

PowerCon SCARA Robot **IXP Series**

PowerCon SCARA Program Controller **MSEL-PGX**

Series added

Arm Length
180mm/250mm
550mm/650mm



Introducing Arm Lengths 180/250/550/650 Added in Cost-effective IXP Series, Giving More Variations to the Lineup



All models come standard with battery-less absolute encoders.

1 More Affordable Due to Pulse Motors

By adopting pulse motors...

...the IXP is more reasonable than a conventional model.

* Compared against an IAI robot based on an arm length of 350mm.

The IXP achieves a payload equivalent to that of a conventional model by adopting high-output drivers.

2 All Models Come Standard with Battery-less Absolute Encoders

All IXP models come standard with battery-less absolute encoders that do not require batteries. Since battery replacement is no longer necessary, maintenance labor is reduced.

Advantages of Battery-less Absolute Encoders

- The SCARA will not stop due to battery errors (low voltage, etc.)
- No cost of battery replacement
- No need for absolute reset or other physical tasks associated with battery replacement

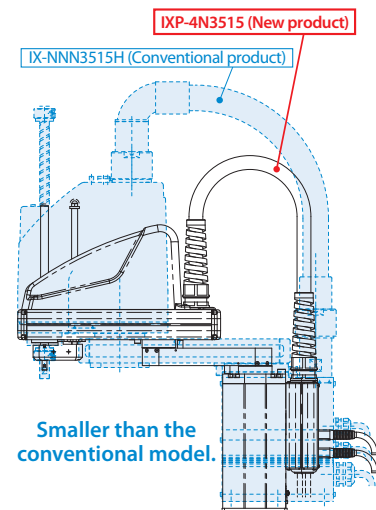
3 Lighter than a Conventional Model

The robot weighs approx. 30% less.

(Compared to: IX-NNN3515H)

The lightweight robot can be easily assembled into your system.

	Conventional product		New product
Model	IX-NNN2515H		IXP-4N2508
Mass	17.1kg	-9.1kg	8kg
Model	IX-NNN3515H		IXP-4N3515
Mass	18kg	-5kg	13kg
Model	IX-NNN50□□H		IXP-4N5520
Mass	29.5kg	-8.5kg	21kg

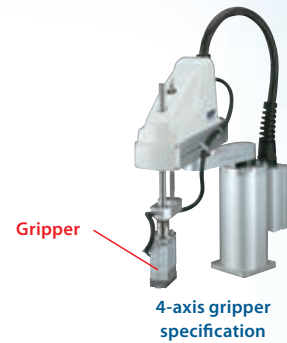


4

Added 3-axis Specification and 4-axis* Gripper Specification

The 3-axis specification has no rotational axis for greater allowable load moment of inertia. It can be combined with a dedicated gripper to constitute a transfer robot with ease.

* The gripper type has four axes including three SCARA robot axes and one gripper axis. There is no 4-axis type equipped with gripper provided for Arm Length 180 Type.



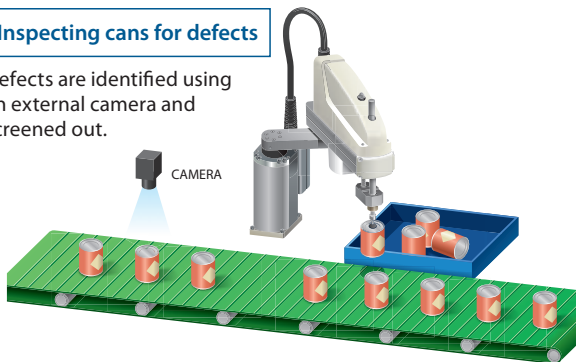
Use Examples of the 3-axis Specification

- Work processes that require only three axes

- ➔ Pickup and placement of circular parts, non-directional transfer, etc.

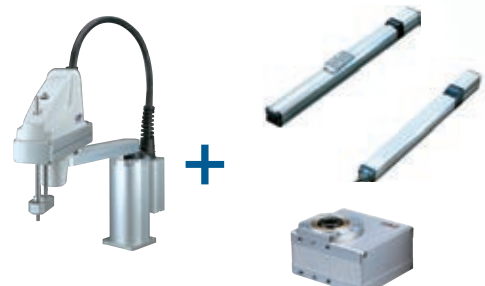
Inspecting cans for defects

Defects are identified using an external camera and screened out.



- Connecting an actuator as the fourth axis

A RoboCylinder of a rotary type, rod type, slider type, etc., can be connected to a SCARA robot 3-axis specification as its fourth axis.



5

Supporting MSEL Controller

Features of the MSEL Controller

① Accommodating Significantly More Programs and Positions

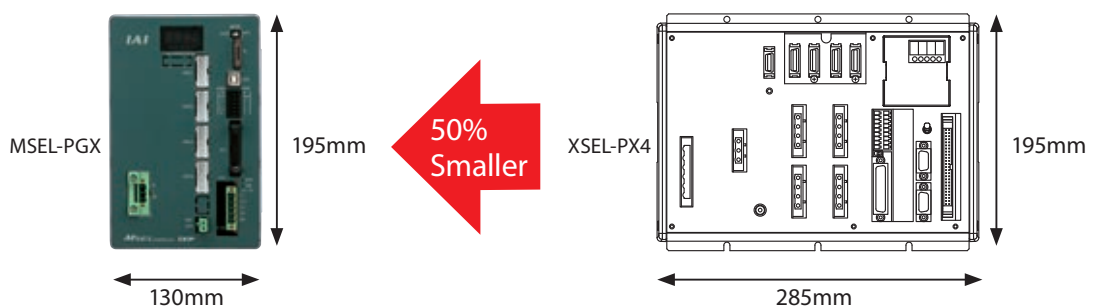
The greater storage capacity accommodates significantly more programs and positions.

	XSEL-PX (Conventional product)	MSEL (New product)
Number of programs	128	255
Number of positions	20000	30000

② Smaller Size

Having a size of 130mm in width x 195mm in height, the MSEL is significantly smaller than a conventional controller and saves space in your control panel.

The MSEL can be installed with screws or using a DIN rail.



Product Lineup

Arm length	180mm		250mm	
SCARA type	3-axis	4-axis (with rotational axis)	3-axis	4-axis (with rotational axis)
Without gripper	IXP-3N1808	IXP-4N1808	IXP-3N2508	IXP-4N2508
Payload	Rated 1kg , Maximum 3kg		Rated 1kg , Maximum 3kg	
Max. speed (in PTP mode)	XY: 2053mm/s, Z: 350mm/s (R: 1200°/s)		XY: 2151mm/s, Z: 350mm/s (R: 1200°/s)	
With medium gripper Gripper model code: RCP4-GRSML	-	-	IXP-3N2508GM	-
Gripper Payload			Maximum 0.5kg *1	
Max. gripper speed			94mm/s (per finger)	

Arm length	350mm		450mm	
SCARA type	3-axis	4-axis (with rotational axis)	3-axis	4-axis (with rotational axis)
Without gripper	IXP-3N3515	IXP-4N3515	IXP-3N4515	IXP-4N4515
Payload	Rated 1kg , Maximum 3kg		Rated 1kg , Maximum 3kg	
Max. speed (in PTP mode)	XY: 2726mm/s, Z: 270mm/s (R: 1000°/s) *2		XY: 2438mm/s, Z: 270mm/s (R: 1000°/s) *2	
With medium gripper Gripper model code: RCP4-GRSML	IXP-3N3515GM	-	IXP-3N4515GM	-
Gripper Payload	Maximum 0.5kg *1		Maximum 0.5kg *1	
Max. gripper speed	94mm/s (per finger)		94mm/s (per finger)	
With large gripper Gripper model code: RCP4-GRSLL	IXP-3N3510GL	-	IXP-3N4510GL	-
Gripper Payload	Maximum 1.5kg *1		Maximum 1.5kg *1	
Max. gripper speed	125mm/s (per finger)		125mm/s (per finger)	

Arm length	550mm		650mm	
SCARA type	3-axis	4-axis (with rotational axis)	3-axis	4-axis (with rotational axis)
Without gripper	IXP-3N5520	IXP-4N5520	IXP-3N6520	IXP-4N6520
Payload	Rated 2kg , Maximum 6kg		Rated 2kg , Maximum 6kg	
Max. speed (in PTP mode)	XY: 2943mm/s, Z: 240mm/s (R: 700°/s)		XY: 2916mm/s, Z: 240mm/s (R: 700°/s)	
With large gripper Gripper model code: RCP4-GRSLL	IXP-3N5515GL	-	IXP-3N6515GL	-
Gripper Payload	Maximum 1.5kg *1		Maximum 1.5kg *1	
Max. gripper speed	125mm/s (per finger)		125mm/s (per finger)	
With extra-large gripper Gripper model code. RCP4-GRSWL	IXP-3N5515GW	-	IXP-3N6515GW	-
Gripper Payload	Maximum 2.5kg *1		Maximum 2.5kg *1	
Max. gripper speed	157mm/s (per finger)		157mm/s (per finger)	

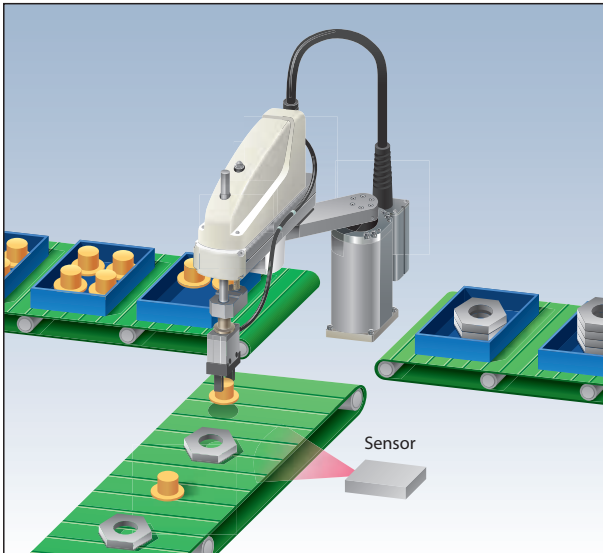
*1: This is the maximum payload on the gripper. The payload may differ in some conditions of use. Refer to the gripper selection guide in our RoboCylinder General Catalog.

*2: For IXP-3N3510GL/4510GL with large gripper the max. speed of XY-axis is 1908/2060mm/s, the max. speed of Z-axis is 189mm/s.

Applications

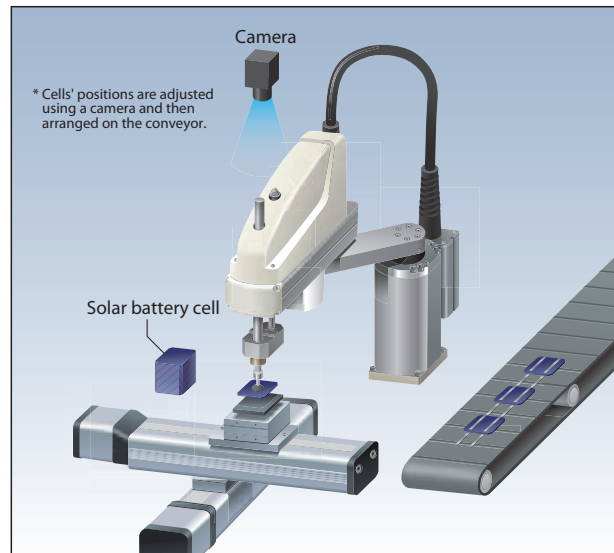
Part Screening

Parts of two different sizes are classified using a sensor and sorted into different boxes.



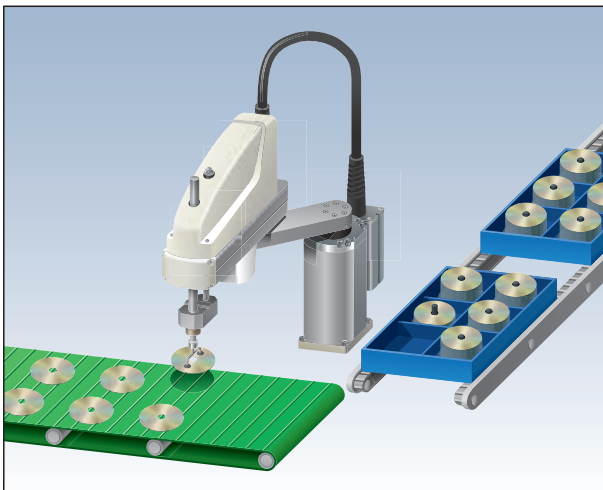
Solar Battery Module Tab Soldering

Solar battery module cells are transferred while positions are adjusted so that electrodes can be soldered onto the cells.



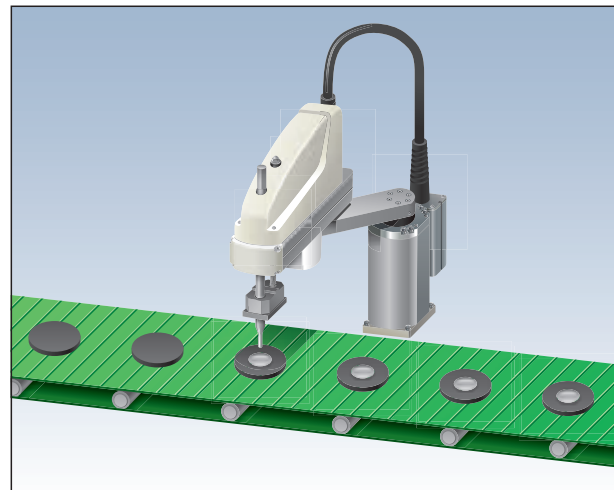
DVD-R Packing

DVD-Rs are picked up from the conveyor and placed.



Adhesive Application

Adhesive is applied onto circular parts.



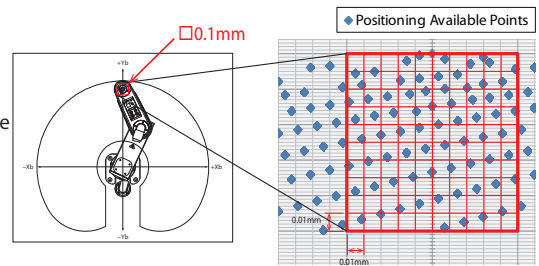
Cautionary Notes

(Note 1) Positioning Repeatability

This refers to the degree to which the robot can accurately repeat the same target position when operated at the same speed, acceleration rate, and arm-type. (The values are measured at a constant room temperature of 20°C) Please note that this is not an absolute positioning accuracy. In addition, please be aware that the positioning accuracy may deviate in situations where the operating conditions have changed; for example switching the robot arms, changing from multiple opposing positions to one set position, or changing the operating speed and acceleration/deceleration rate.

Available Positioning Points Warnings

The positioning of the IXP can be set to units of every 0.001mm. However, as seen in the chart to the right, there is a possibility of discrepancies from the target of approximately 0.05mm (for direct teaching) or 0.1mm (for position data indication). These discrepancies can arise due to the point of the positioning or the condition of the 1st and 2nd arms. The least optimal position (within the periphery of the movable range) that can be designated is an arm length of 350 and a maximum of 0.202mm. *Please see p.25 for the values for each model.



Example for positions available for positioning in 0.1mm x 0.1mm (right-arm system)

(Note 2) Maximum Operating Speed for PTP Operation

The maximum operating speed in the specification table assumes PTP command operation. In the case of CP command operation (interpolation), there is a limit to the speed. For more details, please refer to the "CP Operation" section of the "Estimate of SCARA Robot Acceleration/Deceleration Settings" on p.26. In addition, please note that in order to operate the vertical axis at the lowest position, the speed and acceleration rate must be appropriately reduced as well.

(Note 3) Payload

The options are rated payload and maximum payload. The rated payload refers to the maximum load that can be transferred at the maximum speed and acceleration rate. The maximum payload refers to the load that can be transferred at a reduced speed and acceleration rate. When transporting a load that is greater than the rated payload, by programming the load and moment of inertia, the appropriate speed and acceleration rate will automatically be applied.

(Note 4) Standard Cycle Time

The standard cycle time is the round-trip operation times under the conditions outlined below.

This is a general estimate of high-speed performance.

*For gripper-equipped models, the weight of the gripper will also be included in the transported weight.



Arm length	Transferring weight(kg)	Horizontal movement distance(mm)	Vertical movement distance(mm)	Cycle time (sec)
180	1	100	25	0.57
250	1	300	25	0.79
350	1	300	25	0.69
450	1	300	25	0.67
550	2	300	25	0.73
650	2	300	25	0.81

(Note 5) Allowable Inertial Moment from the Tip of the Vertical Axis

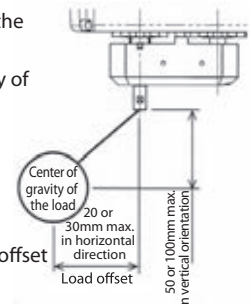
This is the allowable inertial moment calculated at the center of the rod on the vertical axis (guide shaft for 3-axis type, and rotational axis for 4-axis type). The offset value from the center of the rotational axis to the center of gravity of the load is shown below.

Arm length 180/250 ... horizontal direction 20mm or less, vertical direction 50mm or less

Arm length 350/450 ... horizontal direction 30mm or less, vertical direction 50 or 100mm max in vertical orientation

If the standard payload is exceeded, it is necessary to reduce the horizontal offset value. Please refer to the instructions manual for details.

Also, if a tool's center of gravity is away from the center of the axis-tip, it is necessary to reduce the speed and acceleration rate appropriately.

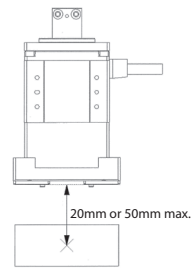


(Note 6) Overhang Limits for the Gripper Options

The overhang limit for gripper-equipped models (GM/GL/GW) is 0mm horizontally and 20mm (*) or 50mm (**) vertically from the gripper finger-tip to the piece's center of gravity. Please refer to the figure on the right.

(*) Arm length 250 ... 20mm

(**) Arm length 350/450/550/650 ... 50mm



Work Envelope

When switching arm orientation (left/right), please be careful that no peripheral objects interfere with the arm when fully extends.

Acceleration/ Deceleration Setting

For acceleration/deceleration settings, please refer to "SCARA Robot Acceleration/Deceleration Settings Guide" on p. 26.

(Note 1) to (Note 6) are linked to notes in the product specifications pages (p. 7 through 18).

Explanation of the Model Items

IXP
Series

[]
Type

WA
Encoder type

[]
Cable length

P3
Applicable controller

[]
Option

WA

Battery-less absolute specification

N	None
P	1m
S	3m
M	5m
X□□	Specified length
R□□	Robot cable

P3

MSEL

B

Brake

* Only available for arm length 550/650. Make sure to select this when the transported object is 4kg or more.

3N1808	3-axis type / Arm length 180mm / Vertical axis 80mm		
4N1808	4-axis type / Arm length 180mm / Vertical axis 80mm		
3N2508	3-axis type / Arm length 250mm / Vertical axis 80mm		
4N2508	4-axis type / Arm length 250mm / Vertical axis 80mm		
3N2508GM	3-axis type / Arm length 250mm / Vertical axis 80mm RCP4-GRSML installed at the tip of the vertical axis		
3N3515	3-axis type / Arm length 350mm / Vertical axis 150mm	3N5520	3-axis type / Arm length 550mm / Vertical axis 200mm
4N3515	4-axis type / Arm length 350mm / Vertical axis 150mm	4N5520	4-axis type / Arm length 550mm / Vertical axis 200mm
3N3515GM	3-axis type / Arm length 350mm / Vertical axis 150mm RCP4-GRSML installed at the tip of the vertical axis	3N5515GL	3-axis type / Arm length 550mm / Vertical axis 150mm RCP4-GRSLL installed at the tip of the vertical axis
3N3510GL	3-axis type / Arm length 350mm / Vertical axis 100mm RCP4-GRSLL installed at the tip of the vertical axis	3N5515GW	3-axis type / Arm length 550mm / Vertical axis 150mm RCP4-GRSWL installed at the tip of the vertical axis
3N4515	3-axis type / Arm length 450mm / Vertical axis 150mm	3N6520	3-axis type / Arm length 650mm / Vertical axis 200mm
4N4515	4-axis type / Arm length 450mm / Vertical axis 150mm	4N6520	4-axis type / Arm length 650mm / Vertical axis 200mm
3N4515GM	3-axis type / Arm length 450mm / Vertical axis 150mm RCP4-GRSML installed at the tip of the vertical axis	3N6515GL	3-axis type / Arm length 650mm / Vertical axis 150mm RCP4-GRSLL installed at the tip of the vertical axis
3N4510GL	3-axis type / Arm length 450mm / Vertical axis 100mm RCP4-GRSLL installed at the tip of the vertical axis	3N6515GW	3-axis type / Arm length 650mm / Vertical axis 150mm RCP4-GRSWL installed at the tip of the vertical axis

(Example) **IXP** — **3 N 35 15 GM** — **WA** — **S** — **P3**

Number of axes: 3 axes

Vertical axis stroke: 150mm

Arm length: 350mm

Tip of vertical axis: RCP4-GRSML installed

Encoder type: Battery-less absolute specification

Cable length: 3m

Controller: MSEL

IXP-3N1808/4N1808

Arm length 180mm
Vertical axis 80mm

■ Model Specification Items	IXP	—	N	—	1808	—	WA	—		—	P3
	Series		Number of axes 3: 3 axes 4: 4 axes		Arm length: 180mm Vertical axis: 80mm		Encoder type WA: Battery-less absolute specification		Cable length N: None P: 1m S: 3m M: 5m		Applicable controller P3: MSEL

*Controller is not included.



POINT
Notes on selection

- Refer to P. 5 for (Note 1) through (Note 5).
- There is a brake equipped on the vertical axis as a standard option.
- The vertical axis does not support push-motion control.
- The allowable push force should be 45N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Robot Specifications

Axis configuration		Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)	Payload (kg) (Note 3)	
						Rated	Maximum
Axis 1	Arm 1	80	±125°	±0.01mm	2053mm/s (Composite speed)	1	3
Axis 2	Arm 2	100	±125°				
Axis 3	Vertical axis	—	80mm	±0.02mm	350mm/s		
Axis 4	Rotational axis	—	±360°	±0.01°	1200°/s		

Robot Specifications

	3-axis specification	4-axis specification
Encoder type	Battery-less absolute encoder	
User wiring	AWG26×8	
User piping	O.D. ø4, I.D. ø2.5, 2 air tubes Maximum working pressure 0.8MPa	
Standard cycle time (sec) (Note 4)	0.57	
Allowable torque (Axis 4) (N·m)	—	0.28
Allowable moment (N·m)	0.7	
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.001 Maximum 0.01	Rated 0.001 Maximum 0.003
Ambient operating temperature/humidity	Temperature 0 ~ 40°C, Humidity 20 ~ 85%RH (Non-condensing)	
Unit weight (kg)	7	7.5

Model Combinations

Specification	Model number
3-axis specification	IXP-3N1808
4-axis specification	IXP-4N1808

Cable Length <Per Axis*>

Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while 4-axis specification requires four cables.

IXP-3N2508/4N2508

Arm length 250mm
Vertical axis 80mm

■ Model Specification Items	IXP	—	N	25	—	WA	—	P3
	Series	Number of axes 3: 3 axes 4: 4 axes	Arm length 25: 250mm	Vertical axis stroke 08 : 80mm 08GM : 80mm	Gripper Medium gripper installed *Refer to "Attached Gripper Types" for the types of grippers installed.	Encoder type WA: Battery-less absolute specification	Cable length N: None P: 1m S: 3m M: 5m	Applicable controller P3: MSEL

*Controller is not included.



*The photograph shows a 4-axis specification.

POINT
Notes on selection

- Refer to P. 5 for (Note 1) through (Note 5).
- There is a brake equipped on the vertical axis as a standard option.
- The vertical axis does not support push-motion control.
- The allowable push force is 45N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Robot Specifications

Axis configuration	Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)		Payload (kg) (Note 3)		
				No gripper	With medium gripper (GM)	Rated	Maximum	
Axis 1	Arm 1	150	±135°	±0.02mm	2151mm/s (Composite speed)	2151mm/s (Composite speed)	1	3
Axis 2	Arm 2	100	±135°					
Axis 3	Vertical axis	—	80mm	±0.02mm	350mm/s	350mm/s	—	0.5 (*2)
Axis 4	Rotational axis	—	±360°	±0.01°	1200°/s	—		
	Medium gripper GM (*1)	—	14mm (Both fingers)	±0.01mm	—	94mm/s (One finger)		

(*1) Refer to the gripper selection guide in our RCP2/RCP4/RCD Vertical Gripper Catalog.
(*2) This is the maximum payload on the gripper when it is attached to a SCARA Robot.

Robot Specifications

	3-axis specification	4-axis specification	3-axis specification with medium gripper (GM)
Encoder type	Battery-less absolute encoder *		
User wiring	AWG26×8		
User piping	O.D. ø4, I.D. ø2.5, 2 air tubes Maximum working pressure 0.8MPa		
Standard cycle time (sec) (Note 4)	0.79		0.79 (at no load on gripper)
Allowable torque (Axis 4) (N·m)	—	0.28	—
Allowable moment (N·m)	0.7		Ma, Mb, Mc : 0.7
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.001 Maximum 0.01	Rated 0.001 Maximum 0.003	Maximum 0.001
Ambient operating temperature/humidity	Temperature 0 ~ 40°C, Humidity 20 ~ 85%RH (Non-condensing)		
Unit weight (kg)	7.5	8	8

*The gripper is incremental type

Attached Gripper Types

IXP-3N2508GM	RCP4-GRSML is installed at the tip of the vertical axis.
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Model Combinations

Specification	Model number
3-axis specification	IXP-3N2508
3-axis specification with medium gripper	IXP-3N2508GM
4-axis specification	IXP-4N2508

Cable Length <Per Axis*>

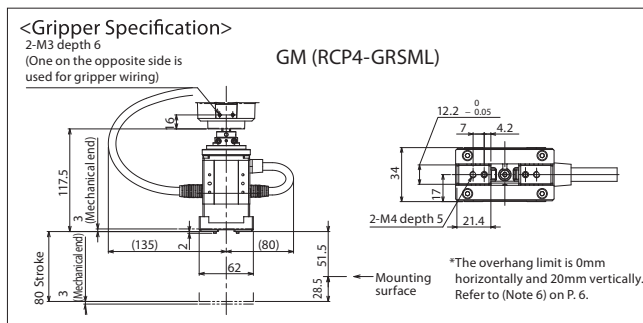
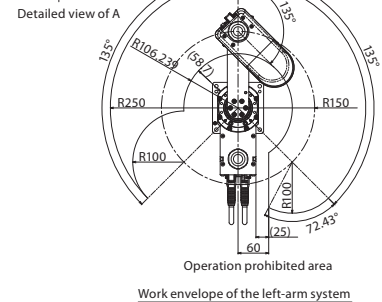
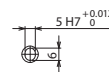
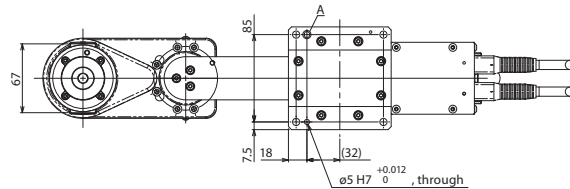
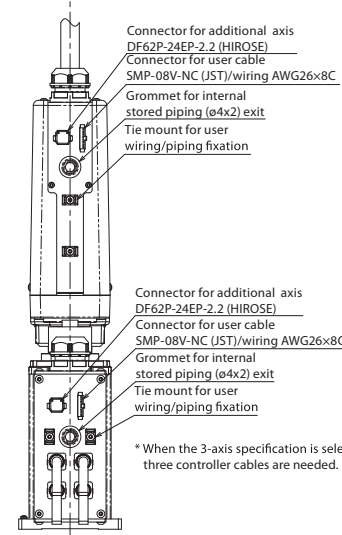
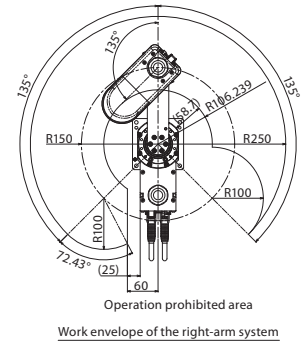
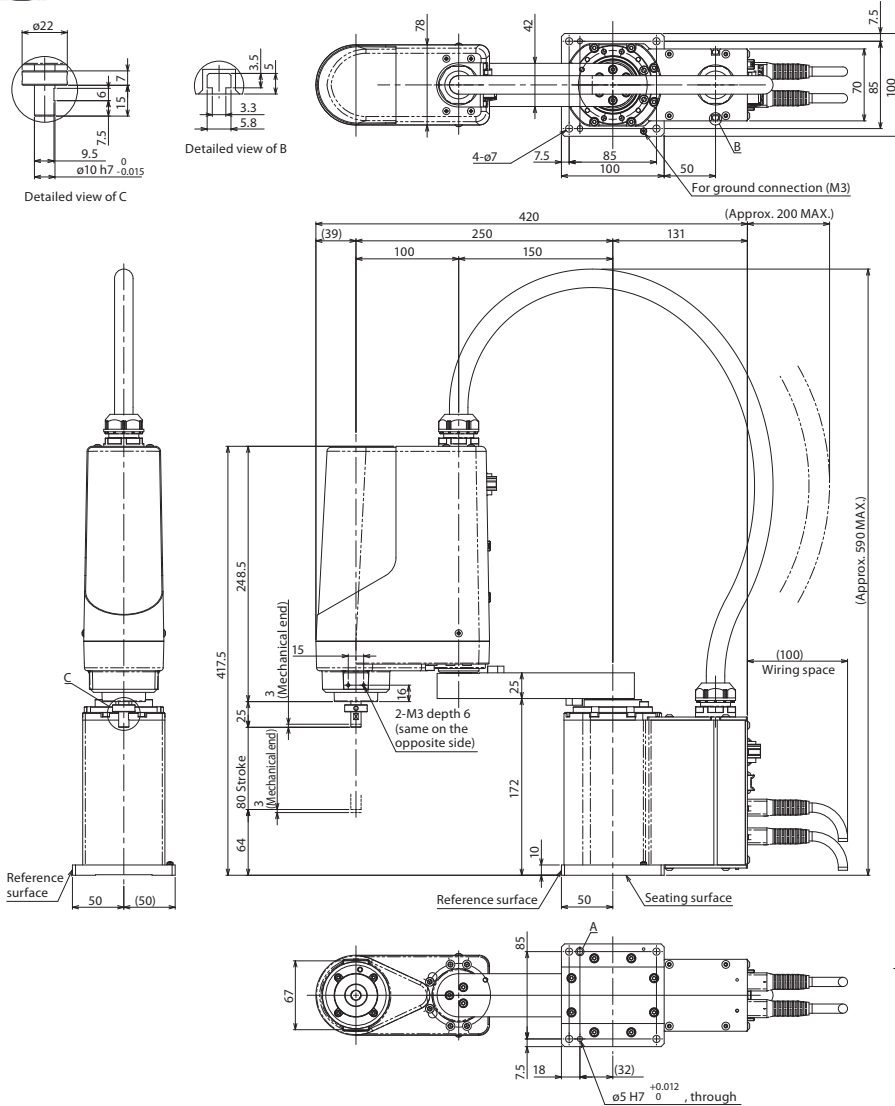
Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while the gripper specification and 4-axis specification require four cables.

Dimensions



CAD drawings can be downloaded from the website. www.intelligentactor.de



Applicable Controller Specifications

Name	External view	Model number (*1)	Max. number of controlled axes	Max. positioning points	Standard I/O points (input/output)	Input voltage	Reference page
Program control multi-axis type Safety category compliant specification		MSEL-PGX①-②WAIB-③-④-2-4	4	30000 points	16 points/16 points	Single-phase AC 100V ~ 230V	→P. 19
Program control multi-axis type Safety category compliant specification with network board		MSEL-PGX①-②WAIB-③-④-0-4					

*① Controller type (3:3-axis specification/4:4-axis specification)
 *② SCARA type (Refer to table on the right)
 *③ Standard I/O (NP/PN)
 *④ Expansion I/O (Refer to table on the right)
 *Refer to P. 20 if considering axis connection other than IXP series.

<SCARA type>

3N2508	4N2508
3N2508GM	

<Expansion I/O>

E	Not used	CC	CC-Link board
NP/PN	Expansion PIO board NPN/PNP spec. (*2)	CC2	CC-Link board (with 2-way connector)
DV	DeviceNet board	PR	PROFIBUS-DP board
DV2	DeviceNet board (with 2-way connector)	EP	EtherNet/IP board

(*1) The model code is just one example. Refer to P. 19 if using such as field network.

(*2) PNP specification for expansion PIO board is coming soon.

IXP- 3N3515 / 4N3515

3N3510

Arm length 350mm
Vertical axis 100mm/150mm

Model Specification Items	IXP — Series	N — Number of axes 3: 3 axes 4: 4 axes	35 — Arm length 35: 350mm	Vertical axis stroke 15 :150mm 15GM :150mm 10GL :100mm	Gripper No gripper Medium gripper installed Large gripper installed	— WA — Encoder type WA: Battery-less absolute specification	— Cable length N: None P: 1m S: 3m M: 5m	— P3 — Applicable controller P3: MSEL
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*Controller is not included.
*Refer to "Attached Gripper Types" for the types of grippers installed.



*The photograph shows a 4-axis specification.

POINT
Notes on selection

- Refer to P. 5 for (Note1) through (Note 5).
- The vertical axis has no brake.
The unique structure holds the load in place even when the servo is turned off.
- The vertical axis does not support push-motion control.
- The allowable push force is 60N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Robot Specifications

Axis configuration	Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)			Payload (kg) (Note 3)	
				No gripper	With medium gripper (GM)	With large gripper (GL)	Rated	Maximum
Axis 1 Arm 1	160	±127°	±0.03mm	2726mm/s (Composite speed)	2726mm/s (Composite speed)	1908mm/s (Composite speed)	1	3
Axis 2 Arm 2	190	±127°						
Axis 3 Vertical axis	—	150mm (*1)	±0.02mm	270mm/s	270mm/s	189mm/s		
Axis 4	Rotational axis	—	±0.02°	1000°/s	—	—		
	Medium gripper GM (*2)	—	14mm (Both fingers)	±0.01mm	—	94mm/s (One finger)	—	0.5 (*3)
	Large gripper GL (*2)	—	22mm (Both fingers)	±0.01mm	—	125mm/s (One finger)	—	1.5 (*3)

(*1) When the large gripper is installed, the work envelope of the vertical axis becomes 100mm. (*2) Refer to the gripper selection guide in our RCP2/RCP4/RCD Vertical Gripper Catalog.

(*3) This is the maximum payload on the gripper when it is attached to a SCARA Robot.

Robot Specifications

	3-axis specification		4-axis specification	
	No gripper	4-axis specification	With medium gripper (GM)	With large gripper (GL)
Encoder type	Battery-less absolute encoder *			
User wiring	AWG24×6, AWG26×5P (shielded) *User cables are sold separately. Refer to the operation manual for detail.		User wiring is not supported because the gripper wiring is used.	
User piping	O.D. ø4, I.D. ø2.5, 3 air tubes (Maximum working pressure 0.8MPa)			
Standard cycle time (sec) (Note 4)	SCARA	0.69	0.69	1.08
	Gripper (full stroke)	—	0.51	0.56
Allowable torque (Axis 4) (N·m)	—	1.4	—	
Allowable moment (N·m)	2.9		Ma: 1.9 Mb: 2.7 Mc: 2.9	Ma: 2.9 Mb: 2.9 Mc: 2.9
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.003 Maximum 0.01	Rated 0.003 Maximum 0.003	Maximum 0.002	Maximum 0.009
Ambient operating temperature/humidity	Temperature 0 ~ 40°C Humidity 20 ~ 85%RH (Non-condensing)			
Unit weight (kg)	12	13	12.5	13

*The gripper is incremental type

Attached Gripper Types

IXP-3N3515GM	The medium gripper RCP4-GRSML is installed at the tip of the vertical axis.
IXP-3N3510GL	The large gripper RCP4-GRSLL is installed at the tip of the vertical axis.

Model Combinations

Specification	Model number
3-axis specification	IXP-3N3515
3-axis specification with medium gripper	IXP-3N3515GM
3-axis specification with large gripper	IXP-3N3510GL
4-axis specification	IXP-4N3515

Cable Length <Per Axis*>

Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while the gripper specification and 4-axis specification require four cables.

IXP- 3N4515 / 4N4515 3N4510

Arm length 450mm
Vertical axis 100mm/150mm

■ Model Specification Items	IXP	—	N	45	—	WA	—	P3
	Series	—	Number of axes 3: 3 axes 4: 4 axes	Arm length 45: 450mm	Vertical axis stroke 15 :150mm 15GM :150mm 10GL :100mm	Gripper No gripper Medium gripper installed Large gripper installed	Encoder type WA: Battery-less absolute specification	Cable length N: None P: 1m S: 3m M: 5m

*Controller is not included.
*Refer to "Attached Gripper Types" for the types of grippers installed.



*The photograph shows a 4-axis specification.

POINT
Notes on selection

- Refer to P. 5 for (Note 1) through (Note 5).
- The vertical axis has no brake.
The unique structure holds the load in place even when the servo is turned off.
- The vertical axis does not support push-motion control.
- The allowable push force is 60N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Robot Specifications

Axis configuration	Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)			Payload (kg) (Note 3)	
				No gripper	With medium gripper (GM)	With large gripper (GL)	Rated	Maximum
Axis 1	260	±127°	±0.03mm	2438mm/s (Composite speed)	2438mm/s (Composite speed)	2060mm/s (Composite speed)	1	3
Axis 2	190	±127°						
Axis 3	—	150mm (*1)	±0.02mm	270mm/s	270mm/s	189mm/s		
Axis 4	Rotational axis	±360°	±0.02°	1000°/s	—	—		
	Medium gripper GM (*2)	14mm (Both fingers)	±0.01mm	—	94mm/s (One finger)	—	—	0.5 (*3)
	Large gripper GL (*2)	22mm (Both fingers)	±0.01mm	—	—	125mm/s (One finger)	—	1.5 (*3)

(*1) When the large gripper is installed, the work envelope of the vertical axis becomes 100mm. (*2) Refer to the gripper selection guide in our RCP2/RCP4/RCD Vertical Gripper Catalog.

(*3) This is the maximum payload on the gripper when it is attached to a SCARA Robot.

Robot Specifications

	3-axis specification		4-axis specification	
	No gripper	With medium gripper (GM)	With medium gripper (GM)	With large gripper (GL)
Encoder type	Battery-less absolute encoder *			
User wiring	AWG24×6, AWG26×5P (shielded) *User cables are sold separately. Refer to the operation manual for detail.		User wiring is not supported because the gripper wiring is used.	
User piping	O.D. ø4, I.D. ø2.5, 3 air tubes (Maximum working pressure 0.8MPa)			
Standard cycle time (sec) (Note 4)	SCARA	0.67	0.67	0.95
	Gripper (full stroke)	—	0.51	0.56
Allowable torque (Axis 4) (N·m)	—	1.4	—	
Allowable moment (N·m)	2.9		Ma: 1.9 Mb: 2.7 Mc: 2.9	Ma: 2.9 Mb: 2.9 Mc: 2.9
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.003 Maximum 0.01	Rated 0.003 Maximum 0.003	Maximum 0.002	Maximum 0.009
Ambient operating temperature/humidity	Temperature 0 ~ 40°C Humidity 20 ~ 85%RH (Non-condensing)			
Unit weight (kg)	13	14	13.5	14

*The gripper is incremental type

Attached Gripper Types

IXP-3N4515GM	The medium gripper RCP4-GRSML is installed at the tip of the vertical axis.
IXP-3N4510GL	The large gripper RCP4-GRSLL is installed at the tip of the vertical axis.

Model Combinations

Specification	Model number
3-axis specification	IXP-3N4515
3-axis specification with medium gripper	IXP-3N4515GM
3-axis specification with large gripper	IXP-3N4510GL
4-axis specification	IXP-4N4515

Cable Length <Per Axis*>

Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while the gripper specification and 4-axis specification require four cables.

IXP-3N5520 / 3N5515 / 4N5520

Arm length 550mm
Vertical axis 200mm/150mm

Model Specification Items	IXP — <input type="checkbox"/> N 55 <input type="checkbox"/>	WA — <input type="checkbox"/>	P3 — <input type="checkbox"/>
Series	Number of axes 3: 3 axes 4: 4 axes	Arm length 55: 550mm	Vertical axis stroke 20 :200mm 15GL :150mm 15GW :150mm
	Gripper	Encoder type	Cable length
	No gripper Large gripper installed Extra-large gripper installed	WA: Battery-less absolute specification	N: None P: 1m S: 3m M: 5m
		X <input type="checkbox"/> : Specified length R <input type="checkbox"/> : Robot cable Cable length described below	Applicable controller P3: MSEL
			Option B: Brake

*Controller is not included.
*Refer to "Attached Gripper Types" for the types of grippers installed.



*The photograph shows a 4-axis specification.

POINT
Notes on selection

- Refer to P. 5 for (Note1) through (Note 5).
- Make sure to select the brake option when the payload is 4kg or more.
- The vertical axis does not support push-motion control.
- The allowable push force should be 90N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Axis configuration		Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)			Payload (kg) (Note 3)	
					No gripper	With large gripper (GL)	With extra-large gripper (GW)	Rated	Maximum
Axis 1	Arm 1	260	±127°	±0.04mm	2943mm/s (Composite speed)	2943mm/s (Composite speed)	2943mm/s (Composite speed)	2	6
Axis 2	Arm 2	290	±127°						
Axis 3	Vertical axis	—	200mm (*1)						
	Rotational axis	—	±360°	±0.02°	700°/s	—	—		
Axis 4	Large gripper GL (*2)	—	22mm (Both fingers)	±0.01mm	—	125mm/s (One finger)	—	—	1.5 (*3)
	Extra-large gripper GW (*2)	—	30mm (Both fingers)	±0.01mm	—	—	157mm/s (One finger)	—	2.5 (*3)

(*1) When the large/extra-large gripper is installed, the work envelope of the vertical axis becomes 150mm. (*2) Refer to the gripper selection guide in our RCP2/RCP4/RCD Vertical Gripper Catalog. (*3) This is the maximum payload on the gripper when it is attached to a SCARA Robot.

Robot Specifications	3-axis specification		4-axis specification	
	No gripper	4-axis specification	With large gripper (GL)	With extra-large gripper (GW)
Encoder type	Battery-less absolute encoder *			
User wiring	AWG24×6, AWG26×5P (shielded) *User cables are sold separately. Refer to the operation manual for detail.		User wiring is not supported because the gripper wiring is used.	
User piping	O.D. ø4, I.D. ø2.5, 3 air tubes Maximum working pressure 0.8MPa			
Standard cycle time (sec) (Note 4)	0.73		0.73 (When transporting 2kg including a gripper)	
Allowable torque (Axis 4) (N·m)	—		3.06	
Allowable moment (N·m)	9.4		Ma: 3.8 Mb: 5.5 Mc: 9.4	Ma: 9.4 Mb: 9.4 Mc: 9.4
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.01 Maximum 0.03	Rated 0.01 Maximum 0.01	Maximum 0.026	Maximum 0.024
Ambient operating temperature/humidity	Temperature 0 ~ 40°C Humidity 20 ~ 85%RH (Non-condensing)			
Unit weight (kg)	20	21	21.3	21.9

*The gripper is incremental type

Attached Gripper Types	
IXP-3N5520GL	The large gripper RCP4-GRSLL is installed at the tip of the vertical axis.
IXP-3N5520GW	The extra-large gripper RCP4-GRSWL is installed at the tip of the vertical axis.

Option		
Name	Option code	Reference page
Brake	B	Refer to our RoboCylinder General Catalog

Model Combinations	
Specification	Model number
3-axis specification	IXP-3N5520
3-axis specification with large gripper	IXP-3N5515GL
3-axis specification with extra-large gripper	IXP-3N5515GW
4-axis specification	IXP-4N5520

Cable Length <Per Axis*>	
Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while the gripper specification and 4-axis specification require four cables.

IXP- 3N6520 / 3N6515 / 4N6520

Arm length 650mm
Vertical axis 200mm/150mm

■ Model Specification Items	IXP	N 65		WA		P3		
	Series	Number of axes 3: 3 axes 4: 4 axes	Arm length 65: 650mm	Vertical axis stroke 20 :200mm 15GL :150mm 15GW :150mm	Gripper No gripper Large gripper installed Extra-large gripper installed	Encoder type WA: Battery-less absolute specification	Cable length N: None P: 1m S: 3m M: 5m	Applicable controller P3: MSEL

*Controller is not included.
*Refer to "Attached Gripper Types" for the types of grippers installed.



*The photograph shows a 4-axis specification.

POINT
Notes on selection

- Refer to P. 5 for (Note 1) through (Note 5).
- Make sure to select the brake option when the payload is 4kg or more.
- The vertical axis does not support push-motion control.
- The allowable push force should be 90N under condition of having a buffer such as a spring on a tool or the pressing side.
- Refer to P. 5 for the work envelope, and P. 26 for the notes on acceleration/deceleration setting.

Axis configuration		Arm length (mm)	Work envelope	Positioning repeatability (Note 1)	Maximum operating speed in PTP mode (Note 2)			Payload (kg) (Note 3)	
					No gripper	With large gripper (GL)	With extra-large gripper (GW)	Rated	Maximum
Axis 1	Arm 1	360	±127°	±0.04mm	2916mm/s (Composite speed)	2916mm/s (Composite speed)	2916mm/s (Composite speed)	2	6
Axis 2	Arm 2	290	±127°						
Axis 3	Vertical axis	—	200mm (*1)						
	Rotational axis	—	±360°	±0.02°	700°/s	—	—		
Axis 4	Large gripper GL (*2)	—	22mm (Both fingers)	±0.01mm	—	125mm/s (One finger)	—	—	1.5 (*3)
	Extra-large gripper GW (*2)	—	30mm (Both fingers)	±0.01mm	—	—	157mm/s (One finger)	—	2.5 (*3)

(*1) When the large/extra-large gripper is installed, the work envelope of the vertical axis becomes 150mm. (*2) Refer to the gripper selection guide in our RCP2/RCP4/RCD Vertical Gripper Catalog. (*3) This is the maximum payload on the gripper when it is attached to a SCARA Robot.

Robot Specifications	3-axis specification		4-axis specification	
	No gripper	With large gripper (GL)	With extra-large gripper (GW)	With extra-large gripper (GW)
Encoder type	Battery-less absolute encoder *			
User wiring	AWG24×6, AWG26×5P (shielded)		User wiring is not supported because the gripper wiring is used.	
User piping	O.D. ø4, I.D. ø2.5, 3 air tubes Maximum working pressure 0.8MPa			
Standard cycle time (sec) (Note 4)	0.81		0.81 (When transporting 2kg including a gripper)	
Allowable torque (Axis 4) (N·m)	—		3.06	
Allowable moment (N·m)	9.4		Ma: 3.8 Mb: 5.5 Mc: 9.4	Ma: 9.4 Mb: 9.4 Mc: 9.4
Allowable inertial moment from the tip of the vertical axis (kg·m ²) (Note 5)	Rated 0.01 Maximum 0.03	Rated 0.01 Maximum 0.01	Maximum 0.026	Maximum 0.024
Ambient operating temperature/humidity	Temperature 0 ~ 40°C Humidity 20 ~ 85%RH (Non-condensing)			
Unit weight (kg)	21	22	22.3	22.9

*The gripper is incremental type

Attached Gripper Types	
IXP-3N6520GL	The large gripper RCP4-GRSLL is installed at the tip of the vertical axis.
IXP-3N6520GW	The extra-large gripper RCP4-GRSWL is installed at the tip of the vertical axis.

Option		
Name	Option code	Reference page
Brake	B	Refer to our RoboCylinder General Catalog

Model Combinations	
Specification	Model number
3-axis specification	IXP-3N6520
3-axis specification with large gripper	IXP-3N6515GL
3-axis specification with extra-large gripper	IXP-3N6515GW
4-axis specification	IXP-4N6520

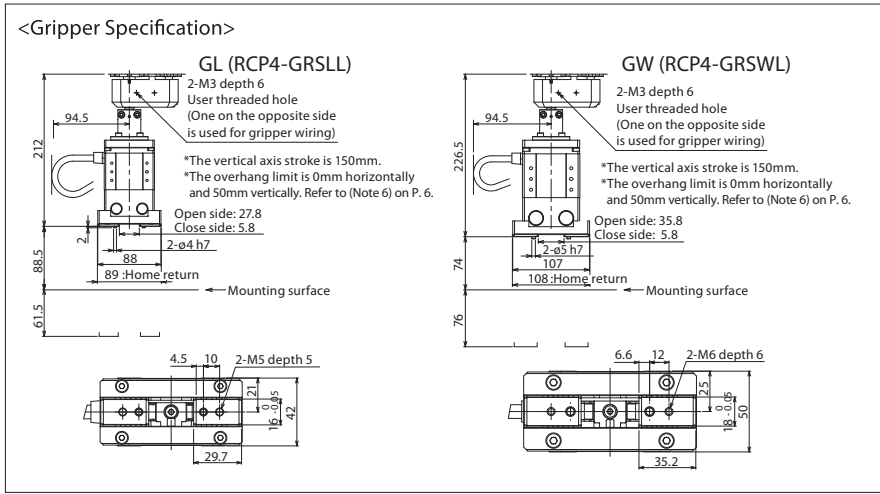
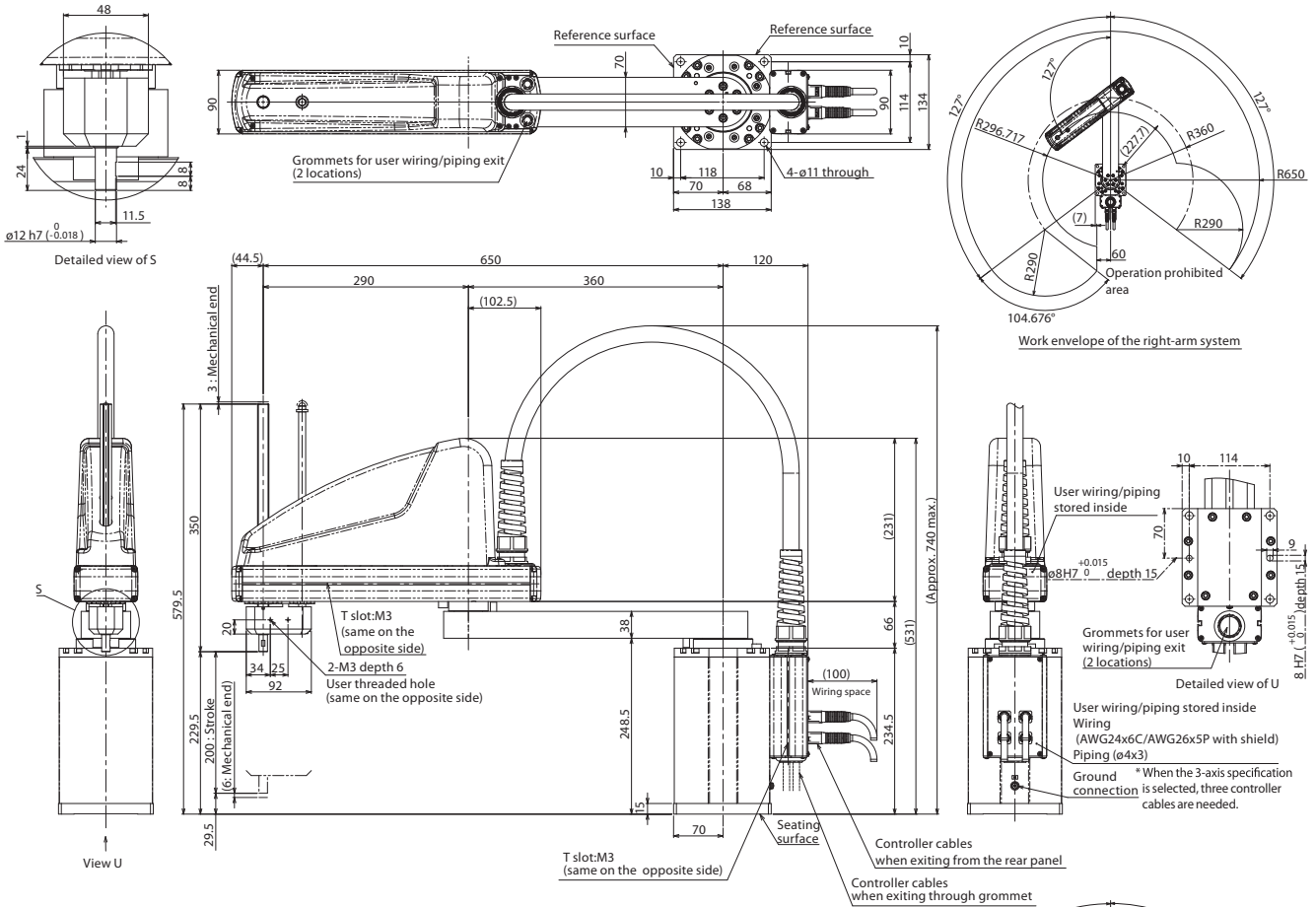
Cable Length <Per Axis*>	
Type	Cable code
Standard type	P (1m)
	S (3m)
	M (5m)
Special length	X06 (6m) ~ X10 (10m)
	X11 (11m) ~ X15 (15m)
	X16 (16m) ~ X20 (20m)
Robot cable	R01 (1m) ~ R03 (3m)
	R04 (4m) ~ R05 (5m)
	R06 (6m) ~ R10 (10m)
	R11 (11m) ~ R15 (15m)
	R16 (16m) ~ R20 (20m)

*The 3-axis specification requires three cables, while the gripper specification and 4-axis specification require four cables.

Dimensions



CAD drawings can be downloaded from the website. www.intelligentactor.de



Applicable Controller Specifications								
Name	External view	Model number (*1)	Max. number of controlled axes	Max. positioning points	Standard I/O points (input/output)	Input voltage	Reference page	
Program control multi-axis type Safety category compliant specification		MSEL-PGX①-②WAI□-③④-2-4	4	30000 points	16 points/16 points	Single-phase AC 100V ~ 230V	→P. 19	
Program control multi-axis type Safety category compliant specification with network board		MSEL-PGX①-②WAI□-③④-⑤-0-4						
		<SCARA type>	<Expansion I/O>					
		3N6520	3N6515GL	E	Not used		CC	CC-Link board
		4N6520	3N6515GW	NP/PN	Expansion PIO board NPN/PNP spec. (*2)		CC2	CC-Link board (with 2-way connector)
				DV	DeviceNet board		PR	PROFIBUS-DP board
				DV2	DeviceNet board (with 2-way connector)		EP	EtherNet/IP board

*① Controller type (3:3-axis specification/4:4-axis specification)
 *② SCARA type (Refer to table on the right)
 *③ Standard I/O (NP/PN)
 *④ Expansion I/O (Refer to table on the right)
 *Enter "B" in □, when brake option is selected.
 *Refer to P. 20 if considering axis connection other than IXP Series.
 (*1) The model code is just one example. Refer to P. 19 if using such as field network.
 (*2) PNP specification for expansion PIO board is coming soon.

MSEL



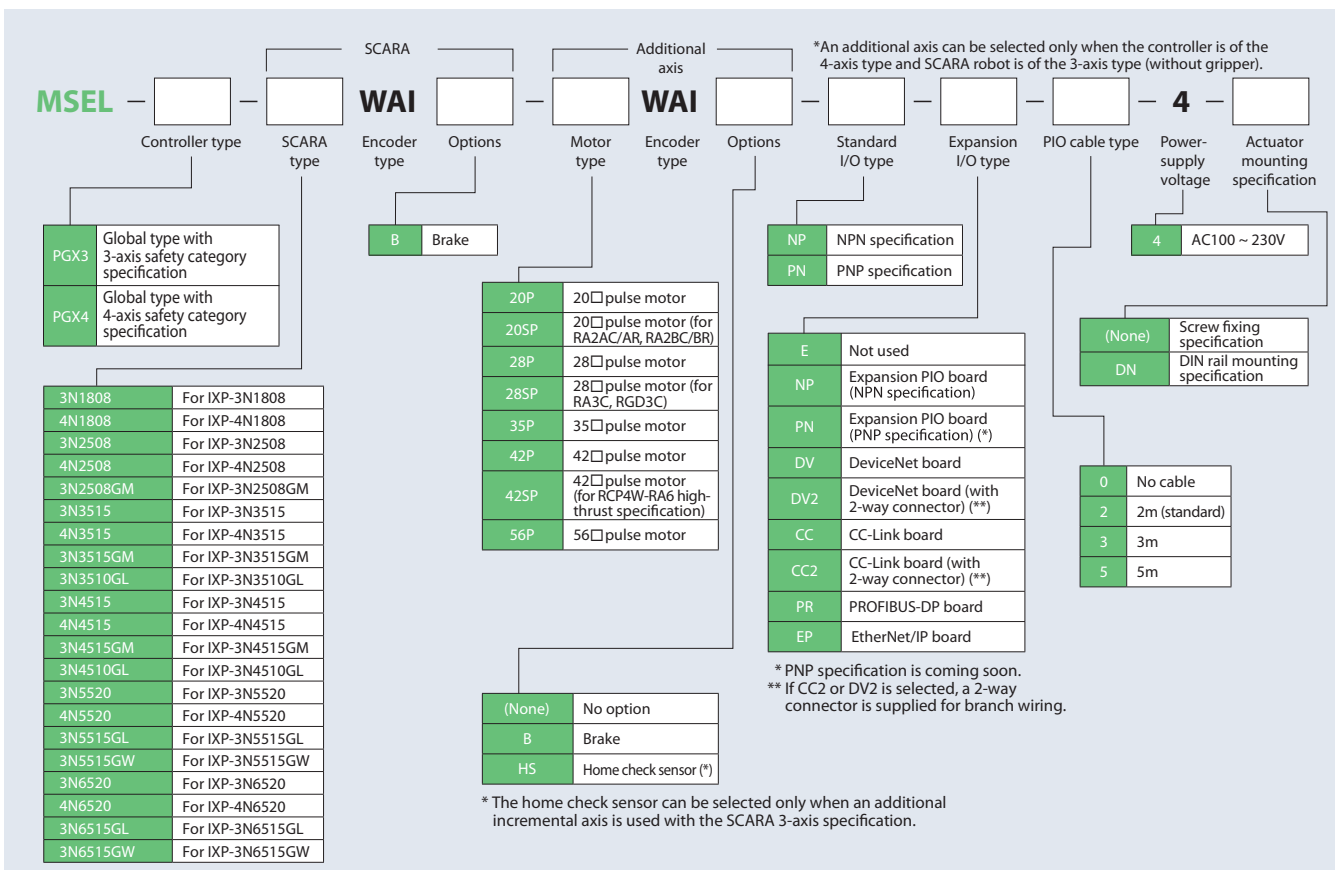
MSEL-PGX
Program Controller for PowerCon SCARA

Model List

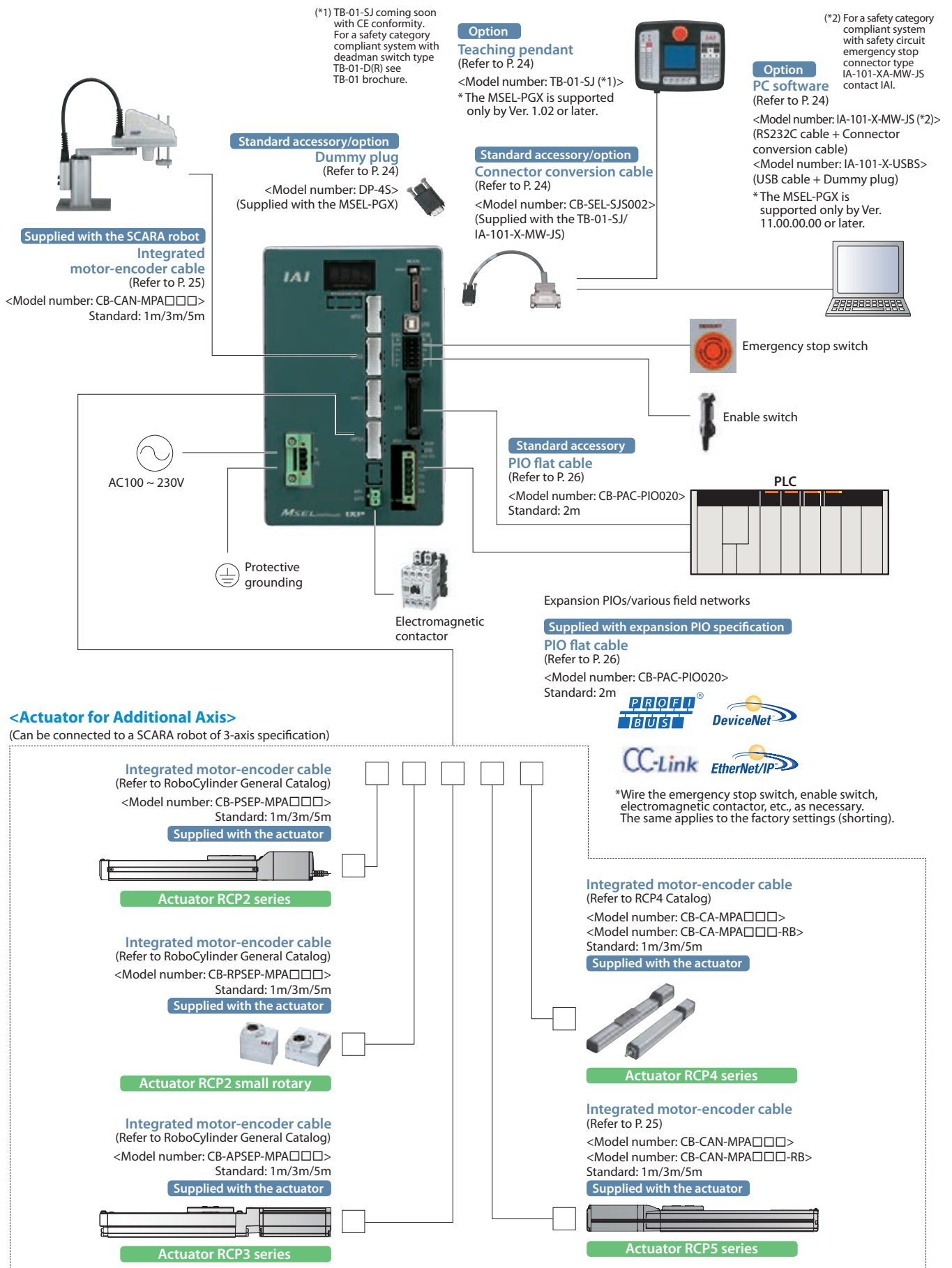
Name	Controllers for PowerCon SCARA	
External view		
Type name	PGX3	PGX4
Type	Global type with 3-axis safety category specification	Global type with 4-axis safety category specification
Safety category (*1)	Can be made compliant with categories B to 3	
Connected actuator	IXP 3-axis specification	IXP 3-axis specification + additional axis (including gripper specification) IXP 4-axis specification (with rotating axis)
I/O	Standard type: NPN, PNP (16IN/16OUT) Expansion type: NPN, PNP (*2), CC-Link, DeviceNet, PROFIBUS-DP, EtherNet/IP	
Number of positions	30000	
Power-supply voltage	Single-phase AC100 ~ 230V	

(*1) Meeting this safety category requires the customer to install a safety circuit externally to the controller. (*2) PNP specification for expansion PIO board is coming soon.

Model



System Configuration



Basic Controller Specifications

Specification item		Contents		
Power-supply input voltage		Single-phase AC100 ~ 230 V ±10%		
Power-supply current		2.9A typ. (AC100V), 1.4A typ. (AC200V), 1.2A typ. (AC230V)		
Power-supply frequency range		50/60Hz±5%		
Motor type		Pulse motor (servo control)		
Supported encoder		Incremental encoder / Battery-less absolute encoder		
Data storage device		FlashROM/FRAM		
Number of program steps		9999		
Number of positions		30000		
Number of programs		255		
Number of multi-tasks		16		
Operation mode	Serial communications	○		
	Program	○		
SIO interface	Communication method	RS232 (asynchronous communications)		
	Baud rate	9.6, 19.2, 38.4, 57.6, 76.8, 115.2kbps		
	Live wire connection	TP port	—	
		USB	○	
Standard PIO interface	Input Specification	Number of input points	16 points	
		Input voltage	DC24V±10%	
		Input current	7mA/circuit	
		ON voltage	DC16V Min.	
		OFF voltage	DC5V Max.	
		Leak current	Allowable leak current: 1mA max.	
		Insulation method	Photocoupler insulation	
	Output specification	Number of output points	16 points	
		Load voltage	DC24V±10%	
		Maximum current	100mA per point, 400mA per 8 points (Note 1)	
		Saturated voltage	3V Max.	
		Leak current	0.1mA Max.	
Insulation method		Photocoupler insulation		
Compliant expansion I/O interface		Expansion PIO NPN specification (16IN/16OUT) (Note 2)		
		CC-Link (remote device station)		
		DeviceNet		
		PROFIBUS-DP		
		EtherNet/IP		
Calendar/clock function	Retention time	Approx. 10 days		
	Charge time	Approx. 100 hours (fully charged) * Data can be retained even when the batteries are not fully charged.		
Protective functions		Overcurrent, abnormal temperature, low fan speed monitoring, encoder disconnection, etc.		
Operating temperature range		0 ~ 40°C		
Operating humidity range		85% RH max. (non-condensing, non-freezing)		
Installation	Installation direction	Installed vertically (exhaust side up)		
	Installation method	Mounted with screws or using a DIN rail		
Rush current		15A typ. (AC100 V), 30A typ. (AC200 V): 5ms max. (Ambient temperature 25°C/No cycling of the power)		
Air cooling method		Forced air cooling		
External dimensions		Width 130mm x Height 195mm x Depth 125mm		
Mass		Approx. 1400g		

(Note 1) The total load current shall be 400mA for every eight points from standard I/O No. 316. (The maximum current per point shall be 100mA.)

(Note 2) The expansion I/O interface is coming soon with PNP specification.

PIO Signal Chart

Pin layouts for standard PIO connector/expansion PIO connector

Pin No.	Category	Assignment	Pin No.	Category	Assignment
1A	24V	P24	1B	Output	OUT0
2A	24V	P24	2B		OUT1
3A	—	—	3B		OUT2
4A	—	—	4B		OUT3
5A	Input	IN0	5B		OUT4
6A		IN1	6B		OUT5
7A		IN2	7B		OUT6
8A		IN3	8B		OUT7
9A		IN4	9B		OUT8
10A		IN5	10B		OUT9
11A		IN6	11B		OUT10
12A		IN7	12B		OUT11
13A		IN8	13B		OUT12
14A		IN9	14B		OUT13
15A		IN10	15B		OUT14
16A		IN11	16B	OUT15	
17A		IN12	17B	—	
18A		IN13	18B	—	
19A		IN14	19B	0V	N
20A	IN15	20B	0V	N	

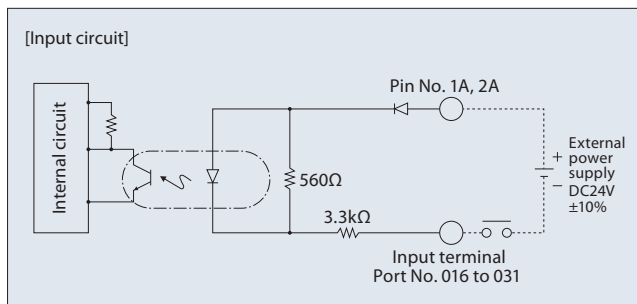
Internal Circuits for Standard I/Os (NPN Specifications) *

* For the standard IOs with PNP specifications refer to the operation manual.

[Input section] External input specifications (NPN specifications)

Item	Specifications
Input voltage	DC24V ±10%
Input current	7mA/circuit
On/Off voltage	On voltage: DC16.0V min. Off voltage: DC5.0V max.
Insulation method	Photocoupler insulation

* The port numbers in the circuit diagram below represent the factory-set port numbers.
* When the input is off, the allowable leak current is 1mA max.

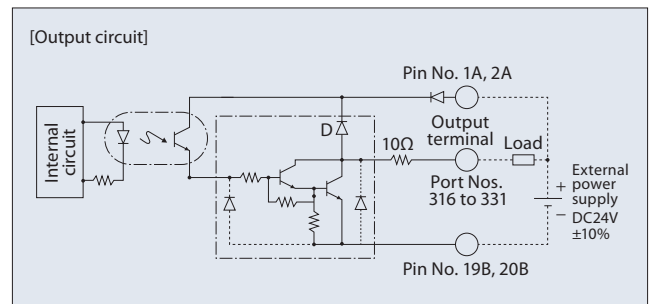


[Output section] External output specifications (NPN specifications)

Item	Specifications
Load voltage	DC24V ±10%
Maximum load current	100mA/point, 400mA/8 points (Note)
Leak current	0.1mA/point max.
Insulation method	Photocoupler insulation

Uses TD62084 (or equivalent).

* The port numbers in the circuit diagram below represent the factory-set port numbers.
Note: The total load current shall be 400 mA for every eight points from standard I/O No. 316. (The maximum current per point shall be 100mA.)

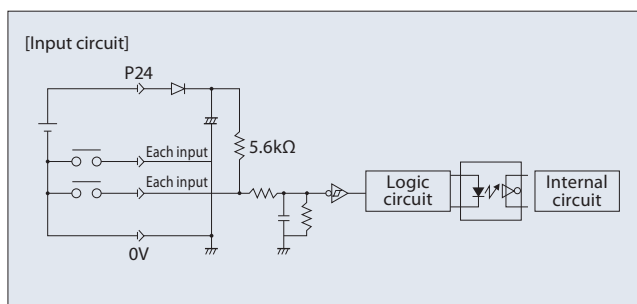


Internal Circuits for Expansion I/Os (NPN Specifications) *

* The expansion IOs with PNP specifications are coming soon.

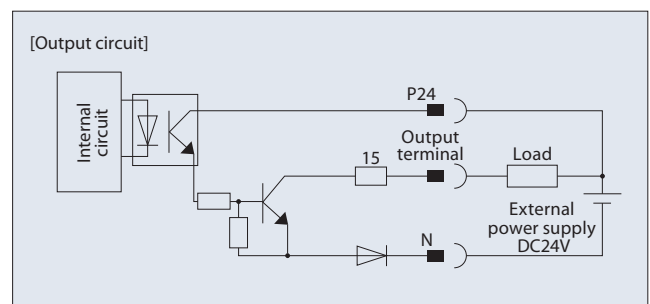
[Input section] External input specifications

Item	Specifications
Number of input points	16 points
Input voltage	DC24V ±10%
Input current	4mA/circuit
On/Off voltage	On voltage: DC18V (3.5mA) min. Off voltage: DC6V (1mA) max.
Insulation method	Photocoupler insulation

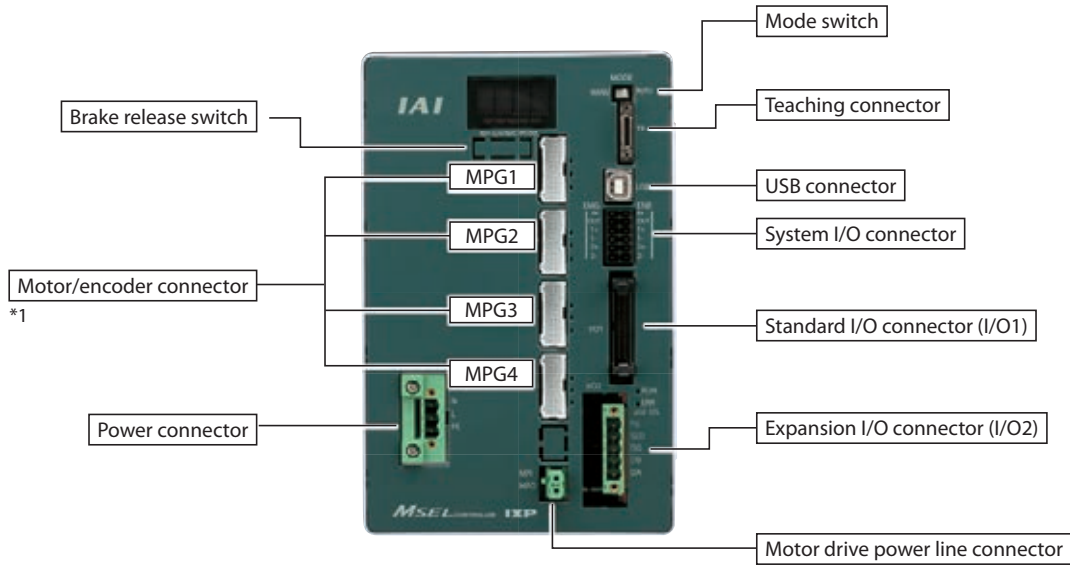


[Output section] External output specifications

Item	Specifications
Number of output points	16 points
Rated load current	DC24V ±10%
Maximum current	50mA/circuit
Insulation method	Photocoupler insulation

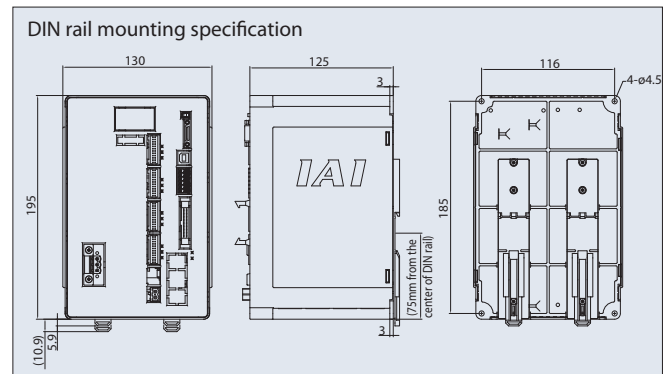
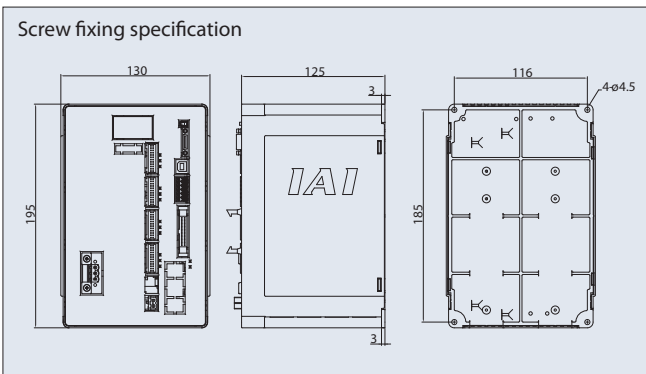


Name of Each Part



*1: Do not connect a wrong motor to the MPG1, MPG2, MPG3 or MPG4 connector. It may cause malfunction or failure.

External dimensions

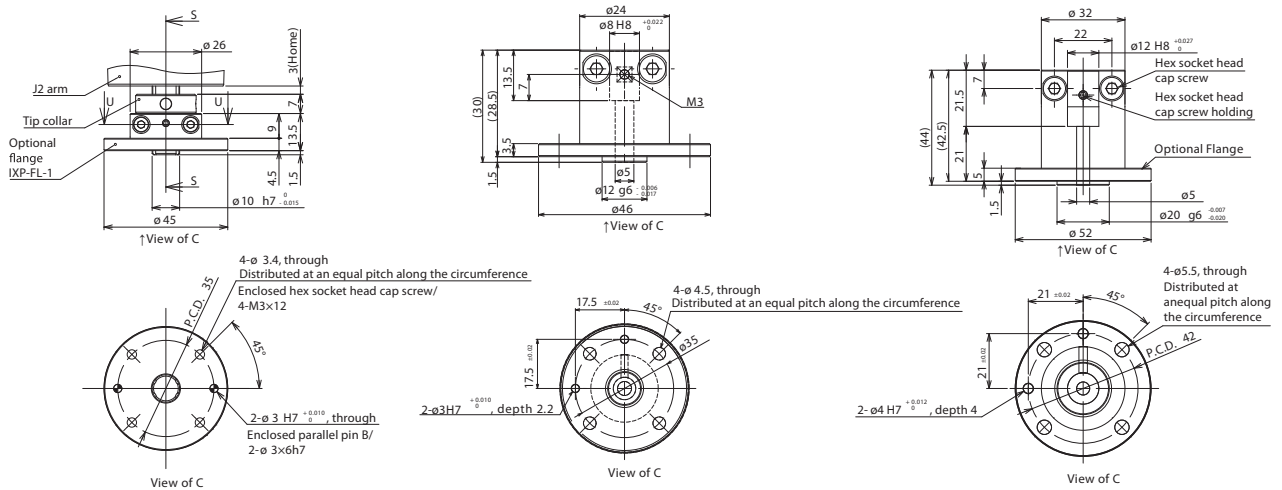


Options

Flange

Features

It is a tool used to attach an object on the arm tip on the Z-axis.



Model number	Applicable IXP type	Weight
IXP-FL-1	1808/2508	80g

Model number	Applicable IXP type	Weight
IXP-FL-2	3515/3510/ 4515/4510	120g

Model number	Applicable IXP type	Weight
IXP-FL-3	5520/5515/ 6520/6515	290g

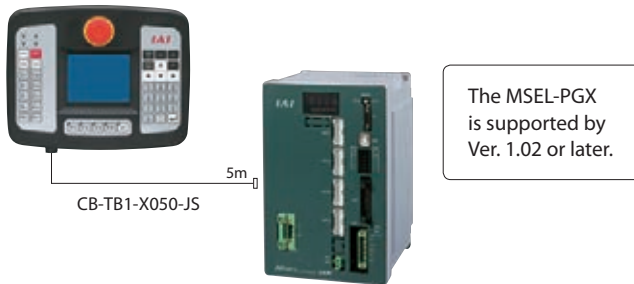
Touch Panel Teaching Pendant

Features A teaching device offering program/position input, trial operation and monitoring functions.

Model number TB-01-SJ (Note 1)

* This model is the standard specification with connector conversion cable. If you are interested in the deadman switch specification, specify the model number of the applicable teaching pendant (TB-01D-N/TB-01DR-N) and that of the cable (CB-TB1-X050-JS).

Configuration



Dummy Plug

Features This plug is required for the safety category specification (MSEL-PGX) and when the MSEL is operated using a USB cable. (The MSEL-PGX type and PC Software IA-101-X-USBS come with this dummy plug.)



Model number DP-4S

Connector conversion cable

Features This cable is used to convert the D-sub 25-pin connector of the teaching pendant or RS232C cable to the MSEL teaching connector. (The TB-01-SJ and IA-101-X-MW-JS come with this connector conversion cable.)

Model number CB-SEL-SJS002

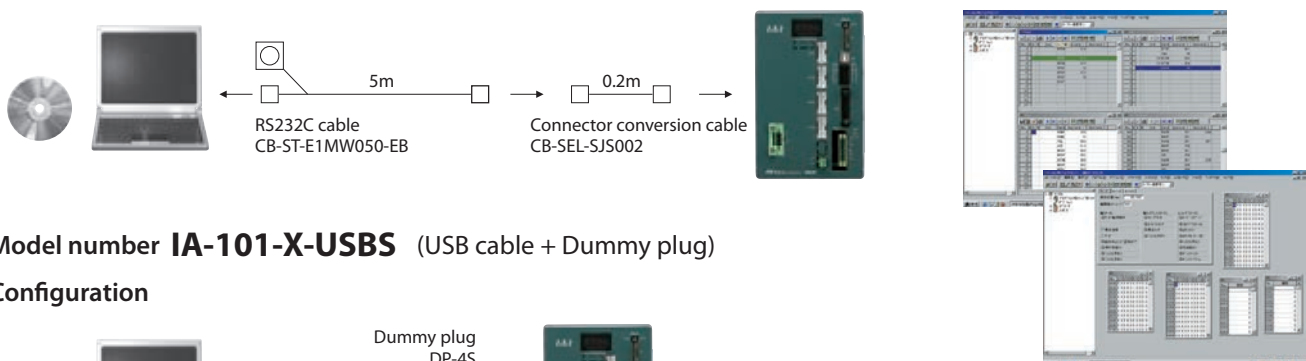


PC Software (Windows Only)

Features The startup support software provides program/position input, test operation and monitoring functions, among others. With its enhanced functions required for debugging, this software helps shorten the startup time.

Model number IA-101-X-MW-JS (RS232C cable + Connector conversion cable) (Note 2)

Configuration



Model number IA-101-X-USBS (USB cable + Dummy plug)

Configuration



(Note 1)

TB-01-SJ is coming soon with CE conformity.
For a safety category compliant system with deadman switch type TB-01-D(R) see TB-01 brochure.

(Note 2)

The RS232C standard cable CB-ST-**E**1MW050-EB cannot be used when "Building an enable system that uses a system I/O connector and external power supply" or "Building a redundant safety circuit."
(The RS232C safety category cable CB-ST-**A**1MW050-EB must be used instead.)
For more details of a safety category compliant system with a safety circuit emergency stop connector kit IA-101-**XA**-MW-JS contact IAI.

Service Parts

Please refer to the models listed below when arrangements such as cable replacement are needed after purchasing the product.

(Check in the general or dedicated single catalog for the cable for added axis.)

Model Number	CB-CAN-MPA □ □ □	Integrated Motor-Encoder Cable	for
	CB-CAN-MPA □ □ □ - RB	Integrated Motor-Encoder Robot Cable	IXP / RCP4-SA3/RA3 / RCP5

* Please indicate cable length (L) in □ □ □, maximum 20m. e.g.) 080 = 8m

(Front view) Actuator side (12) (18) L (10) (26) (Front view) Controller side (10) (26)

Minimum bending radius 5m or less length R = 68mm or more (Dynamic bending condition)
 Longer than 5m R = 73mm or more (Dynamic bending condition)

* The robot cable is designed for flex-resistance: Please use the robot cable if the cable has to be installed through a cable track.

(Note 1) If the cable is 5m or longer, ø9.1 cable diameter applies for a non-robot cable and ø10 for a robot cable.

Pin No.	Signal name	Pin No.	Signal name
3	øA/U	1	øA/U
5	VMM/V	2	VMM/V
10	ø A/W	3	ø A/W
9	øB/-	4	øB/-
4	VMM/-	5	VMM/-
15	ø B/-	6	ø B/-
8	LS+/BK+	7	LS+/BK+
14	LS-/BK-	5	LS-/BK-
12	-/A+	11	-/A+
17	-/A-	12	-/A-
1	A+/B+	13	A+/B+
6	A-/B-	14	A-/B-
11	B+/Z+	15	B+/Z+
16	B-/Z-	16	B-/Z-
20	BK+/LS+	9	BK+/LS+
2	BK-/LS-	10	BK-/LS-
21	LS GND	17	LS GND
7	VPS	19	VPS
15	VCC	15	VCC
13	GND	20	GND
19	—	22	—
22	BAT+	21	BAT+
23	—	23	—
24	FG	24	FG

Model Number	CB-PAC-PIO □ □ □	PIO Flat Cable	for
			MSEL / PCON-CA / MSEP-LC

* Please indicate cable length (L) in □ □ □, maximum 10m. e.g.) 080 = 8m

No connector (A) (B) Half-pitch MIL socket: HIF6-40D-1.27R (Hirose)

Flat cable (20-core) x 2

No.	Signal name	Cable color	Wiring	No.	Signal name	Cable color	Wiring
A1	24V	Brown-1	Flat cable (A) (crimped) AWG28	B1	OUT0	Brown-3	Flat cable (B) (crimped) AWG28
A2	24V	Red-1		B2	OUT1	Red-3	
A3	—	Orange-1		B3	OUT2	Orange-3	
A4	—	Yellow-1		B4	OUT3	Yellow-3	
A5	IN0	Green-1		B5	OUT4	Green-3	
A6	IN1	Blue-1		B6	OUT5	Blue-3	
A7	IN2	Purple-1		B7	OUT6	Purple-3	
A8	IN3	Gray-1		B8	OUT7	Gray-3	
A9	IN4	White-1		B9	OUT8	White-3	
A10	IN5	Black-1		B10	OUT9	Black-3	
A11	IN6	Brown-2		B11	OUT10	Brown-4	
A12	IN7	Red-2		B12	OUT11	Red-4	
A13	IN8	Orange-2		B13	OUT12	Orange-4	
A14	IN9	Yellow-2		B14	OUT13	Yellow-4	
A15	IN10	Green-2		B15	OUT14	Green-4	
A16	IN11	Blue-2		B16	OUT15	Blue-4	
A17	IN12	Purple-2		B17	—	Purple-4	
A18	IN13	Gray-2		B18	—	Gray-4	
A19	IN14	White-2		B19	0V	White-4	
A20	IN15	Black-2		B20	0V	Black-4	

Pitch of Available Positioning Points

		IXP-3N1808	IXP-3N2508	IXP-4N1808	IXP-4N2508
Pitch of Available Positioning Points	On horizontal surface (J1 axis + J2 axis) (mm)	0.081 (Maximum)	0.097 (Maximum)	0.081 (Maximum)	0.097 (Maximum)
	Vertical axis (mm)	0.011	0.011	0.011	0.011
	Rotational axis (degree)	—	—	0.099	0.099
		IXP-3N3515	IXP-3N4515	IXP-4N3515	IXP-4N4515
Pitch of Available Positioning Points	On horizontal surface (J1 axis + J2 axis) (mm)	0.202 (Maximum)	0.179 (Maximum)	0.202 (Maximum)	0.179 (Maximum)
	Vertical axis (mm)	0.009	0.009	0.009	0.009
	Rotational axis (degree)	—	—	0.113	0.113
		IXP-3N5520	IXP-3N6520	IXP-4N5520	IXP-4N6520
Pitch of Available Positioning Points	On horizontal surface (J1 axis + J2 axis) (mm)	0.200 (Maximum)	0.224 (Maximum)	0.200 (Maximum)	0.224 (Maximum)
	Vertical axis (mm)	0.009	0.009	0.009	0.009
	Rotational axis (degree)	—	—	0.053	0.053

Reference for SCARA Robot Acceleration/Deceleration Settings

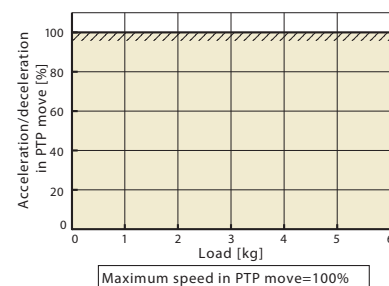
If the robot must be operated continuously, make sure its setting falls within the ranges of the reference graphs for acceleration/deceleration setting and duty cycle setting.

PTP Move

The maximum speed and acceleration/deceleration at which the robot can operate carrying the applicable load are applied as 100% (optimal speed & optimal acceleration/deceleration function). Make adjustments so that the target speed and acceleration/deceleration can be achieved.

Notes

- The optimal speed & optimal acceleration/deceleration function does not guarantee robot operation in all operation patterns.
- If significant vibration generates, reduce the speed and/or acceleration/deceleration because the robot may fail or die prematurely.



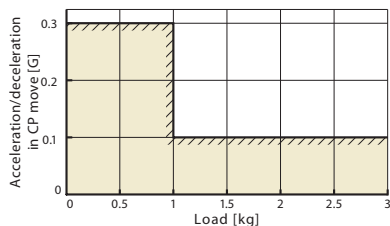
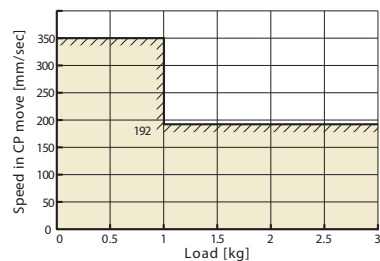
CP Move

Set the speed and acceleration/deceleration at or below the applicable values according to the graphs below.

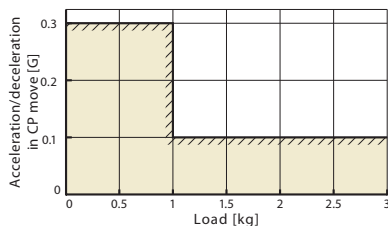
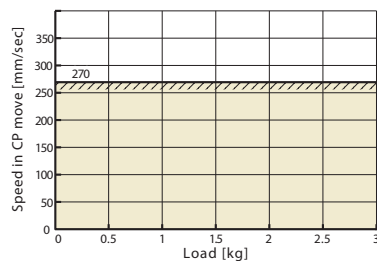
Notes

- If significant vibration generates, reduce the speed and/or acceleration/deceleration because the robot may fail or die prematurely.

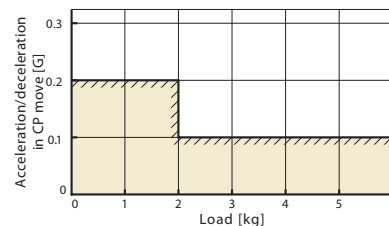
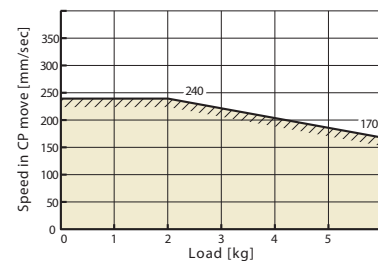
IXP-3/4N1808, 2508



IXP-3/4N3515, 4515



IXP-3/4N5520, 6520



Duty Cycle Setting

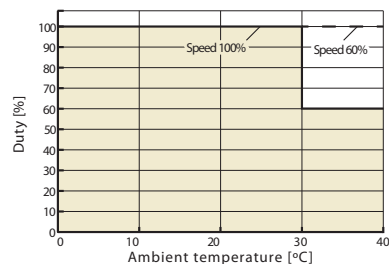
The duty cycle refers to a utilization ratio expressed by the percentage of the robot operating time per cycle.

For this robot, the duty cycle is limited according to the ambient temperature in order to suppress heat generation from the motor unit and reduction gears. In both PTP move and CP move, the maximum value according to the graphs below must not be exceeded. Also remember to complete a continuous operation within 30 minutes.

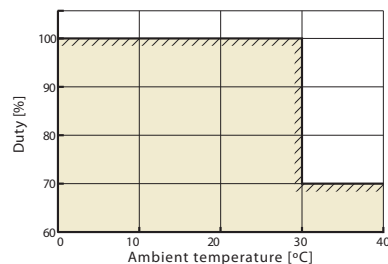
Notes

- The duty cycle must not exceed the maximum limit, as it may significantly reduce the life of the motor unit or reduction gears.

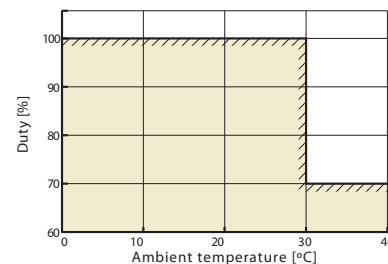
IXP-3/4N1808, 2508



IXP-3/4N3515, 4515



IXP-3/4N5520, 6520



**IXP SCARA Series V3
Catalogue No. 0815-E**



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



IAI Industrieroboter GmbH

Ober der Röth 4

D-65824 Schwalbach / Frankfurt

Germany

Tel.: +49-6196-8895-0

Fax: +49-6196-8895-24

E-Mail: info@IAI-GmbH.de

Internet: <http://www.eu.IAI-GmbH.de>

IAI America, Inc.

2690 W. 237th Street, Torrance, CA 90505, U.S.A

Phone: +1-310-891-6015, Fax: +1-310-891-0815

IAI (Shanghai) Co., Ltd

Shanghai Jiahua Business Center A8-303, 808,

Hongqiao Rd., Shanghai 200030, China

Phone: +86-21-6448-4753, Fax: +86-21-6448-3992

IAI CORPORATION

577-1 Obane, Shimizu-Ku, Shizuoka, 424-0103 Japan

Phone: +81-543-64-5105, Fax: +81-543-64-5192

IAI Robot (Thailand) Co., Ltd

825 PhairojKijja Tower 12th Floor, Bangna-Trad RD.,

Bangna, Bangna, Bangkok 10260, Thailand

Phone: +66-2-361-4457, Fax: +66-2-361-4456