

**FANUC** Robot **series R-30iB CONTROLLER**

AUXILIARY AXIS ORDER MANUAL

For A-cabinet

Robot Controller Department, CNC Hardware Laboratory

<u>Edition</u>	<u>Date</u>	<u>Charge</u>	<u>Check</u>	<u>Approval</u>	<u>Remarks</u>
01	12. Feb.20	Yuyama	Tanabe	Chino	The first edition publication

---

## 1. Application

This manual describes auxiliary axis (Aux. Axis) order method for R-30iB A-cabinet.

The scope of this manual as follows.

- Aux. axis for M-3iA, M-2000iA is out of scope.
- Local stop system is out of scope.
- Aux. axis and I/O Unit-MODEL A are not installed together in one controller.
- Gun change function(Hand change function) can be used the (2) axes or (3) axes servo amplifier
- In case of M-430iA, (1) servo amplifier for robot axis is already specified in robot order, so additional servo amplifier (AMP3) has to be added to the robot order.
- The servo amplifier for R-30iA can not be used for spare parts.
- If it is necessary the aux. axis is not supported in this manual, describe the attached Aux. axis configuration sheets and ask to design section.

### Note.

The power circuit (Breakers, Transformers, Emergency stop unit, Power regeneration unit, Discharge resistor, etc.) is commonly used with robot and aux. axis.

Therefore, if robot and aux. axis is operated acceleration and de-acceleration with heavy load and high speed simultaneously, the power circuit becomes overloaded, and it may occur overheat of transformer, overheat of discharge resistor, low voltage of servo amplifier and move error excess.

2. Available servo motor and servo amplifier

2.1. Available Servo Motor (DC90V brake)

Table 1. Servo motor for auxiliary axis of R-30iB Controller.

Servo motor	Specification	Shaft shape	maximum power	Servo amp.
<b>αiF 1/5000</b>	A06B-0202-B605	Taper	2.0kW	20A
	A06B-0202-B705	Straight		
	A06B-0202-B805	Straight with key		
<b>αiF 2/5000</b>	A06B-0205-B605	Taper	2.9kW	20A
	A06B-0205-B705	Straight		
	A06B-0205-B805	Straight with key		
<b>αiF 4/4000</b>	A06B-0223-B605	Taper	4.5kW	40A
	A06B-0223-B705	Straight		
	A06B-0223-B805	Straight with key		
<b>αiF 8/3000</b>	A06B-0227-B605	Taper	5.7kW	40A
	A06B-0227-B705	Straight		
	A06B-0227-B805	Straight with key		
<b>αiF 12/3000</b>	A06B-0243-B605	Taper	7.6kW	80A
	A06B-0243-B705	Straight		
	A06B-0243-B805	Straight with key		
<b>αiF 22/3000</b>	A06B-0247-B605	Taper	9.6kW	80A
	A06B-0247-B705	Straight		
	A06B-0247-B805	Straight with key		
<b>αiS 2/5000</b>	A06B-0212-B605	Taper	2.8kW	20A
	A06B-0212-B705	Straight		
	A06B-0212-B805	Straight with key		
<b>αiS 4/5000</b>	A06B-0215-B605	Taper	3.1kW	20A
	A06B-0215-B705	Straight		
	A06B-0215-B805	Straight with key		
<b>αiS 8/4000</b>	A06B-0235-B605	Taper	8kW	80A
	A06B-0235-B705	Straight		
	A06B-0235-B805	Straight with key		
<b>αiS 12/4000</b>	A06B-0238-B605	Taper	12kW	80A
	A06B-0238-B705	Straight		
	A06B-0238-B805	Straight with key		
<b>αiF 30/3000</b>	A06B-0253-B605	Taper	21kW	160A
	A06B-0253-B705	Straight		
	A06B-0253-B805	Straight with key		
<b>αiF 40/3000</b>	A06B-0257-B605	Taper	18kW	160A
	A06B-0257-B705	Straight		
	A06B-0257-B805	Straight with key		
<b>αiS 22/4000</b>	A06B-0265-B605	Taper	17kW	160A
	A06B-0265-B705	Straight		
	A06B-0265-B805	Straight with key		
<b>αiS 30/4000</b>	A06B-0268-B605	Taper	22kW	160A
	A06B-0268-B705	Straight		
	A06B-0268-B805	Straight with key		
<b>αiS 40/4000</b>	A06B-0272-B605	Taper	24kW	160A
	A06B-0272-B705	Straight		
	A06B-0272-B805	Straight with key		

Servo motor	Specification	Shaft shape	maximum power	Servo amp.
<b><i>β</i>S 0.4/5000</b>	A06B-0114-B704	Straight	0.5kW	20A
	A06B-0114-B804	Straight with key		
<b><i>β</i>S 0.5/6000</b>	A06B-0115-B704	Straight	1.3kW	20A
	A06B-0115-B804	Straight with key		
<b><i>β</i>S 1/6000</b>	A06B-0116-B704	Straight	2.3kW	20A
	A06B-0116-B804	Straight with key		
<b><i>β</i>S 2/4000</b>	A06B-0061-B604	Taper	2.3kW	20A
	A06B-0061-B704	Straight		
	A06B-0061-B804	Straight with key		
<b><i>β</i>S 4/4000</b>	A06B-0063-B604	Taper	2.5kW	20A
	A06B-0063-B704	Straight		
	A06B-0063-B804	Straight with key		
<b><i>β</i>S 8/3000</b>	A06B-0075-B604	Taper	2.8kW	20A
	A06B-0075-B704	Straight		
	A06B-0075-B804	Straight with key		
<b><i>β</i>S 12/3000</b>	A06B-0078-B604	Taper	5.4kW	40A
	A06B-0078-B704	Straight		
	A06B-0078-B804	Straight with key		
<b><i>β</i>S 22/2000</b>	A06B-0085-B604	Taper	5.2kW	40A
	A06B-0085-B704	Straight		
	A06B-0085-B804	Straight with key		

Available Servo Amplifier

Table 2. Servo amplifiers for auxiliary axis of R-30iB Controller.

Servo Amplifier	Specification (Assembly in Factory)	Specification (Retrofit)	Shape (Width / Fin)	SUMC
<b>αiSV 20</b>	A05B-2605-J040#H103	A06B-6240-H103	60mm / w/o Fin	0.06
<b>αiSV 40</b>	A05B-2605-J040#H104	A06B-6240-H104	60mm / w/ Fin	0.11
<b>αiSV 80</b>	A05B-2605-J040#H105	A06B-6240-H105	60mm / w/ Fin	0.16
<b>αiSV 160</b>	A05B-2605-J040#H106	A06B-6240-H106	60mm / w/ Fin	0.21
<b>αiSV 20/20</b>	A05B-2605-J040#H205	A06B-6240-H205	60mm / w/o Fin	0.11
<b>αiSV 20/40</b>	A05B-2605-J040#H206	A06B-6240-H206	60mm / w/ Fin	0.11
<b>αiSV 40/40</b>	A05B-2605-J040#H207	A06B-6240-H207	60mm / w/ Fin	0.16
<b>αiSV 40/80</b>	A05B-2605-J040#H208	A06B-6240-H208	60mm / w/ Fin	0.21
<b>αiSV 80/80</b>	A05B-2605-J040#H209	A06B-6240-H209	60mm / w/ Fin	0.21
<b>αiSV 80/160</b>	A05B-2605-J040#H210	A06B-6240-H210	90mm / w/ Fin	0.41
<b>αiSV 160/160</b>	A05B-2605-J040#H211	A06B-6240-H211	90mm / w/ Fin	0.41
<b>αiSV 20/20/20</b>	A05B-2605-J040#H305	A06B-6240-H305	60mm / w/o Fin	0.11
<b>αiSV 20/20/40</b>	A05B-2605-J040#H306	A06B-6240-H306	60mm / w/ Fin	0.16
<b>αiSV 40/40/40</b>	A05B-2605-J040#H308	A06B-6240-H308	60mm / w/ Fin	0.17

(Note) All servo amplifier is used for Gun change function.

The servo amplifier for R-30iA can not be used.

Table 3. Applicable servo amplifier for each motors

Model	<b>αiF 1/5000</b> <b>αiF 2/5000</b> <b>αiS 2/5000</b> <b>αiS 4/5000</b> <b>βiS 0.4/5000</b> <b>βiS 0.5/6000</b> <b>βiS 1/6000</b> <b>βiS 2/4000</b> <b>βiS 4/4000</b> <b>βiS 8/3000</b>	<b>αiF 4/4000</b> <b>αiF 8/3000</b> <b>βiS 12/3000</b> <b>βiS 22/2000</b>	<b>αiF 12/3000</b> <b>αiF 22/3000</b> <b>αiS 8/4000</b> <b>αiS 12/4000</b>	<b>αiF 30/3000</b> <b>αiF 40/3000</b> <b>αiS 22/4000</b> <b>αiS 30/4000</b> <b>αiS 40/4000</b>	SUMA (A)
<b>αiSV 20</b>	○				0
<b>αiSV 40</b>		○			40
<b>αiSV 80</b>			○		80
<b>αiSV 160</b>				○	160
<b>αiSV 20/20</b>	L/M				0
<b>αiSV 20/40</b>	L	M			40
<b>αiSV 40/40</b>		L/M			80
<b>αiSV 40/80</b>		L	M		120
<b>αiSV 80/80</b>			L/M		160
<b>αiSV 80/160</b>			L	M	240
<b>αiSV 160/160</b>				L/M	320
<b>αiSV 20/20/20</b>	L/M/N				0
<b>αiSV 20/20/40</b>	L/M	N			40
<b>αiSV 40/40/40</b>		L/M/N			120

2.2. Limitation of aux. axis

2.2.1. Limitation of servo amplifier

Two servo amplifiers can be mounted in A-cabinet.

SUMC parameter based on the following calculation should be less than maximum value. If SUMC is over the maximum value, query the design section.

Maximum Value of SUMC

In case of Resistor Discharge: 1.00

In case of Power Regeneration: 1.24

Calculation

$$\text{Maximum SUMC} > \Sigma \text{SUMC} = \text{SUMC}(6 \text{ axes}) + \text{SUMC}(\text{AMP2}) + \text{SUMC}(\text{AMP3})$$

The SUMC of servo amplifier is shown in Table 2.

The SUMC of 6 axes servo amplifier is as follows.

- A05B-2601-H050: 0.41
- A05B-2601-H051: 0.30
- A05B-2601-H052: 0.30
- A05B-2601-H053: 0.20
- A05B-2601-H054: 0.20

2.3.2 The maximum power of aux. axis motors

SUMP is calculated based on the maximum power of each motor.

SUMP is less than the maximum power corresponding to the each transformer capacity.

In case of lack of transformer capacity, it is necessary to upgrade the transformer capacity.

Refer to 11 section regarding the upgrade the transformer capacity.

(Note) This limitation is not applied to AC reactor.

Calculation

$$\text{Maximum SUMP(kW)} > \Sigma \text{maximum power of servo motor} \times 0.4 \sim 0.6 \text{ (Coefficient)}$$

Maximum power of servo motor is shown in the Table 1.

Coefficient is specified based on the application between from 0.4 to 0.6.

For example, coefficient of rail axis is 0.6, coefficient of Positioner and servo gun is 0.4.

Maximum SUMP :

- In case of 3kVA Transformer: 5.3kW or less
- In case of 7.5kVA Transformer: 10.6kW or less
- In case of 10.5kVA Transformer: 14.1kW or less

### 2.3.3 Limitation by current of servo amplifier

It is necessary for upgrading the capacity of the transformer from the standard in total of the current value of the addition axis amplifier. The total of the official current of amplifier value in the transformer of each capacity as the addition axis is as follows.

Current value of servo amplifier is shown in the Table 3.

Calculation

Maximum SUMA(A) >  $\Sigma$  Current value of servo amplifier (In case of 20A amplifier, current value is 0(A).)

- In case of 3kVA Transformer: Maximum SUMA = 80A or less
- In case of 7.5kVA Transformer: Maximum SUMA = 160A or less
- In case of 10.5kVA Transformer : Maximum SUMA = 400A or less
- In case of AC Reactor : Maximum SUMA = 400A or less

(Note) However, upgrading the capacity of the transformer is unnecessary for FANUC Positioner.

## 3. Power regeneration option

### 3.1. $\alpha$ iPS for Power regeneration

Name	Specification (Assembly in Factory)	Specification (Retrofit)	Shape (Width / Fin)
$\alpha$ iPS 15	A05B-2605-J030#H015	A06B-6200-H015	90mm / w / Fin

### 3.2. $\alpha$ iPS control for Power regeneration

Name	Specification
$\alpha$ iPS control	A05B-2605-J010

4. Auxiliary axis setting

4.1. Selection of motion group (Group Axis number)

Specify the relationship hardware axis and motion group for aux. application.

Motion group	Basic axis	Auxiliary axis
G1	J1~J6	E1~E3
G2	J1~J6	E1~E3
G3	J1~J6	E1~E3
G4	J1~J6	E1~E3
G5	J1~J6	E1~E3
G0	Servo torch, etc.	

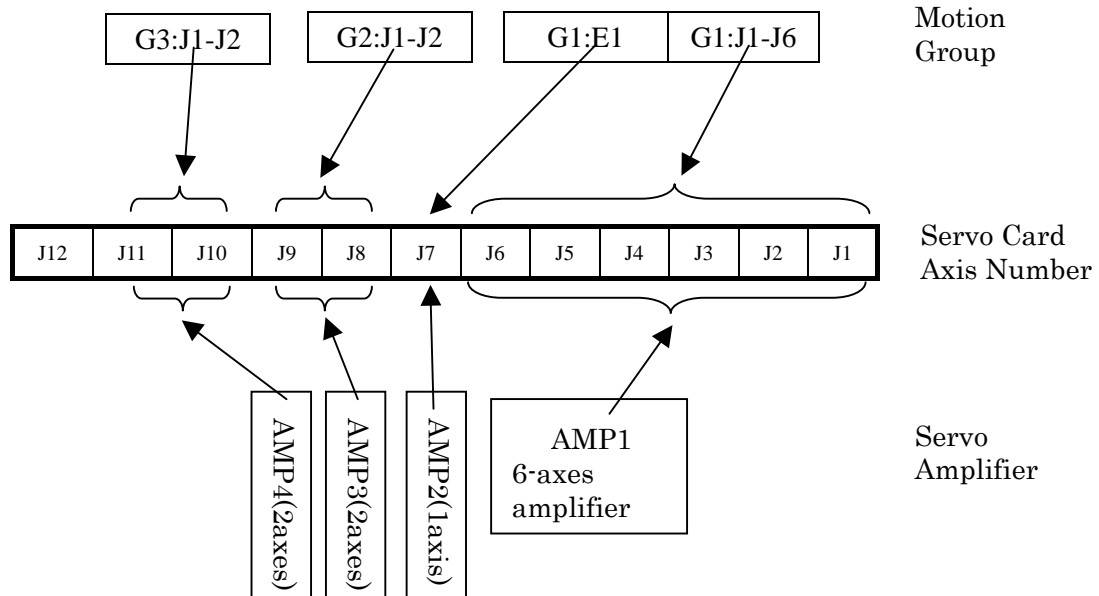
4.2. Definition of Axis number

Please define the axis number (J1 – J16) to the motion group.

Define the axis number of servo amplifier and axes.

Axis number of Gun Change/Servo Torch should be last axis.

Setting example





4.3. Definition of Brake number

Each axis must have Brake number. Auxiliary axis brake is installed as follows.

- 6 axes amplifier: Brake group 1×2 axes
- Brake / Gun change unit: Brake group 2×1 axis / Brake group 3×2 axes
- Brake unit: Brake group 2×2axes / Brake group 3×2 axes

Brake number (Connector)	#1 (CRR65AB)	#2 (CRR65C)	#3 (CRR65D)	Limitation
6 axes amplifier	X2	-	-	correspond to all motors.
Brake / Gun change unit	-	X1 (for Gun change)	X2	(Note)
Brake unit	-	X2	X2	correspond to all motors. Apply only one servo amplifier for AUX. axis.

(Note) Available Motor: *αiF 4/4000, αiF 8/3000, αiF 12/3000, αiF 22/3000,*  
*αiS 8/4000, αiS 12/4000, αi F 30/3000, αi F 40/3000,*  
*αiS 22/4000, αiS 30/4000, αiS 40/4000*  
*βiS 8/3000, βiS 12/3000, βiS 22/2000*

5. Auxiliary Axis Control/Adaptor plate for Servo amplifier

5.1. Specification list

Specify the adaptor plate and aux. axis control as following tables.

Refer to “5.2. Mounting of servo amplifiers”

5.1.1. Adaptor plate for servo amplifier

Adaptor plate	Specification
60mm(x1)	A05B-2605-J430
90mm(x1)	A05B-2605-J431
60mm + 60mm	A05B-2605-J432
60mm + 90mm	A05B-2605-J433
90mm + 60mm	A05B-2605-J434

5.1.2. Auxiliary axis control

Auxiliary axis control	Specification
Servo amplifier (x1) Resistor Discharge	A05B-2605-J001
Servo amplifier (x2) Resistor Discharge Width 60mm+60mm	A05B-2605-J002
Servo amplifier (x2) Resistor Discharge Width 60mm+90mm	A05B-2605-J003
Servo amplifier (x2) Resistor Discharge Width 90mm+60mm	A05B-2605-J004
Servo amplifier (x1) Power regeneration	A05B-2605-J011

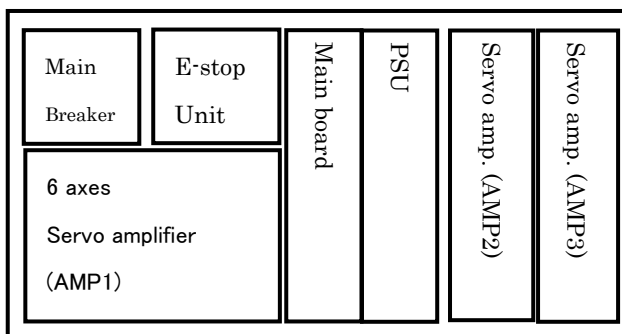
5.1.3. Adaptor plate for servo amplifier

Adaptor plate	Specification
60mm servo amplifier w/o Fin	A05B-2605-J420

5.2. Mounting of servo amplifiers

5.2.1. In case of Resistor Discharge

(Note) The servo amplifiers for Auxiliary axis are mounted up to two.



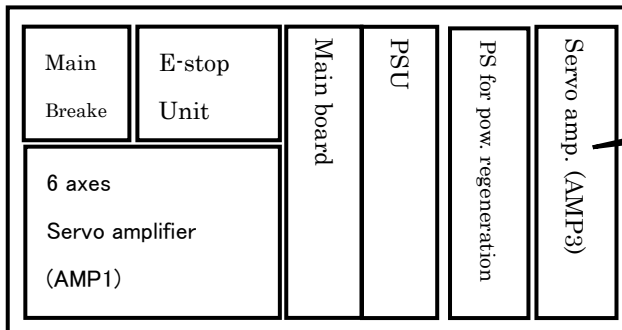
The combination of adaptor plate and aux axis control.

AMP2 Width / Fin	AMP3 Width / Fin	Auxiliary axis control	Adaptor plate For servo amp.	Adaptor plate For w/o Fin
60mm / w/o Fin	-	A05B-2605-J001	A05B-2605-J430	A05B-2605-J420
60mm / w/o Fin	60mm / w/o Fin	A05B-2605-J001 A05B-2605-J002	A05B-2605-J432	A05B-2605-J420 (x2)
60mm / w/o Fin	60mm / w/ Fin	A05B-2605-J001 A05B-2605-J002	A05B-2605-J432	A05B-2605-J420
60mm / w/o Fin	90mm / w/ Fin	A05B-2605-J001 A05B-2605-J003	A05B-2605-J433	A05B-2605-J420
60mm / w/ Fin	-	A05B-2605-J001	A05B-2605-J430	-
60mm / w/ Fin	60mm / w/o Fin	A05B-2605-J001 A05B-2605-J002	A05B-2605-J432	A05B-2605-J420
60mm / w/ Fin	60mm / w/ Fin	A05B-2605-J001 A05B-2605-J002	A05B-2605-J432	-
60mm / w/ Fin	90mm / w/ Fin	A05B-2605-J001 A05B-2605-J003	A05B-2605-J433	-
90mm / w/ Fin	-	A05B-2605-J001	A05B-2605-J431	-
90mm / w/ Fin	60mm / w/o Fin	A05B-2605-J001 A05B-2605-J004	A05B-2605-J434	A05B-2605-J420
90mm / w/ Fin	60mm / w/ Fin	A05B-2605-J001 A05B-2605-J004	A05B-2605-J434	-

(In case of M-430iA series, only AMP3 is can be added for aux. axis, because servo amplifier for the robot has already been mounted on AMP2.)

5.2.2. In case of Power regeneration

(Note) Only one auxiliary axis amplifier is mounted.



(Note)  
When the power regeneration option is selected, the servo amplifier number at this position is "AMP3".

The combination of adaptor plate and aux axis control.

AMP2 Width / Fin	Auxiliary axis control	Adaptor plate For servo amp.	Adaptor plate For w/o Fin
-	-	A05B-2605-J431	-
60mm / w/o Fin	A05B-2605-J011	A05B-2605-J434	A05B-2605-J420
60mm / w/ Fin	A05B-2605-J011	A05B-2605-J434	-

6. Servo Card

6 axes servo card is selected in the system without the auxiliary axis.

Change it to the servo card that can control the number of axes in which the number of addition

axes is added to the number of robot axes.

Number of control axes (Including robot axes)	Specification
6 axes (standard)	A05B-2600-H040
12 axes	A05B-2600-H041

7. Cable Tag

Select tag according to the servo motor and the amplifier composition.

7.1. Brake cable Tag

Brake Number	Connection to	Connector	Specification
1	6 axes amplifier (AMP1)	CRR65AB	A05B-2605-J060
2	Brake unit (BKUNIT)	CRR65C	A05B-2605-J061
	Gun Change Brake unit (GCPCB#1)	CRR65C	A05B-2605-J064
3	Brake unit (BKUNIT)	CRR65D	A05B-2605-J062

7.2. Servo motor cable Tag

Position of Amp.	Specification
AMP2/L	A05B-2605-J070
AMP2/M	A05B-2605-J071
AMP2/N	A05B-2605-J072
AMP3/L	A05B-2605-J073
AMP3/M	A05B-2605-J074
AMP3/N	A05B-2605-J075

7.3. Gun change Tag

Specification
A05B-2605-J085

8. Auxiliary axis cable

8.1. ARP/ARM cable

Available Servo Motor :  $\alpha$ F1/5000,  $\alpha$ F2/5000,  $\alpha$ F4/4000,  $\alpha$ F8/3000,  $\alpha$ S2/5000,  $\alpha$ S4/5000,  
 $\alpha$ S8/4000,  $\beta$ S0.4/5000,  $\beta$ S0.5/6000,  $\beta$ S1/6000,  $\beta$ S2/4000,  $\beta$ S4/4000,  
 $\beta$ S8/3000,  $\beta$ S12/3000

Cable Type : A, Interface : A

Non-Flex / Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire			
					Pulsecoder (ARP)	Power/Brake (ARM)		
Non-Flex	1	Standard / NRTL	7m	A05B-2605-J100	Diameter: Φ8.5mm(#E) Weight : 0.09kg/m	Diameter: Φ11.8mm(#C) Weight: 0.2kg/m		
			14m	A05B-2605-J101				
			20m	A05B-2605-J102				
			30m	A05B-2605-J103				
Flex			7m	A05B-2605-J105	Diameter: Φ9.1mm(#E) Weight : 0.117kg/m	Diameter: Φ11.8mm(#C) Weight: 0.2kg/m		
							14m	A05B-2605-J106
							20m	A05B-2605-J107
							30m	A05B-2605-J108
Non-Flex		1	CE	7m	A05B-2605-J110	Diameter: Φ8.5mm(#E) Weight: 0.09kg/m	Diameter: Φ12.5mm(#C) Weight: 0.246kg/m	
				14m	A05B-2605-J111			
				20m	A05B-2605-J112			
				30m	A05B-2605-J113			
Flex	7m			A05B-2605-J115	Diameter: Φ9.1mm(#E) Weight: 0.117kg/m	Diameter: Φ12.5mm(#C) Weight: 0.246kg/m		
							14m	A05B-2605-J116
							20m	A05B-2605-J117
							30m	A05B-2605-J118

8.2. PM/PP Cable

PM/PP cable is used for FANUC 2 axes Positioner.

Cable Type : B, Interface : B

Non-Flex / Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire			
					Power·Brake (PM)	Pulsecoder (PP)		
Non-Flex	2	Standard /NRTL	7m	A05B-2605-J160	Diameter: Φ20mm(#B) Weight: 0.65kg/m	Diameter: Φ12mm(#C) Weight: 0.23kg/m		
			14m	A05B-2605-J161				
			20m	A05B-2605-J162				
			30m	A05B-2605-J163				
Flex			7m	A05B-2605-J165	Diameter: Φ20mm(#B) Weight: 0.607kg/m	Diameter: Φ20.5mm(#B) Weight: 0.71kg/m		
							14m	A05B-2605-J166
							20m	A05B-2605-J167
							30m	A05B-2605-J168
Non-Flex		2	CE	7m	A05B-2605-J170	Diameter: Φ20.6mm(#B) Weight: 0.71kg/m	Diameter: Φ12mm(#C) Weight: 0.23kg/m	
				14m	A05B-2605-J171			
				20m	A05B-2605-J172			
				30m	A05B-2605-J173			
Flex	7m			A05B-2605-J175	Diameter: Φ20mm(#B) Weight: 0.639kg/m	Diameter: Φ20.5mm(#B) Weight: 0.71kg/m		
							14m	A05B-2605-J176
							20m	A05B-2605-J177
							30m	A05B-2605-J178

8.3. J7P/J7M Cable

J7P/J7M cable is used for Rail axis or FANUC 1 axis positioner

Available Servo Motor:     $\alpha$ iF12/3000,  $\alpha$ iF22/3000,  $\beta$ iS22/3000

Cable Type : , Interface : C

Non-Flex / Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire	
					Power·Brake (J7M)	Pulsecoder (J7P)
Non-Flex	1	Standard /NRTL	7m	A05B-2605-J180	Diameter: $\Phi$ 15.8mm(#B) Weight: 0.42kg/m	Diameter: $\Phi$ 8.5mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J181		
			20m	A05B-2605-J182		
			30m	A05B-2605-J183		
		CE	7m	A05B-2605-J190	Diameter: $\Phi$ 20.6mm(#B) Weight: 0.71kg/m	Diameter: $\Phi$ 8.5mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J191		
			20m	A05B-2605-J192		
			30m	A05B-2605-J193		

Available Servo Motor:     $\alpha$ iF30/3000,  $\alpha$ iF40/3000,  $\alpha$ iS22/4000,  $\alpha$ iS30/4000,  $\alpha$ iS40/4000

Cable Type : A, Interface : C

Non-Flex / Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire	
					Power·Brake (J7M)	Pulsecoder (J7P)
Non-Flex	1	Standard /NRTL	7m	A05B-2605-J185	Diameter: $\Phi$ 20mm(#B) Weight: 0.65kg/m	Diameter: $\Phi$ 8.5mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J186		
			20m	A05B-2605-J187		
			30m	A05B-2605-J188		
		CE	7m	A05B-2605-J195	Diameter: $\Phi$ 20.6mm(#B) Weight: 0.71kg/m	Diameter: $\Phi$ 8.5mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J196		
			20m	A05B-2605-J197		
			30m	A05B-2605-J198		

8.4. Aux. axis Motor connection cable (Directly connected cable)

Available Servo Motor:     $\beta$ iS0.4/5000,  $\beta$ iS0.5/6000,  $\beta$ iS1/6000 / Straight Connector

Cable Type : C, Connector Direction : A

Non-Flex / Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire		
					Power	Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J300	Diameter: $\Phi$ 6.4mm(#E) Weight: 0.053kg/m	Diameter: $\Phi$ 6.4mm(#E) Weight: 0.053kg/m	Diameter: $\Phi$ 7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J301			
			20m	A05B-2605-J302			
			30m	A05B-2605-J303			
		CE	7m	A05B-2605-J305	Diameter: $\Phi$ 6.4mm(#E) Weight: 0.065kg/m	Diameter: $\Phi$ 6.4mm(#E) Weight: 0.065kg/m	Diameter: $\Phi$ 7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J306			
			20m	A05B-2605-J307			
			30m	A05B-2605-J308			

Available Servo Motor:    βiS0.5/6000, βiS1/6000 / Right-angled Connector

Cable Type : D, Connector Direction : B

Non-Flex /Flex	No. of axis	Standard /NRTL/CE	Length	Specification	Wire		
					Power	Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J310	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J311			
			20m	A05B-2605-J312			
			30m	A05B-2605-J313			
		CE	7m	A05B-2605-J315	Diameter: Φ6.4mm(#E) Weight: 0.065kg/m	Diameter: Φ6.4mm(#E) Weight: 0.065kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J316			
			20m	A05B-2605-J317			
			30m	A05B-2605-J318			

Available Servo Motor:    αiF1/5000, αiF2/5000, αiS2/5000, αiS4/5000, βiS2/4000, βiS4/4000

Cable Type : E, Connector Direction : C

Non-Flex /Flex	No. of axis	Standard /NRTL/CE	Length	Specification	Wire	
					Power·Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J200	Diameter: Φ11.8mm(#C) Weight:0.2kg/m	Diameter: Φ7mm(#E) Weight:0.09kg/m
			14m	A05B-2605-J201		
			20m	A05B-2605-J202		
			30m	A05B-2605-J203		
		CE	7m	A05B-2605-J210	Diameter: Φ12.5mm(#C) Weight:0.246kg/m	Diameter: Φ7mm(#E) Weight:0.09kg/m
			14m	A05B-2605-J211		
			20m	A05B-2605-J212		
			30m	A05B-2605-J213		

Available Servo Motor:    αiF4/4000, αiF8/3000, αiS8/4000, αiS12/4000, βiS8/3000, βiS12/3000

Cable Type : F, Connector Direction : D

Non-Flex /Flex	No. of axis	Standard /NRTL/CE	Length	Specification	Wire		
					Power	Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J220	Diameter: Φ11.8mm(#C) Weight: 0.2kg/m	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J221			
			20m	A05B-2605-J222			
			30m	A05B-2605-J223			
		CE	7m	A05B-2605-J230	Diameter: Φ12.5mm(#C) Weight: 0.246kg/m	Diameter: Φ6.4mm(#E) Weight: 0.065kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J231			
			20m	A05B-2605-J232			
			30m	A05B-2605-J233			

(Note) In Cable of type F, select the motor with Brake.

Available Servo Motor:    aiF12/3000, aiF22/3000, βiS22/2000

Cable Type : F, Connector Direction : D

Non-Flex /Flex	No. of axis	Standard /NRTL /CE	Length	Specification	Wire		
					Power	Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J240	Diameter: Φ12.9mm(#C) Weight: 0.305kg/m	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J241			
			20m	A05B-2605-J242			
			30m	A05B-2605-J243			
		CE	7m	A05B-2605-J250	Diameter: Φ12.9mm(#C) Weight: 0.305kg/m	Diameter: Φ6.4mm(#E) Weight: 0.065kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J251			
			20m	A05B-2605-J252			
			30m	A05B-2605-J253			

(Note) In Cable of type F, select the motor with Brake.

Available Servo Motor:    aiF30/3000, aiF40/3000, αiS22/4000, αiS30/4000, αiS40/4000

Cable Type : F, Connector Direction : D

Non-Flex /Flex	No. of axis	Standard /NRTL/CE	Length	Specification	Wire		
					Power	Brake	Pulsecoder
Flex	1	Standard /NRTL	7m	A05B-2605-J260	Diameter: Φ20mm(#B) Weight: 0.607kg/m	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J261			
			20m	A05B-2605-J262			
			30m	A05B-2605-J263			
		CE	7m	A05B-2605-J270	Diameter: Φ20mm(#B) Weight: 0.639kg/m	Diameter: Φ6.4mm(#E) Weight: 0.065kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
			14m	A05B-2605-J271			
			20m	A05B-2605-J272			
			30m	A05B-2605-J273			

(Note) In Cable of type F, select the motor with Brake.

### 8.5.FANUC Servo Torch Cable

Cable Type : G

Servo Torch	Interface	Non-Flex /Flex	Standard /NRTL/CE	Length	Specification	Wire	
						Power	Pulsecoder
For aluminum Standard spec. A05B-1220-J301	W/F1	Non-Flex	Standard	7m	A05B-2605-J350	Diameter: Φ6.4mm(#E) Weight: 0.053kg/m	Diameter: Φ7mm(#E) Weight: 0.09kg/m
For soft steel Standard spec. A05B-1220-J302				14m	A05B-2605-J351		
				20m	A05B-2605-J352		
				30m	A05B-2605-J353		
For aluminum CE spec. A05B-1220-J303	Motor Connection	Non-Flex	CE	Inquire of the Robot laboratory.			
For soft steel CE spec. A05B-1220-J304							

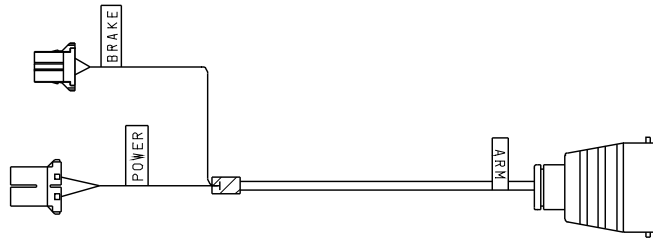


8.6. Cable Type

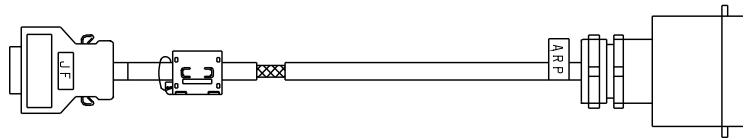
The outline shape of each Cable Type is shown as follows.

<Cable Type A>

- ① Power/Brake Cable

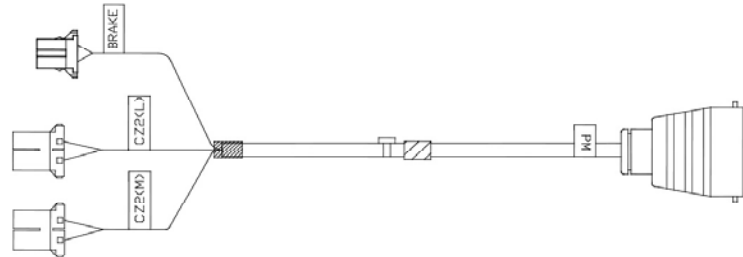


- ② Pulsecoder Cable

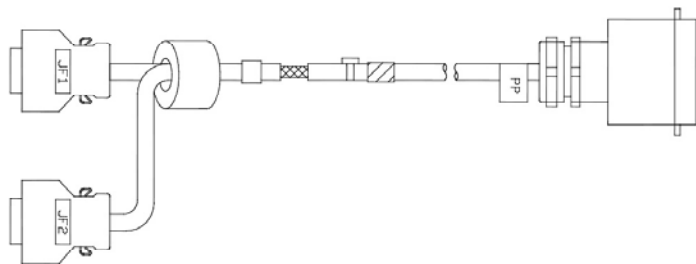


<Cable Type B>

- ① Power/Brake Cable

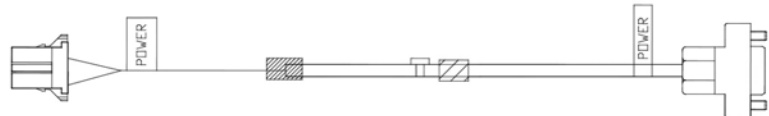


- ② Pulsecoder Cable

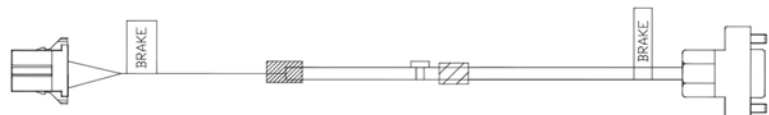


<Cable Type C>

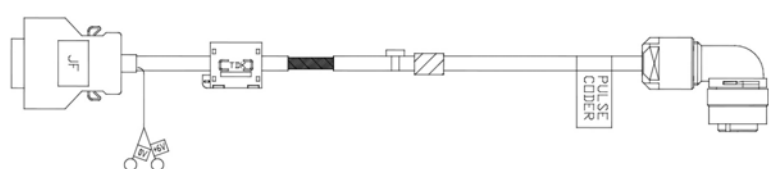
- ① Power



- ② Brake Cable

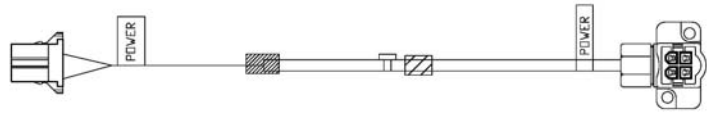


- ③ Pulsecoder Cable

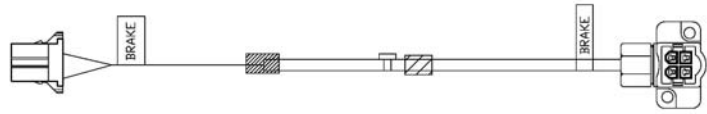


<Cable Type D>

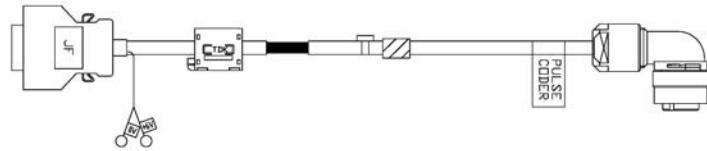
① Power



② Brake Cable

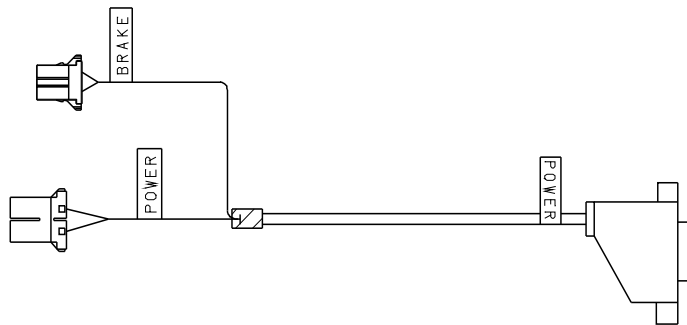


③ Pulsecoder Cable

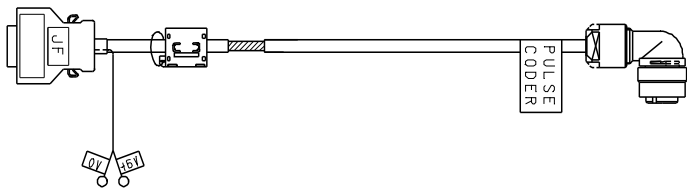


<Cable Type E>

① Power/Brake Cable

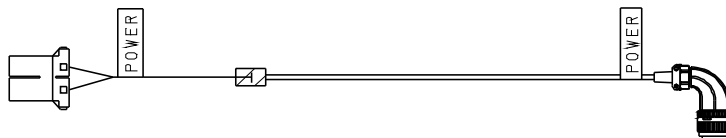


② Pulsecoder Cable

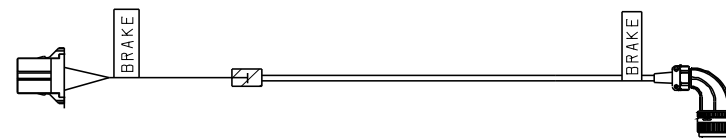


<Cable Type F>

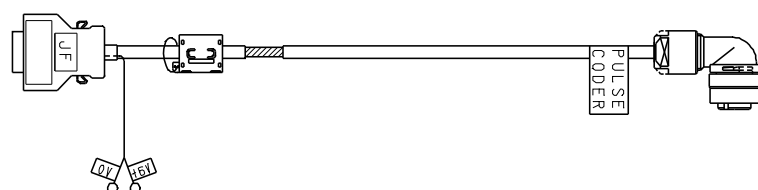
① Power Cable



② Brake Cable

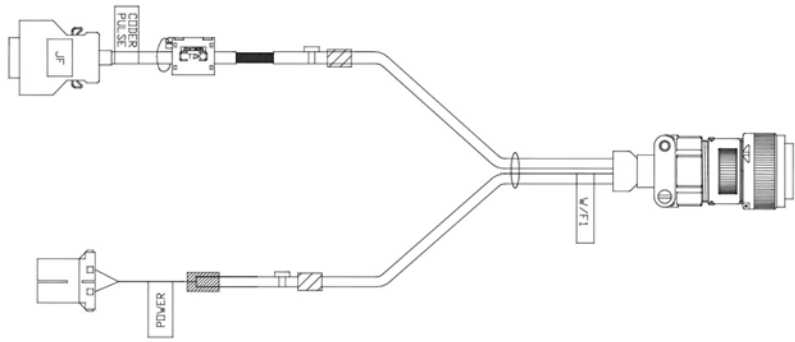


③ Pulsecoder Cable



< Cable Type G >

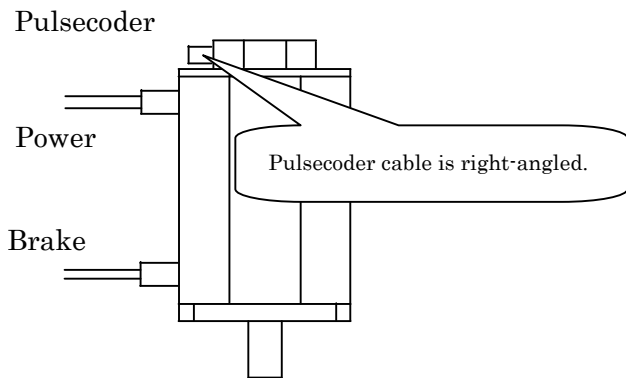
① Power/Pulsecoder Cable



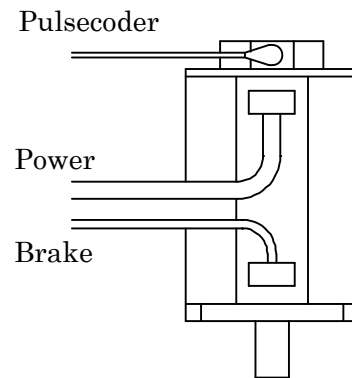
8.7. Connector Direction of Servo Motor

Connector directions of servo motors are as follows. This drawings shows servo motor direct connection cable.

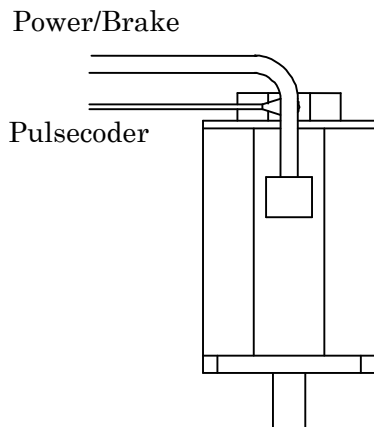
< Connector Type A >



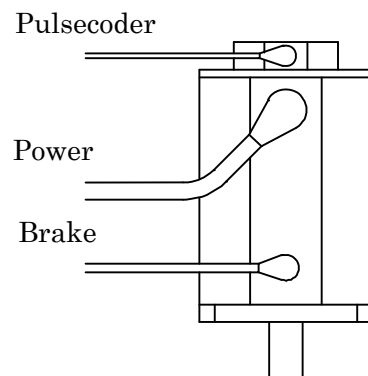
< Connector Type B >



< Connector Type C >



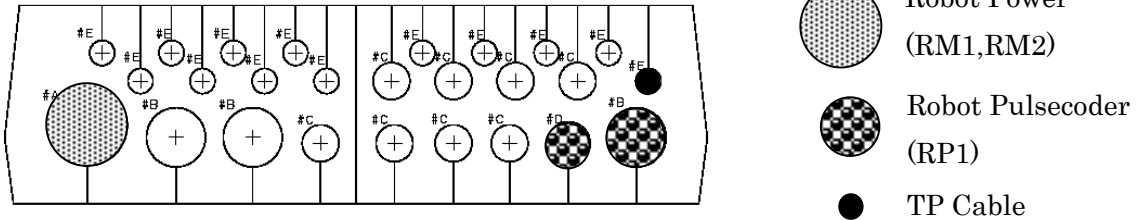
< Connector Type D >



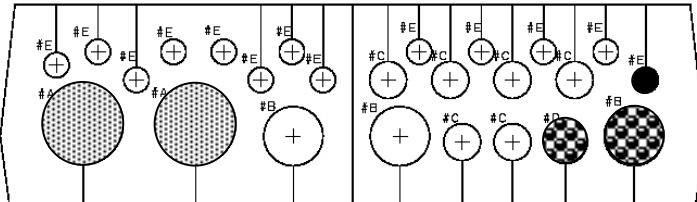
8.8. Cable Entrance sponge

The cutout of cable Entrance sponge is different in each robot. Aux axis cable is connected through this entrance as same as other option cables(I/O, Sensor, Communication). So it is necessary to confirm that all cables can be assigned through the suitable cutout.

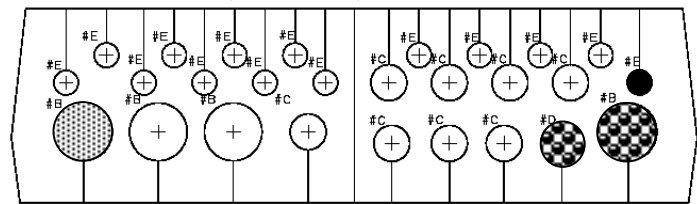
Type A : R-2000iB(Exclude 200T, 220U), R-1000iA, M-710iC, M-420iA



Type B : M-900iA/350, M-410iB(Separated), R-2000iB/200T,220U, M-2000iA



Type C : ARC Mate series, M-430iA, F-200iB



	Cable Diameter	Type A		Type B		Type C		Uses
		No. of all holes	Aux. axis others	No. of all holes	Aux. axis others	No. of all holes	Aux. axis others	
#A	27mm	1	0	2	0	0	0	Power Cable(RM1, RM2)
#B	20mm	3	2	3	2	4	2	Pulsecoder Cable Thick wire, Flex(RP1) Power Cable(RM1)
#C	12.5mm	8	8	6	6	8	8	Auxiliary axis Power I/O Cable Line-tracking Cable Switch box Cable Devicenet Thick wire
#D	14.5mm	1	0	1	0	1	0	Pulsecoder Cable Standard(RP1)
#E	8.5mm	13	12	13	12	14	13	Auxiliary axis Brake Auxiliary axis Pulsecoder Camera Cable Ethernet Devicenet Thin wire

8.9. Auxiliary axis Interface

Interfaces of each Auxiliary axis are shown below.

Followings figure is shown the connector view from wire side.

●shows the code pin position.

<Interface Type A>

① ARP1 (Han24DD)

				G	SHIELD						
1	(SPD1)	5	0V	9	+5V	13	(SPD2)	17	0V	21	+5V
2	(*SPD1)	6	0V	10	+5V	14	(*SPD2)	18	0V	22	+5V
3	RD1	7		11		15	RD2	19		23	
4	*RD1	8	(0VA)	12	(6VA)	16	*RD2	20	(0VA)	24	(6VA)

(Note) The hatching shows the signal of the second axis. Therefore, they are blanks in one axis specification.

ARM1 (Han15D)

A1	U1	B1	BKP1	C1	U2
A2	V1	B2	BKM1	C2	V2
A3	W1	B3	BKP2	C3	W2
A4	G1	B4	BKM2	C4	G2
A5		B5		C5	
		G	(SHIELD)		

(Note) The hatching shows the signal of the second axis. Therefore, they are blanks in one axis specification.

<Interface Type B>

① PP (Han24DD)

				G	SHIELD						
1	(SPD1)	5	0V	9	+5V	13	(SPD2)	17	0V	21	+5V
2	(*SPD1)	6	0V	10	+5V	14	(*SPD2)	18	0V	22	+5V
3	RD1	7		11		15	RD2	19		23	
4	*RD1	8	(0VA)	12	(6VA)	16	*RD2	20	(0VA)	24	(6VA)

② PM (Han K12/2, 12HsC)

		G	(SHIELD)		
2	U2	1	U1	3	BKP1
5	V2	4	V1	6	BKM1
8	W2	7	W1	9	BKP2
11	G2	10	G1	12	BKM2

<Interface Type C>

① J7P (Han24DD)

				G	SHIELD						
1	(SPD1)	5	0V	9	+5V	13		17		21	
2	(*SPD1)	6	0V	10	+5V	14		18		22	
3	RD1	7		11		15		19		23	
4	*RD1	8		12		16		20		24	

② J7M (Han K12/2, 12HsC)

		G	(SHIELD)		
2	U1	1	U1	3	BKP1
5	V1	4	V1	6	BKM1
8	W1	7	W1	9	
11	G1	10	G1	12	

(Note) The hatching shows the signal of large motor. Therefore, they are blanks in small motor specification.

8.10 Flexible cable condition

8.10.1 Minimum bend radius of cable

The minimum bend radius when both Non-Flex Cable and Flex Cable are set up is 200(mm).

8.10.2 Flex Cable

Flex cable must be used with cable bear for moving part. The problem such as shortening of the longevity of Cable if Cable bear is not used occurs.

8.10.3 Cable bear

- The radius (R) of cable bear should be more than 200mm.
- The cable should be Non-Flex to cable bear by using the clamp. (e.g. Rubber packing)
- The size of hole to support cable inside cable bear should be more than 110% of cable size and should have more than 3mm gap.
- The cable should be mounted inside cable bear without twisting.

8.10.4 Cable Durability Test

The result of cable durability test is indicated as follows.

[Test method : U form bending test]

- Connect all wires and shield in series, and measure the resistance of wire and shield.
- If resistance of wire and shield is 20% larger than initial resistance, the test is regarded as failure.

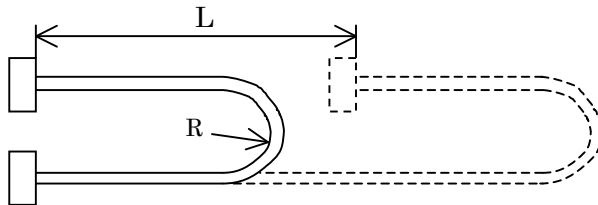


Fig Cable durability test

8.10.5 Experimental Result

Experimental results are as follows.

Experimental results

Material No.	Point	Result after 500,000 times	
		Resistance up (%)	Sample dismantlement result
No.1	Wire	0	There is no disconnection
	Shield	0	
No.2	Wire	0	There is no disconnection

9. Battery Unit

Select Battery Unit for Auxiliary axis.

However, it is unnecessary only for ARP/ARM Cable, J7P/J7M Cable, and PP/PM Cable.

Battery Unit	Specification
Battery box with size C batteries (x4)	A05B-2605-J460

10. Gun change / Brake

10.1 Gun change / Brake Unit

R-30iB controller has the brakes controller for 2 auxiliary axis motors (Brake Group 1). Brake Group 1 is the brake that is worked with robot. If system needs more brakes or the brake that its group is not Brake Group 1 (that isn't worked with robot's), please designate the brake unit as follows.

- (1) 6-channel amplifier : Brake group 1×2 axes
- (2) Brake / Gun change unit : Brake group 2×1 axis / Brake group 3×2 axes (Note 1)  
(It is mounted on the door of A-cabinet)
- (3) Brake unit : Brake group 2×2axes / Brake group 3×2 axes  
(It is mounted on the position of AMP3. Size of 90mm width servo amplifier)

(Note 1) Brake / Gun change unit and Brake unit are not installed in one controller. Using of (1) and (2), (1) and (3) together is possible. However, (2) cannot be used together with (3).

(Note 2) Brake / Gun change unit cannot be applied to small size Motor.

Refer to the following for Available motor for Brake / Gun change unit.

**αiF 4/4000, αiF 8/3000, αiF 12/3000, αiF 22/3000, αiF 30/3000, αiF 40/3000,**  
**αiS 8/4000, αiS 12/4000, αiS 22/4000, αi 30/4000, αiS 40/4000,**  
**βiS 8/3000, βiS 12/3000, βiS 22/2000**

In Brake for small Motor, select six axes amplifier or Brake Unit.

(Note 3) Inquire of the design section about the hand change.

Brake number (Connector)	Specification	#1 (CRR65AB)	#2 (CRR65C)	#3 (CRR65D)	Limitation
6 axes amplifier		X2	-	-	correspond to all motors.
Brake / Gun change unit	A05B-2605-J400	-	X1 (for Gun change)	X2	(Note 2)
Brake unit	A05B-2605-J410	-	X2	X2	correspond to all motors. Apply only one servo amplifier for AUX. axis.



### 10.2 Gun change cable

Select the cable for Gun change.

Cable	Specification
Gun change cable	A05B-2605-J401

### 10.3 Spare Fuse

Select each preliminary fuse when you select Brake / Gun change unit or Brake Unit.

Fuse	Specification
For Brake Unit or Brake / Gun change unit (2A)	A05B-2605-K002

## 11. Transformer upgrade

Refer when you upgrade the capacity of Transformer from Standard by "2.3. Limitation of servo amplifier and configuration".

It is necessary to change Transformer, Breaker, and E-stop Unit for upgrade of Transformer capacity.

When AC Reactor is used, the upgrade is unnecessary.

(Note 1) When Aux. Axis and Robot or several Aux. Axis do not move together, no need to apply upgrade of Transformer.

(Note 2) When Robot motion is very tight, LV or Excessive error may occur. Please select transformer with margin.

### 11.1 Transformer capacity

	3kVA	→	7.5kVA	→	10.5kVA
Type D Transformer (200-230V, 380-400V)	A05B-2601-H344		A05B-2601-H355		A05B-2601-H356
Type E Transformer (380-415, 440-480, 500-575V)	A05B-2601-H350		A05B-2601-H351		A05B-2601-H352

(Note) In case of type E transformer using with CE controller, primary power voltage should be 500V and under.

11.2 Capacity of breaker

	3kVA	7.5kVA	10.5kVA
Breaker 200-230V	A05B-2601-H075	A05B-2601-H072	A05B-2601-H070
Breaker 380-400V	A05B-2601-H079	A05B-2601-H077	A05B-2601-H074
Breaker 380-500V	A05B-2601-H078	A05B-2601-H076	A05B-2601-H073
Leakage Breaker 200-230V	A05B-2601-H105	A05B-2601-H102	A05B-2601-H100
Leakage Breaker 380-400V	A05B-2601-H109	A05B-2601-H107	A05B-2601-H104
Leakage Breaker 380-500V	A05B-2601-H108	A05B-2601-H106	A05B-2601-H103
UL/CSA Breaker 200-230V	A05B-2601-H253	A05B-2601-H252	A05B-2601-H251
UL/CSA Breaker 380-480V	A05B-2601-H256	A05B-2601-H255	A05B-2601-H254
Breaker 200-230V (CE)	A05B-2601-H136	A05B-2601-H135	-
Breaker 380-500V (CE)	A05B-2601-H132	A05B-2601-H131	A05B-2601-H130
Leakage Breaker 200-230V (CE)	A05B-2601-H166	A05B-2601-H165	-
Leakage Breaker 380-500V (CE)	A05B-2601-H162	A05B-2601-H161	A05B-2601-H160

(Query to design section in case of capacity upgrade is necessary for the controller with Integrated ROBOWELD controller)

11.3 E-stop Unit

	In case of transformer upgrade, 3kVA->7.5kVA, 3kVA->10.5kVA	In case of transformer upgrade, 7.5kVA->10.5kVA,
Standard	Change A05B-2601-H280 to A05B-2601-H282	Not required to upgrade.
UL / CSA	Change A05B-2601-H290 to A05B-2601-H292	

11.4 Discharge resistor

In case of transformer upgrade, 3kVA->10.5kVA, 7.5kVA->10.5kVA	In case of transformer upgrade, 3kVA->7.5kVA In case of Power regeneration
Change A05B-2601-H060 to A05B-2601-H062	Not required to upgrade.

(Note) The upgrade is unnecessary for M-420iA.

## 12. Assembly specification

### 12.1 Amplifier assembly specification

SM- Code1 / Code2 / Code3
---------------------------

(1) Code1 : Kind of specification

A: The servo amplifier assembly is shown.

(2) Code2 : Servo amplifier number

A2 : AMP2

A3 : AMP3

(3) Code3 : Servo amplifier specify

Specify H\*\*\* of servo amplifier specification A05B-2605-J040#H\*\*\*(A06B-6240-H\*\*\*).

Specification example 1

SM-A/A2/H103

To use A05B-2605-J040#H103(A06B-6240-H103) in AMP2 is show.

Specification example 2

SM-A/A3/H205

To use A05B-2605-J040#H205(A06B-6240-H205) in AMP3 is show.

### 12.2 PS for power regeneration assembly specification

SM- Code1 / Code2 / Code3
---------------------------

(1) Code1 : Kind of specification

PS : PS assembly is shown.

(2) Code2 : Servo amplifier number

A2 : AMP2 (Whenever PS is selected, it is assembled to AMP2.)

(3) Code3 : PS for power regeneration specify

Specify H\*\*\* of PS specification A05B-2605-J030#H\*\*\*(A06B-6200-H\*\*\*).

Specification example

SM-PS/A2/H015

To use A05B-2605-J030#H015(A06B-6200-H015) in AMP2 is show.

---

### 12.3 Assembly instruction for Cables

SM- Code1 / Code 2 / Code 3 / Code 4
--------------------------------------

#### (1) Code1: Kind of specification

C: The cable assemblies other than the Gun change axis cable or PP/PM cable are shown.

GC1: The assembly of the Gun change axis cable is shown.

C1: The assembly of the J1 axis cable of PP/PM cable is shown.

C2: The assembly of the J1 axis cable of PP/PM cable is shown.

#### (2) Code2: specification of cable

Underlined text of cable order specification, "A05B-2605-J\*\*\* ( except "-" ) is shown.

#### (3) Code3: Connection

In case of Gun change axis, appoint to servo amplifier for Gun axis.

A2L: The cable is connected to L-axis of AMP2. In case the single-axis amplifier for AMP2 is used, A2L must be specified.

A2M: The cable is connected to M-axis of AMP2.

A2N: The cable is connected to N-axis of AMP2

A3L: The cable is connected to L-axis of AMP3. In case the single-axis amplifier for AMP3 is used, A3L must be specified.

A3M: The cable is connected to M-axis of AMP3.

A3N: The cable is connected to N-axis of AMP3

#### (4) Code4: brake group

65AB: Brake group 1 (same with brake of robot)

65C: Brake group 2

65D: Brake group 3

#### Specification example 1

SM-C/07J200/A2L/65AB

Signal and power cables of "A05B-2605-J200" are connected to L-axis of AMP2. Brake cable is connected to 6-channel servo amplifier.

#### Specification example 2

SM-C/07J180/A2M/65AB Rail unit cable

SM-C/07J200/A2L/65AB Cable for other axes

This system has two (2) auxiliary axes. Rail unit axis is assigned M-axis of dual axis servo amplifier.

#### Specification example 3

SM-C1/07J160/A2L/65AB

SM-C2/07J161/A2M/65AB

Signal and power cables of PP/PM (J1) are connected to L-axis of AMP2. Signal and power cables of PP/PM (J2) are connected to M-axis of AMP2. Brake cables are connected to 6-channel servo amplifier.

13. Specially auxiliary axis

The ordering list is different of the kind of Positioner.

13.1. FANUC 1 axis Positioner

Common Specification of FANUC 1 axis Positioner

Item	Name	Specification
Servo motor	-	unnecessary
Servo amplifier	aiSV80	A05B-2605-J040#H105
Auxiliary axis control	Auxiliary axis amplifier 1 axis	A05B-2605-J001
Adaptor plate	60mm(x1)	A05B-2605-J430
Servo card	12 axes	A05B-2600-H041
Brake Cable Tag	AMP1, CRR65AB	A05B-2605-J060
Motor Cable Tag	AMP2/L	A05B-2605-J040
Auxiliary axis Cable	-	Refer to following table
Battery unit	-	Refer to following table
Transformer	-	capacity upgrade is unnecessary
Resistance regeneration	-	capacity upgrade is unnecessary
Breaker	-	capacity upgrade is unnecessary
E-stop Unit	-	capacity upgrade is unnecessary
Amplifier assembly specification	-	SM-A/A2/H105
Cable assembly specification	-	SM-C/05J <sup>***</sup> /A2L/65AB (Note)

(Note) Match 05J<sup>\*\*\*</sup> to the specification of selected Cable.

Interface for Positioner

In Positioner, there are two kinds of Interface.

(Motor connecting directly Type and HARTING Connector relay Type)

Confirm the combination of Positioner, Cable, and the battery by the following table.

Regarding Interface, Cable and Battery for Positioner

1 axis Positioner	Positioner option	Cable specification for Auxiliary axis				Battery
		Interface	Motor	Non-Flex/Flex	Standard/CE	
1000kg/1500kg (Hollow Type) A05B-1220-J102	A05B-1220-J114	J7P/J7M	aiS22/4000	Non-Flex· Flex	Selection	unnecessary
	A05B-1220-J113	Motor direct	aiS22/4000	Flex	Selection	A05B-2505-J460
300kg/500kg (Hollow Type) A05B-1220-J103	A05B-1220-J112	ARP/ARM	aiS8/4000	Non-Flex· Flex	Selection	unnecessary
	A05B-1220-J111	Motor direct	aiS8/4000	Flex	Selection	A05B-2505-J460
1000kg/1500kg (Compact Type) A05B-1220-J104	A05B-1220-J116	J7P/J7M	aiS22/4000	Non-Flex· Flex	Selection	unnecessary
	A05B-1220-J115	Motor direct	aiS22/4000	Flex	Selection	A05B-2505-J460

13.2. FANUC 2 axes Positioner

2 axes servo Positioner for ARC WELDING(A05B-1220-J201)

Item	Name	Specification
Servo motor	-	unnecessary (Including Positioner)
Servo amplifier	αiSV80/80	A05B-2605-J040#H209
Auxiliary axis control	Auxiliary axis amplifier 1 axis	A05B-2605-J001
Adaptor plate	60mm(x1)	A05B-2605-J430
Servo card	12 axes	A05B-2600-H041
Brake Cable Tag	AMP1, CRR65AB	A05B-2605-J060
Motor Cable Tag	AMP2/L	A05B-2605-J040
Motor Cable Tag	AMP2/M	A05B-2605-J041
Auxiliary axis Cable	PM/PP Cable	Refer to "8.2. PM/PP Cable"
Battery Unit	-	Unnecessary
Transformer	-	capacity upgrade is unnecessary
Resistance regeneration	-	capacity upgrade is unnecessary
Breaker	-	capacity upgrade is unnecessary
E-stop Unit	-	capacity upgrade is unnecessary
Amplifier assembly specification	-	SM-A/A2/H209
Cable assembly specification	-	SM-C1/05J***/A2L/65AB (Note)
Cable assembly specification	-	SM-C2/05J***/A2M/65AB (Note)

(Note) Match 05J\*\*\* to the specification of selected Cable.

Match the amplifier number to the assembly position of amplifier.

Match the Brake number to connected Brake Connector.

13.3. FANUC Servo Torch

Item	Name	Specification
Servo motor	-	unnecessary (Including Servo torch)
Servo amplifier	αiSV20	A05B-2605-J040#H103
Auxiliary axis control	Auxiliary axis amplifier 1 axis	A05B-2605-J001
Adaptor plate	60mm(x1)	A05B-2605-J430
Adaptor plate	60mm w/o/ Fin	A05B-2605-J420
Servo card	12 axes	A05B-2600-H041
Brake Cable Tag	-	Unnecessary
Motor Cable Tag	AMP2/L	A05B-2605-J040
Auxiliary axis Cable	Servo torch Cable	Refer to "8.5 FANUC Servo Torch Cable"
Battery Unit	-	Unnecessary
Transformer	-	capacity upgrade is unnecessary
Resistance regeneration	-	capacity upgrade is unnecessary
Breaker	-	capacity upgrade is unnecessary
E-stop Unit	-	capacity upgrade is unnecessary
Cable assembly specification	-	SM-A/A2/H103
Cable assembly specification	-	SM-C/05J35*/A2L (Note)

(Note) Match 05J\*\*\* to the specification of selected Cable.

Match the amplifier number to the assembly position of amplifier.

Match the Brake number to connected Brake Connector.

**R-30iB Aux.Axis Config. Sheet**

Customer : \_\_\_\_\_

Destination : \_\_\_\_\_

E No. : \_\_\_\_\_

Requester : \_\_\_\_\_

Date : \_\_\_\_\_

Robot : \_\_\_\_\_

Type : Standard, NRTL, CE Cabinet : A, B

Transformer: 3k, 7.5k, 10.5k, 13kVA, AC Reactor

Power regeneration, Resistance regeneration

Shipping : Factory , Retrofit

Axis No.	Servo Amp	AMP No.	Current (A)	Motor	Cable	I/F	Axis Control	Group No.	Brake Group	Purpose	Remarks
1	6 axes servo amplifier	AMP1	-	-	-	RP1, RM1	12-axes card	G1-J1	1	Robot	
2								G1-J2			
3								G1-J3			
4								G1-J4			
5								G1-J5			
6								G1-J6			
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											

(Note) This table is needed when auxiliary axis set up. FANUC recommend this table is attached to robot.