

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

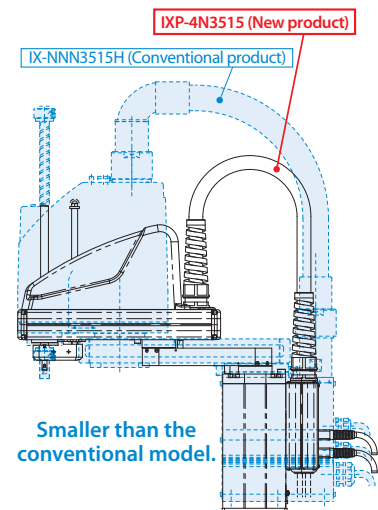
3 Lighter than a Conventional Model

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 |

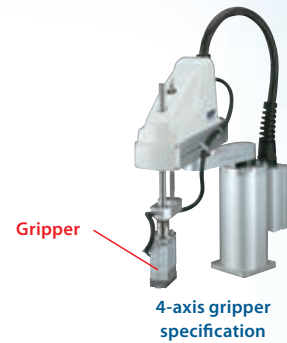


4

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.



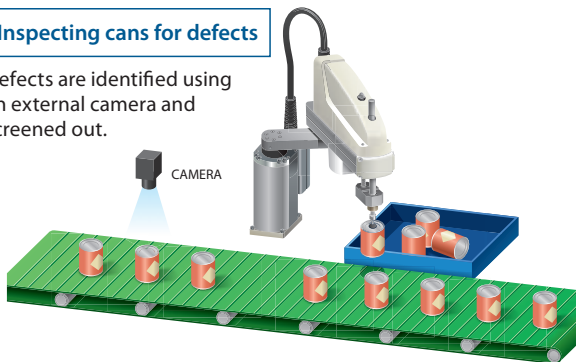
Use Examples of the 3-axis Specification

- Work processes that require only three axes

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

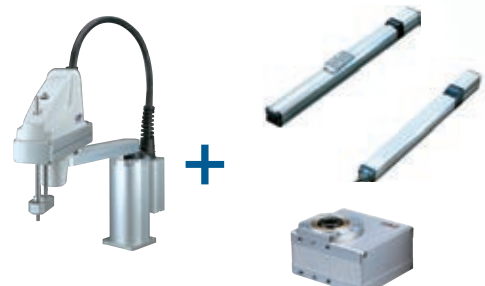
Inspecting cans for defects

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

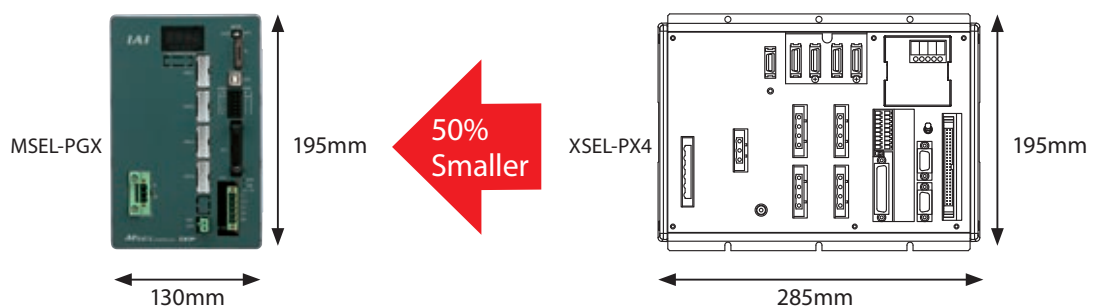
The greater storage capacity accommodates significantly more programs and positions.

| | 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-3C3515)*2 (IXP-3W3515)*3 | IXP-4N3515 (IXP-4C3515)*2 (IXP-4W3515)*3 | IXP-3N4515 (IXP-3C4515)*2 (IXP-3W4515)*3 | IXP-4N4515 (IXP-4C4515)*2 (IXP-4W4515)*3 |
| Payload | Rated 1kg , Maximum 3kg | | Rated 1kg , Maximum 3kg | |
| Max. speed (in PTP mode) | XY: 2726mm/s, Z: 270mm/s (R: 1000°/s) *4 | | XY: 2438mm/s, Z: 270mm/s (R: 1000°/s) *4 | |
| 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-3C5520)*2 (IXP-3W5520)*3 | IXP-4N5520 (IXP-4C5520)*2 (IXP-4W5520)*3 | IXP-3N6520 (IXP-3C6520)*2 (IXP-3W6520)*3 | IXP-4N6520 (IXP-4C6520)*2 (IXP-4W6520)*3 |
| 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.

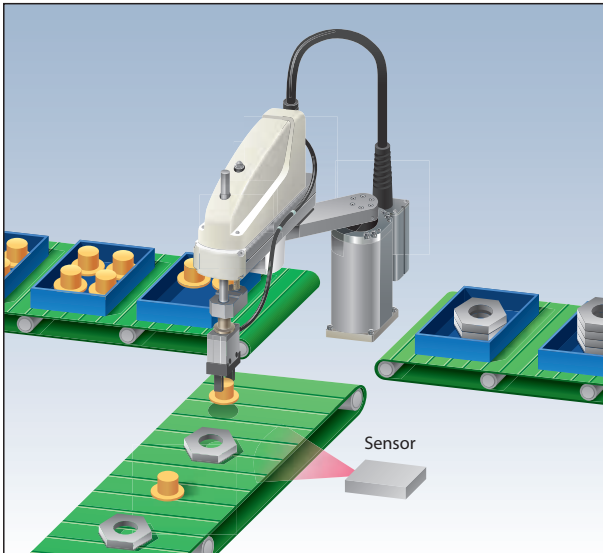
*2: Cleanroom type (ISO cleanliness class 4) with similar specifications is coming soon. *3 Dust-/splash-proof type (IP 65) with similar specifications is coming soon.

*4: 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

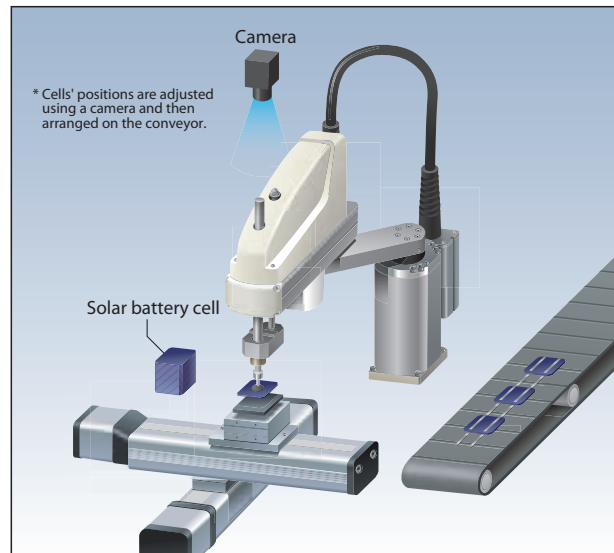
Part Screening

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



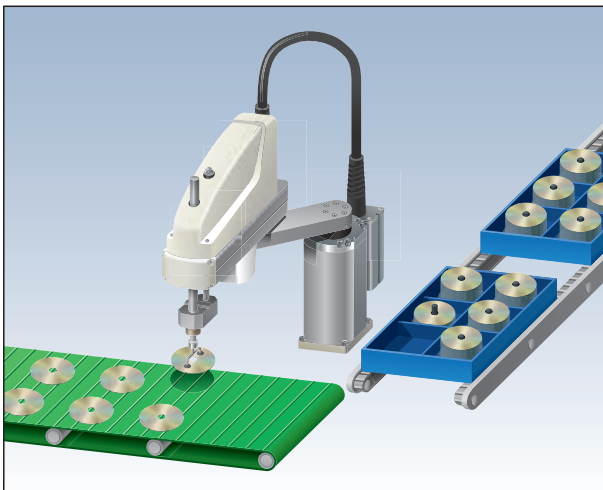
Solar Battery Module Tab Soldering

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



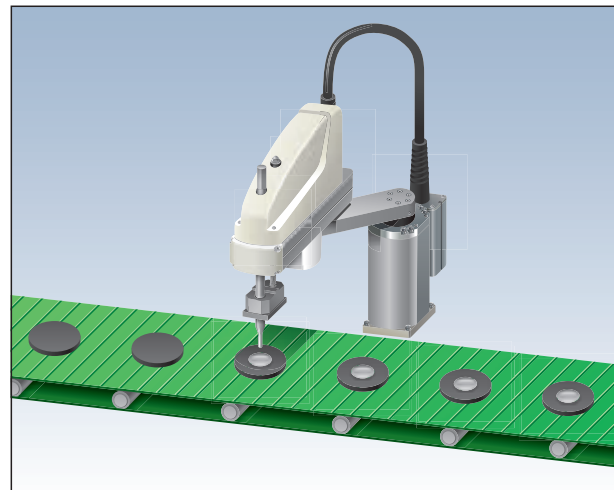
DVD-R Packing

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.

(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

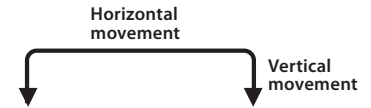
The options are rated payload and maximum payload. The rated payload refers to the maximum load that can be transferred at the maximum speed and acceleration rate. The maximum payload refers to the load that can be transferred at a reduced speed and acceleration rate. When transporting a load that is 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

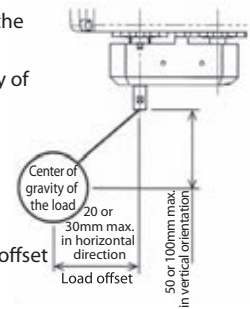
This is the allowable inertial moment calculated at the center of the rod on the vertical axis (guide shaft for 3-axis type, and rotational axis for 4-axis type). The offset value from the center of the rotational axis to the center of gravity of the load is shown below.

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 50/100mm or less

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.



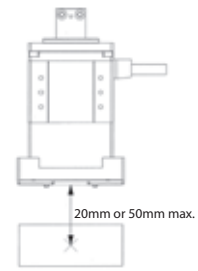
(Note 6) Overhang Limits for the Gripper Options

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

| Series | Type | Encoder type | Cable length | Applicable controller | Option |
|----------------|--|---|--|--|--|
| | | WA Battery-less absolute specification | | | |
| | | | N None | | B Brake (*) |
| | | | P 1m | | VLL (**) Elbow pipe joint left ejection |
| | | | S [3L] (*) 3m | | VLR (**) Elbow pipe joint right ejection |
| | | | M [5L] (*) 5m | | (*) Only available for arm length 550/650. Make sure to select this when the transported object is 4kg or more. |
| | | | X□□ Specified length (**) | | (**) Only for cleanroom type (coming soon) |
| | | | R□□ Robot cable (**) | | |
| | | | (*) [3L] / [5L] : No further cable lengths other than 3m (code "3L") or 5m (code "5L") available for dust-/splash-proof type (coming soon) | | P3 MSEL |
| | | | (**) Up to 20m | | |
| 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 | | | | |
| 3N/C/W3515 (*) | 3-axis type / Arm length 350mm / Vertical axis 150mm | | 3N/C/W5520 (*) | 3-axis type / Arm length 550mm / Vertical axis 200mm | |
| 4N/C/W3515 (*) | 4-axis type / Arm length 350mm / Vertical axis 150mm | | 4N/C/W5520 (*) | 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 | |
| 3N/C/W4515 (*) | 3-axis type / Arm length 450mm / Vertical axis 150mm | | 3N/C/W6520 (*) | 3-axis type / Arm length 650mm / Vertical axis 200mm | |
| 4N/C/W4515 (*) | 4-axis type / Arm length 450mm / Vertical axis 150mm | | 4N/C/W6520 (*) | 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 | |

(*) Code "N": Standard type Code "C": Cleanroom type (coming soon) Code "W": Dust-/splash-proof type (coming soon)

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

Number of axes: 3 axes Vertical axis stroke: 150mm Encoder type: Battery-less absolute specification Cable length: 3m Controller: MSEL

Arm length: 350mm Tip of vertical axis: RCP4-GRSML installed

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 | X□□: Specified length R□□: Robot cable Cable length described below | 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*>

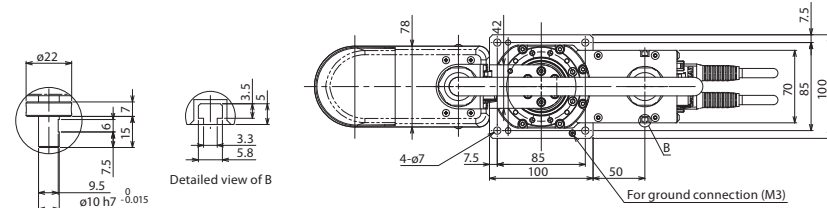
| Type | Cable code |
|----------------|-----------------------|
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (4m) ~ R05 (5m) |
| | R06 (6m) ~ R10 (10m)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

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

Dimensions



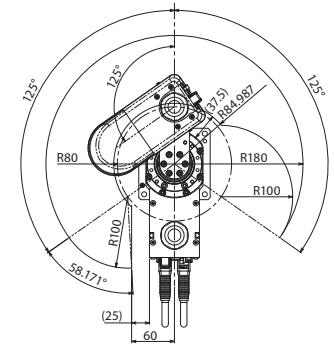
CAD drawings can be downloaded from the website. www.intelligentactuator.de



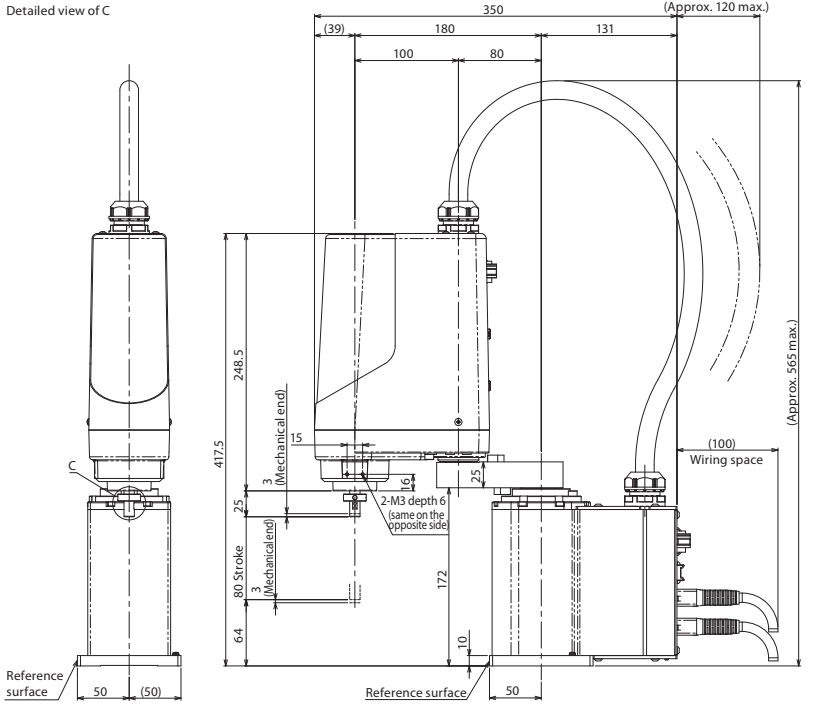
Detailed view of C

Detailed view of B

For ground connection (M3)

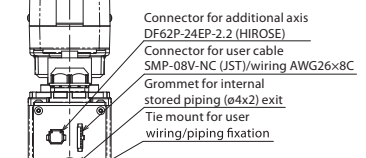
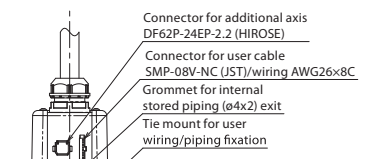
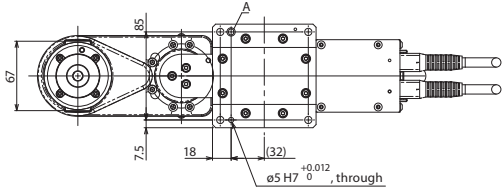


Operation prohibited area
Work envelope of the right-arm system

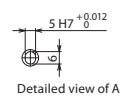


Reference surface

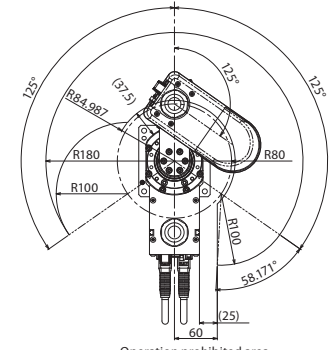
Reference surface



* When the 3-axis specification is selected, three controller cables are needed.



Detailed view of A



Operation prohibited area
Work envelope of the left-arm system

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) <SCARA type> <Expansion I/O>
 *② SCARA type (Refer to table on the right) 3N1808 4N1808 E Not used
 *③ Standard I/O (NP/PN) NP/PN Expansion PIO board NPN/PNP spec. (*2) CC CC-Link board
 *④ Expansion I/O (Refer to table on the right) DV DeviceNet board CC2 CC-Link board (with 2-way connector)
 *Refer to P. 20 if considering axis connection other than IXP series. DV2 DeviceNet board (with 2-way connector) PR PROFIBUS-DP board
 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-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. |

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

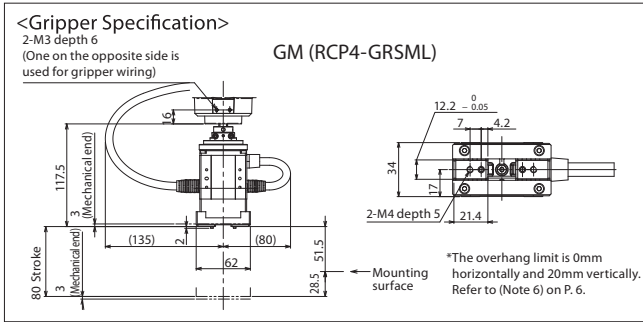
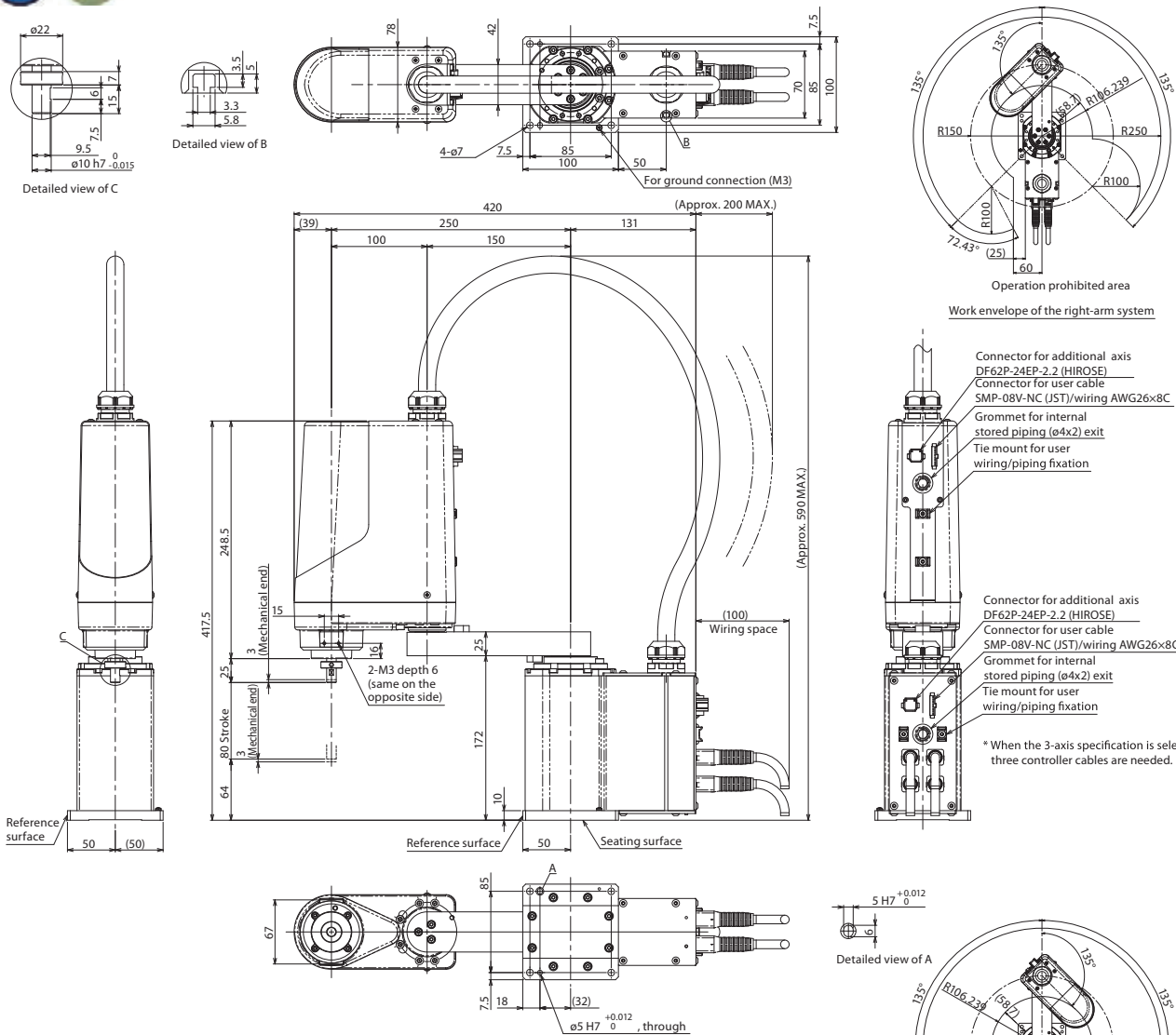
| Cable Length <Per Axis*> | |
|--------------------------|-----------------------|
| Type | Cable code |
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (4m) ~ R05 (5m) |
| | R06 (6m) ~ R10 (10m) |
| | R11 (11m) ~ R15 (15m) |
| | R16 (16m) ~ R20 (20m) |
| | R21 (21m) ~ R25 (25m) |

*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 | — | N | 35 | — | WA | — | P3 |
| | Series | — | Number of axes 3: 3 axes 4: 4 axes | Arm length 35: 350mm | 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.

Preview

Next planned IXP series expansion with similar robot specifications like IXP-3N3515/4N3515 (see tables below w/o gripper):

- 1) Cleanroom Specification
Types (ISO cleanliness class 4)
IXP-3C3515/4C3515
- 2) Dust-/Splash-proof Specification
Types (protective structure IP65)
IXP-3W3515/4W3515

Please contact IAI for availability and further details.

- 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 | 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 | — | ±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 | | 3-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 |

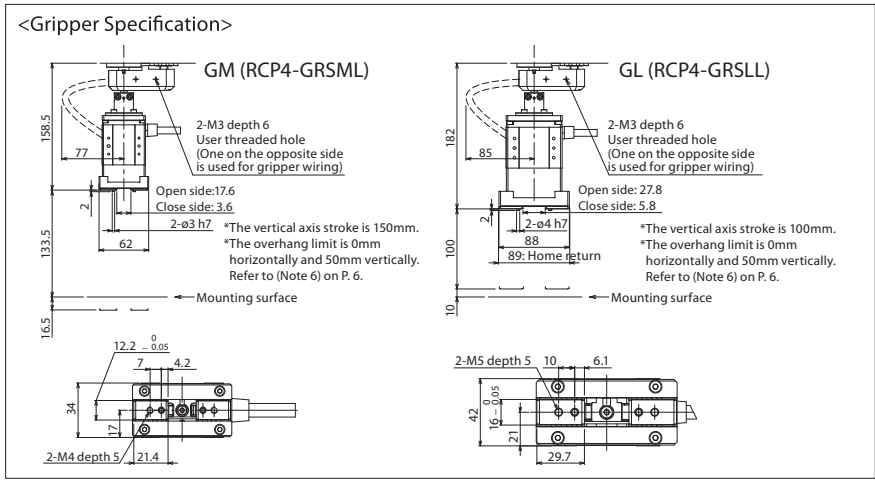
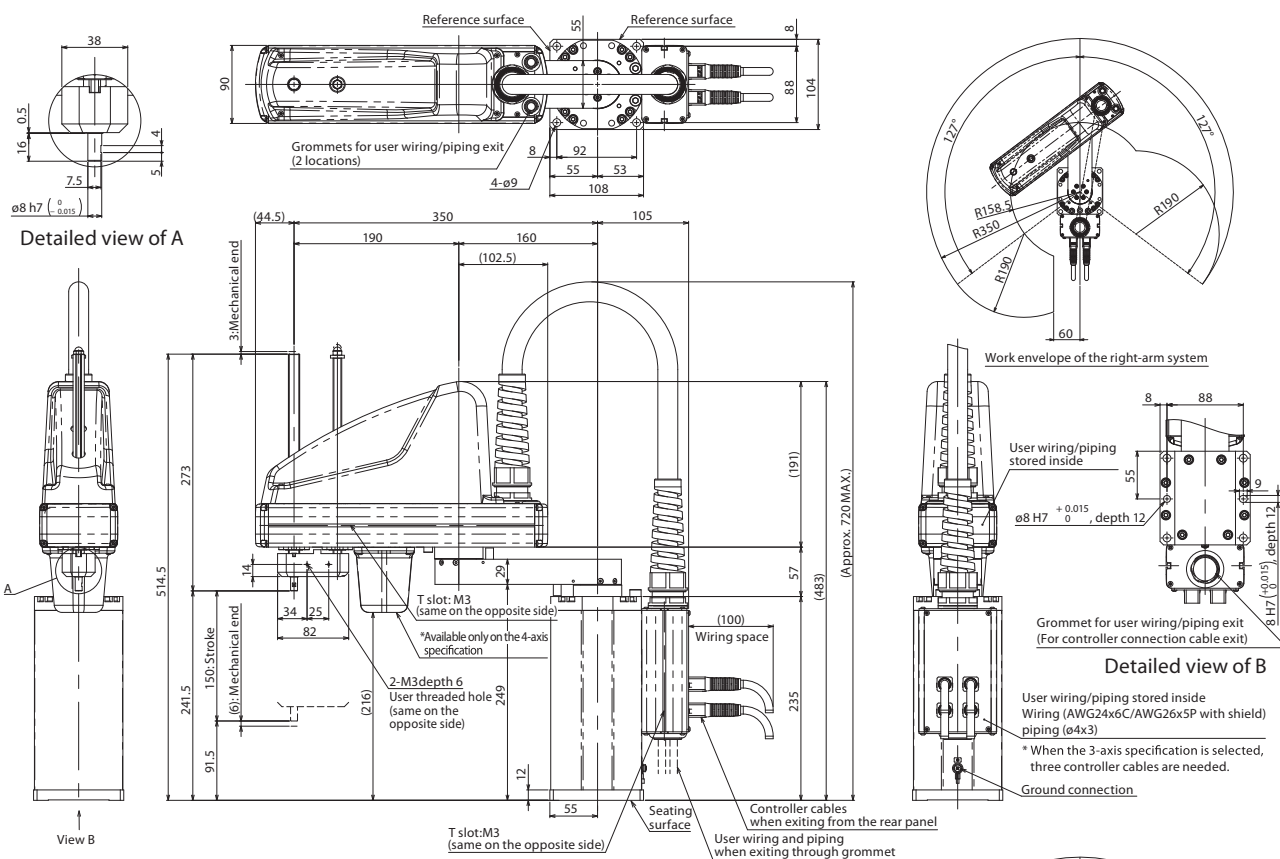
| Cable Length <Per Axis*> | |
|--------------------------|-----------------------|
| Type | Cable code |
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| | X21 (21m) ~ X25 (25m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (4m) ~ R05 (5m) |
| | R06 (6m) ~ R10 (10m) |
| | R11 (11m) ~ R15 (15m) |
| | R16 (16m) ~ R20 (20m) |
| | R21 (21m) ~ R25 (25m) |

*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-PGX①-②③④⑤-2-4 | 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-PGX①-②③④⑤-0-4 | | | | | |

*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> | | <Expansion I/O> | |
|--------------|----------|-----------------|--|
| 3N3515 | 3N4515GM | E | Not used |
| 3N4515 | 3N4510GL | NP/PN | Expansion PIO board NPN/PNP spec. (*2) |
| 3N3515GM | 4N3515 | DV | DeviceNet board |
| 3N3510GL | 4N4515 | DV2 | DeviceNet board (with 2-way connector) |

(*) 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- 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.

Preview

Next planned IXP series expansion with similar robot specifications like IXP-3N4515/4N4515 (see tables below w/o gripper):

- Cleanroom Specification
Types (ISO cleanliness class 4)
IXP-3C4515/4C4515
- Dust-/Splash-proof Specification
Types (protective structure IP65)
IXP-3W4515/4W4515

Please contact IAI for availability and further details.

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 | Arm 1 | 260 | ±127° | ±0.03mm | 2438mm/s (Composite speed) | 2438mm/s (Composite speed) | 2060mm/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 | — | ±360° | ±0.02° | 1000°/s | — | — | | |
| Axis 4 | 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 | | 3-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 | 0.67 | 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 |

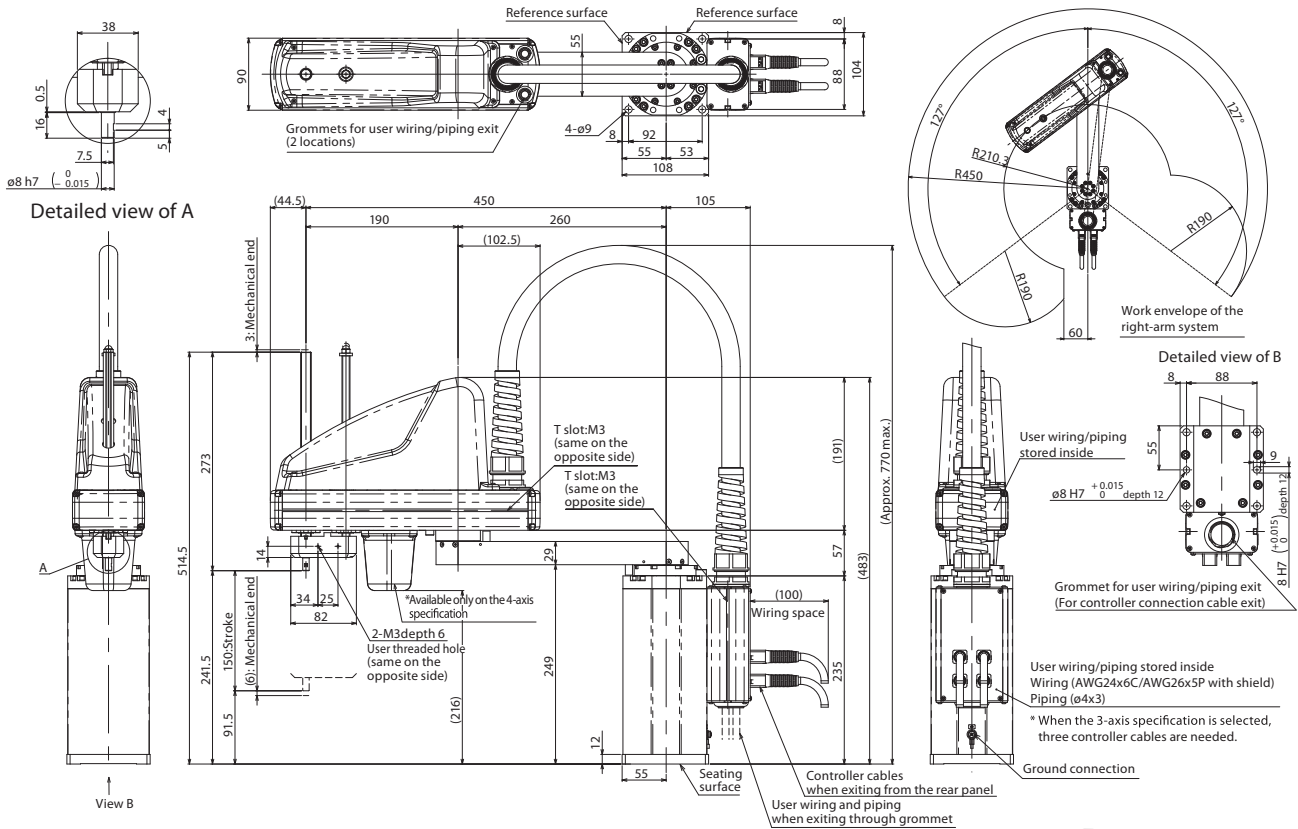
| Cable Length <Per Axis*> | |
|--------------------------|-----------------------|
| Type | Cable code |
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (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.

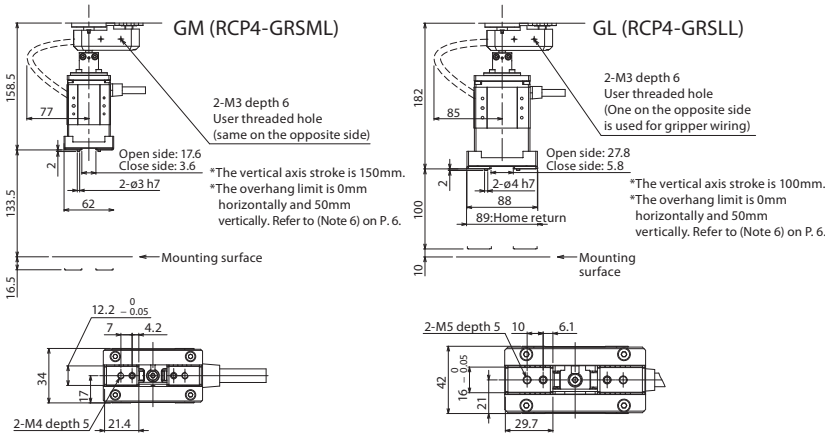
Dimensions



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



<Gripper Specification>



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-PGX(I)-(II)WAI-(III)-(IV)-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-PGX(I)-(II)WAI-(III)-(IV)-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/PNP)
 *④ Expansion I/O (Refer to table on the right)
 *Refer to P. 20 if considering axis connection other than IXP series.

<SCARA type>

| | |
|----------|----------|
| 3N3515 | 3N4515GM |
| 3N4515 | 3N4510GL |
| 3N3515GM | 4N3515 |
| 3N3510GL | 4N4515 |

<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-3N5520* / 4N5520* 3N5515

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 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 |
| | | | 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.

Preview

Next planned IXP series expansion with similar robot specifications like IXP-3N5520/4N5520 (see tables below w/o gripper):

- Cleanroom Specification
Types (ISO cleanliness class 4)
IXP-3C5520/4C5520
- Dust-/Splash-proof Specification
Types (protective structure IP65)
IXP-3W5520/4W5520

Please contact IAI for availability and further details.

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 | 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) | ±0.02mm | 240mm/s | 240mm/s | 240mm/s | | |
| | 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 | 3-axis specification | |
|---|--|----------------------------|--|-------------------------|-------------------------------|
| | | No gripper | | With large gripper (GL) | 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) | 0.73 | | 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 |

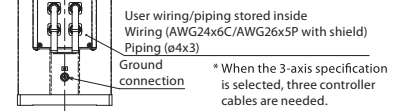
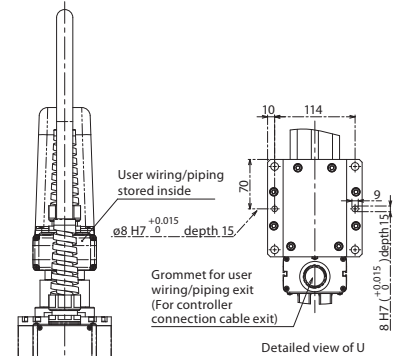
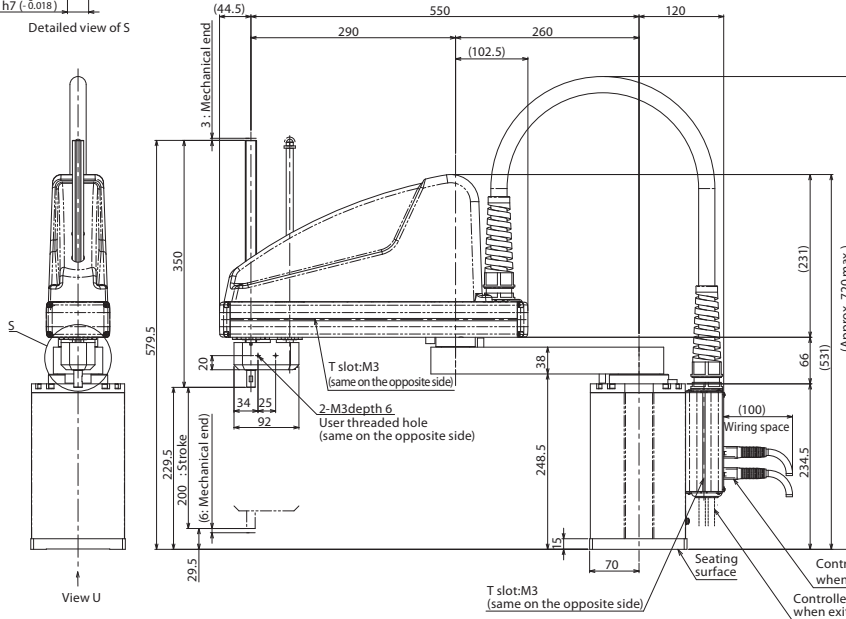
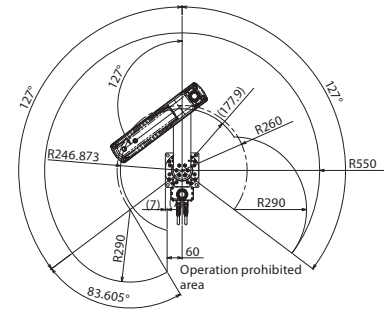
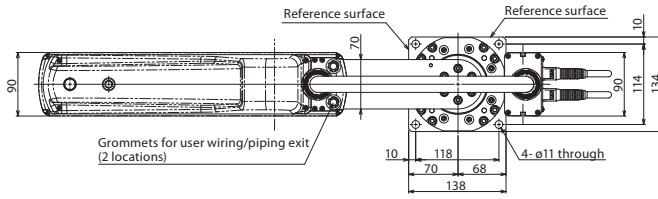
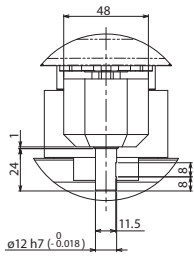
| Cable Length <Per Axis*> | |
|--------------------------|-----------------------|
| Type | Cable code |
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (4m) ~ R05 (5m) |
| | R06 (6m) ~ R10 (10m) |
| | R11 (11m) ~ R15 (15m) |
| | R16 (16m) ~ R20 (20m) |
| | R21 (21m) ~ R25 (25m) |

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

Dimensions

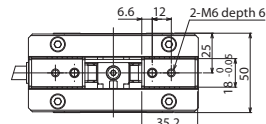
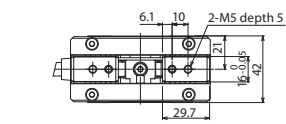
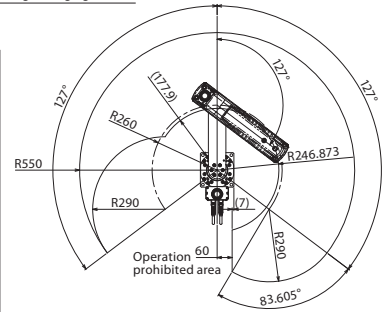
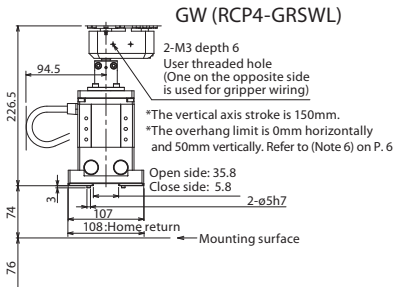
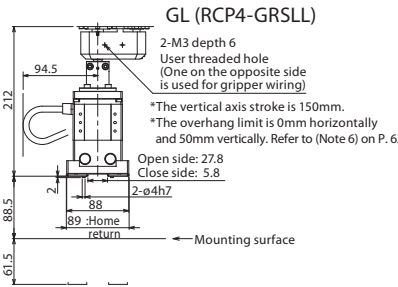


CAD drawings can be downloaded from the website. www.intelligentactuator.de



* When the 3-axis specification is selected, three controller cables are needed.

<Gripper Specification>



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□-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-PGX①-②WAI□-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)
 *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.

<SCARA type>

| | |
|--------|----------|
| 3N5520 | 3N5515GL |
| 4N5520 | 3N5515GW |

<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 |

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

IXP-3N6520* / 4N6520* 3N6515

Arm length 650mm
Vertical axis 200mm/150mm

| | | | |
|----------------------------------|--|---|--|
| Model Specification Items | IXP — <input type="checkbox"/> N 65 <input type="checkbox"/> | WA — <input type="checkbox"/> | P3 — <input type="checkbox"/> |
| 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 |
| | | | 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.

Preview

Next planned IXP series expansion with similar robot specifications like IXP-3N6520/4N6520 (see tables below w/o gripper):

- Cleanroom Specification
Types (ISO cleanliness class 4)
IXP-3C6520/4C6520
- Dust-/Splash-proof Specification
Types (protective structure IP65)
IXP-3W6520/4W6520

Please contact IAI for availability and further details.

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.

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 large gripper (GL) | With extra-large gripper (GW) | Rated | Maximum | | | | |
| Axis 1 | Arm 1 | 360 | ±0.04mm | 2916mm/s (Composite speed) | 2916mm/s (Composite speed) | 2916mm/s (Composite speed) | 2 | 6 | | | | |
| Axis 2 | Arm 2 | 290 | | | | | | | 200mm (*1) | ±0.02mm | 240mm/s | 240mm/s |
| Axis 3 | Vertical axis | — | | | | | | | | | | |
| Axis 4 | Rotational axis | — | ±360° | — | — | — | | | — | 1.5 (*3) | | |
| | Large gripper GL (*2) | — | 22mm (Both fingers) | ±0.01mm | — | 125mm/s (One finger) | — | 2.5 (*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 | 3-axis specification | |
|---|---|----------------------------|--|-------------------------------|
| | No gripper | | 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) | 0.81 | | 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*>

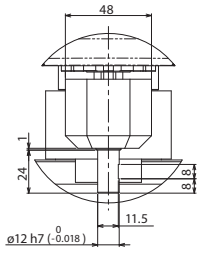
| Type | Cable code |
|----------------|-----------------------|
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06 (6m) ~ X10 (10m) |
| | X11 (11m) ~ X15 (15m) |
| | X16 (16m) ~ X20 (20m) |
| Robot cable | R01 (1m) ~ R03 (3m) |
| | R04 (4m) ~ R05 (5m) |
| | R06 (6m) ~ R10 (10m)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

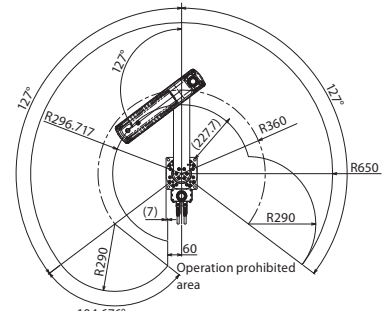
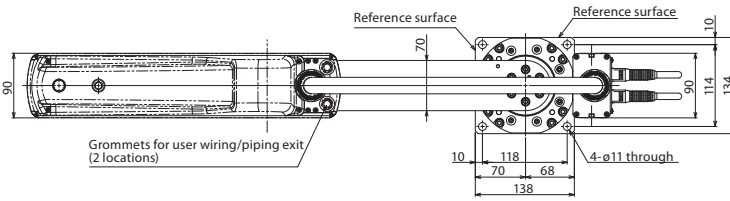
Dimensions



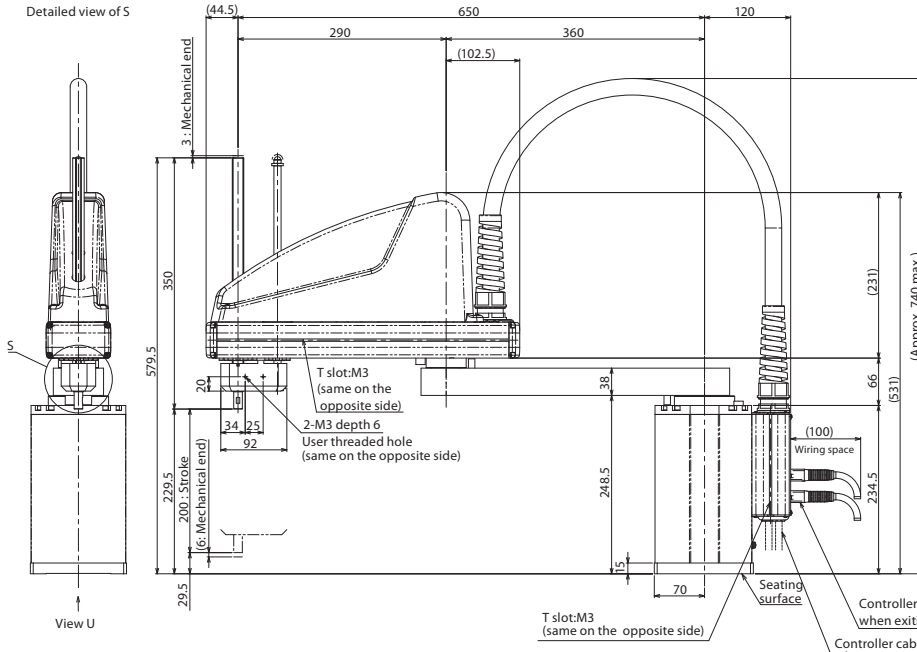
CAD drawings can be downloaded from the website. www.intelligentactor.de



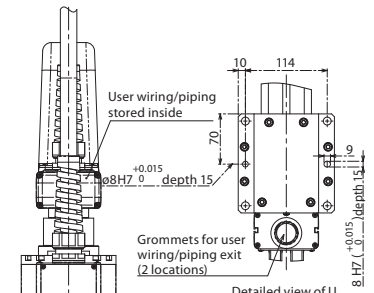
Detailed view of S



Work envelope of the right-arm system



View U

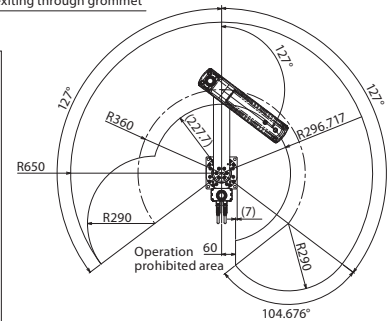
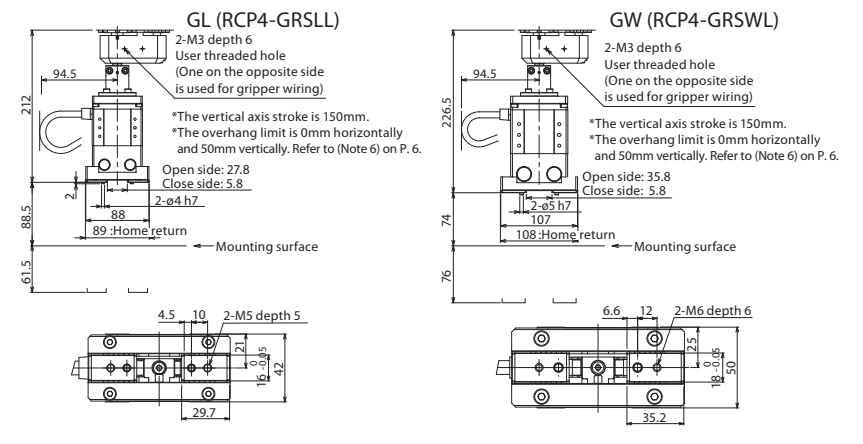


Detailed view of U

User wiring/piping stored inside
Wiring (AWG24x6C/AWG26x5P with shield)
Piping (ø4x3)
Ground connection
*When the 3-axis specification is selected, three controller cables are needed.

Controller cables when exiting from the rear panel
Controller cables when exiting through grommet

<Gripper Specification>



Work envelope of the left-arm system

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-PGX(①)-(Ⅱ)WAI□-(Ⅲ)-Ⅳ-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-PGX(①)-(Ⅱ)WAI□-(Ⅲ)-Ⅳ-0-4 | | | | | |

*① Controller type (3:3-axis specification/4:4-axis specification)
*Ⅱ SCARA type (Refer to table on the right)
*Ⅲ Standard I/O (NP/PN)
*Ⅳ 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.

<SCARA type>

| | |
|--------|----------|
| 3N6520 | 3N6515GL |
| 4N6520 | 3N6515GW |

<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 |

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

MSEL



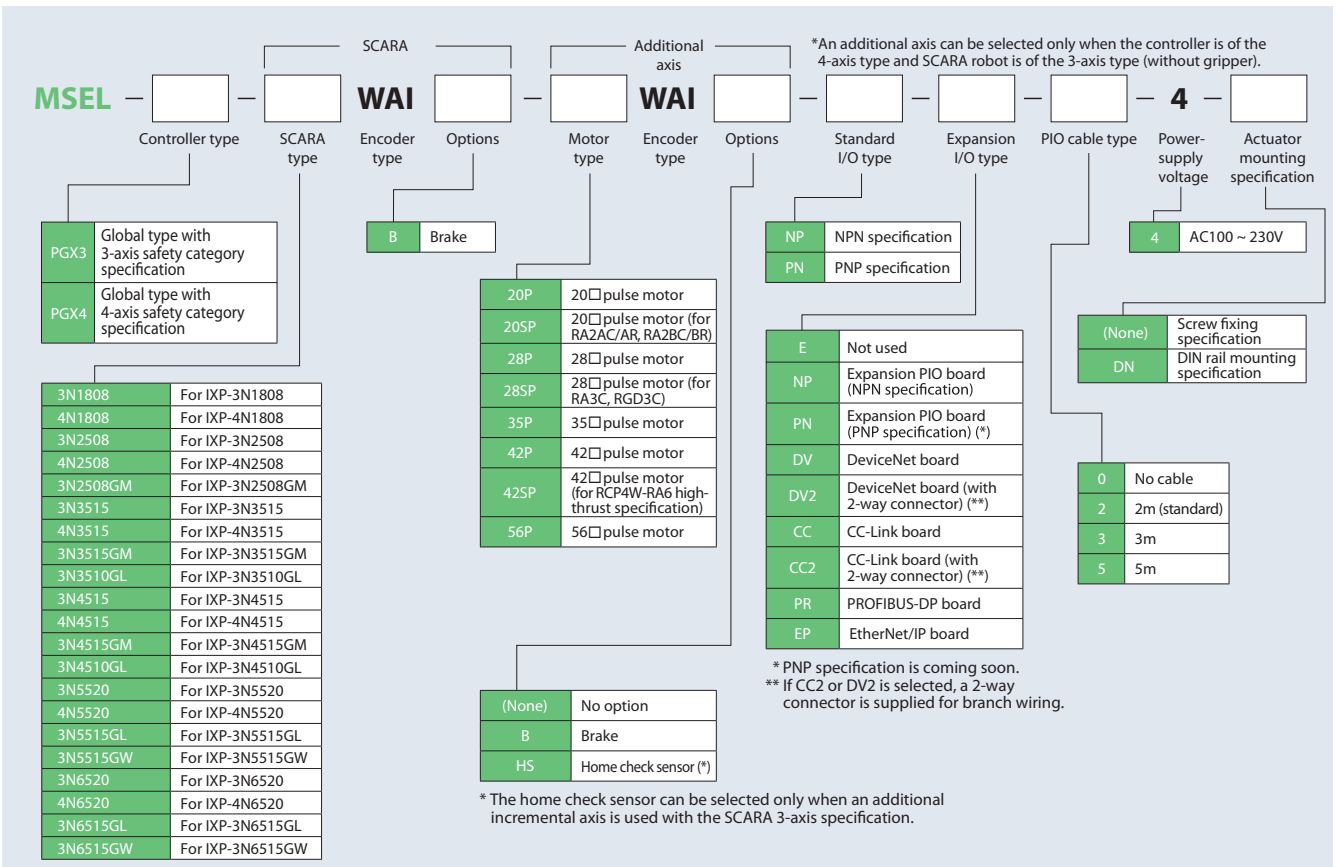
MSEL-PGX Program Controller for PowerCon SCARA

Model List

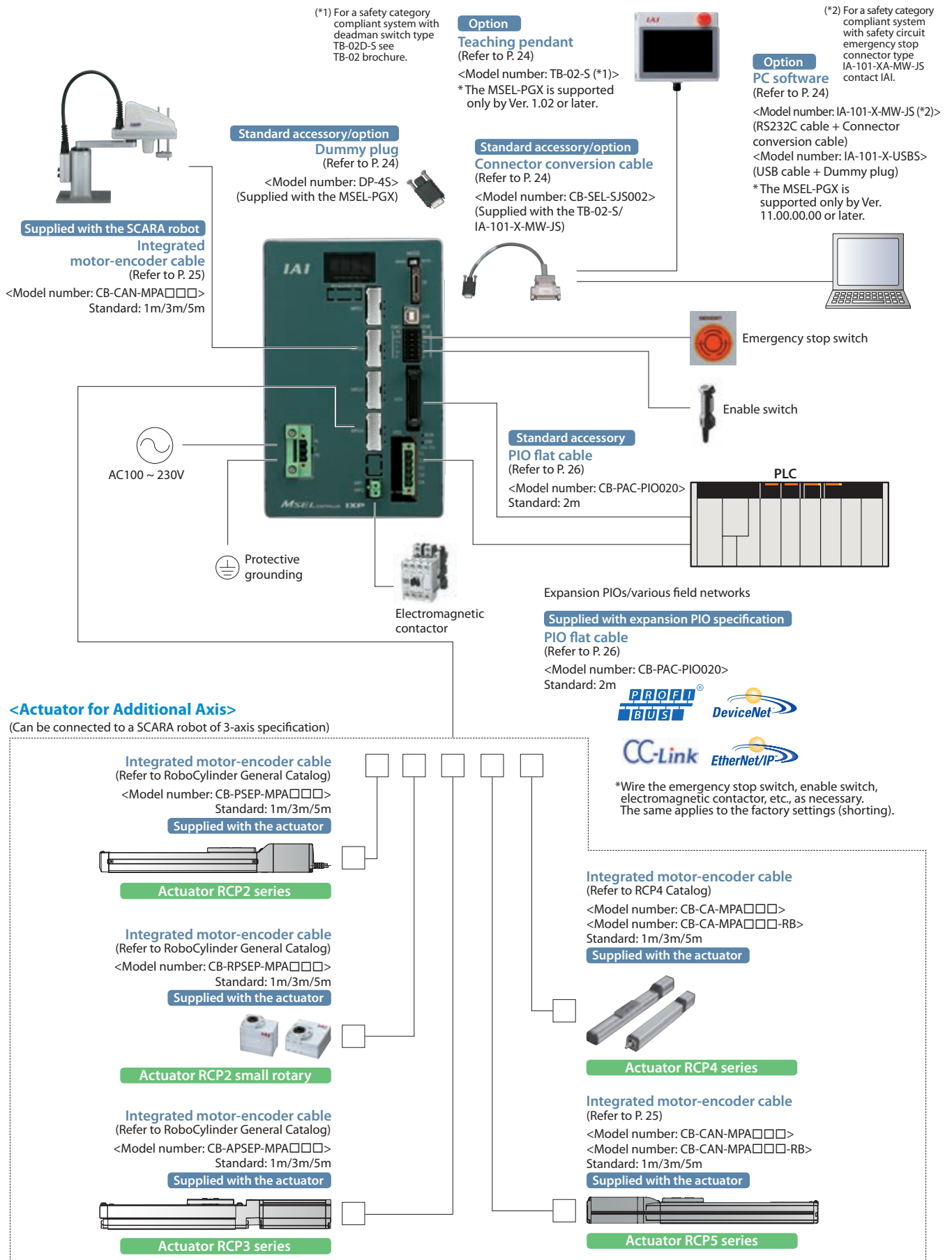
| Name | Controllers for PowerCon SCARA | |
|----------------------|--|---|
| External view | | |
| Type name | PGX3 | PGX4 |
| Type | Global type with 3-axis safety category specification | Global type with 4-axis safety category specification |
| Safety category (*1) | Can be made compliant with categories 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 | |

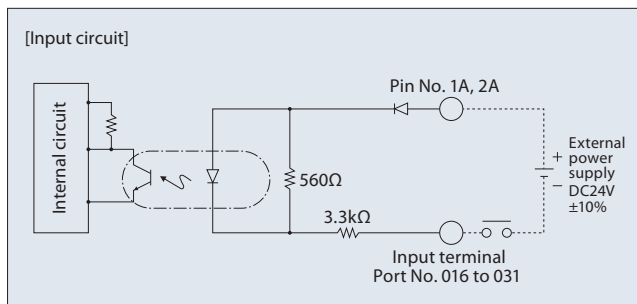
Internal Circuits for Standard I/Os (NPN Specifications) *

* 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.

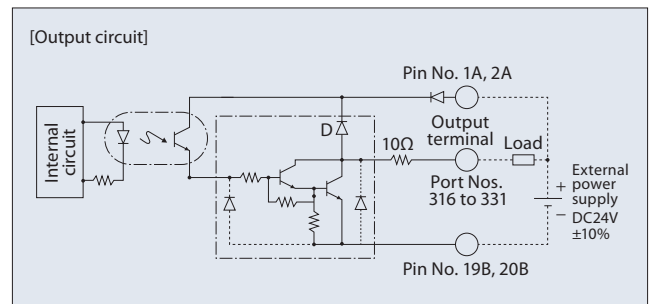


[Output section] External output specifications (NPN specifications)

| 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.)

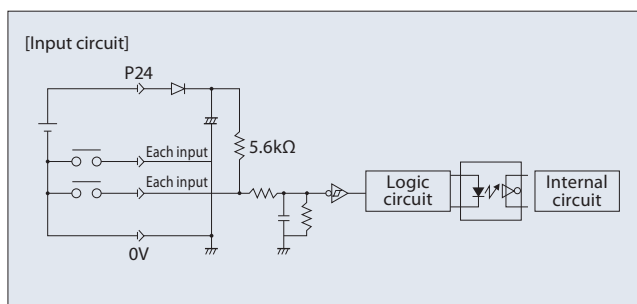


Internal Circuits for Expansion I/Os (NPN Specifications) *

* The expansion IOs with PNP specifications are coming soon.

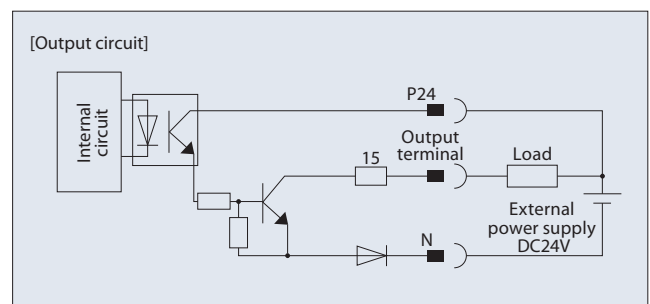
[Input section] External input specifications

| 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 |

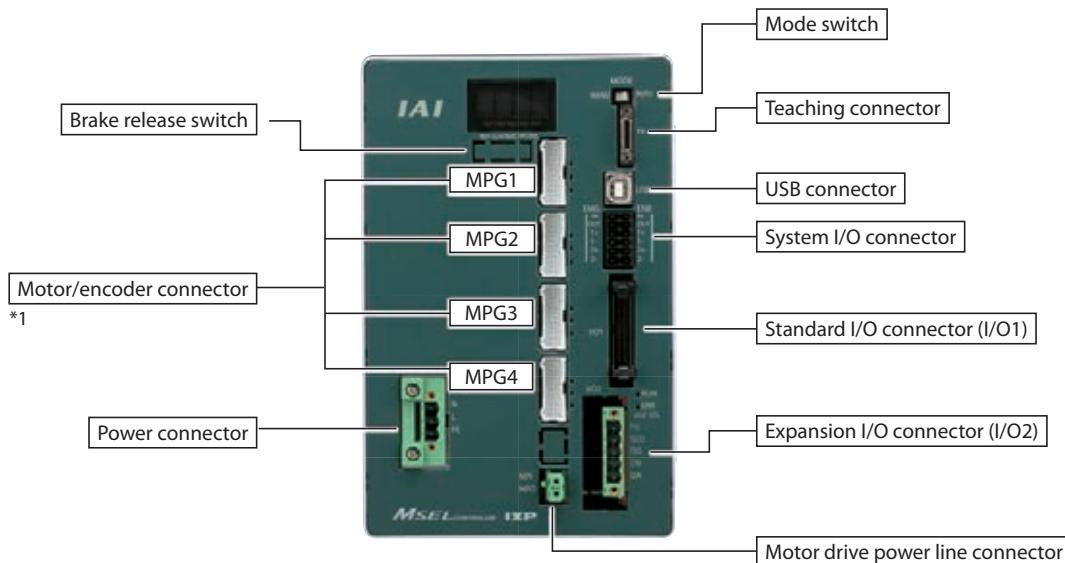


[Output section] External output specifications

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

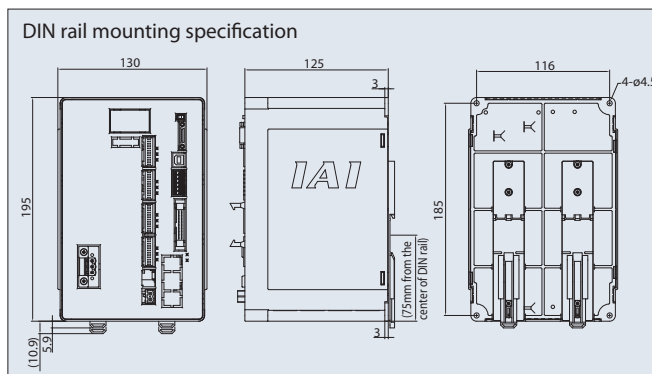
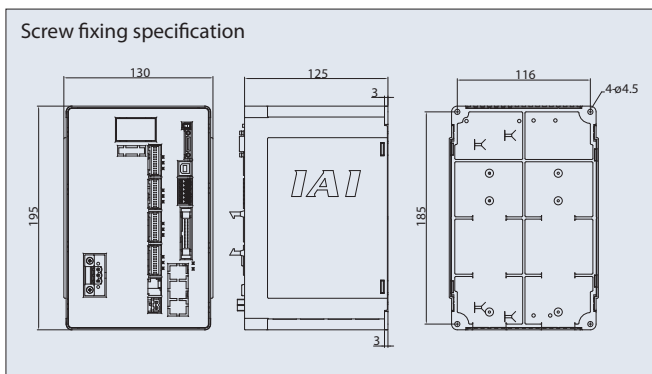


Name of Each Part



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

External dimensions

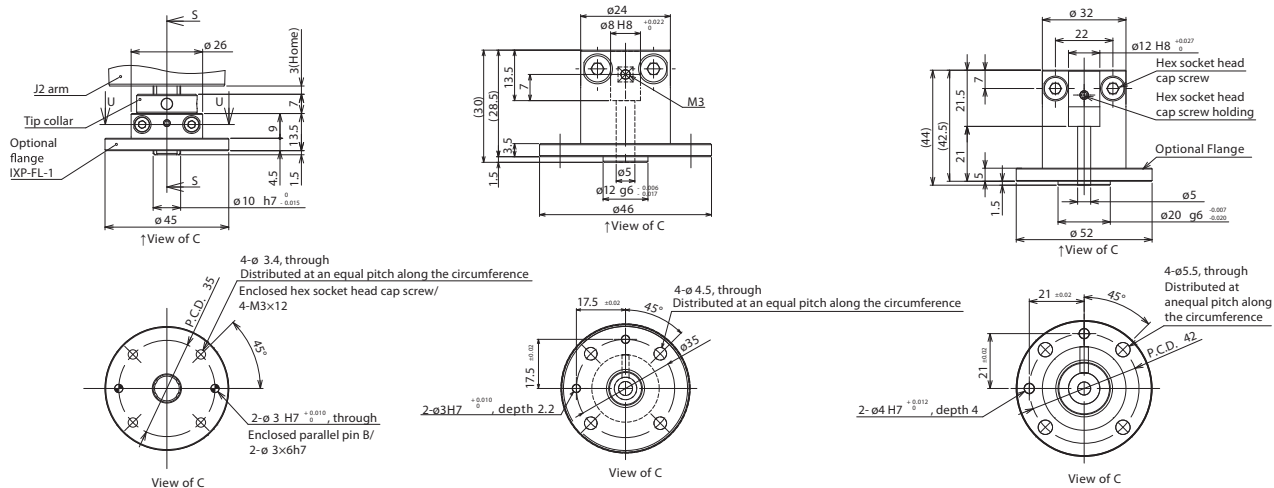


Options

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.

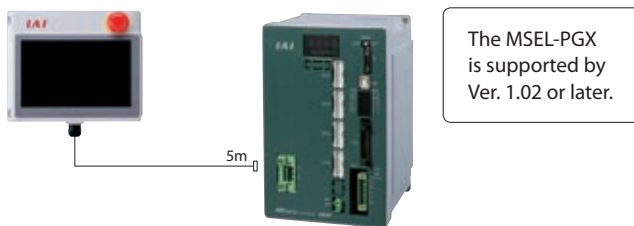
Model number TB-02-S (Note 1)

* This model is the standard specification with connector conversion cable. The recommended color of the emergency stop switch is red (model: TB-02-S-SWR) when the controller is a safety category compliant specification (like MSEL-PGX).

Specification

| | |
|-------------------------------|------------------------------|
| Rated voltage | DC24V |
| Power consumption | 3.6W or less (150mA or less) |
| Ambient operating temperature | 0~40°C |
| Ambient operating humidity | 20~85%RH (non-condensing) |
| Environmental resistance | IP20 |
| Mass | 470g (TB-02 box only) |

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-02-S and IA-101-X-MW-JS come with this connector conversion cable.)

Model number CB-SEL-SJS002

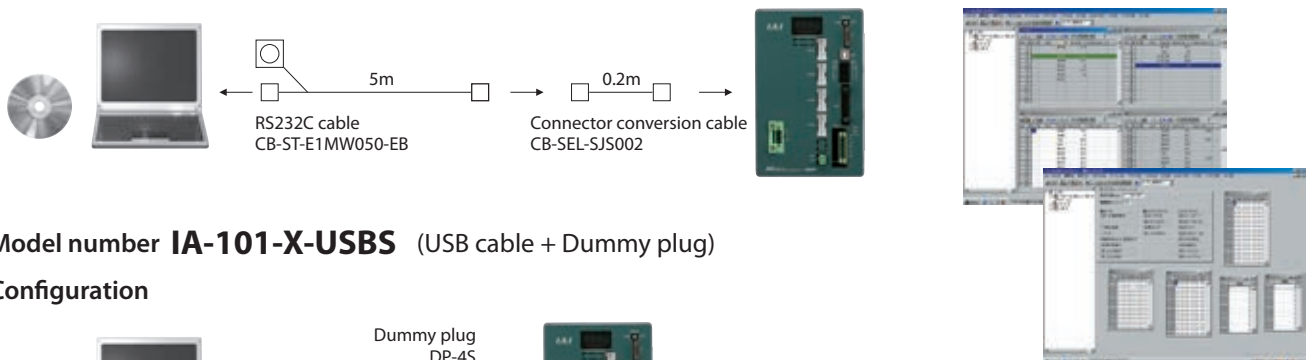


PC Software (Windows Only)

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.

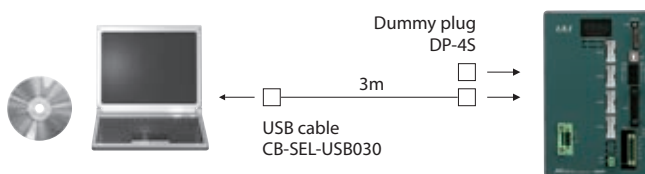
Model number IA-101-X-MW-JS (RS232C cable + Connector conversion cable) (Note 2)

Configuration



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

Configuration



The MSEL-PGX is supported by Ver. 11.00.00.00 or later.

(Note 1)

For a safety category compliant system with deadman switch type TB-02D-S see TB-02 brochure.

(Note 2)

The RS232C standard cable CB-ST-E1MW050-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-A1MW050-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.

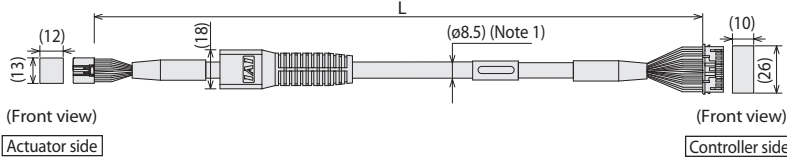
Service Parts

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



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

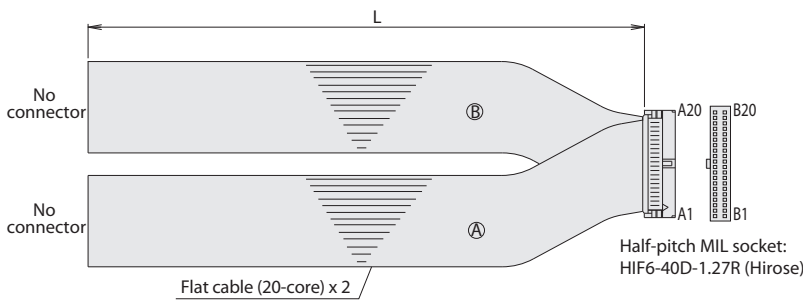
* The robot cable is designed for flex-resistance: Please use the robot cable if the cable has to be installed through a cable track.

(Note 1) If the cable is 5m or longer, $\phi 9.1$ cable diameter applies for a non-robot cable and $\phi 10$ for a robot cable.

| Pin No. | Signal name | Pin No. | Signal name |
|---------|-------------|---------|-------------|
| 3 | $\phi A/U$ | 1 | $\phi A/U$ |
| 5 | VMM/V | 2 | VMM/V |
| 10 | $\phi A/W$ | 3 | $\phi A/W$ |
| 9 | $\phi B/-$ | 4 | $\phi B/-$ |
| 4 | VMM/- | 5 | VMM/- |
| 15 | $\phi B/+$ | 6 | $\phi B/+$ |
| 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



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| 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 | |

Reference for SCARA Robot Acceleration/Deceleration Settings

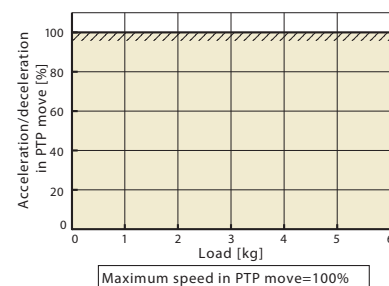
If the robot must be operated continuously, make sure its setting falls within the ranges of the reference graphs for acceleration/deceleration setting and duty cycle setting.

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.



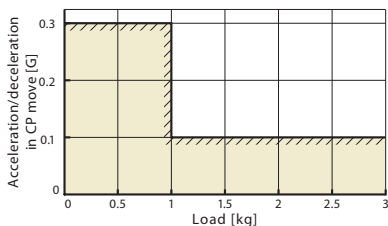
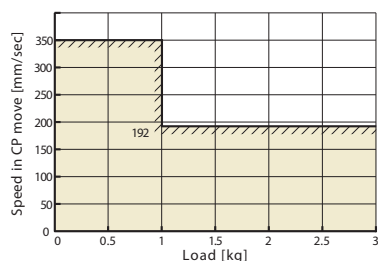
CP Move

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

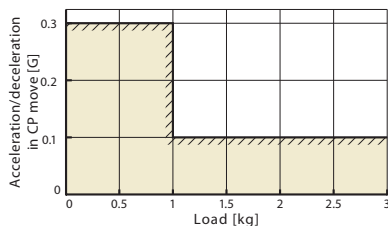
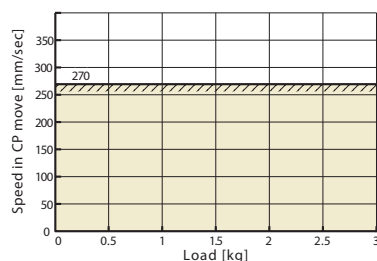
Notes

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

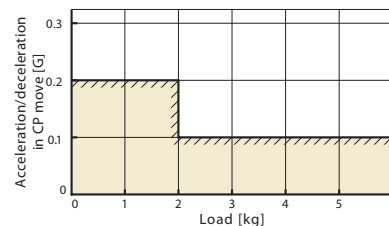
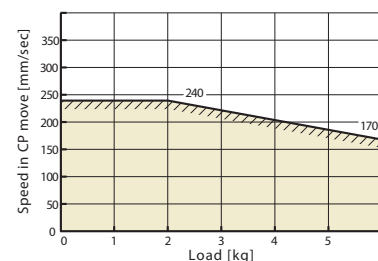
IXP-3/4N1808, 2508



IXP-3/4N3515, 4515



IXP-3/4N5520, 6520



Duty Cycle Setting

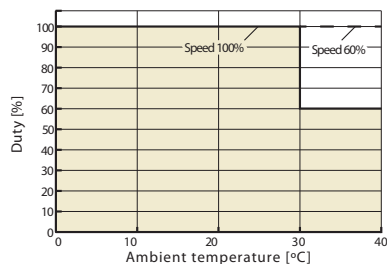
The duty cycle refers to a utilization ratio expressed by the percentage of the robot operating time per cycle.

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.

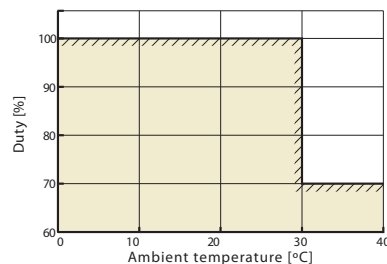
Notes

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

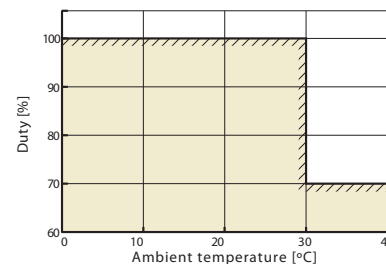
IXP-3/4N1808, 2508



IXP-3/4N3515, 4515



IXP-3/4N5520, 6520



**IXP SCARA Series V3b
Catalogue No. 0316-E**



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



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