# Rotary swing module

GBR-S1

GBR-S2

TAIWAN EXCELLENCE 2022

Product Features：

1.The mechanism is miniaturized and convenient and lightweight.

2.Small modules with multiple degrees of freedom, rotation and swing.

3.It can be freely and flexibly matched with any module, and the combination is high.

4.It can be used for operations in limited space, and can also be used with linear modules to transfer operations in a wide range of spaces.

B axis (Bending)

R axis (Rotate)
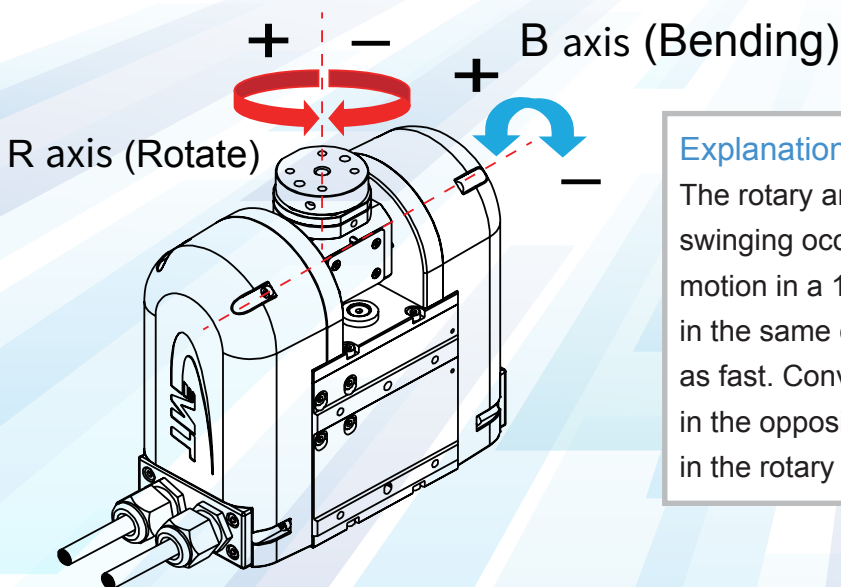
Explanation of Rotary and Swinging Axis Synchronization：
The rotary and swinging axes are mutually coupled, so when swinging occurs, the rotary axis will generate synchronized motion in a 1:1 proportion. Therefore, giving the same command in the same direction will result in a rotational speed that is twice as fast. Conversely, during swinging, giving the same command in the opposite direction can compensate for the lack of motion in the rotary axis. This is known as synchronous compensation.

Notice：

1. Be cautious of wire entanglement during rotation.

2. In the event of accidental collision with the operating mechanism, the electronic control system will automatically trigger a protective signal, causing the mechanism to stop functioning to prevent further collisions. To restart, please disconnect the power and perform a home return operation before resuming normal operation.

3. When selecting the appropriate model, it is necessary to calculate the load torque and rotational inertia for all conditions. Please calculate the rotational inertia of the object respectively for the B-axis and R-axis.

GBR SPEC.

Model No.	GBR-S1		GBR-S2	
Axis	B-axis (Wobble)	R-axis (Rotation)	B-axis (Wobble)	R-axis (Rotation)
Drive Type	Stepper Motor + Timing Pulley	Stepper Motor + Timing Pulley + Bevel Gear	Stepper Motor + Timing Pulley	Stepper Motor + Timing Pulley + Bevel Gear
Travel Stroke☆1	±94°	±360°	±90°	±360°
Max. Torque(N-m)☆2	0.66	0.66	1.25	1.25
Max. Allowable Moment of Inerita(kgm²)	7.8×10^{-3}	6×10^{-3}	1×10^{-2}	1.2×10^{-2}
Max. Load	1 (Kg)		2 (Kg)	
Max. Speed without Load (rpm) — Single Axis	40	40	60	60
Max. Speed without Load (rpm) — Dual-Axis	40	40	60	60
Max. Speed with Load (rpm) — Single Axis	30	40	30	60
Max. Speed with Load (rpm) — Dual-Axis	30	30	25	25
Max. Acceleration (ms) — No Load	100		100	
Max. Acceleration (ms) — Loaded	250		250	
Repeatability Precision	±0.02°	±0.02°	±0.02°	±0.02°
Missed Step Accuracy	0.06°	0.04°	0.06°	0.04°
Weight	1.9Kg		2.8Kg	
Motor	□28，Stepper Motor	□28，Stepper Motor	□35，Stepper Motor	□35，Stepper Motor
Static Braking Torque (N-m)	1.28		4.8	
Recommended Using Environment and Humidity	0 ~ 35°C、Below 85% RH(No Condensation)			

☆1：Pay attention to the possibility of wire entanglement during rotation.

☆2：The maximum torque is at 5 rpm during low-speed operation. The output torque will vary with speed.

☆3：The temperature of the mechanism during operation is approximately 45°C.

Driver Introduction /Features

Compatible driver — Model No.	Appearance	Number of axes that can be connected for communication	Power supply voltage	Control system	Display LED
i-SERVO Driver		16	DC 24V	Pulse Communication (RS485)	Power Alarm Motor rotating

1. The driver offers four driving modes：position control, speed control, pressure control, and torque control.

2. It is designed for high-speed and high-torque applications.

3. The driver provides high-precision positioning with optical encoders that have resolutions of up to 6400/9600/10800/16000 ppr.

4. It features a highly reliable system with optical encoders and a stepper servo system that ensures no lost step.

5. The driver exhibits high responsiveness, with instantaneous torque output reaching up to 150% of the rated torque, making it suitable for sensitive and precise operations.

6. It operates with low heat generation and energy efficiency by adjusting the optimal current based on the load.

＊For more details about the driver, please refer to the motor and driver catalog on the official website.