable wiring

Z-axis cable wiring

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	M	ICSPA3-B1N1HS3M-A- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	2	M	ICSPA3-B1N2HS3M-A- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	3	M	ICSPA3-B1N3HS3M-A- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	4	M	ICSPA3-B1N4HS3M-A- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
Incremental	1	M	ICSPA3-B1N1HS3M-I- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	2	M	ICSPA3-B1N2HS3M-I- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	3	M	ICSPA3-B1N3HS3M-I- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
	4	M	ICSPA3-B1N4HS3M-I- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤

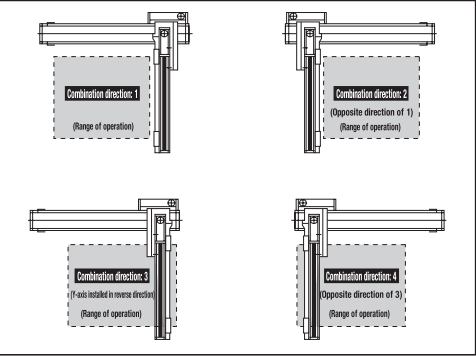
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to⑤ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	50 : 500mm 220 : 2200mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 40 : 400mm
④	Cable Length (Note 2)	3L : 3 m 5L : 5 m □ L : Specified length
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/10 mm

Component Axes

Component Axes	Model
X-axis	NS - LXMS- ①-400-40- (Stroke) -T2-AQ- ②-RT
Y-axis	ISPA-MYM- ①-200-20- (Stroke) -T2-AQ
Z-axis	ISPA-MZM- ①-200-10- (Stroke)-T2-AQ-B-NM

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA3-B1N□HS3M

Load Capacity (kg)

■ B1N□HS3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	11.5	10.5	9.5	8.4	7.5	6.5
	~200	10.5	9.5	8.5	7.4	6.5	5.5
	~300	9.5	8.5	7.5	6.4	5.5	4.5
	~400	8.4	7.4	6.5	5.4	4.4	3.4

Maximum Speed by Stroke (mm/s)

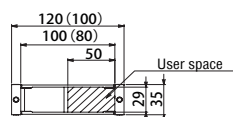
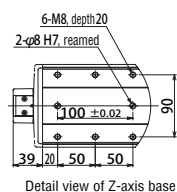
■ B1N□HS3M

		Stroke						
		100	200	300	400	500	600	700
X-axis	—	—	—	—	—	—	—	—
Y-axis	—	—	—	—	—	—	—	—
Z-axis	—	600	—	—	—	—	—	—

Dimensions

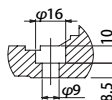
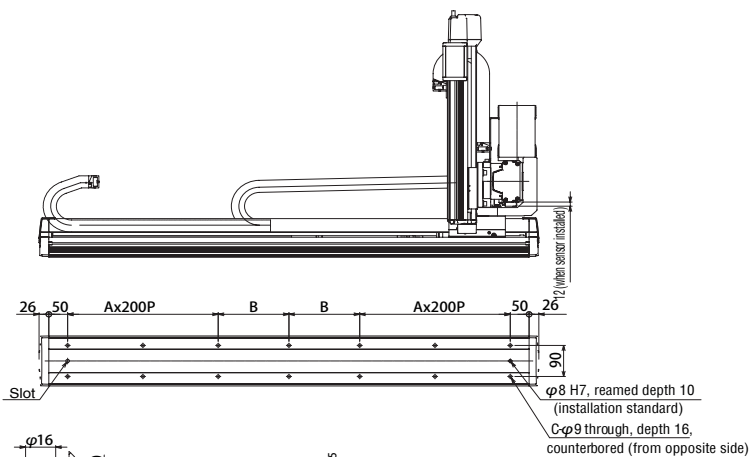
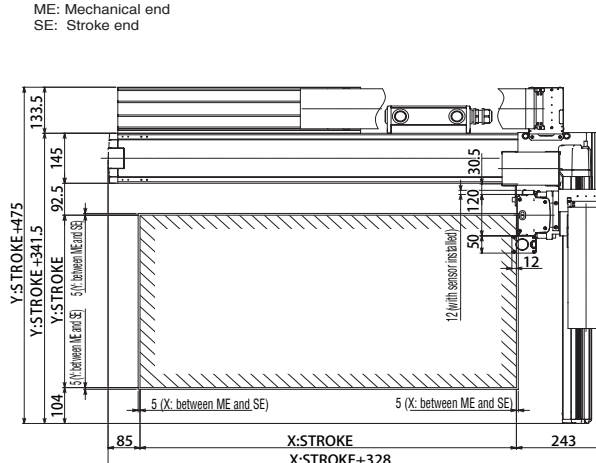
You can download CAD drawings from our website.

2D CAD

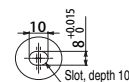


※ The dimensions in parentheses apply to the cable track between Y and Z.

ME: Mechanical end
SE: Stroke end



Detail view of X-axis base mounting hole



Detail view of slot in X-axis base

X Stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X Stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

ICSPA3-B1N

MS3M

Cartesian robot/Nut rotation type + ISA (3 axes)
X-axis medium-speed type Z-axis slider mount

Model Designation

ICSPA3-B1NMS3M

Series

Type

Encoder Type

X-axis stroke

Options

Y-axis stroke

Options

Z-axis stroke

Options

Applicable Controller

Cable Length

Y-axis cable wiring

Z-axis cable wiring

ICSPA3: High-precision, 3-axis specification

Refer to the "Model Details" table below.

A: Absolute specification
I: Incremental specification

50:500 mm
220:2200 mm
(50 mm increments)

Refer to the "Options" table below

20:200 mm
70:700 mm
(50 mm increments)

Refer to the "Options" table below

10:100 mm
40: 400 mm
(50 mm increments)

Refer to the "Options" table below

T2:SCON
SSEL
XSEL-P/Q

3L: 3 m
5L: 5 m
L: Specified length

CT: Cable track (standard)

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model **
Absolute	1	M	ICSPA3-B1N1MS3M-A- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	2	M	ICSPA3-B1N2MS3M-A- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	3	M	ICSPA3-B1N3MS3M-A- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	4	M	ICSPA3-B1N4MS3M-A- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
Incremental	1	M	ICSPA3-B1N1MS3M-I- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	2	M	ICSPA3-B1N2MS3M-I- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	3	M	ICSPA3-B1N3MS3M-I- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤
	4	M	ICSPA3-B1N4MS3M-I- ①AQRT- ②AG- ③AGBNM-T2- ④- ⑤

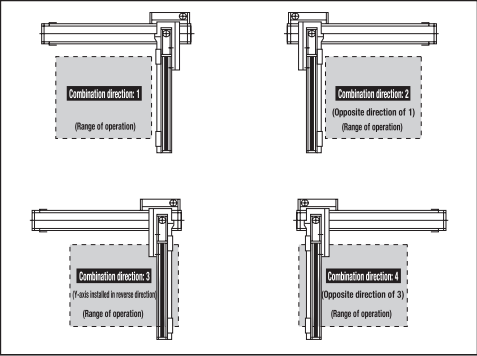
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to⑤ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	50 : 500mm 220 : 2200mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 40 : 400mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m L : m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/10 mm

Component Axes

Component Axes	Model
X-axis	NS - LXMS- ①-400-20- (Stroke) -T2-AQ- ②-RT
Y-axis	ISPA-MYM- ①-200-20- (Stroke) -T2-AQ
Z-axis	ISPA-MZM- ①-200-10- (Stroke)-T2-AQ-B-NM

* Enter A (Absolute) or I (Incremental) into ① above.
* Enter NT1 or NT2 into ② above.
NT 1: Enter for cartesian combination direction 1 or 3
NT2: Enter for cartesian combination direction 2 or 4
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA3-B1N□MS3M

Load Capacity (kg)

■ B1N□MS3M

		Y-axis Stroke					
Z-axis Stroke	100	200	300	400	500	600	700
	~200	13.0					9.1
	~300	11.7					8.1
	~400	10.7					7.1
	~500	9.7					6.1

Maximum Speed by Stroke (mm/s)

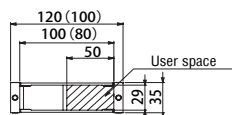
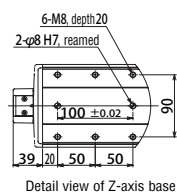
■ B1N□MS3M

		Stroke						
X-axis	100	200	300	400	500	600	700	800~2200
	~200	1300						—
	~300	1200						—
	~400	600						—

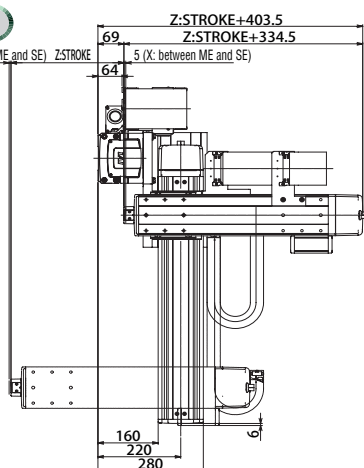
Dimensions

You can download CAD drawings from our website.

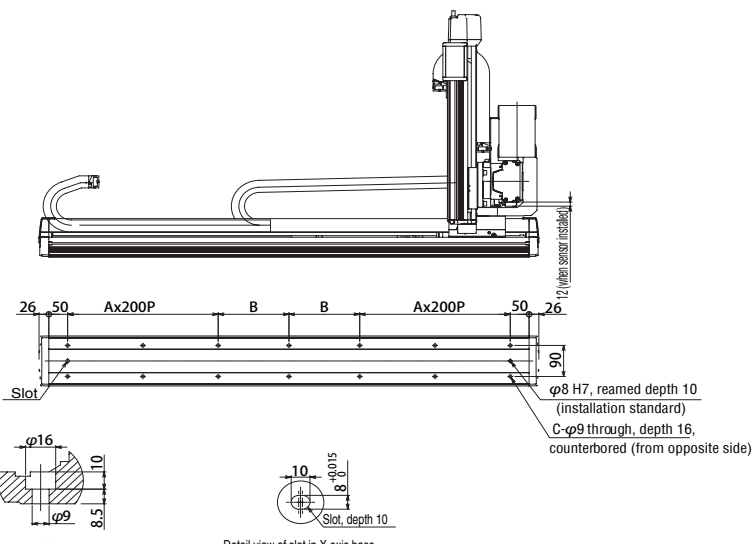
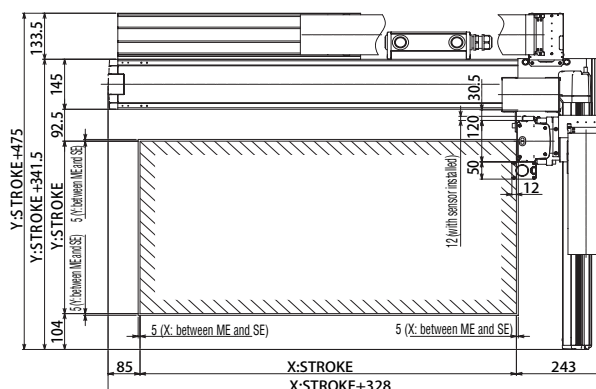
2D CAD



※ The dimensions in parentheses apply to the cable track between Y and Z.



ME: Mechanical end
SE: Stroke end



Detail view of X-axis base mounting hole

Detail view of slot in X-axis base

X Stroke	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18

X Stroke	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5
B	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588
C	18	18	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26

Encoder Type	XY combination direction (°)	Z-axis speed type	Model **
Absolute	1	M	ICSPA3-B2N1HS3M-A- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	2	M	ICSPA3-B2N2HS3M-A- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	3	M	ICSPA3-B2N3HS3M-A- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	4	M	ICSPA3-B2N4HS3M-A- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
Incremental	1	M	ICSPA3-B2N1HS3M-I- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	2	M	ICSPA3-B2N2HS3M-I- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	3	M	ICSPA3-B2N3HS3M-I- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤
	4	M	ICSPA3-B2N4HS3M-I- ①AGRT- ②AQ- ③AGBNM-T2- ④-⑤

** Refer to the table on the right for the details of ❶ to ❺ in the model names shown above.

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 40 : 400mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □ m
⑤	Y/Z-axis cable wiring	CT : Cable track

The diagrams illustrate the Z-axis operation range for different combinations of the Z-axis and Y-axis directions. The Z-axis is represented by a vertical line with a double-headed arrow, and the Y-axis is represented by a horizontal line with a double-headed arrow. The Z-axis operation range is indicated by a dashed rectangle.

- Combination direction: 1**
(Range of operation)
- Combination direction: 2**
(Opposite direction of 1)
(Range of operation)
- Combination direction: 3**
(Y-axis installed in reverse direction)
(Range of operation)
- Combination direction: 4**
(Opposite direction of 3)
(Range of operation)

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output /lead	400 W/40 mm
Y-axis motor output /lead	200 W/20 mm
Z-axis motor output /lead	200 W/10 mm

Component Axes	Model
X-axis	NS-LXMXS- ① -400-40-(Stroke) -T2-AQ- ② -RT
Y-axis	ISPA-MYM- ③ -200-20-(Stroke) -T2-AQ
Z-axis	ISPA-MZM- ④ -200-10-(Stroke)-T2-AQ-B-NM

Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the Y-axis can operate at accelerations of up to 1 G, the acceleration is limited to 0.3 G for the X-axis. (Contact IAI for Y-axis load capacities at higher accelerations.)

ICSPA3-B2N□HS3M

Load Capacity (kg)

■ B2N□HS3M

		Y-axis Stroke						
		200	300	400	500	600	700	
Z-axis Stroke	100	11.5	10.5	9.5	8.4	7.5	6.5	
	~200	10.5	9.5	8.5	7.4	6.5	5.5	
	~300	9.5	8.5	7.5	6.4	5.5	4.5	
	~400	8.4	7.4	6.5	5.4	4.4	3.4	

Maximum Speed by Stroke (mm/s)

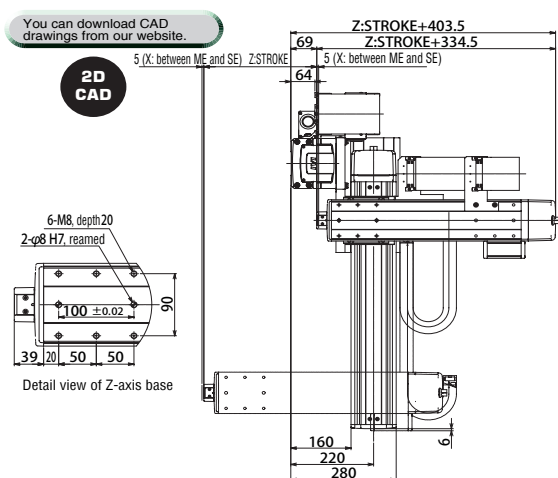
■ B2N□HS3M

		Stroke							
		100	200	300	400	500	600	700	2250~3000
X-axis	—	—	—	—	—	—	—	—	2400
Y-axis	—	1200							—
Z-axis	600			—	—	—	—	—	—

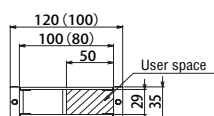
Dimensions

You can download CAD drawings from our website.

2D CAD

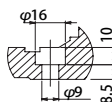
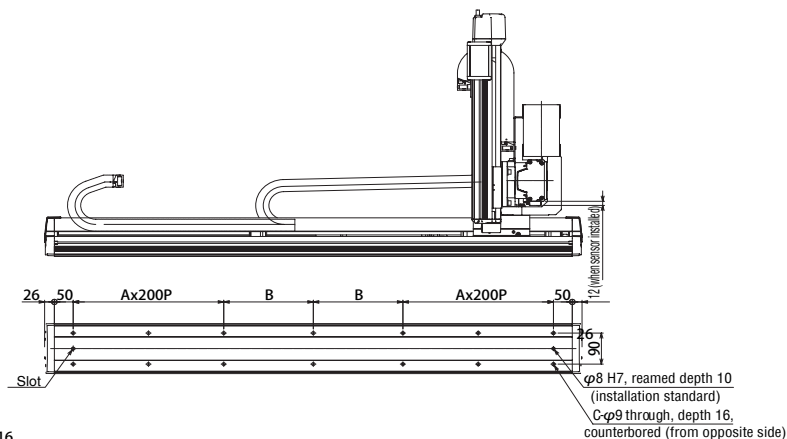
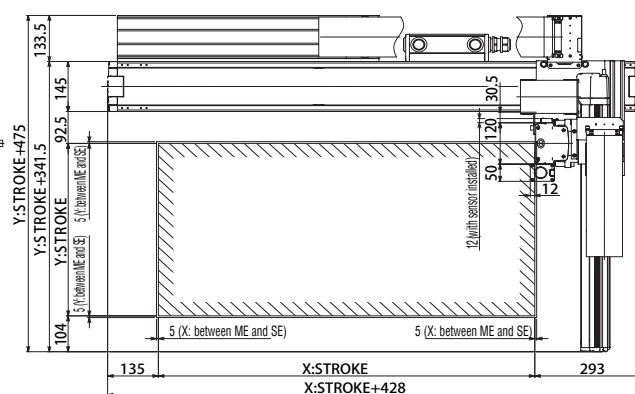


Detail view of Z-axis base

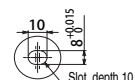


Section view of cable track
※ The dimensions in parentheses apply to the cable track between Y and Z.

ME: Mechanical end
SE: Stroke end



Detail view of X-axis base mounting hole



Detail view of slot in X-axis base

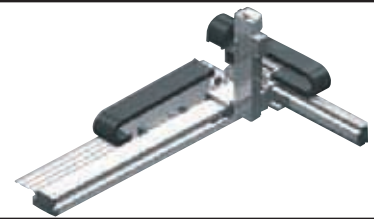
X Stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA3-B2N □ MS3M

Cartesian robot/Nut rotation type + ISA (3 axes)
X-axis medium-speed type Z-axis slider mount

■ Model Designation **ICSPA3-B2N □ MS3M** - - - - - - - - **T2** - - -

Series: ICSPA3: High-precision, 3-axis specification
Type: Refer to the "Model Details" table below.
Encoder Type: A: Absolute specification, I: Incremental specification
X-axis stroke: 225: 2250 mm, 300: 3000 mm (50 mm increments)
Options: Refer to the "Options" table below
Y-axis stroke: 20: 200 mm, 70: 700 mm (50 mm increments)
Options: Refer to the "Options" table below
Z-axis stroke: 10: 100 mm, 40: 400 mm (50 mm increments)
Options: Refer to the "Options" table below
Applicable Controller: T2: SCON, SSEL, XSEL-P/Q
Cable Length: 3L: 3 m, 5L: 5 m
Y-axis cable wiring: CT: Cable track (standard)
Z-axis cable wiring: □ L: Specified length



Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model **
Absolute	1	M	ICSPA3-B2N1MS3M-A- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	2	M	ICSPA3-B2N2MS3M-A- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	3	M	ICSPA3-B2N3MS3M-A- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	4	M	ICSPA3-B2N4MS3M-A- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
Incremental	1	M	ICSPA3-B2N1MS3M-I- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	2	M	ICSPA3-B2N2MS3M-I- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	3	M	ICSPA3-B2N3MS3M-I- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤
	4	M	ICSPA3-B2N4MS3M-I- ① AQRT- ② AQ- ③ AGBNM-T2- ④- ⑤

* Refer to the figure below for the XY combination directions.

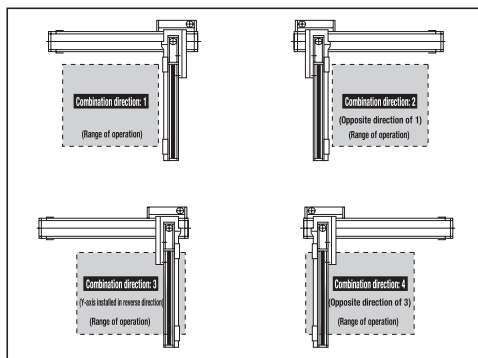
** Refer to the table on the right for the details of ① to ⑤ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	225 : 2250mm 300 : 3000mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 40 : 400mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : Specified length
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.

If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/10 mm

Component Axes

Component Axes	Model
X-axis	NS-LXMXS- ① -400-40- (Stroke) -T2-AQ- ② -RT
Y-axis	ISPA-MYM- ① -200-20- (Stroke) -T2-AQ
Z-axis	ISPA-MZM- ① -200-10- (Stroke) -T2-AQ-B-NM

* Enter A (Absolute) or I (Incremental) into ① above.

* Enter NT1 or NT2 into ② above.

NT1: Enter for cartesian combination direction 1 or 3

NT2: Enter for cartesian combination direction 2 or 4

Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



Caution

(Note 1) Strokes are indicated in cm (centimeters) in model names.

(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.

(Note 3) The rated acceleration is 0.3 G. Although the Y-axis can operate at accelerations of up to 1 G, the acceleration is limited to 0.3 G for the X-axis. (Contact IAI for Y-axis load capacities at higher accelerations.)

ICSPA3-B2N□MS3M

Load Capacity (kg)

■ B2N□MS3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	13.0					9.1
	~200	11.7					8.1
	~300	10.7					7.1
	~400	9.7					6.1

Maximum Speed by Stroke (mm/s)

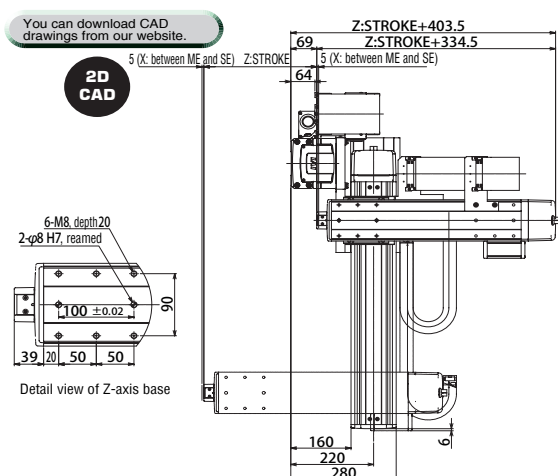
■ B2N□MS3M

		Stroke						
		100	200	300	400	500	600	700
X-axis		—	—	—	—	—	—	1300
Y-axis		—	1200					—
Z-axis		600			—	—	—	—

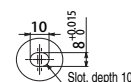
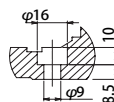
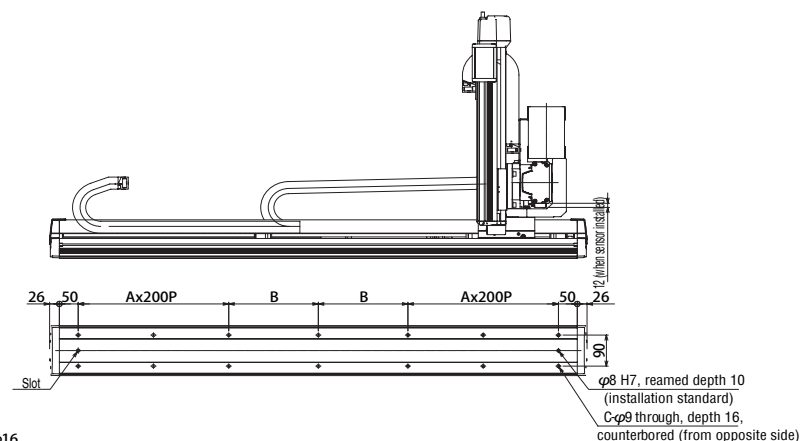
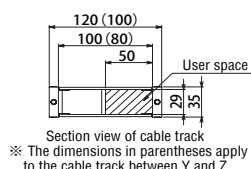
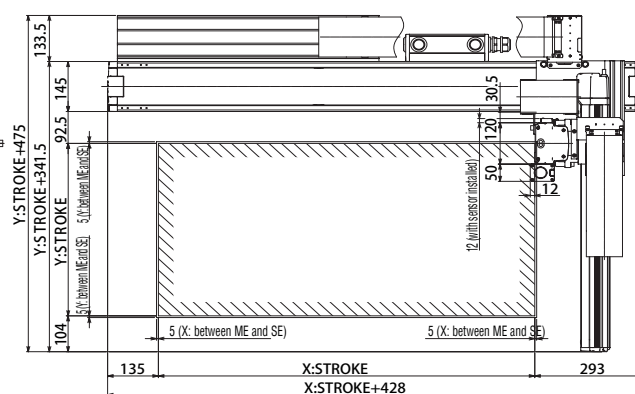
Dimensions

You can download CAD drawings from our website.

2D CAD



ME: Mechanical end
SE: Stroke end



X Stroke	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950	3000
A	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7
B	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238
C	26	26	26	30	30	30	30	30	30	30	30	34	34	34	34	34

ICSPA4-B3N1H

Cartesian robot/Nut rotation type + ISA (4 axes: 2 axes + 2 axes)
XYB (Y-axis base mount) X-axis multi-slider, high-speed type

■ Model Designation

ICSPA4 — **B3N1H** — — — — — **T2** — —

Series — Type — Encoder Type — X-axis stroke — Options — Y1/Y2 axis stroke — Options — Applicable Controller — Cable Length — Y-axis cable wiring

ICSPA4: High-precision, 4-axis (2 axes + 2 axes) specification — Refer to the "Model Details" table below. — A: Absolute specification S: Incremental specification — 25:250 mm S: 225:2250 mm (50 mm increments) — Refer to the "Options" table below — 20:200 mm S: 70:700 mm (50 mm increments) — Refer to the "Options" table below — T2: SCON SSEL XSEL-P/Q — 3L: 3 m 5L: 5 m L: Specified length — CT: Cable track

Model Details

Encoder Type	XY combination direction (X Y)	Model**
Absolute	1	ICSPA4-B3N1H-A- ①AQRT- ②AQ-T2- ③ ④
Incremental	1	ICSPA4-B3N1H-I- ①AQRT- ②AQ-T2- ③ ④

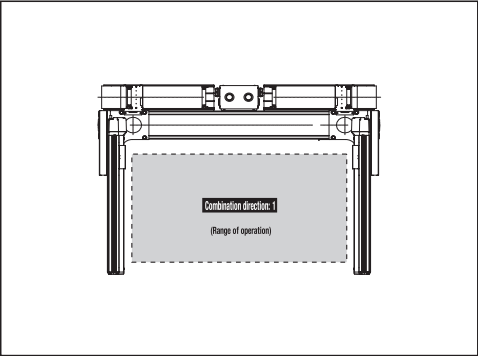
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to④ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	25 : 250mm S 225 : 2250mm
②	Y-axis stroke (Note 1)	20 : 200mm S 70 : 700mm
③	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □m
④	Y-axis cable wiring	CT : Cable track

* The above explains the details of ① to ④ in the model names shown to the left.

XY Combination Direction



Component Axes

Component Axes	Model
X-axis	NS - LXM-M- ①-400-40- (Stroke) -T2-AQ- ② -RT
Y1-axis	ISPA-MYM- ①-200-20- (Stroke) -T2-AQ
Y2-axis	ISPA-MYM- ①-200-10- (Stroke)-T2-AQ

* Enter A (Absolute) or I (Incremental) into ① above.

* Enter NT1 or NT2 into ② above.

NT1: Enter for cartesian combination direction 1 or 3

NT2: Enter for cartesian combination direction 2 or 4

(Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	21.2	20.3	19.4	18.4	17.5	16.6
	0.4	12.2	11.3	10.4	9.4	8.5	7.6
	0.5	7.7	6.8	5.9	4.9	4.0	3.1
	0.6	3.2	2.3	1.4	—	—	—
	0.7	—	—	—	—	—	—
	0.8	—	—	—	—	—	—
	0.9	—	—	—	—	—	—
	1.0	—	—	—	—	—	—

Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	250	300	400	500	600	700	800~2250
X-axis	—	2400						
Y1-axis, Y2-axis	1200						—	—

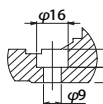
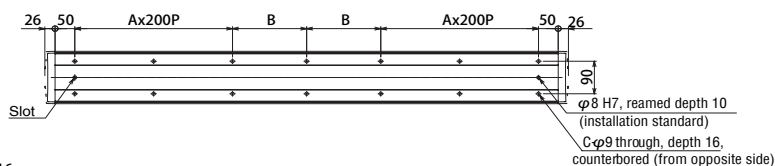
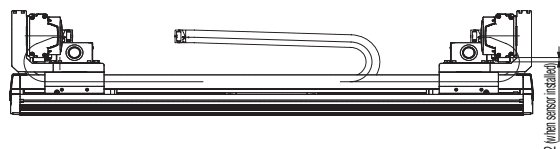
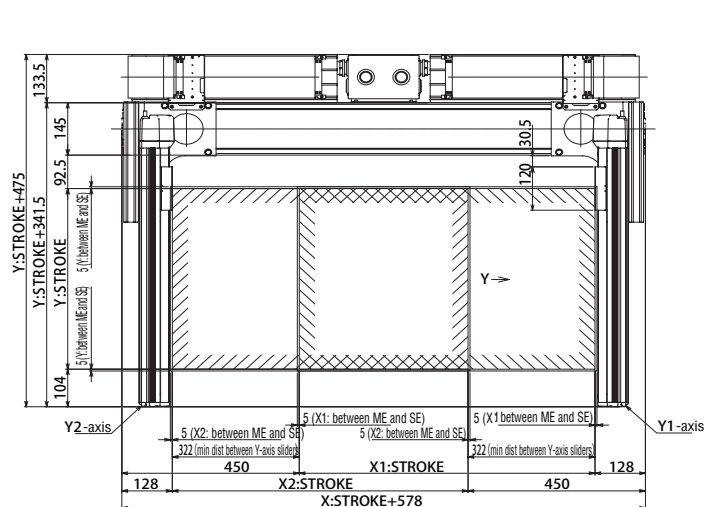
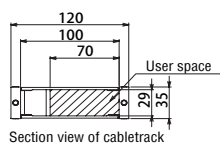
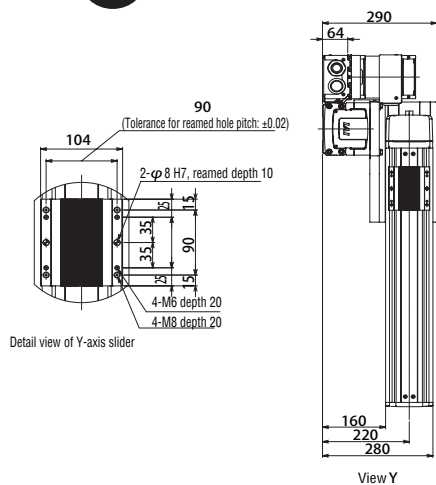
(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA4-B3N1H

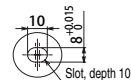
Dimensions

You can download CAD drawings from our website.

**2D
CAD**



Detail view of X-axis base mounting hole



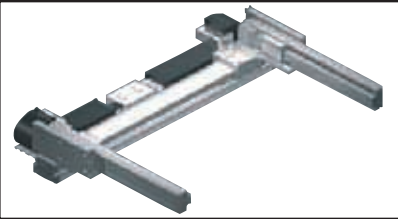
Detail view of slot in X-axis base

X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

[illegible]

ICSPA4-B3N1M

Cartesian robot/Nut rotation type + ISA (4 axes: 2 axes + 2 axes)
XYB (Y-axis base mount) X-axis multi-slider, medium-speed type



Model Designation **ICSPA4** — **B3N1M** — — — — — — **T2** — —

Series — Type — Encoder Type — X-axis stroke — Options — Y1/Y2 axis stroke — Options — Applicable Controller — Cable Length — Y-axis cable wiring
 ICSPA4: High-precision, 4-axis (2 axes + 2 axes) specification — Refer to the "Model Details" table below. — A: Absolute specification S: 25-250 mm Refer to the "Options" table below S: 20-200 mm Refer to the "Options" table below T2: SCON 3L: 3 m CT: Cable track (standard) SSEL 5L: 5 m XSEL-P/Q L: Specified length

Model Details

Encoder Type	XY combination direction (*)	Model **
Absolute	1	ICSPA4-B3N1M-A- 1 AGRT- 2 AG-T2- 3 - 4
Incremental	1	ICSPA4-B3N1M-I- 1 AGRT- 2 AG-T2- 3 - 4

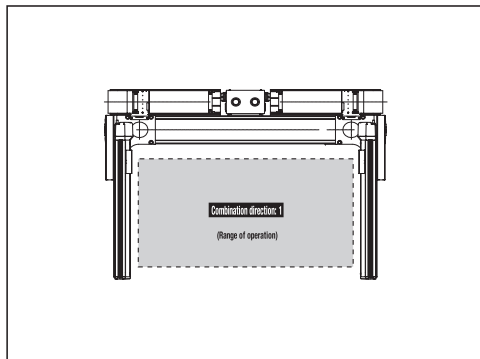
* Refer to the figure below for the XY combination directions.
 ** Refer to the table on the right for the details of 1 to 4 in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
1	X-axis stroke (Note 1)	25 : 250mm 225 : 2250mm
2	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
3	Cable Length (Note 2)	3L : 3m 5L : 5m L : m
4	Y-axis cable wiring	CT : Cable track

* The above explains the details of 1 to 4 in the model names shown to the left.

XY Combination Direction



Component Axes

Component Axes	Model
X-axis	NS-LXMM- 1 -400-20- (Stroke) -T2-AG-NT1-RT
Y1-axis	ISPA-MYM- 1 -200-20- (Stroke) -T2-AG
Y2-axis	ISPA-MYM- 1 -200-20- (Stroke) -T2-AG

* Enter A (Absolute) or I (Incremental) into 1 above.
 (Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

Load Capacity by Acceleration (kg) (note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	40.0	40.0	33.0	27.3	22.9	19.3
	0.4	30.0	30.0	30.0	27.3	22.9	19.3
	0.5	21.6	21.6	21.6	21.6	21.6	19.3
	0.6	18.0	18.0	18.0	18.0	17.5	16.6
	0.7	15.3	14.9	14.0	13.0	12.1	11.2
	0.8	12.2	11.3	10.4	9.4	8.5	7.6
	0.9	9.5	8.6	7.7	6.7	5.8	4.9
	1.0	6.8	5.9	5.0	—	—	—

Options

Specify each applicable option code after the stroke of each axis.
 If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AG	P53	Standard feature
Brake	B	P53	Limited to Y-axis
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y-axis
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm

Maximum Speed by Stroke (mm/s)

	200	250	300	400	500	600	700	800~2250
X-axis	—	1300						
Y1-axis, Y2-axis	1200						—	—



Caution

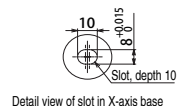
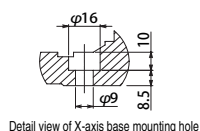
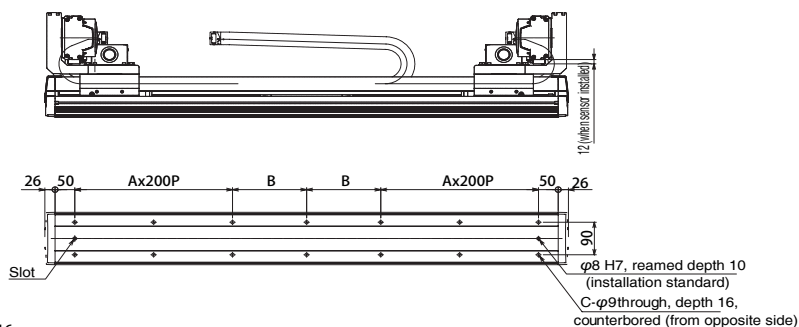
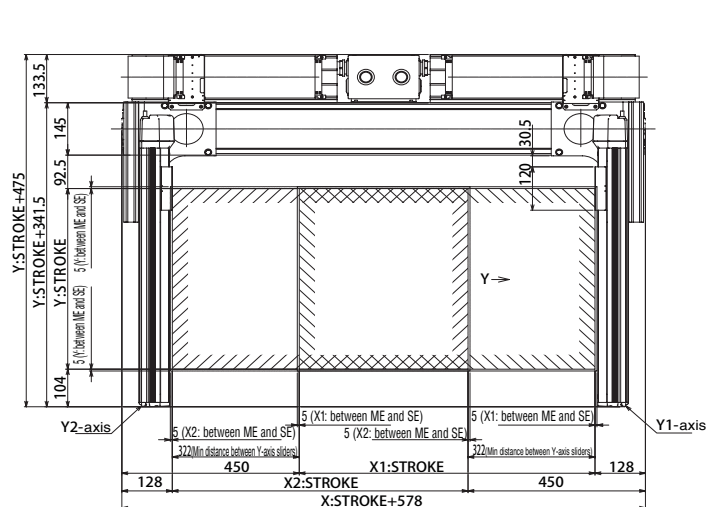
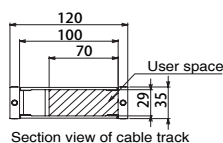
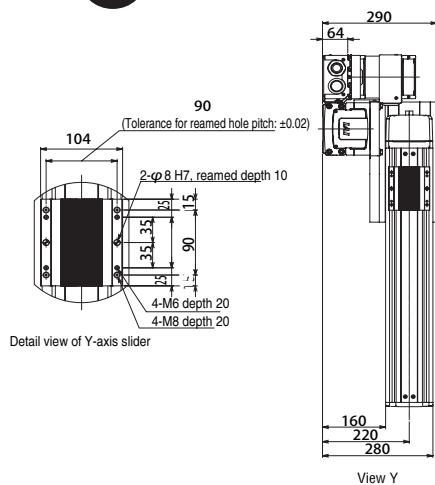
(Note 1) Strokes are indicated in cm (centimeters) in model names.
 (Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
 (Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA4-B3N1M

Dimensions

You can download CAD drawings from our website.

2D
CAD



X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X Stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

ICSPA6-B3N1HB3

Cartesian robot/Nut rotation type (6 axes: 3 axes + 3 axes)
X-axis multi-slider, medium-speed type Z-axis base mount type

■ Model Designation ICSPA6- B3N1HB3 - - - - - T2 - - - - -
Series - Type - Encoder Type - X-axis stroke Options - Y-1/Y-2 axis stroke Options - Z-1/Z-2 axis stroke Options - Applicable Controller - Cable Length - Y-axis cable wiring - Z-axis cable wiring
ICSPA6: High-precision, 6-axis (3 axes + 3 axes) specification Refer to the "Model Details" table below. A: Absolute specification 25:250 mm Refer to the "Options" table below 20:200 mm Refer to the "Options" table below 10:100mm Refer to the "Options" table below T2: SCON SSEL 3L : 3 m 5L : 5 m CT: Cable track I: Incremental 225:2250 mm specification (50 mm increments) 70:700 mm (50 mm increments) 50:500mm (50 mm increments) XSEL: P/Q □ L : Specified length

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	H	ICSPA6-B3N1 HB3H-A-①AQRT- ②AQ-③AQB-T2- ④ ⑤
		M	ICSPA6-B3N1 HB3M-A-①AQRT- ②AQ-③AQB-T2- ④ ⑤
Incremental	1	H	ICSPA6-B3N1 HB3H-I-①AQRT- ②AQ-③AQB-T2- ④ ⑤
		M	ICSPA6-B3N1 HB3M-I-①AQRT- ②AQ-③AQB-T2- ④ ⑤

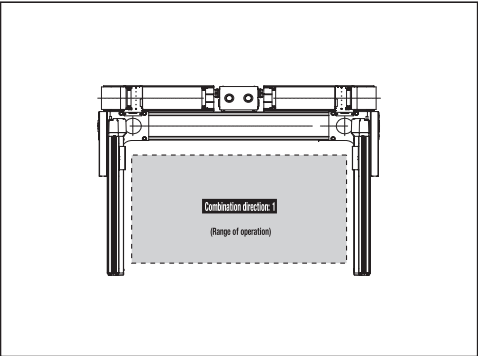
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to⑤ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	25 : 250mm 225 : 2250mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 50 : 500mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/20 mm (10 mm)

* The value in parentheses applies to the Z-axis medium-speed specification.

Component Axes

Component Axes	Model
X-axis	NS-LXMM-①-400-40-(Stroke)-T2-AQ-NT1-RT
Y1-axis	ISPA-MYM-①-200-20- (Stroke)-T2-AQ
Y2-axis	ISPA-MYM-①-200-20- (Stroke)-T2-AQ
Z1-axis	ISPA-MXM-①-200-20(10)-(Stroke)-T2-AQ-B
Z2-axis	ISPA-MXM-①-200-20(10)-(Stroke)-T2-AQ-B

* Enter A (Absolute) or I (Incremental) into ① above.
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



Caution

(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA6-B3N1HB3

Load Capacity (kg)

B3N1HB3H

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	9.0			8.2	7.2	6.2
	~200	9.0		8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

Maximum Speed by Stroke (mm/s)

B3N1HB3H

		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	2400						
Y-axis	—	1200							—
Z-axis	1200				—	—	—	—	—

B3N1HB3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	11.2	10.2	9.2	8.2	7.2	6.2
	~200	10.2	9.3	8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

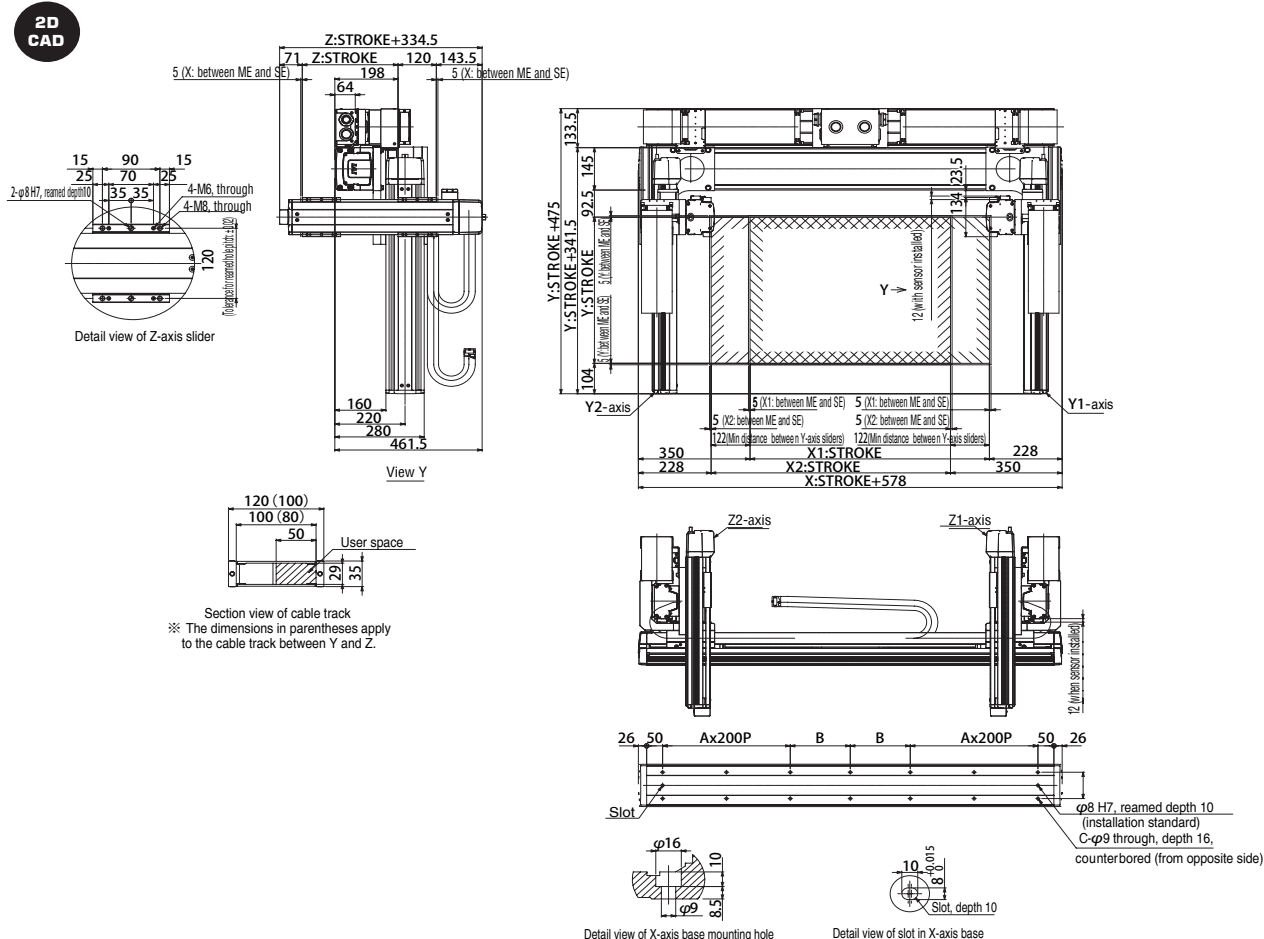
B3N1HB3M

		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	2400						
Y-axis	—	1200							—
Z-axis	600				—	—	—	—	—

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end



X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X Stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6
B	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

ICSPA6-B3N1MB3

Model Designation

ICSPA6-B3N1MB3

Series

-

Type

-

Encoder Type

-

X-axis stroke

Options

-

Y-1/Y-2 axis stroke

Options

-

Z-1/Z-2 axis stroke

Options

-

Aplicable Controller

-

Cable Length

-

Y-axis cable wiring

-

Z-axis cable wiring

ICSPA6: High-precision, 6-axis (3 axes + 3 axes) specification

Refer to the "Model Details" table below.

A: Absolute specification

25:250 mm

Refer to the "Options" table below

20:200 mm

Refer to the "Options" table below

10:100mm

Refer to the "Options" table below

T2:5CON

3L: 3 m

5L: 5 m

CT: Cable track

I: Incremental specification (50 mm increments)

225:2250 mm

Refer to the "Options" table below

70:700 mm

Refer to the "Options" table below

50:500mm

Refer to the "Options" table below

XSEL-P/Q

L: Specified length

Cartesian robot/Nut rotation type (6 axes: 3 axes + 3 axes)

X-axis multi-slider, medium-speed type

Z-axis base mount type

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	H	ICSPA6-B3N1MB3H-A-①AQRT- ②AQ-③AQB-T2- ④ ⑤
		M	ICSPA6-B3N1MB3M-A-①AQRT- ②AQ-③AQB-T2- ④ ⑤
Incremental	1	H	ICSPA6-B3N1MB3H-I-①AQRT- ②AQ-③AQB-T2- ④ ⑤
		M	ICSPA6-B3N1MB3M-I-①AQRT- ②AQ-③AQB-T2- ④ ⑤

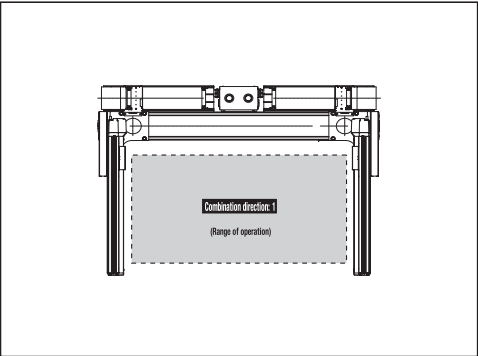
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ① to ⑤ in the model names shown above.

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	25 : 250mm 225 : 2250mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 50 : 500mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/20 mm (10 mm)

* The value in parentheses applies to the Z-axis medium-speed specification.

Component Axes

Component Axes	Model
X-axis	NS-LXMM-①-400-20-(Stroke)-T2-AQ-NT1-RT
Y1-axis	ISPA-MYM-①-200-20-(Stroke)-T2-AQ
Y2-axis	ISPA-MYM-①-200-20-(Stroke)-T2-AQ
Z1-axis	ISPA-MXM-①-200-20(10)-(Stroke)-T2-AQ-B
Z2-axis	ISPA-MXM-①-200-20(10)-(Stroke)-T2-AQ-B

* Enter A (Absolute) or I (Incremental) into ① above.
* The value in parentheses applies to the Z-axis medium-speed specification.
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA6-B3N1MB3

Load Capacity (kg)

B3N1MB3H

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	9.0					8.9
	~200	9.0					7.9
	~300	9.0					6.9
	~400	9.0					5.9
	~500	9.0					4.8

Maximum Speed by Stroke (mm/s)

B3N1MB3H

		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	1300						—
Y-axis	—	1200						—	—
Z-axis	1200			—	—	—	—	—	—

B3N1MB3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	19.0					12.6
	~200	19.0					11.6
	~300	19.0					10.6
	~400	19.0					9.6
	~500	19.0					8.5

B3N1MB3M

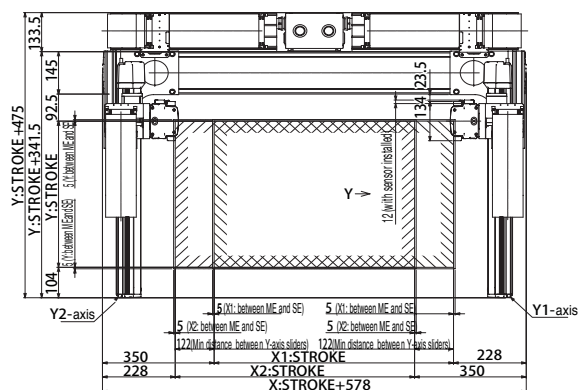
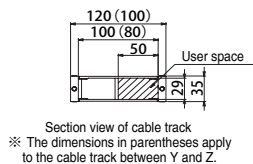
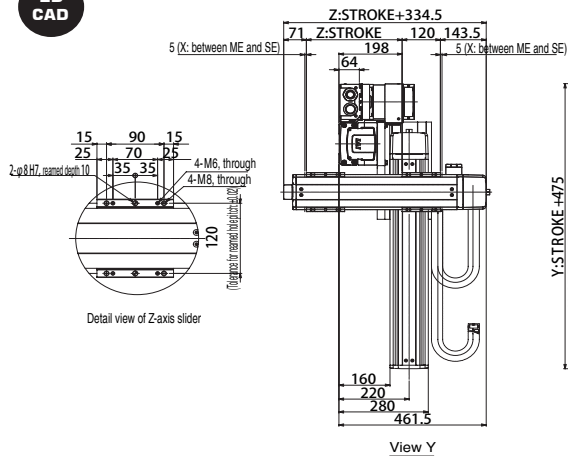
		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	1300						—
Y-axis	—	1200						—	—
Z-axis	600			—	—	—	—	—	—

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end

2D
CAD



Detail view of X-axis base mounting hole

Detail view of slot in X-axis base

X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X Stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

ICSPA6-B3N1HS3M

Cartesian robot / Nut rotation type (6 axes: 3 axes + 3 axes)
X-axis multi-slider, high-speed type Z-axis slider mount

Model Designation **ICSPA6- B3N1HS3M** - - - - - **T2** - - - - -

Series - Type - Encoder Type - X-axis stroke Options - Y-1/Y-2 axis stroke Options - Z-1/Z-2 axis stroke Options - Applicable Controller - Cable Length - Y-axis cable wiring - Z-axis cable wiring

ICSPA6: High-precision, 6-axis (3axes + 3 axes) specification Refer to the "Model Details" table below.

A: Absolute specification 25:250 mm Refer to the "Options" table below 20:200 mm Refer to the "Options" table below 10:100mm Refer to the T2-5CON SSEL 3L: 3 m 5L: 5 m CT: Cable track

I: Incremental 225:2250 mm table below 70:700 mm table below 40:400mm table below XSEL-P/Q □L: Specified length

Model Details

Encoder Type	XY combination direction (*)	Z-axis speed type	Model**
Absolute	1	M	ICSPA6-B3N1HS3M-A- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤
Incremental	1	M	ICSPA6-B3N1HS3M-I- ①AQRT- ②AQ- ③AQBNM-T2- ④- ⑤

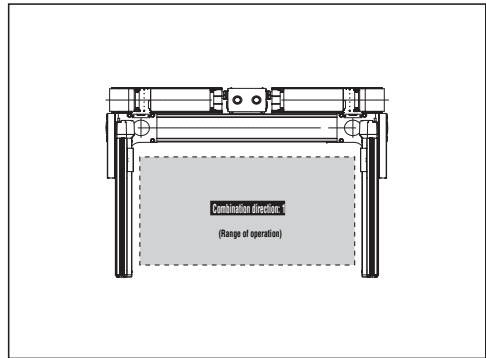
* Refer to the figure below for the XY combination directions.
** Refer to the table on the right for the details of ①to⑤ in the model names shown above

Explanation of Model Codes

No.	Description	Meaning
①	X-axis stroke (Note 1)	25 : 250mm 225 : 2250mm
②	Y-axis stroke (Note 1)	20 : 200mm 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm 40 : 400mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

* The above explains the details of ① to ⑤ in the model names shown to the left.

XY Combination Direction



Options

Specify each applicable option code after the stroke of each axis.
If you are selecting multiple options, specify them in an alphabetical order.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Common Specifications

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/40 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	2 00 W/10 mm

Component Axes

Component Axes	Model
X-axis	NS-LXMM- ①-400-40-(Stroke)-T2-AQ-NT1-RT
Y1-axis	ISPA-MYM- ①-200-20-(Stroke)-T2-AQ
Y2-axis	ISPA-MYM- ①-200-20-(Stroke)-T2-AQ
Z1-axis	ISPA-MZM- ①-200-10-(Stroke)-T2-AQ-B-NM
Z2-axis	ISPA-MZM- ①-200-10-(Stroke)-T2-AQ-B-NM

* Enter A (Absolute) or I (Incremental) into ① above.
* The value in parentheses applies to the Z-axis medium-speed specification.
Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).

(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA6-B3N1HS3M

Load Capacity (kg)

B3N1HS3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	11.5	10.5	9.5	8.4	7.5	6.5
	~200	10.5	9.5	8.5	7.4	6.5	5.5
	~300	9.5	8.5	7.5	6.4	5.5	4.5
	~400	8.4	7.4	6.5	5.4	4.4	3.4

Maximum Speed by Stroke (mm/s)

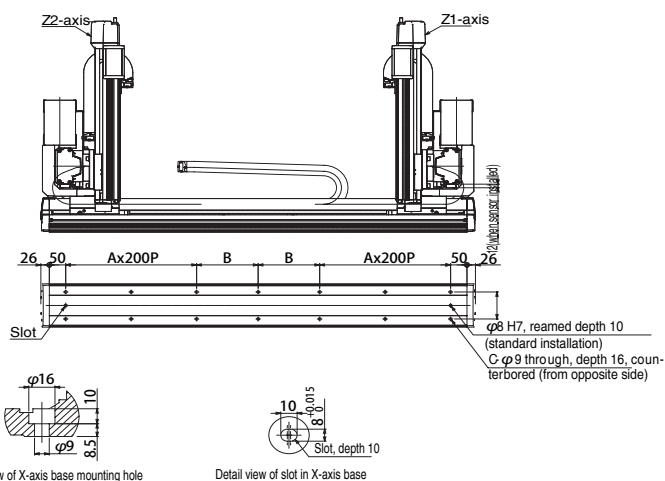
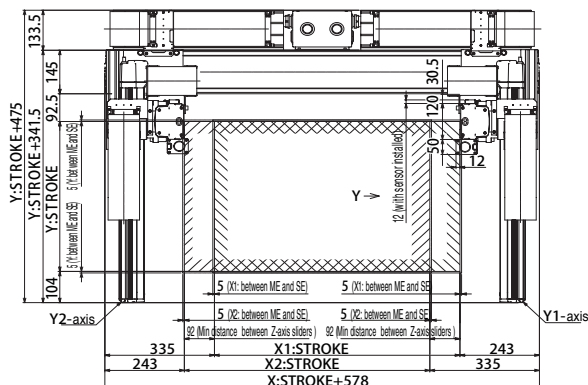
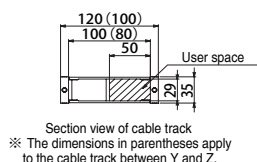
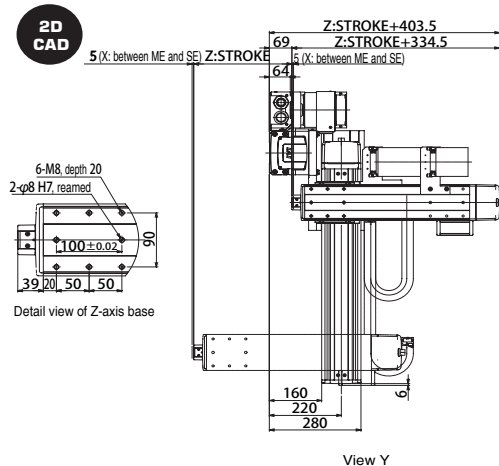
B3N1HS3M

		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	—	—	—	—	—	—	—
Y-axis	—	—	—	—	—	—	—	—	—
Z-axis	—	600	—	—	—	—	—	—	—

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end



X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X Stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

Encoder Type	XY combination direction (°)	Z-axis speed type	Model**
Absolute	1	M	ICSPA6-B3N1MS3M-A- ① AGRT- ② AQ- ③ AQBNM-T2- ④- ⑤
Incremental	1	M	ICSPA6-B3N1MS3M-I- ① AGRT- ② AQ- ③ AQBNM-T2- ④- ⑤

** Refer to the table on the right for the details of ① to ⑤ in the model names shown above.

No.	Description	Meaning
①	X-axis stroke (Note 1)	25 : 250mm } 225 : 2250mm
②	Y-axis stroke (Note 1)	20 : 200mm } 70 : 700mm
③	Z-axis stroke (Note 1)	10 : 100mm } 40 : 400mm
④	Cable Length (Note 2)	3L : 3m 5L : 5m □ L : □m
⑤	Y/Z-axis cable wiring	CT : Cable track

Technical drawing of the front view of the machine. The machine has a central horizontal body with two rollers on each side. A dashed rectangle indicates the range of operation. The text "Combination direction: 1" is written inside the rectangle, and "(Range of operation)" is written below it.

Name	Model	Reference page	Remarks
AQ seal	AQ	P53	Standard feature
Brake	B	P53	Limited to Y/Z-axes (Z standard)
Creep sensor	C	P53	
Home limit switch	L	P53	
Opposite home specification	NM	P53	Limited to Y/Z-axes (Z standard)
Guide with ball retention mechanism	RT	P53	Standard Feature on X-axis

Drive method	Ball screw, rolled, C5 equivalent
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with the base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400 W/20 mm
Y-axis motor output/lead	200 W/20 mm
Z-axis motor output/lead	200 W/10 mm

Component Axes	Model
X-axis	NS-LXMM- $\frac{1}{2}$ -400-20{(Stroke)} -T2-AQ-NT1-RT
Y1-axis	ISPA-MYM- $\frac{1}{2}$ -200-20{(Stroke)} -T2-AQ
Y2-axis	ISPA-MYM- $\frac{1}{2}$ -200-20{(Stroke)} -T2-AQ
Z1-axis	ISPA-MZM- $\frac{1}{2}$ -200-10{(Stroke)} -T2-AQ-B-NM
Z2-axis	ISPA-MZM- $\frac{1}{2}$ -200-10{(Stroke)} -T2-AQ-B-NM

Note) Nut rotation and large linear motor type require a cable track even for single-axis use, but when combined with cartesian robot, they use a different cable track. In this case, the specification will be for no cable track (NT1 or NT2).



(Note 1) Strokes are indicated in cm (centimeters) in model names.
(Note 2) The cable length indicates the length from the X-axis connector box to the controller. Although the standard cable is 3 m or 5 m long, other lengths can be specified in units of meters. The maximum cable length is 20 m.
(Note 3) The rated acceleration is 0.3 G. Although the actuator can operate at accelerations of up to 1 G, increasing the acceleration decreases the load capacity. (Contact IAI for load capacities at higher accelerations.)

ICSPA6-B3N1MS3M

Load Capacity (kg)

B3N1MS3M

		Y-axis Stroke					
		200	300	400	500	600	700
Z-axis Stroke	100	13.0					9.1
	~200	11.7					8.1
	~300	10.7					7.1
	~400	9.7					6.1

Maximum Speed by Stroke (mm/s)

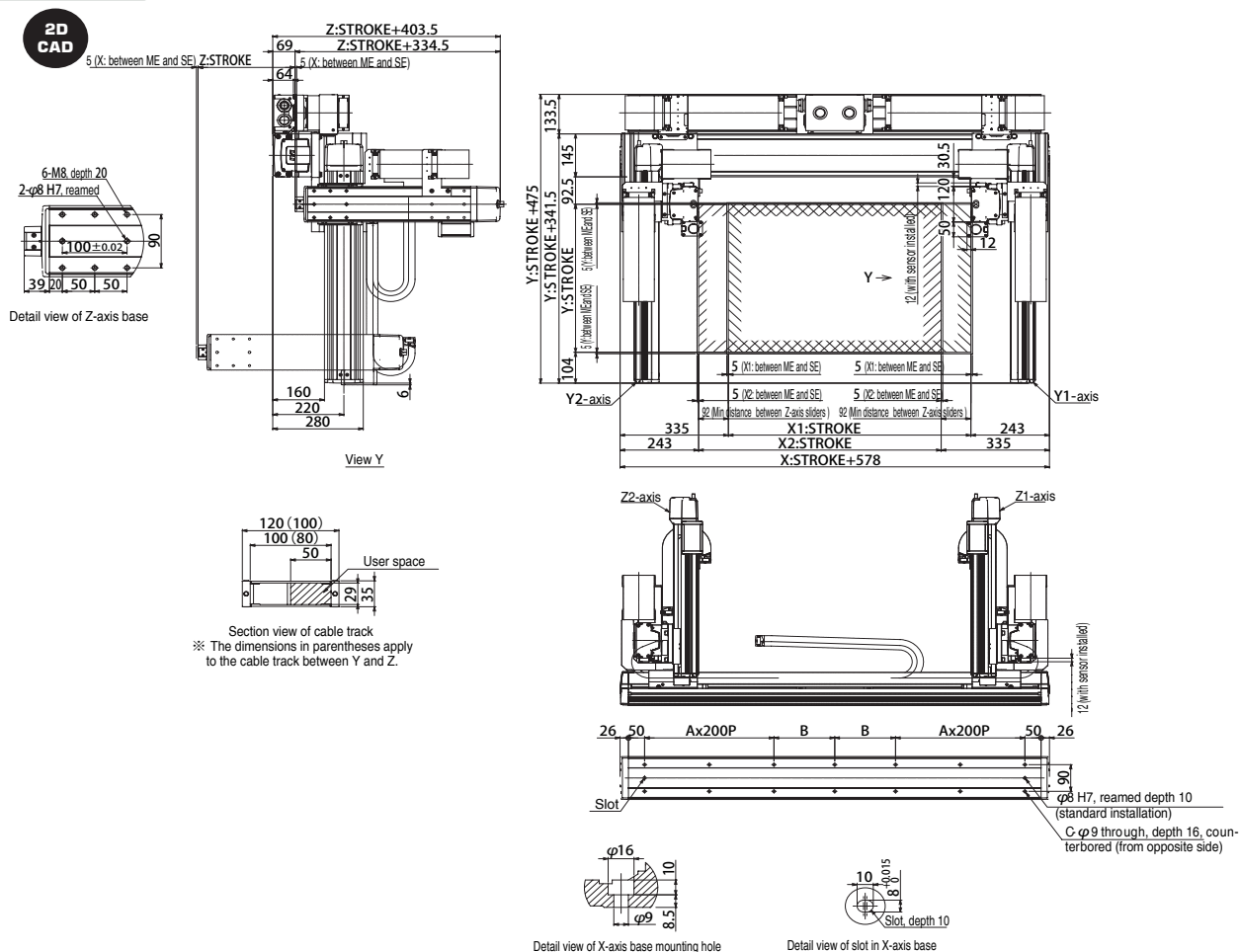
B3N1MS3M

		Stroke							
		100	200	250	300	400	500	600	700
X-axis	—	—	—	1300					
Y-axis	—	1200						—	—
Z-axis	—	600			—	—	—	—	—

Dimensions

You can download CAD drawings from our website.

ME: Mechanical end
SE: Stroke end



X Stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X Stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

Explanation of Actuator Options

■ AQ Seal [Standard Feature] *This option cannot be installed on large linear motors.

Model AQ

Explanation The AQ seal is a lubrication unit that uses a lubricating member made by resin-hardened lubricating oil. As the AQ seal contacts the guide and ball screw, lubricating oil is supplied. This, combined with regular greasing, will keep the actuator maintenance-free for a long period.

■ Brake [Standard feature on Z-axes] *This option cannot be installed on large linear motors.

Model B

Explanation The brake is a holding mechanism that prevents the Z-axis slider or Z-axis itself from dropping to cause damage to the load when the power or servo is turned off. The Z-axis of each Cartesian robot comes standard with the brake.

■ Creep Sensor

Model C

Explanation This sensor is used on actuators of incremental specifications to shorten the time of home return operation by allowing the slider to move at high speed during home return until just before the home, and then reduce the speed to the normal home return speed once the sensor is passed. The creep sensor is installed inside the actuator housing on NS actuators. It is installed on the side face of the housing on ISPA actuators.

■ Home Limit Switch [Standard feature on large linear motors]

Model L

Explanation NS and ISPA actuators adopt the "push-motion method" for their home return operation, whereby the home is established upon sensing of phase Z after the slider has contacted the stopper and reversed. This optional home limit switch is used to reverse the slider during home return based on a proximity sensor signal, instead of slider contact with the stopper. Large linear motors come standard with the home limit switch.

■ Opposite Home Specification

Model NM

Explanation On the standard specification, the home is set on the motor side (on the NS and LSA, the motor side means the side corresponding to the reamed holes in the base). However, you can specify the home to be set on the opposite side. (To change the home direction, the encoder must be adjusted. Accordingly, be sure to specify the opposite home option when placing your order. Note that multi-slider types do not support the opposite home specification.)

■ Guide with Ball Retention Mechanism [Standard feature] *This option cannot be installed on large linear motors.

Model RT

Explanation This ball retention mechanism achieves a long period of maintenance-free operation and longer life, thanks to the spacers inserted between the balls (steel balls) in the guide to suppress collision between the balls. NS actuators come standard with the guide with ball retention mechanism.

■ List of Options by Axis

O: Installable —: Not installable

	NS Actuator	ISPA Actuator	LSA Actuator
AQ seal	Standard feature	Standard feature	—
Brake	— (*1)	O	—
Creep sensor	O	O	—
Home limit switch	O	O	Standard feature
Opposite home specification	— (*2)	O	— (*2)
Guide with ball retention mechanism	Standard feature	O	—

(*1) Brake settings are available for vertical specification, but not for horizontal specification.

(*2) When using the X-axis in opposite home specification, follow instructions for the XY combined direction.

SSEL

Program controller for
one or two axes

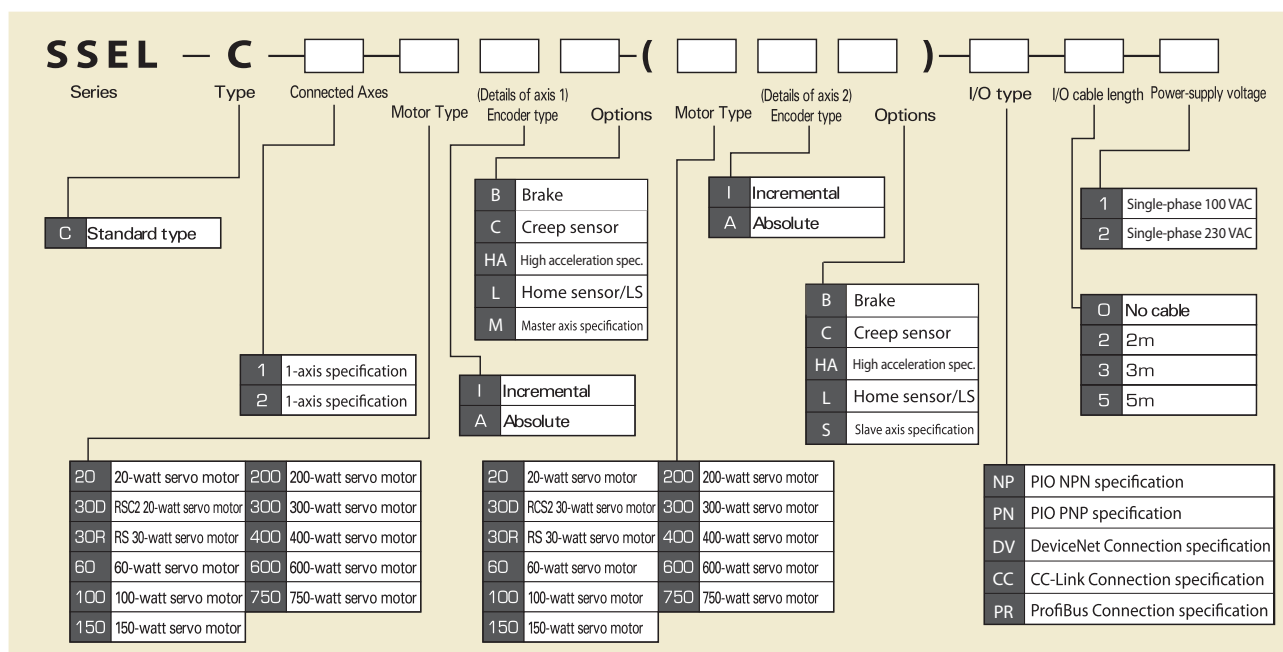


Model List/Prices

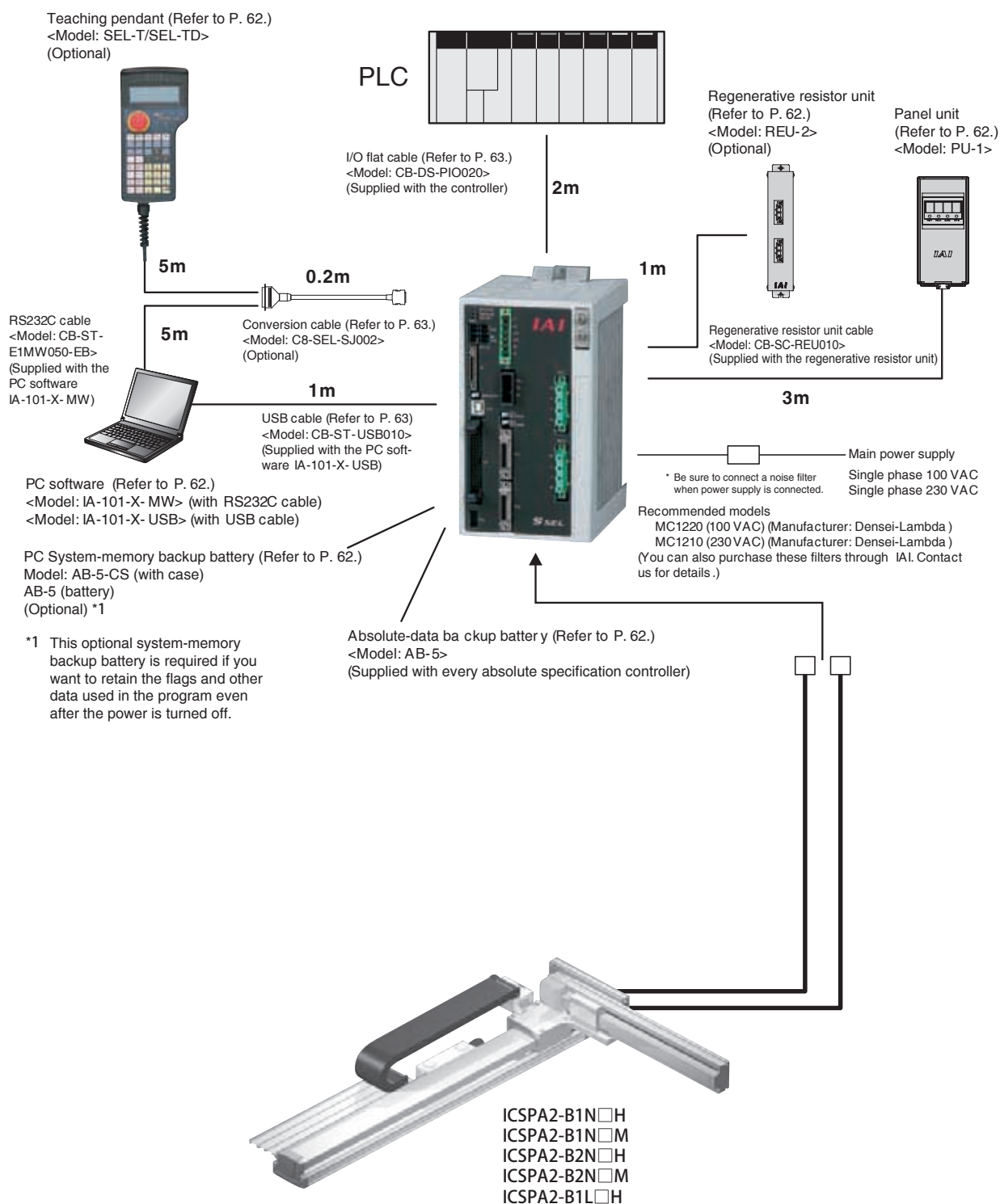
A program controller capable of operating linear axes. Various controls can be performed with a single unit.

Type	C	
Name	Program mode	Positioner mode
Exterior View		
Description	The controller can communicate with the actuator and external devices without requiring any additional device. When two axes are operated, this controller lets you perform arc interpolation, path operation and synchronized operation.	Up to 20000 positioning points are supported. Push-motion operation and teaching operation are also possible.
Number of Positions	20000	

Explanation



System Configuration

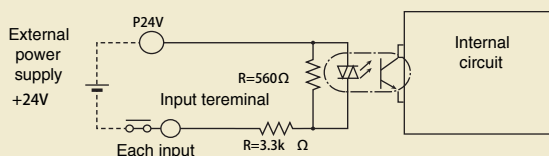


I/O Specifications

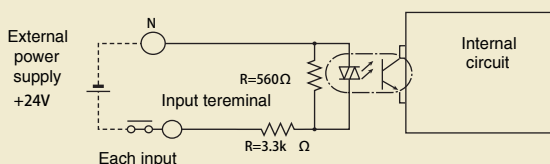
Input External Input Specifications

Item	Specification
Input voltage	DC 24 V $\pm$ V10%
Input current	7 mA per circuit
ON/OFF voltages	ON voltage (min.) OFF voltage (max.)
Insulation method	Photo coupler

NPN specification



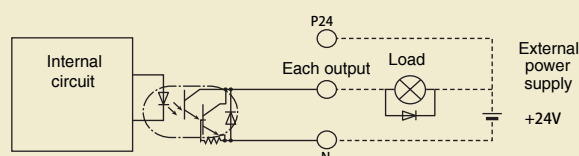
PNP specification



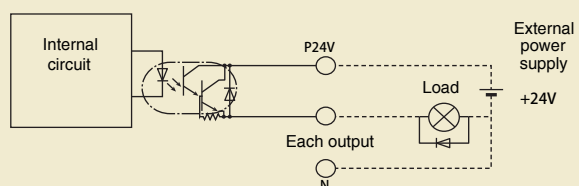
Output External Output Specifications

Item	Item
Load voltage	DC 24 V
Maximum load current	100 mA per point, total 400 mA for 8 points
Leak current (max.)	Max. 0.1 mA per point
Insulation method	Photo-coupler

NPN specification



PNP specification



Explanation of I/O Functions

The SSEL controller can be operated in the "program mode" where the actuator is operated by a program input to the controller, or "positioner mode" where the actuator is moved to the positions specified by signals received from a host PLC. The positioner mode includes the five input patterns shown below to support various applications.

Functions by Controller Type

Operation mode		Features
Program mode		Super SEL, a language that enables programming of complex controls using simple commands, lets you perform linear/smooth interpolation operation, path movement operation ideal for coating application, etc., arch motion/palletizing operation, and many other operations with ease.
Positioner mode	Standard mode	The basic operation mode, where all you need is to specify a position number and input a start signal. Push-motion operation and 2-axis linear interpolation operation are also supported.
	Type-switching mode	In certain applications such as when multiple loads of the same shape but slightly different hole positions are handled, you can issue movement commands to the same position number by changing only the type number.
	2-axis independent mode	With a 2-axis controller, the two axes can be operated independently using separate commands.
	Teaching mode	The slider(rod) can be moved with an external signal to register the stopped position as position data.
	DS-S-C1 compatible mode	If you have been using a DS-S-C1 controller, you can replace it with an SSEL controller without having to change the host programs.* Compatibility with actuators is not assured.

Explanation of I/O Functions

Program Mode

PIN No.	Category	Port No.	Program mode	Function	Wiring diagram (NPN)*	
1A	P24		24-V input	Connect 24-V.		
1B			016	Program No.1 selection		
2A			017	Program No.2 selection		
2B			018	Program No.4 selection		
3A			019	Program No.8 selection		
3B			020	Program No.10 selection		
4A			021	Program No.20 selection		
4B			022	Program No.40 selection		
5A			023	CPU reset		The system is reset and enters the same state achieved when the power has been turned off and then turned back on.
5B			000	Start		The program corresponding to the selected port between Nos. 016 and 022 is started.
6A		Input	001	General-purpose input		The controller waits for an external input following each program command.
6B			002	General-purpose input		
7A			003	General-purpose input		
7B			004	General-purpose input		
8A			005	General-purpose input		
8B			006	General-purpose input		
9A			007	General-purpose input		
9B			008	General-purpose input		
10A			009	General-purpose input		
10B			010	General-purpose input		
11A			011	General-purpose input		
11B			012	General-purpose input		
12A			013	General-purpose input		
12B			014	General-purpose input		
13A	015		General-purpose input			
13B	Output	300	Alarm	This signal is output when an alarm has occurred. (Contact B)		
14A		301	Ready	This signal is output when the controller has started properly and become ready.		
14B		302	General-purpose input	These signals can be turned ON/OFF freely using program commands.		
15A		303	General-purpose input			
15B		304	General-purpose input			
16A		305	General-purpose input			
16B		306	General-purpose input			
17A		307	General-purpose input			
17B	N		0V input	Connect 0V.		

* With regard to PNP wiring diagram, please refer to SSEL manual.

0V 24

* With regard to PNP wiring diagram, please refer to SSEL manual.

Standard Positioner Mode

PIN No.	Category	Port No.	Program mode	Function	Wiring diagram (NPN)*	
1A	P24		24-V input	Connect 24 V.		
1B			Position input 10	Use one of port Nos. 007 to 019 to specify the position number corresponding to the position to move the actuator to. The value can be specified by either a BCD code or binary code.		
2A			Position input 11			
2B			Position input 12			
3A			Position input 13			
3B			Position input 14			
4A			Position input 15			
4B			Position input 16			
5A			023	Error reset		This signal resets minor errors. (To reset major errors, the power must be reconnected.)
5B			000	Start		The actuator starts moving to the position corresponding to the selected position number.
6A		Input	001	Home return		The actuator returns home.
6B			002	Servo ON		The servo is turned ON/OFF.
7A			003	Push motion		Push-motion operation is performed.
7B			004	Pause		The actuator pauses when this signal turns OFF, and resumes operation when the signal is turned ON.
8A			005	Cancel		The actuator stops when this signal turns OFF, and the remaining operation is cancelled.
8B			006	Interpolation setting		With a 2-axis system, the axes move via linear interpolation when this signal is ON.
9A				Position input 1		Use one of port Nos. 007 to 019 to specify the position number corresponding to the position to move the a ctuator to . The value can be specified by either a BCD code or binary code .
9B				Position input 2		
10A				Position input 3		
10B				Position input 4		
11A				Position input 5		
11B				Position input 6		
12A				Position input 7		
12B				Position input 8		
13A			Position input 9			
13B	Output	300	Alarm	This signal is output when an alarm has occurred. (Contact B)		
14A		301	Ready	This signal is output when the controller has started properly and become ready.		
14B		302	Positioning complete	This signal is output when movement to the specified position is completed.		
15A		303	Home return complete	This signal is output when home return is completed.		
15B		304	Servo ON output	This signal is output while the servo is ON.		
16A		305	Push-motion complete	This signal is output when push-motion operation is completed.		
16B		306	System battery error	This signal is output when the system battery voltage has dropped (to the warning level).		
17A		307	Absolute battery error	This signal is output when the absolute battery voltage has dropped (to the warning level).		
17B	N		0V input	Connect 0V.		

* With regard to PNP wiring diagram, please refer to SSEL manual.

0V

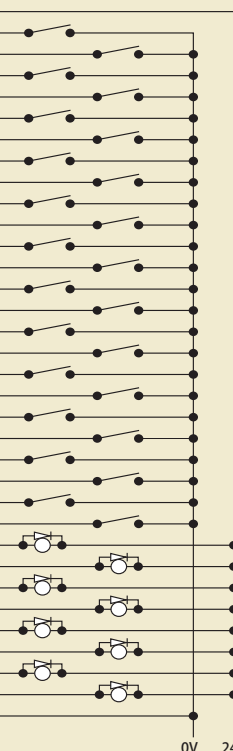
* With regard to PNP wiring diagram, please refer to SSEL manual.

Explanation of I/O Functions

Type-switching Positioner Mode

PIN No.	Category	Port No.	Program mode	Function
1A	Input	P24	24-V input	Connect 24-V.
1B			Position/type input 10	Use one of port Nos. 007 to 022 to specify the position number corresponding to the position to move the actuator to, and another to specify the type number. Position numbers and type numbers are assigned using parameters. The value can be specified by either a BCD code or binary code.
2A			Position/type input 11	
2B			Position/type input 12	
3A			Position/type input 13	
3B			Position/type input 14	
4A			Position/type input 15	
4B			Position/type input 16	
5A			Error reset	This signal resets minor errors. (To reset major errors, the power must be reconnected.)
5B			Start	The actuator starts moving to the position corresponding to the selected position number.
6A			Home return	The actuator returns home.
6B			Servo ON	The servo is turned ON/OFF.
7A			Push motion	Push-motion operation is performed.
7B			Pause	The actuator pauses when this signal turns OFF, and resumes operation when the signal is turned ON.
8A			Cancel	The actuator stops when this signal turns OFF, and the remaining operation is cancelled.
8B			Interpolation setting	With a 2-axis system, the axes move via linear interpolation when this signal is ON.
9A			Position/type input 1	Use one of port Nos. 007 to 022 to specify the position number corresponding to the position to move the actuator to, and another to specify the type number. Position numbers and type numbers are assigned using parameters. The value can be specified by either a BCD code or binary code.
9B			Position/type input 2	
10A			Position/type input 3	
10B			Position/type input 4	
11A			Position/type input 5	
11B			Position/type input 6	
12A			Position/type input 7	This signal is output when an alarm has occurred. (Contact B)
12B			Position/type input 8	
13A			Position/type input 9	
13B	Output	N	Alarm	
14A			Ready	This signal is output when the controller has started properly and become ready.
14B			Positioning complete	This signal is output when movement to the specified position is completed.
15A			Home return complete	This signal is output when home return is completed.
15B			Servo ON output	This signal is output while the servo is ON.
16A			Push-motion complete	This signal is output when push-motion operation is completed.
16B			System battery error	This signal is output when the system battery voltage has dropped (to the warning level).
17A			Absolute battery error	This signal is output when the absolute battery voltage has dropped (to the warning level).
17B	N		0V input	Connect 0V.

Wiring diagram (NPN)*



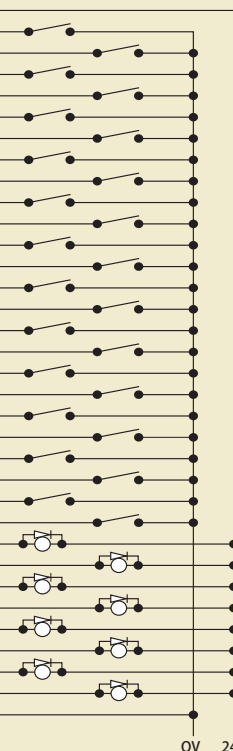
* With regard to PNP wiring diagram, please refer to SSEL manual.

0V 24

2-axis Independent Positioner Mode

PIN No.	Category	Port No.	Program mode	Function
1A	Input	P24	24-V input	Connect 24-V.
1B			Position/type input 7	Use any of port Nos. 010 to 022 to specify the position number corresponding to the position to move the actuator to. Assignment of position numbers for axes 1 and 2 is set using parameters. The value can be specified by either a BCD code or binary code.
2A			Position/type input 8	
2B			Position/type input 9	
3A			Position/type input 10	
3B			Position/type input 11	
4A			Position/type input 12	
4B			Position/type input 13	
5A			Error reset	This signal resets minor errors. (To reset major errors, the power must be reconnected.)
5B			Start 1	Axis 1 starts moving to the position corresponding to the selected position number.
6A			Home return 1	Axis 1 returns home.
6B			Servo ON 1	The servo of axis 1 is turned ON/OFF.
7A			Pause 1	Axis 1 pauses when this signal turns OFF, and resumes the remaining operation when the signal turns ON.
7B			Cancel 1	The movement of axis 2 is cancelled.
8A			Start 2	Axis 2 starts moving to the position corresponding to the selected position number.
8B			Home return 2	Axis 2 returns home.
9A			Servo ON 2	The servo of axis 2 is turned ON/OFF.
9B			Pause 2	Axis 2 pauses when this signal turns OFF, and resumes the remaining operation when the signal turns ON.
10A			Cancel 2	The movement of axis 2 is cancelled.
10B			Position input 1	Use any of port Nos. 010 to 022 to specify the position number corresponding to the position to move the actuator to. Assignment of position numbers for axes 1 and 2 is set using parameters. The value can be specified by either a BCD code or binary code.
11A			Position input 2	
11B			Position input 3	
12A			Position input 4	
12B			Position input 5	
13A			Position input 6	
13B	Output	N	Alarm	This signal is output when an alarm has occurred. (Contact B)
14A			Ready	This signal is output when the controller has started properly and become ready.
14B			Positioning complete 1	This signal is output when axis 1 completes its movement to the specified position.
15A			Home return complete 1	This signal is output when axis 1 completes its home return.
15B			Servo ON output 1	This signal is output while the servo of axis 1 is ON.
16A			Positioning complete 2	This signal is output when axis 2 completes its movement to the specified position.
16B			Home return complete 2	This signal is output when axis 2 completes its home return.
17A			Servo ON output 2	This signal is output while the servo of axis 2 is ON.
17B	N		0V input	Connect 0V.

Wiring diagram (NPN)*



* With regard to PNP wiring diagram, please refer to SSEL manual.

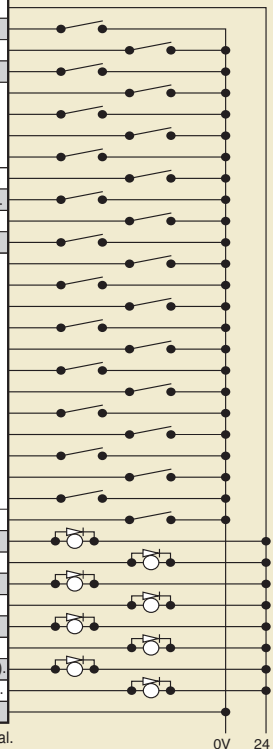
0V 24

Explanation of I/O Functions

Teaching Positioner Mode

PIN No.	Category	Port No.	Program mode	Function
1A	P24	016	24-V input	Connect 24 V
1B			Axis 1 JOG -	Axis 1 moves in the negative direction while this signal is input.
2A			Axis 2 JOG +	Axis 2 moves in the positive direction while this signal is input.
2B			Axis 2 JOG -	Axis 2 moves in the negative direction while this signal is input.
3A			Inching specification (0.01 mm)	Specify the distance to be traveled by inching. (The travel represents the sum of values specified for port Nos. 019 to 022.)
3B			Inching specification (0.1 mm)	
4A			Inching specification (0.5 mm)	
4B			Inching specification (1 mm)	
5A			Error reset	This signal resets minor errors. (To reset major errors, the power must be reconnected.)
5B			Start	The actuator starts moving to the position corresponding to the selected position number.
6A			Servo ON	The servo is turned ON/OFF.
6B			Pause	The actuator pauses when this signal turns OFF, and resumes operation when the signal is turned ON.
7A			Position/type input 1	Use any of port Nos. 003 to 013 to specify the position number corresponding to the position to move the actuator to, and another to specify the position number under which to input the current position. When port No. 014 for teaching mode specification is ON, turning ON port No. 000 for start signal writes the current value to the specified position number.
7B			Position/type input 2	
8A			Position/type input 3	
8B			Position/type input 4	
9A			Position/type input 5	
9B			Position/type input 6	
10A			Position/type input 7	
10B			Position/type input 8	
11A			Position/type input 9	
11B			Position/type input 10	
12A			Position/type input 11	
12B			Teaching mode specification	
13A	Input	015	Axis 1 JOG +	Axis 1 moves in the positive direction while this signal is input.
13B			Alarm	This signal is output when an alarm has occurred. (Contact B)
14A			Ready	This signal is output when the controller has started properly and become ready
14B			Positioning complete	This signal is output when movement to the specified position is completed.
15A			Home return complete	This signal is output when home return is completed.
15B			Servo ON output	Servo ON output
16A			-	-
16B			System battery error	This signal is output when the system battery voltage has dropped (to the warning level).
17A			Absolute battery error	This signal is output when the absolute battery voltage has dropped (to the warning level).
17B			0V input	Connect 0V.

Wiring diagram (NPN)*

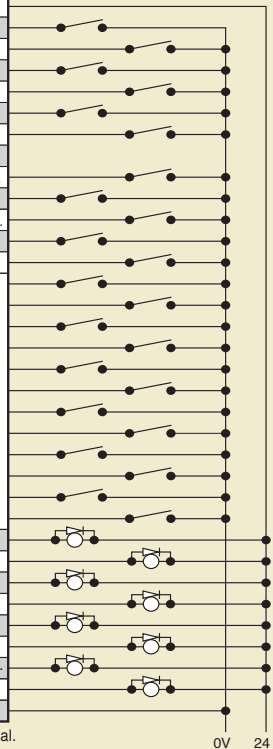


* With regard to PNP wiring diagram, please refer to SSEL manual.

DS-S-C1 Compatible Positioner Mode

PIN No.	Category	Port No.	Program mode	Function
1A	P24	016	24-V input	Connect 24 V.
1B			Position No. 1000	(Same with port No. 004 to 015)
2A			Position No. 2000	-
2B			Position No. 4000	-
3A			Position No. 8000	-
3B			Position No. 10000	-
4A			Position No. 20000	-
4B			NC *1)	-
5A			CPU reset	The system is reset and enters the same state achieved when the power has been turned off and then turned back on.
5B			Start	The actuator starts moving to the position corresponding to the selected position.
6A			Hold (pause)	The actuator pauses when the moving signal turns ON and resumes operation when the signal is turned OFF.
6B			Cancel	The actuator stops when the moving signal turns ON, and the remaining operation is cancelled.
7A			Interpolation setting	With a 2-axis system, the axes move via linear interpolation when this signal is ON.
7B			Position No. 1	Use any of port Nos. 004 to 016 to specify the position number corresponding to the position to move the actuator to. The value is specified by a BCD code.
8A			Position No. 2	
8B			Position No. 4	
9A			Position No. 8	
9B			Position No. 10	
10A			Position No. 20	
10B			Position No. 40	
11A			Position No. 80	
11B			Position No. 100	
12A			Position No. 200	
12B			Position No. 400	
13A	Output	015	Position No. 800	
13B			Alarm	This signal is output when an alarm has occurred. (Contact B)
14A			Ready	This signal is output when the controller has started properly and become ready
14B			Positioning complete	This signal is output when movement to the specified position is completed.
15A			-	-
15B			-	-
16A			-	-
16B			System battery error	This signal is output when the system battery voltage has dropped (to the warning level).
17A			Absolute battery error	This signal is output when the absolute battery voltage has dropped (to the warning level).
17B			0V input	Connect 0V.

Wiring diagram (NPN)*

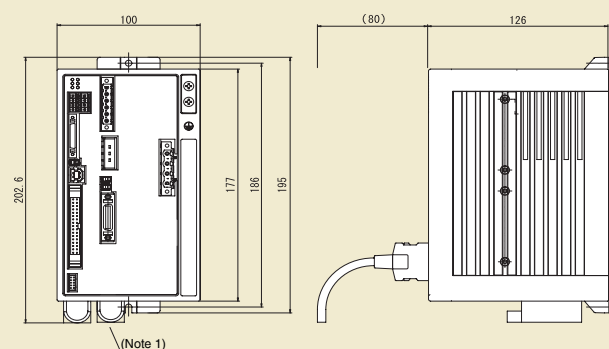


*1) PIN No. 4B: The input must be turned OFF. Make sure this signal is not connected.

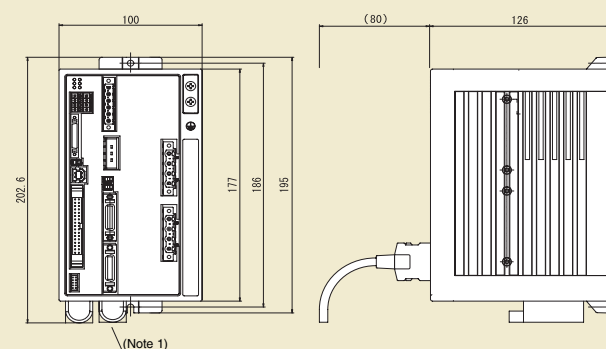
* With regard to PNP wiring diagram, please refer to SSEL manual.

Specification Table

	Item	Specification
Base specifications	Connectable actuators	RCS2-series actuator, single-axis robot, linear motor
	Input power supply	Single-phase 100-115 VAC $\pm$ 10%
	Power-supply capacity	Max. 1660 VA (400 W, based on 2-axis operation)
	Dielectric strength	500 VDC, 10 M Ω or more
	Withstand voltage	500 VAC, 1 minute
	Rush current	Controller 30 A / Motor 37.5 A
Control specifications	Vibration resistance	Controller 30 A / Motor 7.5 A
		XYZ directions: 10 to 57 Hz: (Single amplitude) 0.035 mm (continuous), 0.075 mm (intermittent) 58 to 150 Hz: 4.9 m/sec ² (continuous), 9.8 m/sec ² (intermittent)
	Number of controlled axes	1 axis/2 axes
	Maximum total output of connected axes	400 W
	Position detection method	Incremental encoder/Absolute encoder
	Speed setting	1 mm/sec ~ (The maximum limit varies depending on the actuator.)
Program	Acceleration setting	0.01 G ~ (The maximum limit varies depending on the actuator.)
	Operation method	Program operation/positioner operation (switchable)
	Program language	Super SEL
	Number of programs	128
	Number of program steps	9999
	Number of multi-tasking programs	8
Communication	Number of positioning points	20000
	Data storage device	Flash ROM (An optional system-memory backup battery can be added.)
	Data input method	Teaching pendant or PC software
	Number of I/O points	24 input points/8 output points (NPN/PNP selectable)
	I/O power supply	24 VDC $\pm$ 10%, supplied externally
	PIO cable	CB-DS-PIO $\square\square\square$ (supplied with the controller)
General specifications	Serial communication function	RS232C (D-sub, half-pitch connector)/USB connector
	Field networks	Profibus, DeviceNet, CC-Link
	Protective functions	Motor overcurrent, motor/driver temperature check, overload check, encoder open check, soft limit overtravel, system battery error, etc.
	Surrounding air temperature / humidity	0 to 40°C, 10 to 95% (non-condensing)
	Surrounding ambience	Not subject to corrosive gases or significant dust.
	Protection degree	IP20
	Weight	1.4 kg
	External dimensions	100 mm (W) x 202.6 mm (H) x 126 mm (D)

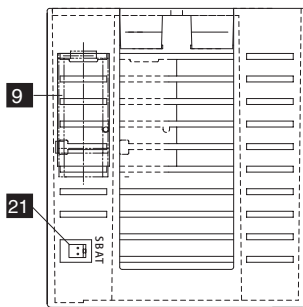
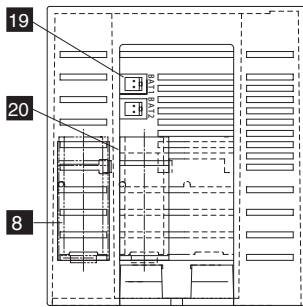
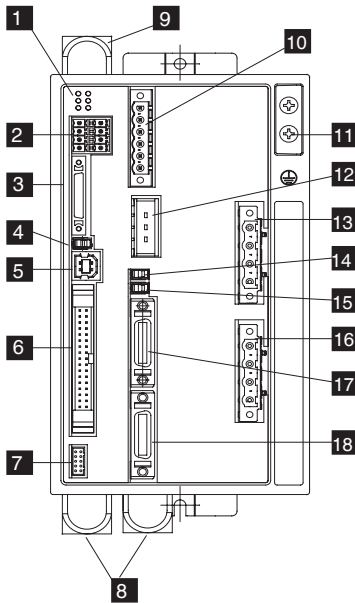
External Dimensions
SSEL 1-axis controller


(Note 1) Absolute-data backup battery. This battery is not installed in incremental controllers.

SSEL 2-axis controller


(Note 1) Absolute-data backup battery. This battery is not installed in incremental controllers.

Name of Each Part



1 Status indicator LEDs

These LEDs indicate the operating condition of the controller.
Each LED and what it indicates are explained below:

- PWR : The controller is receiving power.
- RDY : The controller is ready to perform program operation.
- ALM : The controller is abnormal.
- EMG : An emergency stop has been actuated and the drive source is cut off.
- SV1 : The servo of actuator axis 1 is ON.
- SV2 : The servo of actuator axis 2 is ON.

2 System I/O connector

This connector is used to connect the emergency stop/enable input, brake power input, etc.

3 Teaching pendant connector

This half-pitch, IO26-pin connector is used to connect the teaching pendant when the operation mode is MANU. You need a dedicated conversion cable to connect a conventional D-sub, 25-pin connector.

4 Mode switch

This switch is used to specify the operation mode of the controller. The controller is in the MANU (manual operation) mode when the switch is in the left position, or AUTO (auto operation) mode when the switch is in the right position. Teaching operation can be performed only in the MANU mode. Also note that the controller cannot perform auto operation using external I/Os in the MANU mode.

5 USB connector

This connector is used to establish USB connection with a PC. While the USB connector is in use, the TP connector cannot be used because communication via this connector is disconnected.

6 IO connector

This connector is used to connect the interface I/Os. If the DIO (24IN/8OUT) interface is specified, the I/O connector accepts a 34-pin flat cable. The I/O power is also supplied to the controller through this connector (pins 1 and 34).

7 Panel unit connector

This connector is used to connect the panel unit (optional) for displaying the controller status and error numbers.

8 Absolute-data backup battery

When an absolute axis is operated, this battery is used to retain the position data even after the power is cut off.

9 System-memory backup battery (optional)

This battery is required if you want to retain the various data stored in the built-in SRAM of the controller even after the power is cut off. This battery is optional. Order it separately if required.

10 Power-supply connector

A connector for AC power supply. The control power and motor power are input separately.

11 Grounding screw

A screw for protective grounding. Be sure to connect this screw to ground.

12 External regenerative resistor connector

This connector is used to connect an additional regenerative resistor that is connected when the built-in regenerative resistor is not enough due to high acceleration, high load, etc.

13 Axis 1 motor connector

The motor cable of actuator axis 1 is connected here.

14 Axis 2 motor connector

The motor cable of actuator axis 2 is connected here.

15 Axis 1 brake switch

This switch is used to release the axis brake. Setting the switch to the left (RLS) position forcibly releases the brake, while setting it to the right (NOM) position allows the controller to control the brake automatically.

16 Axis 2 brake switch

This switch is used to release the axis brake. Setting the switch to the left (RLS) position forcibly releases the brake, while setting it to the right (NOM) position allows the controller to control the brake automatically.

17 Axis 1 encoder connector

The encoder cable of actuator axis 1 is connected here.

18 Axis 2 encoder connector

The encoder cable of actuator axis 2 is connected here.

19 Axis 1 absolute battery connector

This connector is used to connect the absolute-data backup battery for axis 1 when the actuator is equipped with an absolute encoder.

20 Axis 2 absolute battery connector

This connector is used to connect the absolute-data backup battery for axis 2 when the actuator is equipped with an absolute encoder.

21 System-memory backup battery connector

This connector is used to connect the system-memory backup battery.

Options

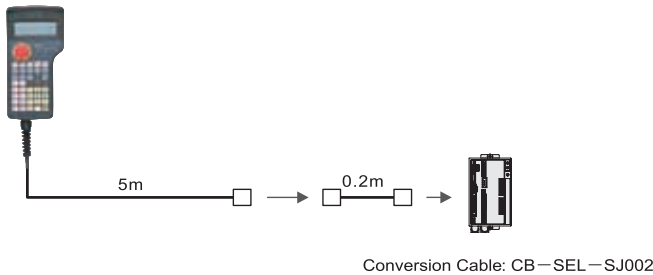
Teaching Pendant

- **Features** A teaching device offering functions for program/position input, test operation, monitoring, and more.

Models/Prices

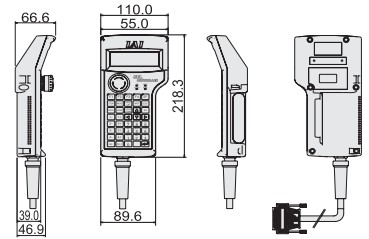
Model	Description
SEL-T-J	Standard type with connector conversion cable
SEL-TD-J	Deadman switch type with connector conversion cable

Configuration



Specification

Item	SEL-T-J	SEL-TD-J
3-position enable switch	Not equipped	Equipped
ANSI/UL standard	Not compliant	Compliant
CE Mark	Compliant	
Display	20 characters x 4 lines	
Surrounding air temp / humidity	0-40 C, 10-90% RH (non-condensing)	
Protection structure	IP54	
Weight	Approx 0.4 kg (excluding cables)	

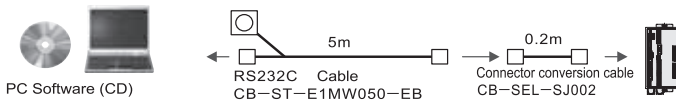


PC Software (Windows only)

- **Features** A software application that assists you in the initial startup of your system by offering functions for program/position input, test operation, monitoring, and more. Enhanced debugging functions help reduce the startup time.

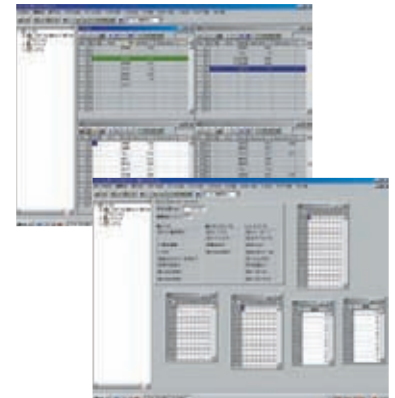
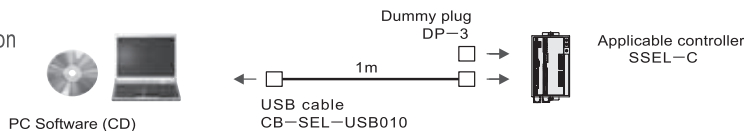
- **Models** IA-101-X-MW-J (with RS232C cable + connector conversion cable)
IA-101-X-MW (with RS232C cable + connector conversion cable)

Configuration



- **Model** IA-101-X-USB (with USB cable)

Configuration



Note
SSEL controllers support only Version 6.0.0.0 or later.

Regenerative Resistor Unit

- **Features** A unit for converting to heat the regenerative current produced when the motor decelerates. Check the total wattage of the operated actuators in the table on the right and provide a regenerative resistor or resistors if necessary.

- **Model** REU-2 (for SCON/SSEL)

Specifications

Weight	0.9 kg
Built-in regenerative resistor	220 Ω 80 W
Unit-controller connection cable (accessory)	CB-SC-REU010 (for SSEL)

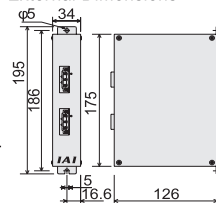
□ If two regenerative units are required, order one REU-2 and one REU-1 (refer to P. 70).

RRU Determination Guide

	Horizontal	Vertical
0 units	~800 W	~200
1 unit		W ~600
2 units		W ~800

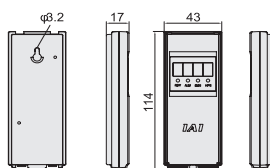
□ Depending on the operating conditions, the required number of regenerative resistor(s) may become more than the applicable number shown.

External Dimensions



Panel Unit

- **Features** A display that lets you check controller error codes and the program number of the current program.
- **Model** REU-2



Absolute Data Backup Battery

- **Features** An absolute-data backup battery used when an absolute actuator is operated. The battery is the same as the system-memory backup battery.

- **Model** AB-5



System-memory Backup Battery

- **Features** This battery is required if you are using global flags, etc., in the program and want to retain the data even after the power is turned off.

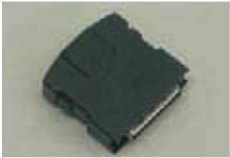
- **Model** AB-5-CS (with case)
AB-5 (battery)



Options

Dummy Plug

- Features A plug to be connected to the teaching port to cut off the enable circuit when the SSEL controller is connected to a PC via a USB cable. (This plug is supplied with the PC software IA-101-X-USB.)
- Model DP—3



USB Cable

- Features A cable for connecting a controller with USB port to a PC. To connect a controller without USB port (XSEL) to a PC, connect the controller's RS232C cable to a USB cable via a USB conversion adapter, and connect the USB cable to the USB port on the PC. DP—3 (Refer to the PC software IA-101-X-USBMW.)
- Model CB —SEL—USB010 (cable length 1 m)



Connector Conversion Table

- Features A conversion cable for connecting the D-sub, 25-pin connector for teaching pendant/PC software to the teaching connector (half-pitch) on the SSEL controller.
- Model CB —SEL—SJ002 (cable length 0.2 m)

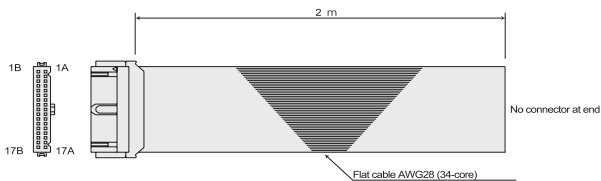


Replacement Parts

I/O Flat Cable

Model CB-DS-PIO□□□

□□□ indicates the cable length (L). You can specify a desired length up to 10 m is supported. Example) 080 = 8 m



No.	Color	Wiring	No.	Color	Wiring
1A	Brown 1		9B	Gray 2	
1B	Red 1		10A	White 2	
2A	Orange 1		10B	Black 2	
2B	Yellow 1		11A	Brown-3	
3A	Green 1		11B	Red 3	
3B	Blue 1		12A	Blue 1	
4A	Purple 1		12B	Orange3	
4B	Gray 1		13A	Green 3	
5A	White 1		13B	Blue 3	
5B	Black 1		14A	Purple 3	
6A	Brown-2		14B	Gray 3	
6B	Red 2		15A	White 3	
7A	Orange 2		15B	Black 3	
7B	Yellow 2		16A	Brown-4	
8A	Green 2		16B	Red 4	
8B	Blue 2		17A	Orange 4	
9A	Purple 2		17B	Yellow 4	

X-SEL

Program controller for
one to six axes



Model List/Prices

A multi-axis program controller capable of operating 230 VAC linear axes. Up to six axes can be controlled simultaneously.

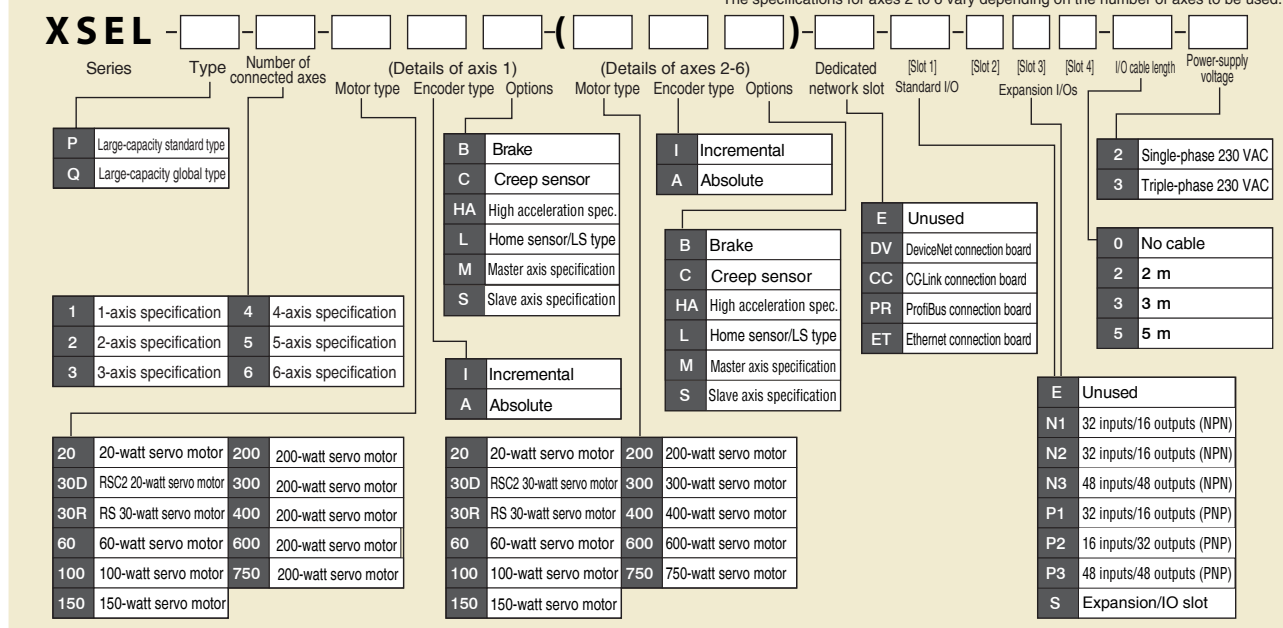
Type	P	Q
Name	Large-capacity standard type	Large-capacity global type (safety category specification)
Exterior View		
Description	A large-capacity type capable of controlling up to six axes.	A large-capacity type conforming to safety category 4.
Max number of controlled axes	6-axes	
Number of Positions	20000 positions	
Maximum total wattage of connected axes	1600/2400 W	
Power supply	Single-phase 230 VAC/three-phase 230 VAC	
Safety category	B	4 (with additional circuit)
Safety standards	CE	CE, ANSI

Explanation

[XSEL-P/Q types]

* If you are selecting multiple options, specify them in an alphabetical order. (Example: Brake + home sensor -> BL)

* The specifications for axes 2 to 6 vary depending on the number of axes to be used.

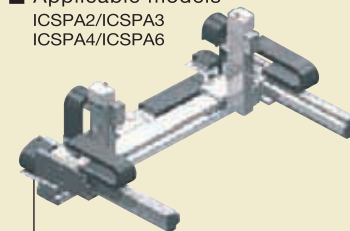


System Configuration

P (large-capacity standard type)/Q (large-capacity global type)

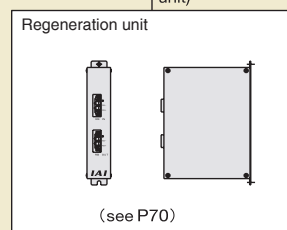
■ Applicable models

ICSPA2/ICSPA3
ICSPA4/ICSPA6



Motor cable: 3m/5m (standard)
Encoder cable: 3m/5m (standard)

Regeneration unit cable: 1m
(Supplied with the regenerative unit)



(see P70)

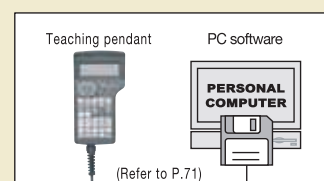
■ External device PLC, etc.

I/O flat cable: 2 m
(Supplied with the controller) (Refer to P. 71.)

■ Connection with various field networks

- Device Net
- CC-Link
- Profi Bus
- Ethernet

■ RS232 cable: 5 m (Refer to P. 71.)



(Refer to P.71)

RS232 cable: 5 m (Refer to P. 71.)
(Supplied with the PC software)

■ Control power supply Single phase: AC 230VAC

■ Motor-drive power supply Three-phase 230VAC (Q type)

■ System I/Os

- Emergency stop
- Enable
- System ready

■ Expansion I/Os

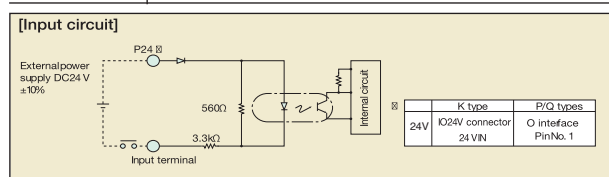
- PIO board
- * If the expansion I/Os are added to the P or Q type, the controller enclosure will be changed. (Refer to P. 68.)

Drive-source cutoff circuit
(provided by the customer)
Required only for the Q type (not required for the P type).

I/O Wiring

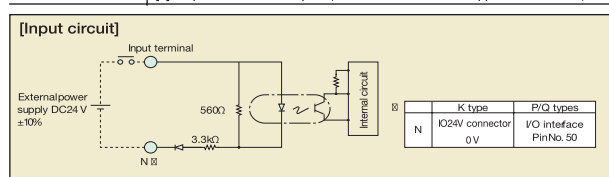
■ Input External Input Specification (NPN Specification)

Item	Specification
Input voltage	DC24V $\pm 10\%$
Input current	7 mA per circuit
ON/OFF voltages	ON voltage- Min. 16.0 VDC / OFF voltage- Max. 5.0 VDC
Insulation method	(Photo-coder insulation)
Externally connected devices	[1] No-voltage contacts (with a minimum load of approx. 5.0 VDC/1mA) [2] Photo-electric/proximity sensors (NPN type) [3] Sequencer transistor outputs (open-collector type) [4] Sequencer contact outputs (with a minimum load of approx. 5 VDC/1mA)



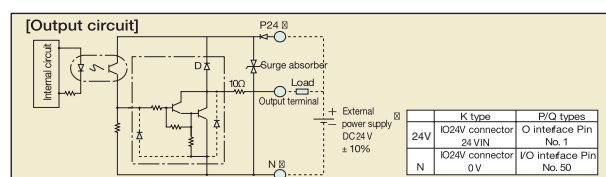
■ Input External Input Specification (PNP Specification)

Item	Specification
Input voltage	DC24V $\pm 10\%$
Input current	7 mA per circuit
ON/OFF voltages	ON voltage- Min. 8 VDC / OFF voltage- Max. 19 VDC
Insulation method	(Photo-coder insulation)
Externally connected devices	[1] No-voltage contacts (with a minimum load of approx. 5.0 VDC/1mA) [2] Photo-electric/proximity sensors (PNP type) [3] Sequencer transistor outputs (open-collector type) [4] Sequencer contact outputs (with a minimum load of approx. 5 VDC/1mA)



■ Output External Input Specification (NPN Specification)

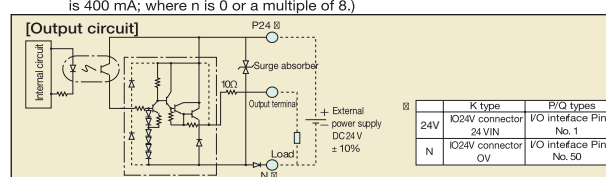
Item	Specification
Load voltage	DC24V
Maximum load current	100 mA per point, 400 mA peak (total current)
Leak current (max.)	Max. 0.1mA per point
Insulation method	(Photo-coder insulation)
Externally connected devices	[1] Minature relays [2] Sequencer input units



■ Output External Output Specification (PNP Specification)

Item	Specification
Load voltage	DC24V
Maximum load current	100 mA per point, 400 mA for 8 ports*
Leak current(max.)	Max. 0.1 mA per point
Insulation method	(Photo-coder insulation)
Externally connected devices	[1] Minature relays [2] Sequencer input units

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



I/O Signal Tables

Standard I/O Signal Table (when N1 or P1 is selected)

Pin No.	Category	Port No.	Standard Setting
1	Input	—	P/Q types: 24-V connection/K type : 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		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	Output	031	General purpose output
34		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		32	(P/Q types: 0V connection/K type: NC)

Expansion I/O Signal Table (when N1 or P1 is selected)

Pin No.	Category	Standard Setting
1	Input	(P/Q types: 24-V connection/K type : NC)
2		General purpose input
3		General purpose input
4		General purpose input
5		General purpose input
6		General purpose input
7		General purpose input
8		General purpose input
9		General purpose input
10		General purpose input
11		General purpose input
12		General purpose input
13		General purpose input
14		General purpose input
15		General purpose input
16		General purpose input
17		General purpose input
18		General purpose input
19		General purpose input
20		General purpose input
21		General purpose input
22		General purpose input
23		General purpose input
24		General purpose input
25		General purpose input
26		General purpose input
27		General purpose input
28		General purpose input
29		General purpose input
30		General purpose input
31		General purpose input
32	Output	General purpose output
33		General purpose output
34		General purpose output
35		General purpose output
36		General purpose output
37		General purpose output
38		General purpose output
39		General purpose output
40		General purpose output
41		General purpose output
42		General purpose output
43		General purpose output
44		General purpose output
45		General purpose output
46		General purpose output
47		General purpose output
48		General purpose output
49		General purpose output
50		(P/Q types: 0V connection/K type: NC)

Expansion I/O Signal Table (when N1 or P1 is selected)

Pin No.	Category	Standard Setting
1	Input	(P/Q types: 24-V connection/K type : NC)
2		General purpose input
3		General purpose input
4		General purpose input
5		General purpose input
6		General purpose input
7		General purpose input
8		General purpose input
9		General purpose input
10		General purpose input
11		General purpose input
12		General purpose input
13		General purpose input
14		General purpose input
15		General purpose input
16		General purpose input
17		General purpose input
18		General purpose output
19		General purpose output
20		General purpose output
21		General purpose output
22		General purpose output
23		General purpose output
24		General purpose output
25		General purpose output
26		General purpose output
27		General purpose output
28		General purpose output
29		General purpose output
30		General purpose output
31	Output	General purpose output
32		General purpose output
33		General purpose output
34		General purpose output
35		General purpose output
36		General purpose output
37		General purpose output
38		General purpose output
39		General purpose output
40		General purpose output
41		General purpose output
42		General purpose output
43		General purpose output
44		General purpose output
45		General purpose output
46		General purpose output
47		General purpose output
48		General purpose output
49		General purpose output
50		(P/Q types: 0V connection/K type: NC)

Specification Table

■ P (Standard Type)/Q (Global Type Conforming to Safety Category)

Item	Description											
Controller series/type	P (Standard) Type						Q (Global) Type					
Connectable actuators	RCS2/ISA/ISPA/ISP/ISDA/ISDACR/ISPDACR/IF/FS/RS/LSA											
Applicable motor output	20/30/60/100/150/200/300/400/600/750											
Number of controlled axes	1 axis	2 axes	3 axes	4 axes	5 axes	6 axes	1 axis	2 axes	3 axes	4 axes	5 axes	6 axes
Maximum output of connected axes	Max. 2400W (1600 W for single-phase, 230-VAC specification)											
Controller power input	200/230-VAC, single-phase - 15% + 10%						200/230-VAC, single-phase - 15% + 10%					
Motor power input	200/230-VAC, single-phase/three-phase - 10% + 10%						200/230-VAC, single-phase/three-phase - 10% + 10%					
Power-supply frequency	50/60 Hz											
Insulation resistance	10MΩ or more (@ 500 VDC, measured between the power-supply terminal and each I/O terminal and between all external terminals and the case)											
Withstand voltage	1500 VAC (1 minute)						1500 VAC (1 minute)					
Power-supply capacity (*1)	Max 1744VA	Max 3266VA	Max 4787VA	Max 4878VA	Max 4931VA	Max 4998VA	Max 1744VA	Max 3266VA	Max 4787VA	Max 4878VA	Max 4931VA	Max 4998VA
Position detection method	Incremental encoder (wire-saving type) Multi-rotational data backup absolute encoder (wire-saving type)											
Complete circuit structure	Redundancy not supported						Redundancy supported					
Drive-source cutoff method	Internal relay cutoff						External safety circuit					
Enable input	Contact B input (Internal power-supply type)						Contact B input (External power-supply type, redundant)					
Speed setting	1mm/sec ~ Maximum setting varies depending on the actuator's specifications											
Acceleration/Deceleration setting	0.01G ~ Maximum setting varies depending on the actuator's specifications											
Program language	Super SEL Language											
Number of programs	128											
Number of program steps	9999											
Number of multitask programs	16											
Number of positions	20000											
Data storage device	FLASH ROM + SRAM battery backup											
Data input method	Teaching pendant or PC											
Standard I/Os	I/O 48 points PIO board (NPN/PNP), I/O 96 points PIO board (NPN/PNP) - 1 board can be installed											
Expansion I/Os	I/O 48 points PIO board (NPN/PNP), I/O 96 points PIO board (NPN/PNP) - Up to 3 boards can be installed											
Serial communication function	Teaching port (D-sub 25-pin,) + 2chRS232C port (D-sub 9-pin x 2) - Standard equipment											
Protective functions	Motor overcurrent, overload, motor-driver temperature check, overload check, encoder-open detection, soft limit over, system error, battery error, etc.											
Ambient operating temperature, humidity	9-40°C / 10-95%											
Weight (*2)	5.2kg					5.7kg	4.5kg					5 kg
Accessory	I/O flat cable											

* 1 Based on the maximum wattage of each connected axis.

* 2 Including the absolute battery, brake mechanism and expansion I/O box.

External Dimensions

■P (Large-capacity Standard Type)/Q (Large-capacity Global Type)

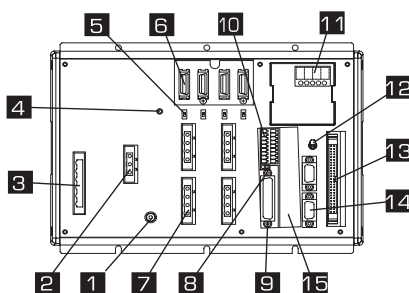
With the XSEL-P/Q types, the shape and dimensions vary according to the controller specifications (encoder type, with/without brake, and with/without I/O expansion).

The four shapes shown below are available. Check the applicable dimensions based on the desired type and number of axes.

		Base shape (incremental specification)	With brake/ absolute unit	With I/O expansion base	With brake/absolute unit + I/O expansion base	Side view
Controller specifications	Encoder	Incremental	Absolute	Incremental	Absolute	
	Brake	Not equipped	Equipped	Not equipped	Equipped	
	I/O	Standard only	Standard only	Standard + expansion	Standard + expansion	
P type (large capacity)	1 to 4-axis specification					
	5 to 6-axis specification					
Q type (large capacity) (conforming to safety category)	1 to 4-axis specification					
	5 to 6-axis specification					

Name of Each Part

P type (standard, 4-axis)



1 FG connection terminal

A connection end for connecting the FG terminal of the enclosure. The PE terminal of the AC input part is connected to the enclosure inside the controller.

2 External regenerative unit connector

This connector is used to connect an additional regenerative resistor unit that is connected when the built-in regenerative resistor is not enough due to high acceleration, high load, etc. Whether or not an external regenerative resistor is required depends on the specifics of the application such as the axis configuration.

3 AC-power input connector

A 230-VAC, 1-/3-phase input connector. This connector has six terminals including the motor/control power terminals and PE terminal. The standard specification only comes with a terminal block.

Note To prevent electric shock, do not touch this connector while the power is supplied.

4 Control-power monitor LEDA

A green light is lit when the control power supply is generating the internal controller power properly.

5 Absolute-battery enable/disable switch

A switch to enable/disable the encoder backup operation using the absolute battery. The factory setting is to disable the backup operation. After connecting the encoder/axis-sensor cables, turn on the power and then set the switch to the top position.

6 Encoder/axis-sensor connector

A connector for the actuator encoder and axis sensors such as LS, CREEP and OT. *(LS, CREEP and OT sensors are optional.)

7 Motor connector

A connector for driving the motor in the actuator.

8 Teaching-pendant type selector switch

This switch is used to change the type of the teaching pendant to be connected to the teaching connector 9. You can switch between IAI's standard teaching pendant and ANSI teaching pendant. Set the switch on the front side of the board according to the teaching pendant you are using.

9 Teaching connector

This teaching interface is used to connect IAI's teaching pendant or a PC (PC software) to operate, set or otherwise manipulate your system.

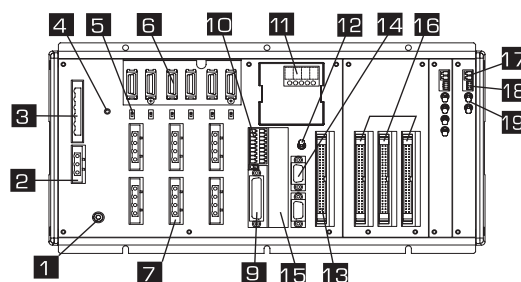
10 System I/O connector

This I/O connector controls the safety operations of the controller. For controllers of global specification, a safety circuit meeting up to safety category 4 can be configured using this connector together with an external safety circuit.

11 Panel window

This window consists of a 4-line, 7-segment LED display and five LED lamps, all indicating the status of your system.

Q type (with absolute brake unit + expansion base, 6-axis)



Meanings of five LEDs

Name	Status when LED is lit
RDY	The CPU is ready (to perform program operation).
ALM	A CPU alarm (system-shutdown level error) or CPU hardware error is present.
EMG	An emergency stop has been actuated or a CPU or power-supply hardware error is present.
PSE	A power-supply hardware error is present.
CLK	The system clock is abnormal.

12 Mode switch

This alternate switch with lock is used to indicate the operation mode of the controller. To operate this switch, pull the switch toward you and then tilt it to a desired position. The top position corresponds to the MANU (manual) mode, while the bottom position corresponds to the AUTO (auto) mode. Teaching operation can be performed only in the MANU mode. Also note that auto program start is not supported in the MANU mode.

13 Standard I/O connector

This alternate switch with lock is used to indicate the operation mode of the controller. To operate this switch, pull the switch toward you and then tilt it to a desired position. The top position corresponds to the MANU (manual) mode, while the bottom position corresponds to the AUTO (auto) mode. Teaching operation can be performed only in the MANU mode. Also note that auto program start is not supported in the MANU mode.

Item	Description
Connector name	I/O
Applicable connector	Flat connector, 50-pin
Power supply	Power is supplied from connector pin Nos. 1 and 50.
Inputs	32 points (including general-purpose and dedicated inputs).
Outputs	16 points (including general-purpose and dedicated outputs).
Connected to	External PLC, sensor, etc.

14 General-purpose RS232C port connector

A port to connect general-purpose RS232C devices (two channels are available).

15 Field-network board slot

Install a field-pass interface module in this slot.

16 Expansion I/O board (optional)

Install an optional expansion I/O board in this slot.

17 Brake-power input connector

A power input connector for driving the brake in the actuator. 24 VDC must be supplied externally. If the specified power is not supplied, the actuator brake cannot be released. Be sure to supply the brake power for axes with brake. Use a shielded cable for the brake power cable and connect the shield on the 24-V power supply side.

18 Brake-release switch connector

This connector is used to connect a switch for releasing the actuator brake from outside the controller. The brake can be released by shorting the COM terminal and BKMRL* terminal of this connector. Use this connector if you want to operate the actuator manually when the controller power has been cut off or any other error is present.

19 Brake switch

This alternate switch with lock is used to release the axis brake. To operate this switch, pull the switch toward you and then tilt it to a desired position. The brake is forcibly released when the switch is in the top (RLS) position, or controlled automatically by the controller when the switch is in the bottom (NOM) position.

Options

■ Regenerative Resistor Unit

Model REU-1

Description

A unit for converting to heat the regenerative current produced when the motor decelerates. Although the controller has a built-in regenerator resistor, an additional regenerative unit or units may be required if a large load that cannot be handled by the built-in regenerative resistor is received from the vertical axis(es).

Specification

Item	Specification
Dimensions	W 34 mm×H 195 mm× D 126 mm
Weight	0.9 kg
Built-in regenerative resistor	220Ω 80 W
Accessory	Controller connection cable (model: CB-ST-REU010), 1 m

Installation Standards

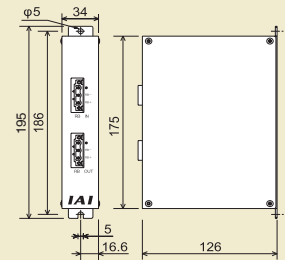
Determine whether or not to install a regenerative resistor unit, and how many, if required, according to the total motor capacity of the connected vertical axes.

Horizontal Application

Motor Wattage	P/Q Type	K Type
~200 W	Not necessary	Not necessary
~800 W	1 unit	Not necessary
~1000 W	1 unit	Not necessary
~1500 W	2 units	Not necessary
~2000 W	3 units	—
~2400 W	4 units	—

Vertical Application

Motor Wattage	P/Q Type	K Type
~100 W	Not necessary	Not necessary
~200 W	1 unit	Not necessary
~400 W	1 unit	Not necessary
~800 W	1 unit	1 unit
~800 W	1 unit	1 unit
~1200 W	2 units	2 units
~1600 W	3 units	Contact IAI for details
~2000 W	4 units	—
~2400 W	5 units	—



■ Absolute-data Backup Battery (for XSEL-KE/KET)

Model IA-XAB-BT

Features

A data backup battery for absolute actuators. Replace the battery as soon as the controller generates a battery alarm.

Packing Configuration

Individually packed. (One battery is required for one axis. Specify the correct quantity that covers all of the axes used.)



■ Expansion SIO Board (General-purpose type)

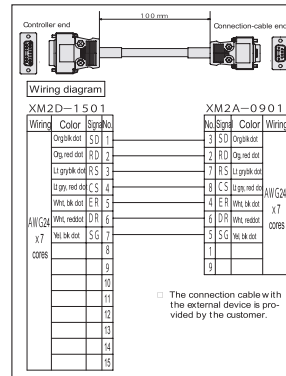
Model / Specification

IA-105-X-MW-A (RS232C connection) (board with joint cable [1] x 2)
IA-105-X-MW-B (RS422C connection) (board with joint cable [2] x 1)
IA-105-X-MW-C (RS485C connection) (board with joint cable [2] x 1)

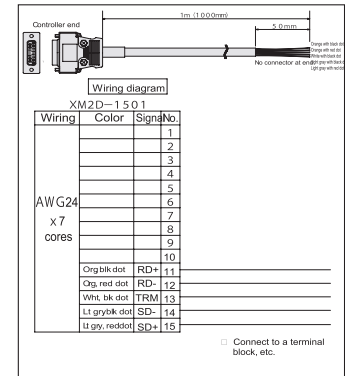
Description

A board for serial communication with an external device. This board has two channels and supports one of three communication formats according to the supplied joint cable.

Joint cable[1] Model: CB-ST-232J001



Joint cable[2] Model: CB-ST-422J001



■ Absolute-data Backup Battery

Model AB-5

Features

An absolute-data backup battery used when absolute actuators are operated.



■ Expansion PIO Board

Description

An optional board you can use to increase the number of I/O (input/output) points.
On general-purpose/large-capacity controllers, up to three expansion PIO boards can be installed in the expansion slots.
(On small controllers, only one expansion PIO board can be installed in the expansion slot, provided that the controller is of 3/4-axis type.)

■ DeviceNet Connection Board

A board for connecting the XSEL controller to DeviceNet.

Item	Specification			
Number of I/O points	1 board with 256 input points/256 output points * Only one board can be installed.			
Communication protocol	A certified DeviceNet 2.0 interface module is used (certification pending).			
	Group 2 only server			
	Insulated node of network-power operation type			
Communication specifications	Master-slave connection		Bit strobe	
			Polling	
			Cyclic	
Baud rate	500 k/250 k/125 kbps (switchable using DIP switches)			
Communication cable	Baud rate	Max. network length	Max. branch length	Total branch length
	500kbps	100m	6 m	39m
	250kbps	250m		78m
	125kbps	500m		156m
	Note) When a thick DeviceNet cable is used.			
Communication power supply	24 VDC (supplied from DeviceNet)			
Current consumption	60 mA or more			
Number of occupied nodes	1 node			
Connector	MSTBA2.5/5-G.08AUM by Phoenix Contact (*1)			

(*1) The cable-end connector (SMSTB2.5/5-ST-5.08AU) by Phoenix Contact is a standard accessory.

■ CC-Link Connection Board

A board for connecting the XSEL controller to CC-Link.

Item	Specification					
Number of I/O points	1 board with 256 input points/256 output points *Only one board can be installed.					
Communication protocol	ACC-Link Version 1.10 (certified)					
Baud rate	10M/5M/2.5M/625k/156kbps (switchable using a rotary switch)					
Communication method	Communication method					
Synchronization method	Frame synchronization method					
Encoding method	NRZI					
Transmissiorpath format	Bus type (conforming to EIA RS485)					
Transmissiorformat	Conforming to HDLC					
Error control method	CRC(X ¹⁶ +X ¹² +X ⁵ +X ¹)					
Number of occupied stations	1 to 3 stations(remote device stations)					
Communication cable length	Baud rate (bps)	10 M	5 M	2.5 M	625 k	
	Cable length (m)	100	160	400	900	
Connector(controller end)	MSTBA2.5/5-G.08AUM by Phoenix Contact (*1)					

(*1) The cable-end connector (SMSTB2.5/5-ST-5.08AU) by Phoenix Contact is a standard accessory.

Options

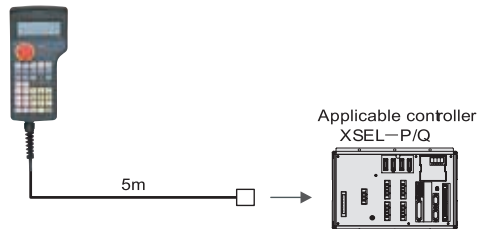
Teaching Pendant

- **Features** A teaching device offering functions for program/position input, test operation, monitoring, and more.

Model

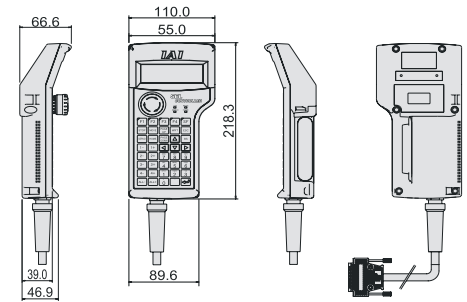
Model	Description
SEL-T	Standard Type
SEL-TD	Deadman Switch Type

Configuration



■ Specification

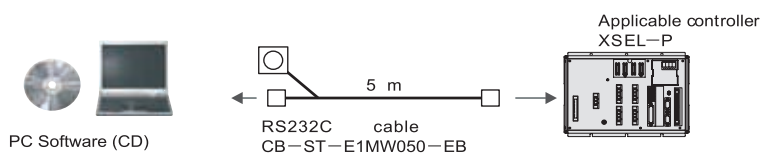
Item	SEL-T	SEL-TD
3-position enableswitch	Not equipped	Equipped
ANSI/UL standard	Not compliant	Compliant
CE Mark	Compliant	
Display	20 characters x4 lines	
Surrounding air temp/humidity	0-40 C, 10-90% RH (non-condensing)	
Protectionstructure	IP54	
Weight	Approx 0.4 kg (excluding cables)	



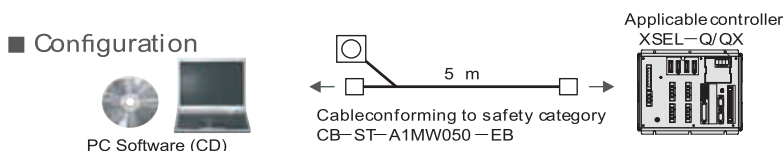
PC Software (Windows only)

- **Feature** A software application that assists you in the initial startup of your system by offering functions for program/position input, test operation, monitoring, and more. Enhanced debugging functions help reduce the startup time.

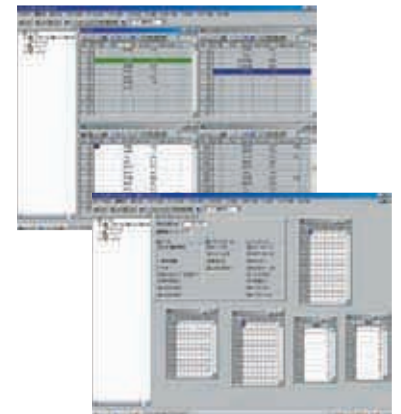
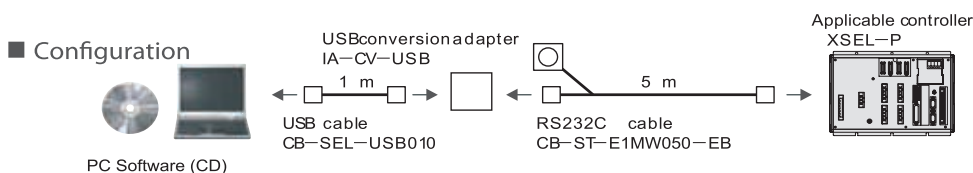
■ Model IA-101-X-MW (with RS232C cable)



■ Model IA-101-XA-MW (with cable conforming to safety category 4)



■ Model IA-101-X-USBMW (with USB conversion adapter + cable)



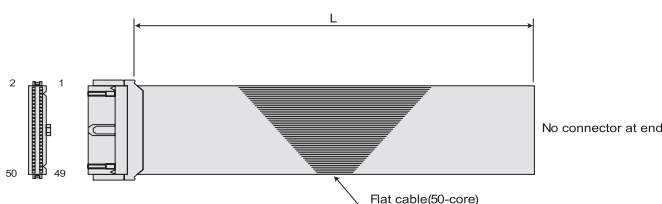
Replacement Parts

All you need a replacement cable after the purchase of your product, specify the applicable model by referring to the information below.

I/O Flat Cable (for XSEL-K/P/Q)

Model **CB-X-PIO**

indicates the cable length (L). You can specify a desired length up to 10 m is supported. (Example) 080 = 8 m



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

**ICSPA-BN/BL Series
Catalogue No. 1208-E**

The information contained in this catalog is
subject to change without notice for the purpose
of product improvement



Providing quality products
since 1986



Ihr Ansprechpartner für IAI-Produkte:

Schlüter Automation und Sensorik GmbH
Bergstr. 2
D-79674 Todtnau - Germany

Tel: +49 (0) 7671 99256-0
Fax: +49 (0) 7671 99256-50

Internet: www.linerachsensysteme.de

Hotline: 0180-2-LINEAR (14 ct./Anruf)