

Catalog #: RS-3A-

RS
Rotary System Series



Rotary Actuator

RS-30

Single-axis robot Small size rotary type 30W



Model Specification Items	RS	Series	Encoder type	Motor type	Speed reduction ratio	Movement range	Applicable controller	Cable length	Options
			A: Absolute specification I: Incremental specification	30: 30W	50: 1/50 100: 1/100	360: 360 degrees	T1: XSEL-J/K T2: SCON SSEL XSEL-P/Q	N: None S: 3m M: 5m X□□: Specified length	Refer to the options table below.

Model Number/Specification

Model number	Encoder type	Motor output (W)	Speed reduction ratio	Movement range (degree)	Speed (degree/s)	Load inertia (Note1) (kg·m ²)	Rated torque (N·m)
RS- 1 -30-50-360- 2 - 3 - 4 -L	Absolute	30	1/50	0~360	1~360	0.0578	3.3
RS- 1 -30-100-360- 2 - 3 - 4 -L	Incremental	30	1/100	0~360	1~180	0.2303	6.65

* In the above model numbers, **1** indicates the encoder type, **2** indicates the applicable controller, **3** indicates the cable length, and **4** indicates the option(s).

Option

Name	Model number	Reference page	Notes
Key-slot option (output shaft)	K	Refer to the diagram below	
Home limit switch	L	Refer to the diagram below	Standard feature

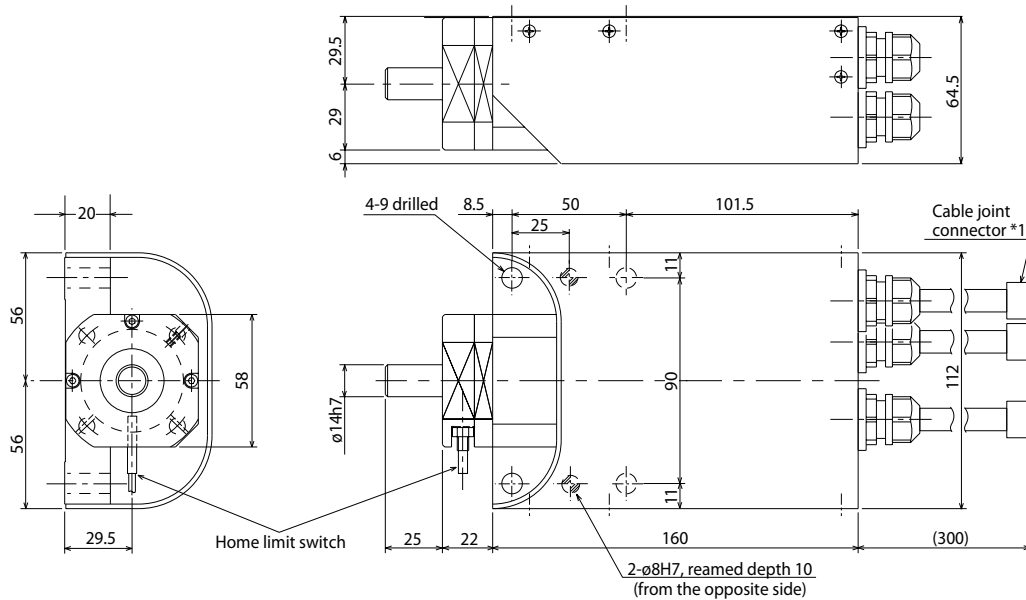
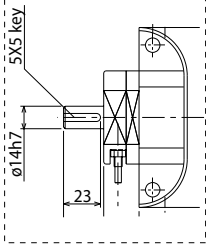
* The home limit switch (L) is standard feature of the RS Series.

Common Specifications

Positioning repeatability	±0.028 degree
Speed reducer	Harmonic drive
Allowable dynamic load moment	9.8 N·m
Mass	2.0 kg
Applicable controller	T1: XSEL-J/K T2: XSEL-P/Q, SSEL, SCON
Cable length (Note 2)	N: None, S: 3m, M: 5m, X□□: Specified length
Ambient operating temperature/humidity	0 to 40°C, 85%RH (non-condensing)

Diagram

Key-slot shaft dimension



*1 Connect the motor cable, encoder cable, and limit switch cable. Refer to P. RS-4 & RS-5 for the cables.

Applicable Controller Specifications

Applicable Controller	Maximum number of controlled axes	Connectable encoder type	Operating method	Power-supply voltage	Reference page
X-SEL-P/Q	6 axes	Absolute/ incremental	Program	Single/three-phase 200 VAC	
X-SEL-J/K	4 axes			Single-phase 100/200 VAC	
SSEL	2 axes		Positioner pulse train control		
SCON	1 axis				



(Note 1) The load inertia is to be calculated based on the application conditions. The calculated load inertia is not to exceed the actuator's load inertia. (Please see P. RS-3 for further details.)

(Note 2) The maximum cable length is 30 m. Specify a desired length in meters. (Example. X08 = 8 m)

RS-30

RS-1

RS-60

Single-axis robot Medium size rotary type 60W



Model Specification Items	RS	Encoder type	60	Speed reduction ratio	Movement range	Applicable controller	Cable length	Options
	A: Absolute specification I: Incremental specification	60: 60W 50: 1/50 100: 1/100	50: 1/50 100: 1/100	360: 360 degrees	T1: XSEL-J/K T2: SCON SSEL XSEL-P/Q	N: None S: 3m M: 5m X□□: Specified length	Refer to the options table below.	

Model Number/Specification

Model number	Encoder type	Motor output (W)	Speed reduction ratio	Movement range (degree)	Speed (degree/s)	Load inertia (Note1) (kg·m ²)	Rated torque (N·m)
RS- <u>1</u> -60-50-360- <u>2</u> - <u>3</u> - <u>4</u> -L	Absolute	60	1/50	0~360	1~360	0.108	5.58
RS- <u>1</u> -60-100-360- <u>2</u> - <u>3</u> - <u>4</u> -L	Incremental	60	1/100	0~360	1~180	0.421	11.1

* In the above model numbers, 1 indicates the encoder type, 2 indicates the applicable controller, 3 indicates the cable length, and 4 indicates the option(s).
* If higher torque is needed, custom order can be arranged.

Option

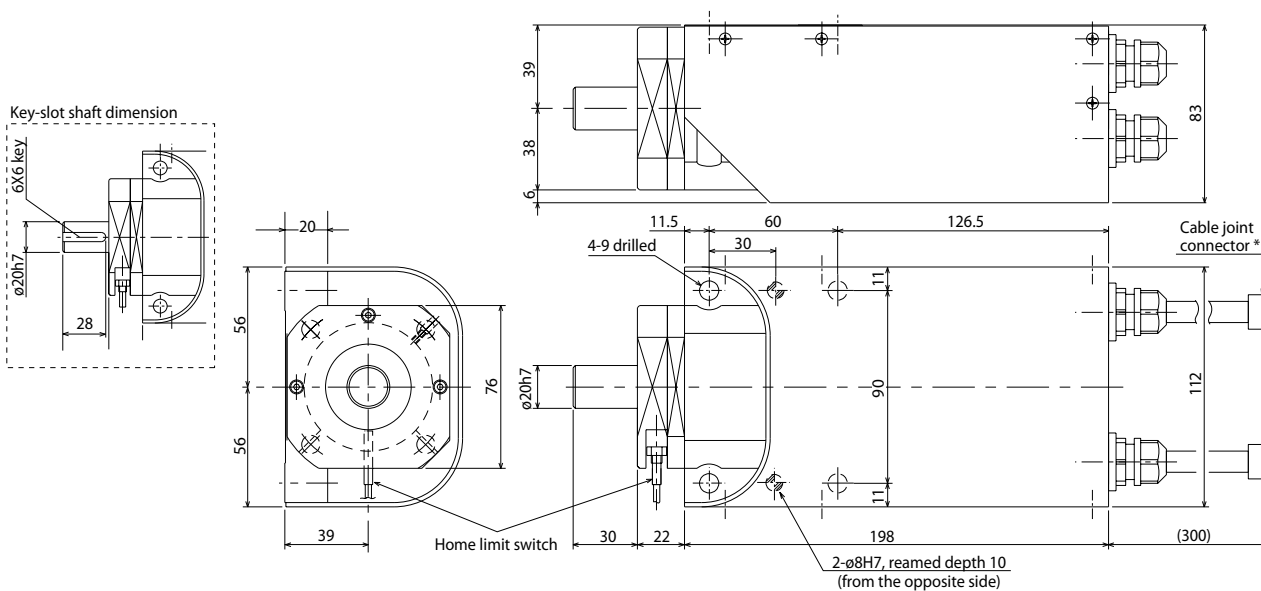
Name	Model number	Reference page	Notes
Key-slot option (output shaft)	K	Refer to the diagram below	
Home limit switch	L	Refer to the diagram below	Standard feature

* The home limit switch (L) is standard feature of the RS Series.

Common Specifications

Positioning repeatability	±0.028 degree
Speed reducer	Harmonic drive
Allowable dynamic load moment	23.5 N·m
Mass	3.2 kg
Applicable controller	T1: XSEL-J/K T2: XSEL-P/Q, SSEL, SCON
Cable length (Note 2)	N: None, S: 3m, M: 5m, X□□: Specified length
Ambient operating temperature/humidity	0 to 40°C, 85%RH (non-condensing)

Diagram



*1 Connect the motor cable, encoder cable, and limit switch cable. Refer to P. RS-4 & RS-5 for the cables.

Applicable Controller Specifications

Applicable Controller	Maximum number of controlled axes	Connectable encoder type	Operating method	Power-supply voltage	Reference page
X-SEL-P/Q	6 axes	Absolute/ incremental	Program	Single/three-phase 200 VAC	
X-SEL-J/K	4 axes				
SSEL	2 axes			Single-phase 100/200 VAC	
SCON	1 axis			Positioner pulse train control	



(Note 1) The load inertia is to be calculated based on the application conditions. The calculated load inertia is not to exceed the actuator's load inertia. (Please see P. RS-3 for further details.)
(Note 2) The maximum cable length is 30 m. Specify a desired length in meters. (Example. X08 = 8 m)

RS-2 RS-60

Motor Cable / Encoder Cable

These are joint cables to connect the actuator cable joint connector and the controller.

There are two kinds of cables; a motor cable for the motor power, and an encoder cable for the encoder signals.

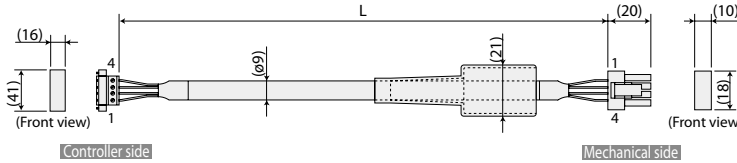
Also, when you use the cable with a cable track, please use the robot cable which is heavy-duty and has excellent bending resistance. (*)

(*) For motor/encoder cables for single-axis robots, all the standard cables are robot cables.

Motor cable (for XSEL-J/K/P/Q, SSEL, SCON)

Model: **CB-X-MA**□□□

* □□□ is the cable length (L); supports up to 30m.
Example: 080 = 8m



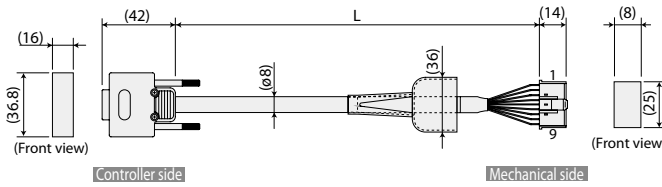
Minimum bend radius R: r = 51mm or larger (for movable use)

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

Encoder cable (for XSEL-J/K)

Model: **CB-X-PA**□□□

* □□□ is the cable length (L); supports up to 30m.
Example: 080 = 8m



Minimum bend radius R: r = 44mm or larger (for movable use)

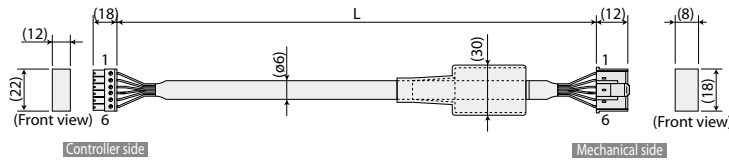
Wire	Color	Signal	No.	No.	Signal	Color	Wire
0.15sq (crimped)	—	—	1	1	BAT+	Black	0.15sq (crimped)
	—	—	2	2	BAT-	Yellow	
	—	—	3	3	SD	Blue	
	—	—	4	4	SD	Orange	
	—	—	5	5	VCC	Green	
	—	—	6	6	GND	Brown	
	Blue	SD	7	7	FG	Ground	
	Orange	SD	8	8	BK-	Gray	
	Black	BAT+	9	9	BK+	Red	
	Yellow	BAT-	10				
	Green	VCC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

The shield is clamped to the hood
Braided ground & shield wire

Limit switch cable (for XSEL-J/K)

Model: **CB-X-LC**□□□

* □□□ is the cable length (L); supports up to 30m.
Example: 080 = 8m



Minimum bend radius R: r = 33mm or larger (for movable use)

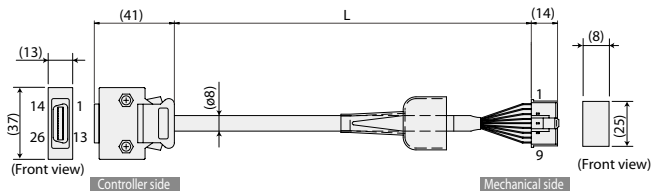
Wire	Color	Signal	No.	No.	Signal	Color	Wire
AWG24	Light Blue	24VOUT	6	1	24VOUT	Light Blue	AWG24 (crimped)
	Pink	N	5	2	N	Pink	
	Light Green	LS	4	3	LS	Light Green	
	Orange	CREEP	3	4	CREEP	Orange	
	Gray	OT	2	5	OT	Gray	
	1B/Light Blue	RSV	1	6	RSV	1B/Light Blue	

Note) 1B indicates one black dot mark.

Encoder cable (for XSEL-P/Q, SSEL, SCON)

Model: **CB-X1-PA**□□□

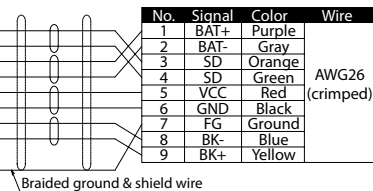
* □□□ is the cable length (L); supports up to 30m.
Example: 080 = 8m



Plug housing: XMP-09V (Nichitsu)
Socket contact: BXA-001T-P0.6 (Nichitsu) x 9
Retainer: XMS-09V (Nichitsu)

Minimum bend radius R: r = 44mm or larger (for movable use)

Wire	Color	Signal	No.
—	—	—	10
—	—	—	11
—	—	E24V	12
—	—	OV	13
—	—	LS	26
—	—	CREEP	25
—	—	OT	24
—	—	RSV	23
—	—	—	9
—	—	—	18
—	—	—	19
—	—	A+	1
—	—	A-	2
—	—	B+	3
—	—	B-	4
—	—	Z+	5
—	—	Z-	6
Orange	SRD+	7	
Green	SRD-	8	
Purple	BAT+	14	
Gray	BAT-	15	
Red	VCC	16	
Black	GND	17	
Blue	BKR-	20	
Yellow	BKR+	21	
—	—	—	22



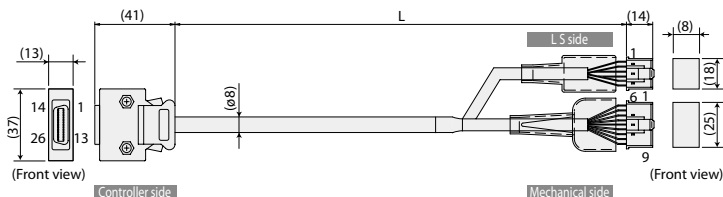
The shield is clamped to the hood

Braided ground & shield wire

Encoder Cable (for XSEL-P/Q, SSEL, SCON, and LS equipped connection)

Model: **CB-X1-PLA**□□□

* □□□ is the cable length (L); supports up to 30m.
Example: 080 = 8m



Minimum bend radius R: r = 54mm or larger (for movable use)

Wire	Color	Signal	No.
—	—	—	10
—	—	—	11
White/Blue	E24V	12	
White/Yellow	OV	13	
White/Red	LS	26	
White/Black	CREEP	25	
White/Purple	OT	24	
White/Gray	RSV	23	
—	—	—	9
—	—	—	18
—	—	—	19
—	—	A+	1
—	—	A-	2
—	—	B+	3
—	—	B-	4
—	—	Z+	5
—	—	Z-	6
Orange	SRD+	7	
Green	SRD-	8	
Purple	BAT+	14	
Gray	BAT-	15	
Red	VCC	16	
Black	GND	17	
Blue	BKR-	20	
Yellow	BKR+	21	
—	—	—	22

No.	Signal	Color	Wire
1	E24V	White/Blue	AWG26 (crimped)
2	OV	White/Yellow	
3	LS	White/Red	
4	CREEP	White/Black	
5	OT	White/Purple	
6	RSV	White/Gray	

No.	Signal	Color	Wire
1	BAT+	Purple	AWG26 (crimped)
2	BAT-	Gray	
3	SD	Orange	
4	SD	Green	
5	VCC	Red	
6	GND	Black	
7	FG	Ground	
8	BK-	Blue	
9	BK+	Yellow	

The shield is clamped to the hood

Braided ground & shield wire

(White/Blue in cable color indicates the colors of line/insulator.)