Oriental motor

RS-485 Communication Type Now Available

Superior

Simple, Compact, and Cost-effective Speed Control Solution

Brushless Motor

BLS Series

Why not consider a product with a lower running cost than AC Motors that is easier to replace? **BLS** Series is an “Economic Motor” that is the better, easy to use solution.

24 VDC Input Brushless Motors

BLS Series

- 24 VDC, 25-120 W, 100-2000 (4000) r/min
- RS-485 communication type and simple type drivers lined up

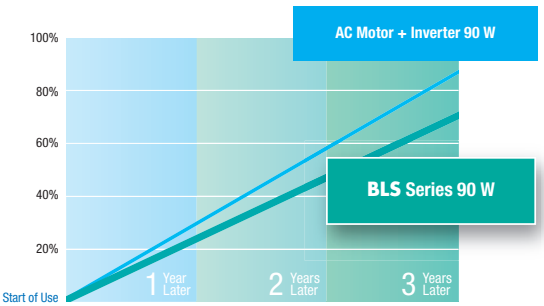
Recommended Use:
As the power source for belt conveyor, agitator, etc.

BLS Series Offers "Better!" Solutions

Better! Cost Reduction

Reduce Electricity Charges by

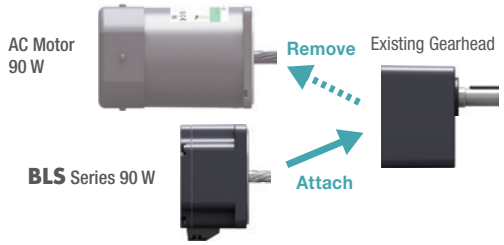
20%



Reduce Running Costs!

Better! Simplicity

The Gearhead of an AC Motor Can be Used



Connection and Operation are Very Simple

Setting	Connection	Operation
Select with a switch	Connect easily with a connector	Turn on 24 VDC power supply

Better! Smaller

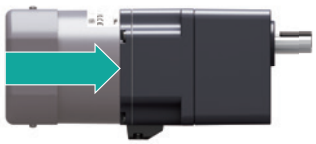
Compared to AC Motors:

Motor Length

78 mm Shorter

Mass

1.8 kg Lighter



Compared to Inverters:

Driver Volume

Reduced by 65 %

Better! Increased Reliability

Low heat generation with a high efficiency motor

40,000 Hours of Motor Service Life

Motor performance remains consistent regardless of the power supply frequency in different countries. Its low-voltage design also enhances safety by reducing electrical hazards.

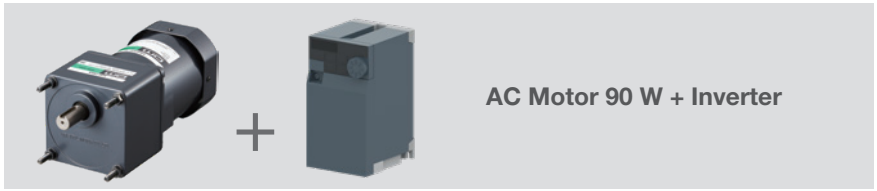
Low speed fluctuation when the load changes.

Speed Regulation ±0.2 %

Better Cost Reduction

Reduce Electricity Charges

Brushless motors are highly efficient, saving you energy.
Electricity costs can be reduced by 20 % compared to the use of an AC motor and inverter.



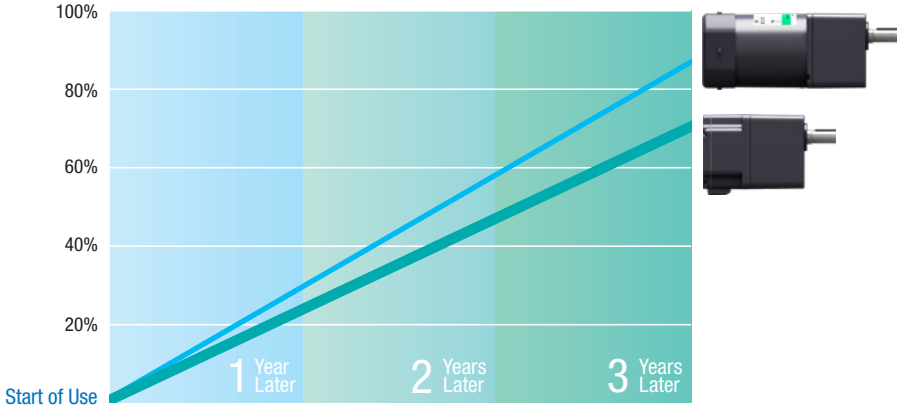
Reduce Electricity Charges by

20 %

Operating Time : 24 hours

AC Motor + Inverter 60 Hz Setup
BLS Series at 2000 r/min

● Comparison of 3-Year Electricity Costs



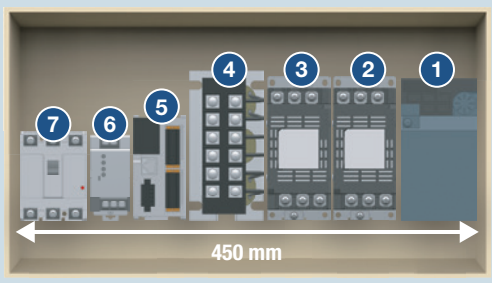
AC Motor 90 W + Inverter

BLS Series 90 W

Running Costs **Reduced!**

24 VDC brushless motors and compact drivers reduce control cabinet costs, free up space, and make wiring easier.

■ Components of AC Motor + Inverter

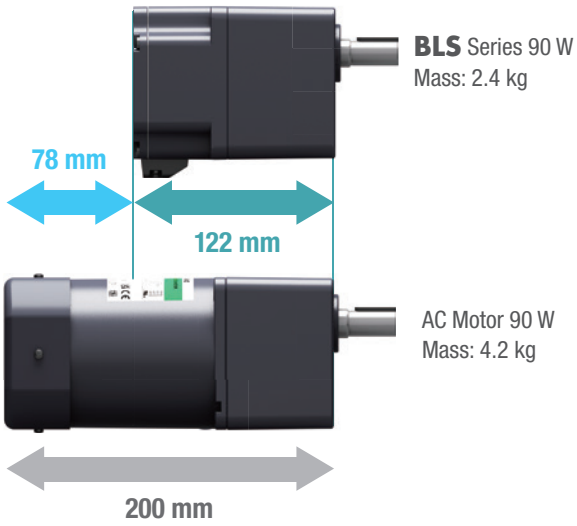


① Inverter
② AC noise filter on input side
③ AC noise filter on output side
④ AC reactor
⑤ PLC
⑥ DC power supply for signal (0.6 A)
⑦ Breaker (electromagnetic switch)
·Radio noise filter

Total number of components: 8

Compact Design

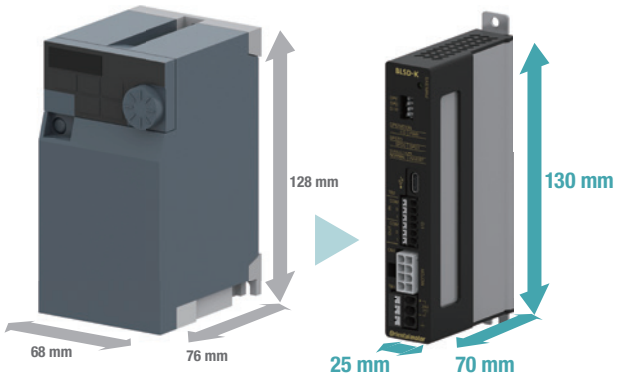
Smaller and Lighter Motor



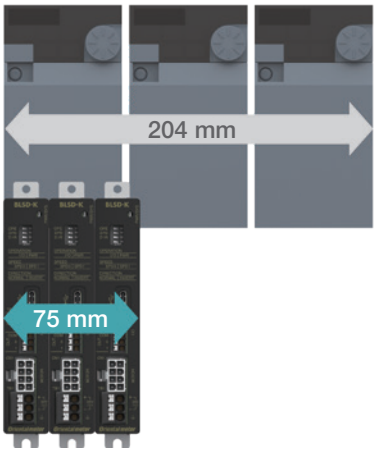
Motor Length:
78 mm Shorter

Motor Mass:
1.8 kg Lighter

Slimmer Driver



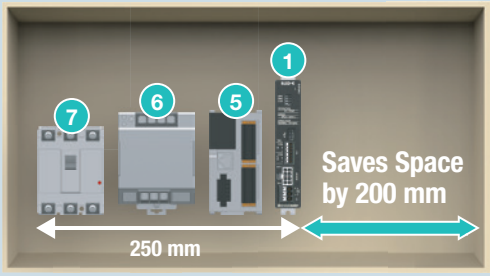
Driver Volume:
Reduced by 65 %



Installation Width: Approx. 1/3

The driver can be mounted with direct contact to a structure. It maintains space-saving benefits—even as more axes are added.

■ **BLS** Series Components



① Driver (Simple type)
⑤ PLC
⑥ DC power supply (10 A) for drive
⑦ Breaker (Electromagnetic switch)

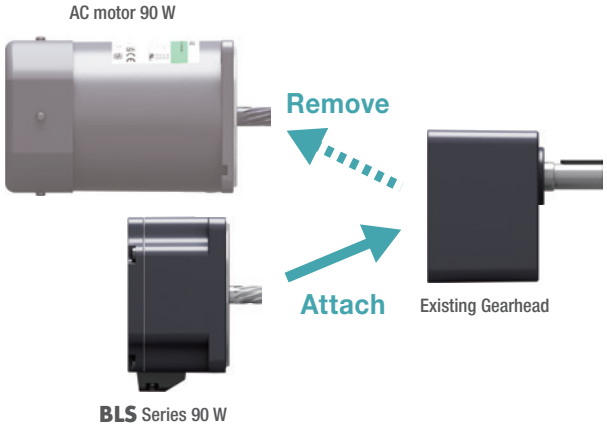
Total number of components: 4

Reduction in Cost

Offering the Simplicity of AC Motors

AC Motor Gearheads Can be Used*. Easily Replace the Motor without Having to Modify the System

The output power, motor frame size and pinion specifications are identical to an AC motor*.
The same gearheads (**GN** gearhead/**GE** gearhead) as an AC motor can be used* *For a standard (AC motor compatible) type.



Using the Same Gearhead Makes Replacement Easy!

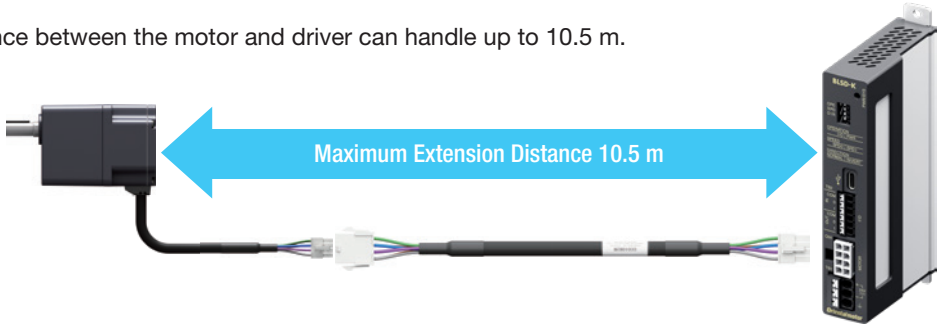
- No need to modify the system; simply replace the motor
- Even if the motor and gearhead need to be replaced, the shaft diameter is the same, so couplings, etc. can be reused
- Using common parts simplifies stock management and maintenance

Very Simple Connection

One-touch connection between the motor and driver using a connector. Connect the power supply simply by plugging in the cables without using special tools. No screw tightening required, so no need to be concerned about tightening torque.

Cable Extension Distance 10.5 m

The maximum extension distance between the motor and driver can handle up to 10.5 m.



Increased Reliability

Extending the Service Life of Your System

BLS Series has a longer service life than AC motors because of its highly efficient motor and low heat generation.

- One of the factors that affects a motor's service life is the service life of grease on the bearing. Since the service life of grease is affected by heat, **BLS** Series with low heat generation extends the service life of its motor.

Brushless Motor BLS Series: 40,000 hours

AC Motor (Induction Motor): 30,000 hours

Conditions: Continuous and one-way operation, rated torque and constant load, rated speed, ambient temperature of 30°C

24 VDC Input Makes it Easy to Deploy Equipment Globally and Design Safely

Easy to Expand Globally

- The same **BLS** Series products can be used worldwide.
- Unlike AC motors, there is no need to select and design according to the voltage/ frequency of each country.
- Not subject to the Low Voltage Directive

Safe Design, Low Noise

- 24 VDC input is below dangerous voltage (60 VDC)
- Significant reduction in safety measure designs

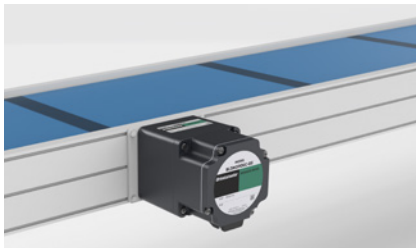
Compact System

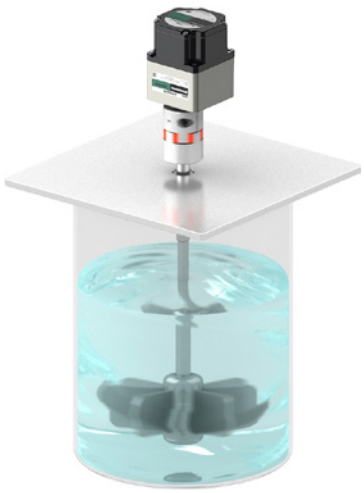
- DC power supply is easy to control. The overall structure of the system is simple
- The control panel has also been simplified, making the entire system more compact

Reducing Speed Fluctuation

The motor is equipped with a small sensor that performs feedback control.
This reduces the fluctuation in motor speed when the load changes.

Speed Regulation
(With Respect to Load)
±0.2%





Simple to Use and Select the Driver

Available Driver Models

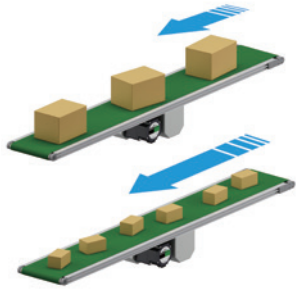
Product Line	RS-485 Communication Type	Standard Type
External View		
Overview	· **Modbus** (RTU) Supports protocols · Supports direct data operations · Simple sequence function reduces the burden on the host controller	· Easy operation in three steps: setting, connection, and power on/off. · I/O operation

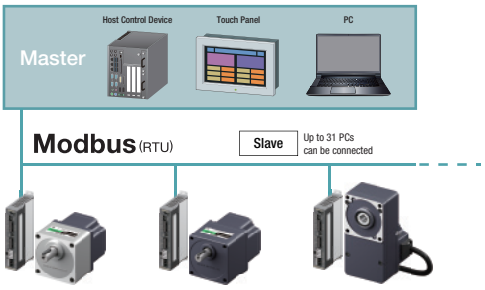
RS-485 Communication Type

This type of driver is equipped with a "Direct Data Operation" function, which adjusts speed in coordination with other devices, and a "Basic Sequence Function" that combines multi-speed operation with linked operation data and an event jump function.

Speed Adjustment in Coordination with Other Devices

The direct data operation is a mode that can perform data rewriting and operation start at the same time.
It is suitable for applications such as adjusting speed in coordination with other devices, and changing speed according to the type of transported products.

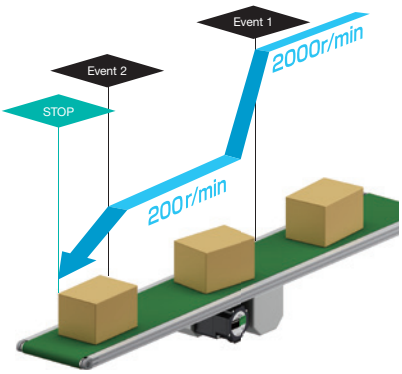


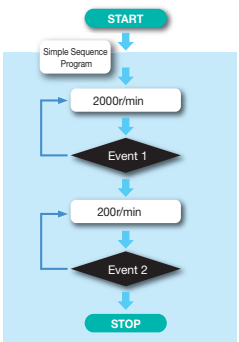


Direct Data Operation Setting Item
Operating Modes
Speed
Acceleration Time
Deceleration Time
Torque Limiting

Multi-speed Operation Linked with Operation Data

This device is equipped with sequence functions, including data-linked operation, event jump, and data transfer, which can be used during stored data operations.





Operating Data Number	Operating Modes	Speed [r/min]
0	Continuous Operation	2000
1	Continuous Operation	200
2	Deceleration Stop	0

Standard Type

Select the speed and rotation direction with the switch.

Switch	Left side (Initial setting)	Right side
OPE (Operating method)	I/O Operation	PWR Operation
SPD (Rotation speed)	1500 r/min*	1800 r/min*
DIR (Rotation Direction)	FWD Direction	RVS Direction

*The rotation speed can be changed using the support software **MEXE02**.

Easy to Change the Rotation Direction

· No need to change the wiring like with an AC motor
- simply switch it on for easy operation.

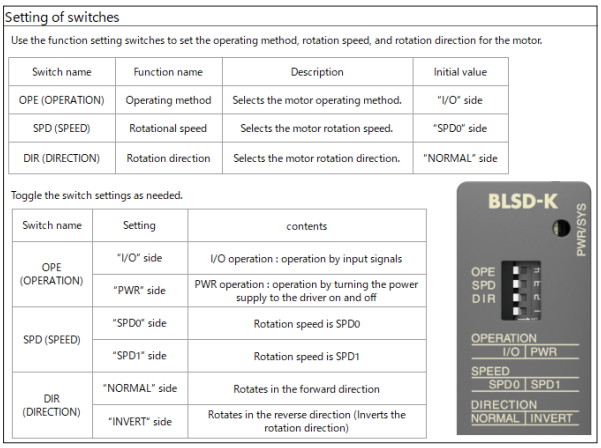
The Free Support Software **MEXE02** Allows for More Advanced Setting and Monitoring

Using support software **MEXE02** makes data setting and monitoring easier.

【Set Up】Operation Setting Support Wizard

● **Switch Setting**

Set the operating method, rotation speed and rotation direction.



Setting of switches

Use the function setting switches to set the operating method, rotation speed, and rotation direction for the motor.

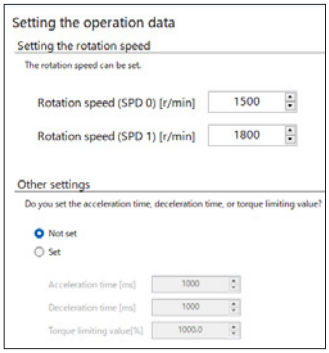
Switch name	Function name	Description	Initial value
OPE (OPERATION)	Operating method	Selects the motor operating method.	"I/O" side
SPD (SPEED)	Rotational speed	Selects the motor rotation speed.	"SPD0" side
DIR (DIRECTION)	Rotation direction	Selects the motor rotation direction.	"NORMAL" side

Toggle the switch settings as needed.

Switch name	Setting	contents
OPE (OPERATION)	"I/O" side	I/O operation : operation by input signals
	"PWR" side	PWR operation : operation by turning the power supply to the driver on and off
SPD (SPEED)	"SPD0" side	Rotation speed is SPD0
	"SPD1" side	Rotation speed is SPD1
DIR (DIRECTION)	"NORMAL" side	Rotates in the forward direction
	"INVERT" side	Rotates in the reverse direction (Inverts the rotation direction)

● **Operation Data Setting**

Modify the settings for rotation speed, acceleration/deceleration time, etc.



Setting the operation data

Setting the rotation speed

The rotation speed can be set.

Rotation speed (SPD 0) [r/min] 1500

Rotation speed (SPD 1) [r/min] 1800

Other settings

Do you set the acceleration time, deceleration time, or torque limiting value?

Not set

Set

Acceleration time [ms] 1000

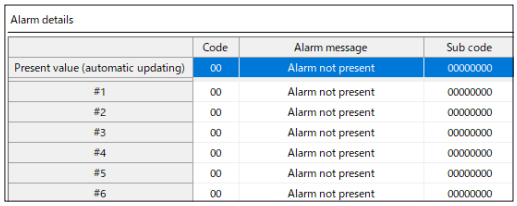
Deceleration time [ms] 1000

Torque limiting value[%] 1000.0

【Maintenance】Helpful Features for Diagnosis and Maintenance

● **Alarm Monitoring**

Check the alarm details.

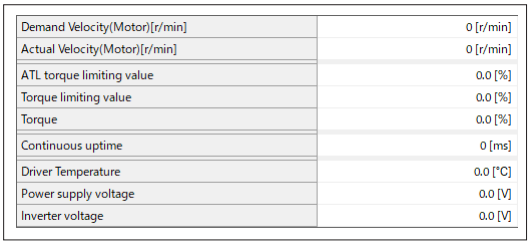


Alarm details

	Code	Alarm message	Sub code
Present value (automatic updating)	00	Alarm not present	00000000
#1	00	Alarm not present	00000000
#2	00	Alarm not present	00000000
#3	00	Alarm not present	00000000
#4	00	Alarm not present	00000000
#5	00	Alarm not present	00000000
#6	00	Alarm not present	00000000

● **Status Check**

Check the motor load, driver temperature, odometer, etc.



Demand Velocity(Motor)[r/min]	0 [r/min]
Actual Velocity(Motor)[r/min]	0 [r/min]
ATL torque limiting value	0.0 [%]
Torque limiting value	0.0 [%]
Torque	0.0 [%]
Continuous uptime	0 [ms]
Driver Temperature	0.0 [°C]
Power supply voltage	0.0 [V]
Inverter voltage	0.0 [V]

Easier to Select the Motor and Gearhead

One Driver Can Handle All Motor Outputs

All motors can be operated by a single driver model.
Because parts can be standardized, inventory and maintenance can be reduced.

Gearhead Selection Based on Intended Use

Type	Standard (AC Motor Compatible) Type	High Strength, Long Life Type
Appearance	 Parallel Shaft Gearhead	 Parallel Shaft Gearhead  Hollow Shaft Flat Gearhead
Overview	The same gearhead as Oriental Motor's AC motor Example) **4GN□K**	Gearheads for brushless motors High permissible torque, long service life Example) **GFV4G□**, **GFS4G□FR**
Assembled Motor Output Power	25 W, 40 W, 90 W	30 W, 60 W, 120 W
Max. Permissible Torque (When frame size is 90 mm)	20 Nm	30 Nm (Parallel shaft gearhead) 60 Nm (Hallow shaft flat gearhead)
Rated Life of a Gearhead	5000 hours	10000 hours

● A number indicating the gear ratio is inserted where the box □ is located in the product name.

Motor

Standard (AC Motor Compatible) Type

GN/GE Gearhead 	Frame Size [mm]	Output [W]	Gear Ratio	Gearhead Permissible Torque [Nm]	Speed Control Range [r/min]
	80	25	3 - 180	8	100 - 2000
	90	40		10	
		90		20	

High Strength, Long Life Type

GFV Gearhead 	Frame Size [mm]	Output [W]	Gear Ratio	Gearhead Permissible Torque [Nm]	Speed Control Range [r/min]
	60	30	5 - 200	6	100 - 4000
	80	60		16	
	90	120		30	
Hollow Shaft Flat Gearhead 	60	30		16	
	80	60		32	
	90	120		65	

Round Shaft Type

	Frame Size [mm]	Output [W]	Speed Control Range [r/min]
	60	30	100 - 4000
	80	60	
	90	120	

Driver (Common to Motor All Outputs)

RS-485 Communication 	Simple 	Output [W]	Power Supply Voltage [V]
		25 - 120	DC24

Connection Cables/Flexible Connection Cables

	Length [m]
	1/2/3/5/7/10

Oriental motor

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