May 19, 2025

Compact, high-torque industrial servo motors
Notice of Release of "BLA21-12R3-C01

We have released a new industrial servo, BLA21-12R3-C01, from November 2024, that is based on the discontinued command system servo RS405CB, with greatly improved functions, performance, and durability.

Features and Comparison with Conventional Products

1. All-in-one, compact, lightweight, high torque

The servo module integrates a motor, gears, and amplifier, and can be operated simply by supplying power/signals externally.

The maximum torque is 4.9 Nm, which is higher than that of general FA (Factory Automation) servos, despite its small size and light weight (approx. 41 mm x 33 mm x 42 mm, 67 g).

The shape of the mounting area and servo horn is the same as the conventional product "RS405CB", this allows the customer to replace the servo horn without changing the mounting area.

2. Improved durability

By adopting a magnetic non-contact sensor for the angle measurement and improving the shape and materials of all gears, this new servo can achieve more than twice the durability (*) of the conventional product.

*Depending on our test conditions

3. High efficiency "high-performance brushless" motor for improved performance and reduced heat generation

The newly designed High Performance Brushless Motor (HPBL) provides approximately 2.6 times the maximum output of the conventional product, resulting in improved performance in terms of both torque and speed.
In addition, improved motor characteristics have reduced the amount of heat generated during operation.

4. Additional control methods

Command method provides speed control (continuous rotation operation) and torque control,
Speed control (continuous rotation operation) is realized even when controlled by PMW signal.
This enables new uses such as continuous rotation at low speeds and constant torque pressing work.

5. Development of new protocol [CM.BUS

We have developed a new protocol "CM.BUS" for faster and more efficient servo control (patent is applied for). This protocol minimizes the amount of data required for control and information acquisition by allowing the servo to write/read only arbitrary data specified in advance, thus greatly improving the processing speed and throughput.
CM.BUS will be given with future software (BLA21-12R3-C01 scheduled for spring 2025)
Updates can be performed by customers themselves from a Windows PC via RS485.

Main specifications

		BLA21-12R3-C01 	(Conventional product) RS405CB 
Output (e.g. of dynamo)	Torque [N・m]	4.9	4.7
	Speed [min^{-1}].	59	45
Shape	Dimensions [mm]	40.5 x 33.0 x 41.8	40.5 x 34.6 x 41.8
	Weight [g]	67	
Parts	Motor	High Performance Brushless	brushless
	Sensor	Magnetic Non-Contact Sensors	Contact sensor (volume)
Mechanism	Gear	metal	Metal (partially resin)
	Case (e.g.	Resin, metal	
Feature	Control	Angle, speed, torque	angle
	Communication	Command method (RS485), PWM, CM.BUS(RS485) (*)	Command method (RS485), PWM

Available with scheduled update in 2025

[Main applications]

This servo can be used in a wide variety of situations where durability is required.

(Example.)

≪Industrial Robots≫　Robot hands, end effectors, grippers

≪Automated guided vehicles/robots (AGVs and AMRs)≫　Rotate axles, lock cargo beds, open and close lids and doors

≪Production/Equipment≫　Valve open/close, louver adjustment, lock

Selling price

open price

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