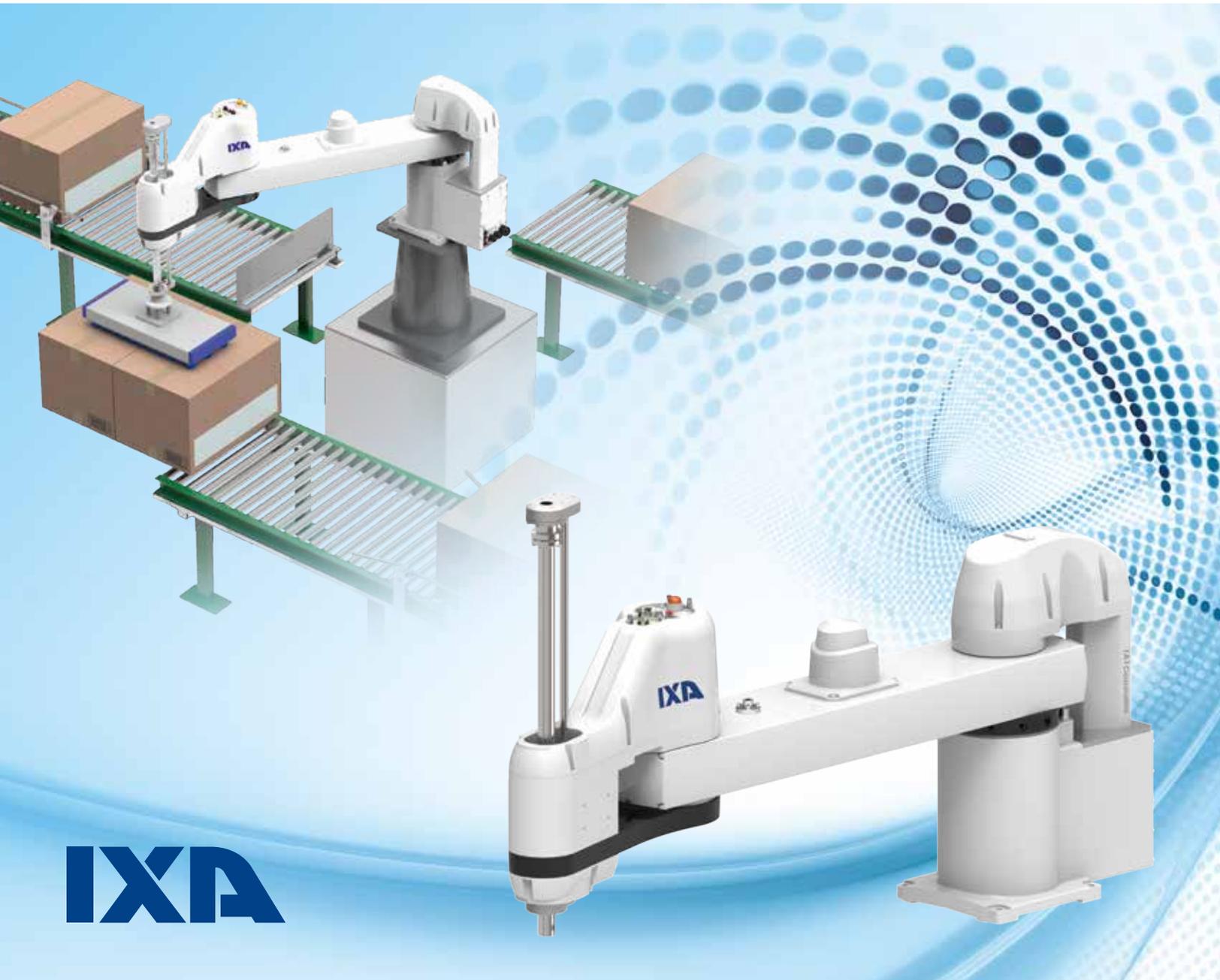


SCARA Robots **IXA-4NHN**



**IXA**

Maximum **50kg** Payload  
Arm length **1,200mm**

**Ultra large!** SCARA Robot **IXA**



### Operation range

Perfect for transferring large workpieces thanks to its large operation range.

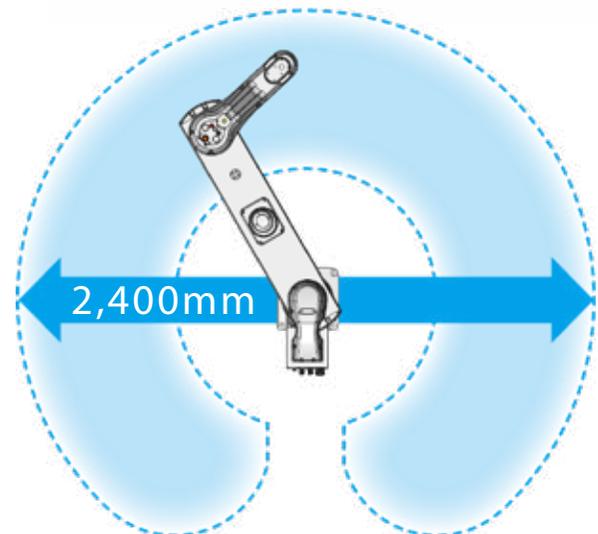
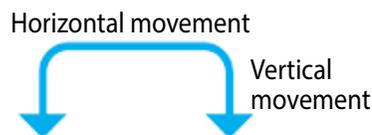
### Standard cycle time

(IXA-4NHN12040)

**0.61** seconds

#### Operating condition

- ▶ 2 kg transfer
- ▶ Horizontal 300mm / vertical 25mm

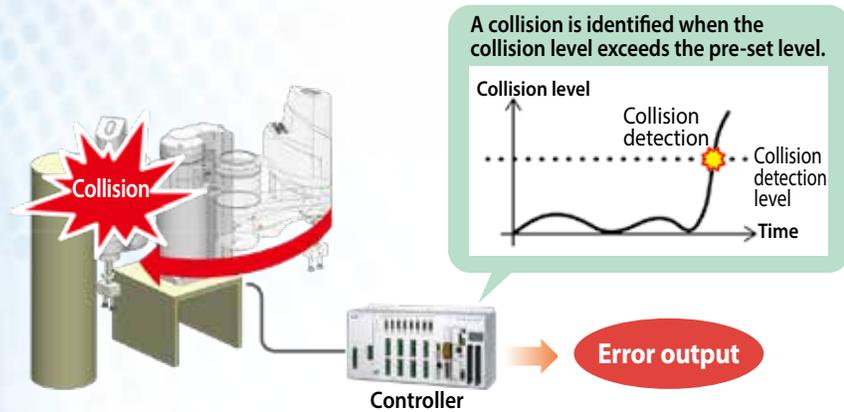


(IXA-4NHN12040)

# New control functions by controller

## Collision detection function

When the SCARA robot detects a collision with an object, it will stop its operation promptly. The collision detection function reduces damages on the gripper, workpiece and robot at the time of a collision.



**[Notes]**  
 \* This function does not guarantee safety on the human body.  
 \* It is an auxiliary function to reduce damages on peripheral devices. It does not prevent damages 100%.

### Model specification items

**IXA** —  —  — **T2** —   
 Series                      Type                      Cable length                      Applicable controller                      Options

4NHN10040	4-axis high payload type/ arm length 1000mm/ vertical axis 400mm
4NHN12040	4-axis high payload type/ arm length 1200mm/ vertical axis 400mm

T2	XSEL-SAX	EXC	Built-in extended user cable specification
----	----------	-----	--

N	Nil
5L	5m
10L	10m
<input type="checkbox"/> L	Specify length (every 1m), maximum 15m

Type	Model	Number of axes	Arm length (mm)		Vertical stroke (mm)	Standard cycle time (s)	Continuous cycle time (s)	Maximum payload (kg)	Reference page
			1st arm	2nd arm					
High payload type	<b>IXA-4NHN10040</b>	4-axis	600	400	400	0.56	0.69	50	▶ P3
	<b>IXA-4NHN12040</b>	4-axis	800	400	400	0.61	0.69		▶ P9

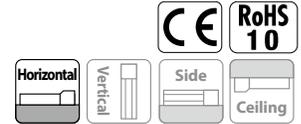
# IXA-4NHN10040

Battery-less Absolute

Arm Length: 1000 mm

## Model Specification Items

<b>IXA</b>	<b>4</b>	<b>NHN</b>	<b>100</b>	<b>40</b>		<b>T2</b>		
Series	Number of axes	Type	Arm length		Vertical axis stroke	Cable length	Applicable controller	Option
	4 axes	NHN High payload type	100	1000mm	40 400mm	N Nil 5L 5m 10L 10m <input type="checkbox"/> L Specified length (every 1m)	T2 XSEL-SAX	See below



\* Please check the Options reference pages to confirm each option.

Option * Please check the Options reference pages to confirm each option.		
Name	Model number	Reference page
Built-in extended user cable	<b>EXC</b>	16

Additional option table * Please check the Options reference pages to confirm each option.		
Name	Model number	Reference page
User cable	<b>CB-IXA-USR</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>-CS</b>	17
Flange	<b>IXA-FL-1</b>	17
Protective flange for external wiring *1	<b>IXA-PFL-EW-1</b>	17
Protective flange for R-axis wiring	<b>IXA-PFL-RW-1</b>	17
Side stay for Z-axis wiring	Z-axis 400st <b>IXA-SST-ZW-2</b>	18
Upper stay for Z-axis wiring	Z-axis 400st <b>IXA-TST-ZW-2</b>	18
Solenoid valve set *1	<b>IXA-SVP-1</b>	18

\*1 The protective flange for external wiring and the solenoid valve set cannot be installed at the same time. (Note) Please order separately.

Cable length		
Type	Cable code	4-axis specification
Standard type	<b>5L</b> (5m)	<input type="radio"/>
	<b>10L</b> (10m)	<input type="radio"/>
Specified length	<b>1L</b> (1m) ~ <b>4L</b> (4m)	<input type="radio"/>
	<b>6L</b> (6m) ~ <b>9L</b> (9m)	<input type="radio"/>
	<b>11L</b> (11m)	<input type="radio"/>
	<b>12L</b> (12m)	<input type="radio"/>
	<b>13L</b> (13m)	<input type="radio"/>
	<b>14L</b> (14m)	<input type="radio"/>
	<b>15L</b> (15m)	<input type="radio"/>

(Note) Total price for the following cables. [4-axis spec.] Motor cable: 4, Encoder cable: 4, Brake cable: 1

**POINT**

Selection Notes

(1) Please refer to P15 for Notes 1 - 8.

(2) The maximum set value for acceleration/deceleration varies depending on the weight of the object being transported, the travel distance and the location. Operating continuously at the maximum set value could cause an overload error. For a continuous operation, either lower the acceleration/deceleration values or set a stop time after acceleration/deceleration, referring to the duty ratio (guideline).

(3) If the motor is replaced, absolute reset must be performed. An adjustment jig will be required to perform an absolute reset on the rotational axis (4th axis). Please refer to P17 for details.

(4) A continuous operation cannot be performed for SCARA robots at 100% of speed and acceleration. Refer to the "Acceleration/Deceleration Setting Guidelines" for executable operating conditions.

Main specifications

Item		Description		
		4-axis specification		
Max. payload (kg) (Note 1)		50		
Speed (Note 2)	Combined max. speed (mm/s)		7540	
	Max. speed of individual axes	1st arm (deg/s)	280	
		2nd arm (deg/s)	380	
		Vertical axis (mm/s)	1200	
		Rotational axis (deg/s)	920	
Push force (N) (Note 3)		Upper limit	570	
		Lower limit	70	
Arm length (mm)		1000		
Individual arm length (mm)		600		
		400		
Operation range of individual axes		1st arm (deg)		±137
		2nd arm (deg)		±142
		Vertical axis (mm)		400
		Rotational axis (deg)		±360

Item		Description	
		4-axis specification	
Positioning repeatability (Note 4)	Within horizontal surface		±0.04mm
	Vertical axis		±0.02mm
	Rotational axis		±0.01 degrees
User wiring		10-core (9-core + shield) AWG24 (rated 30V/Max. 1A)	
User piping		Outer diameter Φ6, inner diameter Φ4, air tube 3 pcs. (max. usable pressure 0.6MPa)	
Alarm lamp (Note 5)		Amber color LED, small pilot lamp 1 pc. (DC24V supply required)	
Brake release switch (Note 6)		Brake release switch for preventing vertical axis from dropping.	
Tip axis	Allowable torque		15 N·m
	Allowable load moment		48 N·m
Ambient operational temperature and humidity		0-40°C, 20-85% RH or lower (non-condensing)	
Degree of protection		IP10	
Vibration- and impact-resistance		No impact or vibration should be applied.	
Noise (Note 7)		85 dB or lower	
International standard		CE marking, RoHS	
Motor type		AC servo motor	
Motor wattage	1st arm		1000W
	2nd arm		750W
	Vertical axis		600W
	Rotational axis		200W
Encoder type		Battery-less absolute	
Encoder pulse		131072 pulse/rev	

Cycle time

The standard/continuous cycle time represents the time required when an operation is performed with a cycle operation setting at maximum speed, under the following conditions. 2kg transport, vertical movement 25mm, horizontal movement 300mm (rough positioning arch motion)

[Standard cycle time]

The time required for maximum speed. This is a general guideline for high speed performance.

Note that continuous operation is not possible under maximum speed operation.

[Continuous cycle time]

The cycle time for continuous operation.

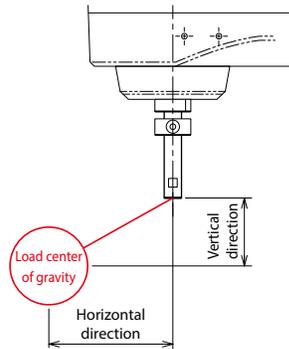
Item	Time
Standard cycle time	0.56 seconds
Continuous cycle time	0.69 seconds



Tip shaft allowable load inertia moment

The 4th axis allowable inertia moment is the allowable inertial moment value for the center of rotation conversion of the 4th axis (rotational axis) of the SACRA robot. Make sure that the offset value from center of the rotation of the 4th axis to the tool center of gravity is within the guideline values listed below. If the tool center of gravity is far from the 4th axis center, it is necessary to reduced speed and acceleration/deceleration appropriately. The overhang distance is limited depending on the payload and operating condition.

Number of axes	Tip shaft allowable load inertia moment
4-axis specification	0.5 kg · m <sup>2</sup>



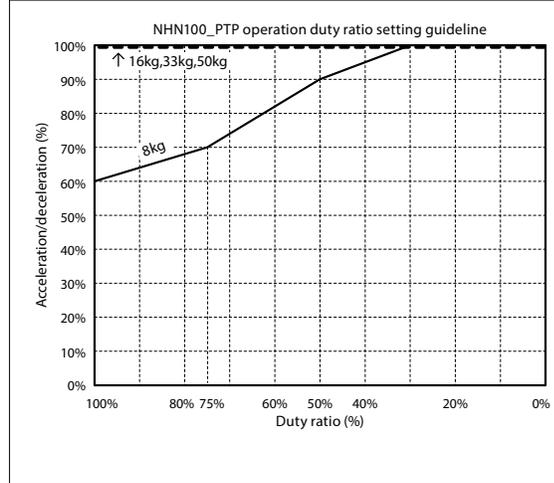
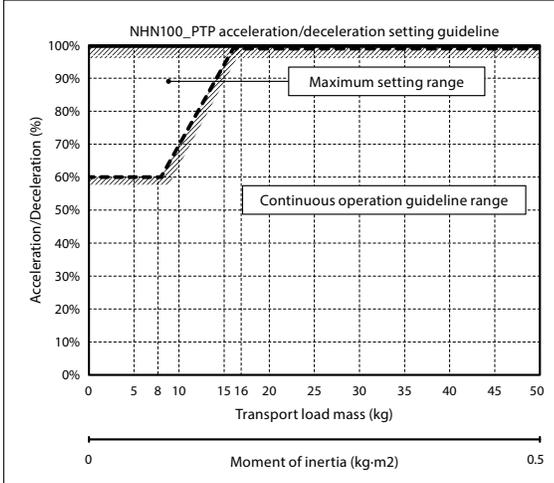
Horizontal direction	Vertical direction
200mm or less	150mm or less

**Acceleration/Deceleration Setting Guidelines**

The SCARA Robot IXA cannot operate continuously at the maximum acceleration/deceleration or maximum speed specified in the catalog. To operate at the maximum acceleration/deceleration, set a stop time referring to the continuous operation duty guideline graph. If a continuous operation is required, do so within the continuous operation guideline range shown in the acceleration/deceleration setting guideline graph.

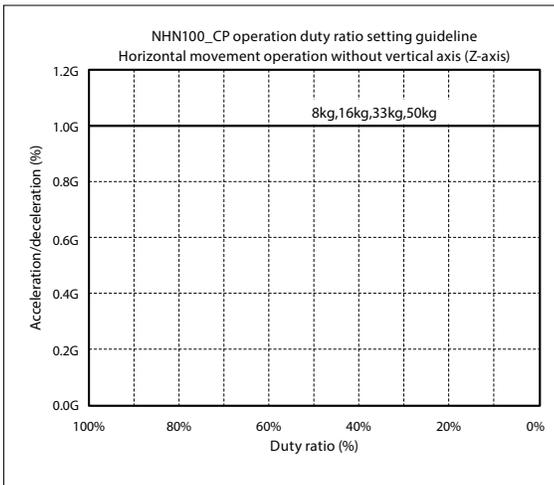
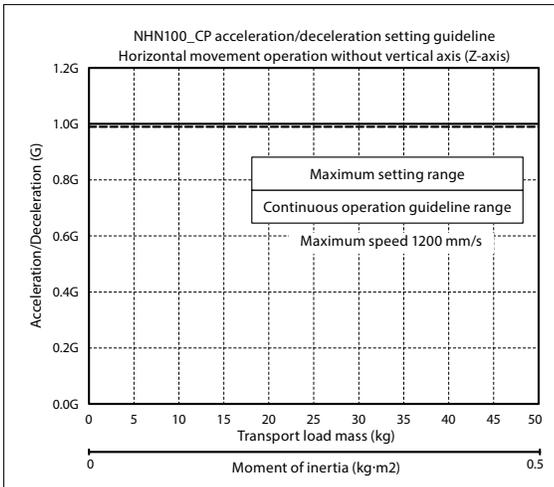
- 1) For a PTP operation, always use the WGHT command in the program to set the weight and moment of inertia. For the SCARA robot, the maximum acceleration/deceleration for each payload is set at 100%. When the payload differs, the operation time will also vary even at the same acceleration/deceleration or speed setting.
- 2) Adjust the acceleration/deceleration setting value by gradually increasing it from the continuous operation reference value.
- 3) If an overload error occurs, lower the acceleration/deceleration as required, or set a stop time by referring to the continuous operation duty guideline.
- 4) Duty (%) = (Operation time / (Operation time + Stop time)) x 100
- 5) When moving the robot horizontally at high speed, operate the vertical axis as close to the upward end as possible.
- 6) Set the moment of inertia and payload to the allowable value or lower.
- 7) The load mass represents the moment of inertia and weight at the center of rotation of the 4th axis.
- 8) Operate the robot at an appropriate acceleration/deceleration according to the weight and moment of inertia for the 4-axis specification. Otherwise, the drive section may become prematurely unusable or damaged, or vibration may occur.
- 9) If the load moment of inertia is high, vibration may occur in the vertical axis, depending on the position of the vertical axis. In such a case, decrease the acceleration/deceleration for operation as required.

**PTP Operation**

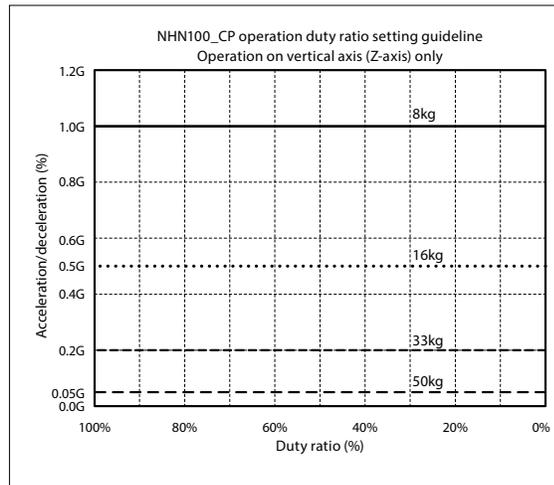
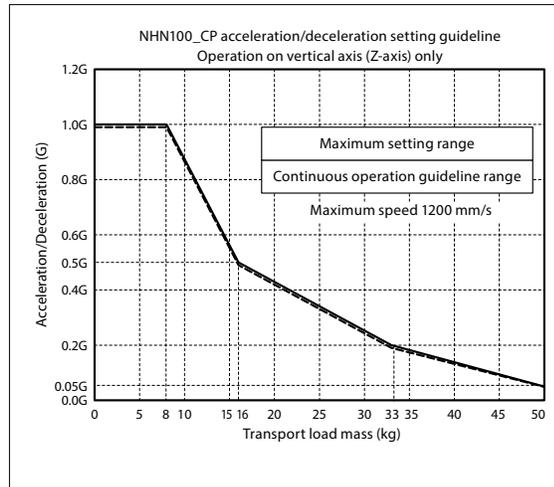


**CP Operation**

**Horizontal**

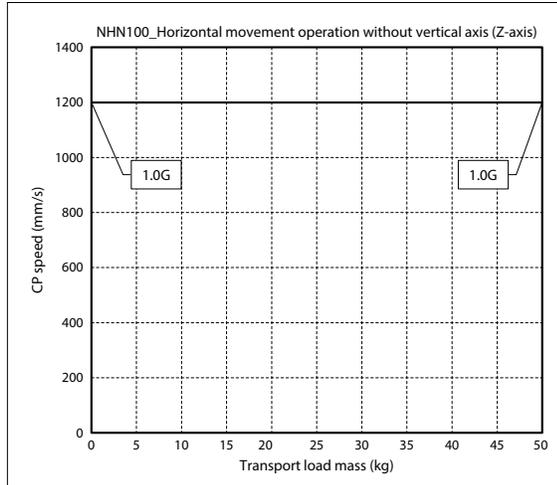


**Vertical**

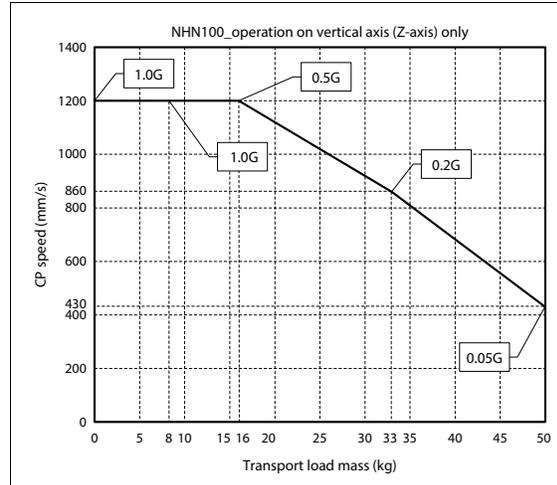


■ CP operation: Acceleration/deceleration Limitations

Horizontal



Vertical







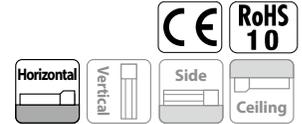
# IXA-4NHN12040

Battery-less Absolute

Arm Length: 1200 mm

## Model Specification Items

<b>IXA</b>	<b>4</b>	<b>NHN</b>	<b>120</b>	<b>40</b>		<b>T2</b>	
Series	Number of axes	Type	Arm length	Vertical axis stroke	Cable length	Applicable controller	Option
4	4 axes	NHN High payload type	120 1200mm	40 400mm	N Nil 5L 5m 10L 10m <input type="checkbox"/> L Specified length (every 1m)	T2 XSEL-SAX	See below



Option * Please check the Options reference pages to confirm each option.		
Name	Model number	Reference page
Built-in extended user cable	<b>EXC</b>	16

Additional option table * Please check the Options reference pages to confirm each option.		
Name	Model number	Reference page
User cable	<b>CB-IXA-USR</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>-CS</b>	17
Flange	<b>IXA-FL-1</b>	17
Protective flange for external wiring *1	<b>IXA-PFL-EW-1</b>	17
Protective flange for R-axis wiring	<b>IXA-PFL-RW-1</b>	17
Side stay for Z-axis wiring	Z-axis 400st <b>IXA-SST-ZW-2</b>	18
Upper stay for Z-axis wiring	Z-axis 400st <b>IXA-TST-ZW-2</b>	18
Solenoid valve set *1	<b>IXA-SVP-1</b>	18

\*1 The protective flange for external wiring and the solenoid valve set cannot be installed at the same time.  
(Note) Please order separately.

Cable length		
Type	Cable code	4-axis specification
Standard type	<b>5L</b> (5m)	<input type="radio"/>
	<b>10L</b> (10m)	<input type="radio"/>
Specified length	<b>1L</b> (1m) ~ <b>4L</b> (4m)	<input type="radio"/>
	<b>6L</b> (6m) ~ <b>9L</b> (9m)	<input type="radio"/>
	<b>11L</b> (11m)	<input type="radio"/>
	<b>12L</b> (12m)	<input type="radio"/>
	<b>13L</b> (13m)	<input type="radio"/>
	<b>14L</b> (14m)	<input type="radio"/>
	<b>15L</b> (15m)	<input type="radio"/>

(Note) Total price for the following cables.  
[4-axis spec.] Motor cable: 4, Encoder cable: 4, Brake cable: 1

POINT

Selection Notes

(1) Please refer to P15 for Notes 1 - 8.

(2) The maximum set value for acceleration/deceleration varies depending on the weight of the object being transported, the travel distance and the location. Operating continuously at the maximum set value could cause an overload error. For a continuous operation, either lower the acceleration/deceleration values or set a stop time after acceleration/deceleration, referring to the duty ratio (guideline).

(3) If the motor is replaced, absolute reset must be performed. An adjustment jig will be required to perform an absolute reset on the rotational axis (4th axis). Please refer to P17 for details.

(4) A continuous operation cannot be performed for SCARA robots at 100% of speed and acceleration. Refer to the "Acceleration/Deceleration Setting Guidelines" for executable operating conditions.

Main specifications

Item		Description	
		4-axis specification	
Max. payload (kg) (Note 1)		50	
Speed (Note 2)	Combined max. speed (mm/s)		8308
	Max. speed of individual axes	1st arm (deg/s)	270
		2nd arm (deg/s)	380
		Vertical axis (mm/s)	1200
		Rotational axis (deg/s)	920
Push force (N) (Note 3)		Upper limit	570
		Lower limit	70
Arm length (mm)		1200	
Individual arm length (mm)		800	
		400	
Operation range of individual axes		1st arm (deg)	±137
		2nd arm (deg)	±142
		Vertical axis (mm)	400
		Rotational axis (deg)	±360

Item		Description	
		4-axis specification	
Positioning repeatability (Note 4)	Within horizontal surface		±0.05mm
	Vertical axis		±0.02mm
	Rotational axis		±0.01 degrees
User wiring		10-core (9-core + shield) AWG24 (rated 30V/Max. 1A)	
User piping		Outer diameter Φ6, inner diameter Φ4, air tube 3 pcs. (max. usable pressure 0.6MPa)	
Alarm lamp (Note 5)		Amber color LED, small pilot lamp 1 pc. (DC24V supply required)	
Brake release switch (Note 6)		Brake release switch for preventing vertical axis from dropping.	
Tip axis	Allowable torque	15 N·m	
	Allowable load moment	48 N·m	
Ambient operational temperature and humidity		0-40°C, 20-85% RH or lower (non-condensing)	
Degree of protection		IP10	
Vibration- and impact-resistance		No impact or vibration should be applied.	
Noise (Note 7)		85 dB or lower	
International standard		CE marking, RoHS	
Motor type		AC servo motor	
Motor wattage	1st arm		1000W
	2nd arm		750W
	Vertical axis		600W
	Rotational axis		200W
Encoder type		Battery-less absolute	
Encoder pulse		131072 pulse/rev	

Cycle time

The standard/continuous cycle time represents the time required when an operation is performed with a cycle operation setting at maximum speed, under the following conditions. 2kg transport, vertical movement 25mm, horizontal movement 300mm (rough positioning arch motion)

[Standard cycle time]

The time required for maximum speed. This is a general guideline for high speed performance.

Note that continuous operation is not possible under maximum speed operation.

[Continuous cycle time]

The cycle time for continuous operation.

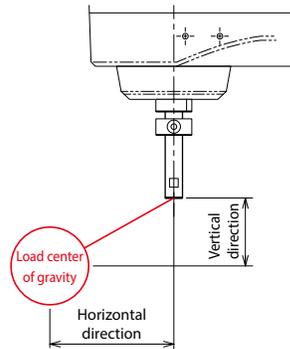
Item	Time
Standard cycle time	0.61 seconds
Continuous cycle time	0.69 seconds



Tip shaft allowable load inertia moment

The 4th axis allowable inertia moment is the allowable inertial moment value for the center of rotation conversion of the 4th axis (rotational axis) of the SACRA robot. Make sure that the offset value from center of the rotation of the 4th axis to the tool center of gravity is within the guideline values listed below. If the tool center of gravity is far from the 4th axis center, it is necessary to reduced speed and acceleration/deceleration appropriately. The overhang distance is limited depending on the payload and operating condition.

Number of axes	Tip shaft allowable load inertia moment
4-axis specification	0.5 kg·m <sup>2</sup>



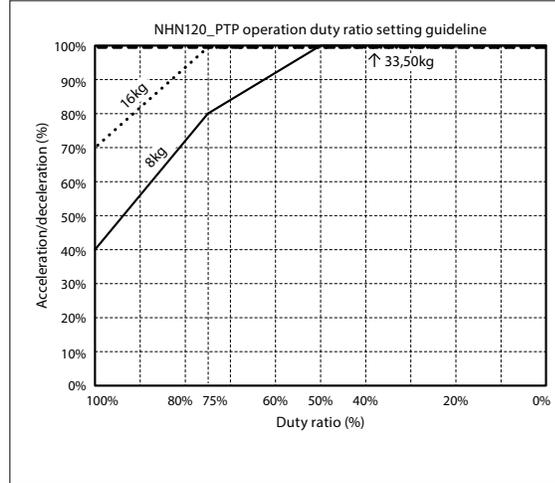
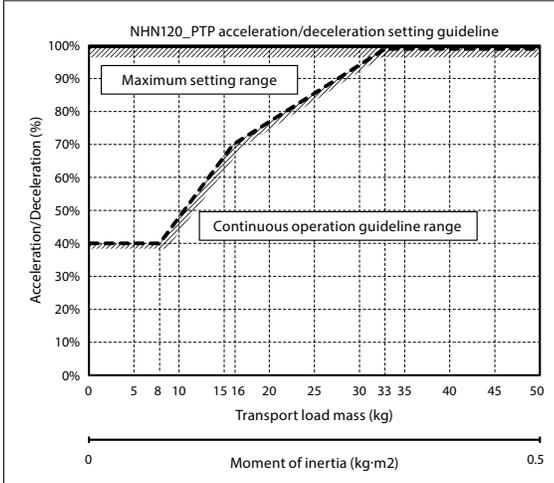
Horizontal direction	Vertical direction
200mm or less	150mm or less

**Acceleration/Deceleration Setting Guidelines**

The SCARA Robot IXA cannot operate continuously at the maximum acceleration/deceleration or maximum speed specified in the catalog. To operate at the maximum acceleration/deceleration, set a stop time referring to the continuous operation duty guideline graph. If a continuous operation is required, do so within the continuous operation guideline range shown in the acceleration/deceleration setting guideline graph.

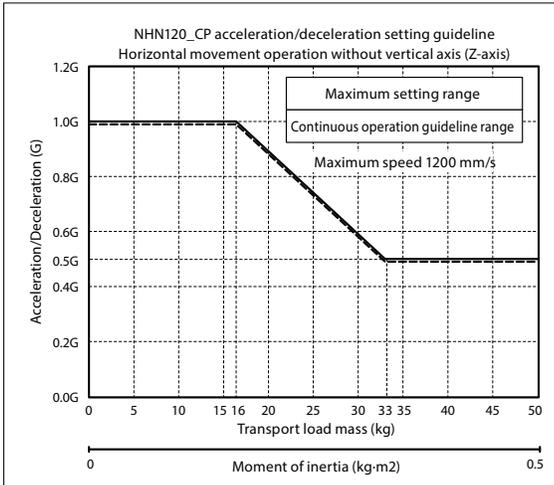
- 1) For a PTP operation, always use the WGHT command in the program to set the weight and moment of inertia. For the SCARA robot, the maximum acceleration/deceleration for each payload is set at 100%. When the payload differs, the operation time will also vary even at the same acceleration/deceleration or speed setting.
- 2) Adjust the acceleration/deceleration setting value by gradually increasing it from the continuous operation reference value.
- 3) If an overload error occurs, lower the acceleration/deceleration as required, or set a stop time by referring to the continuous operation duty guideline.
- 4) Duty (%) = (Operation time / (Operation time + Stop time)) x 100
- 5) When moving the robot horizontally at high speed, operate the vertical axis as close to the upward end as possible.
- 6) Set the moment of inertia and payload to the allowable value or lower.
- 7) The load mass represents the moment of inertia and weight at the center of rotation of the 4th axis.
- 8) Operate the robot at an appropriate acceleration/deceleration according to the weight and moment of inertia for the 4-axis specification. Otherwise, the drive section may become prematurely unusable or damaged, or vibration may occur.
- 9) If the load moment of inertia is high, vibration may occur in the vertical axis, depending on the position of the vertical axis. In such a case, decrease the acceleration/deceleration for operation as required.

**PTP Operation**

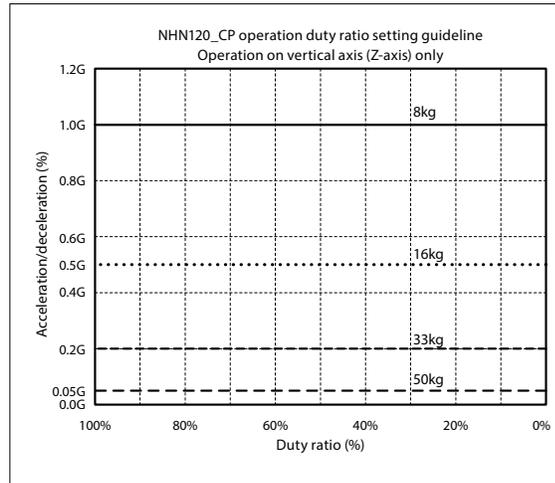
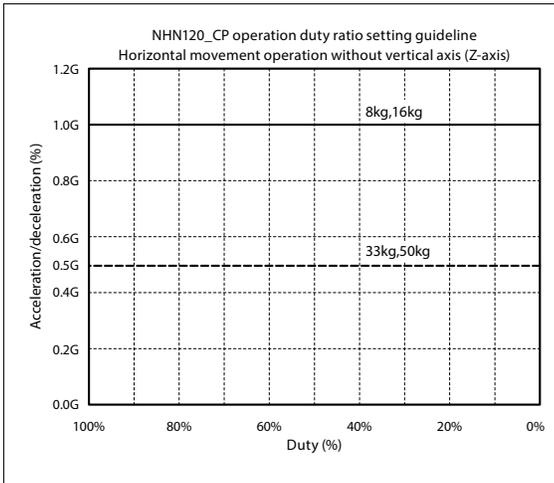
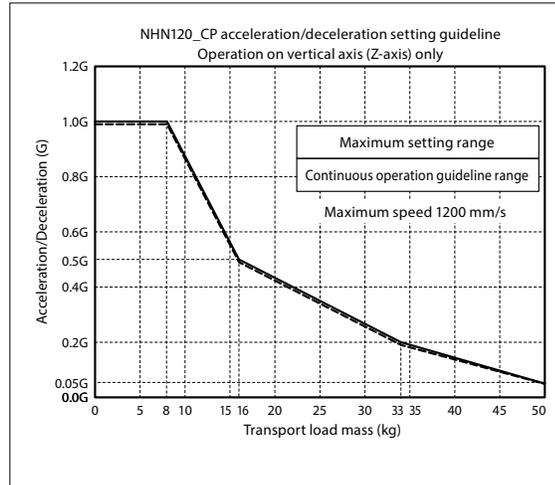


**CP Operation**

**Horizontal**

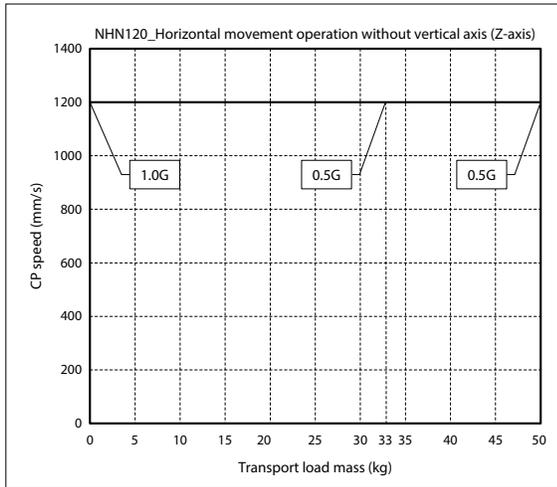


**Vertical**

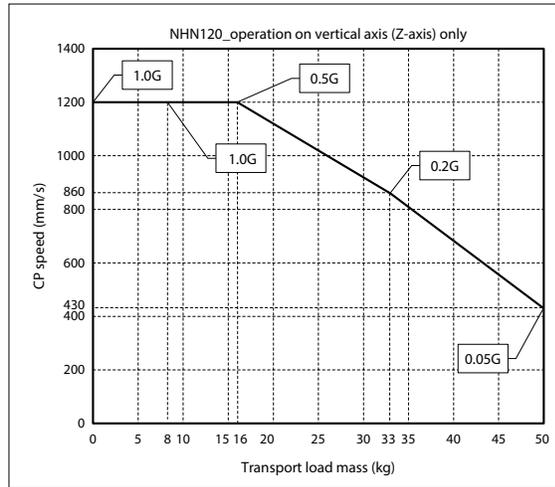


■ CP operation: Acceleration/deceleration Limitations

Horizontal



Vertical







# Precautions

## (Note 1) Payload

Payload is the maximum weight that can be carried.  
The optimal acceleration automatically sets the weight of the load and the moment of inertia in the program.  
A heavier load will cause a lower acceleration to be configured.

## (Note 2) Maximum operation speed during a PTP operation

The value of the maximum operation speed in the specifications is for PTP command operation.  
For CP operation commands (interpolation operation), there are limitations on operations at high speed.

## (Note 3) 3rd axis push force control range

The controllable range of the push force by the 3rd axis is the push force of the tip part of the vertical axis.  
This will be the push force when there is no load (nothing mounted) on the 3rd axis.  
Continuous pushing is not possible.  
The upper limit is the push force when the push force setting value is 70%.  
The lower limit is the push force when the push force setting value is 20%.  
There is some tolerance on the actual push force.

## (Note 4) Positioning repeatability

This represents the ability to reproduce the same positioning result when an operation is repeated at the same speed, acceleration/deceleration, and arm system, between the operation start position (The value is for JIS B 8432 Ambient temperature 20°C constant).  
This is NOT the absolute positioning accuracy.  
Note that when the arm system is switched while starting from multiple positions to the target position, or when the operation conditions (such as operation speed or acceleration/deceleration setting) are changed, the value may fall outside of the positioning repeatability specification value.

## (Note 5) Alarm pilot lamp

The Alarm indicator lamp is installed on the user panel part.  
It will be activated when the controller generates an error.  
The customer is required to form a circuitry for supplying 24VDC to the LED terminal in the user wiring part using the controller I/O output signal.

## (Note 6) Brake release switch

The brake release switch is located on the user panel part.  
24V DC power must be supplied to the controller to release the brake, regardless of whether the brake release switch is used or not.

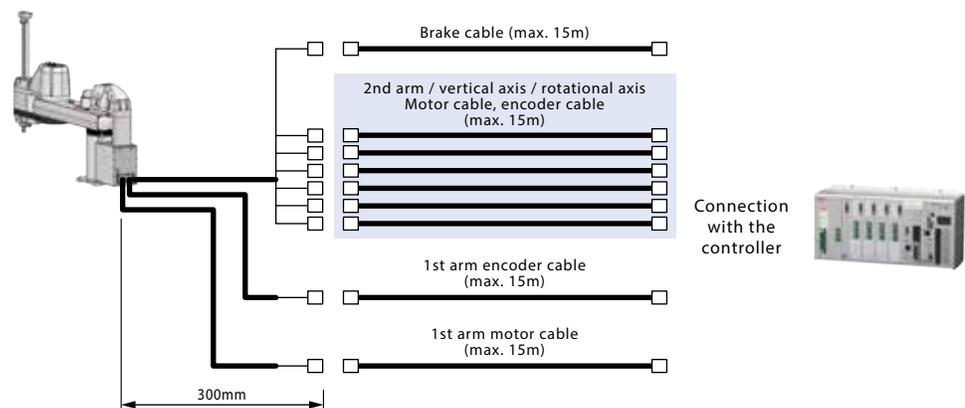
## (Note 7) Noise

This is the value measured when all axes are operating at their maximum speed.  
Noise may change depending on operating conditions and the surrounding reverberation environment (JIS B 6195).

## Operation range

When switching the arm system, the arms extend once in a straight line.  
Beware of potential interference with the peripheral devices.

## (Note 8) Cable



# Options and maintenance parts

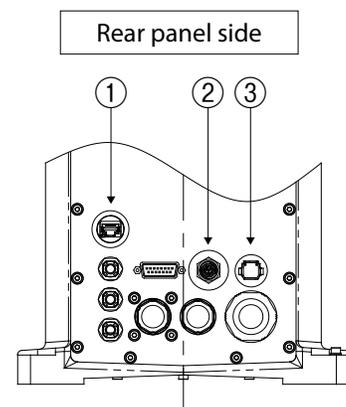
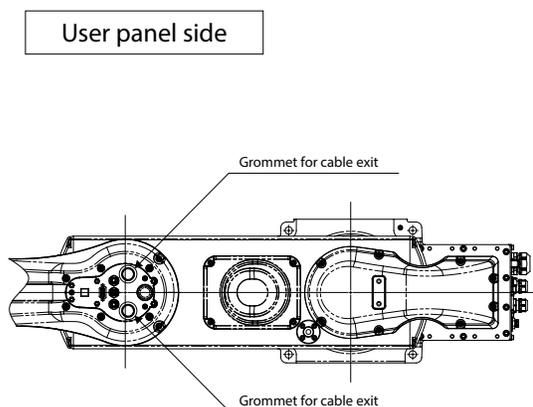
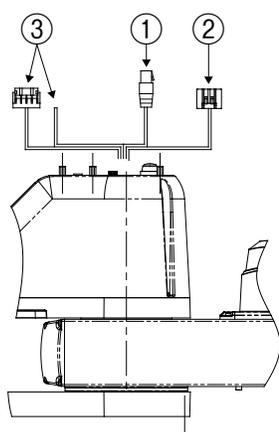
## Options

### Built-in extended user cable specification

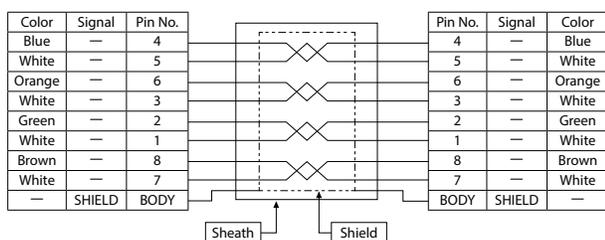
**Model** EXC

**Description** The following cables (1) to (3) are built in the SCARA robot body.  
The body mass increases by 0.5 kg.

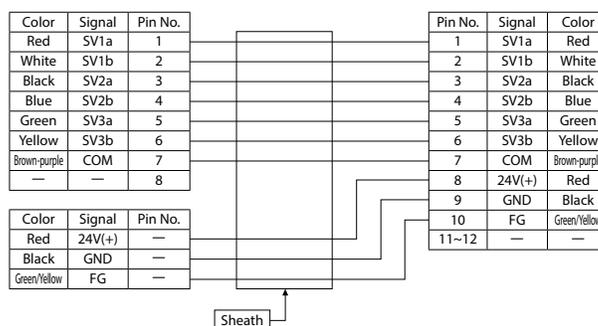
	Cable type	Connector		Application example
		User panel side	Rear panel side	
①	Ethernet cable	TM21CP- 88P(03) (Hirose Electric)	09_45_452_1561 (HARTING)	Vision camera, etc.
②	10-core composite cable	7-core: DF11-8DS-2C (Hirose Electric)	LF10WBRB-12P (Hirose Electric)	Solenoid valve power cable (supports solenoid valve set option) Vision camera power, etc.
		5-core: No connector		
③	13-core composite cable	DF62C-24S-2.2C (Hirose Electric)	DF62P-24EP-2.2C (Hirose Electric)	Power and signal lines Electric gripper (RCP4-GR series)



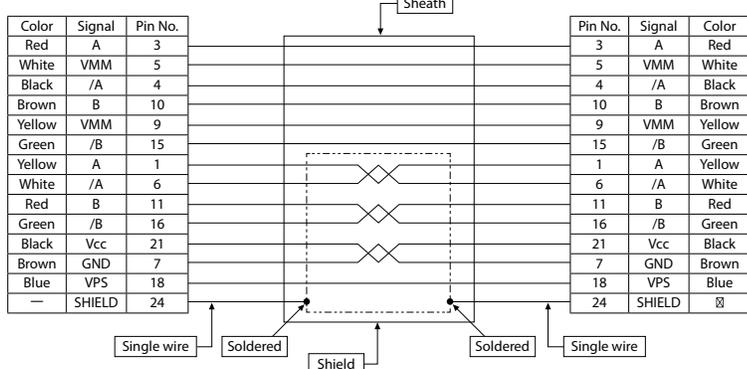
① Ethernet cable



② 10-core composite cable



③ 13-core composite cable



# Options and Maintenance parts

## Single unit options and maintenance parts

Series	Type code	Type		Single unit			Maintenance Parts
				Flange	User cable	Wiring and piping options	Absolute reset adjusting jig
IXA	High payload type	NHN	10040	IXA-FL-1	CB-IXA-USR □□□-SC	*	JG-IXA4
			12040				

### \* Wiring and piping options

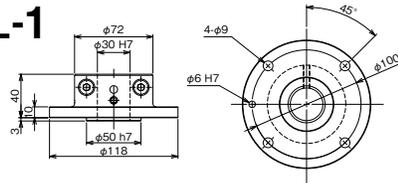
Name	Model
External wire protecting flange	IXA-PLF-EW-1
R-axis wire protecting flange	IXA-PLF-RW-1
Z-axis wire side stay	(Z-axis)400ST IXA-SST-ZW-2
Z-axis wire upper stay	(Z-axis)400ST IXA-TST-ZW-2
Solenoid valve set	IXA-SVP-1

### Flange

Used when an object is mounted on the vertical axis tip.

#### Single unit model **IXA-FL-1**

(Single weight: 2.0kg / Material: steel)



### Absolute reset adjusting jig

This jig is used to reset the absolute encoder that has lost absolute data when the motor is replaced.

#### Single unit model **JG-IXA4**

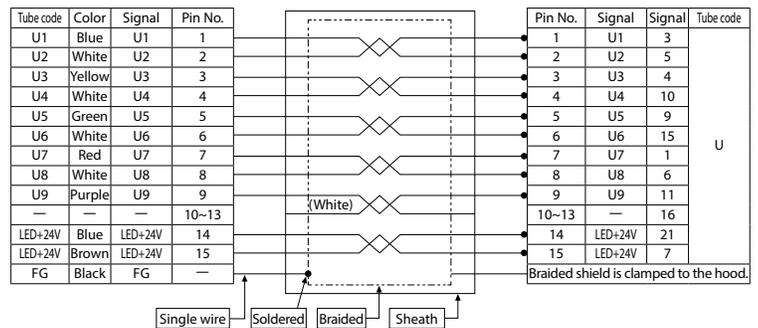
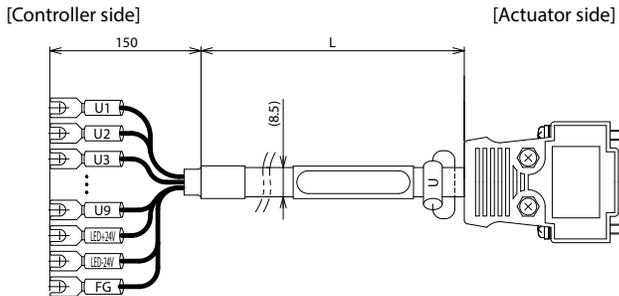


### User cable

This user cable is connected to the D-sub connector for user wiring at the rear panel.

#### Single unit model number **CB-IXA-USR □□□-CS**

\* Please indicate the cable length (L) in □□□. (e.g. 050=5m), maximum 15m.



### Protective flange for external wiring

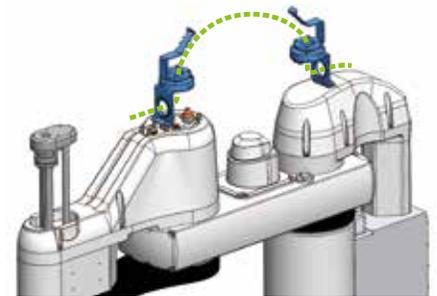
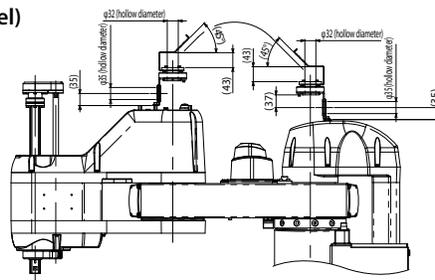
The flange is used to protect the wire that is external to the robot.

\* When this option is used, the D-sub connector for user panel cannot be used.

#### Single unit model number **IXA-PLF-EW-1**

(Single unit mass 0.6kg/material aluminum, steel)

(Note) The model code represents one piece of a flange.  
Please place an order for required quantity.

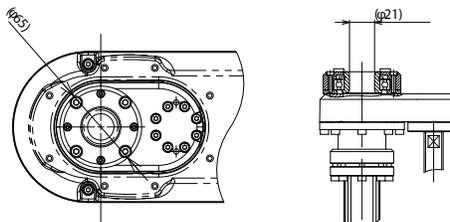


### Protective flange for R-axis wiring

This flange protects the wire that goes through the hollow part of the tip axis.

#### Single unit model number **IXA-PLF-RW-1**

(Single unit mass 0.3kg / material aluminum, steel)

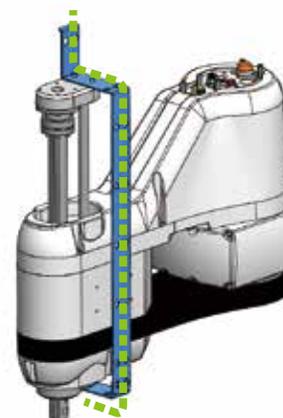
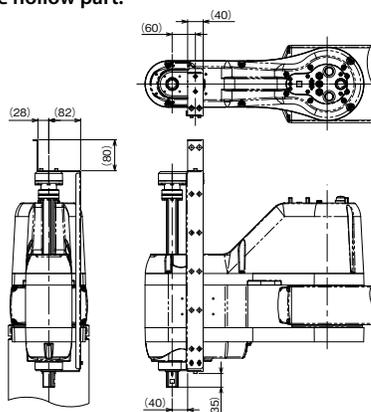


## Side stay for Z-axis wiring

This Side Stay is for wiring at the Z-axis side without using the hollow part.

### Single unit model **IXA-SST-ZW-2**

(Z-axis stroke 400mm),  
(Single unit weight: 0.9 kg / Material: steel)

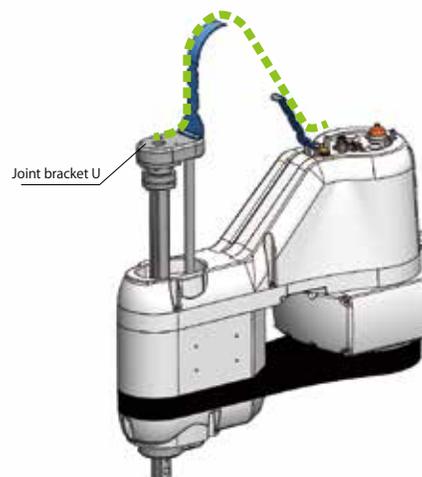
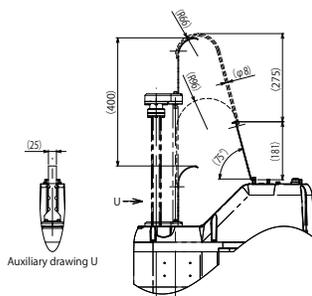


## Upper stay for Z-axis wiring

This is an auxiliary stay for wiring between the user panel and joint bracket U for Z-axis operations.

### Single unit model **IXA-TST-ZW-2**

(Z-axis stroke 400mm),  
(Single unit weight: 0.25kg / Material: steel)

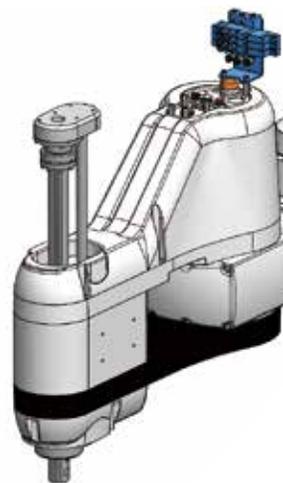
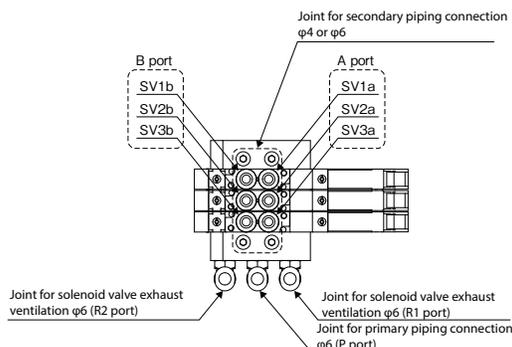
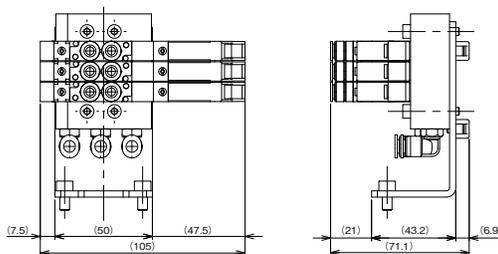


## Solenoid valve set

This is an optional solenoid valve when installing an air chuck at the tip.  
When the robot built-in cable is used for power supply to the solenoid valve,  
select the built-in extended user cable (option: EXC).

### Single unit model **IXA-SVP-1**

(Single unit weight: 0.5 kg)



Model	F10M3Fstn.1~3 F10T3-FJ-CPS DC24V
Maker	Koganei
Number of positions	3 positions
Number of ports	5
Valve function	Closed center
Fluid to be used	Air
Operation method	Internal pilot type
Acoustic conductance	0.93 dm <sup>3</sup> /(s·bar)
Effective sectional area (Cv value)	4.6mm <sup>2</sup> (0.25)
Piping connecting diameter	φ4 and φ6 dual joint
Pressure range for use	0.2 ~ 0.6MPa
Rated voltage	DC24V
Lubrication	Not necessary





## Options

### Regenerative resistance unit

**Model RESU-1** (Standard specification)

**RESUD-1** (DIN rail mounting specification)

#### Specification

Model	RESU-1	RESUD-1
Unit weight	Approx. 0.4 kg	
Built-in regenerative resistance value	235Ω 80W	
Mounting method	Screw mount	DIN rail mount
Attached cable	CB-ST-REU010	

#### Description

Unit that converts the regenerative current generated during motor deceleration to heat. Although the controller is equipped with a regenerative resistance inside, and additional external regenerative resistance unit may be necessary if the load in the vertical axis is large and the capacity is insufficient. Refer to the General Catalog 2021 for external dimensions.

#### Guideline for installation

Model	Required number of regenerative resistance units
NHN	10040
	12040
	10 units

### Dummy plug

**Model DP-2**

#### Description

A dummy plug to be attached to the teaching connector when a PC or teaching pendant is not connected.

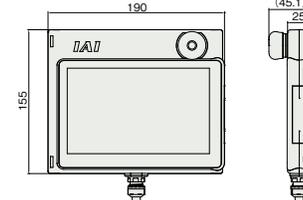


### Touch panel teaching pendant

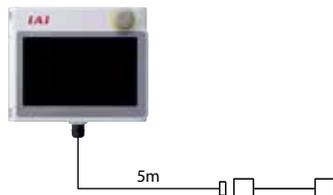
**Features** A teaching device equipped with functions such as position teaching, trial operation and monitoring.

**Model TB-02-**

#### External dimensions



#### Configuration



#### Specifications

Rated voltage	24V DC
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
Weight	470g (TB-02 single unit only)

### PC-compatible teaching software

**Model IA-101-N**

#### Features

This is PC-compatible software (Downloadable) only. When both the controller and the PC are connected with a USB cable or Ethernet cable, use only the software. The following cable is to be prepared by the customer.

#### Description

Software (Downloadable), Compatible with Windows 7/8/8.1/10

\* Please purchase through your distributor and a download link will be sent to your valid email address.

#### Notes

Make sure to connect a stop switch to the system I/O connector when the actuator is operated with a USB connection. If a stop switch cannot be prepared, use the IA-101-XA-MW with an emergency stop.

	Controller side connector	Maximum cable length
USB cable specification	USB Mini-B	5m
Ethernet cable specification	10/100/1000BASE-T(RJ-45)	100m



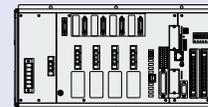
PC software (Downloadable)



USB cable (to be prepared by the customer)



Ethernet cable (to be prepared by the customer)



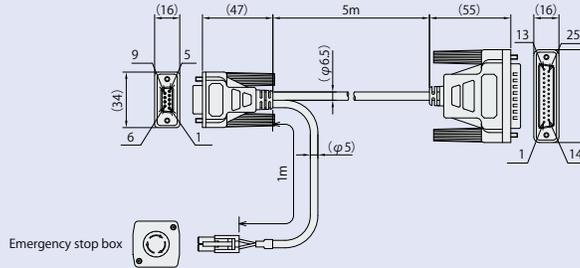
PC dedicated teaching software compatible with safety category 4 (for XSEL-SAX)

**Model IA-101-XA-MW**

**Features** Startup supporting software that has program/position input, test operation and monitoring functions. Debugging functions are considerably improved, reducing startup time. The connecting cable with PC has a duplex circuitry for emergency stop, which is compatible with safety category 4.

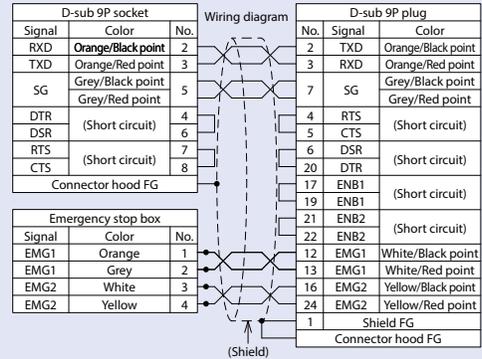
**Description** Software (Downloadable), Compatible with Windows 7/8/8.1/10  
**(Accessories)** PC connection cable 5m + Emergency stop box (Model: CB-ST-A2MW050-EB)

\* Please purchase through your distributor and a download link will be sent to your valid email address.



**Notes**

The model number for cable only is CB-ST-A2MW050, and that comes with an emergency stop box as a set is CB-ST-A2MW050-EB. When the teaching tool is not used, connect the dummy plus DP-2 (attached to the controller) to the teaching connector.



**Maintenance Parts**

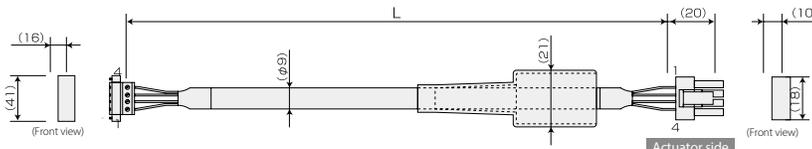
**Table of applicable cables**

To purchase a replacement cable, use the model name listed below.

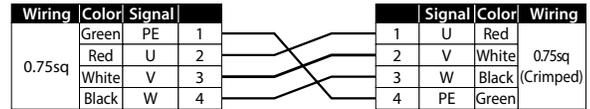
Product model number	Motor robot cable	Encoder robot cable	Brake cable
IXA	4NHN10040	CB-X-MA □□□	CB-X1-PA □□□
	4NHN12040	(1st axis only : CB-XMC-MA □□□)	
Product model number	PIO flat cable		
XSEL-SAX	CB-X-PIO □□□		
	Flat cable for multi-point PIO		
	CB-X-PIOH □□□		

**Model: CB-X-MA □□□**

\* Please indicate the cable length (L) in □□□, (e.g. 050 = 5m), maximum 15m

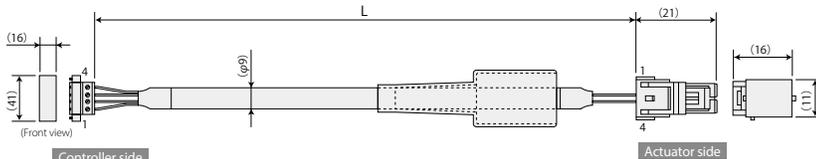


**Controller side**  
 Minimum bending radius  $r = 51$  mm or more (Dynamic bending condition)  
 \* Only the robot cable is available for this model.

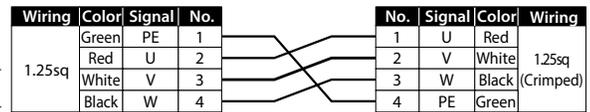


**Model: CB-XMC-MA □□□**

\* Please indicate the cable length (L) in □□□, (e.g. 080 = 8m), maximum 15m

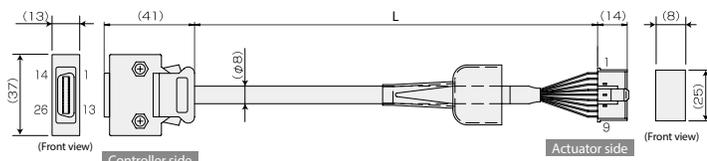


**Controller side**  
 Minimum bending radius  $r = 55$  mm or more (Dynamic bending condition)  
 \* Only the robot cable is available for this model.

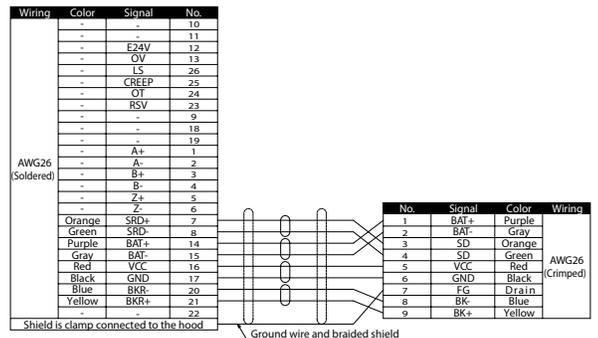


**Model: CB-X1-PA □□□**

\* Please indicate the cable length (L) in □□□, (e.g. 050 = 5m), maximum 15m

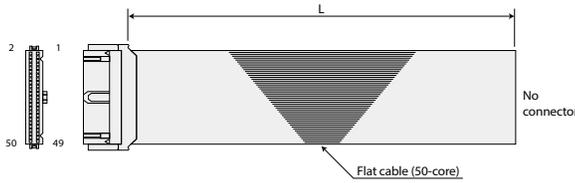


**Controller side**  
 Minimum bending radius  $r = 44$  mm or more (Dynamic bending condition)  
 \* Only the robot cable is available for this model.



Model: **CB-X-PIO** □ □ □

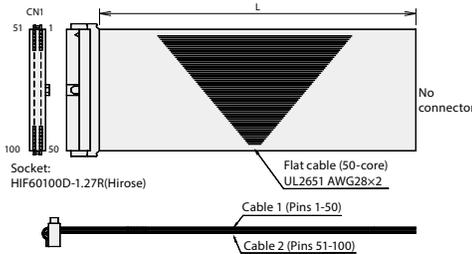
\* Please indicate the cable length (L) in □ □ □ , (e.g. 080 = 8m), maximum 10m



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

Model: **CB-X-PIOH** □ □ □

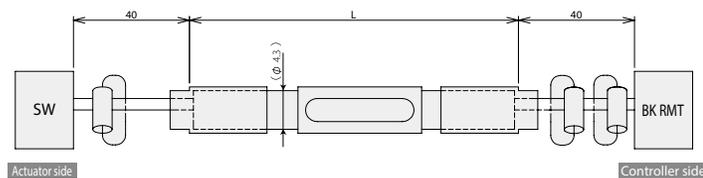
\* Please indicate the cable length (L) in □ □ □ , (e.g. 080 = 8m), maximum 10m



Cable 1					Cable 2										
Category	Pin No.	Color	Port No.	Function	Category	Pin No.	Color	Port No.	Function	Category	Pin No.	Color	Port No.	Function	
-	1	Brown-1	-	External power supply 24VDC for pin No. 2-25, 51-74	-	26	Blue-3	-	External power supply 24VDC for pin No. 27-50, 76-99	51	Brown-1	300		Alarm output	
2	Red-1	000		Program start	27	Purple-3	024		General-purpose input	52	Red-1	301		Ready output	
3	Orange-1	001		General-purpose input	28	Gray-3	025		General-purpose input	53	Orange-1	302		Emergency stop output	
4	Yellow-1	002		General-purpose input	29	White-3	026		General-purpose input	54	Yellow-1	303		General-purpose output	
5	Green-1	003		General-purpose input	30	Black-3	027		General-purpose input	55	Green-1	304		General-purpose output	
6	Blue-1	004		General-purpose input	31	Brown-4	028		General-purpose input	56	Blue-1	305		General-purpose output	
7	Purple-1	005		General-purpose input	32	Red-4	029		General-purpose input	57	Purple-1	306		General-purpose output	
8	Gray-1	006		General-purpose input	33	Orange-4	030		General-purpose input	58	Gray-1	307		General-purpose output	
9	White-1	007		Program designation (PRG No.1)	34	Yellow-4	031		General-purpose input	59	White-1	308		General-purpose output	
10	Black-1	008		Program designation (PRG No.2)	35	Green-4	032		General-purpose input	60	Black-1	309		General-purpose output	
11	Brown-2	009		Program designation (PRG No.4)	36	Blue-4	033		General-purpose input	61	Brown-2	310		General-purpose output	
12	Red-2	010		Program designation (PRG No.8)	37	Purple-4	034		General-purpose input	62	Red-2	311		General-purpose output	
13	Orange-2	011		Program designation (PRG No.10)	38	Gray-4	035		General-purpose input	63	Orange-2	312		General-purpose output	
14	Yellow-2	012		Program designation (PRG No.40)	39	White-4	036		General-purpose input	64	Yellow-2	313		General-purpose output	
15	Green-2	013		Program designation (PRG No.40)	40	Black-4	037		General-purpose input	65	Green-2	314		General-purpose output	
16	Blue-2	014		General-purpose input	41	Brown-5	038		General-purpose input	66	Blue-2	315		General-purpose output	
17	Purple-2	015		General-purpose input	42	Red-5	039		General-purpose input	67	Purple-2	316		General-purpose output	
18	Gray-2	016		General-purpose input	43	Orange-5	040		General-purpose input	68	Gray-2	317		General-purpose output	
19	White-2	017		General-purpose input	44	Yellow-5	041		General-purpose input	69	White-2	318		General-purpose output	
20	Black-2	018		General-purpose input	45	Green-5	042		General-purpose input	70	Black-2	319		General-purpose output	
21	Brown-3	019		General-purpose input	46	Blue-5	043		General-purpose input	71	Brown-3	320		General-purpose output	
22	Red-3	020		General-purpose input	47	Purple-5	044		General-purpose input	72	Red-3	321		General-purpose output	
23	Orange-3	021		General-purpose input	48	Gray-5	045		General-purpose input	73	Orange-3	322		General-purpose output	
24	Yellow-3	022		General-purpose input	49	White-5	046		General-purpose input	74	Yellow-3	323		General-purpose output	
25	Green-3	023		General-purpose input	50	Black-5	047		General-purpose input	75	Green-3	-		External power supply 0V for pin No. 2-25, 51-74	
											100	Black-5	-		External power supply 0V for pin No. 27-50, 76-99

Model: **CB-IXA-BK** □ □ □ -3

\* Please indicate the cable length (L) in □ □ □ , (e.g. 050 = 5m), maximum 15m



Connector	Identification	Signal	Pin No.	Pin No.	Signal	Identification	Connector	
SW	Red	BK5	1	BK RMT	BK5	Red	BK RMT	
	White	COM	2		A4	COM		White
	-	-	3		Remaining	-		-

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**Southeast Branch Office (Atlanta):** 1220 Kennestone Circle, Suite 108, Marietta, GA 30066 (678) 354-9470

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