IAI
Quality and Innovation

ISPA/ICSPA

Single-Axis Robot/ Cartesian Robot Catalog
- Extract PDF 1/3 -

- ISA/ ISPA Single-Axis Robots (p1-40)
- Controllers (p226-260)

Catalog No. ISPA-CJ0063-3A

IAI
Quality and Innovation

ISPA/ICSPA
ISA/ICSA

SINGLE-AXIS ROBOT/CARTESIAN ROBOT

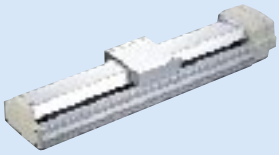
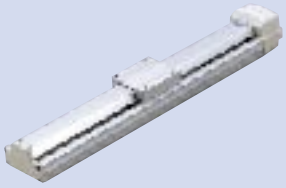
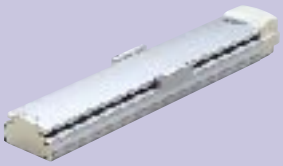
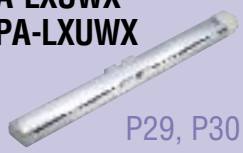
www.intelligentactuator.com

VISUAL INDEX

Single-Axis Robots

High-precision positioning systems with a linear positioning repeatability of ±0.01 to 0.02 mm

INTELLIGENT ACTUATOR

	X-Axis		Y-Axis	Z-Axis
	Standard Type	Mid-Support Type		
Compact Actuator width 90mm	**ISA-SXM** **ISPA-SXM**  P15	(Not available)	**ISA-SYM** **ISPA-SYM**  P16	**ISA-SZM** **ISPA-SZM**  P17
Medium Actuator width 120mm	**ISA-MXM** **ISPA-MXM**  P18, P19	**ISA-MXMX** **ISPA-MXMX**  P20	**ISA-MYM** **ISPA-MYM**  P21, P22	**ISA-MZM** **ISPA-MZM**  P23, P24
Large Actuator width 150mm	**ISA-LXM** **ISPA-LXM**  P25, P26	**ISA-LXMX** **ISPA-LXMX**  P27, P28 **ISA-LXUWX** **ISPA-LXUWX**  P29, P30	**ISA-LYM** **ISPA-LYM**  P31, P32	**ISA-LZM** **ISPA-LZM**  P33, P34
Super Large Actuator width 198mm	**ISP-WXM**  P35, P36	**ISP-WXMX**  P37, P38	(Not available)	(Not available)

Point

The ISA/ICSA2 is a standard actuator with a positioning repeatability of ±0.02 mm.
The ISPA/ICSPA2 is a high-precision actuator with a positioning repeatability of ±0.01 mm.

Cartesian Robots

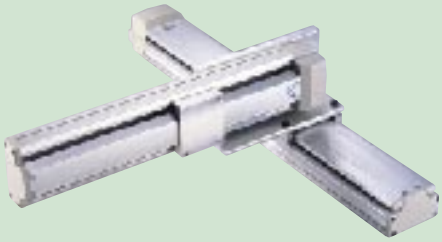
Transfer/positioning systems combining single-axis robots into a two to three orthogonal axes configuration.

INTELLIGENT ACTUATOR

Y-Axis Base Mount

The Y-axis slider moves horizontally.

ICSA2-B□□□
ICSPA2-B□□□

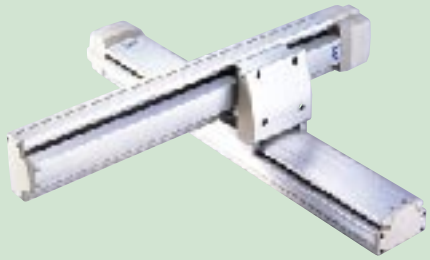


P67~86

Y-Axis Slider Mount

The entire Y-axis moves horizontally.

ICSA2-S□□□
ICSPA2-S□□□



P87~98

Z-Axis Base Mount

The Z-axis is positioned vertically and mounted to the X-axis. The Z-axis slider moves vertically.

ICSA2-Z□□
ICSPA2-Z□□

P99~114

Z-Axis Slider Mount

The Z-axis slider is mounted to the Y-axis positioned on its side. The entire Z-axis moves vertically.

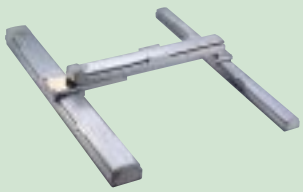
ICSA2-Y□□
ICSPA2-Y□□

P115~124

Gantry

A support axis is added in parallel with the X-axis and the Y-axis base is mounted to the sliders on the two axes. The Y-axis slider moves horizontally.

ICSA2-G□□□
ICSPA2-G□□□



P125~128

Controllers

Single-axis or Cartesian robot controllers that can execute various positioner operations and pulse-input program operations depending on your specific control needs.

Single-Axis Position Controller

E-con

P227

Pulse Input Controller

P-Driver

P234

High-Function Multi-Axis Controller

X-SEL

P241

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Quality and Innovation

INTELLIGENT ACTUATOR

Single-Axis Robots

ISA
ISPA

Contents

Single-Axis Robot Series

Contents

Single-Axis Robot ISA/ISPA Series Features

The ISA/ISPA is a high-precision positioning system comprised of a base, linear guides, ball screw and AC servo motor. It achieves cost savings, because its design is more comprehensive and adjustment is much easier than when individual components are purchased and assembled.

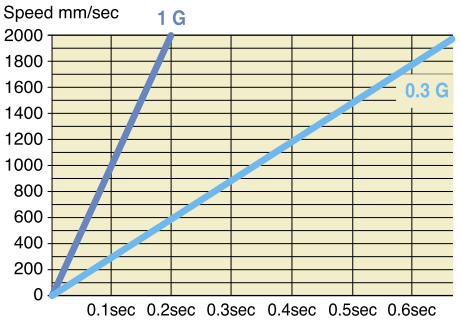
1 Higher Maximum Acceleration/Deceleration of 1 G (9800 mm/sec²)

Both the ISA and ISPA achieve a maximum acceleration/deceleration of 1 G, which was heretofore possible only with the ISP Series.

* When accelerating to 2000 mm/sec, a robot operating at an acceleration of 1 G achieves the target speed approx. 0.5 second faster than a robot operating at an acceleration of 0.3 G (as shown in the graph at right).

Acceleration/deceleration indicates the rate of change of speed. 1 G is equivalent to 9800 mm/sec2, or the ability to accelerate (or decelerate) 9800 mm/sec per second.

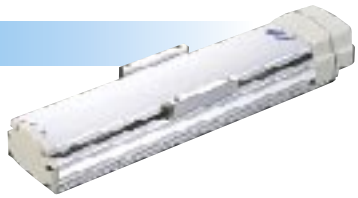
■Comparison of Acceleration Time at 1 G and 0.3 G



2 Dedicated X/Y/Z-Axes

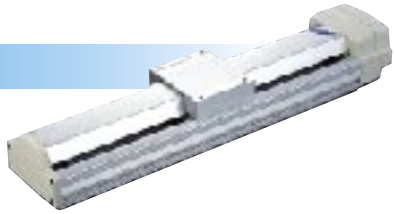
Dedicated axes are available to choose from according to your specific need.

X-Axis Type (SXM, MXM, LXM, etc.)



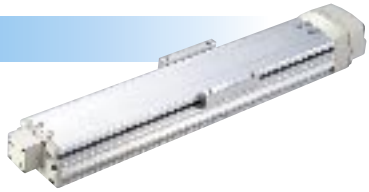
- A dedicated cover prevents intrusion of small parts and other foreign objects from above.
- To install the actuator, open the cover and affix with bolts from above.

Y-Axis Type (SYM, MYM, LYM, etc.)

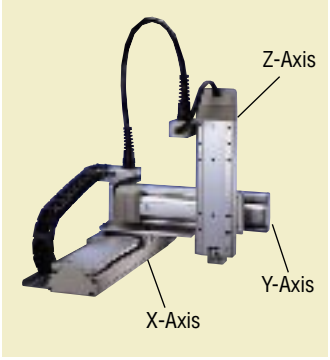


- A cover shape is adopted to prevent intrusion of small parts and other foreign objects from above when the actuator is installed on its side.

Z-Axis Type (SZM, MZM, LZM, etc.)

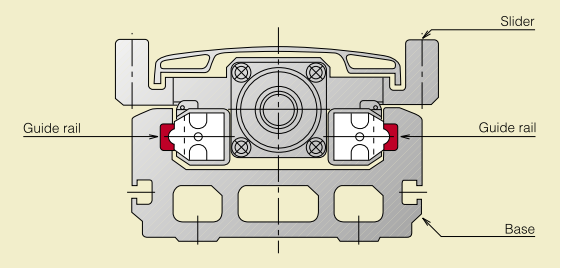


- The actuator comes standard with a slider anti-drop brake by assuming use in a vertical application.
- The mounting holes provided in the back of the base (actuator-mounting surface) are different from the mounting holes of the X-axis type.
  (A load can be attached easily to the base surface when the slider is mounted and the actuator is moved vertically.)



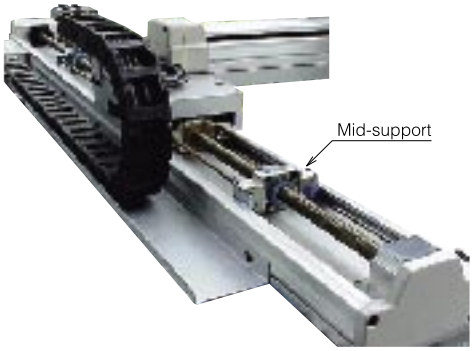
3 Achieving Higher Rigidity with Smaller Size via Base-Integrated Guide Structure

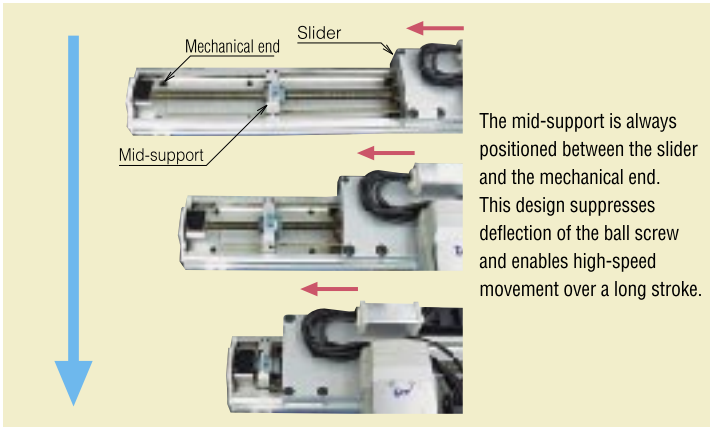
The thickness of the actuator has been reduced by embedding the guide rails in the base, eliminating the need for attachment of commercial guides. The base also employs a hollow box structure for improved rigidity.



4 2500-mm Stroke with Ball Screw, Achieved with Mid-Support Mechanism

A ball screw drive actuator is prone to screw deflection when the stroke is increased, which makes it difficult to increase the rotating speed and therefore the actuator speed. As a result, belt drive has been the mainstream drive mechanism for long-stroke actuators.
The ISA/ISPA Series achieves a long stroke of 2500 mm using a ball screw drive, employing an original (patented) mid-support mechanism.

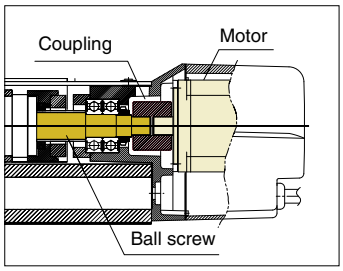




The mid-support is always positioned between the slider and the mechanical end. This design suppresses deflection of the ball screw and enables high-speed movement over a long stroke.

5 Direct Coupling Structure at Same Overall Length as Integrated Ball Screw/Rotor Type

The ISA/ISPA Series features a coupling structure of the same overall length as the conventional IS Series (integrated ball screw/rotor type).
This structure allows for motor replacement in the event of a motor problem.



6 Selectable Controller Depending on Desired Control Method

The following three controller types are available:

1	2	3
Program operation	Positioner operation	Pulse-train operation
Super SEL Controller **X-SEL**  P131	**E-Con**  P117	**P-Driver**  P124

Single-Axis Robot Series Specification Table

	Stroke (mm), maximum speed (mm/sec) (Note 1)	Load capacity (Note 2) Horizontal (kg)	Load capacity (Note 2) Vertical (kg)	Motor capacity (W)	Lead (mm)	Model	Page
ISA ISPA	100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500						
	800	12	3	60	16	ISA(ISPA)-SXM-☐-60-16-• •• ••	P15
	400	25	6		8	ISA(ISPA)-SXM-☐-60-8-• •• ••	
	200	50	14		4	ISA(ISPA)-SXM-☐-60-4-• •• ••	
	800	12	3	60	16	ISA(ISPA)-SYM-☐-60-16-• •• ••	P16
	400	25	6		8	ISA(ISPA)-SYM-☐-60-8-• •• ••	
	200	50	14		4	ISA(ISPA)-SYM-☐-60-4-• •• ••	
	400	–	6	60	8	ISA(ISPA)-SZM-☐-60-8-• •• •• -B•	P17
	200	–	14		4	ISA(ISPA)-SZM-☐-60-4-• •• •• -B•	
	1000	20	5	100	20	ISA(ISPA)-MXM-☐-100-20-• •• •• •	P18
	500	40	9		10	ISA(ISPA)-MXM-☐-100-10-• •• •• •	
	250	80	19		5	ISA(ISPA)-MXM-☐-100-5-• •• •• •	
	1500	25	6	200	30	ISA(ISPA)-MXM-☐-200-30-• •• •• •	P19
	1000	40	9		20	ISA(ISPA)-MXM-☐-200-20-• •• •• •	
	500	80	19		10	ISA(ISPA)-MXM-☐-200-10-• •• •• •	
	1500	25	–	200	30	ISA(ISPA)-MXMX-☐-200-30-• •• •• •	P20
	1000	40	–		20	ISA(ISPA)-MXMX-☐-200-20-• •• •• •	
	1000	20	5	100	20	ISA(ISPA)-MYM-☐-100-20-• •• •• •	P21
	500	40	9		10	ISA(ISPA)-MYM-☐-100-10-• •• •• •	
	250	80	19		5	ISA(ISPA)-MYM-☐-100-5-• •• •• •	
	1500	25	6	200	30	ISA(ISPA)-MYM-☐-200-30-• •• •• •	P22
	1000	40	9		20	ISA(ISPA)-MYM-☐-200-20-• •• •• •	
	500	80	19		10	ISA(ISPA)-MYM-☐-200-10-• •• •• •	
	500	–	9	100	10	ISA(ISPA)-MZM-☐-100-10-• •• •• -B•	P23
	250	–	19		5	ISA(ISPA)-MZM-☐-100-5-• •• •• -B•	
	500	–	19	200	10	ISA(ISPA)-MZM-☐-200-10-• •• •• -B•	P24
	1000	40	9	200	20	ISA(ISPA)-LXM-☐-200-20-• •• •• •	P25
	500	80	19		10	ISA(ISPA)-LXM-☐-200-10-• •• •• •	
	2000	40	9	400	40	ISA(ISPA)-LXM-☐-400-40-• •• •• •	P26
	1000	80	19		20	ISA(ISPA)-LXM-☐-400-20-• •• •• •	
	1000	40	–	200	20	ISA(ISPA)-LXMX-☐-200-20-• •• •• •	P27
	2000	40	–	400	40	ISA(ISPA)-LXMX-☐-400-40-• •• •• •	P28
	1000	80	–		20	ISA(ISPA)-LXMX-☐-400-20-• •• •• •	
	1000	40	–	200	20	ISA(ISPA)-LXUWX-☐-200-20-• •• •• •	P29
	2000	40	–	400	40	ISA(ISPA)-LXUWX-☐-400-40-• •• •• •	P30
	1000	80	–		20	ISA(ISPA)-LXUWX-☐-400-20-• •• •• •	
	1000	40	9	200	20	ISA(ISPA)-LYM-☐-200-20-• •• •• •	P31
	500	80	19		10	ISA(ISPA)-LYM-☐-200-10-• •• •• •	
	2000	40	9	400	40	ISA(ISPA)-LYM-☐-400-40-• •• •• •	P32
	1000	80	19		20	ISA(ISPA)-LYM-☐-400-20-• •• •• •	
	500	–	19	100	10	ISA(ISPA)-LZM-☐-200-10-• •• •• -B	P33
	500	–	39	400	10	ISA(ISPA)-LZM-☐-400-10-• •• •• •	P34
	2000	60	14	600	40	ISP-WXM-☐-600-40-• •• •• •	P35
	1000	120	29		20	ISP-WXM-☐-600-20-• •• •• •	
	500	150	60		10	ISP-WXM-☐-600-10-• •• •• •	
	2000	75	18	750	40	ISP-WXM-☐-750-40-• •• •• •	P36
	1000	150	37		20	ISP-WXM-☐-750-20-• •• •• •	
	2000	60	–	600	40	ISP-WXMX-☐-600-40-• •• •• •	P37
	1000	120	–		20	ISP-WXMX-☐-600-20-• •• •• •	
	2000	75	–	750	40	ISP-WXMX-☐-750-40-• •• •• •	P38
	1000	150	–		20	ISP-WXMX-☐-750-20-• •• •• •	

(Note 1) The figure in the elongated circle indicates the maximum speed for each stroke. (Note 2) The load capacity is based on actuator operation at the rated acceleration (refer to page 9).

Single-Axis Robot Series

System Configurations

Actuator

ISA/ISPA (P15~34)	ISP (P35~38)
	

Actuator

Motor Cable (P256)
Encoder Cable (P256)
LS Cable (P256)

Controller

Super SEL Controller X-SEL (P241)	E-Con (P227)	P-Driver (P234)
		

Controller

Option

(P251)	(P232)	(P239)
Teaching Pendant **IA-T-X/XD/XA** PC Software **IA-101-X-MW** **IA-101-X-CW**	Teaching Pendant **RCA-T/TD** PC Software **RCB-101-MW**	PC Software **RDR-101-MW**

Option

Notes on Catalog Specifications

Speed

"Speed" refers to the specified speed at which the actuator slider will move.
The slider accelerates from a stationary state, and once the specified speed is reached it will maintain that speed until the specified position (immediately before the target position), where it will begin decelerating to stop at the target position.

< Caution >
① The maximum speed of the ISA/ISPA Series will remain the same even when the load placed on the slider is changed.
② The time needed to reach the specified speed will vary according to the acceleration (deceleration).
③ If the travel distance is short, the specified speed may not be reached.
④ With a long-stroke axis, the maximum speed will drop to avoid reaching a dangerous speed.
(If you are using a 600 or longer stroke, check the maximum speed for the applicable stroke in the corresponding dimensional drawing.)
⑤ When calculating the travel time, consider acceleration, deceleration and stabilization periods in addition to the travel time at the specified speed. (Refer to pages 39 and 40 for the method to calculate travel time.)
⑥ Speed can be set in increments of 1 mm/sec in a program.

Acceleration/Deceleration

"Acceleration" refers to the rate of change of speed when the speed rises from zero (stationary state) to the specified speed.
"Deceleration" refers to the rate of change of speed when the specified speed drops to zero (stationary state).

< Caution >
① Increasing the acceleration (deceleration) will shorten the duration the actuator accelerates (decelerates) and decrease the travel time. However, doing so will also cause rapid acceleration (deceleration), resulting in increased shock.
② The rated acceleration is 0.3 G (or 0.15 G if the lead is 4 or 5 mm).
(The load capacity is set based on the rated acceleration.)
③ If the ISA/ISPA Series is operated at an acceleration (deceleration) exceeding the rated acceleration, the load capacity will drop.
(Refer to page 40 for details.)
④ Acceleration can be set in increments of 0.01 G in a program.

Duty

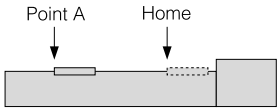
IAI recommends that our actuators be used at a duty of 50% or less as a guideline in view of the relationship of service life and accuracy.

$$\text{Duty (\%)} = \frac{\text{Acceleration / Deceleration Time}}{\text{Motion time + Inactivity}} \times 100$$

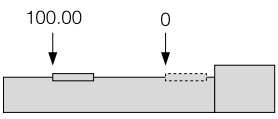
Positioning Repeatability

"Positioning repeatability" refers to the positioning accuracy of repeated movements to a pre-stored position.
This is not the same as "absolute positioning accuracy," so exercise caution.

Positioning repeatability
Accuracy variation of the stop position when positioning is performed repeatedly to the same point.



Absolute positioning accuracy
Difference between the coordinate value and the measured value when positioning is performed to a given positioning point specified by coordinates.



Single-Axis Robot Series **Points to Note**

Notes on Catalog Specifications

Home

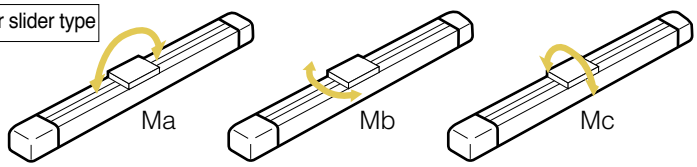
The home is set on the motor side for the standard specification, or on the counter-motor side for the reversed-home specification.

- The incremental actuator always requires homing every time the power is reconnected.
- During homing the slider will move to the mechanical end before reversing, so be careful to prevent contact with surrounding parts.
- To change the home direction, the actuator must be returned to IAI for adjustment.

Allowable Load Moments (Ma, Mb, Mc)

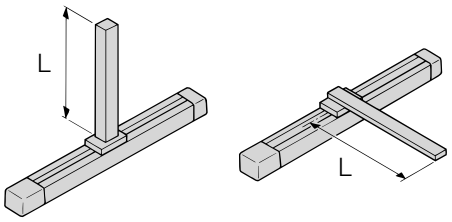
Each allowable load moment is calculated by assuming the service life of the guide as 10,000 km. Applying a moment exceeding the specified value will reduce the life of the guide, so exercise caution.

Directions of load moment for slider type



Overhung Load Length (L)

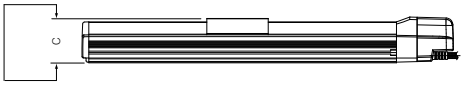
"Overhung load length" refers to a reference offset at which the actuator can operate smoothly when a load, bracket, etc., is installed at a position offset from the actuator/slider center.
When each model is used with an overhung load exceeding the allowable length, vibration or stabilization delay may result. Therefore, be sure to keep the overhung load length within the allowable value.



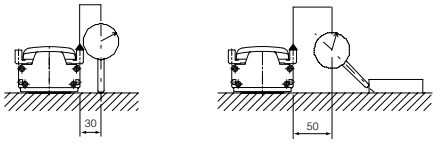
Actuator Accuracy

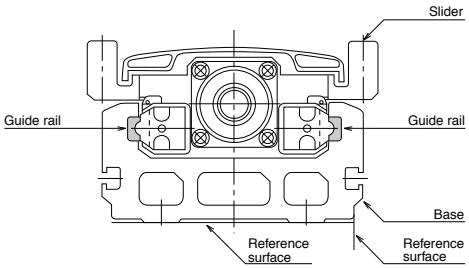
The accuracy of the ISA/ISPA-Series actuators is specified below.
The side and bottom faces of the actuator base provide reference surfaces for slider travel. Use them to adjust parallelism when installing the actuator.

Parallelism of actuator-mounting surface (bottom face of the base) and load-mounting surface (top face)
±0.05 mm/m or less



Parallelism when mounted on frame (when the actuator is mounted to a flat surface *1)
±0.05 mm/m or less





Condition: The above values are applicable at 20˚C. *1 Flatness: 0.05 mm or less

Explanation of Model Specification Items

Refer to the right page for the explanation of each model specification item.
The selection range for each item will vary depending on the actuator type. For details, refer to the page corresponding to each actuator type.

(1)	(2)	(3)		(4)		(5)		(6)		(7)		(8)		(9)
Series	Type	Encoder type		Motor output		Lead		Stroke		Applicable controller		Cable length		Options
ISA ISPA	SXM SYM	A I	–	60	–	4 8 16	–	100 ~ 600	–	T1	–	N S M X□□	–	AQ B C CL L LL LLM LM NM RT S
	SZM		–		–	4 8	–		–		–		–	
	MXM MYM		–	100	–	5 10 20	–	100 ~ 1000	–		–		–	
			–	200	–	10 20 30	–		–		–		–	
	MZM		–	100	–	5 10	–		–		–		–	
			–	200	–	10	–		–		–		–	
	MXMX		–	200	–	20 30	–	800 ~ 2000	–		–		–	
	LXM LYM		–	200	–	10 20	–	100 ~ 1200	–		–		–	
			–	400	–	20 40	–		–		–		–	
	LZM		–	200	–	10	–		–		–		–	
			–	400	–	10	–		–		–		–	
	LXMX		–	200	–	20	–	1000 ~ 2500	–		–		–	
			–	400	–	20 40	–		–		–		–	
	LXUWX		–	200	–	20	–		–		–		–	
			–	400	–	20 40	–		–		–		–	
ISP	WXM		–	600	–	10 20 40	–	100 ~ 1300	–		–		–	
			–	750	–	20 40	–		–		–		–	
	WXMX		–	600	–	20 40	–	900 ~ 2500	–		–		–	
			–	750	–	20 40	–	900 ~ 2000	–		–		–	

(1) Series

Indicate the name of each series.

(2) Type

Indicate the classification by size (S, M, L or W), shape (X, Y or Z), etc.

(3) Encoder type

Indicate whether the encoder installed in the actuator is an "absolute type" or "incremental type."

A: Absolute type	Since the current slider position will be retained after the power is turned off, homing is not required when the actuator is powered up.
I: Incremental type	Since the slider position data are cleared when the power is turned off, homing must be performed every time the actuator is powered up.

(4) Motor output

Indicate the output of the motor installed in the actuator in watts.

(5) Lead

Indicate the ball screw lead.
"Lead" refers to the distance the slider will move when the ball screw rotates by one revolution.
The larger the lead, the faster the maximum speed becomes.

(6) Stroke

Indicate the actuator stroke (range of operation) in millimeters.

(7) Applicable controller

Indicate the type of controller that can be used with the actuator.
T1: X-SEL, E-Con, P-Driver

(8) Cable length

Indicate the length of the motor/encoder cable connecting the actuator and the controller.
N : No cable
S : 3m
M : 5m
X□□ : Use this field when a length other than 3 m and 5 m is specified.
(Example X08 : 8m)

* The standard cable is a robot cable.

(9) Actuator Accuracy

Indicate a desired option(s) to be equipped on the actuator. Refer to pages 13 and 14 for the explanation of each option.

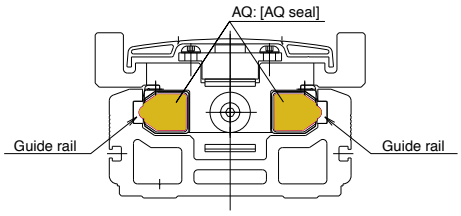
* When selecting multiple options, specify them in alphabetical order (e.g., AQ-B-L-NM).

AQ : [AQ seal] A unit that supplies lubricant to the sliding sections of the ball screw and guide.
B : [Brake] A brake for preventing the slider from falling in a vertical application when the power or servo is turned off.
C : [Creep sensor] A sensor for increasing the homing speed and thereby decreasing the homing time.
CL : [Creep sensor on opposite side] The creep sensor is normally installed on the right side as viewed from the motor. Select this option if you want to install the sensor on the left side.
L : [Home limit switch] A limit switch for completing homing by reversing the slider using a sensor, not by the normal contact method, during homing.
LL : [Home limit switch on opposite side] Similarly to the creep sensor on opposite side option, select this option if you want to install the limit switch on the opposite side.
LM : [Master-axis designation] Specify this option for the axis to be used as the master in synchronized operation.
LLM : [Master-axis limit switch on opposite side] Select this option if you want to install the limit switch on the opposite side of the master axis used in synchronized operation.
NM : [Reverse-homing specification] Normally the home is set on the motor side. Select this option to specify the home on the counter-motor side.
RT : [Guide with ball-retaining mechanism] A mechanism for reducing noise while extending the service life of the guide by inserting a spacer (retention device) between guide balls.
S : [Slave-axis designation] Specify this option for the axis to be used as the slave in synchronized operation (limit switch is not required).

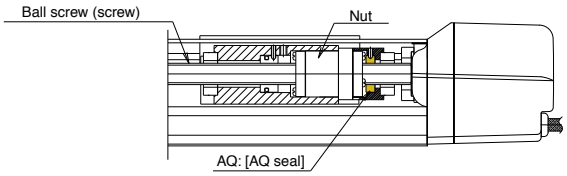
Options

AQ: [AQ seal]

The AQ seal is a lubrication unit that utilizes lubrication material made of resin-solidified lubricant.
The porous material impregnated with a large amount of lubricant allows lubricant to ooze out onto its surface via the capillary effect.
Lubricant is supplied when the AQ seal is pushed against the guide or ball-screw surface (steel-ball rolling surface). Combined use of the AQ seal and grease helps achieve maintenance-free operation for a long period.



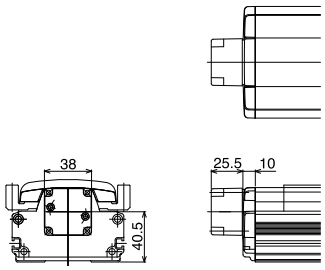
(Sectional view of actuator)



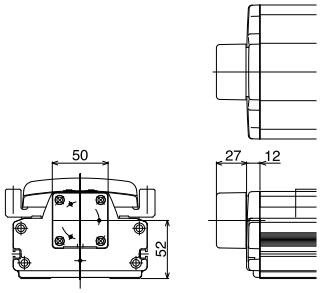
(Side view of actuator)

B: [Brake]

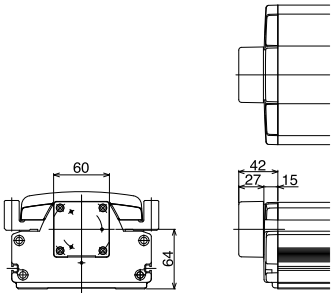
A retention mechanism that prevents the slider from falling and damaging the load when the power or servo is turned off in a vertical actuator application.
The S, M and L-type Z-axis actuators of the ISA/ISPA Series (SZM, MZM and LZM) are designed for use in a vertical application and therefore come standard with a brake.
If any axis other than the Z-axis is to be used vertically, install an optional brake.
For the S, M and L types, the brake is installed on the outside of the end cover on the counter-motor side (refer to the drawing of each model). The brake is installed inside the actuator only for the W type.



(S type)



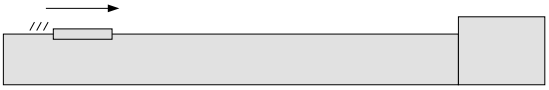
(M type)

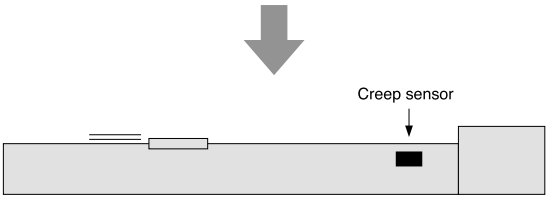


(L type)

C: [Creep sensor]

A sensor used for achieving high-speed homing.
Normally during homing, the slider is caused to contact the stopper at the motor-side stroke end and then reverse, so the homing speed is kept to between 10 and 20 mm/s.
For this reason, it takes time to complete homing when the stroke is long.
This proximity sensor reduces the homing time by allowing the slider to return at high speed and then reducing the speed to the normal homing speed just before homing is completed.
The standard installation position of this sensor is on the right side of the actuator as viewed from the motor (option code: C) (refer to the limit switch drawing on the right page).
A cover similar to that for the limit switch is provided on the outside of the sensor.To install the sensor on the opposite side, select CL (opposite side specification).


Performing homing on a long-stroke axis will take longer time to reach the mechanical end.



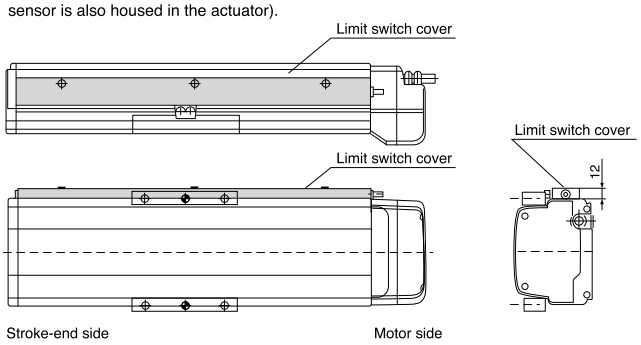
A sensor is provided before the mechanical end, and upon detection of the sensor the speed will be reduced to the normal homing speed.

Options

LL: [Home limit switch on opposite side]

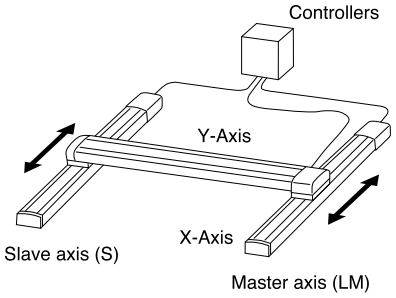
The normal homing operation of the ISA/ISPA Series conforms to the "contact method," whereby the slider is caused to contact the stopper and then reverse, after which the Z phase will be detected and set as the home.
Option L (home limit switch) achieves this homing operation by letting the slider reverse upon proximity sensor detection, without contacting the stopper. When this option is specified, three proximity sensors of HOME (for home detection), +OT (counter-motor side overtravel) and –OT (motor-side overtravel) will be installed. Use this option if you want to fine-tune the reversing position.
The standard installation position of the home limit switch and cover is on the right side of the actuator as viewed from the motor (option code: L).
To install the switch on the opposite side, select LL (opposite side specification).

*The ISP-W and ISPDCR-W come standard with a limit switch. Since the limit switch is installed inside the actuator, no cover will be provided on the side face of the actuator (creep sensor is also housed in the actuator).



LM: [Master-axis designation in synchronized operation]

"Synchronized operation function" is one of the functions provided by the X-SEL controller.
It allows two actuator axes to operate simultaneously, with one axis acting as the master (option code: M) and the other as the slave (option code: S). The slave follows the master by super-high speed processing control to achieve simultaneous operation of the two axes. The two actuator axes used in synchronized operation must have the same specifications (type, lead motor output and stroke).When performing synchronized operation, the master axis must be of the limit switch specification. Therefore, specify LM (limit-switch master-axis designation) for the master axis and S (slave-axis designation) for the slave axis.



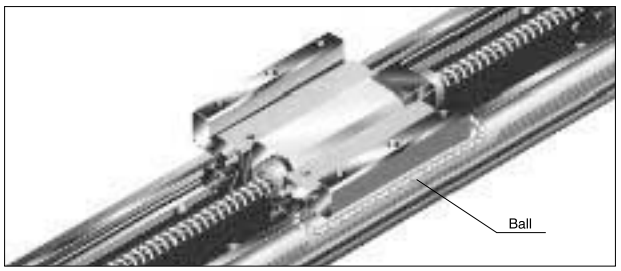
NM: [Reverse homing specification]

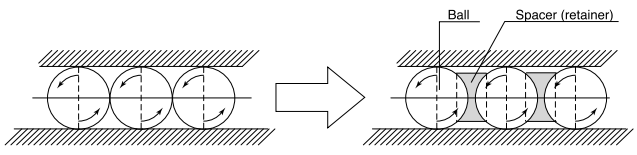
With the ISA/ISPA Series, the standard home direction is the motor side. To change the home direction, the encoder must be adjusted. If you prefer a reverse homing specification, specify it when placing an order.

RT: [Guide with ball-retaining mechanism]

A spacer (retainer) is inserted between guide balls (steel balls) to reduce noise while extending the service life of the guide.
The spacer eliminates annoying metal noise caused by colliding balls.
Since wear due to ball friction decreases, the service life of the guide will increase.
Elimination of ball contact will make the guide movement smoother, resulting in improved slider operability.

* This option cannot be used with the ISP-WXM/WXMX.





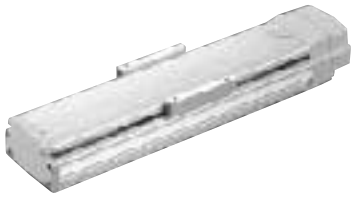
S: [Slave-axis designation in synchronized operation]

Specify this option for the axis to be used as the slave in synchronized operation. Refer to the explanation of LM (master-axis designation in synchronized operation) for details.

ISA-SXM
Single-Axis Robot: Compact X-Axis Type, Actuator Width 90mm, 60W, Straight Shape

ISPA-SXM
Single-Axis Robot: Compact X-Axis Type, Actuator Width 90mm, 60W, Straight Shape
High-Precision Specification

Type: Compact X-axis (90-mm wide) | Stroke: 100~600mm | Load capacity: 50kg (horizontal)/14kg (vertical)



■ Model specification items — Series | Type | Encoder type | Motor output | Lead | Stroke | Applicable controller | Cable length | Options

ISA[ISPA] – SXM – A – 60 – 16 – 600 – T1 – S – B

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Horizontal (G) Maximum	Vertical (G) Rated	Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Horizontal (kg) Maximum acceleration	Vertical (kg) Rated acceleration	Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -SXM-A-60-16-✻✻✻ - T1-△-□	Absolute	60	16	100 ~ 600	1 ~ 800	0.3	1.0	0.3	0.7	12	3.5	3	2	63.7
ISA [ISPA] -SXM-A-60-8-✻✻✻ - T1-△-□			8		1 ~ 400	0.3	0.6	0.3	0.5	25	12	6	5	127.4
ISA [ISPA] -SXM-A-60-4-✻✻✻ - T1-△-□			4		1 ~ 200	0.15	0.5	0.15	0.3	50	30	14	12	254.8
ISA [ISPA] -SXM-I-60-16-✻✻✻ - T1-△-□	Incremental		16		1 ~ 800	0.3	1.0	0.3	0.7	12	3.5	3	2	63.7
ISA [ISPA] -SXM-I-60-8-✻✻✻ - T1-△-□			8		1 ~ 400	0.3	0.6	0.3	0.5	25	12	6	5	127.4
ISA [ISPA] -SXM-I-60-4-✻✻✻ - T1-△-□			4		1 ~ 200	0.15	0.5	0.15	0.3	50	30	14	12	254.8

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

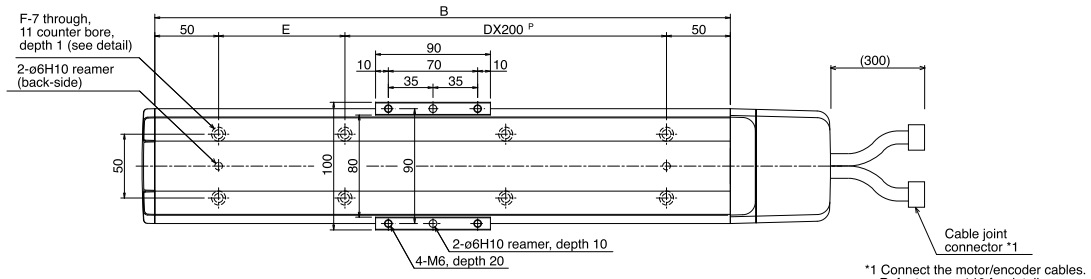
Common Specifications

* Refer to page 10 for the details of common specification items.

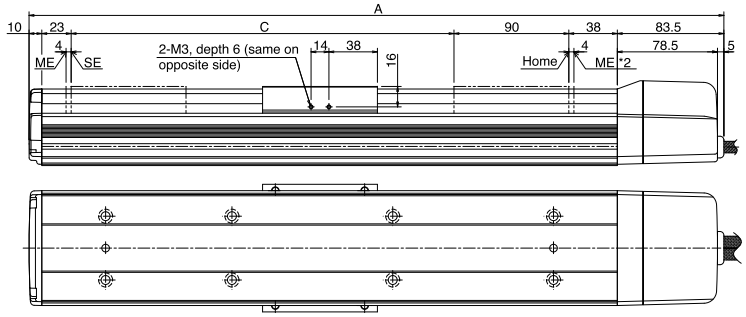
Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø12mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 28.4N•m Mb: 40.2N•m Mc: 65.7N•m
Overhung load length	Ma direction: 450mm or less, Mb/Mc directions: 450mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

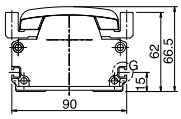
Dimensions

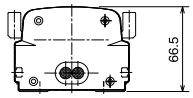
* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

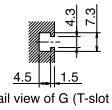




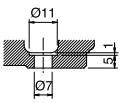


*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end



Detail view of G (T-slot in base)



Detail view of base mounting part

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600
A	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5
B	251	301	351	401	451	501	551	601	651	701	751
C	100	150	200	250	300	350	400	450	500	550	600
D	0	0	0	1	1	1	1	2	2	2	2
E	151	201	251	101	151	201	251	101	151	201	251
F	4	4	4	6	6	6	6	8	8	8	8
Weight (kg)	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9	5.2	5.5	5.8
Maximum speed (mm/s) Lead 16	800										
Maximum speed (mm/s) Lead 8	400										
Maximum speed (mm/s) Lead 4	200										

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

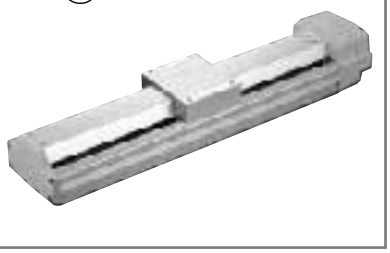
Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-SYM
Single-Axis Robot: Compact Y-Axis Type, Actuator Width 90mm, 60W, Straight Shape

ISPA-SYM
Single-Axis Robot: Compact Y-Axis Type, Actuator Width 90mm, 60W, Straight Shape
High-Precision Specification



Type: Compact Y-axis (90-mm wide) | Stroke: 100~600mm | Load capacity: 50kg (horizontal)/14kg (vertical)

■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – SYM – A – 60 – 16 – 600 – T1 – S – B

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -SYM-A-60-16-✻✻✻-T1-△-□	Absolute	60	16	100 ~ 600	1 ~ 800	0.3	1.0	0.3	0.7	12	3.5	3	2	63.7
ISA [ISPA] -SYM-A-60-8-✻✻✻-T1-△-□			8		1 ~ 400	0.3	0.6	0.3	0.5	25	12	6	5	127.4
ISA [ISPA] -SYM-A-60-4-✻✻✻-T1-△-□			4		1 ~ 200	0.15	0.5	0.15	0.3	50	30	14	12	254.8
ISA [ISPA] -SYM-I-60-16-✻✻✻-T1-△-□	Incremental		16		1 ~ 800	0.3	1.0	0.3	0.7	12	3.5	3	2	63.7
ISA [ISPA] -SYM-I-60-8-✻✻✻-T1-△-□			8		1 ~ 400	0.3	0.6	0.3	0.5	25	12	6	5	127.4
ISA [ISPA] -SYM-I-60-4-✻✻✻-T1-△-□			4		1 ~ 200	0.15	0.5	0.15	0.3	50	30	14	12	254.8

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

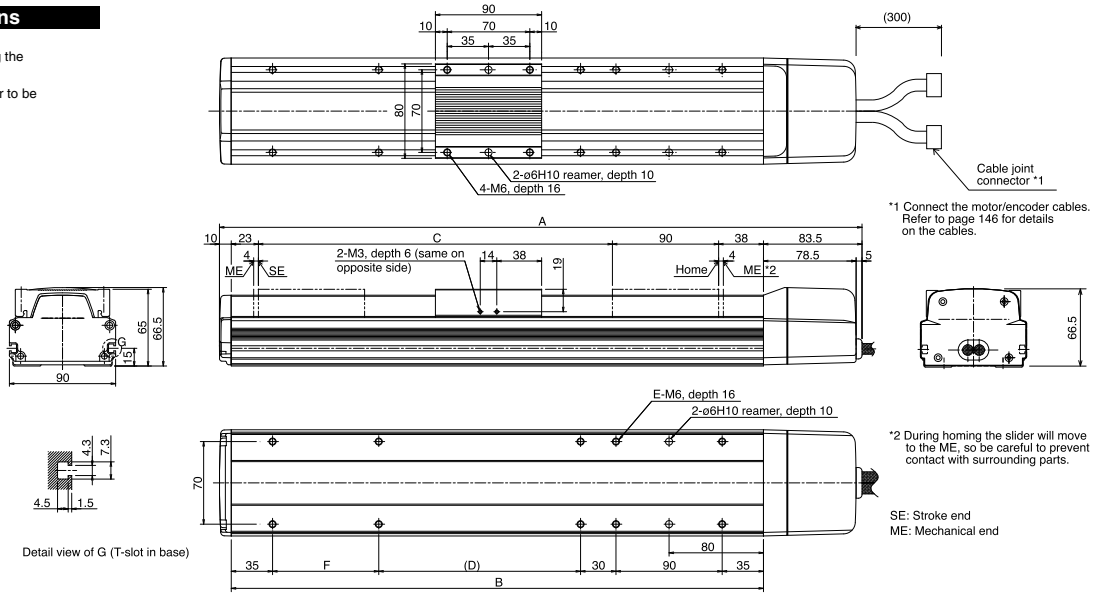
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø12mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 28.4N•m Mb: 40.2N•m Mc: 32.8N•m
Overhung load length	Ma direction: 450mm or less, Mb/Mc directions: 450mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600
A	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5
B	251	301	351	401	451	501	551	601	651	701	751
C	100	150	200	250	300	350	400	450	500	550	600
D	61	21	71	121	171	221	271	321	371	421	471
E	8	10	10	10	10	10	10	10	10	10	10
F	–	90	90	90	90	90	90	90	90	90	90
Weight (kg)	2.8	3.2	3.5	3.9	4.2	4.6	4.9	5.3	5.6	6.0	6.3
Maximum speed (mm/s) Lead 16	800										
Maximum speed (mm/s) Lead 8	400										
Maximum speed (mm/s) Lead 4	200										

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

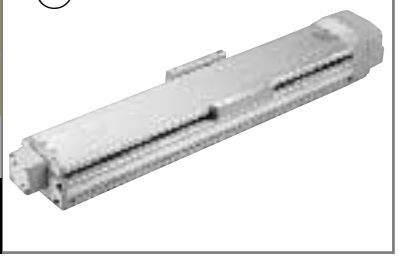
(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-SZM
Single-Axis Robot: Compact Vertical-Axis Type, Actuator Width 90mm, 60W, Straight Shape

ISPA-SZM
Single-Axis Robot: Compact Vertical-Axis Type, Actuator Width 90mm, 60W, Straight Shape
High-Precision Specification

Type / Compact vertical axis (90-mm wide) | Stroke / 100~600mm | Vertical application only (with standard brake) / 14kg



■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – SZM – A – 60 – 16 – 600 – T1 – S – B – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -SZM-A-60-8-✻✻✻-T1-△-B-□	Absolute	60	8	100 ~ 600	1 ~ 400	Vertical application only		0.3	0.5	Vertical application only		6	5	127.4
ISA [ISPA] -SZM-A-60-4-✻✻✻-T1-△-B-□			4		1 ~ 200			0.15	0.3			14	12	254.8
ISA [ISPA] -SZM-I-60-8-✻✻✻-T1-△-B-□	Incremental		8		1 ~ 400			0.3	0.5			6	5	127.4
ISA [ISPA] -SZM-I-60-4-✻✻✻-T1-△-B-□			4		1 ~ 200			0.15	0.3			14	12	254.8

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

* The SZM type comes standard with a brake (B).

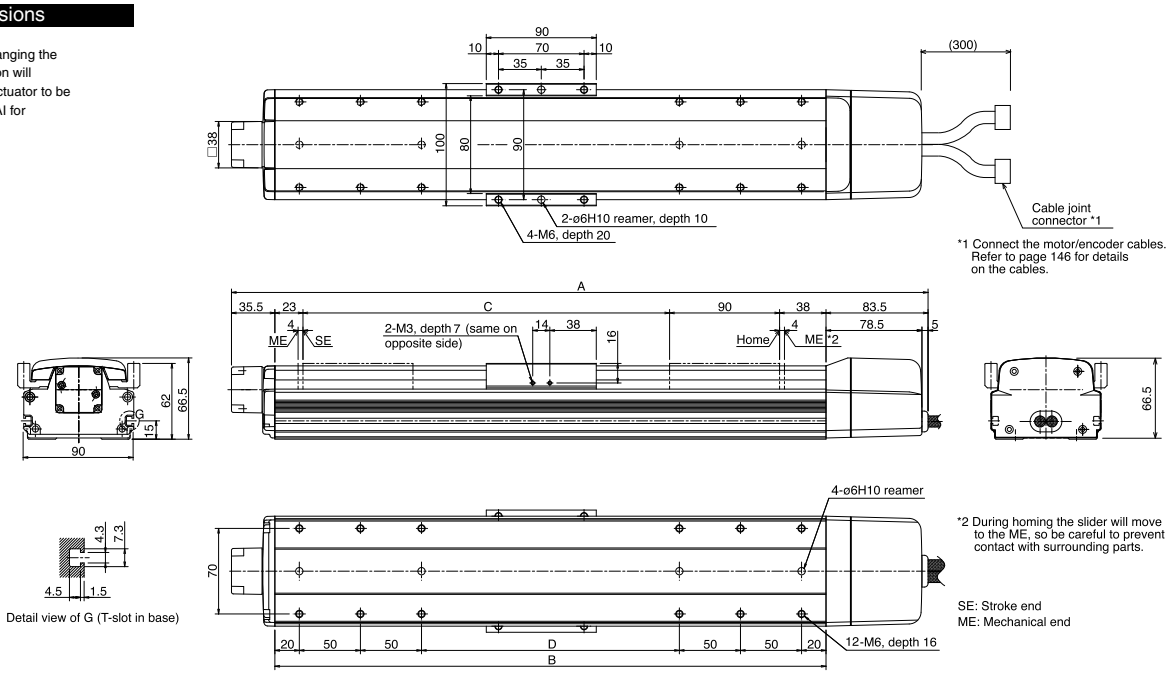
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø12mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 28.4N•m Mb: 40.2N•m Mc: 33.3N•m
Brake	Comes standard with a dry, single-plate, non-excitation type electromagnetic brake.
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600
A	370	420	470	520	570	620	670	720	770	820	870
B	251	301	351	401	451	501	551	601	651	701	751
C	100	150	200	250	300	350	400	450	500	550	600
D	11	61	111	161	211	261	311	361	411	461	511
Weight (kg)	3.0	3.4	3.7	4.1	4.4	4.8	5.1	5.5	5.8	6.2	6.5
Maximum speed (mm/s) Lead 8	400										
Maximum speed (mm/s) Lead 4	200										

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

*The SZM type comes standard with a brake, so use a controller of brake specification.

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-MXM-100
Single-Axis Robot: Medium X-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape

ISPA-MXM-100
Single-Axis Robot: Medium X-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape High-Precision Specification

Type: Medium X-axis (120-mm wide) long slider type
Stroke: 100 ~ 1000mm
Load capacity: 80kg (horizontal)/19kg (vertical)

■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – MXM – A – 100 – 20 – 1000 – T1 – S – B

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MXM-A-100-20-✻✻✻-T1-△-□	Absolute	100	20	100 ~ 1000	1 ~ 1000	0.3	1.0	0.3	0.8	20	6	3.5	2	84.3
ISA [ISPA] -MXM-A-100-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	40	20	9	7	169.5
ISA [ISPA] -MXM-A-100-5-✻✻✻-T1-△-□			5		1 ~ 250	0.15	0.5	0.15	0.3	80	45	19	15	340.1
ISA [ISPA] -MXM-I-100-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3	1.0	0.3	0.8	20	6	3.5	2	84.3
ISA [ISPA] -MXM-I-100-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	40	20	9	7	169.5
ISA [ISPA] -MXM-I-100-5-✻✻✻-T1-△-□			5		1 ~ 250	0.15	0.5	0.15	0.3	80	45	19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	→ P13	Master-axis designation	LM	→ P14
Brake	B	→ P13	Master-axis designation (sensor on opposite side)	LLM	→ P14
Creep sensor	C	→ P13	Reverse homing specification	NM	→ P14
Creep sensor on opposite side	CL	→ P13	Guide with ball-retaining mechanism	RT	→ P14
Home limit switch	L	→ P14	Slave-axis designation	S	→ P14
Home limit switch on opposite side	LL	→ P14			

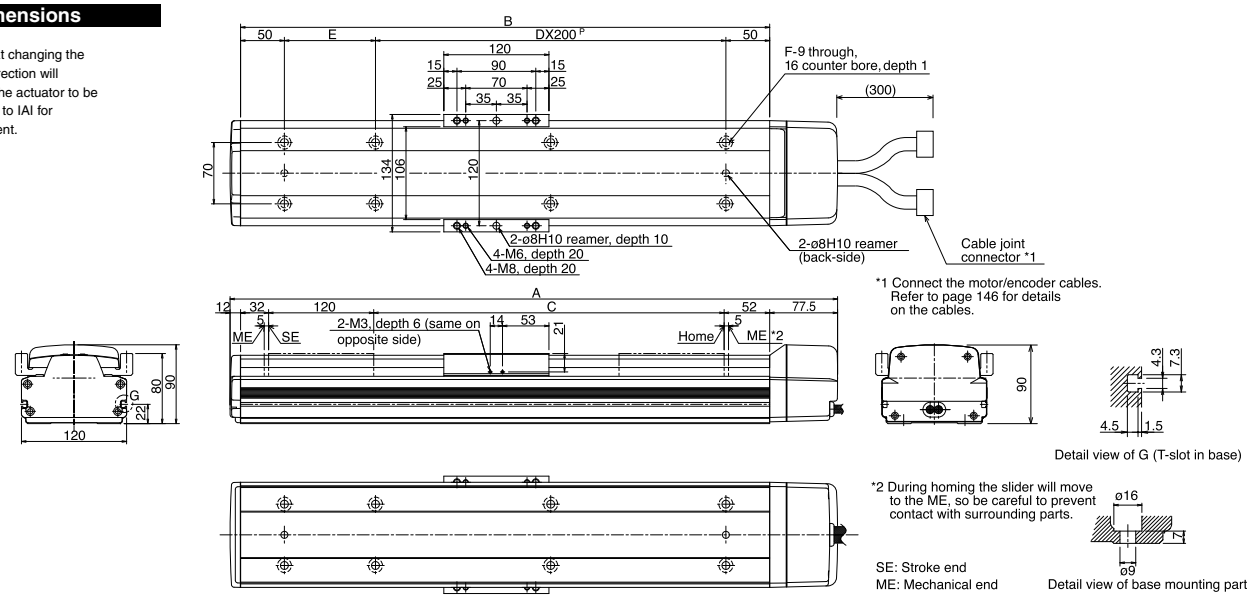
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 161.7N • m
Overhung load length	Ma direction: 600mm or less, Mb/Mc directions: 600mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

Detail view of G (T-slot in base)

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

Detail view of base mounting part

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000
A	393.5	443.5	493.5	543.5	593.5	643.5	693.5	743.5	793.5	843.5	893.5	943.5	993.5	1043.5	1093.5	1143.5	1193.5	1243.5	1293.5
B	304	354	404	454	504	554	604	654	704	754	804	854	904	954	1004	1054	1104	1154	1204
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5
E	204	254	104	154	204	254	104	154	204	254	104	154	204	254	104	154	204	254	104
F	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14
Weight (kg)	6.2	6.7	7.2	7.7	8.3	8.8	9.3	9.8	10.4	10.9	11.4	11.9	12.5	13.0	13.5	14.0	14.6	15.1	15.6
Maximum speed (mm/s) Lead 20	1000												1000	795		645		540	
Maximum speed (mm/s) Lead 10	500												480	380		310		255	
Maximum speed (mm/s) Lead 5	250												220	175		145		120	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	→ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	→ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	→ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-MXM-200

Single-Axis Robot: Medium X-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape

ISPA-MXM-200

Single-Axis Robot: Medium X-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape High-Precision Specification

Type	Stroke	Load capacity
Medium X-axis (120-mm wide) long slider type	100 ~ 1000mm	80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – MXM –	A	– 200	– 30	– 1000	–	T1	– S	– B

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MXM-A-200-30-✻✻✻-T1-△-□	Absolute	200	30	100 ~ 1000	1 ~ 1500	0.3	1.0	0.3	1.0	25	10	6	2	113
ISA [ISPA] -MXM-A-200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	5	169.5
ISA [ISPA] -MXM-A-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	15	340.1
ISA [ISPA] -MXM-I-200-30-✻✻✻-T1-△-□	Incremental		30		1 ~ 1500	0.3	1.0	0.3	1.0	25	10	6	2	113
ISA [ISPA] -MXM-I-200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	5	169.5
ISA [ISPA] -MXM-I-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

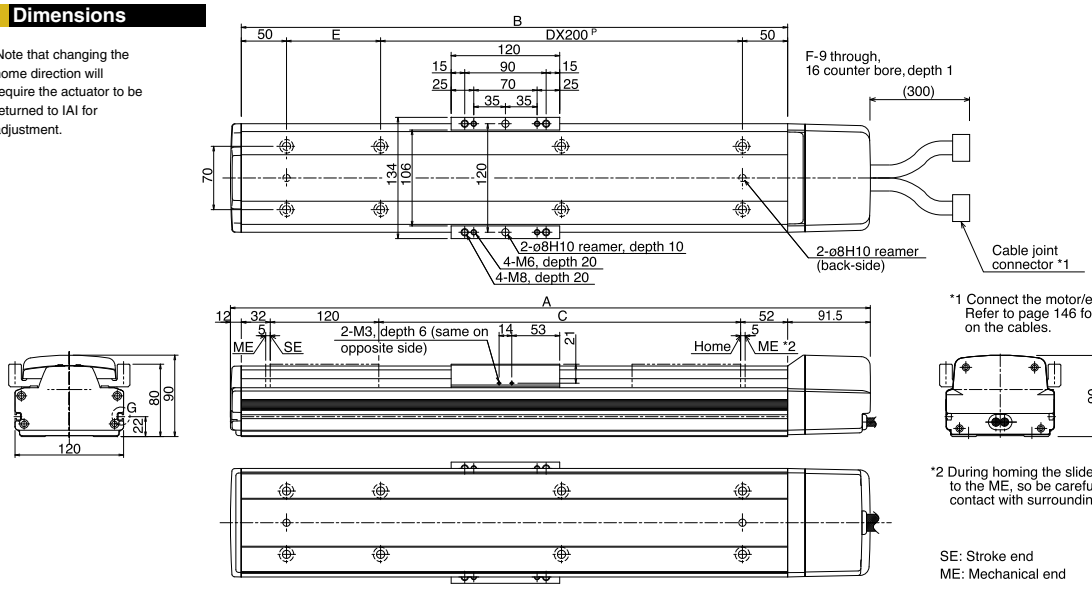
Common Specifications

* Refer to page 10 for the details of common specification items.

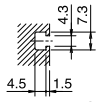
Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 161.7N • m
Overhung load length	Ma direction: 600mm or less, Mb/Mc directions: 600mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



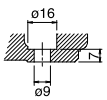
*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.



Detail view of G (T-slot in base)

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end



Detail view of base mounting part

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000
A	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5	1257.5	1307.5
B	304	354	404	454	504	554	604	654	704	754	804	854	904	954	1004	1054	1104	1154	1204
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5
E	204	254	104	154	204	254	104	154	204	254	104	154	204	254	104	154	204	254	104
F	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14
Weight (kg)	6.6	7.1	7.6	8.1	8.7	9.2	9.7	10.2	10.8	11.3	11.8	12.3	12.9	13.4	13.9	14.4	15.0	15.5	16.0
Maximum speed (mm/s) Lead 30	1500												1500	1190		965		810	
Lead 20	1000												1000	795		645		540	
Lead 10	500												480	380		310		255	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

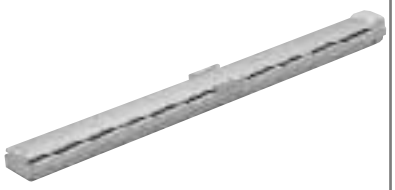
Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-MXMX
Single-Axis Robot: Medium X-Axis Mid-Support Type, Actuator Width 120mm, 200W, Straight Shape

ISPA-MXMX
Single-Axis Robot: Medium X-Axis Mid-Support Type, Actuator Width 120mm, 200W, Straight Shape
High-Precision Specification



Type: Medium X-axis (120-mm wide) mid-support type
Stroke: 800 ~ 2000mm
Load capacity: 40kg (horizontal)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	MXMX	A	200	30	2000	T1	S	NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 10mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MXMX-A-200-30-✻✻✻-T1-△-□	Absolute	200	30	800 ~ 2000	1 ~ 1500	0.3	Horizontal application only			25	Horizontal application only			113
ISA [ISPA] -MXMX-A-200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				40				169.5
ISA [ISPA] -MXMX-I-200-30-✻✻✻-T1-△-□	Incremental		30		1 ~ 1500	0.3				25				113
ISA [ISPA] -MXMX-I-200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				40				169.5

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

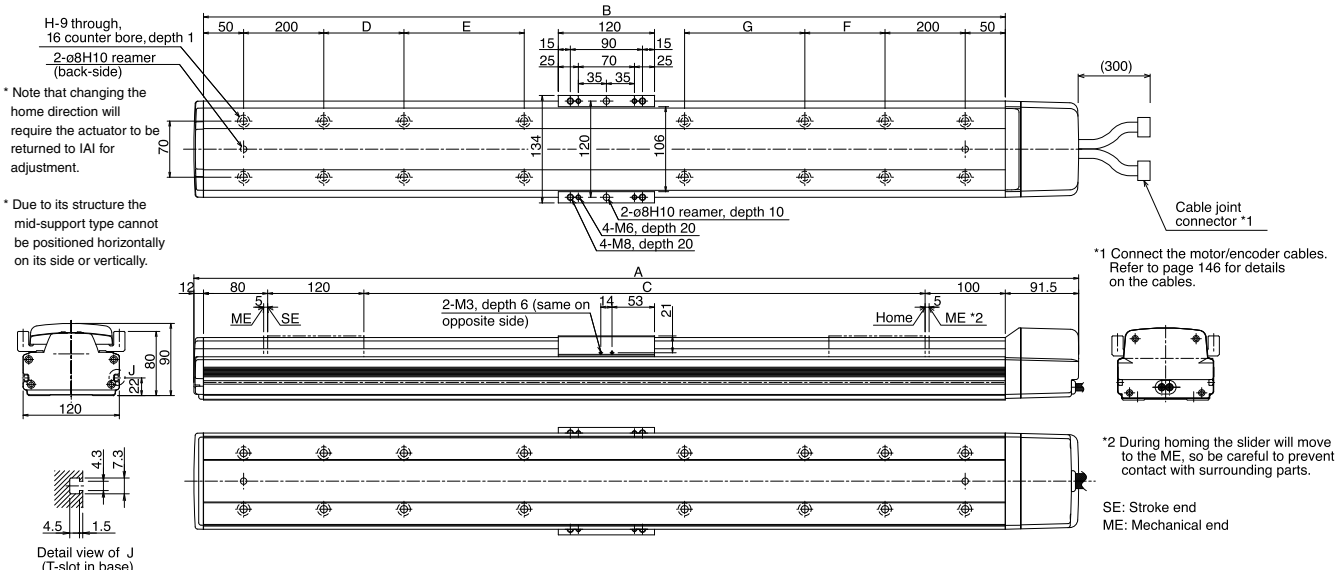
Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 161.7N • m
Overhung load length	Ma direction: 600mm or less, Mb/Mc directions: 600mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
A	1203.5	1303.5	1403.5	1503.5	1603.5	1703.5	1803.5	1903.5	2003.5	2103.5	2203.5	2303.5	2403.5
B	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
C	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
D	0	0	200	250	300	350	400	450	500	550	200	200	200
E	0	0	0	0	0	0	0	0	0	0	400	450	500
F	200	200	200	250	300	350	400	450	500	550	200	200	200
G	0	0	0	0	0	0	0	0	0	0	400	450	500
H	10	10	12	12	12	12	12	12	12	12	16	16	16
Weight (kg)	15.0	16.1	17.1	18.2	19.2	20.3	21.3	22.4	23.4	24.5	25.5	26.6	27.6
Maximum speed (mm/s) Lead 30	1500						1425	1200	1050	900	825	750	675
Maximum speed (mm/s) Lead 20	1000						950	800	700	600	550	500	450

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

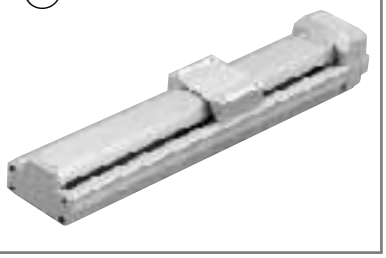
* Refer to page 9 for other points to note.

ISA-MYM-100

Single-Axis Robot: Medium Y-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape

ISPA-MYM-100

Single-Axis Robot: Medium Y-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape High-Precision Specification



Type	Stroke	Load capacity
Medium Y-axis (120-mm wide) long slider type	100 ~ 1000mm	80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	– MYM –	A	– 100	– 20	– 1000	– T1	– S	– NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MYM-A-100-20-✻✻✻-T1-△-□	Absolute	100	20	100 ~ 1000	1 ~ 1000	0.3	1.0	0.3	0.8	20	6	3.5	2	84.3
ISA [ISPA] -MYM-A-100-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	40	20	9	7	169.5
ISA [ISPA] -MYM-A-100-5-✻✻✻-T1-△-□			5		1 ~ 250	0.15	0.5	0.15	0.3	80	45	19	15	340.1
ISA [ISPA] -MYM-I-100-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3	1.0	0.3	0.8	20	6	3.5	2	84.3
ISA [ISPA] -MYM-I-100-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	40	20	9	7	169.5
ISA [ISPA] -MYM-I-100-5-✻✻✻-T1-△-□			5		1 ~ 250	0.15	0.5	0.15	0.3	80	45	19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

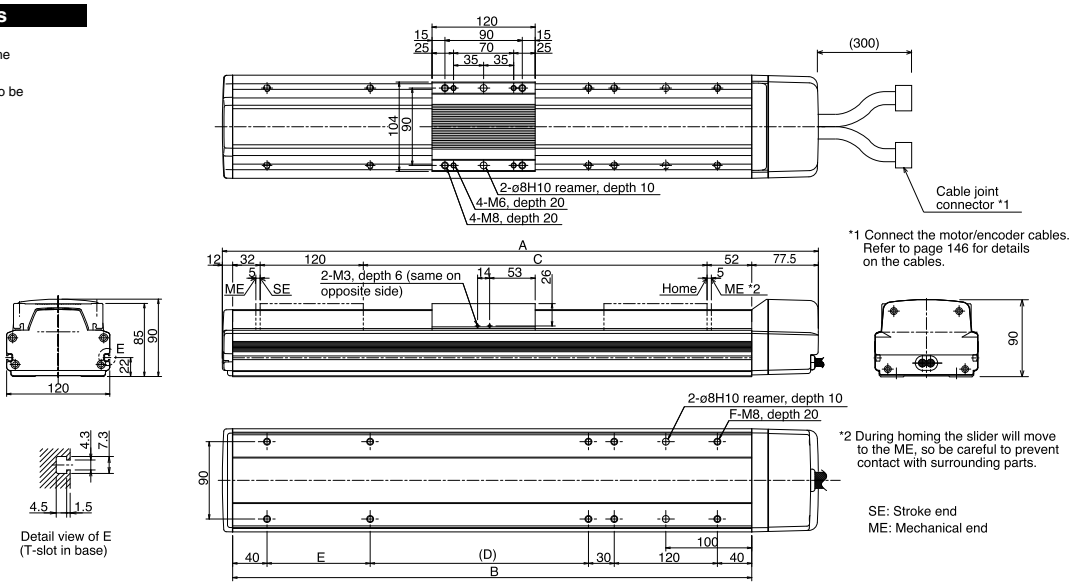
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 81.3N • m
Overhung load length	Ma direction: 600mm or less, Mb/Mc directions: 600mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000
A	393.5	443.5	493.5	543.5	593.5	643.5	693.5	743.5	793.5	843.5	893.5	943.5	993.5	1043.5	1093.5	1143.5	1193.5	1243.5	1293.5
B	304	354	404	454	504	554	604	654	704	754	804	854	904	954	1004	1054	1104	1154	1204
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
D	–	–	54	104	154	204	254	304	354	404	454	504	554	604	654	704	754	804	854
E	120	–	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
F	10	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Weight (kg)	6.3	6.8	7.3	7.8	8.3	8.8	9.3	9.9	10.4	10.9	11.4	11.9	12.4	12.9	13.4	13.9	14.4	14.9	15.4
Maximum speed (mm/s) Lead 20	1000												1000	795		645		540	
Maximum speed (mm/s) Lead 10	500												480	380		310		255	
Maximum speed (mm/s) Lead 5	250												220	175		145		120	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

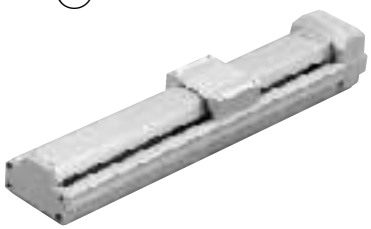
* Refer to page 9 for other points to note.

ISA-MYM-200

Single-Axis Robot: Medium Y-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape

ISPA-MYM-200

Single-Axis Robot: Medium Y-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape High-Precision Specification



Type	Stroke	Load capacity
Medium Y-axis (120-mm wide) long slider type	100 ~ 1000mm	80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	MYM	A	200	30	1000	T1	S	NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MYM-A- 200-30-✻✻✻-T1-△-□	Absolute	200	30	100 ~ 1000	1 ~ 1500	0.3	1.0	0.3	1.0	25	10	6	2	113
ISA [ISPA] -MYM-A- 200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	5	169.5
ISA [ISPA] -MYM-A- 200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	15	340.1
ISA [ISPA] -MYM-I- 200-30-✻✻✻-T1-△-□	Incremental		30		1 ~ 1500	0.3	1.0	0.3	1.0	25	10	6	2	113
ISA [ISPA] -MYM-I- 200-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	5	169.5
ISA [ISPA] -MYM-I- 200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

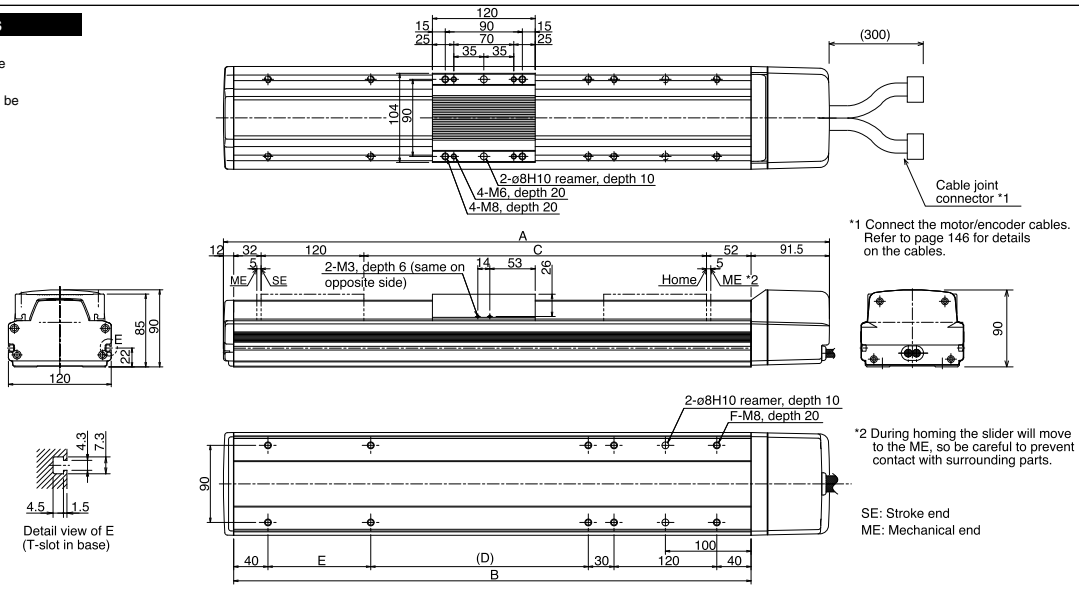
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 81.3N • m
Overhung load length	Ma direction: 600mm or less, Mb/Mc directions: 600mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000
A	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5	1257.5	1307.5
B	304	354	404	454	504	554	604	654	704	754	804	854	904	954	1004	1054	1104	1154	1204
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
D	–	–	54	104	154	204	254	304	354	404	454	504	554	604	654	704	754	804	854
E	120	–	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
F	10	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Weight (kg)	6.8	7.3	7.8	8.3	8.8	9.3	9.8	10.4	10.9	11.4	11.9	12.4	12.9	13.4	13.9	14.4	14.9	15.4	15.9
Maximum speed (mm/s) Lead 30	1500												1500	1190		965		810	
Maximum speed (mm/s) Lead 20	1000												1000	795		645		540	
Maximum speed (mm/s) Lead 10	500												480	380		310		255	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

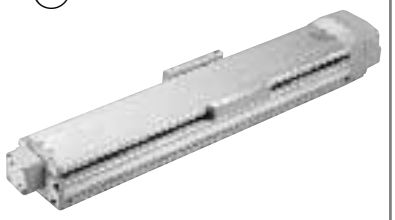
* Refer to page 9 for other points to note.

ISA-MZM-100

Single-Axis Robot: Medium Vertical-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape

ISPA-MZM-100

Single-Axis Robot: Medium Vertical-Axis Long Slider Type, Actuator Width 120mm, 100W, Straight Shape High-Precision Specification



Type	Stroke	Vertical application only (with standard brake)
Medium vertical-axis (120-mm wide) long slider type	100 ~ 1000mm	19kg

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	– MZM –	A	– 100	– 10	– 1000	– T1	– S	– B –L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (kg) Rated	Acceleration (Note 3) Horizontal (kg) Maximum	Acceleration (Note 3) Vertical (kg) Rated	Acceleration (Note 3) Vertical (kg) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MZM-A-100-10-✻✻✻-T1-△-B-□	Absolute	100	10	100 ~ 1000	1 ~ 500	Vertical application only		0.3	0.5	Vertical application only		9	7	169.5
ISA [ISPA] -MZM-A-100-5-✻✻✻-T1-△-B-□			5		1 ~ 250			0.15	0.3			19	15	340.1
ISA [ISPA] -MZM-I-100-10-✻✻✻-T1-△-B-□	Incremental		10		1 ~ 500			0.3	0.5			9	7	169.5
ISA [ISPA] -MZM-I-100-5-✻✻✻-T1-△-B-□			5		1 ~ 250			0.15	0.3			19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

* The MZM type comes standard with a brake (B).

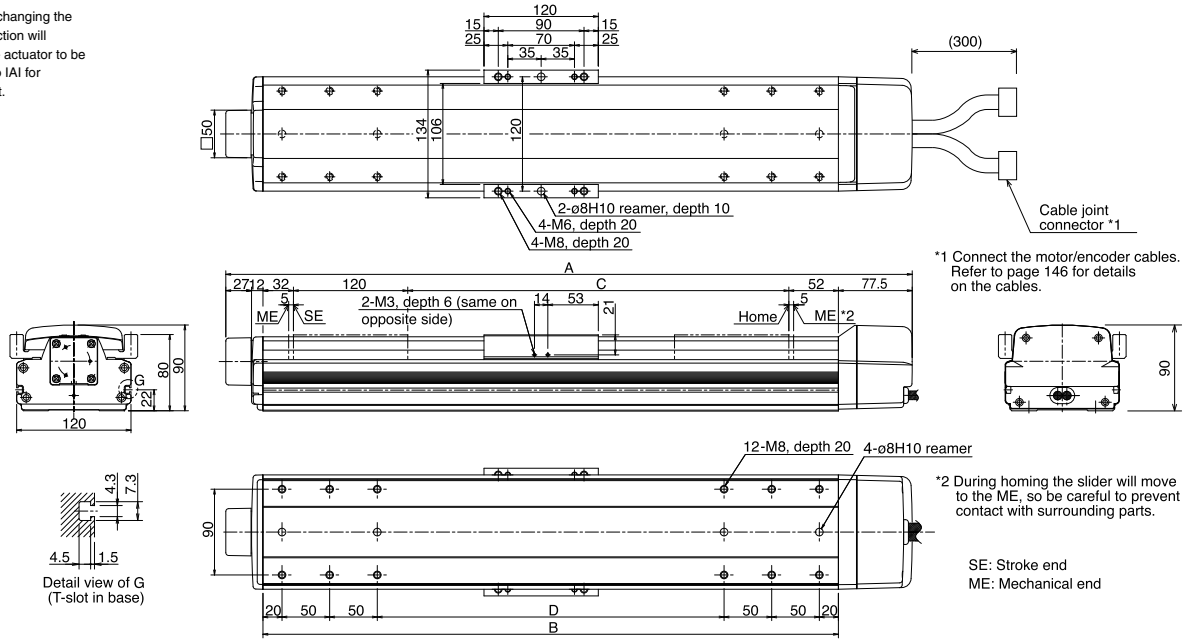
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N • m Mb: 99.0N • m Mc: 81.3N • m
Brake	Comes standard with a dry, single-plate, non-excitation type electromagnetic brake.
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X □□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	700	800	900	1000
A	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	Use the base of the MXM type for 700 and longer strokes. Refer to the drawing on page 18 for the mounting dimensions.			
B	304	354	404	454	504	554	604	654	704	754	804				
C	100	150	200	250	300	350	400	450	500	550	600				
D	64	114	164	214	264	314	364	414	464	514	564				
Weight (kg)	7.1	7.6	8.1	8.6	9.1	9.6	10.1	10.7	11.2	11.7	12.2	13.2	14.2	15.2	16.2
Maximum speed (mm/s) Lead 10	500											480	380	310	255
Maximum speed (mm/s) Lead 5	250											220	175	145	120

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The MZM type comes standard with a brake, so use a controller of brake specification.

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

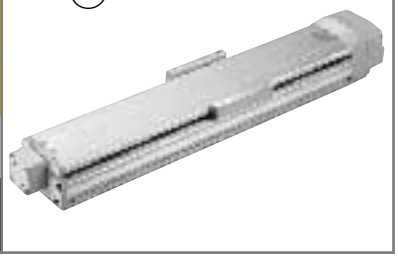
ISA-MZM-200

Single-Axis Robot: Medium Vertical-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape

ISPA-MZM-200

Single-Axis Robot: Medium Vertical-Axis Long Slider Type, Actuator Width 120mm, 200W, Straight Shape High-Precision Specification

Type	Medium vertical-axis (120-mm wide) long slider type	Stroke	100 ~ 1000mm	Vertical application only (with standard brake)	19kg



■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – MZM – A – 200 – 10 – 1000 – T1 – S – B – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -MZM-A-200-10-✻✻✻-T1-△-B-□	Absolute	200	10	100 ~ 1000	1 ~ 500	Vertical application only		0.3	0.5	Vertical application only		19	15	340.1
ISA [ISPA] -MZM-I-200-10-✻✻✻-T1-△-B-□	Incremental				1 ~ 500			0.3	0.5			19	15	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G =9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

* The MZM type comes standard with a brake (B).

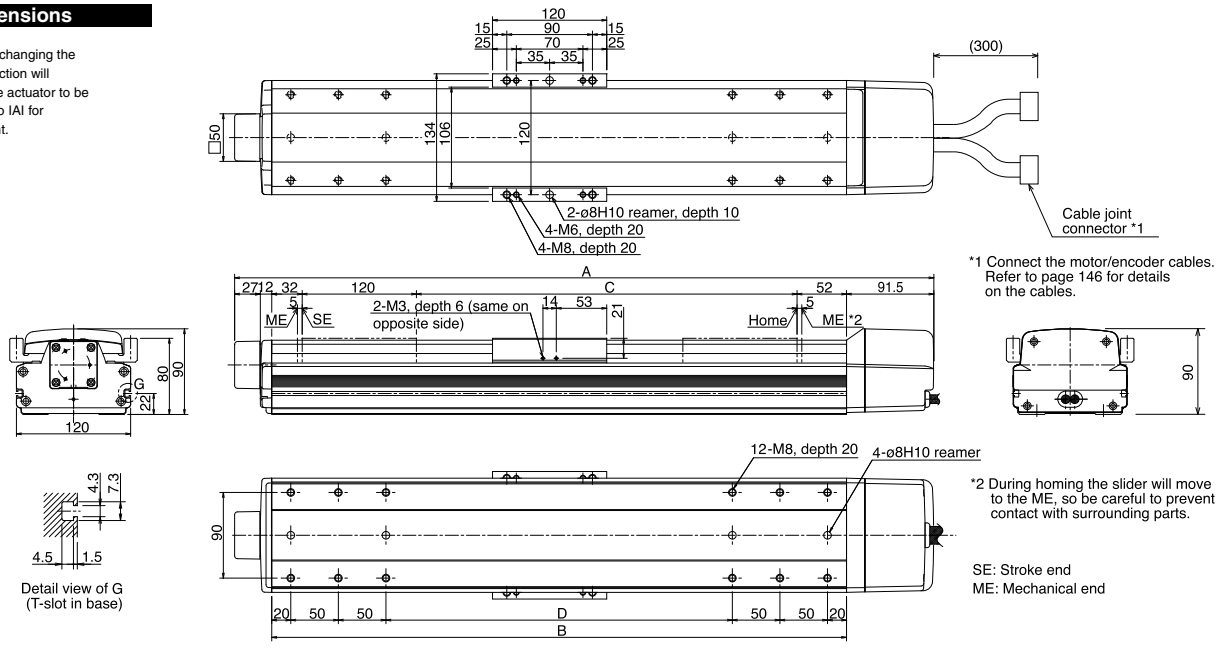
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 69.6N• m Mb: 99.0N• m Mc: 81.3N• m
Brake	Comes standard with a dry, single-plate, non-excitation type electromagnetic brake.
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	700	800	900	1000
A	434.5	484.5	534.5	584.5	634.5	684.5	734.5	784.5	834.5	884.5	934.5	Use the base of the MXM type for 700 and longer strokes. Refer to the drawing on page 19 for the mounting dimensions.			
B	304	354	404	454	504	554	604	654	704	754	804				
C	100	150	200	250	300	350	400	450	500	550	600				
D	64	114	164	214	264	314	364	414	464	514	564				
Weight (kg)	7.1	7.6	8.1	8.6	9.1	9.6	10.1	10.7	11.2	11.7	12.2	13.2	14.2	15.2	16.2
Maximum speed (mm/s)	500											480	380	310	255

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The MZM type comes standard with a brake, so use a controller of brake specification.

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-LXM-200

Single-Axis Robot: Large X-Axis Long Slider Type, Actuator Width 150mm, 200W, Straight Shape

ISPA-LXM-200

Single-Axis Robot: Large X-Axis Long Slider Type , Actuator Width 150mm, 200W, Straight Shape High-Precision Specification

Type	Stroke	Load capacity
Large X-axis (150-mm wide) long slider type	100 ~ 1200mm	80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LXM –	A	– 200	– 10	– 1200	– T1	– S	– B	

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXM-A-200-20-✻✻✻-T1-△-□	Absolute	200	20	100 ~ 1200	1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	4	170.5
ISA [ISPA] -LXM-A-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	14	340.1
ISA [ISPA] -LXM-I-200-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	4	170.5
ISA [ISPA] -LXM-I-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	14	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

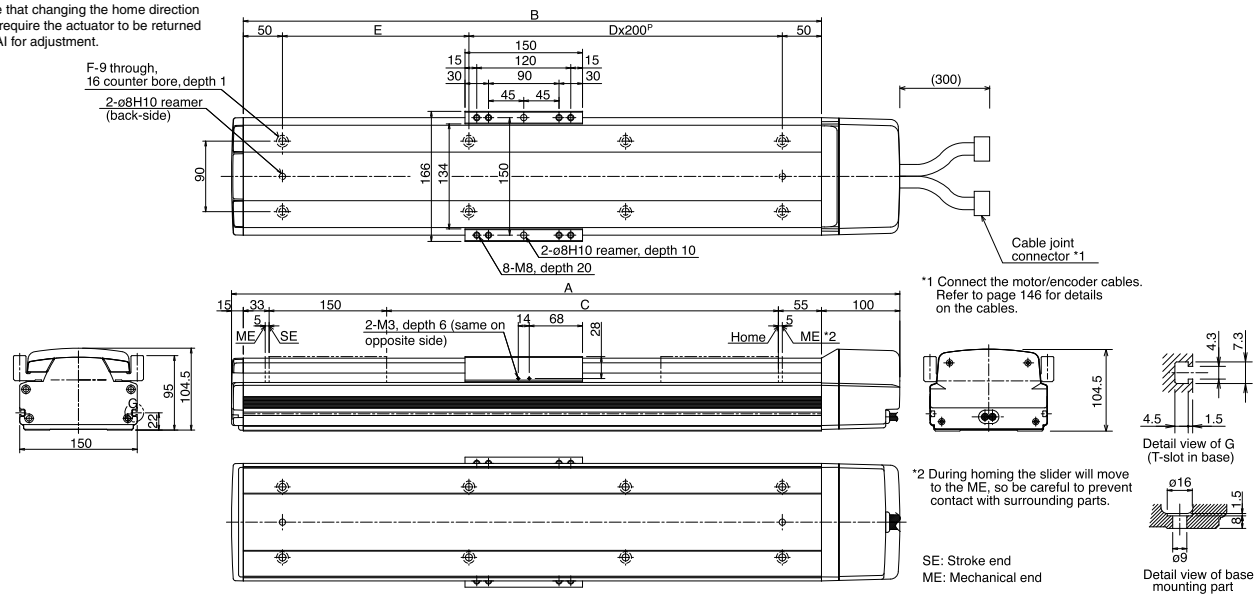
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 248.9N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000	(1050)	1100	(1150)	1200
A	453	503	553	603	653	703	753	803	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403	1453	1503	1553
B	338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6
E	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138
F	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16
Weight (kg)	11.0	11.8	12.5	13.3	14.0	14.8	15.5	16.3	17.0	17.8	18.5	19.3	20.0	20.8	21.5	22.3	23.0	23.8	24.5	25.3	26.0	26.8	27.5
Maximum speed (mm/s) Lead 20	1000														1000	830		690		585		500	
Maximum speed (mm/s) Lead 10	500														470	385		320		270		235	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-LXM-400

Single-Axis Robot: Large X-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape

ISPA-LXM-400

Single-Axis Robot: Large X-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape High-Precision Specification

Type: Large X-axis (150-mm wide) long slider type

Stroke: 100 ~ 1200mm

Load capacity: 80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LXM –	A	–	400	–	40	– 1200 –	T1	– S – B

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXM-A-400-40-✻✻✻-T1-△-□	Absolute	400	40	100 ~ 1200	1 ~ 2000	0.3	1.0	0.3	1.0	40	15	9	4	170.0
ISA [ISPA] -LXM-A-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	80	24	19	10	340.1
ISA [ISPA] -LXM-I-400-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3	1.0	0.3	1.0	40	15	9	4	170.0
ISA [ISPA] -LXM-I-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	80	24	19	10	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

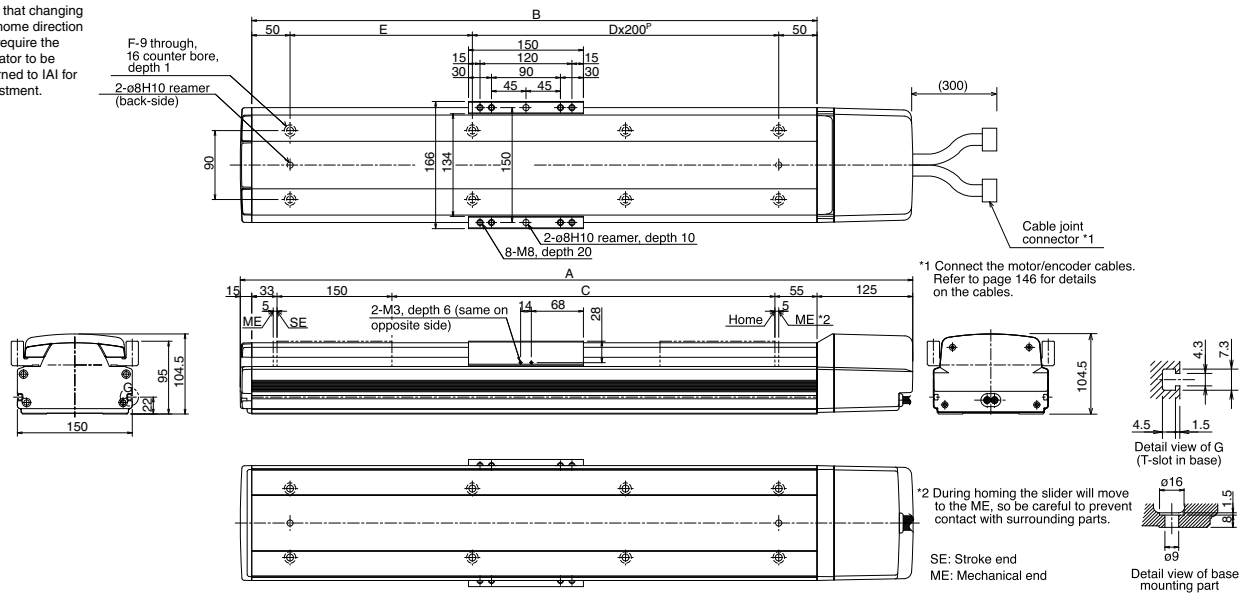
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.7N • m Mb: 149.9N • m Mc: 248.9N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

SE: Stroke end
ME: Mechanical end

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000	(1050)	1100	(1150)	1200
A	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378	1428	1478	1528	1578
B	338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6
E	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138
F	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16
Weight (kg)	12.0	12.8	13.5	14.3	15.0	15.8	16.5	17.3	18.0	18.8	19.5	20.3	21.0	21.8	22.5	23.3	24.0	24.8	25.5	26.3	27.0	27.8	28.5
Maximum speed (mm/s) Lead 40	2000																1660	1380		1170		1000	
Maximum speed (mm/s) Lead 20	1000																830	690		585		500	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series.
Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

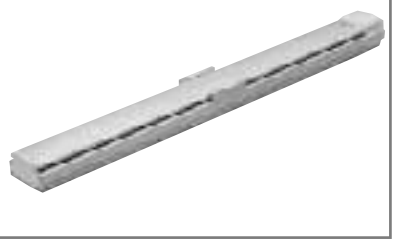
ISA-LXMX-200

Single-Axis Robot: Large X-Axis Mid-Support Type, Actuator Width 150mm, 200W, Straight Shape

ISPA-LXMX-200

Single-Axis Robot: Large X-Axis Mid-Support Type, Actuator Width 150mm, 200W, Straight Shape High-Precision Specification

Type	Stroke	Load capacity
Large X-axis (150-mm wide) mid-support type	1000 ~ 2500mm	40kg (horizontal)



■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LXMX –	A	–	200	–	20	– 2500 –	T1	– S – NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXMX-A-200-20-✻✻✻-T1-△-□	Absolute	200	20	1000 ~ 2500	1 ~ 1000	0.3	Horizontal application only			40	Horizontal application only			170.5
ISA [ISPA] -LXMX-I-200-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3				40				170.5

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

Common Specifications

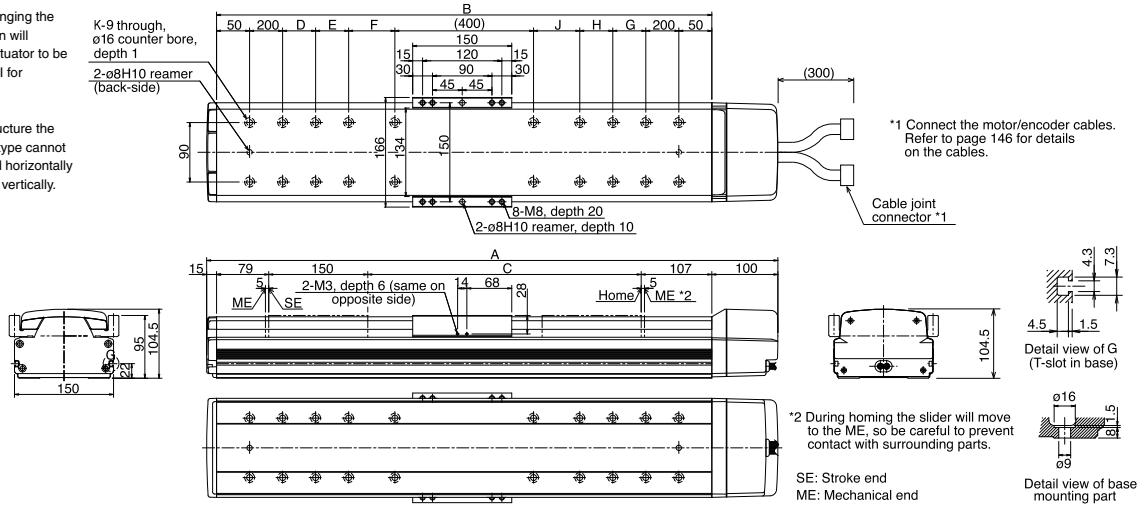
* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 248.9N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.

* Due to its structure the mid-support type cannot be positioned horizontally on its side or vertically.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
A	1465	1565	1665	1765	1865	1965	2065	2165	2265	2365	2465	2565	2665	2765	2865	2965
B	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850
C	1014	1114	1214	1314	1414	1514	1614	1714	1814	1914	2014	2114	2214	2314	2414	2514
D	225	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200
E	0	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200
F	0	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575
G	225	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200
H	0	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200
J	0	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575
K	12	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20
Weight (kg)	27.5	29.0	30.5	32.0	33.5	35.0	36.5	38.0	39.5	41.0	42.5	44.0	45.5	47.0	48.5	50.0
Maximum speed (mm/s)	1000					950	830	740	650	590	540	490	440	410	370	340

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

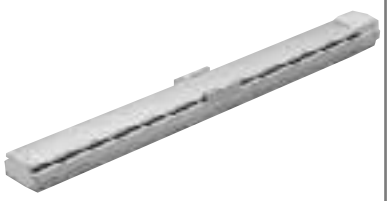
(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-LXMX-400
Single-Axis Robot: Large X-Axis Mid-Support Type, Actuator Width 150mm, 400W, Straight Shape

ISPA-LXMX-400
Single-Axis Robot: Large X-Axis Mid-Support Type, Actuator Width 150mm, 400W, Straight Shape High-Precision Specification

Type: Large X-axis (150-mm wide) mid-support type | Stroke: 1000 ~ 2500mm | Load capacity: 80kg (horizontal)



■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – LXMX – A – 400 – 40 – 2500 – T1 – S – NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXMX-A-400-40-✻✻✻-T1-△-□	Absolute	400	40	1000 ~ 2500	1 ~ 2000	0.3		Horizontal application only		40		Horizontal application only		170.0
ISA [ISPA] -LXMX-A-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				80				340.1
ISA [ISPA] -LXMX-I-400-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3				40				170.0
ISA [ISPA] -LXMX-I-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				80				340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

Common Specifications

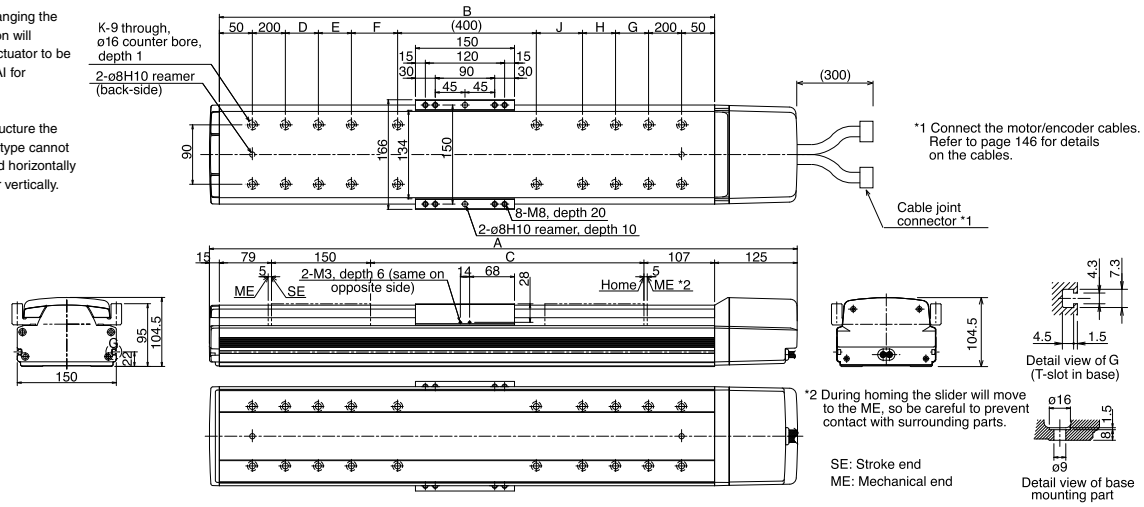
* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 248.9N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.

* Due to its structure the mid-support type cannot be positioned horizontally on its side or vertically.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
A	1490	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990
B	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850
C	1014	1114	1214	1314	1414	1514	1614	1714	1814	1914	2014	2114	2214	2314	2414	2514
D	225	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200
E	0	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200
F	0	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575
G	225	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200
H	0	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200
J	0	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575
K	12	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20
Weight (kg)	28.5	30.0	31.5	33.0	34.5	36.0	37.5	39.0	40.5	42.0	43.5	45.0	46.5	48.0	49.5	51.0
Maximum speed (mm/s) Lead 40	2000					1900	1660	1480	1300	1180	1080	980	880	820	740	680
Maximum speed (mm/s) Lead 20	1000					950	830	740	650	590	540	490	440	410	370	340

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

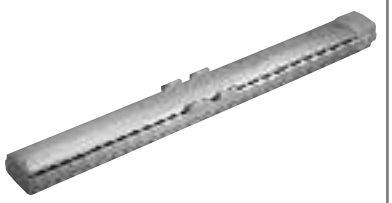
* Refer to page 9 for other points to note.

ISA-LXUWX-200

Single-Axis Robot: Large X-Axis Mid-Support, Double Slider Type, Actuator Width 150mm, 200W, Straight Shape

ISPA-LXUWX-200

Single-Axis Robot: Large X-Axis Mid-Support, Double Slider Type, Actuator Width 150mm, 200W, Straight Shape High-Precision Specification



Type Large X-axis (150-mm wide) mid-support, double slider type

Stroke 1000 ~ 2500mm

Load capacity 40kg (horizontal)

■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISA[ISPA] – LXUMX – A – 200 – 20 – 2500 – T1 – S – NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXUWX-A-200-20-✻✻✻-T1-△-□	Absolute	200	20	1000 ~ 2500	1 ~ 1000	0.3		Horizontal application only		40		Horizontal application only		170.5
ISA [ISPA] -LXUWX-I-200-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3				40				170.5

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

Common Specifications

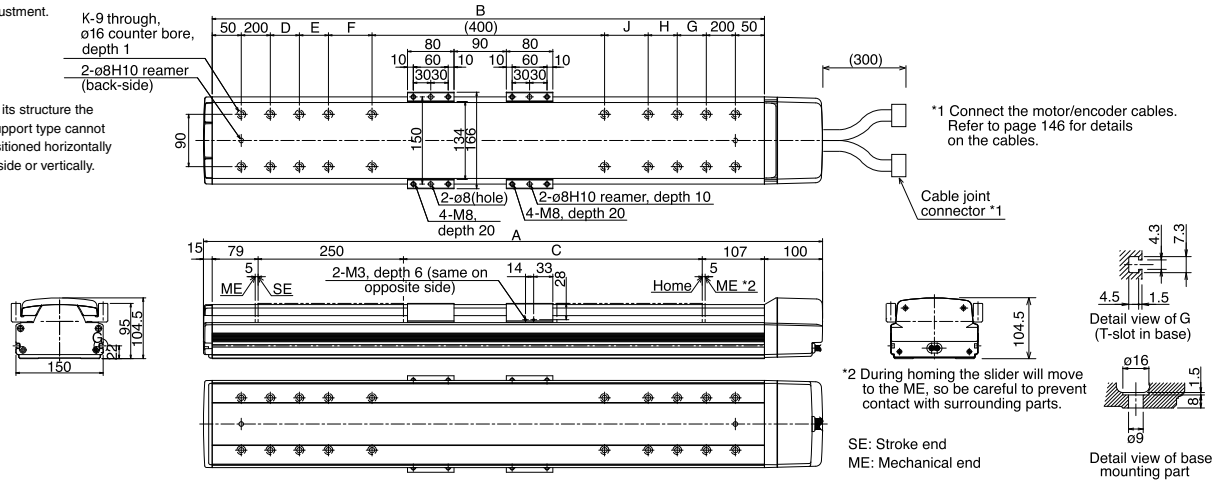
* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 179.3N • m Mb: 254.8N • m Mc: 247.0N • m
Overhung load length	Ma direction: 1250mm or less, Mb/Mc directions: 1250mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to bereturned to IAI for adjustment.

* Due to its structure the mid-support type cannot be positioned horizontally on its side or vertically.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
A	1565	1665	1765	1865	1965	2065	2165	2265	2365	2465	2565	2665	2765	2865	2965	3065
B	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
C	1014	1114	1214	1314	1414	1514	1614	1714	1814	1914	2014	2114	2214	2314	2414	2514
D	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200	200
E	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200	200
F	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575	625
G	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200	200
H	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200	200
J	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575	625
K	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20	20
Weight (kg)	29.0	30.5	32.0	33.5	35.0	36.5	38.0	39.5	41.0	42.5	44.0	45.5	47.0	48.5	50.0	51.5
Maximum speed (mm/s)	1000					950	830	740	650	590	540	490	440	410	370	340

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

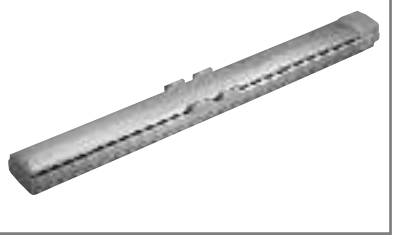
ISA-LXUWX-400

Single-Axis Robot: Large X-Axis Mid-Support, Double Slider Type, Actuator Width 150mm, 400W, Straight Shape

ISPA-LXUWX-400

Single-Axis Robot: Large X-Axis Mid-Support, Double Slider Type, Actuator Width 150mm, 400W, Straight Shape High-Precision Specification

Type	Stroke	Load capacity
Large X-axis (150-mm wide) mid-support, double slider type	1000 ~ 2500mm	80kg (horizontal)



■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LXUWX –	A	–	400	– 40 –	2500	– T1	– S	– NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LXUWX-A-400-40-✻✻✻-T1-△-□	Absolute	400	40	1000 ~ 2500	1 ~ 2000	0.3	Horizontal application only			40	Horizontal application only			170.0
ISA [ISPA] -LXUWX-A-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				80				340.1
ISA [ISPA] -LXUWX-I-400-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3				40				170.0
ISA [ISPA] -LXUWX-I-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				80				340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

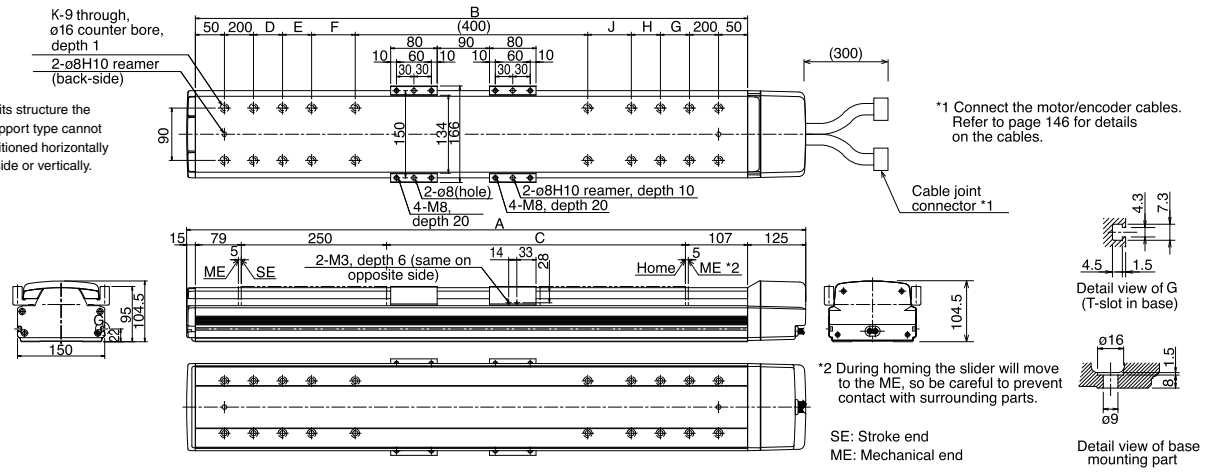
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 3)	±0.02mm [±0.01mm]
Drive system (Note 4)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 5)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 179.3N • m Mb: 254.8N • m Mc: 247.0N • m
Overhung load length	Ma direction: 1250mm or less, Mb/Mc directions: 1250mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 6)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to bereturned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
A	1590	1690	1790	1890	1990	2090	2190	2290	2390	2490	2590	2690	2790	2890	2990	3090
B	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950
C	1014	1114	1214	1314	1414	1514	1614	1714	1814	1914	2014	2114	2214	2314	2414	2514
D	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200	200
E	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200	200
F	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575	625
G	275	325	375	425	475	525	575	200	200	200	200	200	200	200	200	200
H	0	0	0	0	0	0	0	425	475	525	575	200	200	200	200	200
J	0	0	0	0	0	0	0	0	0	0	0	425	475	525	575	625
K	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20	20
Weight (kg)	30.0	31.5	33.0	34.5	36.0	37.5	39.0	40.5	42.0	43.5	45.0	46.5	48.0	49.5	51.0	52.5
Maximum speed (mm/s) Lead 40	2000					1900	1660	1480	1300	1180	1080	980	880	820	740	680
Maximum speed (mm/s) Lead 20	1000					950	830	740	650	590	540	490	440	410	370	340

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 3, 4, 5) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 6) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

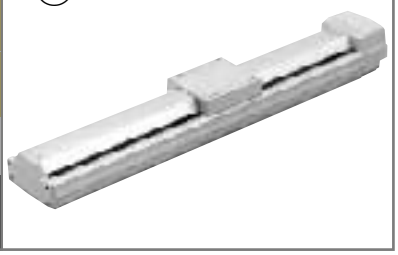
* Refer to page 9 for other points to note.

ISA-LYM-200

Single-Axis Robot: Large Y-Axis Long Slider Type, Actuator Width 150mm, 200W, Straight Shape

ISPA-LYM-200

Single-Axis Robot: Large Y-Axis Long Slider Type, Actuator Width 150mm, 200W, Straight Shape High-Precision Specification



Type	Stroke	Load capacity
Large Y-axis (150-mm wide) long slider type	100 ~ 1200mm	80kg (horizontal)/19kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LYM –	A	– 200	– 20	– 1200	–	T1	– S	– NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LYM-A-200-20-✻✻✻-T1-△-□	Absolute	200	20	100 ~ 1200	1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	4	170.5
ISA [ISPA] -LYM-A-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	14	340.1
ISA [ISPA] -LYM-I-200-20-✻✻✻-T1-△-□	Incremental		20		1 ~ 1000	0.3	1.0	0.3	0.8	40	12	9	4	170.5
ISA [ISPA] -LYM-I-200-10-✻✻✻-T1-△-□			10		1 ~ 500	0.3	0.6	0.3	0.5	80	40	19	14	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

* 1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

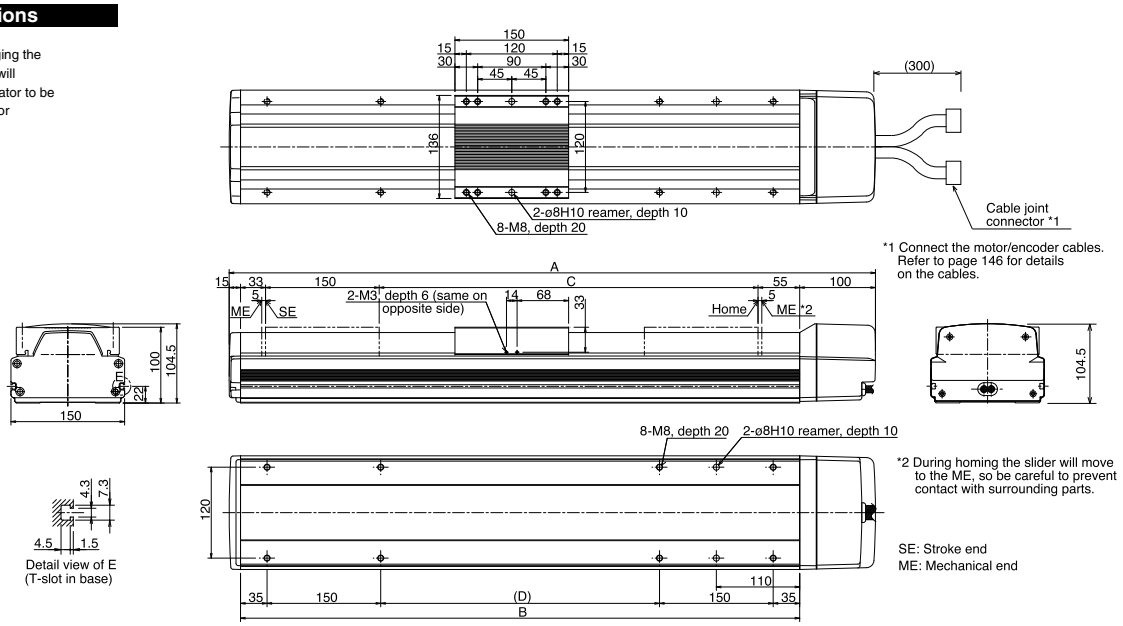
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 124.5N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000	(1050)	1100	(1150)	1200
A	453	503	553	603	653	703	753	803	853	903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403	1453	1503	1553
B	338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6
Weight (kg)	11.0	11.8	12.5	12.3	14.1	14.9	15.7	16.5	17.3	18.1	18.8	19.6	20.4	21.2	22.0	22.8	23.5	24.3	25.1	25.9	26.7	27.5	28.2
Maximum speed (mm/s) Lead 20	1000														1000	830		690		585		500	
Maximum speed (mm/s) Lead 10	500														470	385		320		270		235	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

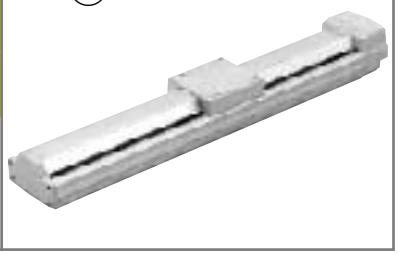
(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-LYM-400
Single-Axis Robot: Large Y-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape

ISPA-LYM-400
Single-Axis Robot: Large Y-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape High-Precision Specification

Type	Stroke	Load capacity
Large Y-axis (150-mm wide) long slider type	100 ~ 1200mm	80kg (horizontal)/19kg (vertical)



■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA] – LYM –	A	–	400	–	40	– 1200 –	T1	– S – NM

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LYM-A-400-40-✻✻✻-T1-△-□	Absolute	400	40	100 ~ 1200	1 ~ 2000	0.3	1.0	0.3	1.0	40	15	9	4	170.0
ISA [ISPA] -LYM-A-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	80	24	19	10	340.1
ISA [ISPA] -LYM-I-400-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3	1.0	0.3	1.0	40	15	9	4	170.0
ISA [ISPA] -LYM-I-400-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	80	24	19	10	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0 G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

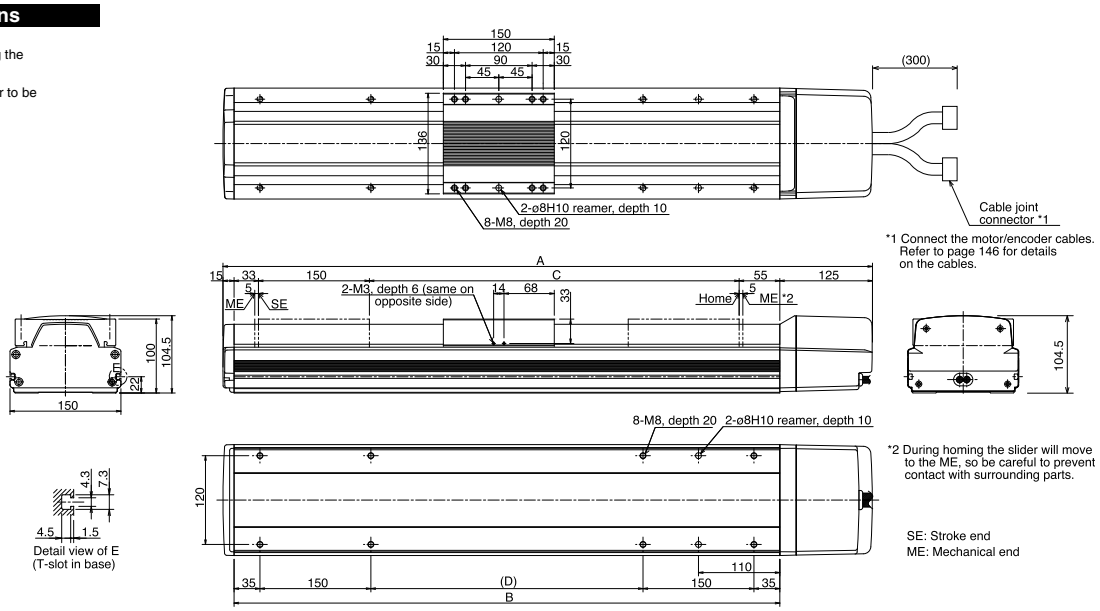
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 124.5N • m
Overhung load length	Ma direction: 750mm or less, Mb/Mc directions: 750mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	(650)	700	(750)	800	(850)	900	(950)	1000	(1050)	1100	(1150)	1200
A	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378	1428	1478	1528	1578
B	338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038	1088	1138	1188	1238	1288	1338	1388	1438
C	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6
Weight (kg)	12.0	12.8	13.5	14.3	15.1	15.9	16.7	17.5	18.3	19.1	19.8	20.6	21.4	22.2	23.0	23.8	24.5	23.3	26.1	26.9	27.7	28.5	29.2
Maximum speed (mm/s) Lead 40	2000																1660	1380		1170		1000	
Maximum speed (mm/s) Lead 20	1000																830	690		585		500	

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISA-LZM-200

Single-Axis Robot: Large Vertical-Axis Long Slider Type, Actuator Width 150mm, 200W, Straight Shape

ISPA-LZM-200

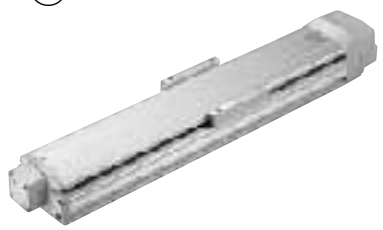
Single-Axis Robot: Large Vertical-Axis Long Slider Type, Actuator Width 150mm, 200W, Straight Shape

High-Precision Specification

Type: Large vertical-axis (150-mm wide) long slider type

Stroke: 100 ~ 1200mm

Vertical application only (with standard brake): 19kg



■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	– LZM –	I	– 200	– 10	– 1200	– T1	– S	– B – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3)		Load capacity (Note 3)				Rated thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated acceleration	Maximum acceleration	Rated acceleration	Maximum acceleration	
ISA [ISPA] -LZM-A-200-10-✻✻✻-T1-△-B-□	Absolute	200	10	100 ~ 1200	1 ~ 500	Vertical application only		0.3	0.5	Vertical application only		19	14	340.1
ISA [ISPA] -LZM-I-200-10-✻✻✻-T1-△-B-□	Incremental		10		1 ~ 500			0.3	0.5			19	14	340.1

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

* The MZM type comes standard with a brake (B).

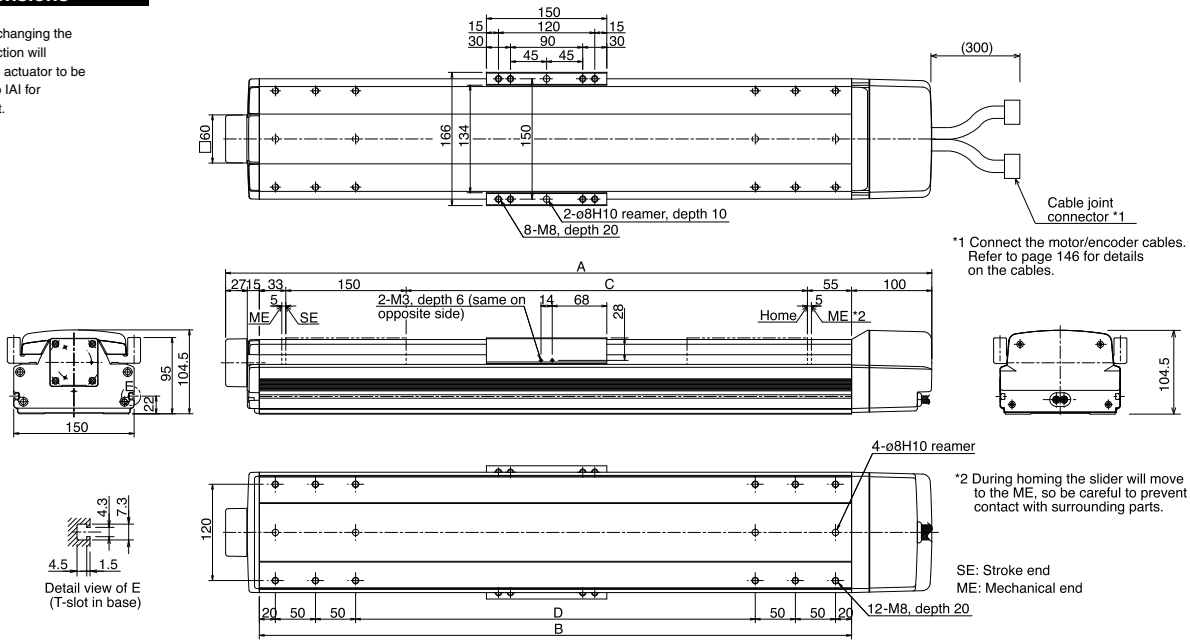
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø16mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 124.5N • m
Brake	Comes standard with a dry, single-plate, non-excitation type electromagnetic brake.
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	700	800	900	1000	1100	1200
A	480	530	580	630	680	730	780	830	880	930	980	Use the base of the LXM type for 700 and longer strokes. Refer to the drawing on page 25 for the mounting dimensions.					
B	338	388	438	488	538	588	638	688	738	788	838						
C	100	150	200	250	300	350	400	450	500	550	600						
D	98	148	198	248	298	348	398	448	498	548	598						
Weight (kg)	12.4	13.2	13.9	14.7	15.5	16.3	17.1	17.9	18.7	19.5	20.2	21.8	23.4	24.9	26.5	28.1	29.6
Maximum speed (mm/s)	500											500	470	385	320	270	235

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The LZM type comes standard with a brake, so use a controller of brake specification.

Caution

(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

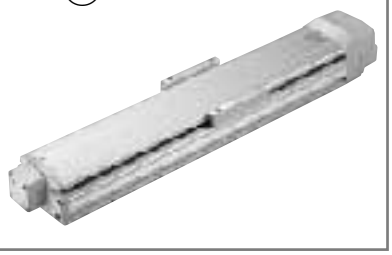
ISA-LZM-400

Single-Axis Robot: Large Vertical-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape

ISPA-LZM-400

Single-Axis Robot: Large Vertical-Axis Long Slider Type, Actuator Width 150mm, 400W, Straight Shape High-Precision Specification

Type: Large vertical-axis (150-mm wide) long slider type | Stroke: 100 ~ 1200mm | Vertical application only (with standard brake): 39kg



■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISA[ISPA]	LZM	I	400	10	1200	T1	S	B, L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 50mm (Note 1)	Speed (Note 2) (mm/s)	Acceleration (Note 3) Horizontal (G) Rated	Acceleration (Note 3) Horizontal (G) Maximum	Acceleration (Note 3) Vertical (G) Rated	Acceleration (Note 3) Vertical (G) Maximum	Load capacity (Note 3) Horizontal (kg) Rated acceleration	Load capacity (Note 3) Horizontal (kg) Maximum acceleration	Load capacity (Note 3) Vertical (kg) Rated acceleration	Load capacity (Note 3) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA [ISPA] -LZM-A-400-10-✻✻✻-T1-△-B-□	Absolute	400	10	100 ~ 1200	1 ~ 500	Vertical application only		0.3	0.5	Vertical application only		39	28	680.2
ISA [ISPA] -LZM-I-400-10-✻✻✻-T1-△-B-□	Incremental		10		1 ~ 500			0.3	0.5			39	28	680.2

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Master-axis designation (sensor on opposite side)	LLM	➔ P14
Creep sensor	C	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor on opposite side	CL	➔ P13	Guide with ball-retaining mechanism	RT	➔ P14
Home limit switch	L	➔ P14	Slave-axis designation	S	➔ P14
Home limit switch on opposite side	LL	➔ P14			

* The MZM type comes standard with a brake (B).

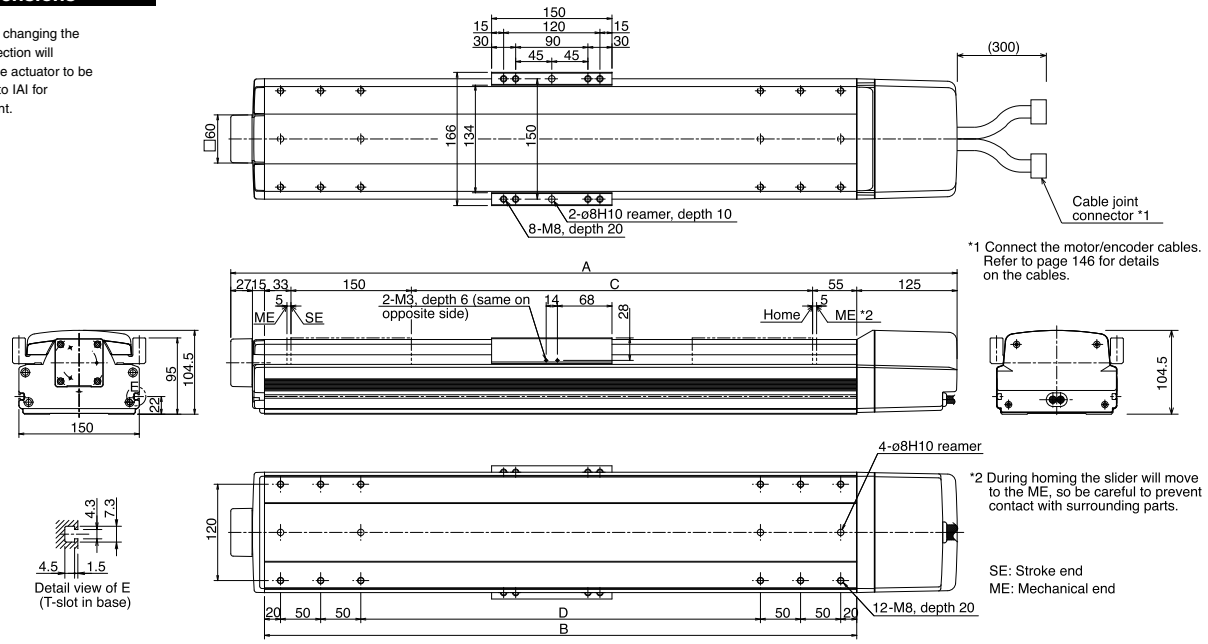
Common Specifications

* Refer to page 10 for the details of common specification items.

Positioning repeatability (Note 4)	±0.02mm [±0.01mm]
Drive system (Note 5)	Ball screw ø20mm, rolled C10 [equivalent to rolled C5]
Backlash (Note 6)	0.05mm or less [0.02mm or less]
Guide	Integrated with base
Allowable load moment	Ma: 104.9N • m Mb: 149.9N • m Mc: 124.5N • m
Brake	Comes standard with a dry, single-plate, non-excitation type electromagnetic brake.
Base	Material: Aluminum with white alumite treatment
Cable length (Note 7)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	100	(150)	200	(250)	300	(350)	400	(450)	500	(550)	600	700	800	900	1000	1100	1200
A	505	555	605	655	705	755	805	855	905	955	1005	Use the base of the LXM type for 700 and longer strokes. Refer to the drawing on page 26 for the mounting dimensions.					
B	338	388	438	488	538	588	638	688	738	788	838						
C	100	150	200	250	300	350	400	450	500	550	600						
D	98	148	198	248	298	348	398	448	498	548	598						
Weight (kg)	12.4	13.2	13.9	14.7	15.5	16.3	17.1	17.9	18.7	19.5	20.2	21.8	23.4	24.9	26.5	28.1	29.6
Maximum speed (mm/s)	500											500	470	385	320	270	235

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The LZM type comes standard with a brake, so use a controller of brake specification.

Caution

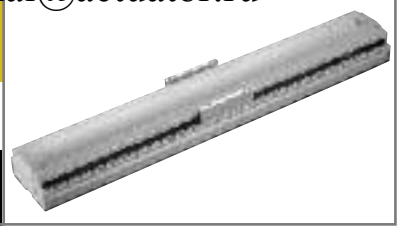
(Note 1) The strokes that are set in increments of 50 mm are semi-standard settings.
(Note 2) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 3) Refer to page 40 for the relationship of acceleration and load capacity.
(Notes 4, 5, 6) The figures in brackets apply to the ISPA Series. Other specification values apply to both the ISA and ISPA Series.
(Note 7) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISP-WXM-600

Single-Axis Robot: Super-Large X-Axis Long Slider Type, Actuator Width 198mm, 600W, Straight Shape

High-Precision Specification



Type	Stroke	Load capacity
Super-large X-axis (198-mm wide) long slider type	100 ~ 1300mm	150kg (horizontal)/60kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISP – WXM –	I	–	600	– 40	– 1300	– T1	– S	– C – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISP-WXM-A-600-40-✻✻✻-T1-△-L-□	Absolute	600	40	100 ~ 1300	1 ~ 2000	0.3	1.0	0.3	1.0	60	18	14	5	255
ISP-WXM-A-600-20-✻✻✻-T1-△-L-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	120	36	29	15	510
ISP-WXM-A-600-10-✻✻✻-T1-△-L-□			10		1 ~ 500	0.3	0.6	0.3	0.5	150	75	60	40	1020
ISP-WXM-I-600-40-✻✻✻-T1-△-L-□	Incremental		40		1 ~ 2000	0.3	1.0	0.3	1.0	60	18	14	5	255
ISP-WXM-I-600-20-✻✻✻-T1-△-L-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	120	36	29	15	510
ISP-WXM-I-600-10-✻✻✻-T1-△-L-□			10		1 ~ 500	0.3	0.6	0.3	0.5	150	75	60	40	1020

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor	C	➔ P13	Slave-axis designation	S	➔ P14
Home limit switch	L	➔ P13			

* The WXM type comes standard with a home limit switch (L).

Common Specifications

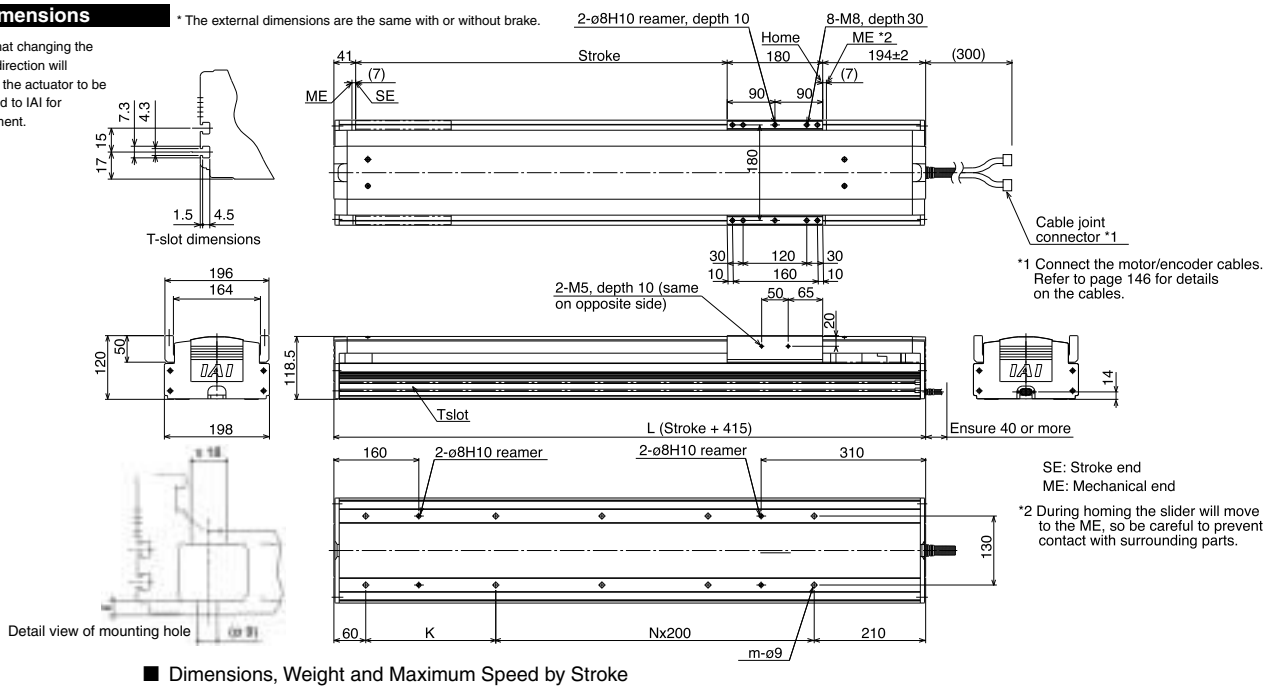
* Refer to page 10 for the details of common specification items.

Positioning repeatability	±0.01mm
Drive system	Ball screw ø20mm, rolled C5
Backlash	0.02mm or less
Guide	Integrated with base
Allowable load moment	Ma: 139.2N • m Mb: 199.9N • m Mc: 391N • m
Overhung load length	Ma direction: 900mm or less, Mb/Mc directions: 900mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 3)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* The external dimensions are the same with or without brake.

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

SE: Stroke end
ME: Mechanical end

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
L		515	615	715	815	915	1015	1115	1215	1315	1415	1515	1615	1715
K		245	145	245	145	245	145	245	145	245	145	245	145	245
N		–	1	1	2	2	3	3	4	4	5	5	6	6
m		4	6	6	8	8	10	10	12	12	14	14	16	16
Weight (kg)		17.0	19.0	21.0	23.0	25.0	26.9	28.9	30.9	32.9	34.8	36.8	38.8	40.8
Maximum speed (mm/s)	Lead 40	2000								1670	1390	1170	1000	865
	Lead 20	1000								835	695	585	500	430
	Lead 10	500								415	345	290	250	215

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The WXM type comes standard with a home limit switch, so use a controller of limit switch specification.

Caution

(Note 1) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Note 3) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISP-WXM-750

Single-Axis Robot: Super-Large X-Axis Long Slider Type, Actuator Width 198mm, 750W, Straight Shape

High-Precision Specification

Type	Stroke	Load capacity
Super-large X-axis (198-mm wide) long slider type	100 ~ 1300mm	150kg (horizontal)/37kg (vertical)

■ Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISP – WXM –	I	–	750	– 40 –	1300 –	T1	–	S – C – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2)				Load capacity (Note 2)				Rated thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated acceleration	Maximum acceleration	Rated acceleration	Maximum acceleration	
ISP-WXM-A-750-40-✻✻✻-T1-△-□	Absolute	750	40	100 ~ 1300	1 ~ 2000	0.3	1.0	0.3	1.0	75	22	18	7	319
ISP-WXM-A-750-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	150	45	37	20	638
ISP-WXM-I-750-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3	1.0	0.3	1.0	75	22	18	7	319
ISP-WXM-I-750-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3	1.0	0.3	0.8	150	45	37	20	638

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G =9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor	C	➔ P13	Slave-axis designation	S	➔ P14
Home limit switch	L	➔ P13			

* The WXM type comes standard with a home limit switch (L).

Common Specifications

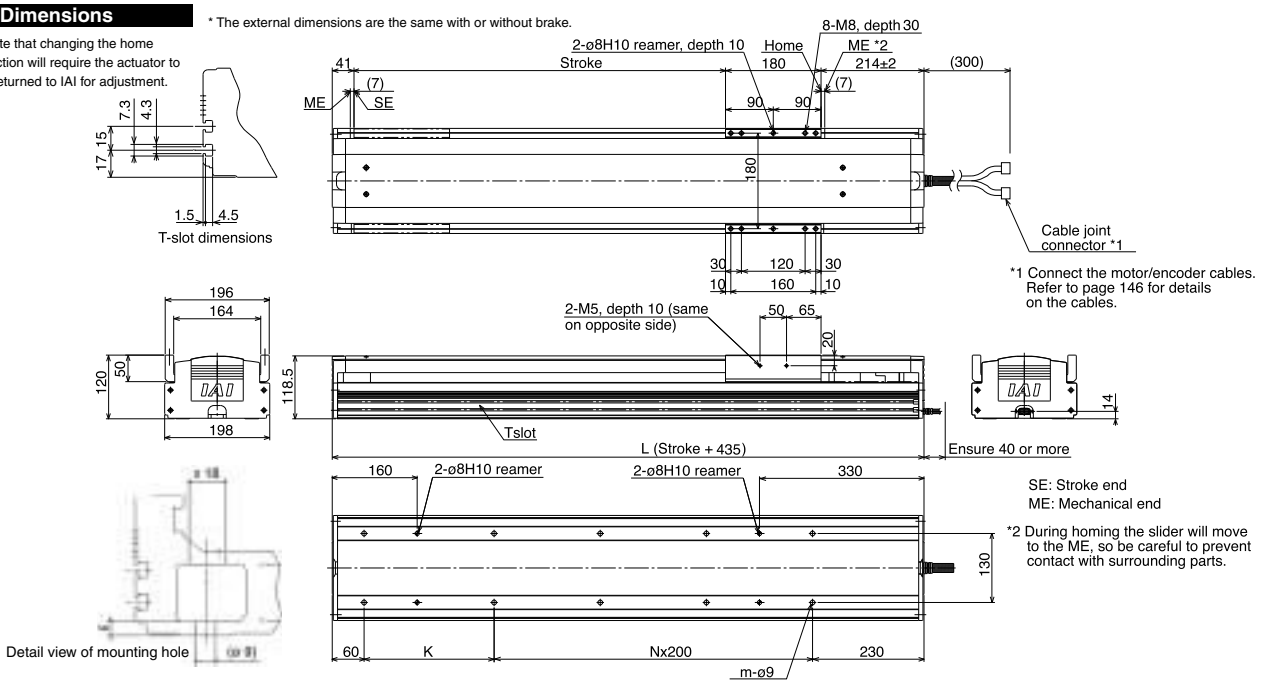
* Refer to page 10 for the details of common specification items.

Positioning repeatability	±0.01mm
Drive system	Ball screw ø20mm, rolled C5
Backlash	0.02mm or less
Guide	Integrated with base
Allowable load moment	Ma: 139.2N • m Mb: 199.9N • m Mc: 391N • m
Overhung load length	Ma direction: 900mm or less, Mb/Mc directions: 900mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 3)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.

* The external dimensions are the same with or without brake.



■ Dimensions, Weight and Maximum Speed by Stroke

Stroke		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
L		535	635	735	835	935	1035	1135	1235	1335	1435	1535	1635	1735
K		245	145	245	145	245	145	245	145	245	145	245	145	245
N		–	1	1	2	2	3	3	4	4	5	5	6	6
m		4	6	6	8	8	10	10	12	12	14	14	16	16
Weight (kg)		18.0	20.0	22.0	24.0	26.0	27.9	29.9	31.9	33.9	35.8	37.8	39.8	41.8
Maximum speed (mm/s)	Lead 40	2000								1670	1390	1170	1000	865
	Lead 20	1000								835	695	585	500	430

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The WXM type comes standard with a home limit switch, so use a controller of limit switch specification.

Caution

(Note 1) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Note 3) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISP-WXMX-600

Single-Axis Robot: Super-Large X-Axis Mid-Support Type, Actuator Width 198mm, 600W, Straight Shape

High-Precision Specification

Type	Stroke	Load capacity
Super-large X-axis (198-mm wide) mid-support type	900 ~ 2500mm	120kg (horizontal)

■ Model specification items — Series — Type — Encoder type — Motor output — Lead — Stroke — Applicable controller — Cable length — Options

ISP – WXMX – I – 600 – 40 – 2500 – T1 – S – C – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISP-WXMX-A-600-40-✻✻✻-T1-△-□	Absolute	600	40	900 ~ 2500	1 ~ 2000	0.3	Horizontal application only			60	Horizontal application only			255
ISP-WXMX-A-600-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				120				510
ISP-WXMX-I-600-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3				60				255
ISP-WXMX-I-600-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				120				510

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec^2

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor	C	➔ P13	Slave-axis designation	S	➔ P14
Home limit switch	L	➔ P13			

* The WXM type comes standard with a home limit switch (L).

Common Specifications

* Refer to page 10 for the details of common specification items.

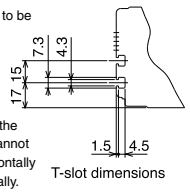
Positioning repeatability	±0.01mm
Drive system	Ball screw ø20mm, rolled C5
Backlash	0.02mm or less
Guide	Integrated with base
Allowable load moment	Ma: 139.2N • m Mb: 199.9N • m Mc: 391N • m
Overhung load length	Ma direction: 900mm or less, Mb/Mc directions: 900mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 3)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

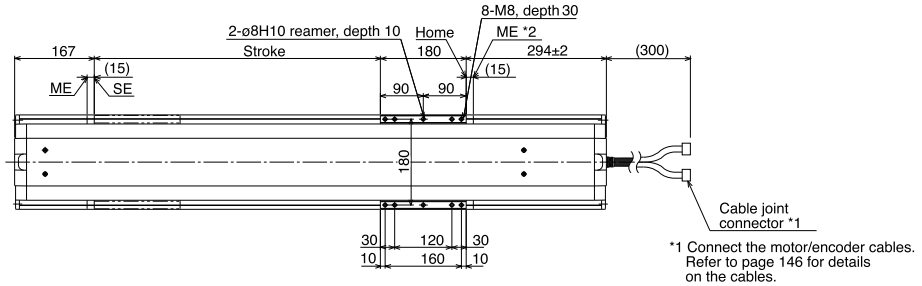
* The external dimensions are the same with or without brake.

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.

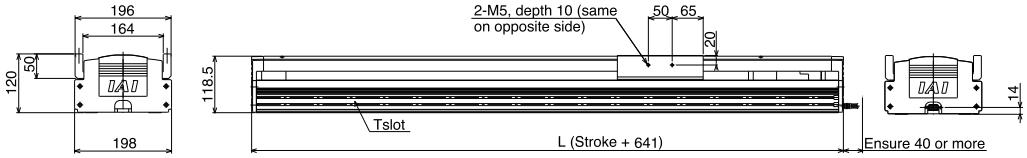
* Due to its structure the mid-support type cannot be positioned horizontally on its side or vertically.

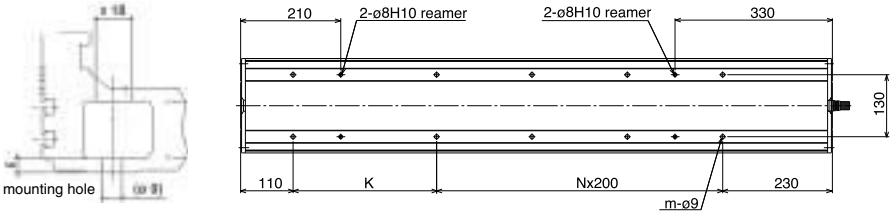


T-slot dimensions



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.





Detail view of mounting hole

SE: Stroke end
ME: Mechanical end

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
L	1541	1641	1741	1841	1941	2041	2141	2241	2341	2441	2541	2641	2741	2841	2941	3041	3141
K	201	301	201	301	201	301	201	301	201	301	201	301	201	301	201	301	201
N	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13
m	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30
Weight (kg)	37.5	39.5	41.5	43.5	45.5	47.4	49.4	51.4	53.4	55.4	57.3	59.3	61.3	63.3	65.2	67.2	69.2
Maximum speed (mm/s) Lead 40	2000					1965	1725	1530	1365	1225	1110	1005	915	840	770	710	655
Maximum speed (mm/s) Lead 20	1000					980	860	765	680	610	555	500	455	420	385	355	325

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The WXM type comes standard with a home limit switch, so use a controller of limit switch specification.

Caution

(Note 1) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Note 3) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

ISP-WXMX-750

Single-Axis Robot: Super-Large X-Axis Mid-Support Type, Actuator Width 198mm, 750W, Straight Shape

High-Precision Specification

Type	Stroke	Load capacity
Super-large X-axis (198-mm wide) mid-support type	900 ~ 2000mm	150kg (horizontal)

Model specification items

Series	Type	Encoder type	Motor output	Lead	Stroke	Applicable controller	Cable length	Options
ISP – WXMX –	I	– 750	– 40	– 2000	– T1	–	S	– C – L

* Refer to page 11 for the details of model specification items.

Models/Specifications

Model	Encoder type	Motor output (W)	Lead (mm)	Stroke (mm) In increments of 100mm	Speed (Note 1) (mm/s)	Acceleration (Note 2) Horizontal (G) Rated	Acceleration (Note 2) Horizontal (G) Maximum	Acceleration (Note 2) Vertical (G) Rated	Acceleration (Note 2) Vertical (G) Maximum	Load capacity (Note 2) Horizontal (kg) Rated acceleration	Load capacity (Note 2) Horizontal (kg) Maximum acceleration	Load capacity (Note 2) Vertical (kg) Rated acceleration	Load capacity (Note 2) Vertical (kg) Maximum acceleration	Rated thrust (N)
ISA-WXMX-A-750-40-✻✻✻-T1-△-□	Absolute	750	40	900 ~ 2000	1 ~ 2000	0.3		Horizontal application only		75		Horizontal application only		319
ISA-WXMX-A-750-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				150				638
ISA-WXMX-I-750-40-✻✻✻-T1-△-□	Incremental		40		1 ~ 2000	0.3				75				319
ISA-WXMX-I-750-20-✻✻✻-T1-△-□			20		1 ~ 1000	0.3				150				638

* In the above model names, ✻✻✻ indicates the stroke, △ the cable length and □ the applicable options.

*1.0G=9800mm/sec²

Options

Name	Code	Page	Name	Code	Page
AQ seal	AQ	➔ P13	Master-axis designation	LM	➔ P14
Brake	B	➔ P13	Reverse homing specification	NM	➔ P14
Creep sensor	C	➔ P13	Slave-axis designation	S	➔ P14
Home limit switch	L	➔ P13			

* The WXM type comes standard with a home limit switch (L).

Common Specifications

* Refer to page 10 for the details of common specification items.

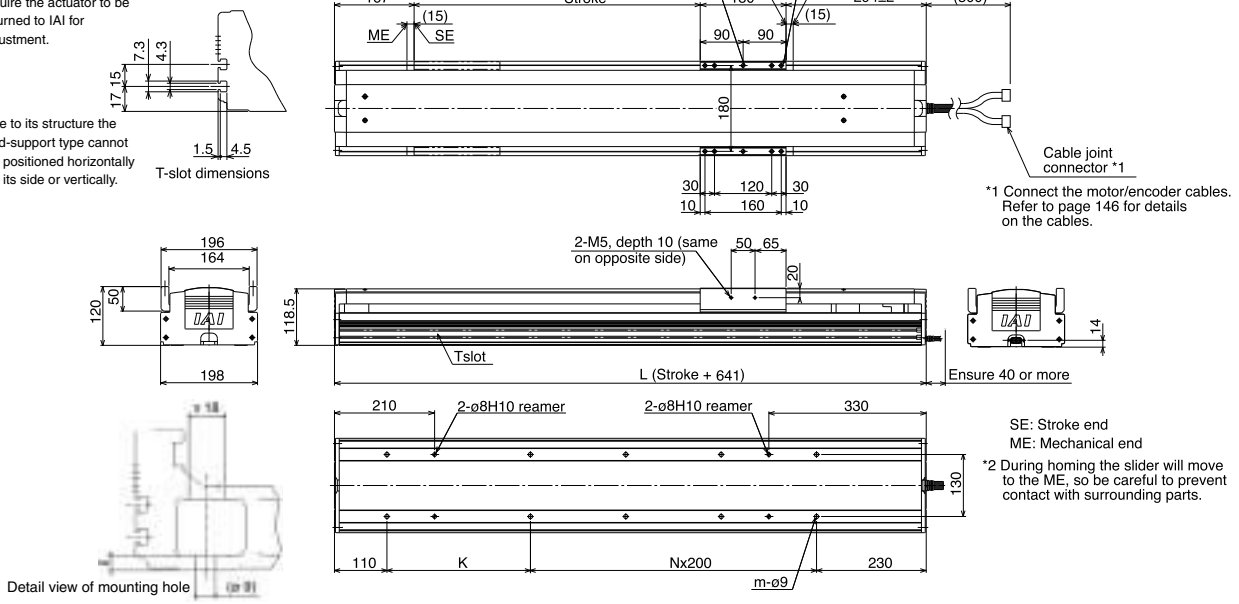
Positioning repeatability	±0.01mm
Drive system	Ball screw ø20mm, rolled C5
Backlash	0.02mm or less
Guide	Integrated with base
Allowable load moment	Ma: 139.2N • m Mb: 199.9N • m Mc: 391N • m
Overhung load length	Ma direction: 900mm or less, Mb/Mc directions: 900mm or less
Base	Material: Aluminum with white alumite treatment
Cable length (Note 3)	N: No cable, S: 3m, M: 5m, X□□ : Length specification

Dimensions

* The external dimensions are the same with or without brake.

* Note that changing the home direction will require the actuator to be returned to IAI for adjustment.

* Due to its structure the mid-support type cannot be positioned horizontally on its side or vertically.



*1 Connect the motor/encoder cables. Refer to page 146 for details on the cables.

SE: Stroke end
ME: Mechanical end

*2 During homing the slider will move to the ME, so be careful to prevent contact with surrounding parts.

■ Dimensions, Weight and Maximum Speed by Stroke

Stroke	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	1541	1641	1741	1841	1941	2041	2141	2241	2341	2441	2541	2641
K	201	301	201	301	201	301	201	301	201	301	201	301
N	5	5	6	6	7	7	8	8	9	9	10	10
m	14	14	16	16	18	18	20	20	22	22	24	24
Weight (kg)	38.5	40.5	42.5	44.5	46.5	48.4	50.4	52.4	54.4	56.4	58.3	60.3
Maximum speed (mm/s) Lead 40	2000					1965	1725	1530	1365	1225	1110	1005
Maximum speed (mm/s) Lead 20	1000					980	860	765	680	610	555	500

Applicable Controller Specifications

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Positioner operation	Pulse-train control	Supply voltage	Page
X-SEL	4 axes	Absolute/incremental	○	△	×	AC100/200V	➔ P241
E-Con	1 axis	Absolute/incremental	×	○	×	AC100/200V	➔ P227
P-Driver	1 axis	Incremental	×	×	○	AC100/200V	➔ P234

* The WXM type comes standard with a home limit switch, so use a controller of limit switch specification.

Caution

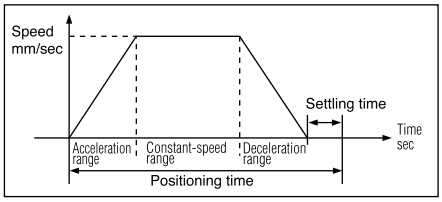
(Note 1) A longer stroke will result in a lower maximum speed to prevent the ball screw from reaching a dangerous speed. (Refer to the above table for the maximum speed at a given stroke.)
(Note 2) Refer to page 40 for the relationship of acceleration and load capacity.
(Note 3) The maximum cable length is 30 m. Specify the desired length in meters (e.g., X08 = 8 m).

* Refer to page 9 for other points to note.

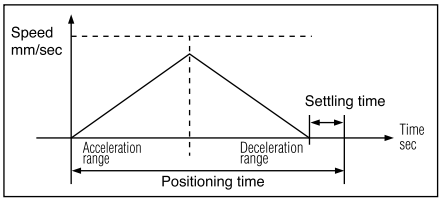
How to Calculate Positioning Time

Positioning time of the actuator can be calculated.
The following two operation patterns are applicable depending on the travel distance and acceleration/deceleration condition.

A Trapezoid pattern



B Triangular pattern



First, check whether the operation in question conforms to the trapezoid pattern or triangular pattern and then calculate positioning time using the applicable equation.

How to Determine Operation Pattern

Whether an operation conforms to the trapezoid pattern or triangular pattern can be determined by identifying if the attained speed is higher or lower than the specified speed when the actuator is operated over the target travel distance at the specified acceleration.

$$\text{Attained speed (Vmax)} = \sqrt{\text{Travel distance (Smm)} \times \text{Specified acceleration}}$$
$$= \sqrt{\text{Smm} \times 9{,}800\text{mm/sec}^2 \times \text{Acceleration setting (G)}}$$

One of the following two results will be obtained:
Specified speed (V) < Attained speed (Vmax)
----- Trapezoid pattern
Specified speed (V) > Attained speed (Vmax)
----- Triangular pattern

How to Calculate Positioning Time

A Trapezoid pattern

$$\text{Positioning time (T)} = \frac{\text{Distance (mm)}}{\text{Speed (mm/sec)}} + \frac{\text{Speed (mm/sec)}}{\text{Acceleration (mm/sec}^2\text{)}} + \text{Settling time}$$

B Triangular pattern

$$\text{Positioning time} = 2\sqrt{\frac{\text{Distance (mm)}}{\text{Acceleration (mm/sec}^2\text{)}}} + \text{Settling time}$$

$$\text{Acceleration time} = \frac{\text{Speed* (mm/sec)}}{\text{Acceleration (mm/sec}^2\text{)}}$$

$$\text{Travel time during acceleration} = \frac{\text{Acceleration (mm/sec}^2\text{)} \times (\text{Acceleration time (sec)})^2}{2}$$

* Use the specified speed for the trapezoid pattern and attained speed for the triangular pattern.

Note
- Obtain acceleration by multiplying the controller's acceleration/deceleration setting (G) by 9800 mm/sec^2. If the controller's acceleration/deceleration setting is 0.3 G, acceleration is calculated as 0.3 x 9800 mm/sec^2 = 2940 mm/sec^2.
- Settling time is a period used for determining if the operation to the target position has completed. Normally a settling time of approx. 0.15 sec should be considered for a ball-screw type and 0.2 sec, for a belt type.

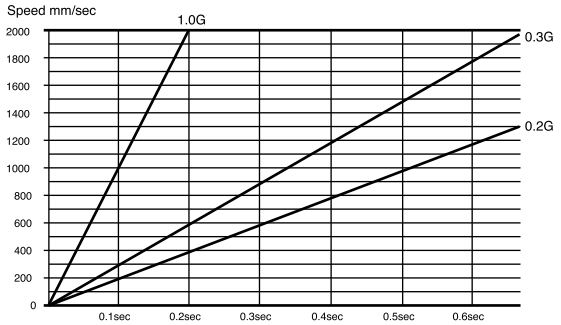
Positioning Time

Specified accele-ration	Specified speed	Travel distance (mm)																		
		10	20	30	40	50	100	150	200	250	300	350	400	450	500	600	1000	1100	1300	1400
0.3G	100	0.13	0.23	0.33	0.43	0.53	1.03	1.53	2.03	2.53	3.03	3.53	4.03	4.53	5.03	6.03	10.03	11.03	13.03	14.03
	200	0.12	0.17	0.22	0.27	0.32	0.57	0.82	1.07	1.32	1.57	1.82	2.07	2.32	2.57	3.07	5.07	5.57	6.57	7.07
	300	0.12	0.16	0.2	0.24	0.27	0.44	0.6	0.77	0.94	1.1	1.27	1.44	1.6	1.77	2.1	3.44	3.77	4.44	4.77
	400	0.12	0.16	0.2	0.23	0.26	0.39	0.51	0.64	0.76	0.89	1.01	1.14	1.26	1.39	1.64	2.64	2.89	3.39	3.64
	500	0.12	0.16	0.2	0.23	0.26	0.37	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.37	2.17	2.37	2.77	2.97
	600	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.54	0.62	0.7	0.79	0.87	0.95	1.04	1.2	1.87	2.04	2.37	2.54
	700	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.6	0.67	0.74	0.81	0.88	0.95	1.1	1.67	1.81	2.1	2.24
	800	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.65	0.71	0.77	0.83	0.9	1.02	1.52	1.65	1.9	2.02
	900	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.7	0.75	0.81	0.86	0.97	1.42	1.53	1.75	1.86
	1000	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.79	0.84	0.94	1.34	1.44	1.64	1.74
	1750	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.78	0.82	0.9	1.17	1.37	1.56	1.65
	2000	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.78	0.82	0.9	1.17	1.22	1.33	1.48

(Note) The above figures do not include settling time (0.15 sec for ball screw, 0.2 sec for belt).

Triangular pattern

Acceleration Time



ISA/ISPA Series Table of Load Capacity by Acceleration Condition

Caution
1. The load capacity values shown below are provided for reference purposes only. They are not guaranteed and must therefore be used only as guidelines.
2. Even when the acceleration is below the rated acceleration, the load capacity will not increase beyond the load capacity at the rated acceleration.
3. Use models other than those in the ISA/ISPA Series at accelerations below their rated acceleration

ISA / ISPA

Type	Motor output (W)	Lead (mm)	Maximum speed (mm/sec)	Rated acceleration (G)	Load capacity at rated acceleration (kg)		Maximum acceleration (G)	Load capacity at each acceleration (kg)							
								0.3G	0.4G	0.5G	0.6G	0.7G	0.8G	0.9G	1.0G
SXM SYM	60	16	800	0.3	Horizontal	12	1.0	12	9	7	6	5	4.5	4	3.5
					Vertical	3	0.7	3	2.5	2.3	2.1	2	–	–	–
		8	400	0.3	Horizontal	25	0.6	25	18.5	15	12	–	–	–	–
					Vertical	6	0.5	6	5.5	5	–	–	–	–	–
		4	200	0.15	Horizontal	50	0.5	50	37.5	30	–	–	–	–	–
					Vertical	14	0.3	12	–	–	–	–	–	–	–
SZM		8	400	0.3	Vertical	6	0.3	6	5.5	5	–	–	–	–	–
		4	200	0.15	Vertical	14	0.3	12	–	–	–	–	–	–	–
MXM MYM	100	20	1000	0.3	Horizontal	20	1.0	20	15	12	10	8.5	7.5	6.5	6
					Vertical	3.5	0.8	3.5	3.2	2.9	2.7	2.4	2	–	–
		10	500	0.3	Horizontal	40	0.6	40	30	24	20	–	–	–	–
					Vertical	9	0.5	9	7.6	7	–	–	–	–	–
		5	250	0.15	Horizontal	80	0.5	80	60	45	–	–	–	–	–
					Vertical	19	0.3	15	–	–	–	–	–	–	–
MZM		10	500	0.3	Vertical	9	0.5	9	7.6	7	–	–	–	–	–
		5	250	0.15	Vertical	19	0.3	15	–	–	–	–	–	–	–
MXM MYM	200	30	1500	0.3	Horizontal	25	1.0	25	20	17	15	13.5	12	11	10
					Vertical	6	1.0	6	4.7	4.3	3.9	3.6	3.4	3.1	2
		20	1000	0.3	Horizontal	40	1.0	40	30	24	20	17	15	13.5	12
					Vertical	9	0.8	9	7.6	7	6.5	6	5	–	–
		10	500	0.3	Horizontal	80	0.6	80	60	48.5	40	–	–	–	–
					Vertical	19	0.5	19	16.3	15	–	–	–	–	–
MZM		10	500	0.3	Vertical	19	0.5	19	16.3	15	–	–	–	–	–
MXMX		30	1500	0.3	Horizontal	25	0.3	25	–	–	–	–	–	–	–
		20	1000	0.3	Horizontal	40	0.3	40	–	–	–	–	–	–	–
LXM LYM	200	20	1000	0.3	Horizontal	40	1.0	40	30	24	20	17	15	13.5	12
					Vertical	9	0.8	9	6.6	6	5.5	5	4	–	–
		10	500	0.3	Horizontal	80	0.6	80	60	48.5	40	–	–	–	–
					Vertical	19	0.5	19	15.3	14	–	–	–	–	–
LZM		10	500	0.3	Vertical	19	0.5	19	15.3	14	–	–	–	–	–
LXM LYM	400	40	2000	0.3	Horizontal	40	1.0	40	30	25	22	20	18	16.5	15
					Vertical	9	1.0	9	6.6	6	5.5	5	4.6	4.3	4
		20	1000	0.3	Horizontal	80	1.0	80	60.5	48.5	40.5	34.5	30	27	24
					Vertical	19	0.8	19	15.3	14.1	13.1	12.2	10	–	–
LZM		10	500	0.3	Vertical	39	0.5	39	32.6	28	–	–	–	–	–
LXMX	200	20	1000	0.3	Horizontal	40	0.3	40	–	–	–	–	–	–	–
	400	40	2000	0.3	Horizontal	40	0.3	40	–	–	–	–	–	–	–
		20	1000	0.3	Horizontal	80	0.3	80	–	–	–	–	–	–	–
LXUWX	200	20	1000	0.3	Horizontal	40	0.3	40	–	–	–	–	–	–	–
	400	40	2000	0.3	Horizontal	40	0.3	40	–	–	–	–	–	–	–
		20	1000	0.3	Horizontal	80	0.3	80	–	–	–	–	–	–	–
WXM	600	40	2000	0.3	Horizontal	60	1.0	60	45	36	30	26	22	20	18
					Vertical	14	1.0	14	9	8.1	7.4	6.7	6.1	5.6	5
		20	1000	0.3	Horizontal	120	1.0	120	91	72	60	52	45	40	36
					Vertical	29	0.8	29	22	20.3	18.8	17.4	15	–	–
		10	500	0.3	Horizontal	150	0.6	150	112	90	75	–	–	–	–
					Vertical	60	0.5	60	48	40	–	–	–	–	–
	750	40	2000	0.3	Horizontal	75	1.0	75	56	45	37	32	28	25	22
					Vertical	18	1.0	18	12.3	11.2	10.2	9.4	8.6	8	7
		20	1000	0.3	Horizontal	150	1.0	150	113	91	75	65	56	50	45
					Vertical	37	0.8	37	28.5	26.3	24.4	22.8	20	–	–
WXMX	600	40	2000	0.3	Horizontal	60	0.3	60	–	–	–	–	–	–	–
		20	1000	0.3	Horizontal	120	0.3	120	–	–	–	–	–	–	–
	750	40	2000	0.3	Horizontal	75	0.3	75	–	–	–	–	–	–	–
		20	1000	0.3	Horizontal	150	0.3	150	–	–	–	–	–	–	–

Controllers

E-Con
P-Driver
XSEL-J/K/KE

E-Con Position Controller for Single-Axis Robot

Operating method	Positioner operation
Number of storable positions	64 positions
Supply voltage	100/200 VAC, selectable

1 Features

1 Driving High-Performance Single-Axis Robot IA Series

The E-Con is able to drive the various actuators in the IA Series.

■ Drivable Actuator Specifications

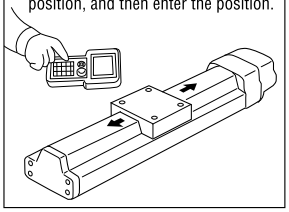
Stroke	Control output	Maximum speed	Maximum load capacity	Maximum load capacity
100 ~ 3000 mm	20W ~ 750W	2000 mm/sec	150 kg (horizontal)	60 kg (vertical)

2 Positioning to Maximum 64 Points with Easy Operation

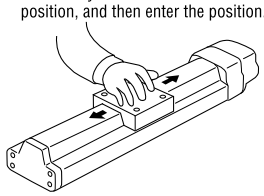
Operation is easy. Simply store the target positions as position data and specify the applicable position numbers from a PLC, etc. There is no need to create a complicated program.
Number of positioning points: 64
Positions can be entered in the following three ways:

① Enter coordinates (mm) directly.

② Jog the actuator to a desired position, and then enter the position.



③ Turn off the servo and move the actuator by hand to a desired position, and then enter the position.



3 Incremental/Absolute Specifications

The E-Con supports the absolute specification that will retain the current position even after the power is turned off. Your equipment can therefore be operated immediately after startup or upon reset following an emergency stop.
You can also select the conventional incremental specification.

4 Wide-Ranging Functions

The E-Con provides a range of functions beyond normal positioning.
The desired functions can be combined to accommodate various applications.

E-Con Function	E-Con Function	E-Con Function	E-Con Function	E-Con Function	E-Con Function	E-Con Function
Incremental moves	Pause	Zone output	Acceleration only MAX	Positioning band	Speed variation	Serial communication

(Refer to the Robo Cylinder catalog for the details of each function.)

5 Supporting Various Field Networks

The E-Con, with its wire-saving design, can connect to many different field networks for communication with equipment from various manufacturers without the need for cumbersome wiring.
* Consult IAI beforehand if you are considering a ProfiBus connection.

6 Conformance with the CE Mark

* Contact IAI for details.

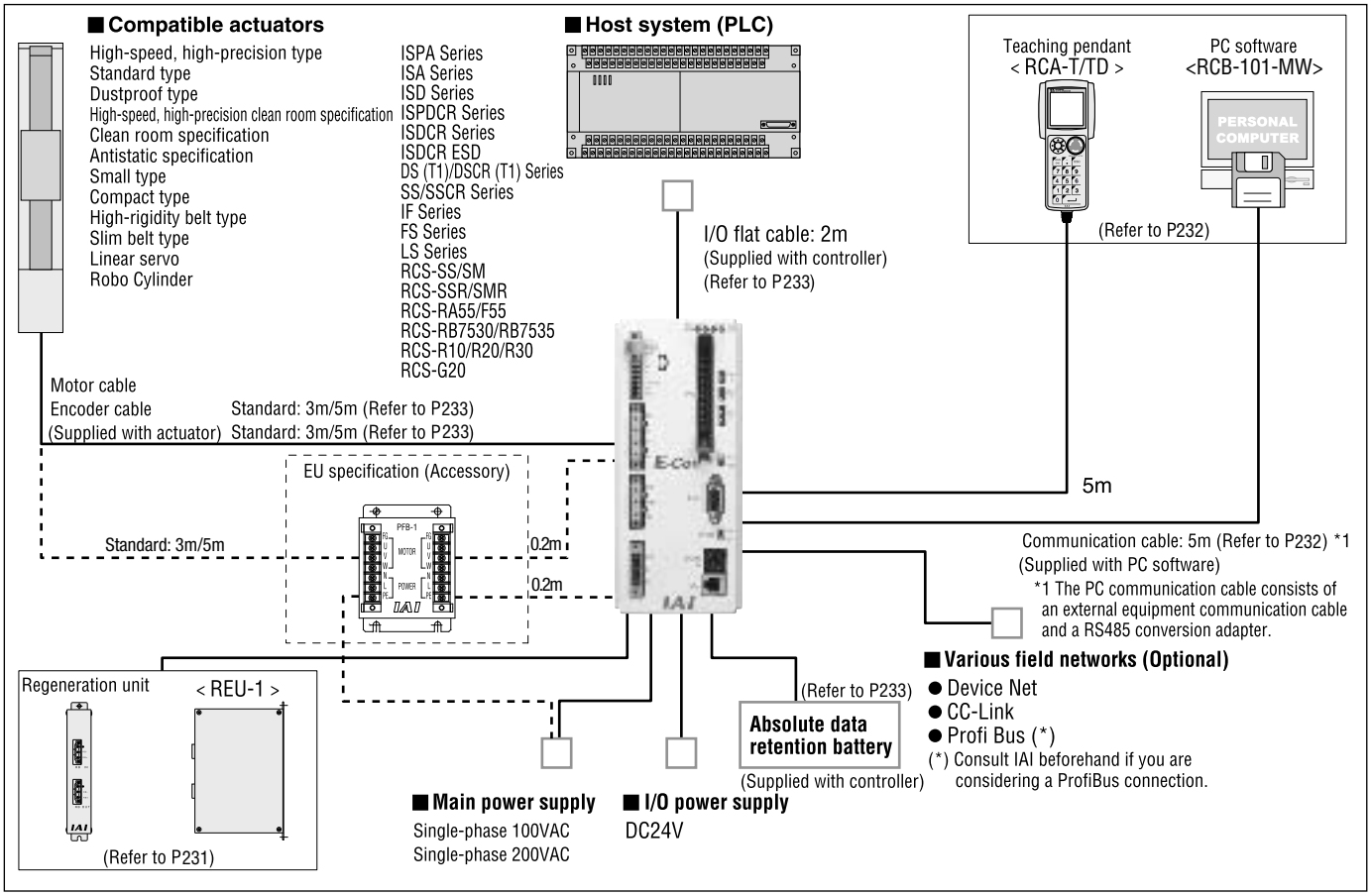
2 Model

ECON - I - 750BL - DV - 2 - EU - P
❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series	❷ Encoder type	❸ Connected axis details (1 axis only)				❹ Network	❺ Supply voltage	❻ CE compliance	❼ I/O signal type (Note 2)
		Motor capacity (Note 1)	Brake	Creep	Limit switch				
ECON	I (Incremental) A (Absolute)	20 (20W) 30 (30W) 60 (60W) 100 (100W) 150 (150W) 200 (200W) 300 (300W) 400 (400W) 600 (600W) 750 (750W)	Not specified (Without brake) B (With brake)	Not specified (Without creep sensor) C (With creep sensor)	Not specified (Without limit switch) L (With limit switch)	Not specified (Network not supported) DV (DeviceNet specification) CC (CC-Link specification) PR (ProfiBus specification)	1 (100V) 2 (200V)	Not specified (Standard specification) EU (CE-compliant)	Not specified (NPN) P (PNP)

(Note 1) 20/30-watt specifications will be available from October 2003.
(Note 2) Even when you have selected a CE-compliant specification, be sure to specify NPN or PNP as the I/O signal type.

3 System Configuration Diagram

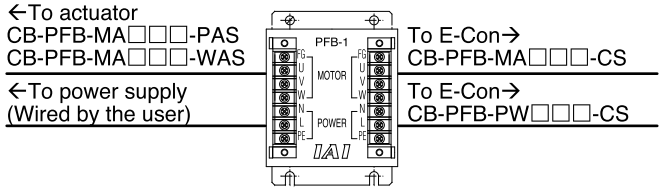


EU Specification Details

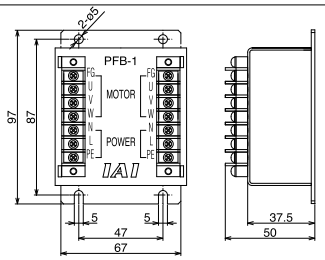
The E-Con's EU specification comes with the following filter box (model: PFB-1) and dedicated cable for noise elimination purposes.

Filter Box Wiring

* The total length of the motor cable on the actuator side and that on the controller (E-Con) side must not exceed 30 m.

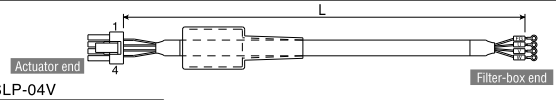


Filter Box Dimensions



Actuator Motor Cable (Robo Cylinder)

Model **CB-PFB-MA□□□-PAS** * Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



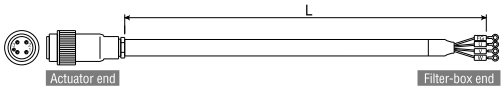
SLP-04V

Wire	Color	Signal	No.	
0.75 sq (Crimp)	Red	U	1	Red
	White	V	2	White
	Black	W	3	Black
	Green	FG	4	Green

Terminals on filter-box end

Actuator Motor Cable (Single-Axis Robot)

Model **CB-PFB-MA□□□-WAS** * Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



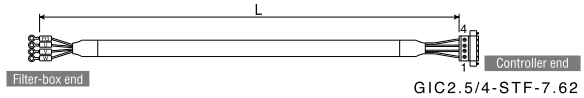
99-4222-00-04

Wire	Color	Signal	No.	
0.75 sq (Crimp)	Green/Yellow	FG	⏚	Green/Yellow
	Black with "1" in white	U	1	Black with "1" in white
	Black with "2" in white	V	2	Black with "2" in white
	Black with "3" in white	W	3	Black with "3" in white

Terminals on filter-box end

Controller Motor Cable (Common to All Models)

Model **CB-PFB-MA002-CS** * Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



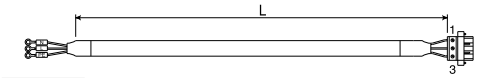
GIC2.5/4-STF-7.62

No.	Signal	Color	Wire	
1	FG	Green	0.75 sq	Green
2	U	Red		Red
3	V	White		White
4	W	Black		Black

Terminals on filter-box end

Controller Power Cable (Common to All Models)

Model **CB-PFB-PW002-CS** * Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



GMSTB2.5/3-STF-7.62

No.	Signal	Color	Wire	
1	N	Light Blue	1 sq	Light Blue
2	L	Brown		Brown
3	PE	Green/Yellow		Green/Yellow

Terminals on filter-box end

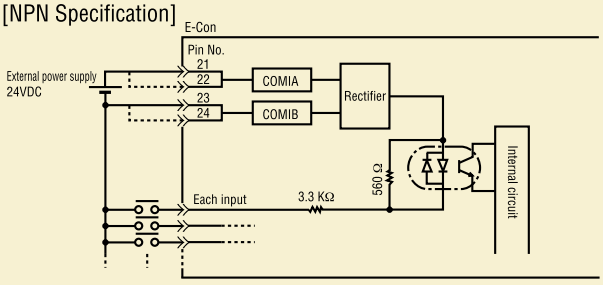
4 I/O Wiring

RCS-C Type (Insulated I/O Specification)

Input Part 24-V external I/O specification

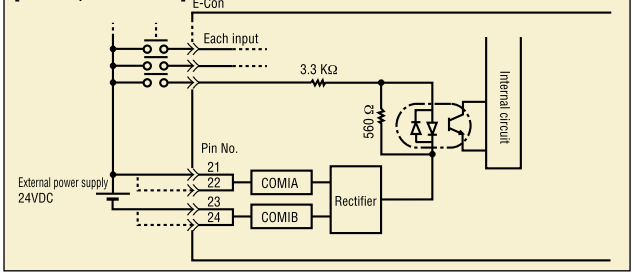
Item	Specification
Number of input points	10 points
Input voltage	24VDC ±20%
Input current	7mA/point
Operating voltage	ON voltage --- Min. 16V (4.5mA) OFF voltage --- Max. 6V (1.4mA)
Insulation method	Photocoupler

[NPN Specification]



- Supply 24 VDC to COMIA or COMIB. COMIA and COMIB have no polarity.
- Connect the negative side of the external power supply to the common side of the input.
- Pin Nos. 21 and 22 of COMIA, and pin Nos. 23 and 24 of COMIB, are connected internally.

[PNP Specification]

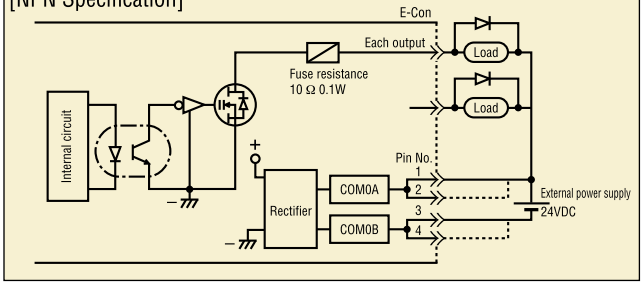


- Supply 24 VDC between COMOA and COMOB. COMOA and COMOB have no polarity.
- Connect the positive side of the external power supply to the common side of the input.
- Pin Nos. 21 and 22 of COMIA, and pin Nos. 23 and 24 of COMIB, are connected internally.

Output Part 100-mA output circuit by Power MOSFET

Item	Specification
Number of output points	13 points
Rated load voltage	24VDC/60V (peak) (No flywheel diode)
Maximum load current	100mA/point
Insulation method	Photocoupler
Leak current	Fuse resistance: 10Ω, 0.1W

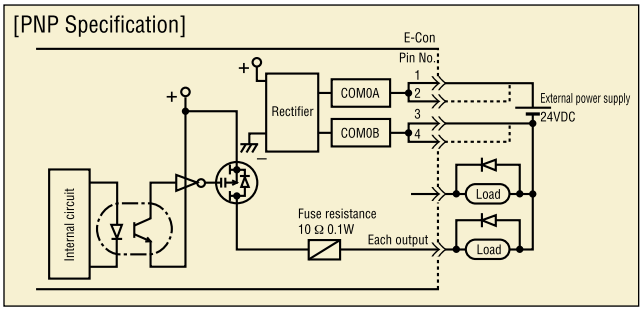
[NPN Specification]



- Supply 24 VDC to COMIA or COMIB. COMIA and COMIB have no polarity.
- Pin Nos. 1 and 2, and pin Nos. 3 and 4, are connected internally.

Note 1) The output circuit uses a Power MOSFET open drain and has no flywheel diode. Be sure to provide a fly-back voltage inhibition measure using a diode, etc., for the load L of a relay, etc. (Inserting a diode in a position as close as possible to the coil is the most effective way to prevent spike noise.)

[PNP Specification]



5 I/O Signal Table

E-Con

Pin No.	Category	Signal name	Description
1	-	COM-0A	Output port power (Note 1)
2		COM-0A	
3		COM-0B	
4		COM-0B	
5		NC	Not used
6		NC	(Do not connect anything)
7	Output (Note 3)	*Battery alarm	Battery alarm (Contact B)
8		NC	Not used
9		Moving	Moving output
10		PM32	Position complete output 32
11		*EMG	Emergency-stop output (Contact B)
12		PM16	Position complete output 16
13		*ALM	Alarm output (Contact B)
14		PM8	Position complete output 8
15		ZONE	Zone
16		PM4	Position complete output 4
17		ZFIN	Home complete output
18		PM2	Position complete output 2
19		PFIN	Position complete output
20		PM1	Position complete output 1

Pin No.	Category	Signal name	Description
21	-	COM-IA	Input port power (Note 2)
22		COM-IA	
23		COM-IB	
24		COM-IB	
25		NC	Not used (Do not connect anything)
26		NC	
27		NC	
28		NC	
29		NC	
30	Input (Note 3)	PC32	Specified position input 32
31		NC	Not used (Do not connect anything)
32		PC16	Specified position input 16
33		*ILK	Pause input (Contact B)
34		PC8	Specified position input 8
35		SVON	Servo ON input
36		PC4	Specified position input 4
37		RESET	Reset input
38		PC2	Specified position input 2
39		CSTR	Start input
40		PC1	Specified position input 1

(Note 1) Connect the 24-VDC power supply between COM-OA and COM-OB. COM-OA and COM-OB have no polarity. Pin Nos. 1 and 2, and pin Nos. 3 and 4, are connected internally.
(Note 2) Connect the positive side of the 24-VDC power supply to either COM-IA or COM-IB (pin Nos. 21 through 24). COM-IA and COM-IB have no polarity. Pin Nos. 21 and 22, and pin Nos. 23 and 24, are connected internally.
(Note 3) The ports indicated by * conform to the contact B signal logic (always ON).
Never connect the ports denoted "Not used."

6 Specification Table

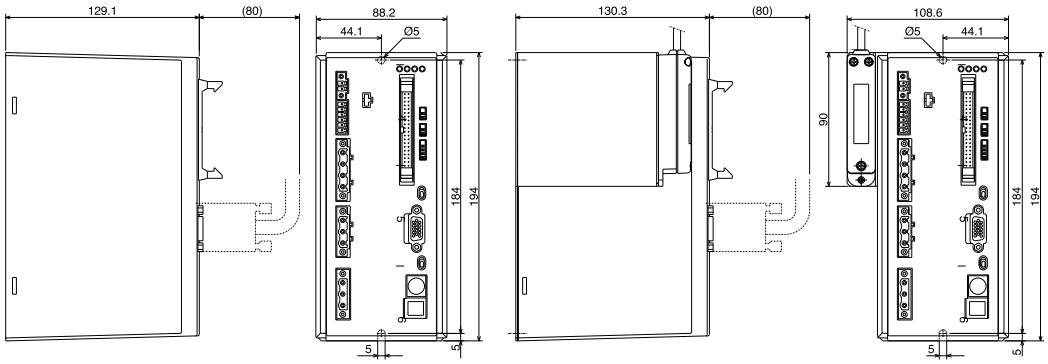
Item	Description							
Controller series/type	ECON							
Compatible actuators	ISA, ISPA, ISD, ISDCR (ESD), ISPDCR, DS, DSCR, SS, SSCR, IF, FS, LS RCS-SS/SSR/SM/SMR/RA55/F55/R10/R20/R30/G20							
Applicable motor capacity (W)	60	100	150	200	300	400	600	750
Number of controlled axis	1 axis only							
Maximum output of connected axis (W)	750							
Power supply	100-V specification: Single-phase 100~115VAC 200-V specification: Single-phase 200~230VAC				200-V specification: Single-phase 200~230VAC			
Power supply voltage range	±10%							
Power frequency	50/60Hz							
Power capacity (Note 1)	100W	150W	210W (290W)	270W	(410W)	520W	770W	1000W
	160VA	240VA	350VA (490W)	450VA	(680VA)	870VA	1300VA	1600VA
Position detection method	Incremental encoder/absolute encoder							
Speed setting	1mm/s or more; upper limit determined by the actuator specification							
Acceleration setting	0.01G or more; upper limit determined by the actuator specification							
Program language	-							
Number of programs	-							
Number of program steps	-							
Number of multitask programs	-							
Number of positions	64							
Data storage device	EEPROM							
Data input method	Teaching pendant, PC software							
Standard I/Os	10 dedicated inputs/12 dedicated outputs							
Expanded I/Os	Not expandable							
Serial communication function	Comes standard with a RS485 port.							
Other I/Os	Emergency-stop input (contact-B terminal block)							
Protective functions	Motor overvoltage, motor overcurrent, motor overload, driver temperature error, encoder error, etc.							
Operating temperature/humidity	Temperature: 0~40℃, humidity: 85%RH or less							
Operating environment	Not subject to corrosive gases or significant dust.							
Weight	1.2kg <Incremental type> 1.5kg <Absolute type>							
Accessory	PIO flat cable (2m)							

(Note 1) The figures in parentheses apply only to the LS type (linear servo actuator).

6 External Dimensions

Controller

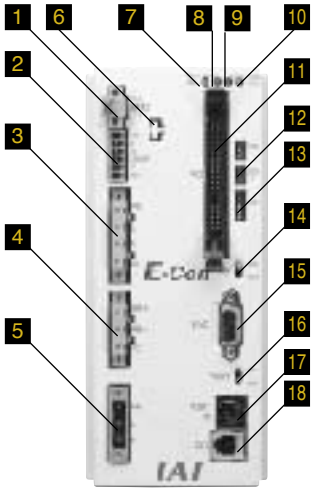
E-Con



External view of incremental specification

External view of absolute specification

7 Name and Function of Each Part



1 EMG terminal

A connector for the emergency-stop switch.
The controller will actuate an emergency stop when this connector becomes open.

2 Actuator-sensor input connector

An input terminal for the LS, CREEP or OT sensor, etc., installed on the actuator.
The pins are assigned to 24V, N, LS, CREEP and OT from the top. Use a dedicated cable for connection.

3 Motor cable connector

A connector for the actuator's motor power cable.
The pins are assigned to PE, U, V and W from the top.
Use a dedicated cable for connection.

4 Regeneration resistor unit connector

A connector for the regeneration resistor unit.
The pins are assigned to RB+, RB- and PE from the top.

5 Main power input connector

A connector for the controller power.
The pins are assigned to PE, L and N from the top.

6 Absolute battery connector

A connector for the battery unit to be used with an ABS actuator.

7 ~ 10 Indicator LEDs

These LEDs indicate the controller condition.
The details of each LED are as follows:

7	RDY	(Green) Lit when the controller is operating normally.
8	RUN	(Green) Lit during movement.
9	ALM	(Red) Lit while an alarm is present.
10	ENC	(Orange) Lit if the encoder is open or cannot be recognized.

11 PIO connector

A 40-pin connector for parallel communication with a PLC, etc.

12 DIP switch (SW2)

A data setting switch for rotation data clear and remote update used on an ABS actuator.
Refer to the explanation below for the function/setting corresponding to each switch number:

SW2-1	ON to enable rotation data clear
SW2-2	ON to enable remote update

13 DIP switch (SW1)

An axis ID setting switch.

14 Brake release switch

RLS	Brake is forcibly released.
NOM	Brake is in use (normal setting).

15 Encoder cable connector

A connector for the actuator's encoder cable.

16 Port switch

A switch for enabling/disabling Termi-Bus communication with a teaching pendant or PC.

17 Main communication port connector

A connector for Termi-Bus communication with a teaching pendant or PC.
It also serves as a link cable connector when multiple controllers are connected.

18 SIO connector

A connector for linking multiple controllers.

8 Options

Regeneration Resistor Unit

Model **REU-1**

Description

This unit converts to heat the regenerative current generated when the motor decelerates. A regeneration resistor is provided inside the controller, but its capacity may not be sufficient when a large load is applied to the vertical axis. In this case, this optional unit is required. (Refer to the table at bottom right.)

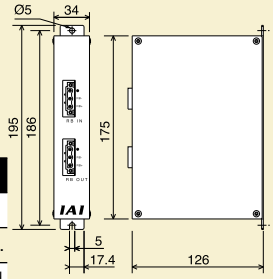
Specification

Item	Specification
Dimensions	W34mm X H195mm X D126mm
Weight	0.9kg
Built-in regeneration resistor	220Ω 80W
Accessory	Controller link cable (model: CB-ST-REU010), 1m

Installation Standards

Motor output	Horizontal use	Vertical use
0~150W		Not required.
200~600W	Not required.	1 unit is required.
750W		2 units are required.

* The above are reference settings assuming the rated conditions (load capacity, speed and acceleration).



9 Options

Teaching Pendant

Model

RCA-T (Standard) **RCA-TD** (With deadman switch)

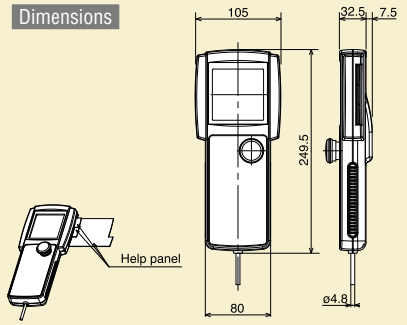
Features

- A teaching device that provides all of the functions needed for test operation/adjustment, such as position-data input, test operation and monitoring of the current axis position and I/O signals.
- The interactive-type panel ensures easy operation. All you need is to enter values in the required fields, so you won't need the operation manual for basic operations.

Specification

Items	Specification
Operating temperature, humidity	Temperature: 0~40°C, humidity: 85%RH or less
Operating environment	Not subject to corrosive gases or significant dust.
Weight	Approx. 550g (including cable)
Cable length	5m
Display	21 characters x 16 lines, LCD

Dimensions



Simple Teaching Pendant

Model

RCA-E

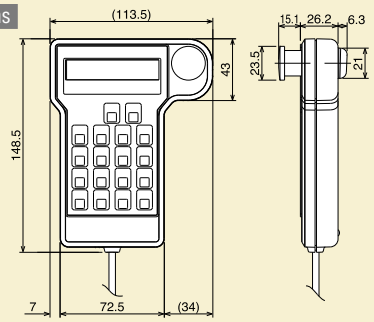
Features

- A highly cost-effective teaching pendant that provides the same functions as the RCA-T at a significantly lower price.
- The unit size has been reduced through the use of a two-line display.

Specification

Items	Specification
Operating temperature, humidity	Temperature: 0~40°C, humidity: 85%RH or less
Operating environment	Not subject to corrosive gases or significant dust.
Weight	Approx. 400g (including cable)
Cable length	5m
Display	16 characters x 2 lines, LCD

Dimensions



Data Setting Unit

Model

RCA-P *Operations involving axis movement cannot be performed.

Features

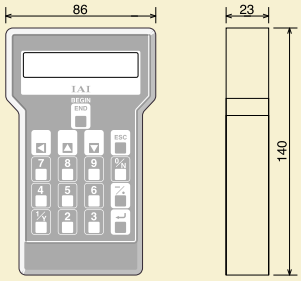
An affordable data setting unit offering edit functions, except for operations involving axis movement.

Edit functions • Position data input • Confirmation of current axis position • I/O signal monitoring, etc.

Specification

Items	Specification
Operating temperature, humidity	Temperature: 0~40°C, humidity: 85%RH or less
Operating environment	Not subject to corrosive gases or significant dust.
Weight	Approx. 360g
Cable length	5m
Display	16 characters x 2 lines, LCD

Dimensions



PC Software

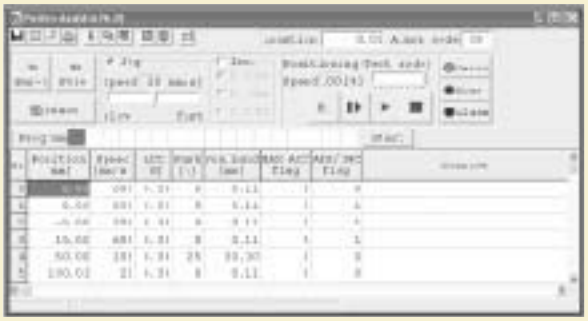
Model

RCB-101-MW (DOS/V, Windows version)

[Content] Floppy disk, PC communication cable (5m) (*1)

Features

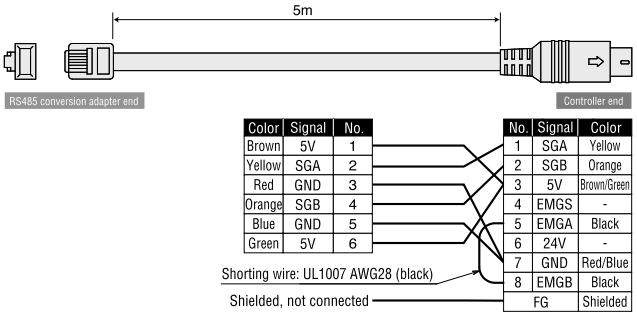
- A support software for position data input and test operation.
- This software significantly improves the equipment debugging operations by offering wide-ranging functions such as jogging, inching, step operation and continuous operation, and also by allowing easy operation via a large PC screen.



(*1) The PC communication cable consists of CB-RCA-SIO050 and RCB-CV-MW (refer to the drawing below).

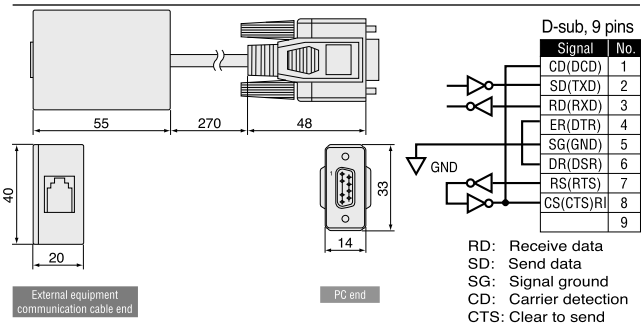
External Equipment Communication Cable

Model **CB-RCA-SIO050**



RS485 Conversion Adapter

Model **RCB-CV-MW**



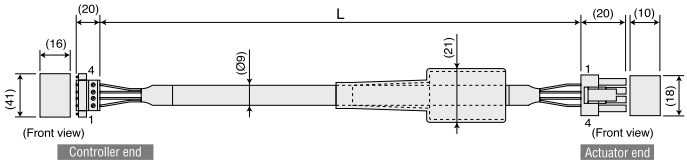
9 Service Parts

Motor Cable (Single-Axis Robot Connection)

Model **CB-X-MA** ●●●

* Indicate the desired cable length (L) of up to 30 m in ●●● (e.g., 080 = 8 m).

Compatible actuators: DS/DSCR/ISP/IS/ISD/IF/FS/SS/SSCR/ISPDCR/ISDCR/ISDCR-ESD



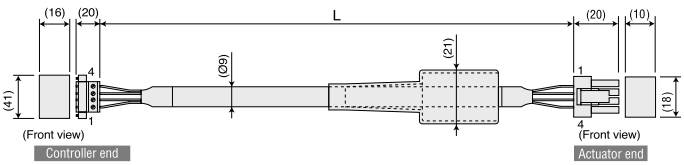
Wire	Color	Signal	No.	No.	Signal	Color	Wire
0.75 sq	Green	PE	1	1	U	Red	0.75 sq (Crimp)
	Red	U	2	2	V	White	
	White	V	3	3	W	Black	
	Black	W	4	4	PE	Green	

Motor Cable (Robo Cylinder/Linear Connection)

Model **CB-RCC-MA** ●●● / **CB-RCC-MA** ●●● **-RB** (Linear Servo)

* Indicate the desired cable length (L) of up to 30 m in ●●● (e.g., 080 = 8 m).

Compatible actuators: RCS-SS/SM/SSR/SMR/RA55/RB-7530/RB-7535/F55/G20/R10/R20/R30/LS



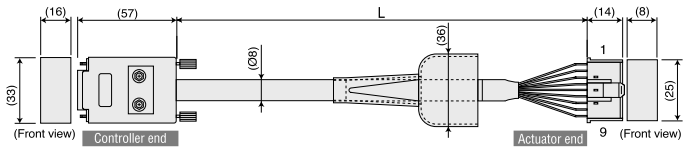
Wire	Color	Signal	No.	No.	Signal	Color	Wire
0.75 sq	Green	PE	1	1	U	Red	0.75 sq (Crimp)
	Red	U	2	2	V	White	
	White	V	3	3	W	Black	
	Black	W	4	4	PE	Green	

Encoder Cable (Single-Axis Robot Connection)

Model **CB-X-PA** ●●●

* Indicate the desired cable length (L) of up to 30 m in ●●● (e.g., 080 = 8 m).

Compatible actuators: DS/DSCR/ISP/IS/ISD/IF/FS/SS/SSCR/ISPDCR/ISDCR/ISDCR-ESD



Wire	Color	Signal	No.	No.	Signal	Color	Wire
	-	-	1	1	BAT+	Black	
	-	-	2	2	BAT-	Yellow	
	-	-	3	3	SD	Blue	
	-	-	4	4	$\overline{SD}$	Orange	
	-	-	5	5	VCC	Green	
	-	-	6	6	GND	Brown	
	Blue	SD	7	7	FG	Ground	
	Orange	$\overline{SD}$	8	8	BK-	Gray	
	Black	BAT+	9	9	BK+	Red	
	Yellow	BAT-	10				
	Green	VCC	11				
	Brown	GND	12				
	Gray	BK-	13				
	Red	BK+	14				
	-	-	15				

0.15 sq (Crimp)

0.15 sq (Crimp)

Connect the shielded wire to the hood using a clamp.

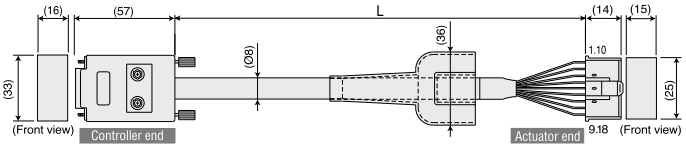
Ground wire and shielded wire, braided

Encoder Cable (Robo Cylinder/Linear Connection)

Model **CB-RCBC-PA** ●●● / **CB-RCBC-PA** ●●● **-RB** (Linear Servo)

* Indicate the desired cable length (L) of up to 30 m in ●●● (e.g., 080 = 8 m).

Compatible actuators: RCS-SS/SM/SSR/SMR/RA55/RB-7530/RB-7535/F55/G20/R10/R20/R30/LS



Wire	Color	Signal	No.	No.	Signal	Color	Wire
	Pink	A/U	1	1	A/U	Pink	
	Purple	$\overline{A/U}$	2	2	$\overline{A/U}$	Purple	
	White	B/V	3	3	B/V	White	
	Blue/Red	$\overline{B/V}$	4	4	$\overline{B/V}$	Blue/Red	
	Orange/White	Z/W	5	5	Z/W	Orange/White	
	Green/White	$\overline{Z/W}$	6	6	$\overline{Z/W}$	Green/White	
	Blue	SD	7	7	-	-	
	Orange	$\overline{SD}$	8	8	-	-	
	Black	BAT+	9	9	FG	Ground	
	Yellow	BAT-	10	10	SD	Blue	
	Green	VCC	11	11	$\overline{SD}$	Orange	
	Brown	GND	12	12	BAT+	Black	
	Gray	BK-	13	13	BAT-	Yellow	
	Red	BK+	14	14	VCC	Green	
	-	-	15	15	GND	Brown	
				16	-	-	
				17	BK-	Gray	
				18	BK+	Red	

0.15 sq (Crimp)

0.15 sq (Crimp)

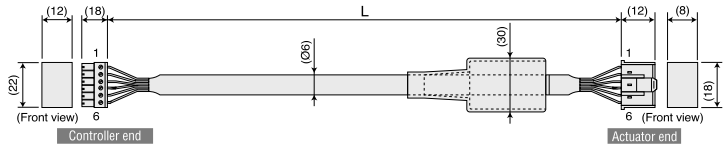
Connect the shielded wire to the hood using a clamp.

Ground wire and shielded wire, braided

Limit Switch Cable (Single-Axis Robot Connection)

Model **CB-X-LC** ●●●

* Indicate the desired cable length (L) of up to 30 m in ●●● (e.g., 080 = 8 m).

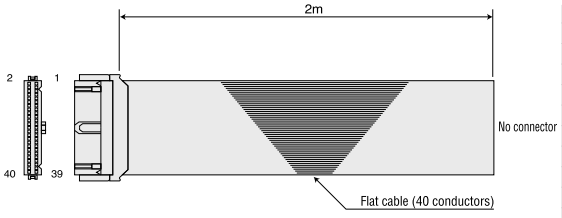


Wire	Color	Signal	No.	No.	Signal	Color	Wire
AWG24	Light Blue	24VOUT	6	1	24VOUT	Light Blue	AWG24 (Crimp)
	Pink	N	5	2	N	Pink	
	Grass	LS	4	3	LS	Grass	
	Orange	CREEP	3	4	CREEP	Orange	
	Gray	OT	2	5	OT	Gray	
	1B/Light Blue	RSV	1	6	RSV	1B/Light Blue	

Note) "1B" indicates one black dot mark.

I/O Flat Cable (E-Con)

Model **CB-RCBC-PIO020**



No.	Color	Signal name	No.	Color	Signal name	No.	Color	Signal name	No.	Color	Signal name
1	Brown-1	COM-0A	11	Brown-2	/EMG	21	Brown-3	COM-IA	31	Brown-4	NC
2	Red-1	COM-0A	12	Red-2	PM16	22	Red-3	COM-IA	32	Red-4	PC16
3	Orange-1	COM-0B	13	Orange-2	/ALM	23	Orange-3	COM-IB	33	Orange-4	/ILK
4	Yellow-1	COM-0B	14	Yellow-2	PM8	24	Yellow-3	COM-IB	34	Yellow-4	PC8
5	Green-1	NC	15	Green-2	ZONE	25	Green-3	NC	35	Green-4	SVON
6	Blue-1	NC	16	Blue-2	PM4	26	Blue-3	NC	36	Blue-4	PC4
7	Purple-1	NC	17	Purple-2	ZFIN	27	Purple-3	NC	37	Purple-4	RESET
8	Gray-1	Battery alarm	18	Gray-2	PM2	28	Gray-3	NC	38	Gray-4	PC2
9	White-1	Moving	19	White-2	PFIN	29	White-3	NC	39	White-4	CSTR
10	Black-1	PM32	20	Black-2	PM1	30	Black-3	PC32	40	Black-4	PC1

Absolute Data Retention Battery

Model **AB-1**

* Case is not included.

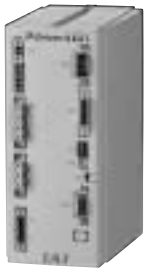
Compatible controllers: RCS-E/RCS-C/E-Con

■ Specification

Item	Description
Battery type	Lithium battery
Battery capacity	2000mAh
Data retention time	Approx. 20,000 hours
Nominal voltage	3.6V

P-Driver Positioning Driver with Pulse-Train Input

Operating method	Pulse-train control
Supply voltage	100/200 VAC, selectable



1 Features

1 Effective Control of Robo Cylinder and IAI's Single-Axis Robot with Pulse Train

The P-Driver lets you operate a variety of Robo Cylinders and single-axis robots (motor output: 20 to 750 W; stroke: 50 to 3000 mm) as desired.
It offers a dramatic cost savings because design, assembly and adjustment are much simpler than when building a system combining individual components such as a ball screw and motor.
Furthermore, pulse-train control does not limit the number of positioning points.

2 Dedicated Homing Signal

The dedicated homing input allows for automatic homing, thereby eliminating the need to program a complicated sequence.

3 Torque Limiting Function

Torque can be limited via external signal (based on parameter setting). When the specified torque is reached, a signal will be output. This function lets you implement push & hold, press-fitting and other operations.

4 Brake Control Function

Control of the actuator brake (actuator option) uses a dedicated circuit within the controller. There is no need to program a separate sequence.
By providing a dedicated power supply (24 VDC), the brake can be forcibly released even when the driver's main power supply is cut off.

5 Feedback Function

Position detection data can be output in pulse train (differential output) form. This allows the host controller to read the current position in real time (up to 115 kpps).

6 Feed-Forward Control Function

Response can be increased under certain conditions, such as when the load's inertia ratio is high. Increasing the parameter value will reduce the deviation (the difference between the commanded position and the position fed back), thus increasing response.

7 Primary Position-Command Filter Function

Soft start and stop is possible even in the command pulse input mode where acceleration/deceleration is not considered.

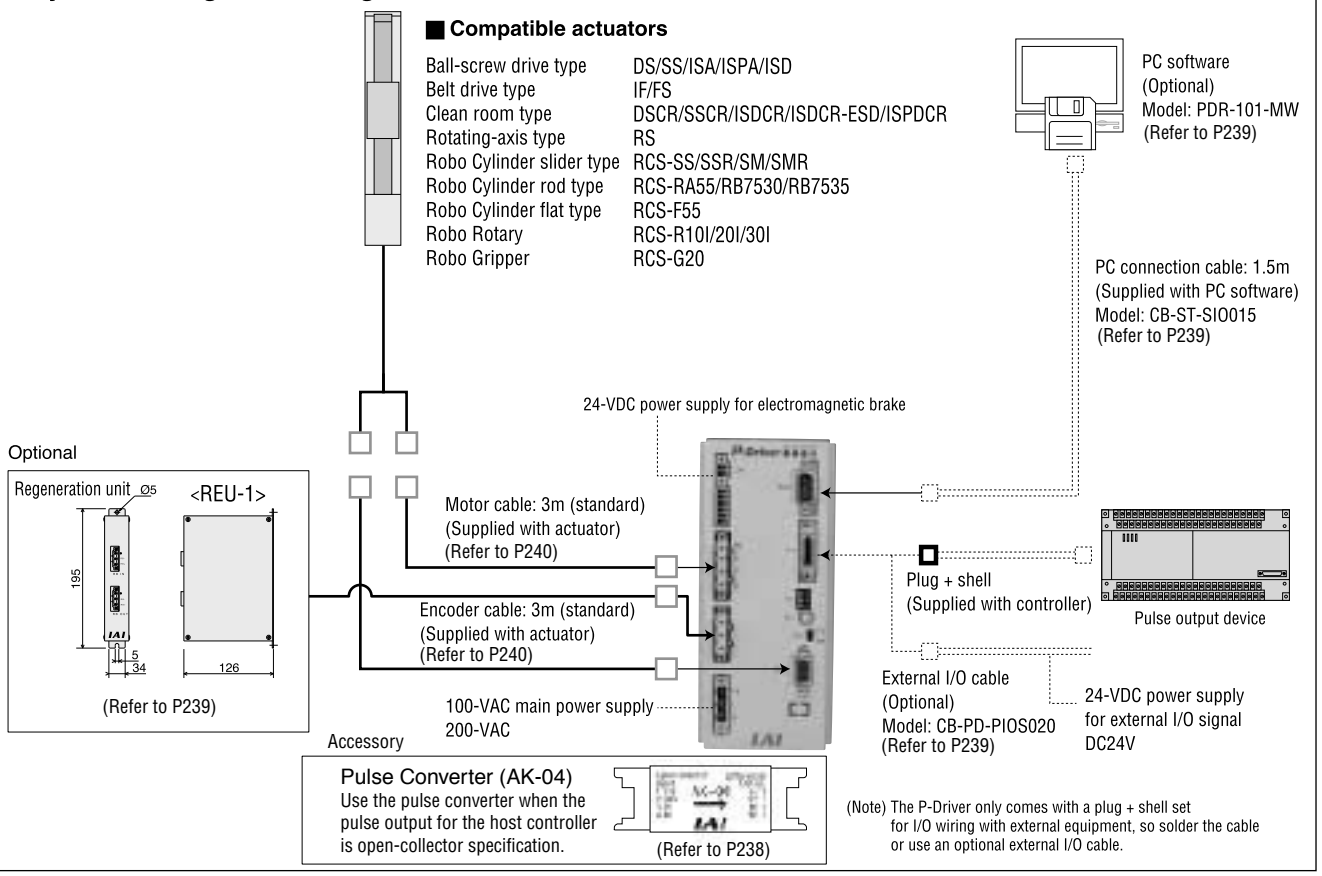
2 Model

PDR - I - 750BL - 2 - P
❶ ❷ ❸ ❹ ❺

❶ Series	❷ Encoder type	❸ Connected axis details (1 axis only)				❹ Supply voltage	❺ I/O signal specification
		Motor capacity	Brake	Creep	Limit switch		
PDR	I (Incremental)	20 (20W) 30 (30W) 60 (60W) 100 (100W) 150 (150W) 200 (200W) 400 (400W) 600 (600W) 750 (750W)	Not specified (Without brake) B (With brake)	Not specified (Creep not supported) C (Creep supported)	Not specified (Limit switch not supported) L (Limit switch supported)	1 (100V) 2 (200V)	Not specified (NPN) P (PNP)

3 System Configuration Diagram

System Configuration Diagram



4 I/O Wiring

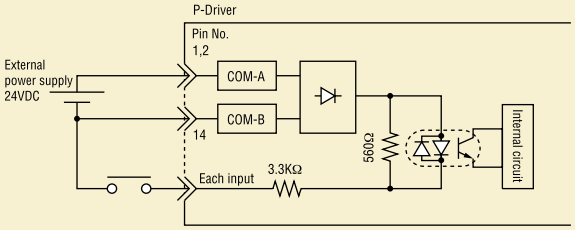
Input Part Sequence input specification

Item	Specification
Number of input signals	5 points
Input voltage	24VDC ±20%
Input current	7mA/point
Operating voltage	ON voltage --- Min. 16V (4.5mA) OFF voltage --- Max. 6V (1.4mA)
Insulation method	Photocoupler

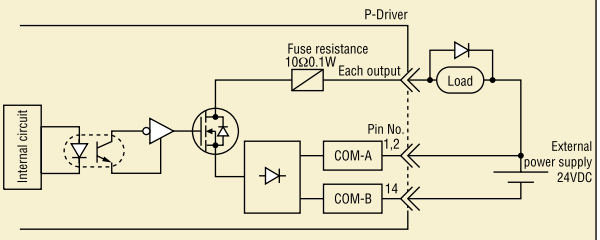
Output Part Sequence output specification

Item	Specification
Number of output signals	6 points
Rated load voltage	24/60VDC (Peak; no flywheel diode)
Maximum load current	100mA/point
Insulation method	Photocoupler
Overcurrent protection	Fuse resistance: 10Ω, 0.1W

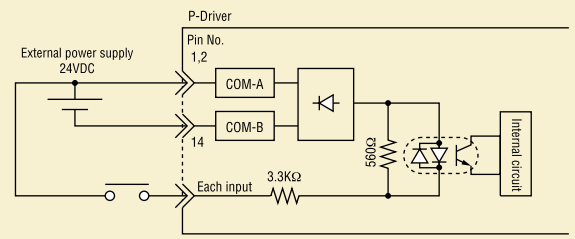
[NPN Specification]



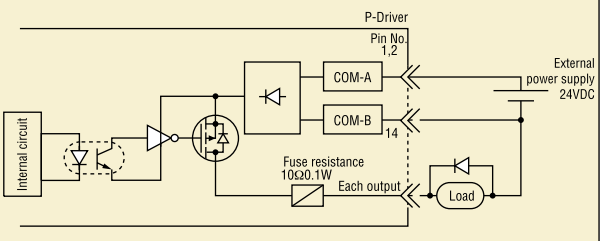
[NPN Specification]



[PNP Specification]



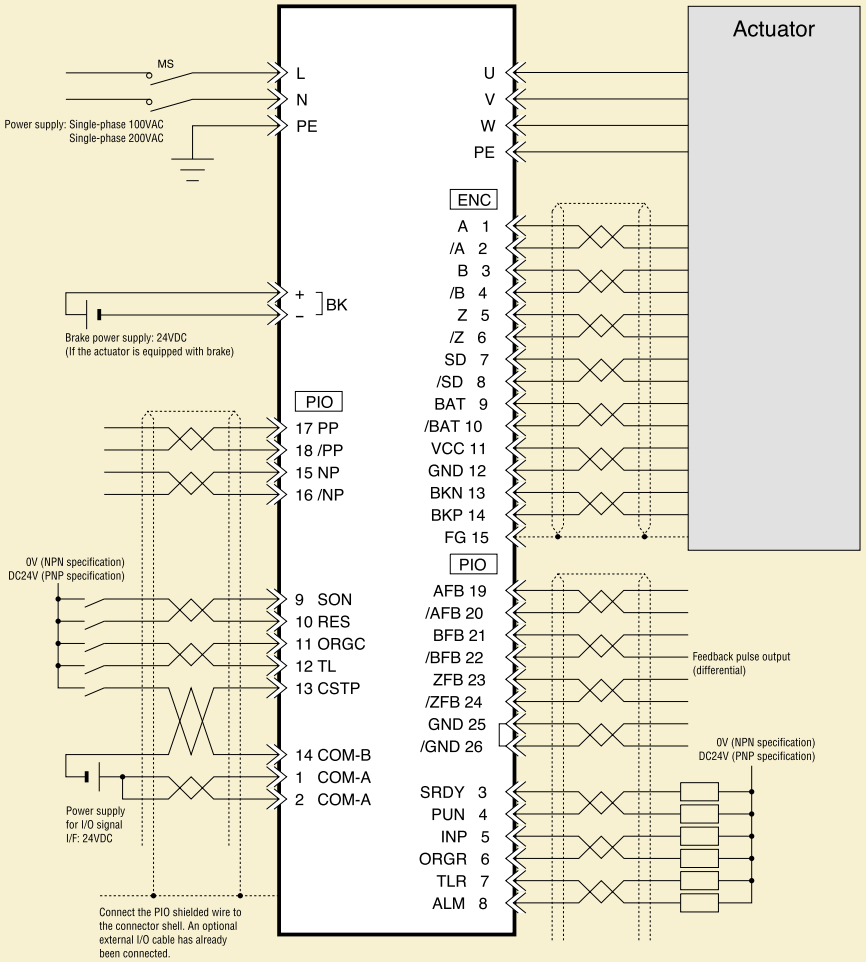
[PNP Specification]



5 I/O Signal Table

Pin No.	I/O category	Signal abbreviation	Signal name	Function
1	External I/O signal power	COM-A	Power common (+)	Connect to the positive side of the 24-VDC power supply common for external I/O signal.
2		COM-A		(Pins 1 and 2 are connected internally.)
3	Sequence signal output	SRDY	System ready	After the power is turned ON, this signal will turn ON when the P-Driver becomes control-ready. It is synchronized with the ON/OFF of the corresponding LED on the front panel of the enclosure.
4		RUN	Operation ready	This signal will turn ON when the servo is turned ON (the actuator is operation-ready). It is synchronized with the ON/OFF of the corresponding LED on the front panel of the enclosure.
5		INP	Position complete	This signal will turn ON when the actuator enters the in-position range set by the applicable parameter.
6		ORGR	Homing complete	This signal will turn ON when homing is completed.
7		TLR	Torque limiting	This signal will turn ON when the actuator output reaches the parameter-set torque limit while TL is ON.
8		ALM	Alarm	This signal will turn OFF when a protective circuit (function) has actuated and the base current is cut off (the signal is normally ON).
9	Sequence signal input	SON	Servo ON	The actuator is ready to operate when this signal turns ON (servo ON state).
10		RES	Alarm reset	An alarm will be reset when this signal is turned ON.
11		ORGC	Homing command	Homing will start when this signal is turned ON.
12		TL	Torque limiting selection	Actuator-torque limiting will start when this signal is turned ON. (Turning this signal OFF will cancel torque limiting.)
13		CSTP	Forced stop	When this signal is turned ON, the actuator will be decelerated to a stop by forced stopping torque and the servo will turn OFF.
14	External I/O signal power	COM-B	Power common (-)	Connect to the negative side of the 24-VDC power supply common for external I/O signal.
15	Command pulse input	NP	Pulse-train input	Command pulse-train input: Open-collector mode (Max. 200 kpps), Differential - receiver mode (Max. 500 kpps) Command pulse format is selectable from 6 types via parameter.
16		/NP		
17		PP		
18		/PP		
19	Feedback pulse differential output	AFB	+A	Position detection data is output as pulses (phases A, B and Z). Pulse output format is selectable from 6 types via parameter.
20		/AFB	-A	
21		BFB	+B	
22		/BFB	-B	
23		ZFB	+Z	
24		/ZFB	-Z	
25	Reference potential	GND	Reference potential	For feedback pulse output
26		GND		Line-driver ground line (Pins 25 and 26 are connected internally.)

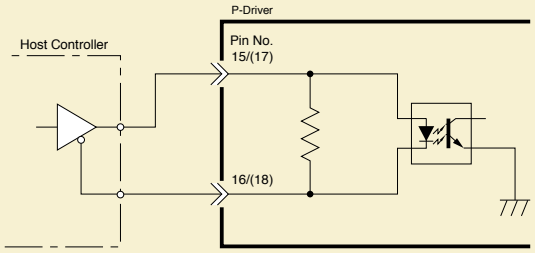
6 Standard Connection Diagram



7 Position Controller for Single-Axis Robot

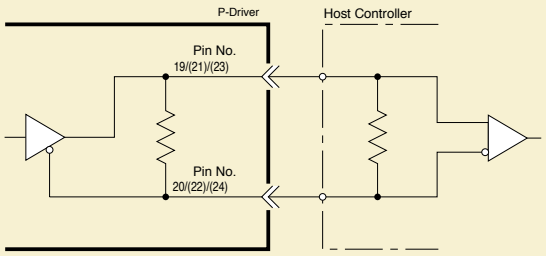
Input by Differential Line Driver

Applicable line driver: 26C31 or equivalent

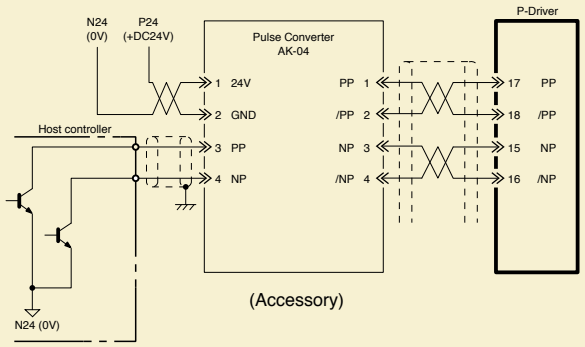


Feedback Pulse Output

Applicable line receiver: 26C32 or equivalent



Input by Open Collector



Caution

- Thoroughly confirm the compatibility with the host controller.
- If noise generation is a possibility, select a host controller that uses differential line-driver output.

8 Command Pulse Input Format

	Command pulse-train format	Input terminal	Forward	Reverse
Negative logic	Forward pulse train	PP•/PP		
	Reverse pulse train	NP•/NP		
	A forward pulse train indicates motor revolutions in the forward direction, while a reverse pulse train indicates motor revolutions in the reverse direction.			
	Pulse train	PP•/PP		
	Sign	NP•/NP	Low	High
	Command pulses indicate motor revolutions, while a command sign indicates direction of rotation.			
	Phase A/B pulse train	PP•/PP		
		NP•/NP		
	Phase A/B (4x multiplication) pulses of 90° phase difference command revolutions and direction of rotation.			
Positive logic	Forward pulse train	PP•/PP		
	Reverse pulse train	NP•/NP		
	Pulse train	PP•/PP		
	Sign	NP•/NP	High	Low
	Phase A/B pulse train	PP•/PP		
		NP•/NP		

* The same output formats apply to feedback pulses.

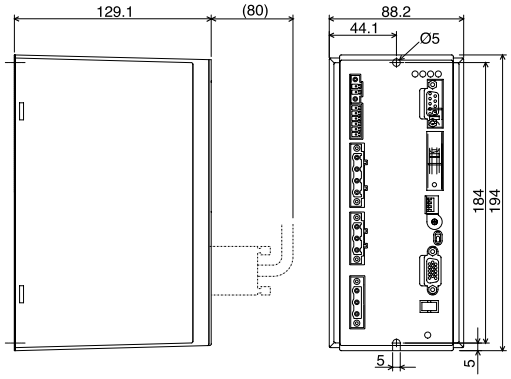
9 Specification Table

Item		Description								
Controller series/type		PDR								
Compatible actuators		DS, SS, ISA, ISPA, ISD, ISDCR, ISPDCR, IF, FS RCS-SS/SSR/SM/SMR/RA55/F55/G20/R10/R20/R30								
Applicable motor capacity (W)		20	30	60	100	150	200	400	600	750
Number of controlled axis		1 axis only								
Maximum output of connected axis (W)		750								
Power supply		100-V specification: Single-phase 100~115VAC 200-V specification: Single-phase 200~230VAC						200-V specification: Single-phase 200~230VAC		
Power supply voltage range		±10%								
Power frequency		50/60Hz								
Power capacity		34W	42W	100W	150W	210W	270W	520W	770W	1000W
		57VA	70VA	160VA	240VA	350VA	450VA	870VA	1300VA	1600VA
Control method		Sine wave PWM, vector current control								
Position detection method		Incremental encoder								
Drive system		Regeneration resistor								
Function/performance	Control mode	Position control by pulse-train input								
	Maximum input pulse frequency	Max. 500kpps (differential)/Max. 200kpps (open collector)								
	Command pulse multiplication (electronic gear: A/B)	A, B-1~4096 1/50<A/B<50/1 (Parameter setting)								
	Position complete band	1~4096 pulses (Parameter setting)								
I/O signal power supply		DC24V±20% 0.8A (Supplied externally)								
Electromagnetic brake power supply		DC24V±20% 1A (Max.) (Supplied externally)								
Standard I/Os		9 dedicated inputs/12 dedicated outputs								
Serial communication function		RS232 (For dedicated PC software)								
Protective functions		Motor overvoltage, motor overcurrent, motor overload, driver temperature error, encoder error, etc.								
Operating temperature/humidity		Temperature: 0~40℃, humidity: 85%RH or less								
Operating environment		Not subject to corrosive gases or significant dust.								
Vibration resistance		4.9m/s²								
Weight		1.2kg								
Accessory		DI/DO plug, shell								

10 External Dimensions

Controller

P-Driver



Accessory Pulse Converter (AK-04)

Description: Pulse converter (Model AK-04) + I/O e-CON connector

Use the pulse converter when the pulse output for the host controller is open-collector specification.

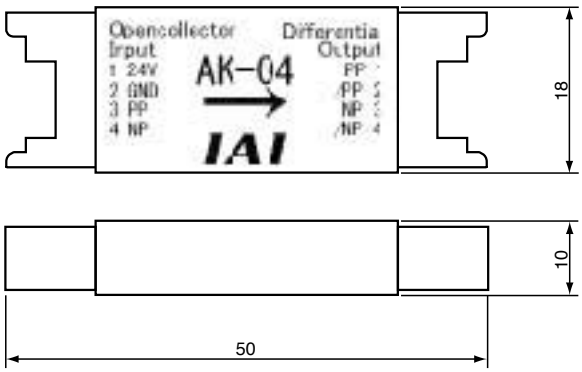
The converter is used to convert the command pulse to differential mode when the host controller is open-collector specification. Converting to differential mode enhances the noise resistance.

Output is 2-phase worth of line-driver 26C31 equivalent of differential output.

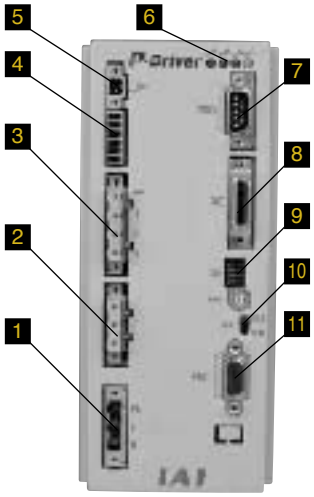
I/O connector is the field-wiring ready, easy e-CON connector.

Standard specification

- Input power supply : DC24V±10% (MAX50mA)
- Pulse input : Open-collector (collector current MAX12mA)
- Input frequency : 200kHz or less
- Pulse output : 26C31 equivalent differential output (MAX10mA)
- External dimensions : See the dimension to the right (without cable connector)
- Weight : 10g or less (without cable connector)
- Accessories : e-CON I/O connector 3M 37104-3122-000FL
  (Applicable electric wires: AWG No.24~26, 0.14~0.3mm² or less
  Final external dimension Ø1.0~1.2mm)



11 Name of Each Part



1 Main power input connector
Connect the power supply.

2 Regeneration resistor unit connector
Connect a regeneration resistor unit (optional).

3 Motor cable connector
Connect the actuator's motor cable.

4 Actuator-sensor input connector
Connect the actuator's LS, CREEP or OT sensor cable, etc. (optional).

5 Power input connector for electromagnetic brake
Connect the power supply for electromagnetic brake. (The electromagnetic brake requires an external power supply.)

6 Status indicators (LEDs)
These LEDs are used to monitor the operating condition of the controller.

7 Communication connector
Connect the PC software cable.

8 I/O signal connector
Connect the control I/O signals.

9 System setting switch
A switch for encoder voltage switching and remote update. (The rotary switch is used by IAI for adjustment.)

10 Brake release switch
A switch for forcibly releasing the brake.

11 Encoder cable connector
Connect the actuator's encoder cable.

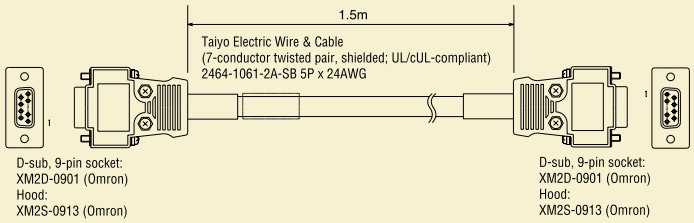
12 Options

PC Software

Model **PDR-101-MW**

Description

Floppy disk, PC connection cable (1.5m) (cable model: CB-ST-SIO015)
Use this software to set P-Driver parameters, perform jogging during debugging operation, monitor various signals, and so on.



Wiring Diagram

Controller end
XM2D-0901

Wire	Color	Signal	No.
			1
AWG24 x 7 conductors	Orange with black dot	RD	2
	Orange with red dot	SD	3
	Vinyl wire	ER	4
	Yellow with black dot	SG	5
	(Shorted)	DR	6
	Vinyl wire	RS	7
	(Shorted)	CS	8
			9

PC end
XM2D-0901

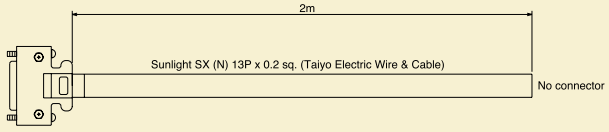
No.	Signal	Color	Wire
1			
2	TXD	Orange with black dot	
3	RXD	Orange with red dot	
4	DTR	Vinyl wire	
5	SG	Yellow with black dot	AWG24 x 7 conductors
6	DSR	(Shorted)	
7	RTS	Vinyl wire	
8	CTS	(Shorted)	
9			

External I/O Cable

Model **CB-PD-PIOS020**

Description

Plug + shell + shielded cable (2m) (no connector)
Use this cable for connection with a pulse output device.



Plug: 10126-3000VE (Sumitomo 3M)
Shell: 10326-52A0-008 (Sumitomo 3M)

Wiring Diagram

Note 1: Twisted pair

10126-3000VE

Wire	Color	Signal	No.	
0.2 sq., soldered	Black	COM-A	1	Black
	White/Black	COM-A	2	White/Black
	Red	SRDY	3	Red
	White/Red	RUN	4	White/Red
	Green	INP	5	Green
	White/Green	ORGR	6	White/Green
	Yellow	TLR	7	Yellow
	White/Yellow	ALM	8	White/Yellow
	Brown	SON	9	Brown
	White/Brown	RES	10	White/Brown
	Blue	ORGC	11	Blue
	White/Blue	TL	12	White/Blue
	Gray	CSTP	13	Gray
	White/Gray	COM-B	14	White/Gray
	Orange	NP	15	Orange
	White/Orange	/NP	16	White/Orange
	Purple	PP	17	Purple
	White/Purple	/PP	18	White/Purple
	Light Green	AFB	19	Light Green
	White/Light Green	/AFB	20	White/Light Green
	Pink	BFB	21	Pink
	White/Pink	/BFB	22	White/Pink
	Light Blue	ZFB	23	Light Blue
	White/Light Blue	/ZFB	24	White/Light Blue
	White	GND	25	White
	Black/White	GND	26	Black/White

Connect the shield wire to a cable clamp.

Note 1
No-connector end
Shielded wire

Regeneration Unit

Model **REU-1**

Description

This unit converts to heat the regenerative current generated when the motor decelerates. A regeneration resistor is provided inside the controller, but its capacity may not be sufficient when a large load is applied to the vertical axis. In this case, this optional unit is required. (Refer to the table below.)

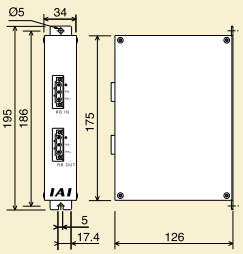
Specification

Item	Specification
Dimensions	W34mm x H195mm x D126mm
Weight	0.9kg
Built-in regeneration resistor	220Ω 80W
Accessory	Controller link cable (model: CB-ST-REU010), 1m

Installation Standards

Motor output	Horizontal use	Vertical use
0~150W	Not required.	Not required.
200~600W		1 unit is required.
750W		2 units are required.

* The above are reference settings assuming the rated conditions (load capacity, speed and acceleration).



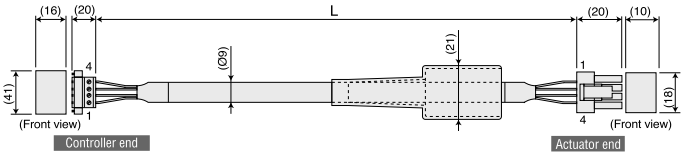
9 Service Parts

Motor Cable (Single-Axis Robot Connection)

Model **CB-X-MA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).

Compatible actuators: DS/DSCR/ISP/IS/ISD/IF/FS/SS/SSCR/ISPDCR/ISDCR/ISDCR-ESD/RS



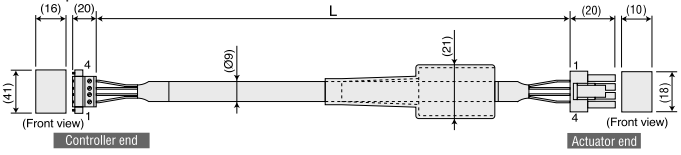
Wire	Color	Signal	No.		No.	Signal	Color	Wire
0.75 sq	Green	PE	1		1	U	Red	0.75 sq (Crimp)
	Red	U	2		2	V	White	
	White	V	3		3	W	Black	
	Black	W	4		4	PE	Green	

Motor Cable (Robo Cylinder Connection)

Model **CB-RCC-MA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).

Compatible actuators: RCS-SS/SM/SSR/SMR/RA55/RB7530/RB7535/F55/G20/R10/R20/R30



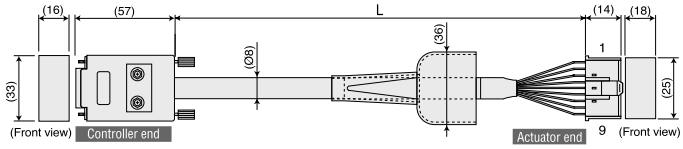
Wire	Color	Signal	No.		No.	Signal	Color	Wire
0.75 sq	Green	PE	1		1	U	Red	0.75 sq (Crimp)
	Red	U	2		2	V	White	
	White	V	3		3	W	Black	
	Black	W	4		4	PE	Green	

Encoder Cable (Single-Axis Robot Connection)

Model **CB-X-PA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).

Compatible actuators: DS/DSCR/ISP/IS/ISD/IF/FS/SS/SSCR/ISPDCR/ISDCR/ISDCR-ESD/RS



Wire	Color	Signal	No.		No.	Signal	Color	Wire
0.15 sq (Crimp)	-	-	1		1	BAT+	Black	0.15 sq (Crimp)
	-	-	2		2	BAT-	Yellow	
	-	-	3		3	SD	Blue	
	-	-	4		4	$\overline{SD}$	Orange	
	-	-	5		5	VCC	Green	
	-	-	6		6	GND	Brown	
	Blue	SD	7		7	FG	Ground	
	Orange	$\overline{SD}$	8		8	BK-	Gray	
	Black	BAT+	9		9	BK+	Red	
	Yellow	BAT-	10					
	Green	VCC	11					
	Brown	GND	12					
	Gray	BK-	13					
	Red	BK+	14					
	-	-	15					

Connect the shielded wire to the hood using a clamp.

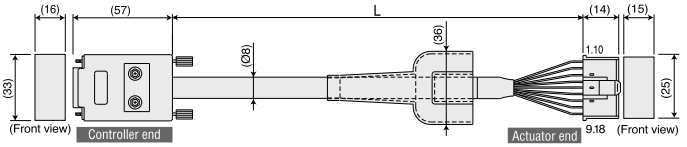
Ground wire and shielded wire, braided

Encoder Cable (Robo Cylinder Connection)

Model **CB-RCBC-PA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).

Compatible actuators: RCS-SS/SM/SSR/SMR/RA55/RB7530/RB7535/F55/G20/R10/R20/R30



Wire	Color	Signal	No.		No.	Signal	Color	Wire
0.15 sq (Crimp)	Pink	A/U	1		1	A/U	Pink	0.15 sq (Crimp)
	Purple	$\overline{A/U}$	2		2	$\overline{A/U}$	Purple	
	White	B/V	3		3	B/V	White	
	Blue/Red	$\overline{B/V}$	4		4	$\overline{B/V}$	Blue/Red	
	Orange/White	Z/W	5		5	Z/W	Orange/White	
	Green/White	$\overline{Z/W}$	6		6	$\overline{Z/W}$	Green/White	
	Blue	SD	7		7	-	-	
	Orange	$\overline{SD}$	8		8	-	-	
	Black	BAT+	9		9	FG	Ground	
	Yellow	BAT-	10		10	SD	Blue	
	Green	VCC	11		11	$\overline{SD}$	Orange	
	Brown	GND	12		12	BAT+	Black	
	Gray	BK-	13		13	BAT-	Yellow	
	Red	BK+	14		14	VCC	Green	
	-	-	15		15	GND	Brown	
					16	-	-	
					17	BK-	Gray	
					18	BK+	Red	

Connect the shielded wire to the hood using a clamp.

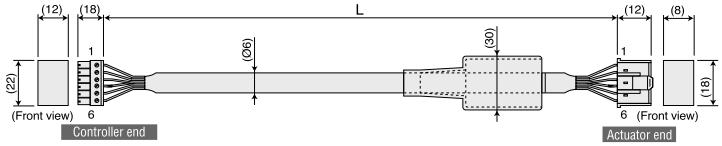
Ground wire and shielded wire, braided

Limit Switch Cable (Single-Axis Robot/Robo Rotary Connection)

Model **CB-X-LC□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).

Compatible actuators: ISP/IS/IF/ISPDCR/RS/R10/R20/R30



Wire	Color	Signal	No.		No.	Signal	Color	Wire
AWG24	Light Blue	24VOUT	6		1	24VOUT	Light Blue	AWG24 (Crimp)
	Pink	N	5		2	N	Pink	
	Grass	LS	4		3	LS	Grass	
	Orange	CREEP	3		4	CREEP	Orange	
	Gray	OT	2		5	OT	Gray	
	1B/Light Blue	RSV	1		6	RSV	1B/Light Blue	

Note) "1B" indicates one black dot mark.

X-SEL High-Function Multi-Axes Controller

Operating method programs	Program operation
Number of storable programs	64 programs (6000 steps)
Number of storable positions	3000 positions selectable
Supply voltage	AC100V/200V, selectable

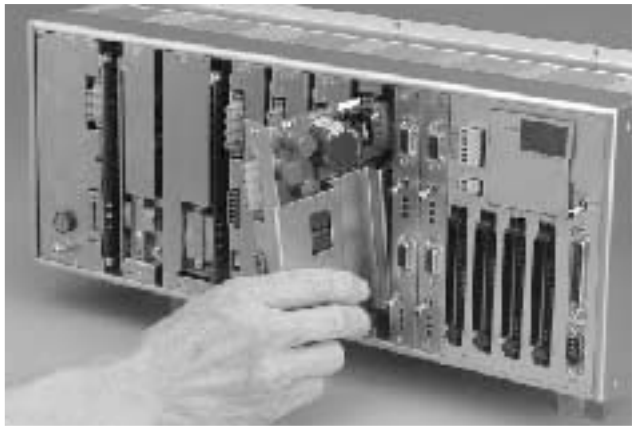
1 Features

1 All-in-One Controller Featuring a Newly Developed, Fully Programmable Digital Servo Driver

The driver is equipped with a newly developed, fully programmable digital servo driver supporting a 17-bit serial encoder.
Acceleration/deceleration performance, which is significantly higher than the conventional model (E/G type), reduces tact time.
This all-in-one controller with a built-in driver requires no driver connection, making installation easier.

2 Easy Maintenance

All boards can be replaced simply by removing the front panel.
The X-SEL ensures prompt, thorough maintenance and service.



3 Enhanced Safety Function Backed by CE Mark

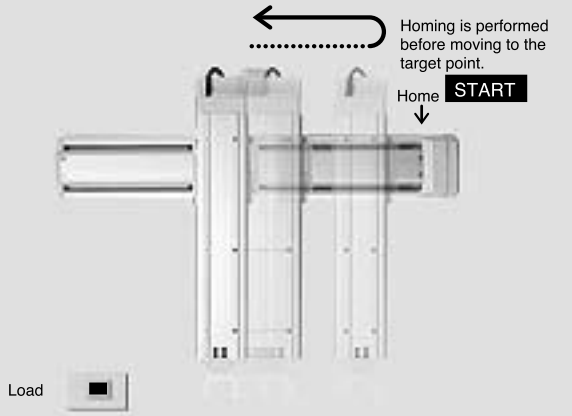
The X-SEL controller system protects your equipment with various RAS functions.
Safety is enhanced by a function that cuts off the motor drive power upon an emergency stop or error, a noise elimination feature, etc.
We offer models conforming to the “CE Mark” international safety standard. *

* Please contact IAI if you require a CE-compliant specification.

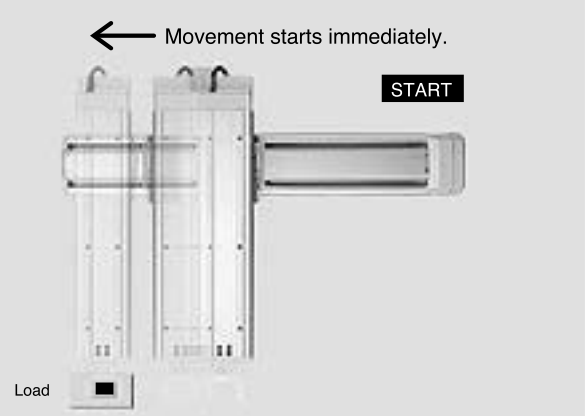
4 Greater Operating Efficiency with Support for Absolute Encoder

The X-SEL supports a 17-bit absolute encoder for rotation data backup, so homing is no longer required when starting your equipment or upon reset following an emergency stop.
The X-SEL saves setup time in the morning or reset time in operations requiring frequent stops, thereby improving efficiency.

Incremental

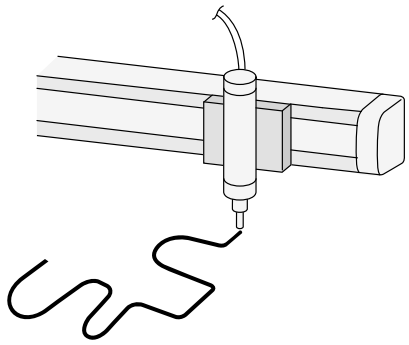


Absolute



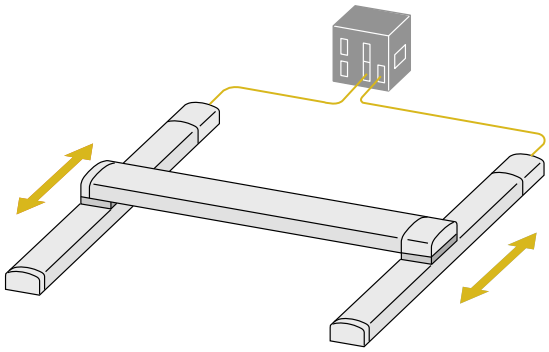
5 Significantly Higher Trace Accuracy

The higher processing speed of the X-SEL controller facilitates a significant improvement in trace accuracy.
The speed of path and arc movement has also increased, allowing for faster, more accurate coating operation.



6 Synchronized Operation

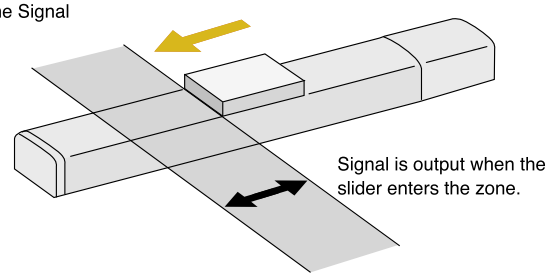
The operations of two actuators can be synchronized, allowing for the transfer of load weighing more than the load capacity of a single axis. The synchronized operation function is also useful when a gantry-type model is used with an extended Y-axis. (Certain conditions apply, so please consult with IAI.)



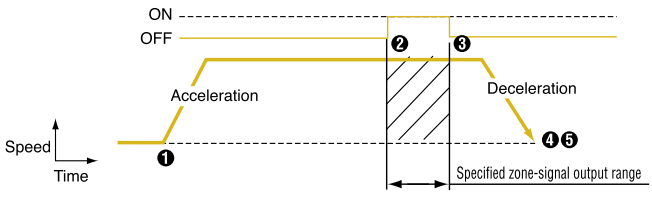
7 Zone Signal

The zone signal function lets you set a desired range (zone) between the stroke limits and cause a signal to be output when the slider enters the specified range. Use this function to provide an interlock, or to synchronize operation, with peripheral equipment. A maximum of four ranges (zones) can be set.

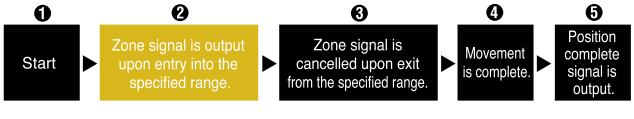
■Zone Signal



■Zone Signal Output



■Zone Operation

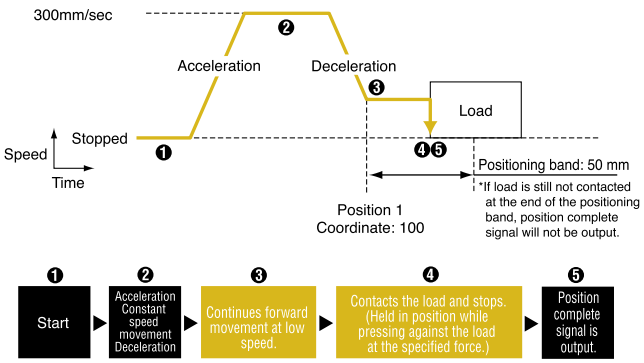


8 Push & Hold Operation

The slider can be held in position while pressing against the load, as in similar operations achieved with an air cylinder.
This function lets the user easily handle various operations such as applying pressure, clamping and press-fitting works.

The presence/absence of load is detected by setting the controller in such a way that a signal will be output upon contact with a load.

■Example of Push & Hold Operation



9 Significantly Larger Program Data Capacity

6000 programmable steps (largest in its class)
3000 position points
Additionally, up to 16 tasks can be executed simultaneously, easily accommodating complex controls and multi-variety work processes.

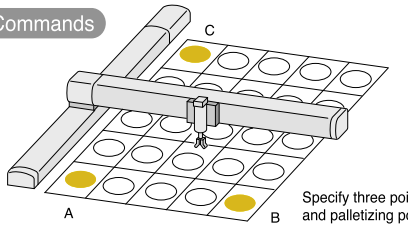
10 Supporting Pseudo-Ladder Task

Ladder tasks, similar to those generated by a PLC, can be constructed in a program (ladder mnemonic).
Since the extended conditions of AND and OR blocks are supported not only in ladder tasks but in all programs as well, so that even complex conditions are handled easily.

11 Many New Program Commands
E/G Type 111 Commands → X-SEL 183 Commands

Many new commands have been added to the Super SEL language, which is known for its ability to generate complex control programs with ease.

Examples of Additional Commands
- Palletizing command
- Arch motion command
- Spline command, and many more



Specify three points (A, B and C) and desired counts, and palletizing points will be set automatically.

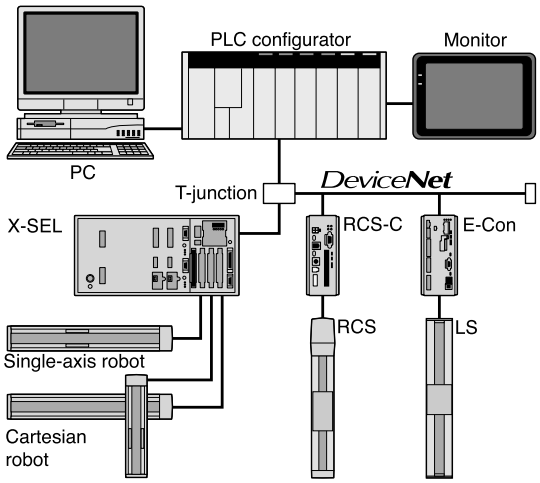
12 Variable Extension and Symbol Definition

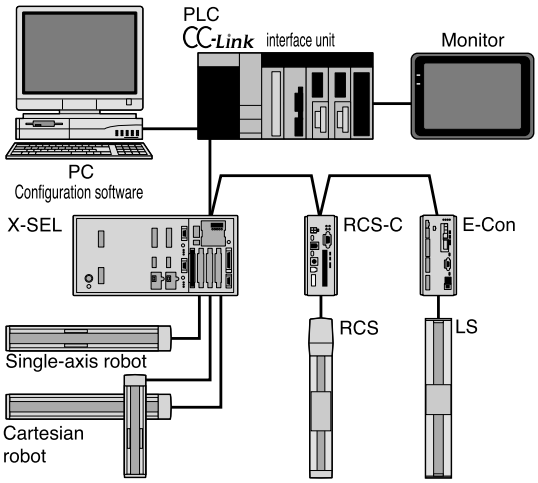
The number of variables that can be used in a program has been doubled from 100 to 200.
Additionally, variables, I/O ports, flags and points can now be assigned symbols (names), making it much easier to review the program.

13 Supporting Various Field Networks

The X-SEL supports leading field networks such as DeviceNet, CC-Link, ProfiBus and Ethernet.

(Note) DeviceNet is a registered trademark of ODVA.
CC-Link is a registered trademark of Mitsubishi Electric Corporation.





2 Features

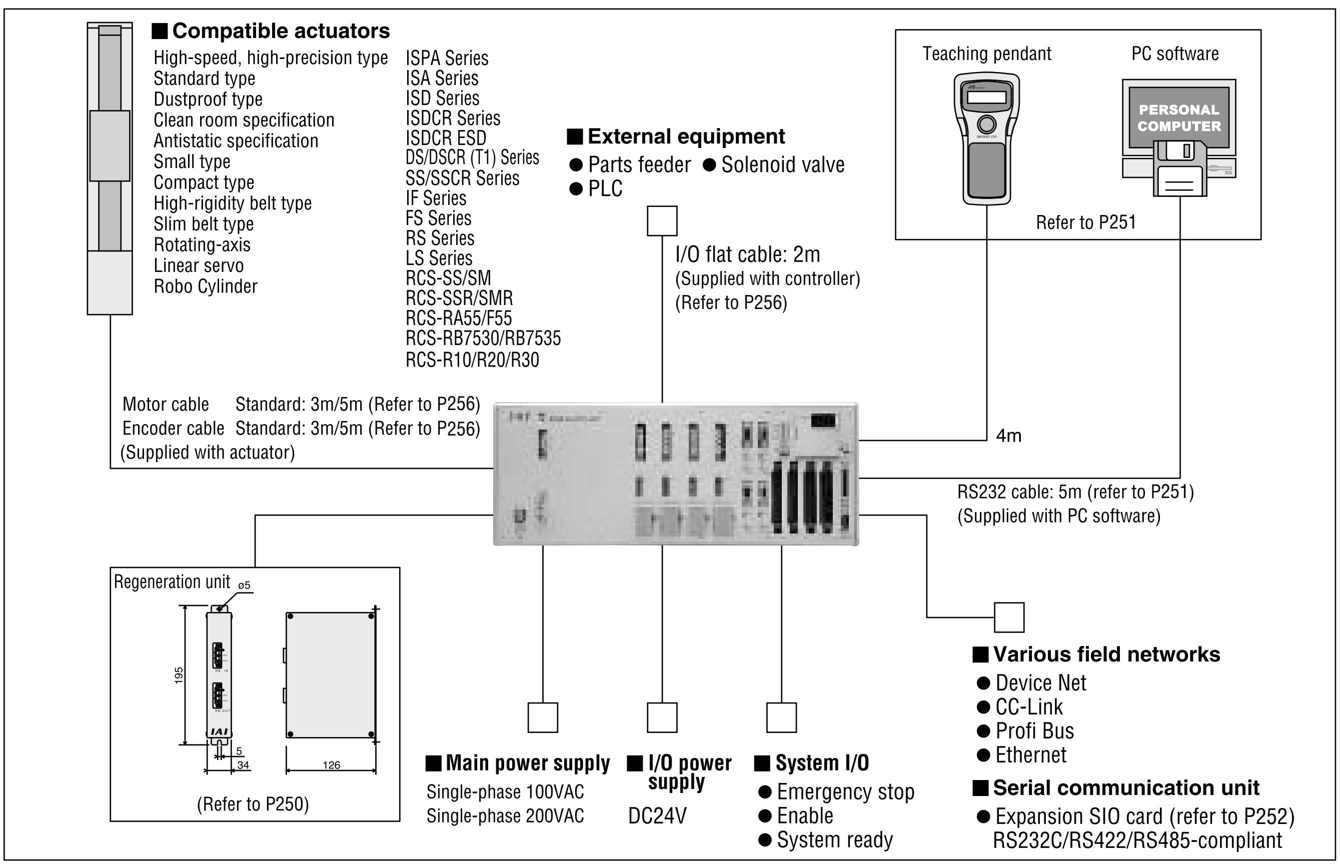
XSEL - K - 3 - 400A - 200ICL - 60IBL - N1 - EEE - 2 - 2

❶ ❷ ❸ ❹(Axis 1) ❹(Axis 2) ❹(Axis 3) ❺ ❻ ❼ ❽

❶ Series	❷ Controller type	❸ Number of axes	❹ Axis 1 to Axis 4 details: Motor output	Encoder type	Brake	Creep	Home sensor (LS)	Synchronization designation	❺ Standard I/O details: Slot 1	❻ Expansion I/O slots (Note 1): Slot 1	Slot 2	Slot 3	❼ I/O flat cable length (Note 2)	❽ Supply voltage
XSEL	J (Compact type) K (General-purpose type) KE (CE-compliant) KT (Global specification) KET (CE-compliance Global specification)	1 (1 axis) 2 (2 axes) 3 (3 axes) 4 (4 axes)	20 (20W) 30D (30W for DS) 30R (RS for 30W) 60 (60W) 100 (100W) 150 (150W) 200 (200W) 300 (300W) 400 (400W) 600 (600W) 750 (750W)	I (Incremental) A (Absolute)	Not specified (Without brake) B (With brake)	Not specified (Without creep sensor) C (With creep sensor)	Not specified (Without home sensor) L (With home sensor)	Not specified (No synchronization) M (Master-axis designation) S (Slave-axis designation)	N1 [32 inputs/16 outputs NPN board] N3 (Note 3) [48 inputs/48 outputs NPN board] P1 [32 inputs/16 outputs PNP board] P3 (Note 3) [48 inputs/48 outputs PNP board] DV [DeviceNet 256/256 board] CC [CC-Link 256/256 board] PR [ProfiBus 256/256 board] ET [Ethernet Data communi-cation board]	E (Not used) C (Note 4) [CC-Link connection 16/16 board] N1 [Expansion I/O NPN32/16] N2 [Expansion I/O NPN16/32] N3 (Note 4) [Multipoint I/O NPN48/48] P1 [Expansion I/O PNP32/16] P2 [Expansion I/O PNP16/32] P3 (Note 4) [Multipoint I/O PNP48/48] SA (Note 4) [Expansion SIO Type A] SB (Note 4) [Expansion SIO Type B] SC (Note 4) [Expansion SIO Type C]	E (Not used) C (Note 4) [CC-Link connection 16/16 board] N1 [Expansion I/O NPN32/16] N2 [Expansion I/O NPN16/32] N3 (Note 4) [Multipoint I/O NPN48/48] P1 [Expansion I/O PNP32/16] P2 [Expansion I/O PNP16/32] P3 (Note 4) [Multipoint I/O PNP48/48] SA (Note 4) [Expansion SIO Type A] SB (Note 4) [Expansion SIO Type B] SC (Note 4) [Expansion SIO Type C]	E (Not used) C (Note 4) [CC-Link connection 16/16 board] N1 [Expansion I/O NPN32/16] N2 [Expansion I/O NPN16/32] N3 (Note 4) [Multipoint I/O NPN48/48] P1 [Expansion I/O PNP32/16] P2 [Expansion I/O PNP16/32] P3 (Note 4) [Multipoint I/O PNP48/48] SA (Note 4) [Expansion SIO Type A] SB (Note 4) [Expansion SIO Type B] SC (Note 4) [Expansion SIO Type C]	2:2m (Standard) 3:3m 5:5m 0: None	1:100V 2:200V

(Note 1) The J-type 1/2-axis models have no expansion slot, so enter EEE. Similarly, the J-type 3/4-axes models have only one expansion slot, so enter □EE. Refer to page 140 for the types of boards that can be installed.
(Note 2) The standard I/O, expansion I/O (50-conductor type) and multipoint I/O (100-conductor type) boards come with an I/O flat cable. The standard cable length for standard and expansion I/O boards is 2 m, but you can also specify 3 or 5 m.
The maximum cable length is 10 m, but if you need a cable of any length other than 2, 3 or 5 m, enter "0 (None)" here and order an optional I/O flat cable by specifying a length.
If you have selected a board other than the standard I/O, expansion I/O and multipoint I/O boards, enter "0 (None)" here.
(Note 3) Used exclusively with the J (compact) type. Use an expansion N3 or P3 board for the K (general-purpose) type.
(Note 4) Used exclusively with the K (general-purpose) type. C, SA, SB and SC cannot be specified for the J (compact) type.

3 System Configuration Diagram

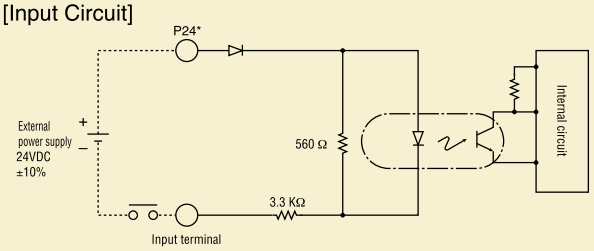


4 I/O Wiring

Input Part External input specification (NPN specification)

Item	Specification
Input power supply	DC24V ±10%
Input voltage	7mA/point
ON/OFF voltage	ON voltage --- Min DC16.0V OFF voltage --- Max DC5.0V
Insulation method	Photocoupler insulation
External equipment	①No-voltage contact (minimum load, approx. 5VDC/1mA) ②Photoelectric/proximity sensor (NPN type) ③Sequencer transistor output (open-collector type) ④Sequencer contact output (minimum load, approx. 5VDC/1mA)

[Input Circuit]



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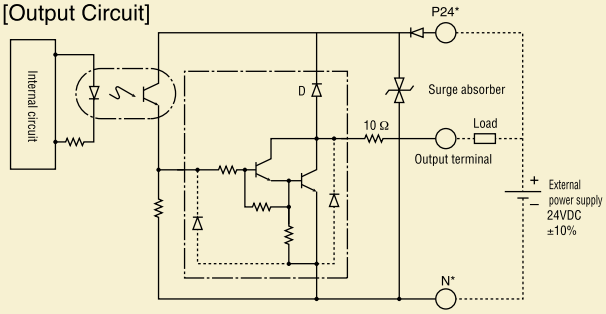
	K (general-purpose) type	J (compact) type
P24	I/O 24-V connector 24VIN	I/O interface pin No. 1

Output Part External output specification (NPN specification)

Item	Specification	
Load voltage	DC24V	Use TD62084 (or equivalent)
Maximum load current	100mA/point, 400mA Peak (total current)	
Leak current	Max. 0.1mA/point	
Insulation method	Photocoupler insulation	
External equipment	①Miniature relay ②Sequencer input unit	

[Output Circuit]



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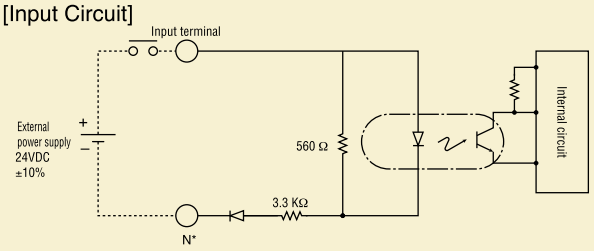
	K (general-purpose) type	J (compact) type
P24	I/O 24-V connector 24VIN	I/O interface pin No. 1
N	I/O 24-V connector 0V	I/O interface pin No. 50

Input Part External input specification (PNP specification)

Item	Specification
Input power supply	DC24V ±10%
Input voltage	7mA/point
ON/OFF voltage	ON voltage --- Max DC8V OFF voltage --- Min DC19V
Insulation method	Photocoupler insulation
External equipment	①No-voltage contact (minimum load, approx. 5VDC/1mA) ②Photoelectric/proximity sensor (PNP type) ③Sequencer transistor output (open-collector type) ④Sequencer contact output (minimum load, approx. 5VDC/1mA)

[Input Circuit]



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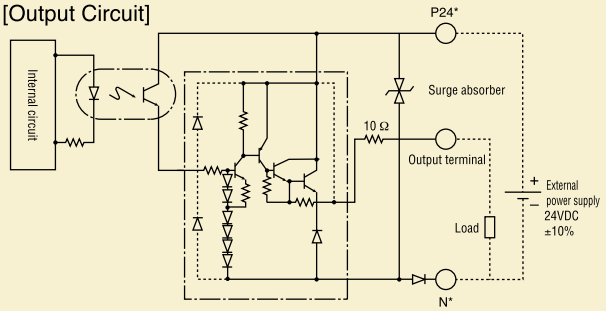
	K (general-purpose) type	J (compact) type
N	I/O 24-V connector 0VIN	I/O interface pin No. 50

Output Part External output specification (PNP specification)

Item	Specification	
Load voltage	DC24V	Use TD62784 (or equivalent)
Maximum load current	100mA/point 400mA/8 ports Note)	
Leak current	Max. 0.1mA/point	
Insulation method	Photocoupler insulation	
External equipment	①Miniature relay ②Sequencer input unit	

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

[Output Circuit]



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	K (general-purpose) type	J (compact) type
P24	I/O 24-V connector 24VIN	I/O interface pin No. 1
N	I/O 24-V connector 0VIN	I/O interface pin No. 50

5 I/O Signal Table

Standard I/O Signal Table

Pin No.	Category	Port No.	Standard setting
1		–	(J type: Connected to 24V / 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	Input	015	General-purpose input
18		016	General-purpose input
19		017	General-purpose input
20		018	General-purpose input
21		019	General-purpose input
22		020	General-purpose input
23		021	General-purpose input
24		022	General-purpose input
25		023	General-purpose input
26		024	General-purpose input
27		025	General-purpose input
28		026	General-purpose input
29		027	General-purpose input
30		028	General-purpose input
31		029	General-purpose input
32		030	General-purpose input
33		031	General-purpose input
34		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	Output	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		–	(J type: Connected to 0V / K type: NC)

Expansion I/O Signal Table (IA-103-X-32)

Pin No.	Category	Port No.	Standard setting
1		–	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	Input		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			General-purpose input
33			General-purpose input
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	Output		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	–	–	NC

Expansion I/O Signal Table (IA-103-X-16)

Pin No.	Category	Port No.	Standard setting
1		–	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	Input		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			General-purpose output
32			General-purpose output
33			General-purpose output
34	Output		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	–	–	NC

Multipoint I/O Signal Table (J type: Installed in standard slot)

Cable 1

Pin No.	Category	Color	Port No.	Standard setting
1	–	Brown-1	–	Externally supplied 24-VDC power For pin Nos. 2 through 25 and 51 through 74
2		Red-1	000	Program start
3		Orange-1	001	General-purpose input
4		Yellow-1	002	General-purpose input
5		Green-1	003	General-purpose input
6		Blue-1	004	General-purpose input
7		Purple-1	005	General-purpose input
8		Gray-1	006	General-purpose input
9		White-1	007	Program specification (PRG No. 1)
10		Black-1	008	Program specification (PRG No. 2)
11		Brown-2	009	Program specification (PRG No. 4)
12		Red-2	010	Program specification (PRG No. 8)
13		Orange-2	011	Program specification (PRG No. 10)
14	Input	Yellow-2	012	Program specification (PRG No. 20)
15		Green-2	013	Program specification (PRG No. 40)
16		Blue-2	014	General-purpose input
17		Purple-2	015	General-purpose input
18		Gray-2	016	General-purpose input
19		White-2	017	General-purpose input
20		Black-2	018	General-purpose input
21		Brown-3	019	General-purpose input
22		Red-3	020	General-purpose input
23		Orange-3	021	General-purpose input
24		Yellow-3	022	General-purpose input
25		Green-3	023	General-purpose input
26	–	Blue-3	–	Externally supplied 24-VDC power For pin Nos. 27 through 50 and 76 through 99
27		Purple-3	024	General-purpose input
28		Gray-3	025	General-purpose input
29		White-3	026	General-purpose input
30		Black-3	027	General-purpose input
31		Brown-4	028	General-purpose input
32		Red-4	029	General-purpose input
33		Orange-4	030	General-purpose input
34		Yellow-4	031	General-purpose input
35		Green-4	032	General-purpose input
36		Blue-4	033	General-purpose input
37		Purple-4	034	General-purpose input
38		Gray-4	035	General-purpose input
39	Input	White-4	036	General-purpose input
40		Black-4	037	General-purpose input
41		Brown-5	038	General-purpose input
42		Red-5	039	General-purpose input
43		Orange-5	040	General-purpose input
44		Yellow-5	041	General-purpose input
45		Green-5	042	General-purpose input
46		Blue-5	043	General-purpose input
47		Purple-5	044	General-purpose input
48		Gray-5	045	General-purpose input
49		White-5	046	General-purpose input
50		Black-5	047	General-purpose input

Cable 2

Pin No.	Category	Color	Port No.	Standard setting
51		Brown-1	300	Alarm output
52		Red-1	301	Ready output
53		Orange-1	302	Emergency-stop output
54		Yellow-1	303	General-purpose output
55		Green-1	304	General-purpose output
56		Blue-1	305	General-purpose output
57		Purple-1	306	General-purpose output
58		Gray-1	307	General-purpose output
59		White-1	308	General-purpose output
60		Black-1	309	General-purpose output
61		Brown-2	310	General-purpose output
62	Output	Red-2	311	General-purpose output
63		Orange-2	312	General-purpose output
64		Yellow-2	313	General-purpose output
65		Green-2	314	General-purpose output
66		Blue-2	315	General-purpose output
67		Purple-2	316	General-purpose output
68		Gray-2	317	General-purpose output
69		White-2	318	General-purpose output
70		Black-2	319	General-purpose output
71		Brown-3	320	General-purpose output
72		Red-3	321	General-purpose output
73		Orange-3	322	General-purpose output
74		Yellow-3	323	General-purpose output
75	–	Green-3	–	Externally supplied 0-VDC power For pin Nos. 2 through 25 and 51 through 74
76		Blue-3	324	General-purpose output
77		Purple-3	325	General-purpose output
78		Gray-3	326	General-purpose output
79		White-3	327	General-purpose output
80		Black-3	328	General-purpose output
81		Brown-4	329	General-purpose output
82		Red-4	330	General-purpose output
83		Orange-4	331	General-purpose output
84		Yellow-4	332	General-purpose output
85		Green-4	333	General-purpose output
86		Blue-4	334	General-purpose output
87	Output	Purple-4	335	General-purpose output
88		Gray-4	336	General-purpose output
89		White-4	337	General-purpose output
90		Black-4	338	General-purpose output
91		Brown-5	339	General-purpose output
92		Red-5	340	General-purpose output
93		Orange-5	341	General-purpose output
94		Yellow-5	342	General-purpose output
95		Green-5	343	General-purpose output
96		Blue-5	344	General-purpose output
97		Purple-5	345	General-purpose output
98		Gray-5	346	General-purpose output
99		White-5	347	General-purpose output
100	–	Black-5	–	Externally supplied 0-VDC power For pin Nos. 27 through 50 and 76 through 99

Multipoint I/O Signal Table (K type: Installed in expansion slot)

Cable 1

Pin No.	Category	Color	Port No.	Standard setting
1	–	Brown-1	–	Externally supplied 24-VDC power For pin Nos. 2 through 25 and 51 through 74
2		Red-1	032	General-purpose input
3		Orange-1	033	General-purpose input
4		Yellow-1	034	General-purpose input
5		Green-1	035	General-purpose input
6		Blue-1	036	General-purpose input
7		Purple-1	037	General-purpose input
8		Gray-1	038	General-purpose input
9		White-1	039	General-purpose input
10		Black-1	040	General-purpose input
11		Brown-2	041	General-purpose input
12		Red-2	042	General-purpose input
13		Orange-2	043	General-purpose input
14	Input	Yellow-2	044	General-purpose input
15		Green-2	045	General-purpose input
16		Blue-2	046	General-purpose input
17		Purple-2	047	General-purpose input
18		Gray-2	048	General-purpose input
19		White-2	049	General-purpose input
20		Black-2	050	General-purpose input
21		Brown-3	051	General-purpose input
22		Red-3	052	General-purpose input
23		Orange-3	053	General-purpose input
24		Yellow-3	054	General-purpose input
25		Green-3	055	General-purpose input
26	–	Blue-3	–	Note) (DC24V)
27		Purple-3	056	General-purpose input
28		Gray-3	057	General-purpose input
29		White-3	058	General-purpose input
30		Black-3	059	General-purpose input
31		Brown-4	060	General-purpose input
32		Red-4	061	General-purpose input
33		Orange-4	062	General-purpose input
34		Yellow-4	063	General-purpose input
35		Green-4	064	General-purpose input
36		Blue-4	065	General-purpose input
37		Purple-4	066	General-purpose input
38	Input	Gray-4	067	General-purpose input
39		White-4	068	General-purpose input
40		Black-4	069	General-purpose input
41		Brown-5	070	General-purpose input
42		Red-5	071	General-purpose input
43		Orange-5	072	General-purpose input
44		Yellow-5	073	General-purpose input
45		Green-5	074	General-purpose input
46		Blue-5	075	General-purpose input
47		Purple-5	076	General-purpose input
48		Gray-5	077	General-purpose input
49		White-5	078	General-purpose input
50		Black-5	079	General-purpose input

Cable 2

Pin No.	Category	Color	Port No.	Standard setting
51		Brown-1	316	General-purpose output
52		Red-1	317	General-purpose output
53		Orange-1	318	General-purpose output
54		Yellow-1	319	General-purpose output
55		Green-1	320	General-purpose output
56		Blue-1	321	General-purpose output
57		Purple-1	322	General-purpose output
58		Gray-1	323	General-purpose output
59		White-1	324	General-purpose output
60		Black-1	325	General-purpose output
61		Brown-2	326	General-purpose output
62		Red-2	327	General-purpose output
63	Output	Orange-2	328	General-purpose output
64		Yellow-2	329	General-purpose output
65		Green-2	330	General-purpose output
66		Blue-2	331	General-purpose output
67		Purple-2	332	General-purpose output
68		Gray-2	333	General-purpose output
69		White-2	334	General-purpose output
70		Black-2	335	General-purpose output
71		Brown-3	336	General-purpose output
72		Red-3	337	General-purpose output
73		Orange-3	338	General-purpose output
74		Yellow-3	339	General-purpose output
75	–	Green-3	–	Externally supplied 0-VDC power For pin Nos. 2 through 25 and 51 through 74
76		Blue-3	340	General-purpose output
77		Purple-3	341	General-purpose output
78		Gray-3	342	General-purpose output
79		White-3	343	General-purpose output
80		Black-3	344	General-purpose output
81		Brown-4	345	General-purpose output
82		Red-4	346	General-purpose output
83		Orange-4	347	General-purpose output
84		Yellow-4	348	General-purpose output
85		Green-4	349	General-purpose output
86		Blue-4	350	General-purpose output
87	Output	Purple-4	351	General-purpose output
88		Gray-4	352	General-purpose output
89		White-4	353	General-purpose output
90		Black-4	354	General-purpose output
91		Brown-5	355	General-purpose output
92		Red-5	356	General-purpose output
93		Orange-5	357	General-purpose output
94		Yellow-5	358	General-purpose output
95		Green-5	359	General-purpose output
96		Blue-5	360	General-purpose output
97		Purple-5	361	General-purpose output
98		Gray-5	362	General-purpose output
99		White-5	363	General-purpose output
100	–	Black-5	–	Note) (0V)

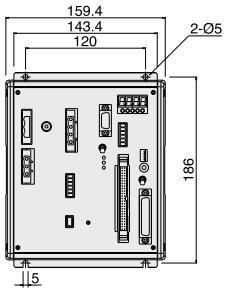
Note) Pin Nos. 26 (24 VDC) and 100 (0 V) are connected to the I/O 24-V power supply of the controller, so there is no need to supply power to these pins.

6 Specifications

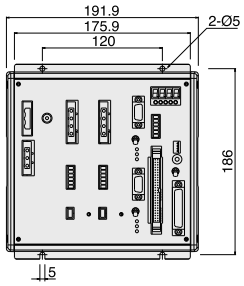
Item	Description							
Controller series/type	J (compact) type				K (general-purpose) type/KE (CE-compliant) type			
Compatible actuators	DS/DSCR/SS/ISA/ISPA/ISD/ISDCR/ISPDCR/SS/SSCR/IF/FS/RS/RCS(partial)/LS							
Applicable motor output (W)	20/30/60/100/150/200/300/400/600/750							
Number of controlled axis	1 axis	2 axes	3 axes	4 axes	1 axis	2 axes	3 axes	4 axes
Maximum output of connected axis (W)	Max 800 (Supply voltage: 200V) Max 400 (Supply voltage: 100V)				Max 800	Max 1600 (Supply voltage: 200V) Max 800 (Supply voltage: 100V)		
Power supply	100-V specification: Single-phase 100~115VAC 200-V specification: Single-phase 200~230VAC							
Power supply voltage range	±10%							
Power frequency	50Hz/60Hz							
Power capacity	Max 830VA		Max 1690VA	Max 1750VA	Max 830VA	Max 1570VA	Max 2310VA	Max 3050VA
Position detection method	17-bit incremental encoder (wire-saving type) 17-bit absolute encoder for rotation data backup (wire-saving type) (Control resolution: 14 bits for both encoders)							
Speed setting	1mm/s or more; upper limit determined by the actuator specification							
Acceleration setting	0.01G or more; upper limit determined by the actuator specification							
Program language	Super SEL language							
Number of programs	64 programs							
Number of program steps	6000 steps (total)							
Number of multitask programs	16 programs							
Number of positions	3000 positions							
Data storage device	FLASH ROM + SRAM battery backup							
Data input method	Teaching pendant or PC software							
Standard I/Os	32 points (dedicated inputs + general-purpose inputs) / 16 points (dedicated outputs + general-purpose outputs)							
Expanded I/Os	None		48 points/unit (1 unit can be added)		48 points/unit (Maximum of 3 units can be added)			
Serial communication function	RS232 port (D-sub, 25 pins) is installed as standard.				Standard RS232 port + Expansion SIO board can be installed (optional).			
Other I/Os	System I/O (emergency-stop input, enable input, system ready output)							
Protective functions	Motor overcurrent, overload, motor driver temperature check, overload check, encoder open detection, soft limit over, system error, battery error, etc.							
Operating temperature/humidity	Temperature: 0~40°C, humidity: 30~85%							
Operating environment	Not subject to corrosive gases or significant dust.							
Weight	2.6kg	3.3kg	5.0kg		6.0kg		7.0kg	
Accessory	I/O flat cable							

7 External Dimensions

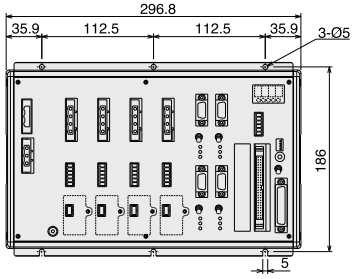
XSEL-J-1 (Compact, 1 axis)



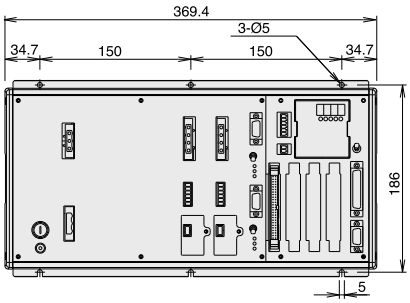
XSEL-J-2 (Compact, 2 axes)



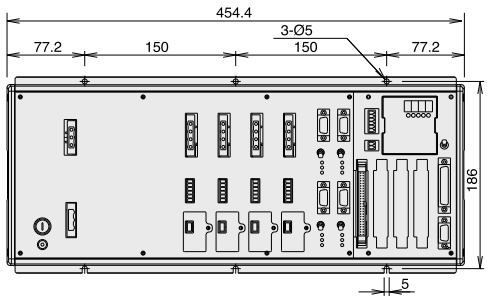
XSEL-J-3 (Compact, 3 axes)
XSEL-J-4 (Compact, 4 axes)

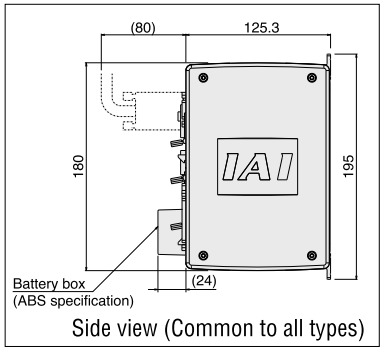


XSEL-K-1 (General-purpose, 1 axis)
XSEL-K-2 (General-purpose, 2 axes)



XSEL-K-3 (General-purpose, 3 axes)
XSEL-K-4 (General-purpose, 4 axes)

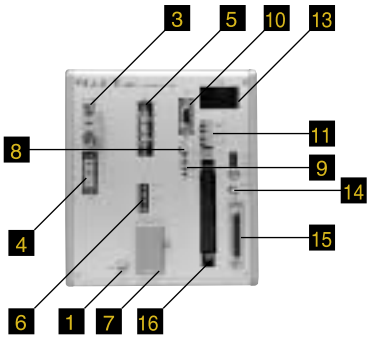




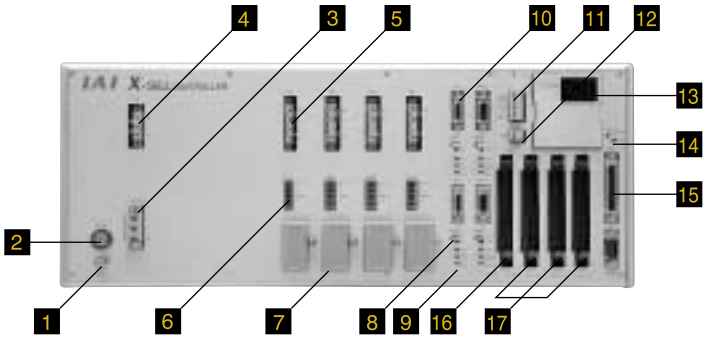
Side view (Common to all types)

8 Name of Each Part

J Type (Compact)



K Type (General-Purpose)



1 FG connection terminal

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

2 Fuse holder (K type only)

A half-cut fuse holder for overcurrent protection of the AC input part.

3 Main power input connector

A connector for 100/200-VAC single-phase input.
(A plug is attached on the cable end. Refer to page 139.)

4 Regeneration resistor unit connector

A connector for an optional regeneration resistor unit (REU-1), which will be used when the capacity of the built-in regeneration resistor is insufficient in high acceleration/high-load conditions, etc.

5 Motor cable connector

A connector for the actuator's motor power cable.

6 Actuator sensor input connector

A connector for the axis sensors such as LS, CREEP and OT.

7 Absolute data retention battery

A battery unit for encoder backup implemented when an absolute encoder is used. This connector is not used with a non-absolute axis.

8 Brake release switch (Brake specification only)

An alternate switch with lock for releasing the axis brake.
To operate the switch, pull it forward and then move.
Set the switch to RLS to forcibly release the brake, or set it to NOM to enable automatic control by the controller.

9 Axis driver status LEDs

These LEDs are used to monitor the operating status of the driver CPU that controls motor drive. The following three LEDs are available:

Name	Color	Meaning when the LED is lit
ALM	Orange	The driver has detected an error.
SVON	Green	The servo is ON and the motor is being driven.
BATT ALM	Orange	The absolute battery voltage is low.

10 Encoder cable connector

A 15-pin, D-sub connector for the actuator's encoder cable.

11 System I/O connector

A connector for three I/O signals including two controller-operation control inputs and one equipment status output. (A plug is attached on the cable end. Refer to page 139.)

Name		
EMG	Emergency-stop input	Operation is enabled when this signal is ON. An emergency stop will be actuated when the signal is turned OFF.
ENB	Safety gate input	Operation is enabled when this signal is ON. The servo will turn OFF when the signal is turned OFF.
RDY	System-ready relay output	Status output for this controller. Cascade connection is supported. Ready if shorted. Not ready if open.

12 I/O 24-V power connector (K type only)

A connector for externally supplying I/O power when DI/DOs are installed in the I/O part of 16 and 17 . (A plug is attached on the cable end. Refer to page 139.)

13 Panel window

The 4-digit, 7-segment LED and five LED lamps indicate the equipment status.

14 Mode switch

An alternate switch with lock for specifying the controller operation mode.
To operate the switch, pull it forward and then move.
Set the switch to MANU to enable the manual operation mode, or set it to AUTO to enable the automatic operation mode.
Teaching operation can only be performed in the MANU mode. In the MANU mode, automatic operation using external I/Os cannot be performed.

15 Teaching connector

A D-sub, 25-pin connector for inputting program positions from the connected teaching pendant or PC.

16 Standard I/O slot (Slot 1)

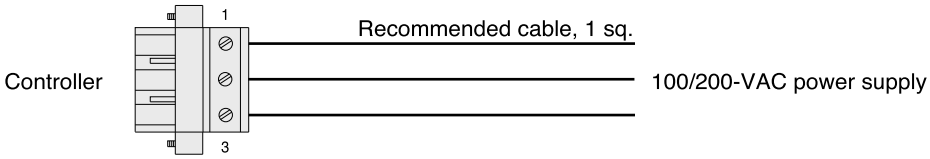
The controller comes standard with a 32-input/16-output PIO board.

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

Use these slots to install expansion I/O boards (optional).

Main Power Input Connector

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



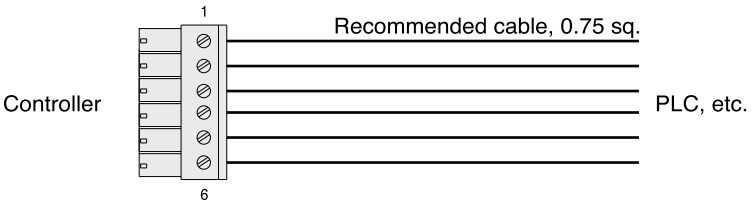
Plug: GMSTB2.5/3-STF-7.62 (Phoenix)

Wiring Diagram

Signal	No.
N	1
L	2
PE	3

System I/O Connector

This connector is used to connect the controller contacts for emergency stop, enable and system ready to a PLC, etc. (Cable is provided by the user.)



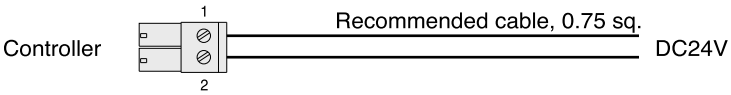
Plug: MC1.5/6-ST-3.5 (Phoenix)

Wiring Diagram

Singal	No.
RDY–	1
RDY+	2
ENBIN	3
ENB+24VOUT	4
EMGIN	5
EMG+24VOUT	6

I/O 24-V Power Connector

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



Plug: MC1.5/2-ST-3.5 (Phoenix)

Wiring Diagram

Singal	No.
0V	1
24VIN	2

9 Options

X-SEL Controller Options Table

			General-purpose type		Compact type	
			K	KE	J	
Item		Details	1 to 4 axes	CE-compliant	1 to 2 axes	3 to 4 axes
Teaching Pendant		Standard type	IA-T-X			
		With deadman switch	IA-T-XD			
		ANSI type	IA-T-XA		Cannot be used.	
PC Software		DOS/V version	IA-101-X-MW			
		PC-98 version	IA-101-X-CW			
Expansion I/O Board	PIO Board	Expansion PIO (32 inputs/16 outputs, NPN specification)	IA-103-X-32		Cannot be installed.	IA-103-X-32
		Expansion PIO (32 inputs/16 outputs, PNP specification)	IA-103-X-32-P		Cannot be installed.	IA-103-X-32-P
		Expansion PIO (16 inputs/32 outputs, NPN specification)	IA-103-X-16		Cannot be installed.	IA-103-X-16
		Expansion PIO (16 inputs/32 outputs, PNP specification)	IA-103-X-16-P		Cannot be installed.	IA-103-X-16-P
	SIO Board	Expansion SIO, type A (for RS232C)	IA-105-X-MW-A		Cannot be installed.	
		Expansion SIO, type B (for RS422C)	IA-105-X-MW-B			
		Expansion SIO, type C (for RS485C)	IA-105-X-MW-C			
	Network Board	DeviceNet (256 inputs/256 outputs, for installation in standard slot)	IA-NT-3204-DV		IA-NT-3206-DV	
		CC-Link (256 inputs/256 outputs, for installation in standard slot)	IA-NT-3204-CC256		IA-NT-3206-CC256	
		CC-Link (16 inputs/16 outputs, for installation in expansion slot)	IA-NT-3204-CC16		Cannot be installed.	
		ProfiBus (256 inputs/256 outputs, for installation in standard slot)	IA-NT-3204-PB		IA-NT-3206-PB	
		Ethernet (Data communication specification, for installation in standard slot)	IA-NT-3204-ET		IA-NT-3206-ET	
	Multipoint I/O Board	Multipoint I/O board (48 inputs/48 outputs, NPN specification)	IA-IO-3204-NP (Note 1)		IA-IO-3205-NP (Note 2)	
		Multipoint I/O board (48 inputs/48 outputs, PNP specification)	IA-IO-3204-PN (Note 1)		IA-IO-3205-PN (Note 2)	
		Terminal block for multipoint I/O board (NPN specification)	TU-MA96		Cannot be used.	
		Terminal block for multipoint I/O board (PNP specification)	TU-MA96-P		Cannot be used.	
Regeneration Resistor Unit			REU-1			
External Brake Box			IA-110-X-0			
Absolute Data Retention Battery			IA-XAB-BT			

(Note 1) Installed only in an expansion slot (Note 2) Installed only in the standard slot.

Regeneration Resistor Unit

Model **REU-1**

Description

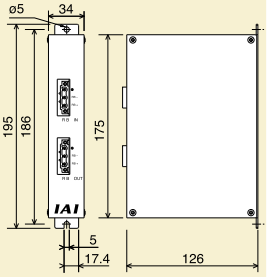
This unit converts to heat the regenerative current generated when the motor decelerates. A regeneration resistor is provided inside the controller, but its capacity may not be sufficient when a large load is applied to the vertical axis. In this case, this optional unit is required. (Refer to the table at bottom right.)

Specification

Item	Specification
Dimensions	W34mm x H195mm x D126mm
Weight	0.9kg
Built-in regeneration resistor	220Ω 80W
Accessory	Controller link cable (model: CB-ST-REU010), 1m

Installation Standards Determine the required number of units based on the total motor capacity for the connected vertical axes.

Total Z-axis motor capacity	K Type (General-Purpose)	J Type (Compact)
0 ~ 200W	Not required.	Not required.
~ 400W	Not required.	1 unit is required.
~ 600W	1 unit is required.	1 unit is required.
~ 800W	1 unit is required.	2 units are required.
~ 1200W	2 units are required.	——
~ 1600W	To be discussed separately.	——



Absolute Data Retention Battery

Model **IA-XAB-BT**

Features This battery is used with an absolute encoder for storing data. Replace the battery when a controller battery alarm is output.

Specification Integrated with case

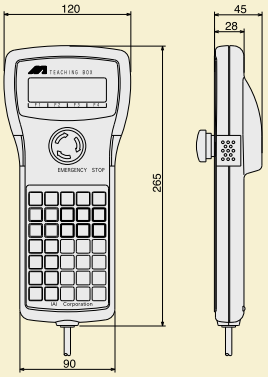
Simple Teaching Pendant

Model

IA-T-X (Standard)

IA-T-XD (With deadman switch)

Dimensions



Features

A teaching device with program/position input, test operation and monitoring functions.
The interactive-type panel ensures easy operation for anyone.
The deadman switch specification offering added safety is also available.

Specification

Items	Specification
Operating temperature, humidity	Temperature: 0~40°C, humidity: 85%RH or less
Operating environment	Not subject to corrosive gases or significant dust.
Weight	Approx. 650g
Cable length	4m
Display	20 characters x 4 lines, LCD

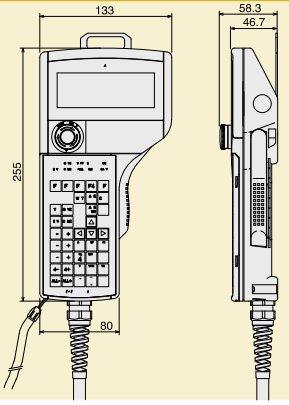
Caution
A product older than Ver. 1.08 cannot be used with the SCARA robot.

Teaching Pendant Conforming to ANSI/CE Mark Standards (General-Purpose Type Only)

Model

IA-T-XA

Dimensions



Features

This teaching pendant with a three-position enable switch conforms to the ANSI and CE Mark standards.
Using the large, interactive LCD screen, even a beginner can teach a robot easily and safely.

Specification

Items	Specification
Operating temperature, humidity	Temperature: 0~40°C, humidity: 30~85%RH or less (non-condensing)
Protection structure	IP54 (excluding cable connector)
Weight	600g or less (excluding cable)
Cable length	5m
Display	32 characters x 8 lines, LCD

PC Software (Windows Version Only)

Model

IA-101-X-MW (DOS/V version)

IA-101-X-CW (PC98 version)

Caution
A product older than Ver. 2.0.0.0 cannot be used with the SCARA robot.

Features

A support software with program/position data input, test operation and monitoring functions.It offers significantly improved debugging functions to help reduce the development time for your equipment.

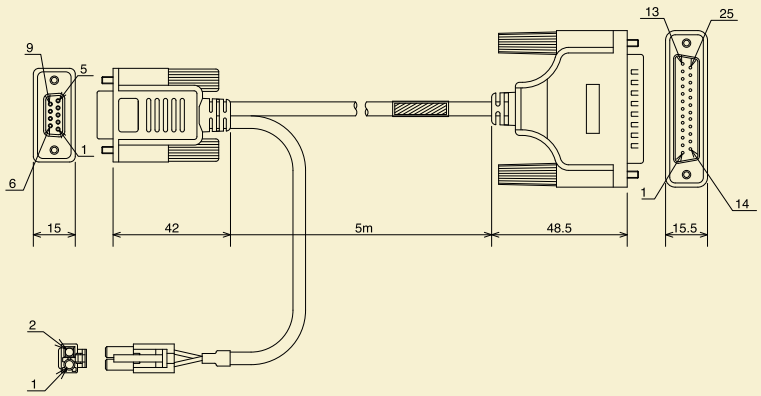
Description

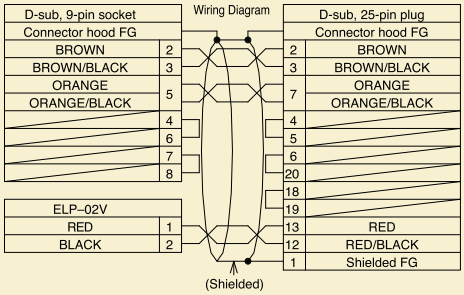
- Software (floppy disk)
  (Windows 95, 98, NT, 2000 and ME are supported)
- PC connection cable (5m) + Emergency-stop box (Model: CB-ST-E1MW050-EB)

Dimensions

PC connection cable (Model: CB-ST-E1MW050)

Caution
If you are ordering a PC connection cable separately for maintenance purposes, specify CB-ST-E1MW050. If you are ordering the cable together with an emergency-stop box, specify CB-ST-E1MW050-EB.





Expansion PIO Board

Description: An optional board for providing additional I/O points.
With a general-purpose controller, a maximum of three expansion PIO boards can be installed in its expansion slots.
(With a compact controller, one expansion PIO board can be installed, but only for the 3/4-axes type.)

Description	Expansion I/O board model	Ordering model (controller model)	Expansion I/O board slot	Total standard + expansion I/O points
32 inputs/16 outputs NPN specification	IA-103-X-32	XSEL-J-3(4)-□-N1-N1EE-□-□	Expansion slot 1	64 inputs/32 outputs
		XSEL-K-□-□-N1-N1EE-□-□	Expansion slot 1	64 inputs/32 outputs
		XSEL-K-□-□-N1-N1N1E-□-□	Expansion slot 1,2	96 inputs/48 outputs
		XSEL-K-□-□-N1-N1N1N1-□-□	Expansion slot 1,2,3	128 inputs/64 outputs
32 inputs/16 outputs PNP specification	IA-103-X-32-P	XSEL-J-3(4)-□-P1-P1EE-□-□	Expansion slot 1	64 inputs/32 outputs
		XSEL-K-□-□-P1-P1EE-□-□	Expansion slot 1	64 inputs/32 outputs
		XSEL-K-□-□-P1-P1P1E-□-□	Expansion slot 1,2	96 inputs/48 outputs
		XSEL-K-□-□-P1-P1P1P1-□-□	Expansion slot 1,2,3	128 inputs/64 outputs
16 inputs/32 outputs NPN specification	IA-103-X-16	XSEL-J-3(4)-□-N1-N2EE-□-□	Expansion slot 1	48 inputs/48 outputs
		XSEL-K-□-□-N1-N2EE-□-□	Expansion slot 1	48 inputs/48 outputs
		XSEL-K-□-□-N1-N2N2E-□-□	Expansion slot 1,2	64 inputs/80 outputs
		XSEL-K-□-□-N1-N2N2N2-□-□	Expansion slot 1,2,3	80 inputs/112 outputs
16 inputs/32 outputs PNP specification	IA-103-X-16-P	XSEL-J-3(4)-□-P1-P2EE-□-□	Expansion slot 1	48 inputs/48 outputs
		XSEL-K-□-□-P1-P2EE-□-□	Expansion slot 1	48 inputs/48 outputs
		XSEL-K-□-□-P1-P2P2E-□-□	Expansion slot 1,2	64 inputs/80 outputs
		XSEL-K-□-□-P1-P2P2P2-□-□	Expansion slot 1,2,3	80 inputs/112 outputs

Expansion SIO Board (General-Purpose Type Only)

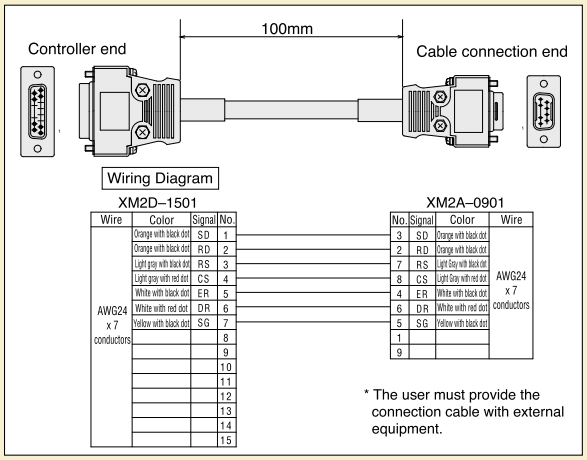
Description: A board for establishing serial communication with external equipment. It has two channel ports and supports one of three communication formats depending on the supplied joint cable(s).

Specification:
IA-105-X-MW-A (board + joint cable ① x 2)
IA-105-X-MW-B (board + joint cable ② x 1)
IA-105-X-MW-C (board + joint cable ② x 1)

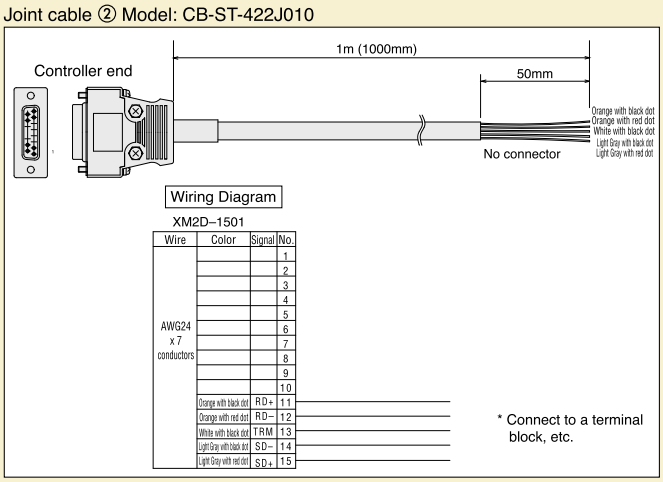
Communication format	Expansion SIO board model	Ordering model (controller model)	Network board slot	Remarks
RS232C	IA-105-X-MW-A	XSEL-K-□-□-N1-SAEE-□-□	Expansion slot 1	
RS422	IA-105-X-MW-B	XSEL-K-□-□-N1-SBEE-□-□	Expansion slot 1	A maximum of three boards can be installed. (Note 1)
RS485	IA-105-X-MW-C	XSEL-K-□-□-N1-SCEE-□-□	Expansion slot 1	

(Note 1) The current capacity may not be sufficient depending on the board installed in the standard slot. Consult IAI beforehand if you are planning to install three expansion SIO boards.

Joint cable ① Model: CB-ST-232J001



Joint cable ② Model: CB-ST-422J010



Network Board

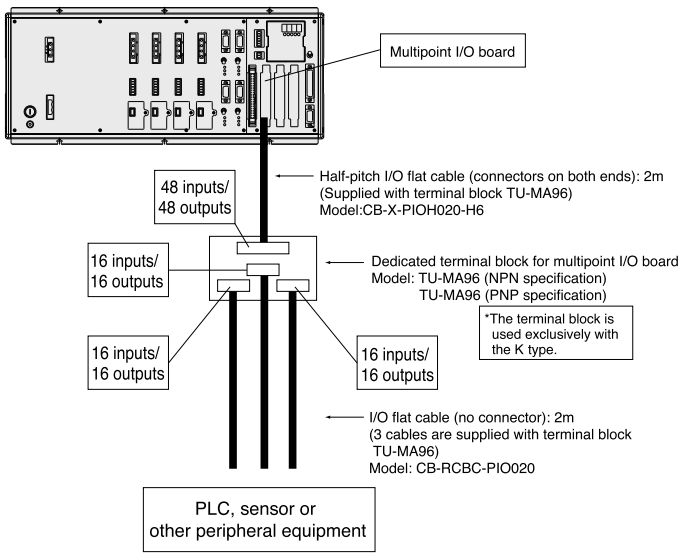
Description: A communication board for connection to a field network.

Network type	Network board model	Ordering model (controller model)	Network board slot	Number of I/O points
DeviceNet	IA-NT-3206-DV	XSEL-J-□-□-DV-EEE-□-□	Standard slot	256 inputs/256 outputs
	IA-NT-3204-DV	XSEL-K-□-□-DV-EEE-□-□	Standard slot	256 inputs/256 outputs
CC-Link	IA-NT-3206-CC256	XSEL-J-□-□-CC-EEE-□-□	Standard slot	256 inputs/256 outputs
	IA-NT-3204-CC256	XSEL-K-□-□-CC-EEE-□-□	Standard slot	256 inputs/256 outputs
	IA-NT-3204-CC16	XSEL-K-□-□-N1-EEC-□-□	Expansion slot 3	16 inputs/16 outputs
		XSEL-K-□-□-N1-ECC-□-□	Expansion slot 2,3	16 inputs x 2/16 outputs x 2
		XSEL-K-□-□-N1-CCC-□-□	Expansion slot 1,2,3	16 inputs x 3/16 outputs x 3
ProfiBus	IA-NT-3206-PB	XSEL-J-□-□-PR-EEE-□-□	Standard slot	256 inputs/256 outputs
	IA-NT-3204-PB	XSEL-K-□-□-PR-EEE-□-□	Standard slot	256 inputs/256 outputs
Ethernet	IA-NT-3206-ET	XSEL-J-□-□-ET-EEE-□-□	Standard slot	Message communication
	IA-NT-3204-ET	XSEL-K-□-□-ET-EEE-□-□	Standard slot	

■ Multipoint I/O Board & Terminal Block

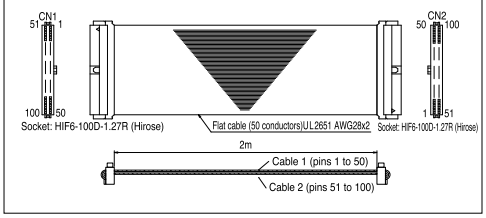
A set of board and terminal block used when many PIO points are required for the controller.

System Configuration



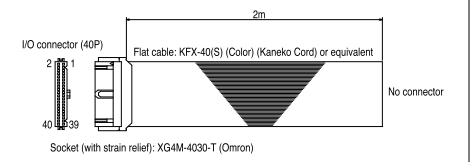
■ Half-Pitch I/O Flat Cable (Connectors on Both Ends)

Model: **CB-X-PIOH020-H6**



■ I/O Flat Cable (No Connector)

Model: **CB-RCBC-PIO020**



Multipoint I/O Board

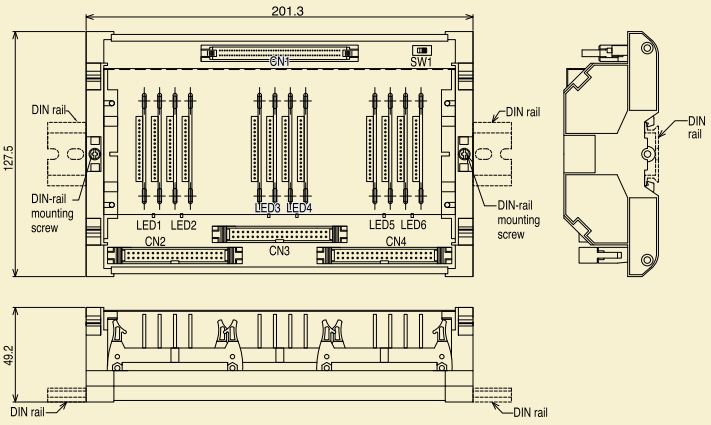
Description: This I/O board uses a half-pitch connector to provide 48 inputs and 48 outputs on a single board.
The supplied half-pitch flat cable has thin wires and thus difficult to wire. Use a dedicated terminal block for connection with external equipment.

Description	Multipoint I/O board model	Ordering model (controller model)	Multipoint I/O board slot	Total number of I/O points
48 inputs/48 outputs NPN specification	IA-IO-3205-NP	XSEL-J-□-□-N3-EEE-□-□	Expansion slot	48 inputs/48 outputs
48 inputs/48 outputs PNP specification	IA-IO-3205-PN	XSEL-J-□-□-P3-EEE-□-□	Expansion slot	48 inputs/48 outputs
48 inputs/48 outputs NPN specification	IA-IO-3204-NP	XSEL-K-□-□-N1-N3EE-□-2	Expansion slot 1	80 inputs/64 outputs
		XSEL-K-□-□-N1-N3N3E-□-2	Expansion slot 1,2	128 inputs/112 outputs
		XSEL-K-□-□-N1-N3N3N3-□-2	Expansion slot 1,2,3	176 inputs/160 outputs
48 inputs/48 outputs PNP specification	IA-IO-3204-PN	XSEL-K-c-c-P1-P3EE-c-2	Expansion slot 1	80 inputs/64 outputs
		XSEL-K-c-c-P1-P3P3E-□-2	Expansion slot 1,2	128 inputs/112 outputs
		XSEL-K-□-□-P1-P3P3P3-□-2	Expansion slot 1,2,3	176 inputs/160 outputs

<Dedicated terminal block for multipoint I/O board> **K Type Only**

Model: **TU-MA96** (NPN specification)
TU-MA96-P (PNP specification)

Description: A terminal block for wiring a multipoint I/O board. This terminal block not only simplifies wiring, but it also offers the following functions:
1. The built-in transistor buffer circuit ensures output of 500 mA per point (0.8 A per eight points).
2. The power circuit can be divided into six input systems (each comprising eight inputs) and six output systems (each comprising eight outputs).
3. LEDs are provided for checking the power supply for output signal circuit. Six LEDs are provided, each corresponding to one output system (each system comprises eight outputs). The LED will turn off when the power is cut off or a fuse on the board is blown.



Caution: If you are using a terminal block, be sure to use a multipoint I/O board of NPN specification.
(The terminal block has been set to NPN, so a PNP board cannot be used.)
This terminal block is used exclusively with the K type. (It cannot be used with the JX type.)

Dedicated Terminal Block for Multipoint I/O Board–Connector Pin Assignment

This connector is used for connection with an external I/O device. One connector can connect 16 DI points and 16 DO points.

External I/O Connector Specification Table

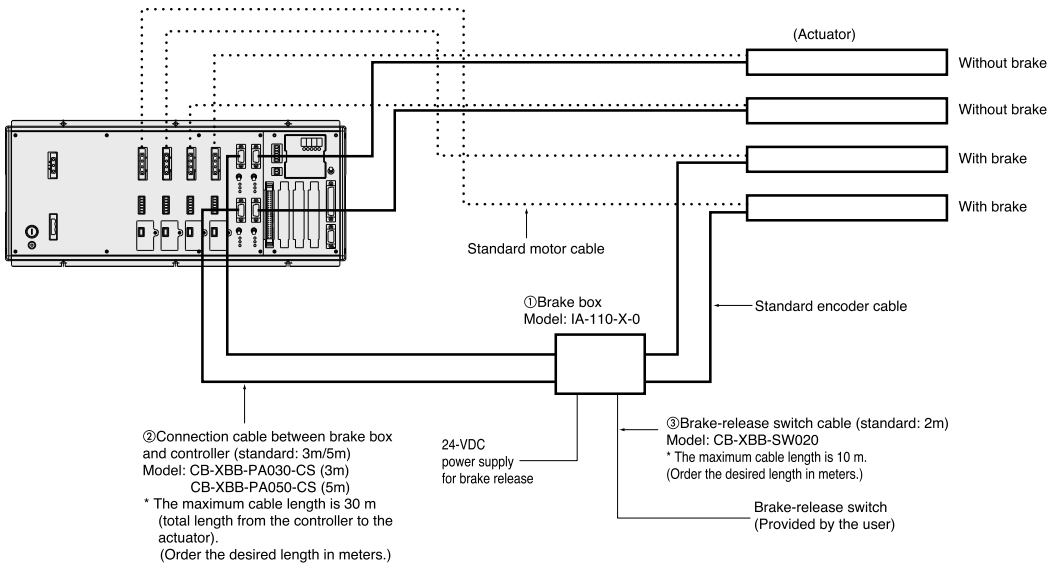
Item					
Applicable connector	XG4A-4031(OMRON) 40-pin, MIL flat connector				
DI	48 points				
DO	48 points				
Connected unit	External I/O device				
Connector name			CN2 connector	CN3 connector	CN4 connector
Pins and assigned inputs	1	Common	Common terminal (COM): For IN00 to IN07	Common terminal (COM): For IN16 to IN23	Common terminal (COM): For IN32 to IN39
	2	Common			
	3	General-purpose input	IN00	IN16	IN32
	4	General-purpose input	IN01	IN17	IN33
	5	General-purpose input	IN02	IN18	IN34
	6	General-purpose input	IN03	IN19	IN35
	7	General-purpose input	IN04	IN20	IN36
	8	General-purpose input	IN05	IN21	IN37
	9	General-purpose input	IN06	IN22	IN38
	10	General-purpose input	IN07	IN23	IN39
	11	General-purpose input	IN08	IN24	IN40
	12	General-purpose input	IN09	IN25	IN41
	13	General-purpose input	IN10	IN26	IN42
	14	General-purpose input	IN11	IN27	IN43
	15	General-purpose input	IN12	IN28	IN44
	16	General-purpose input	IN13	IN29	IN45
	17	General-purpose input	IN14	IN30	IN46
	18	General-purpose input	IN15	IN31	IN47
	19	Common	Common terminal (COM): For IN08 to IN15	Common terminal (COM): For IN24 to IN31	Common terminal (COM): For IN40 to IN47
	20	Common			
Pins and assigned outputs	21	+24V	External 24-V power input: For OUT00 to OUT07	External 24-V power input: For OUT16 to OUT23	External 24-V power input: For OUT32 to OUT39
	22	0V			
	23	General-purpose output	OUT00	OUT16	OUT32
	24	General-purpose output	OUT01	OUT17	OUT33
	25	General-purpose output	OUT02	OUT18	OUT34
	26	General-purpose output	OUT03	OUT19	OUT35
	27	General-purpose output	OUT04	OUT20	OUT36
	28	General-purpose output	OUT05	OUT21	OUT37
	29	General-purpose output	OUT06	OUT22	OUT38
	30	General-purpose output	OUT07	OUT23	OUT39
	31	General-purpose output	OUT08	OUT24	OUT40
	32	General-purpose output	OUT09	OUT25	OUT41
	33	General-purpose output	OUT10	OUT26	OUT42
	34	General-purpose output	OUT11	OUT27	OUT43
	35	General-purpose output	OUT12	OUT28	OUT44
	36	General-purpose output	OUT13	OUT29	OUT45
	37	General-purpose output	OUT14	OUT30	OUT46
	38	General-purpose output	OUT15	OUT31	OUT47
	39	+24V	External 24-V power input: For OUT08 to OUT15	External 24-V power input: For OUT24 to OUT31	External 24-V power input: For OUT40 to OUT47
	40	0V			

External Brake Box

Description

This force-release brake box can release the actuator brake even when the controller power is turned off. (Note 1)
The brake can be released using the switch on the brake box or by connecting an external switch (supplied with a dedicated cable).
When ordering, specify the models and quantities for the brake box and cable. (Up to two axes can be connected to one brake box.)
(Note 1) A dedicated 24-V power supply is required for releasing the brake.

System Configuration

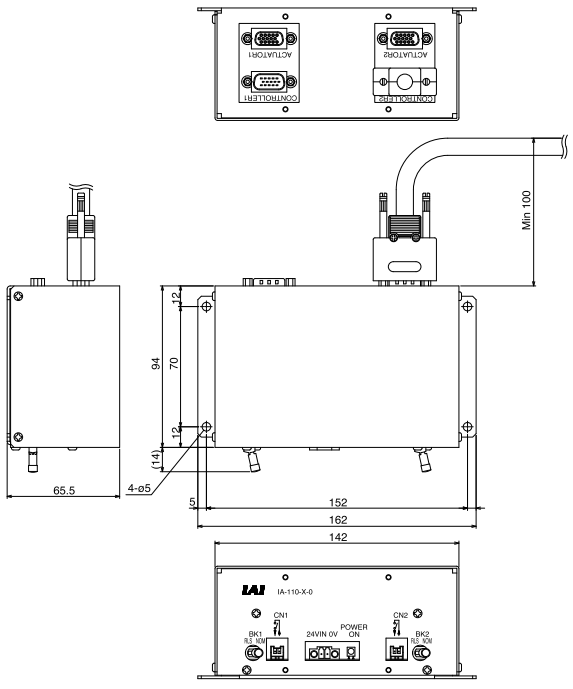


* To use an external brake box, you need a brake box (①) and a connection cable between brake box and controller (②).
Order a brake-release switch cable (③), if necessary.

①Brake box	Model: IA-110-X-0
②Connection cable between brake box and controller	Model: CB-XBB-PA□□□-CS
③Brake-release switch cable	Model: CB-XBB-SW□□□

External Dimensions of Brake Box

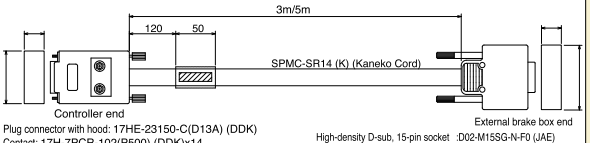
Model: **IA-110-X-0**



Connection cable between brake box and controller

Model: **CB-XBB-PA030-CS** (3m)
CB-XBB-PA050-CS (5m)

* The length can be changed. (Refer to the explanation above.)

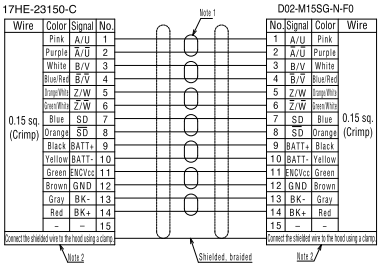


Plug connector with hood: 17HE-23150-C(D13A) (DDK)
Contact: 17H-7PCR-102(P500) (DDK)x14

High-density D-sub, 15-pin socket :D02-M15SG-N-F0 (JAE)
Socket contact :D02-22-26S-PKG100 (JAE)x14
Hood :DE-C8-J9F4-1(JAE)

Wiring Diagram

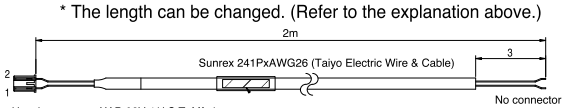
Note 1: Twisted pair cable
Note 2: Fold back the shielded, braided wire, wrap a shield tape around the folded section, and fix with a cable clamp.



Brake-release switch cable

Model: **CB-XBB-SW020** (3m)

* The length can be changed. (Refer to the explanation above.)



Housing :XAP-02V-1(J.S.T. Mfg.)
Socket contact :BXA-001T-P0.6(J.S.T. Mfg.)x2

Wiring Diagram

Wire	Color	Signal	No.
AWG26	Orange | black	BKMRL	1
X1P	Orange | red	COM	2

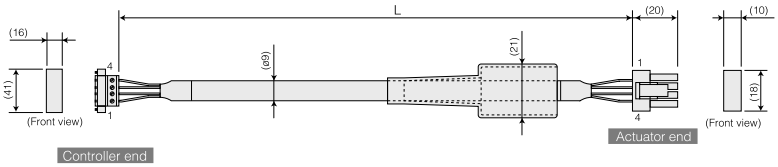
No connector

The following cables will be supplied with the actuator and controller you have purchased.
If you must replace the original cables or otherwise require additional cables, place an order by referencing the model names specified below.

Motor Cable (Single-Axis Robot Connection)

Model **CB-X-MA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



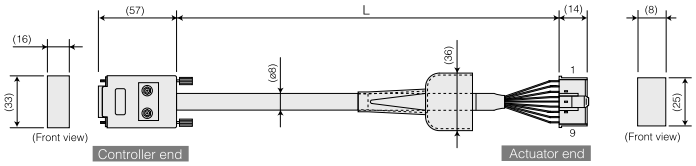
Wire	Color	Signal	No.
0.75sq	Green	PE	1
	Red	U	2
	White	V	3
	Black	W	4

No.	Signal	Color	Wire
1	U	Red	0.75sq (Crimp)
2	V	White	
3	W	Black	
4	PE	Green	

Encoder Cable (Single-Axis Robot Connection)

Model **CB-X-PA□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



Wire	Color	Signal	No.
0.15sq (Crimp)	-	-	1
	-	-	2
	-	-	3
	-	-	4
	-	-	5
	-	-	6
	Blue	SD	7
	Orange	$\overline{SD}$	8
	Black	BAT+	9
	Yellow	BAT-	10
	Green	VCC	11
	Brown	GND	12
	Gray	BK-	13
	Red	BK+	14
	-	-	15

Connect the shielded wire to the hood using a clamp.

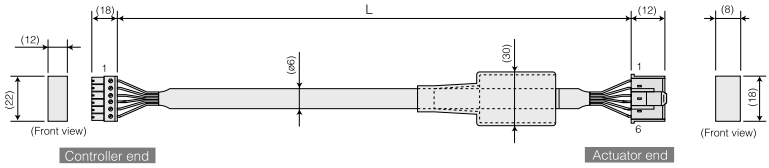
No.	Signal	Color	Wire
1	BAT+	Black	0.15sq (Crimp)
2	BAT-	Yellow	
3	SD	Blue	
4	$\overline{SD}$	Orange	
5	VCC	Green	
6	GND	Brown	
7	FG	Ground	
8	BK-	Gray	
9	BK+	Red	

Ground wire and shielded wire, braided

Limit Switch Cable (Single-Axis Robot Connection)

Model **CB-X-LC□□□**

* Indicate the desired cable length (L) of up to 30 m in □□□ (e.g., 080 = 8 m).



Wire	Color	Signal	No.
AWG24	Light Blue	24VOUT	6
	Pink	N	5
	Grass	LS	4
	Pink	CREEP	3
	Gray	OT	2
	1B/Light Blue	RSV	1

Note) "1B" indicates one black dot mark.

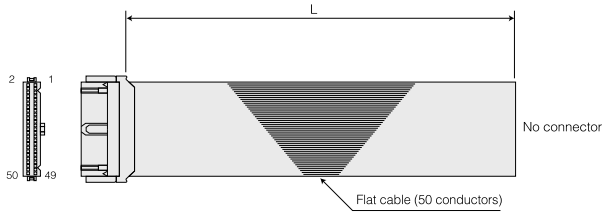
No.	Signal	Color	Wire
1	24VOUT	Light Blue	AWG24 (Crimp)
2	N	Pink	
3	LS	Grass	
4	CREEP	Pink	
5	OT	Gray	
6	RSV	1B/Light Blue	

I/O Flat Cable (X-SEL)

I/O Flat Cable (X-SEL)

Model **CB-X-PIO□□□**

* Indicate the desired cable length (L) of up to 10 m in □□□ (e.g., 080 = 8 m).



No.	Color	Wire	No.	Color	Wire	No.	Color	Wire
1	Brown1	Flat cable	18	Gray2	Flat cable	35	Green4	Flat cable
2	Red1		19	White2		36	Blue4	
3	Orange1		20	Black2		37	Purple4	
4	Yellow1		21	Brown-3		38	Gray4	
5	Green1		22	Red3		39	White4	
6	Blue1		23	Orange3		40	Black4	
7	Purple1		24	Yellow3		41	Brown-5	
8	Gray1		25	Green3		42	Red5	
9	White1		26	Blue3		43	Orange5	
10	Black1		27	Purple3		44	Yellow5	
11	Brown-2		28	Gray3		45	Green5	
12	Red2		29	White3		46	Blue5	
13	Orange2		30	Black3		47	Purple5	
14	Yellow2		31	Brown-4		48	Gray5	
15	Green2		32	Red4		49	White5	
16	Blue2		33	Orange4		50	Black5	
17	Purple2		34	Yellow4				

Large Capacity Controller X-SEL

A Compact Yet Powerful Controller with a Maximum Output of 2400 W

A new high-performance controller series capable of controlling six axes

1 Maximum output of 2400 W

(Reference: IAI's conventional general-purpose type – 1600 W, compact type – 800 W)

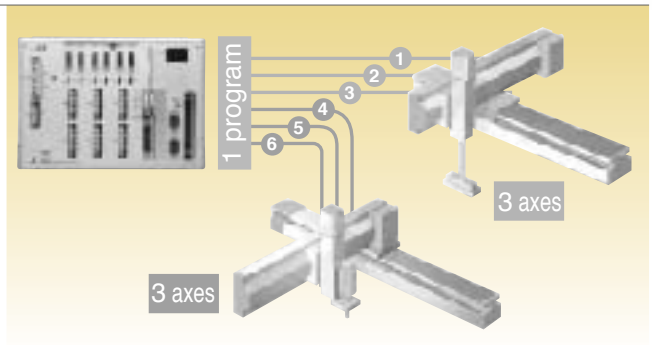
Six 400W single-axis robots or three 750W single-axis robots can be operated simultaneously.

2 "Global Specification" corresponding to Safety Category 4

The "Global Specification" provides an external safety circuit, instead of incorporating a drive-power cutoff circuit into the controller. This design ensures correspondence to Safety Category 4 under ISO 13849-1.

3 Capable of driving one to six axes

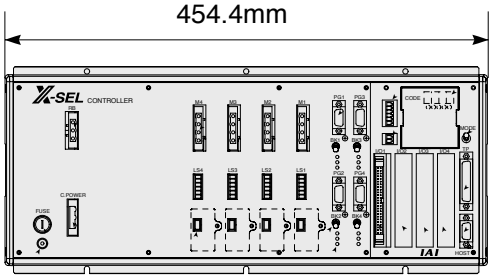
- A maximum of six axes can be operated complementarily using only one controller unit.
- Six axes are operated with a single program, allowing easy programming.



4 Compact and high performance

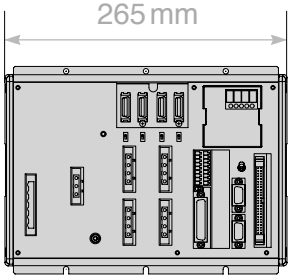
- A slim design of approx. 40% the volume of IAI's conventional controller (X-SEL general-purpose controller)
- Significantly higher speed compared with IAI's conventional controller (the command processing time is nearly half)
- Connectable to DeviceNet, CC-Link, Ethernet and other networks

Conventional product



XSEL-K (general-purpose type) 4 axes, 1.6 Kw

New product



XSEL-P 4 axes, 2.4 Kw

■ Models

XSEL - P - 3 - 400AL - 200AL - 60ABL - DV - NI - EEE - 2 - 3

① ② ③ ④ (Axis 1) ④ (Axis 2) ④ (Axis 3) ⑤ ⑥ ⑦ ⑧ ⑨

① Series	② Controller type	③ Number of axes	④ Details of axis 1 to axis 6						⑤ Network (dedicated slot)	⑥ Standard I/O (Slot 1)	⑦ Expansion I/O slots			⑧ Flat cable length	⑨ Power-supply voltage
			Motor Output	Encoder type	Brake	Creep	Home Sensor	Synchronization designation			Slot 2	Slot 3	Slot 4		
XSEL	P (Standard) Q (Global)	1 (1 axis) 2 (2 axes) 3 (3 axes) 4 (4 axes) 5 (5 axes) 6 (6 axes)	20 (20W) 30D (30W for DS) 30R (30W for RS) 60 (60W) 100 (100W) 150 (150W) 200 (200W) 30 (300W) 400 (400W) 600 (600W) 750 (750W)	I (Incremental) A (Absolute)	Not Specified (w/o brake) B (w/ brake)	Not Specified (w/o creep) C (w/ creep)	Not Specified (w/o home sensor) L (w/ home sensor)	Not Specified (No synchronization) M (Master-axis designation) S (Slave-axis designation)	Not Specified (No network) DV DeviceNet 256/256 board CC CC-Link 256/256 board PR ProfiBus 256/256 board ET Ethernet Data communication board	E (Not used) C CC-Link connection 16/16 board N1 Expansion I/O NPN 32/16 N2 Expansion I/O NPN 16/32 N3 Expansion I/O NPN 48/48 P1 Expansion I/O PNP 32/16 P2 Expansion I/O PNP 16/32 P3 Multipoint I/O PNP 48/48	E (Not used) C CC-Link connection 16/16 board N1 Expansion I/O NPN 32/16 N2 Expansion I/O NPN 16/32 N3 Expansion I/O NPN 48/48 P1 Expansion I/O PNP 32/16 P2 Expansion I/O PNP 16/32 P3 Multipoint I/O PNP 48/48	E (Not used) C CC-Link connection 16/16 board N1 Expansion I/O NPN 32/16 N2 Expansion I/O NPN 16/32 N3 Multipoint I/O NPN 48/48 P1 Expansion I/O PNP 32/16 P2 Expansion I/O PNP 16/32 P3 Multipoint I/O PNP 48/48	E (Not used) C CC-Link connection 16/16 board N1 Expansion I/O NPN 32/16 N2 Expansion I/O NPN 16/32 N3 Multipoint I/O NPN 48/48 P1 Expansion I/O PNP 32/16 P2 Expansion I/O PNP 16/32 P3 Multipoint I/O PNP 48/48	2 : 2 m (Standard) 3 : 3 m 5 : 5 m 0 : None	3: Three-phase 200V

■ Main Specifications

	Standard		Global	
	Axis 1 to axis 4	Axis 5 to axis 6	Axis 1 to axis 4	Axis 5 to axis 6
Total output when maximum number of axes are connected	2400W			
Control power input	Single-phase 200/230VAC -15%, +10%			
Motor power input	Three-phase 200/230VAC -10%, +10%			
Power capacity (*1)	MAX 4878VA (600W x 4 axes)	MAX 4998VA (400W x 6 axes)	MAX 4878VA (600W x 4 axes)	MAX 4998VA (400W x 6 axes)
Safety circuit configuration	Redundant design not supported		Redundant design supported	
Drive-power cutoff method	Internal relay cutoff		External safety circuit	
Enable input	Contact-B input (internal power supply)		Contact-B input (external power supply, redundancy)	
Position detection method	Incremental encoder/absolute encoder			
Speed setting (*2)	1 mm/sec ~ 2000 mm/sec			
Acceleration/deceleration setting (*2)	0.01 G ~ 1 G			
Program language	Super SEL language			
Number of program steps	6000 steps (total)			
Number of positions	4000 positions (total)			
Number of programs (multitasking)	64 programs (16 programs)			
Operating temperature/humidity	0~40°C, 10%~95% (non-condensing)			
Weight (*3)	5.2 kg	5.7 kg	4.5 kg	5 kg

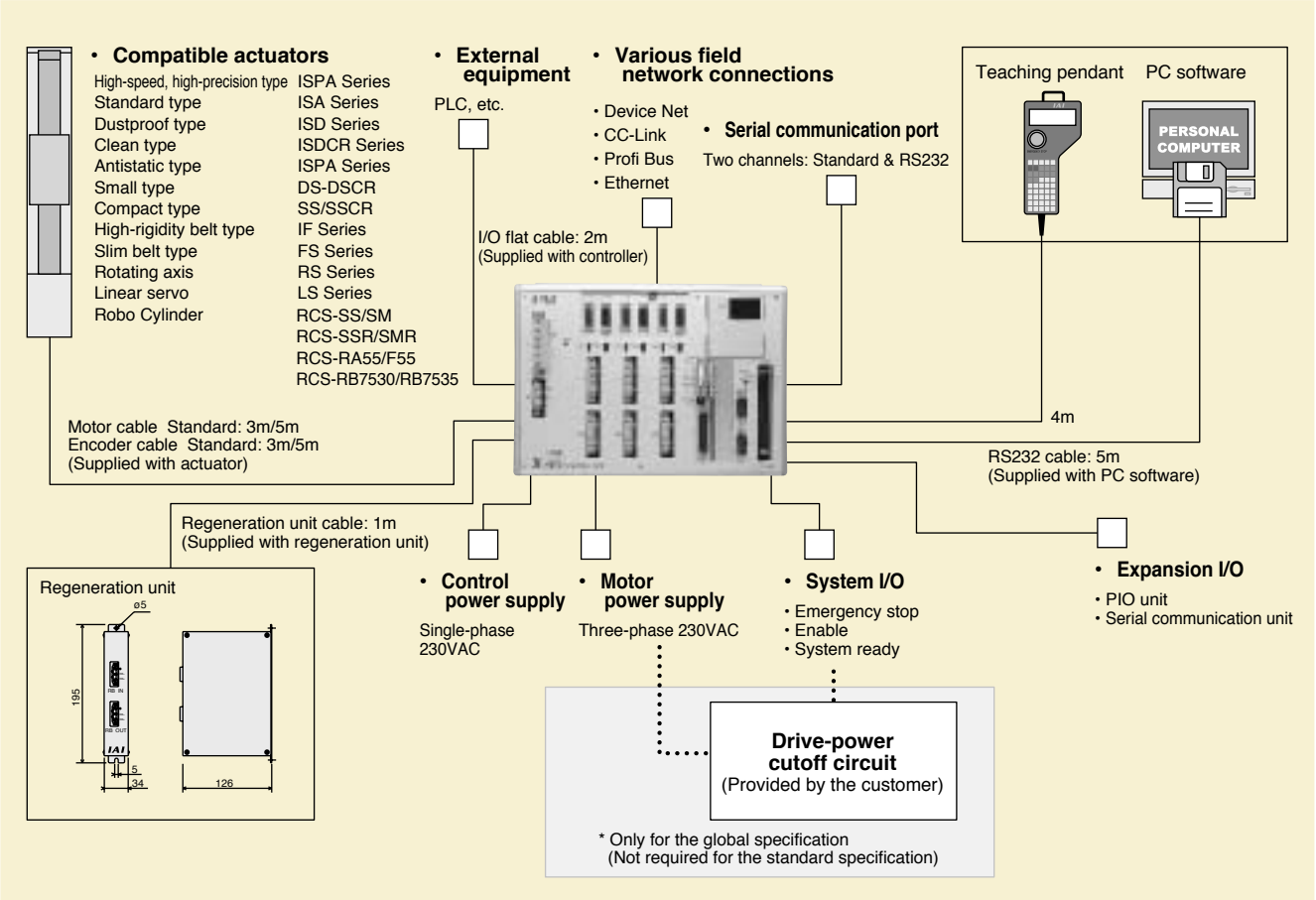
*1 Based on the maximum wattage of each connected axis.
*2 The maximum limit will vary depending on the actuator type.
*3 Including the absolute battery, brake mechanism and expansion I/O box.

■ X-SEL Series Product Lineup

	XSEL-J	XSEL-K	XSEL-KE	XSEL-KT	XSEL-P	XSEL-Q
	Compact type	General-purpose type	CE-compatible type	Global specification (Safety Category 4)	Large-capacity type, standard specification	Large-capacity type, global specification (Safety Category 4)
						
Operating method	Program operation					
Programs	64 programs (6000 steps)					
Number of positions	3000 positions				4000 positions	
Maximum number of connectable axes	4 axes				6 axes	
Maximum output	0.8 kw	1.6 kw	1.6 kw	1.6 kw	2.4 kw	2.4 kw
Power supply	Single-phase 100VAC / Single-phase 200VAC				Three-phase 200VAC	Three-phase 200VAC
Safety category	B			Corresponds to Category 4	B	Corresponds to Category 4
Safety standard	—	—	CE	ANSI (*1)	CE	CE, ANSI (*1)

*1 To support ANSI, the ANSI-compatible teaching pendant (IA-T-XA) is required.

• •System Configuration

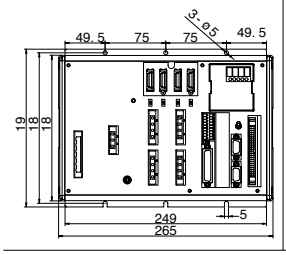


• •External Dimensions

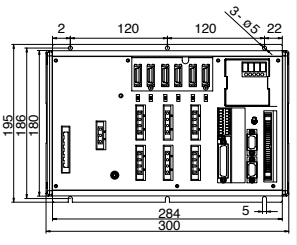
XSEL-P

Standard

Axis 1 to axis 4



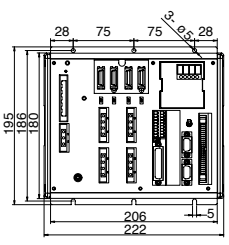
Axis 5 to axis 6



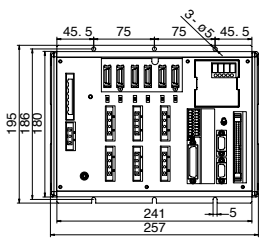
XSEL-Q

Global

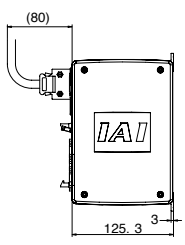
Axis 1 to axis 4



Axis 5 to axis 6



Side view (common to all types)



In the case of the following specifications, the overall width will follow the table below (mounting hole positions are the same).	Standard		Global	
	Axis 1 to axis 4	Axis 5 to axis 6	Axis 1 to axis 4	Axis 5 to axis 6
With absolute battery/brake unit *1	285	340	242	297
With I/O expansion base *2	338	373	295	330
With I/O expansion base + absolute battery/brake unit *3	358	413	315	370

*1 With absolute battery or brake, or absolute battery with brake.
*2 When expansion I/Os are added.
*3 With absolute battery or brake, or absolute battery with brake, plus expansion I/Os.