

Driver Integrated Motorized Stages

SBIS Series

This product is a motorized stage with a built-in 5-phase stepper motor driver and controller. It saves wiring, takes up little space, and can be controlled by a simple command.

- There are two types of stages, X-axis and Z-axis.
- The Z-axis type is equipped with an electromagnetic power-off brake as standard. When the power is turned off, the braking force works to hold the load securely.
- PC control via RS232C interface, or manual control via the knob on the controller body are available.
- Up to 99 axes of SBIS series stages can be connected using dedicated cables. (Daisy Chain configuration)



Guide

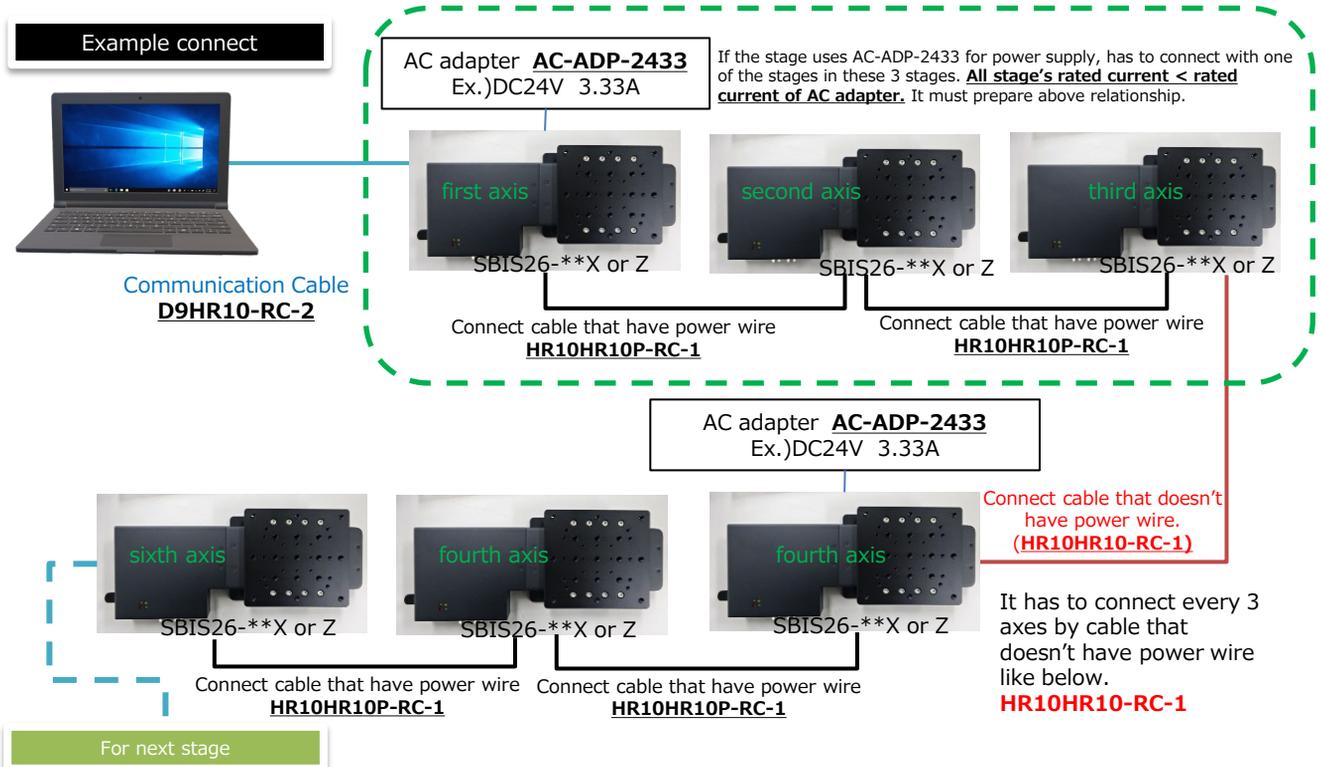
- ▶ The SBIS interconnection cable HR10HR10P-RC-1 (with power cord inside) or HR10HR10-RC-1 (without power cord inside) is available separately. (Note1)
- ▶ Cable D9HR10-RC-2 for PC to SBIS connection is required separately.
- ▶ AC adapter "AC-ADP-2433" is recommended to supply power for up to 3 axes. (For the fourth and subsequent axes, an additional AC adapter is required for each of the three axes.) (Note 1)
- ▶ The following sample program can be downloaded and used.
 - SG Sample for 32/64 bit Windows®
 - LabVIEW

Attention

- ▶ (Note 1) Use "HR10HR10-RC-1" (without power wire) to connect SBISs if power is supplied from a different power supply.
- ▶ Use "HR10HR10P-RC-1" (with power wires) when connecting up to 3 axes using the same power supply.

What's daisy chain?

Up to 99 axes of SBIS series stages can be connected using dedicated cables. (Daisy Chain configuration)
If you send command for connect, device number will automatically assign like 1~99 from nearest axis from PC.



Driver Integrated Motorized Stages

SBIS-X Series



W9311

X Type



The X-axis model has a lineup of 5 types. Up to 99 axes can be controlled by connecting SBIS series with each other using dedicated cables.

Travel [mm]				
35	50	100	200	300

SBIS Cable (See to SBIS Cables page)	
SBIS Communication Cables	D9HR10-RC-2
SBIS Cables (with power cord)	HR10HR10P-RC-1
SBIS Cables (without power cord)	HR10HR10-RC-1

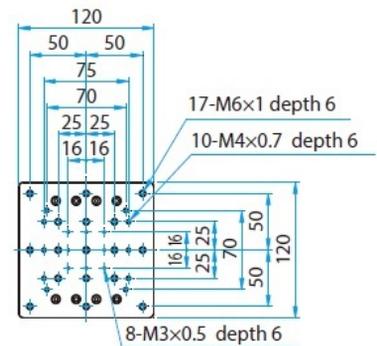
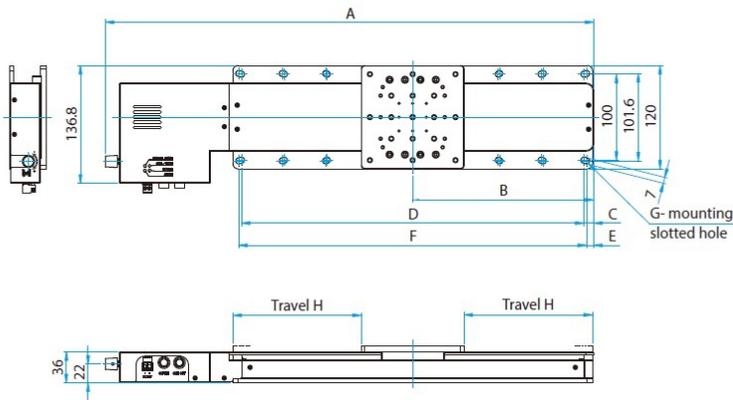
Specifications							
Part Number (M6)		SBIS26-35X-M6	SBIS26-50X-M6	SBIS26-100X-M6	SBIS26-200X-M6	SBIS26-300X-M6	
Part Number (-INCH)		SBIS26-35X-INCH	SBIS26-50X-INCH	SBIS26-100X-INCH	SBIS26-200X-INCH	SBIS26-300X-INCH	
Mechanical Specifications	Travel [mm]	35	50	100	200	300	
	Stage Size [mm]	120×120	120×120	120×120	120×120	120×120	
	Feed Screw	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	
	Positioning Slide	Outer rail structure	Outer rail structure	Outer rail structure	Outer rail structure	Outer rail structure	
	Guide Method	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	
	Finish	Black anodized	Black anodized	Black anodized	Black anodized	Black anodized	
	Electromagnetic Brake	None	None	None	None	None	
	Weight [kg]	3.00	3.00	3.70	4.65	5.60	
Accuracy Specifications	Resolution (DIVIDE=80) ※Factory default	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	
	MAX Speed [mm/sec]	40	40	40	40	40	
	Positioning Accuracy [μm]	5	5	10	15	20	
	Positional Repeatability [μm]	3	3	3	6	6	
	Load Capacity [N]	117N (12.0kgf)	117N (12.0kgf)	117N (12.0kgf)	117N (12.0kgf)	117N (12.0kgf)	
	Moment Stiffness	Pitch ["/N·cm]	0.23	0.23	0.23	0.23	0.23
		Yaw ["/N·cm]	0.12	0.12	0.12	0.12	0.12
		Roll ["/N·cm]	0.2	0.2	0.2	0.2	0.2
	Lost Motion [μm]	3	3	3	5	5	
	Backlash [μm]	3	3	3	3	3	
Parallelism [μm]	50	50	50	50	50		
Running Parallelism [μm]	10	10	10	10	20		
Pitch ["/]/Yaw ["/]	25/20	25/20	25/20	30/25	30/25		
Sensor	Sensor Part Number	Micro photo sensor: GP1S092HCPIF (Sharp Corporation)					
	Limit Sensor	Equipped (NORMAL CLOSE)					
	Proximity Origin Sensor	None	Equipped (NORMAL OPEN)				
	Origin Sensor	Equipped (NORMAL OPEN)					

Motor / Sensor Specifications		
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK525HPB-C4 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC5~24V±10%
	Current Consumption	80mA or lower (20mA or lower per sensor) SBIS26-35 : 60mA or lower (20mA or lower per sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction) : Limit Sensor When shaded: Output transistor ON (conduction): Origin sensor, Proximity Origin Sensor

Outline Drawing

SBIS26-**-X-M6

- Hexagon socket head cap screw M6×10…6本 (35)
- Hexagon socket head cap screw M6×10…10本 (50, 100)
- Hexagon socket head cap screw M6×10…14本 (200)
- Hexagon socket head cap screw M6×10…18本 (300)

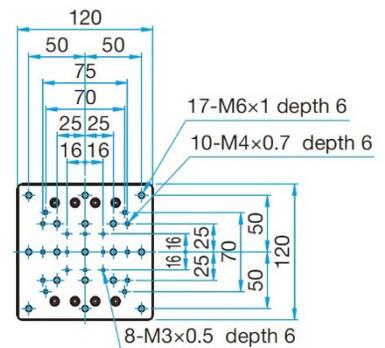
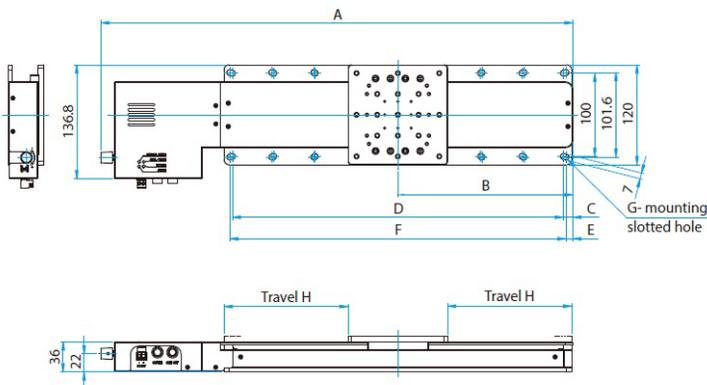


<Mounting hole pattern of a top plate >

Part Number	A	B	C	D	E	F	G	H
SBIS26-35X-M6	306.5	79	29	100 (50×2)	28.2	101.6 (50.8×2)	6	17.5
SBIS26-50X-M6	321.5	86.5	11.5	150 (25, 50×2, 25)	10.3	152.4 (25.4, 50.8×2, 25.4)	10	25
SBIS26-100X-M6	371.5	111.5	11.5	200 (50×4)	9.9	203.2 (50.8×4)	10	50
SBIS26-200X-M6	471.5	161.5	11.5	300 (50×6)	9.1	304.8 (50.8×6)	14	100
SBIS26-300X-M6	571.5	211.5	11.5	400 (50×8)	8.3	406.4 (50.8×8)	18	150

SBIS26-**-X-INCH

- Hexagon socket head cap screw 1/4-20UNC×3/8…6 screws (35)
- Hexagon socket head cap screw 1/4-20UNC×3/8…10 screws (50, 100)
- Hexagon socket head cap screw 1/4-20UNC×3/8…14 screws (200)
- Hexagon socket head cap screw 1/4-20UNC×3/8…18 screws (300)



<Mounting hole pattern of a top plate >

Part Number	A	B	C	D	E	F	G	H
SBIS26-35X-INCH	306.5	79	29	100 (50×2)	28.2	101.6 (50.8×2)	6	17.5
SBIS26-50X-INCH	321.5	86.5	11.5	150 (25, 50×2, 25)	10.3	152.4 (25.4, 50.8×2, 25.4)	10	25
SBIS26-100X-INCH	371.5	111.5	11.5	200 (50×4)	9.9	203.2 (50.8×4)	10	50
SBIS26-200X-INCH	471.5	161.5	11.5	300 (50×6)	9.1	304.8 (50.8×6)	14	100
SBIS26-300X-INCH	571.5	211.5	11.5	400 (50×8)	8.3	406.4 (50.8×8)	18	150

Driver Integrated Motorized Stages

SBIS-Z Series



W9312

Z Type



The Z-axis model has a lineup of 5 types.
Up to 99 axes can be controlled by connecting SBIS series with each other using dedicated cables.

Travel [mm]				
35	50	100	200	300

SBIS Cable		(See to SBIS Cables page)
SBIS Communication Cables	D9HR10-RC-2	
SBIS Cables (with power cord)	HR10HR10P-RC-1	
SBIS Cables (without power cord)	HR10HR10-RC-1	

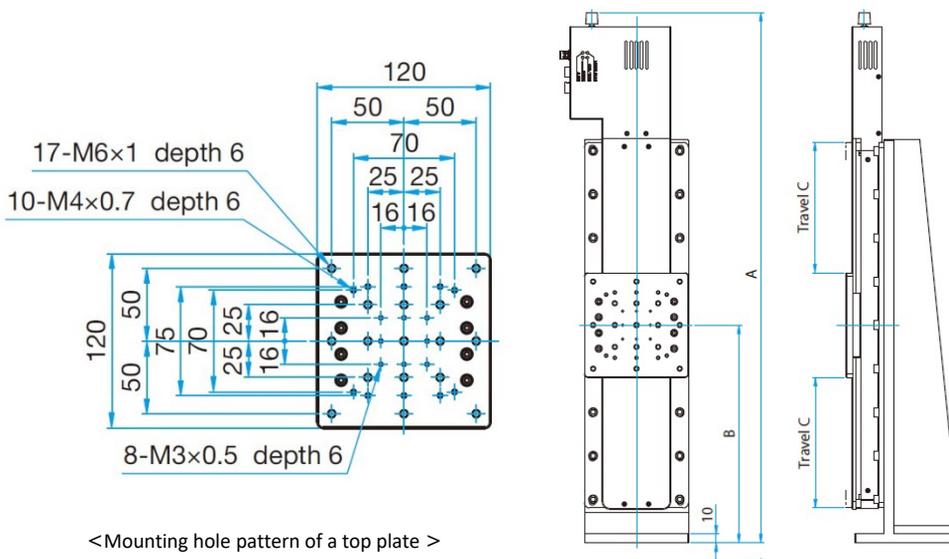
Specifications							
Part Number (-M6)		SBIS26-35Z-M6	SBIS26-50Z-M6	SBIS26-100Z-M6	SBIS26-200Z-M6	SBIS26-300Z-M6	
Part Number (-INCH)		SBIS26-35Z-INCH	SBIS26-50Z-INCH	SBIS26-100Z-INCH	SBIS26-200Z-INCH	SBIS26-300Z-INCH	
Mechanical Specifications	Travel [mm]	35	50	100	200	300	
	Stage Size [mm]	120×120	120×120	120×120	120×120	120×120	
	Feed Screw	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	Ball screw diameter φ8mm 2mm lead	
	Positioning Slide	Outer rail structure	Outer rail structure	Outer rail structure	Outer rail structure	Outer rail structure	
	Guide Method	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	
	Finish	Black anodized	Black anodized	Black anodized	Black anodized	Black anodized	
	Electromagnetic Brake	Equipped	Equipped	Equipped	Equipped	Equipped	
	Weight [kg]	5.85	5.85	6.55	9.50	10.45	
Accuracy Specifications	Resolution (DIVIDE=80) ※Factory default	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	0.05μm/pulse	
	MAX Speed [mm/sec]	10	10	10	10	10	
	Positioning Accuracy [μm]	15	15	20	30	40	
	Positional Repeatability [μm]	3	3	3	6	6	
	Load Capacity [N]	39.2N (4.0kgf)	39.2N (4.0kgf)	39.2N (4.0kgf)	39.2N (4.0kgf)	39.2N (4.0kgf)	
	Moment Stiffness	Pitch ["/N·cm]	0.4	0.4	0.4	0.4	0.4
		Yaw ["/N·cm]	0.15	0.15	0.15	0.15	0.15
		Roll ["/N·cm]	0.2	0.2	0.2	0.2	0.2
	Lost Motion [μm]	3	3	3	5	5	
	Backlash [μm]	3	3	3	3	3	
Perpendicularity of Motion [μm]	30	30	40	50	50		
Pitch ["/]/Yaw ["/]	50/20	50/20	50/20	55/20	55/20		
Sensor	Sensor Part Number	Micro photo sensor: GP1S092HCPIF(Sharp Corporation)					
	Limit Sensor	Equipped (NORMAL CLOSE)					
	Proximity Origin Sensor	None	Equipped (NORMAL OPEN)				
	Origin Sensor	Equipped (NORMAL OPEN)					

Motor / Sensor Specifications		
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK525HPB-C4 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC5~24V±10%
	Current Consumption	80mA or lower (20mA or lower per sensor) SBIS26-35 : 60mA or lower (20mA or lower per sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction) : Limit Sensor When shaded: Output transistor ON (conduction): Origin sensor, Proximity Origin Sensor

Outline Drawing

SBIS26--Z-M6**

Hexagon socket head cap screw M6×15…4本

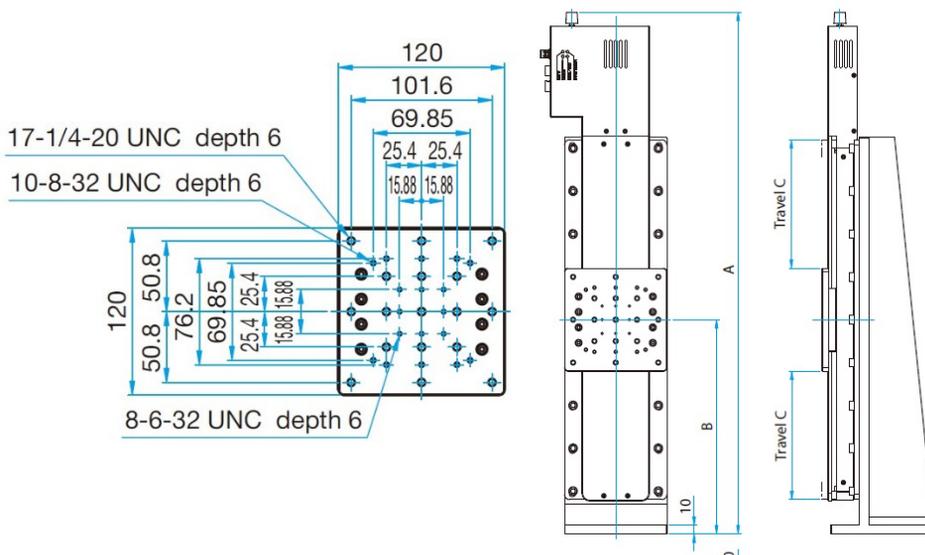


<Mounting hole pattern of a top plate >

Part Number	A	B	C
SBIS26-35Z-M6	352.5	125	17.5
SBIS26-50Z-M6	360	125	25
SBIS26-100Z-M6	410	150	50
SBIS26-200Z-M6	510	200	100
SBIS26-300Z-M6	610	250	150

SBIS26--Z-INCH**

Hexagon socket head cap screw 1/4-20UNC×3/8…4 screws



<Mounting hole pattern of a top plate >

Part Number	A	B	C
SBIS26-35Z-INCH	352.5	125	17.5
SBIS26-50Z-INCH	360	125	25
SBIS26-100Z-INCH	410	150	50
SBIS26-200Z-INCH	510	200	100
SBIS26-300Z-INCH	610	250	150

(Specifications) Controller/ Driver

General Specifications	
Power Voltage	DC24V
Power Consumption	X:0.8A Z:1.0A
Operating Temperature	5~40°C
Storage Temperature	-20~60°C
Ambient Humidity	20~80%RH (without condensation)

Primary Functions	
Coordinate Indication Range	-
Max. Travel to Set	-134,217,727~134,217,727
Max. Driving Speed	800,000pps
Min. Driving Speed	1pps
Acceleration/Deceleration Time	1~1,000ms
Driver Function (Max. Division)	1~250分割
Driving Current	0.75AA/phase

Control Command	
Controller Function	○
Number of Control Axes	1 axis/unit ※Up to 99 axes can be driven if connected by Daisy Chain configuration.
Stored Program Control	-
Feedback Control	-
Circular Interpolation Control	○ (Simplified Control)
Linear Interpolation Control	○ (Simplified Control)
Machine Origin Return	○
Theoretical Origin Setting	○
Relative Position Drive	○
Absolute Position Drive	○
Jog Operation	○
Position Appointment	-
Deceleration Stop	○
Emergency Stop	○
Speed Setting	○
Driver Function	Micro-step
Motor Free/Hold	○
Port Input	-
Port Output	-

Interface	
GP-IB	-
RS232C	○
USB	-
Ethernet	-

Optional	
CJ-200A	-
JS-301	-
JB-401	-
JD-101	-
SJT-02	-
MD-400	-

※Stage is equipped with JOG operation knob

I/O Specification	
Origin Sensor	-
Proximity Sensor	-
CW (+) Limit	-
CCW (-) Limit	-
General Purpose Input	-
General Purpose Output	-
Control Input	-
Control Output	-



In addition, manual operation is possible by knob.

AC Adapter

CE RoHS Catalog Code W9313

The power supply specifications for the SBIS26 series are 24 VDC, 0.8 A for the X-axis type and 1.0 A for the Z-axis type. Please purchase AC-ADP-2433 or prepare your own power supply.



Specifications	
Part Number	AC-ADP-2433
JP Yen [¥]	12,000
Product Name	AC Adapter
Power Voltage	24V 3.33A
Input Voltage	100-240V 50/60Hz
External Dimensions [mm]	168(L)×77.6(W)×45(H)
Weight [kg]	0.6

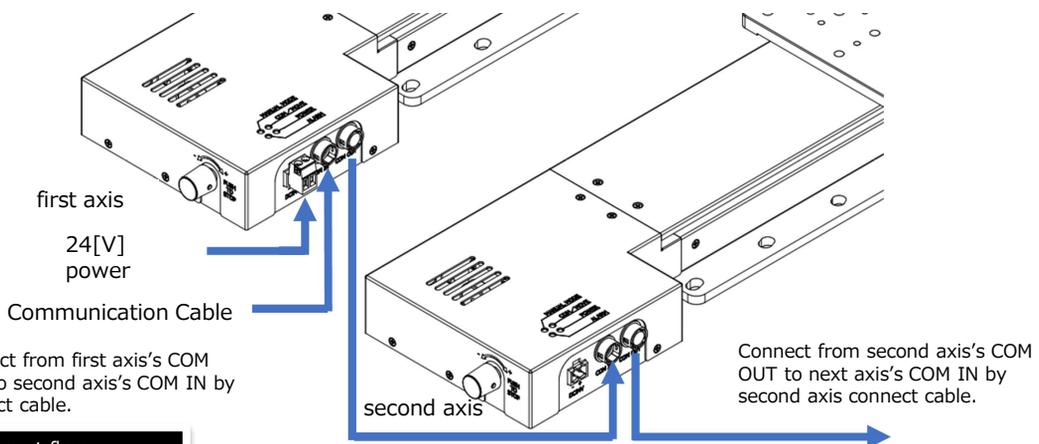
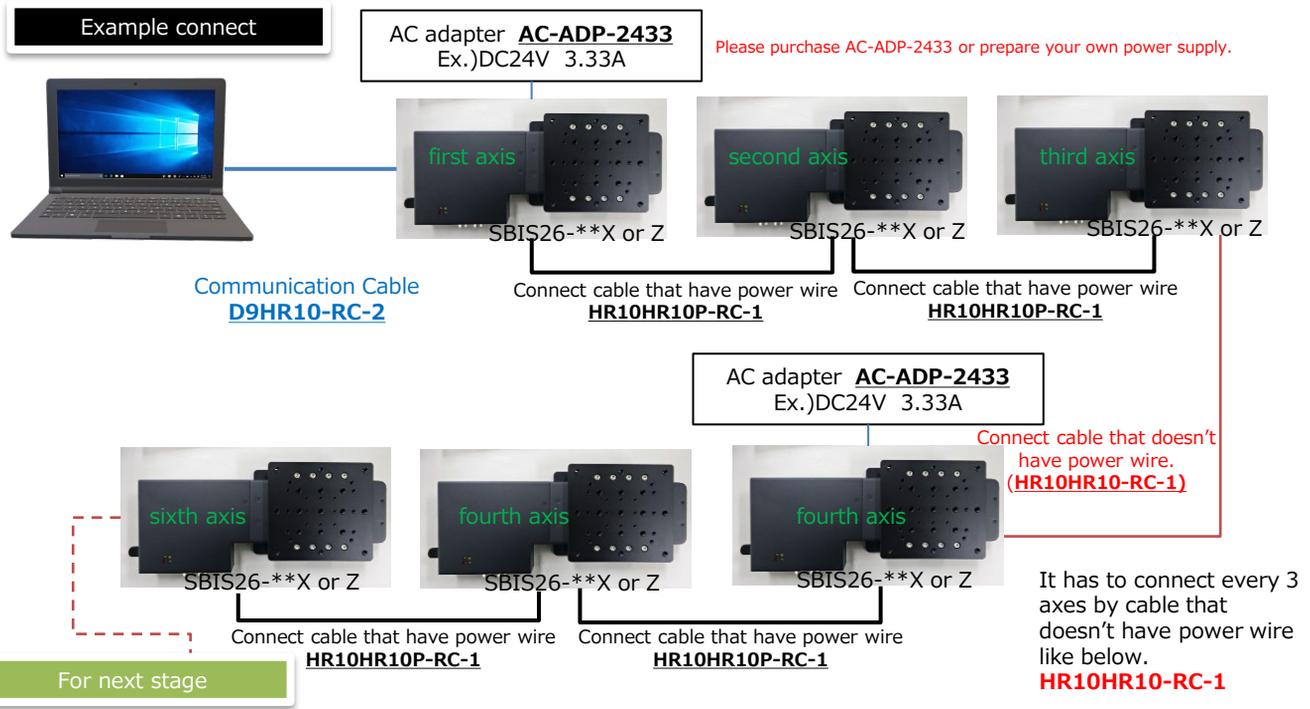
Weight does not include AC cable. The weight including AC cable is about 0.8 kg.

Various cables for use with the SBIS series are available.

■ Cables to connect SBIS series motorized stages to each other

1. HR10HR10P-RC-1 is used when the same power supply is shared for connection.
 2. HR10HR10-RC-1 is used when connected SBIS stages are powered by separate power supplies.
- D9HR10-RC-2 is a connection cable between the host PC and the SBIS stage.

Specifications			
Part Number	HR10HR10P-RC-1	HR10HR10-RC-1	D9HR10-RC-2
Price [JP Yen]	9,000	9,000	10,000
Product Name	SBIS Cable (with power cord)	SBIS Cable (without power cord)	SBIS Communication Cable
Cable Length [m]	1	1	2
Power wire	Equipped	None	-



Connect flow

- ① Confirm the power didn't connect to power supply connector.
- ② Connect SBIS stage to PC by communication cable for SBIS that customized RS232C. refer to above Figure SBIS Stage connect diagram.
- ③ In second or later case, connect SBIS stage to next SBIS stage by built-in power wire connect cable or cable that doesn't have power wire.
- ④ Turn on power.

Cabling Diagram

HR10HR10P-RC-1

Stage Side (OUT) (10pin)
Connector : HR10A-10P-10P(73)
(male type)

Stage Side (IN) (10pin)
Connector : HR10A-10S-10P(73)

How to identify cables



(have power wire)
HR10HR10P-RC-1



(non power wire)
HR10HR10-RC-1

	Pin Number				Pin Number	
TXD	1	Blue(White)		Blue(White)	1	RXD
RXD	2	Yellow(Brown)		Yellow(Brown)	2	TXD
SYNC start	3	Green(Black)		Green(Black)	3	SYNC start
FG	4	Black(Green)		Black(Green)	4	FG
V+	5	Red(Gray)		Red(Gray)	5	V+
V+	6	Gray(Red)		Gray(Red)	6	V+
V+	7	Purple(Orange)		Purple(Orange)	7	V+
V-	8	White(Blue)		White(Blue)	8	V+
V-	9	Brown(Yellow)		Brown(Yellow)	9	V-
V-	10	Orange(Purple)		Orange(Purple)	10	V-
Case						Case

have power wire



Stage Side (OUT) (10pin)
Connector : HR10A-10P-10P(73)
(male type)
Hirose Electric Co., Ltd.

Stage Side (IN) (10pin)
Connector : HR10A-10S-10P(73)
(female type)
Hirose Electric Co., Ltd.

	Pin Number				Pin Number	
TXD	1	Blue(White)		Blue(White)	1	RXD
RXD	2	Yellow(Brown)		Yellow(Brown)	2	TXD
SYNC start	3	Green(Black)		Green(Black)	3	SYNC start
FG	4	Red(Gray)		Red(Gray)	4	FG
-	5				5	-
-	6				6	-
-	7				7	-
V-	8	White(Blue)		White(Blue)	8	V-
V-	9	Brown(Yellow)		Brown(Yellow)	9	V-
V-	10	Black(Green)		Black(Green)	10	V-
Case						Case

non power wire



D9HR10-RC-2

PC side(9pin)
Connector : 17JE-13090-02(D8C6)A-CG
(male type) D-sub9pin
DDK Ltd.,

Stage Side (IN) (10pin)
Connector : HR10A-10P-10S(73)
(female type)
Hirose Electric Co., Ltd.

	Pin Number				Pin Number	
-	1			Yellow(Brown)	1	RXD
RXD	2	Blue(White)		Blue(White)	2	TXD
TXD	3	Yellow(Brown)			3	-
-	4				4	-
GND	5	White(Blue)			5	-
-	6	Brown(Yellow)			6	-
-	7			White(Blue)	7	-
-	8			Brown(Yellow)	8	V-
-	9				9	V-
Case					10	-
						Case

