

Orientalmotor

AZ Series

Battery-Free Absolute Mechanical Sensor Equipped Motor
Built-in Controller or Pulse Input Driver



Actuators Equipped with AZ Series

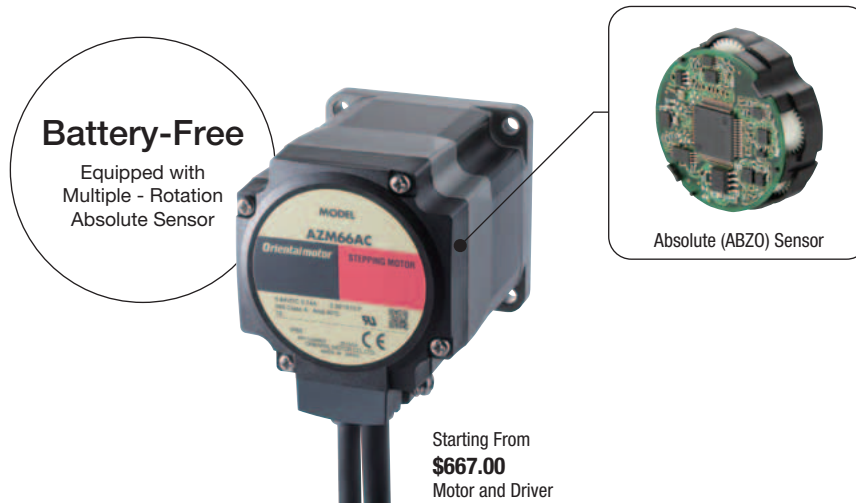


ADVANCED PERFORMANCE

Equipped with a Newly Developed Absolute Mechanical Sensor, Advanced Technology is Available at an Affordable Price.

Newly Developed Absolute Mechanical Sensor

A newly developed compact, low cost, battery-free absolute mechanical sensor (patented) is developed which contributes to productivity improvements and cost reductions.



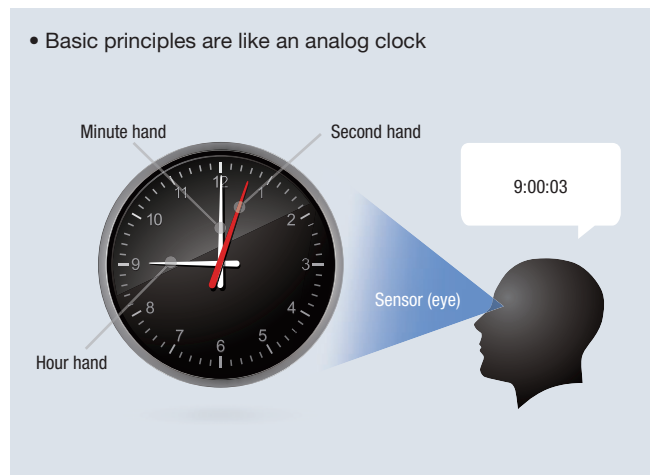
Mechanical Sensor

Analog clocks measure the current time based on the positions of the second hand, minute hand and hour hand. The newly developed sensor is a mechanical sensor equipped with multiple gears equivalent to the hands on a clock. Because it detects positioning information by detecting the angles of the respective gears, a battery is not required.

Multiple - Rotation Absolute System

Absolute position detection is possible with ± 900 rotations (1800 rotations)* of the motor shaft from the home position.

*The frame sizes 20 mm (0.79 in.) and 28 mm (1.10 in.) are ± 450 rotations (900 rotations).

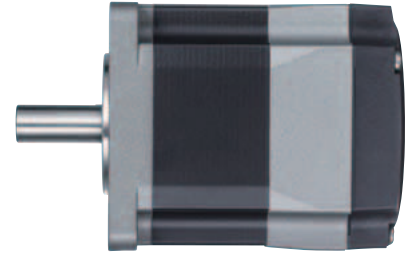


Home Setting Method

By pressing the switch on the driver surface, home position can be set simply, and the home position can be saved with the sensor. Furthermore, it is possible to set the home position using the data setting software (**MEXE02**) or the external input signal.



High Reliability and High Efficiency with α STEP Technology



High Reliability

The **AZ** Series uses our proprietary control system, by linking the benefits of open loop control and closed loop control to achieves high reliability.

Keeps Driving Even in the Case of Sudden Load Changes or Sudden Acceleration

Normally it drives with open loop control in sync with the pulse commands. At times of overload, control instantly switches to closed loop, and perform positioning correction.

Outputs an Alarm Signal in Case of an Abnormality

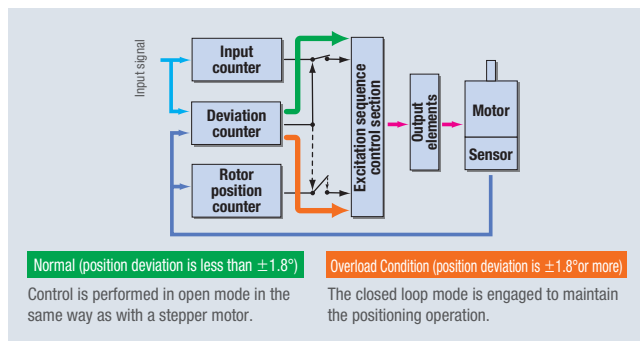
When overload continuously occurs, an alarm signal is output. When positioning determination is complete, a signal is output to support high reliability.

Tuning Not Required

In normal operation, it drives with open loop control, when there is a change in load, such as in the belt mechanism, cam and chain drive, the positioning can be determined without gain adjustment.

No Hunting

During positioning, the motor stops using its own holding torque without hunting. Therefore it is suitable for use in a situation where vibration could cause a problem when stopping as in a low-rigidity mechanism.



Energy Saving and Low Heat Generation

Energy saving is achieved by reducing the motor's heat generation through high efficiency.

Lower Heat Generation

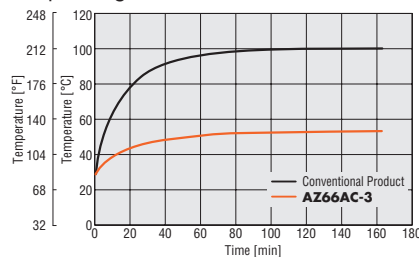
Heat generation by the motor has been significantly reduced through higher efficiency.

● Temperature Distribution by Thermography



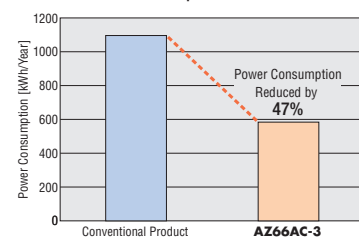
Comparison under the same conditions.

● Motor Surface Temperature under Same Operating Conditions



47% Less Power Consumption than Conventional Oriental Motor Products Due to Energy-Saving Features

● Power Consumption



*Operating Condition

- Speed: 1000 r/min, load factor: 50%
- Operating Time: 24 hours of operation, 365 days/year (70% operating, 25% stand-by, 5% off)

Eliminate Extra Sensors with a Battery-Free Absolute System.

No External Sensors Required

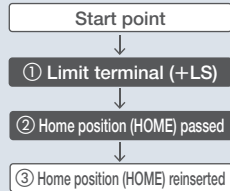
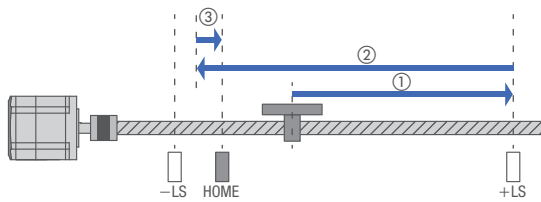
External sensors such as the home sensor or limit sensor are not required with an absolute system.

High Speed Return-to-Home + Improved Return-to-Home Accuracy

Because return-to-home is possible without using an external sensor, return-to-home can be performed at high speed without taking the sensor sensitivity into account, allowing for a shortened machine cycle. Furthermore, as return-to-home can be performed without concern for differences in the home sensor, it is possible to improve home position accuracy.

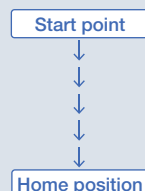
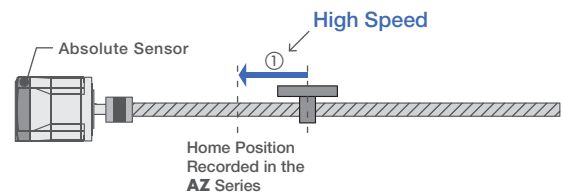
Previous Home Detection Example

The home position is detected at low speed by detecting the limit sensor (\pm LS) and home sensor (HOME).



Return-to-Home Operation of the AZ Series

There is no need to detect the limit sensor, and it moves directly at high speed to the home position recorded by the absolute sensor.



Reduced Costs

Sensor costs and wiring costs can be reduced, allowing for lower system costs.

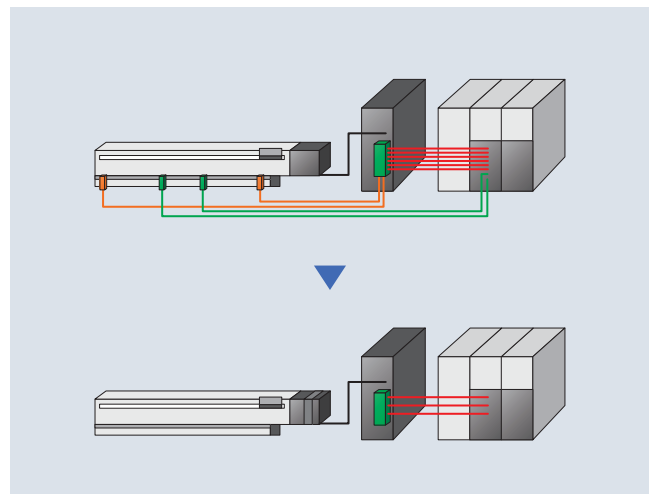
Simple Wiring

Wiring is simplified and the degree of freedom for equipment design is increased.

Not Affected by Sensor Malfunctions

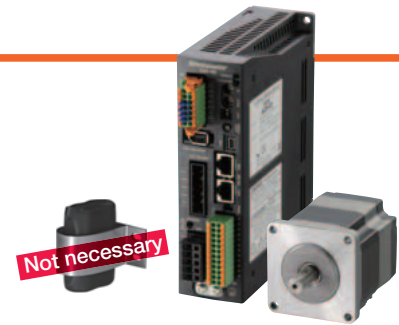
There is no concern about sensor malfunctions (when operating in environments filled with oil mist or filled with metal pieces due to metal processing), sensor failures or sensor wire disconnections.

- In systems where limit switches are not possible, software limits can be used to prevent the limit values being exceeded.



Battery-Free Absolute Mechanical Sensor

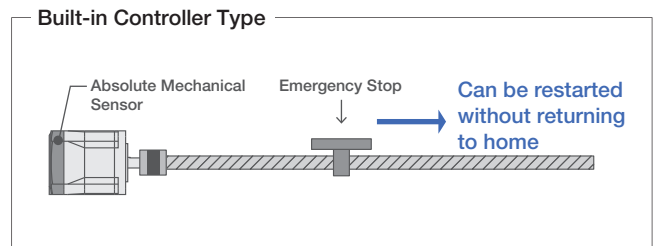
This is an absolute mechanical sensor, which does not require a battery. The positioning information is managed mechanically in the sensor.



Maintaining Positioning Information

Even if the power shuts down during a positioning operation, the positioning information is retained. Furthermore, for built-in controller types, positioning operations can restart without performing a return-to-home operation when recovering from an emergency stop of the production line or a power outage.

- If the motor is temporarily replaced it is necessary to reset the home position as the positioning information is stored in the sensor.



Reduced Maintenance

Because there is no battery that needs replacement, maintenance time and costs can be reduced.

Unlimited Driver Installation Possibilities

Because there is no need to secure space for battery replacement, there are no restrictions on the installation location of the driver, improving the flexibility and freedom of the layout design of the control box.

• Maintenance

Battery Type		AZ Series	
Deployment of electrical components	Electrical component design	Deployment of electrical components	Electrical component design
Replace battery every few years	Secure space for exchanging batteries	Maintenance is reduced	Freedom for device layout

Replacing the battery is hard work...

There are restrictions on electrical component design...

Maintenance is reduced as the battery is not required!

Increases degree of freedom for electrical component design!

Two Drivers to Choose from Based on the Master Control System.



Built-in Controller Type
FLEX

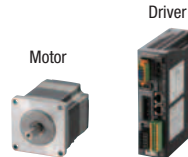


Pulse input Type

Built-in Controller Type **FLEX**

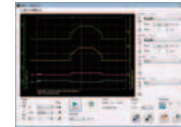
The built-in controller (Stored Data) type driver allows for up-to 256 items of operating data, such as motor speed, position, acceleration / deceleration, interrupts, etc to be executed by a master controller via (1) I/O, (2) Modbus (RTU)/RS-485 or (3) FA network.

Basic Setting (Factory Setting)



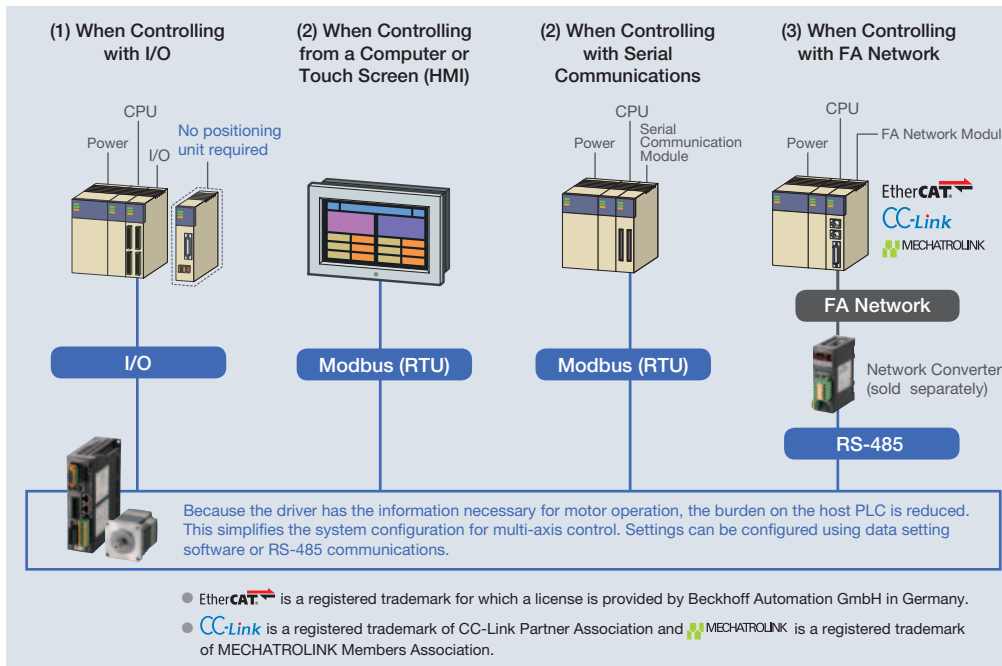
Operation Data Setting Parameter Changing

Data setting software (**MEXE02**)



- Setting via RS-485 communications is also possible.

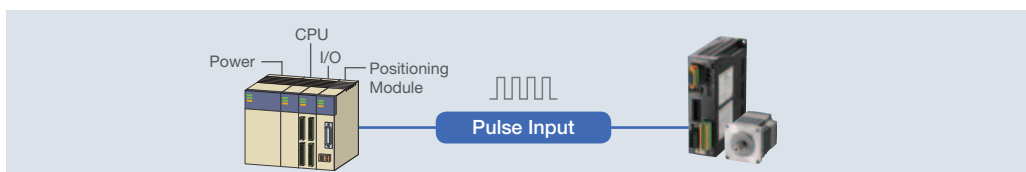
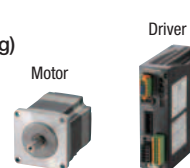
By using a network converter (sold separately), Ether-cat, CC Link and MECHATROLINK communications are supported. Operating data, parameter settings or operation commands can be input via the various communication types.



Pulse Input Type

The pulse input type driver is driven by a pulse and direction input from a host PLC. Motion control is carried out via a pulse generator. An add on module to the PLC must be added by the customer.

Basic Setting (Factory Setting)



By using the data setting software (**MEXE02**), it is possible to confirm alarm history and monitor the various states.

- Data setting software (**MEXE02**) can be downloaded from the website.

Easy Setting and Useful Functions.



Data Setting Software **MEXE02**

AZ Series

The data setting software can be downloaded from the website.

Simple Settings, Simple Operations

The data setting software **MEXE02** performs basic settings, such as operating data compilation and parameter settings. Sequence control is also possible with the built-in controller type, making it possible to incorporate simple systems without a higher sequence.

Unit Setting Wizard

This is a function that allows the traveling amount, speed, etc. to be displayed and input in the designated units.

Since values can be displayed and set in the unit that suits the mechanism being used (mm, deg), it is easy to input operating data without any unit conversion.



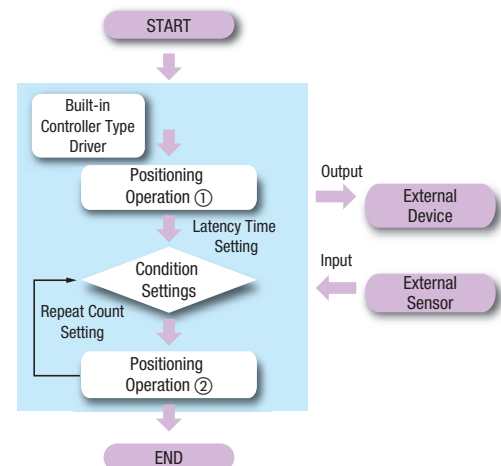
Program Simplification with Easy Sequence Function

Built-in controller (stored data) type

Sequence control program simplification is possible with the built-in controller type by incorporating output signals for controlling other devices and external input signals, such as sensors.

Simple System Can Be Realized Without Master Controller.

The built-in controller type driver can set and execute independently, up-to 256 items of operating data, such as motor speed and index length. With the sequential control, it is possible to form a simple system without a master controller. This is ideal for index and return operations or aligned transportation, such as lifespan or durability tests.



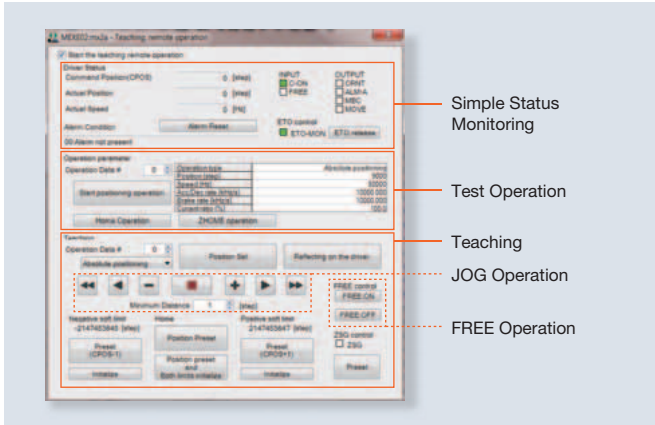
- Number of positioning operation data settings (up to 256 data settings)
- Number of general-purpose input/output points (9 input points, 6 output points)
- Number of input/output points for communication (16 input points, 16 output points)

Test Function

This function allows the motor to operate by itself and to confirm connection with the host system. Using this function at equipment startup leads to shortening the time needed.

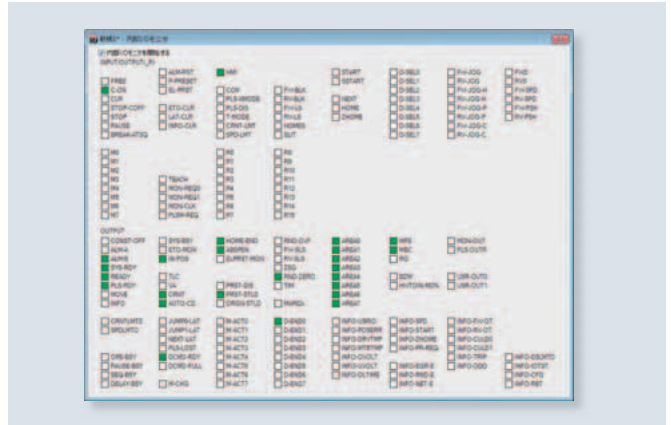
Teaching and Remote Operations At startup

It is possible to easily set the home position and drive the motor from the data setting software. Teaching and test operation are performed before connecting to the host system, which shortens the equipment's startup time.



I/O Testing At startup While running

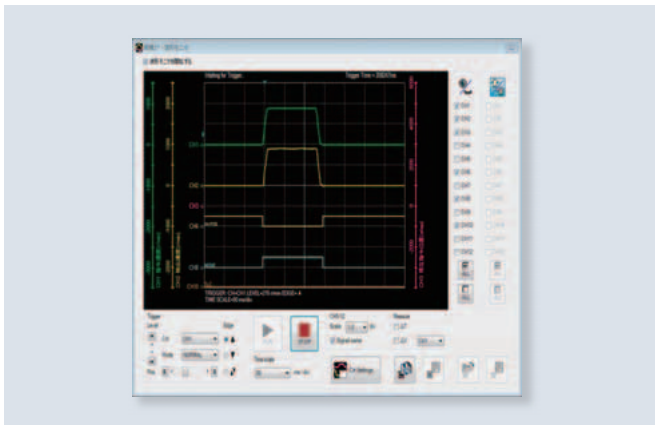
Easily performs input signal monitoring and forced output of output signals. This is a convenient function for checking connection with the host system and network I/O operations.



Various Monitoring Functions

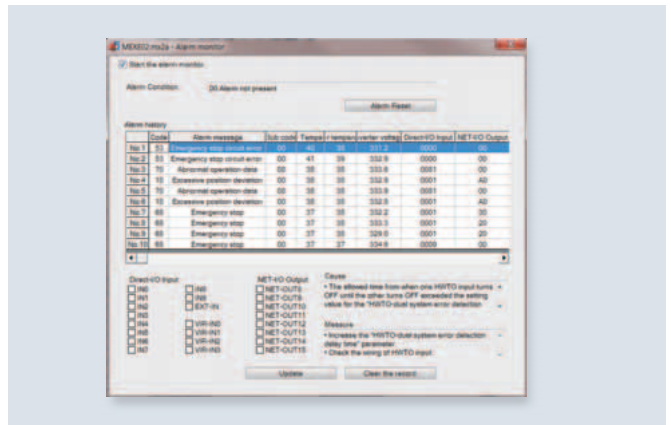
Waveform Monitoring At startup

Monitors the motor's operating status and output signal status with oscilloscope-like images. Use at equipment startup, adjustment, etc.



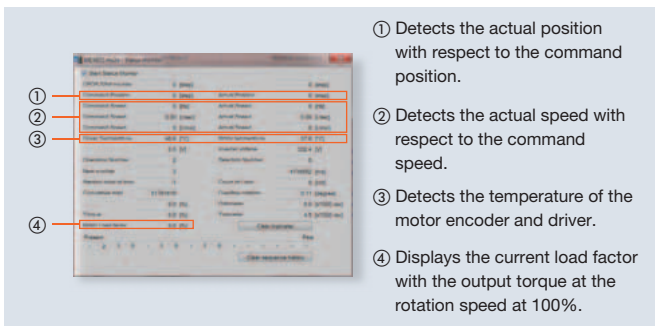
Alarm Monitoring At startup

When any abnormality occurs, the details of the abnormality, operating status and countermeasure can be verified.



Status Monitoring At startup

Besides operating speed, motor and driver temperature, load factor monitoring, and cumulative rotations, etc., can also be monitored since the start of use. The desired signals can be output for these items, allowing for efficient maintenance.



Multi-Monitoring Compatibility

Several setting screens for data setting, test operation, monitoring, etc. can be opened and used on separate screens at the same time. This makes equipment startup, adjustment, etc. easier.









Product Line

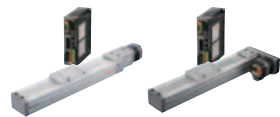
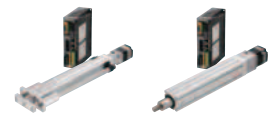

Motor and Driver Types

		Motor					
Power Supply Input	Type	Electromagnetic Brake	Frame Size				
			20 mm (0.79 in.)	28 mm (1.10 in.)	42 mm*2 (1.65 in.)	60 mm (2.36 in.)	85 mm (3.35 in.) 90 mm (3.54 in.)*3
AC Input	Standard Type	None	—	—	●	●	●
		Yes	—	—	●	●	●*4
	TS Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
	PS Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
	HPG Geared	None	—	—	●	●	●
		Yes	—	—	●	●	●
Harmonic Geared	None	—	—	●	●	●	
	Yes	—	—	●	●	●	
DC Input	Standard Type	None	●*1	●*1	●	●	—
		Yes	—	—	●	●	—
	TS Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	PS Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	HPG Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—
	Harmonic Geared	None	—	—	●	●	—
		Yes	—	—	●	●	—


*1 24 VDC only *2 HPG geared type is 40 mm (1.57 in.) *3 In geared type *4 AZM98 only

Driver	
Power Supply Input	Type
AC Input Single-Phase 100-120 VAC Single-Phase/Three-Phase 200-240 VAC	Built-in Controller Type  
	Pulse Input Type 
DC Input 24/48 VDC	Built-in Controller Type  
	Pulse Input Type 

Actuators Equipped with AZ Series

Series Name	Features	Main Specifications
QSTEP AZ Series Type Electric Linear Slides EZS Series  AC Power Supply DC Power Supply	·Small, high-rigidity ·Simple dust-resistant structure	·Stroke 50 to 850 mm ·Max. speed: 800 mm/s ·Max. transportable mass: 60 kg (horizontal), 30 kg (vertical)
QSTEP AZ Series Type Electric Cylinders EAC Series  AC Power Supply DC Power Supply	·High-speed driving is possible from light loads to heavy loads. ·Stable movement even at low speed (1.25 mm/s). ·Small, high-rigidity	·Stroke: 50 to 300 mm ·Max. speed: 600 mm/s ·Max. transportable mass: 60 kg (horizontal), 30 kg (vertical)
QSTEP AZ Series Type Hollow Rotary Actuators DGII Series  AC Power Supply	·Hollow output table makes cable and actuator wiring simple. ·Direct installation of table and arms is possible.	·Max. permissible torque: 12 N·m ·Max. permissible moment: 50 N·m ·Max. permissible axial load: 2000 N·m

Types and Features of Standard and Geared Motors

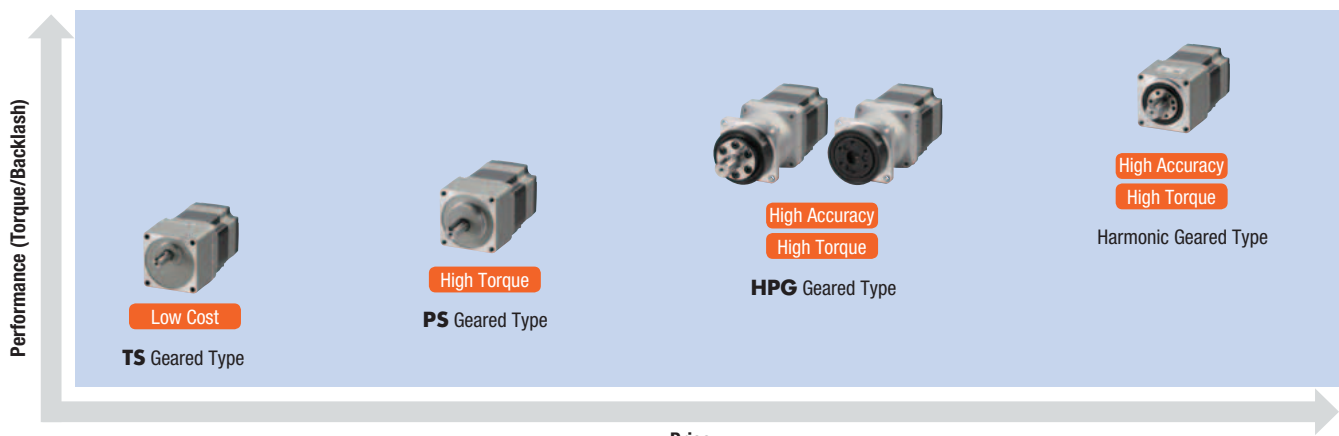
Type	Features	Permissible and Max. Instantaneous Torque [N·m (lb-in)]	Backlash [arcmin (degrees)]	Basic Resolution [deg/step]	Output Shaft Speed [r/min]
Stepper Motors AZ  Standard Type	Basic Motor of the AZ Series.	Maximum Holding Torque 4 (35)	—	0.36	6000
Slides EZS TS Geared Type (Spur gear mechanism)	A wide variety of low gear ratios, high-speed operations Gear ratios: 3.6, 7.2, 10, 20, 30	Permissible Torque: 25 (221) Max. Instantaneous Torque: 45 (398)	10 (0.17°)	0.012	833
Cylinders EAC PS Geared Type (Planetary gear mechanism)	High permissible torque/Max. instantaneous torque A wide variety of gear ratios for selecting the desired step angle Center shaft Gear ratios: 5, 7.2, 10, 25, 36, 50	Permissible Torque: 37 (327) Max. Instantaneous Torque: 60 (530)	7 (0.12°)	0.0072	600
Rotary Actuators DGI HPG Geared Type (Harmonic Planetary®)	High positioning accuracy High permissible torque/Max. instantaneous torque Center shaft Gear ratios: 5, 9, 15	Permissible Torque: 24 (212) Max. Instantaneous Torque: 33 (292)	3 (0.05°)	0.024	900
Harmonic Geared Type (Harmonic Drive®)	High positioning accuracy High permissible torque/Max. instantaneous torque High gear ratio, high resolution Center shaft Gear ratios: 50, 100	Permissible Torque: 52 (460) Max. Instantaneous Torque: 107 (947)	0	0.0036	70

Note

- Above values are for reference only. These values vary depending on the frame size and gear ratio.
- Harmonic Planetary, Harmonic Type, and  are registered trademarks or trademarks of Harmonic Drive Systems Inc.

We offer pre-assembled stepper motors with gears.

The optimal type can be selected from the available geared motors in consideration of torque, accuracy (backlash), and price.

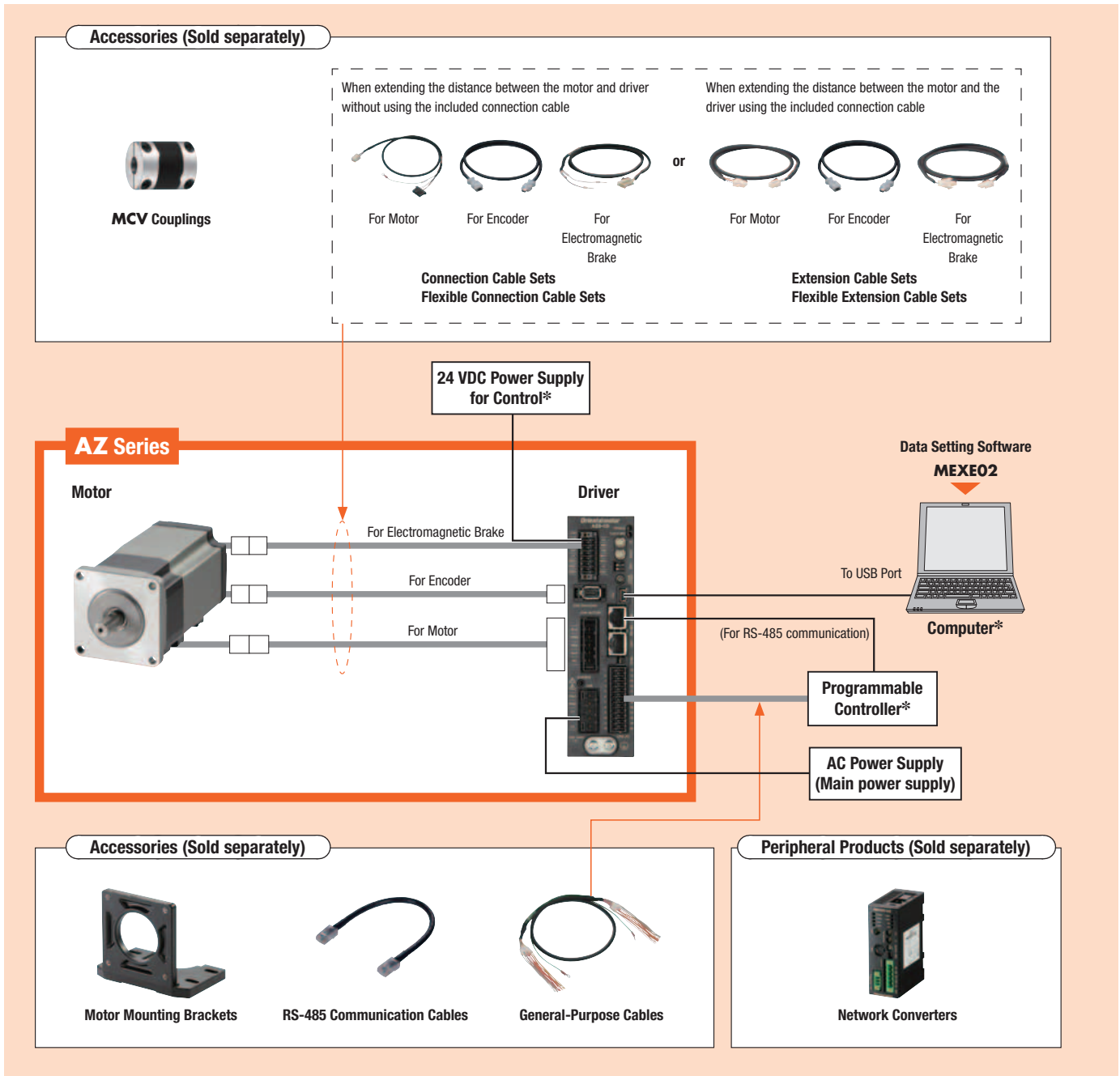


System Configuration

Built-in Controller Type, Standard Type with Electromagnetic Brake

An example of a configuration using I/O control or RS-485 communication is shown below.

* Not supplied



Example of System Configuration

AZ Series			Accessories	
Motor AZM66AC \$362.00	+	Driver AZD-CD \$588.00	+	Connection Cable Set CC030VZFB \$82.00
+				
Sold separately				
Mounting Bracket PAL2P-5 \$17.00		Flexible Coupling MCV251010 \$79.00		

The system configuration shown above is an example. Other combinations are available.

Note

The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

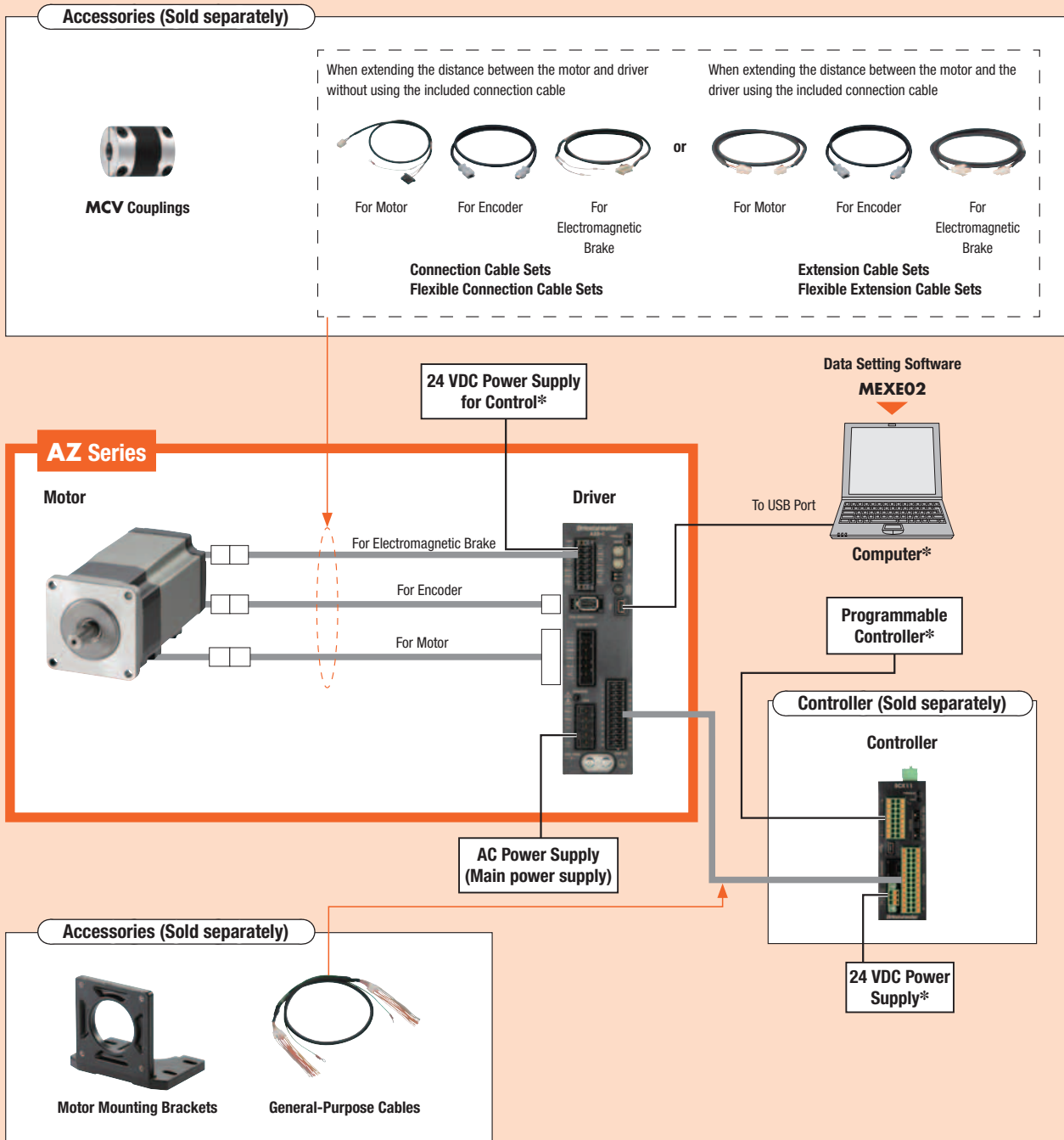
- Features
- System Configuration
- Product Line and List Price
- Specifications/ Characteristics
- AC Input
- Dimensions
- Connection and Operation
- System Configuration
- Product Line and List Price
- Specifications/ Characteristics
- DC Input
- Dimensions
- Connection and Operation
- Accessories

● Pulse Input Type, Standard Type with Electromagnetic Brake

A single-axis system configuration with the **SCX11** Series controller is shown below.

* Not supplied

- Stepper Motors
AZ
- Slides
EZS
- Cylinders
EAC
- Rotary Actuators
DGI



● Example of System Configuration

AZ Series			Accessories											
Motor AZM66AC \$362.00	+	Driver AZD-C \$531.00	+	Connection Cable Set CC030VZFB \$82.00	+									
<table border="1"> <thead> <tr> <th colspan="3">Sold separately</th> </tr> <tr> <th>Controller</th> <th>Mounting Bracket</th> <th>Flexible Coupling</th> </tr> </thead> <tbody> <tr> <td>SCX11 \$349.00</td> <td>PAL2P-5 \$17.00</td> <td>MCV251010 \$79.00</td> </tr> </tbody> </table>						Sold separately			Controller	Mounting Bracket	Flexible Coupling	SCX11 \$349.00	PAL2P-5 \$17.00	MCV251010 \$79.00
Sold separately														
Controller	Mounting Bracket	Flexible Coupling												
SCX11 \$349.00	PAL2P-5 \$17.00	MCV251010 \$79.00												

● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

Product Number Code

● Motor

◇ Standard Type

AZM 6 6 A C

① ② ③ ④ ⑤

◇ TS, PS, HPG, Harmonic Geared Type

AZM 6 6 A C - HP 15 F

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

● Driver

AZD - C D

① ② ③

● Connection Cable Set / Flexible Connection Cable Set

CC 050 V Z F B

① ② ③ ④ ⑤ ⑥

①	Motor Type	AZM: AZ Series Motor
②	Motor Frame Size	4: 42 mm (1.65 in.) (HPG Geared Type: 40 mm (1.57 in.)) 6: 60 mm (2.36 in.) 9: 85 mm (3.35 in.) (Geared Type: 90 mm (3.54 in.))
③	Motor Case Length	
④	Output Shaft Configuration	A: Single Shaft M: Electromagnetic Brake Type
⑤	Motor Specifications	C: AC Power Supply Input Specifications
⑥	Gear Type	TS: TS Geared Type PS: PS Geared Type HP: HPG Geared Type HS: Harmonic Geared Type
⑦	Gear Ratio	
⑧	Output Shaft Type	HPG Geared Type Blank: Shaft Output F: Flange Output

①	Driver Type	AZD: AZ Series Driver
②	Power Supply Input	A: Single-Phase 100-120 VAC C: Single-Phase/Three-Phase 200-240 VAC
③	Type	D: Built-in Controller Type Blank: Pulse Input Type

①		CC: Cable
②	Length	010: 1 m (3.3 ft.) 020: 2 m (6.6 ft.) 030: 3 m (9.8 ft.) 050: 5 m (16.4 ft.) 070: 7 m (23 ft.) 100: 10 m (32.8 ft.) 150: 15 m (49.2 ft.) 200: 20 m (65.6 ft.)
③	Reference Number	
④	Applicable Product	Z: AZ Series
⑤	Cable Type	F: Connection Cable Set R: Flexible Connection Cable Set
⑥	Description	Blank: Without Electromagnetic Brake B: With Electromagnetic Brake

Features

System Configuration and List Price

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration and List Price

Product Line and List Price

DC Input

Specifications/Characteristics

Dimensions

Connection and Operation

Accessories

Product Line and List Price

Motor

Standard Type



Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AC	\$307.00
	AZM66AC	\$362.00
	AZM69AC	\$367.00
85 mm (3.35 in.)	AZM98AC	\$390.00
	AZM911AC	\$412.00

Standard Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MC	\$466.00
	AZM66MC	\$565.00
	AZM69MC	\$571.00
85 mm (3.35 in.)	AZM98MC	\$616.00

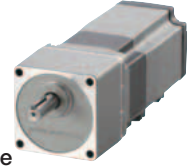
Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

TS Geared Type



Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AC-TS3.6	\$441.00
	AZM46AC-TS7.2	\$441.00
	AZM46AC-TS10	\$457.00
	AZM46AC-TS20	\$457.00
	AZM46AC-TS30	\$457.00
60 mm (2.36 in.)	AZM66AC-TS3.6	\$519.00
	AZM66AC-TS7.2	\$519.00
	AZM66AC-TS10	\$534.00
	AZM66AC-TS20	\$534.00
	AZM66AC-TS30	\$534.00
90 mm (3.54 in.)	AZM98AC-TS3.6	\$573.00
	AZM98AC-TS7.2	\$573.00
	AZM98AC-TS10	\$589.00
	AZM98AC-TS20	\$589.00
	AZM98AC-TS30	\$589.00

TS Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MC-TS3.6	\$599.00
	AZM46MC-TS7.2	\$599.00
	AZM46MC-TS10	\$615.00
	AZM46MC-TS20	\$615.00
	AZM46MC-TS30	\$615.00
60 mm (2.36 in.)	AZM66MC-TS3.6	\$722.00
	AZM66MC-TS7.2	\$722.00
	AZM66MC-TS10	\$738.00
	AZM66MC-TS20	\$738.00
	AZM66MC-TS30	\$738.00
90 mm (3.54 in.)	AZM98MC-TS3.6	\$799.00
	AZM98MC-TS7.2	\$799.00
	AZM98MC-TS10	\$815.00
	AZM98MC-TS20	\$815.00
	AZM98MC-TS30	\$815.00

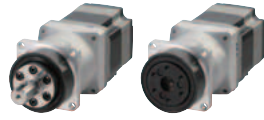
PS Geared Type



Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AC-PS5	\$567.00
	AZM46AC-PS7.2	\$567.00
	AZM46AC-PS10	\$567.00
	AZM46AC-PS25	\$624.00
	AZM46AC-PS36	\$624.00
	AZM46AC-PS50	\$624.00
60 mm (2.36 in.)	AZM66AC-PS5	\$678.00
	AZM66AC-PS7.2	\$678.00
	AZM66AC-PS10	\$678.00
	AZM66AC-PS25	\$757.00
	AZM66AC-PS36	\$757.00
	AZM66AC-PS50	\$757.00
90 mm (3.54 in.)	AZM98AC-PS5	\$785.00
	AZM98AC-PS7.2	\$785.00
	AZM98AC-PS10	\$785.00
	AZM98AC-PS25	\$921.00
	AZM98AC-PS36	\$921.00
	AZM98AC-PS50	\$921.00

PS Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MC-PS5	\$725.00
	AZM46MC-PS7.2	\$725.00
	AZM46MC-PS10	\$725.00
	AZM46MC-PS25	\$782.00
	AZM46MC-PS36	\$782.00
	AZM46MC-PS50	\$782.00
60 mm (2.36 in.)	AZM66MC-PS5	\$881.00
	AZM66MC-PS7.2	\$881.00
	AZM66MC-PS10	\$881.00
	AZM66MC-PS25	\$961.00
	AZM66MC-PS36	\$961.00
	AZM66MC-PS50	\$961.00
90 mm (3.54 in.)	AZM98MC-PS5	\$1,011.00
	AZM98MC-PS7.2	\$1,011.00
	AZM98MC-PS10	\$1,011.00
	AZM98MC-PS25	\$1,147.00
	AZM98MC-PS36	\$1,147.00
	AZM98MC-PS50	\$1,147.00



◇ HPG Geared Type

Frame Size	Product Name	List Price
40 mm (1.57 in.)	AZM46AC-HP5	\$669.00
	AZM46AC-HP5F	\$658.00
	AZM46AC-HP9	\$669.00
	AZM46AC-HP9F	\$658.00
60 mm (2.36 in.)	AZM66AC-HP5	\$904.00
	AZM66AC-HP5F	\$887.00
	AZM66AC-HP15	\$1,079.00
	AZM66AC-HP15F	\$1,053.00
90 mm (3.54 in.)	AZM98AC-HP5	\$1,139.00
	AZM98AC-HP5F	\$1,116.00
	AZM98AC-HP15	\$1,264.00
	AZM98AC-HP15F	\$1,242.00

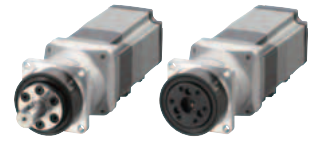
◇ Harmonic Geared Type

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AC-HS50	\$901.00
	AZM46AC-HS100	\$901.00
60 mm (2.36 in.)	AZM66AC-HS50	\$1,215.00
	AZM66AC-HS100	\$1,215.00
90 mm (3.54 in.)	AZM98AC-HS50	\$1,458.00
	AZM98AC-HS100	\$1,458.00

● Driver

◇ Built-in Controller Type

Power Supply Input	Product Name	List Price
Single-Phase 100-120 VAC	AZD-AD	\$588.00
Single-Phase/Three-Phase 200-240 VAC	AZD-CD	\$588.00



◇ HPG Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
40 mm (1.57 in.)	AZM46MC-HP5	\$827.00
	AZM46MC-HP5F	\$816.00
	AZM46MC-HP9	\$827.00
	AZM46MC-HP9F	\$816.00
60 mm (2.36 in.)	AZM66MC-HP5	\$1,107.00
	AZM66MC-HP5F	\$1,090.00
	AZM66MC-HP15	\$1,274.00
	AZM66MC-HP15F	\$1,257.00
90 mm (3.54 in.)	AZM98MC-HP5	\$1,365.00
	AZM98MC-HP5F	\$1,342.00
	AZM98MC-HP15	\$1,490.00
	AZM98MC-HP15F	\$1,468.00

◇ Harmonic Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MC-HS50	\$1,059.00
	AZM46MC-HS100	\$1,059.00
60 mm (2.36 in.)	AZM66MC-HS50	\$1,418.00
	AZM66MC-HS100	\$1,418.00
90 mm (3.54 in.)	AZM98MC-HS50	\$1,684.00
	AZM98MC-HS100	\$1,684.00



◇ Pulse Input Type

Power Supply Input	Product Name	List Price
Single-Phase 100-120 VAC	AZD-A	\$531.00
Single-Phase/Three-Phase 200-240 VAC	AZD-C	\$531.00

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/Characteristics

Dimensions

Connection and Operation

Accessories

DC Input

● Connection Cable Set / Flexible Connection Cable Set



- Stepper Motors
AZ
- Slides
EZS
- Cylinders
EAC
- Rotary Actuators
DGI

◇ Without Electromagnetic Brake

Type	Length L m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VZF	\$35.00
	2 (6.6)	CC020VZF	\$50.00
	3 (9.8)	CC030VZF	\$62.00
	5 (16.4)	CC050VZF	\$110.00
	7 (23.0)	CC070VZF	\$136.00
	10 (32.8)	CC100VZF	\$176.00
	15 (49.2)	CC150VZF	\$243.00
	20 (65.6)	CC200VZF	\$310.00
Flexible Connection Cable Sets	1 (3.3)	CC010VZR	\$84.00
	2 (6.6)	CC020VZR	\$99.00
	3 (9.8)	CC030VZR	\$111.00
	5 (16.4)	CC050VZR	\$141.00
	7 (23.0)	CC070VZR	\$180.00
	10 (32.8)	CC100VZR	\$236.00
	15 (49.2)	CC150VZR	\$332.00
	20 (65.6)	CC200VZR	\$426.00

◇ Electromagnetic Brake

Type	Length L m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VZFB	\$52.00
	2 (6.6)	CC020VZFB	\$67.00
	3 (9.8)	CC030VZFB	\$82.00
	5 (16.4)	CC050VZFB	\$135.00
	7 (23.0)	CC070VZFB	\$166.00
	10 (32.8)	CC100VZFB	\$213.00
	15 (49.2)	CC150VZFB	\$293.00
	20 (65.6)	CC200VZFB	\$372.00
Flexible Connection Cable Sets	1 (3.3)	CC010VZRB	\$114.00
	2 (6.6)	CC020VZRB	\$134.00
	3 (9.8)	CC030VZRB	\$151.00
	5 (16.4)	CC050VZRB	\$191.00
	7 (23.0)	CC070VZRB	\$240.00
	10 (32.8)	CC100VZRB	\$311.00
	15 (49.2)	CC150VZRB	\$432.00
	20 (65.6)	CC200VZRB	\$551.00

■ Included

● Motor

Unit = mm (in.)

Type	Included	Parallel Key	Motor Installation Screws	Operating Manual
Standard		—	—	1 pc
TS Geared	Frame Size 42 mm (1.65)	—	—	
	Frame Size 60 mm (2.36)	1 pc	M4×60 P0.7 (4 pcs)	
	Frame Size 90 mm (3.54)	1 pc	M8×90 P1.25 (4 pcs)	
PS Geared		1 pc	—	
HPG Geared	Shaft Output	1 pc	—	
	Flange Output	—	—	
Harmonic Geared		1 pc	—	

● Driver

Type	Included	Connector	Operating Manual
Built-in Controller Type Pulse Input Type		<ul style="list-style-type: none"> • CN4 connector (1 pc) • CN1 connector (1 pc) • CN5 connector (1 pc) • Connector wiring lever (1 pc) 	1 pc

Standard Type Frame Size 42 mm (1.65 in.), 60 mm (2.36 in.), 85 mm (3.35 in.)



Specifications

Motor	Single Shaft	AZM46AC	AZM66AC	AZM69AC	AZM98AC	AZM911AC	
	Electromagnetic Brake	AZM46MC	AZM66MC	AZM69MC	AZM98MC	–	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)		AZD-CD (Single-phase/Three-Phase 200-240 VAC)			
	Pulse Input	AZD-A (Single-phase 100-120 VAC)		AZD-C (Single-phase/Three-Phase 200-240 VAC)			
Maximum Holding Torque	N·m (oz·in)	0.3 (42)	1.2 (170)	2 (280)	2 (280)	4 (560)	
Holding Torque at Standstill	Power ON	0.15 (21)	0.6 (85)	1 (142)	1 (142)	2 (280)	
	Electromagnetic Brake	0.15 (21)	0.6 (85)	1 (142)	1 (142)	–	
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.39)]*1	370×10 ⁻⁷ (2) [530×10 ⁻⁷ (2.9)]*1	740×10 ⁻⁷ (4) [900×10 ⁻⁷ (4.9)]*1	1090×10 ⁻⁷ (6) [1250×10 ⁻⁷ (6.8)]*1	2200×10 ⁻⁷ (12)	
Resolution	Set to 1000 P/R	0.36°/Pulse					
Power Supply Input	Voltage/Frequency	Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC –15~+6% 50/60 Hz			
	Input	Single-phase 100-120 VAC	2.7	3.8	5.4	5.5	6.4
	Current	Single-Phase 200-240 VAC	1.7	2.3	3.3	3.3	3.9
	A	Three-Phase 200-240 VAC	1.0	1.4	2.0	2.0	2.3
Control Power Supply		24 VDC±5%*2 0.25 A [0.33 A]*1		24 VDC±5%*2 0.25 A [0.5 A]*1			

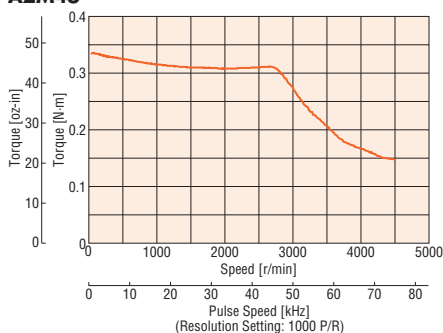
● For detailed information regarding standards, please visit the Oriental Motor website.

*1 The brackets [] indicate the specifications for the electromagnetic brake type.

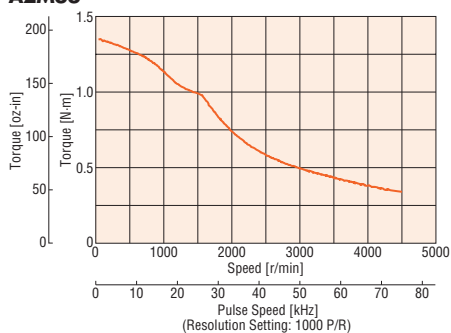
*2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

Speed – Torque Characteristics (Reference values)

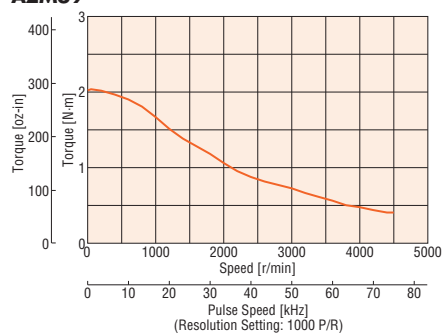
AZM46



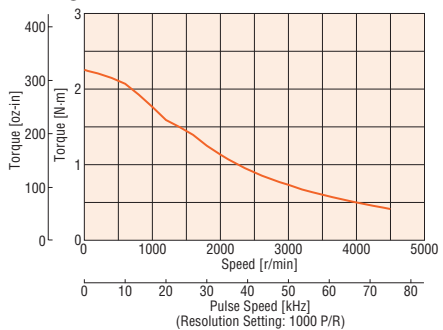
AZM66



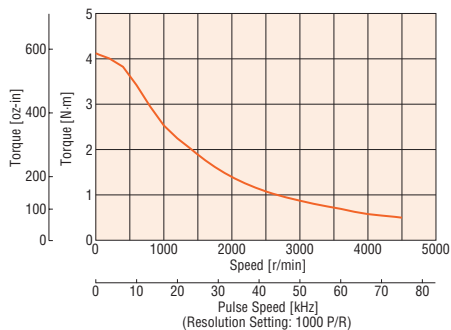
AZM69



AZM98



AZM911



Note

● Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Explanation of Terms in Specifications Table

Maximum Holding Torque : The maximum holding torque (holding force) the motor has when power (rated current) is being supplied but the motor shaft is at standstill. (With geared types, the value of holding torque considers the permissible strength of the gear.)

Permissible Torque : This is the maximum torque continuously applied to the gear output shaft.

Max. Instantaneous Torque : This is the maximum torque that can be applied to the gear output shaft during acceleration/deceleration, such as when an inertial load is started and stopped.

Holding Torque at Standstill When Power is ON : This is the holding torque when the automatic current cutback function is activated.

Electromagnetic Brake : This is the static friction torque that the electromagnetic brake can generate at rest. (Electromagnetic brake is power off activated type.)

Features

System Configuration

Product Line and List Price

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

DC Input

Dimensions

Connection and Operation

Accessories

TS Geared Type Frame Size 42 mm (1.65 in.)



Specifications

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary Actuators
DGI

Motor	Single Shaft	AZM46AC-TS3.6	AZM46AC-TS7.2	AZM46AC-TS10	AZM46AC-TS20	AZM46AC-TS30	
	Electromagnetic Brake	AZM46MC-TS3.6	AZM46MC-TS7.2	AZM46MC-TS10	AZM46MC-TS20	AZM46MC-TS30	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	0.65 (5)	1.2 (10)	1.7 (15)	2 (17)	2.3 (20)	
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.39)]* ¹					
Gear Ratio		3.6	7.2	10	20	30	
Resolution	Set to 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse	
Permissible Torque	N·m (lb·in)	0.65 (5)	1.2 (10)	1.7 (15)	2 (17)	2.3 (20)	
Max. Instantaneous Torque	N·m (lb·in)	0.85 (7)	1.6 (14)	2 (17)	3 (26)		
Holding Torque at Standstill	Power ON	N·m (lb·in)	0.54 (4)	1 (8)	1.5 (13)	1.9 (16)	2.2 (19)
	Electromagnetic Brake	N·m (lb·in)	0.54 (4)	1 (8)	1.5 (13)	1.9 (16)	2.2 (19)
Speed Range	r/min	0~833	0~416	0~300	0~150	0~100	
Backlash	arcmin (degrees)	45 (0.75°)	25 (0.42°)		15 (0.25°)		
Power Supply	Voltage/Frequency		Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC	-15~+6% 50/60 Hz	
	Input	Single-phase 100-120 VAC					
	Current	Single-phase 200-240 VAC	2.7				
	A	Three-Phase 200-240 VAC	1.7				
Control Power Supply		24 VDC±5%* ² 0.25 A [0.33 A]* ¹					

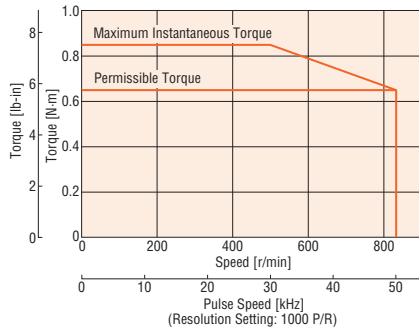
● For detailed information regarding standards, please visit the Oriental Motor website.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

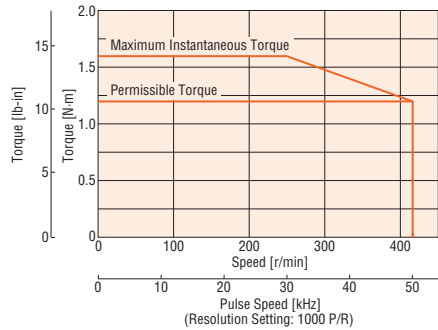
*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

Speed – Torque Characteristics (Reference values)

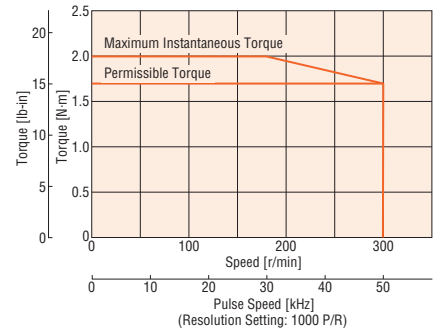
AZM46 Gear Ratio 3.6



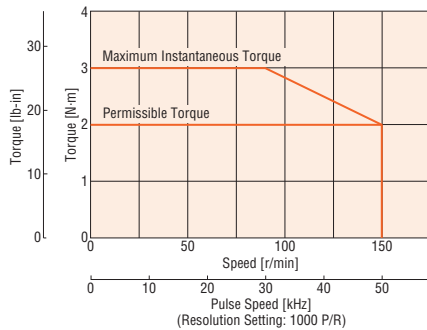
AZM46 Gear Ratio 7.2



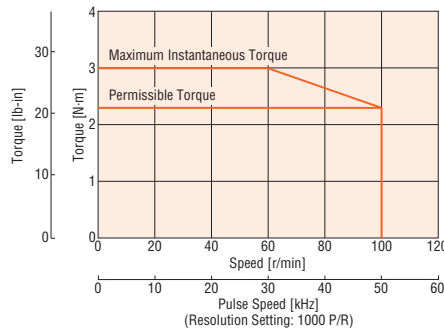
AZM46 Gear Ratio 10



AZM46 Gear Ratio 20



AZM46 Gear Ratio 30



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

TS Geared Type Frame Size 60 mm (2.36 in.)

Specifications



Motor	Single Shaft	AZM66AC-TS3.6	AZM66AC-TS7.2	AZM66AC-TS10	AZM66AC-TS20	AZM66AC-TS30	
	Electromagnetic Brake	AZM66MC-TS3.6	AZM66MC-TS7.2	AZM66MC-TS10	AZM66MC-TS20	AZM66MC-TS30	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	1.8 (15)	3 (26)	4 (35)	5 (44)	6 (53)	
Rotor Inertia	J: kg·m ² (oz·in ²)	370 × 10 ⁻⁷ (2) [530 × 10 ⁻⁷ (2.9)]* ¹					
Gear Ratio		3.6	7.2	10	20	30	
Resolution	Set to 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse	
Permissible Torque	N·m (lb·in)	1.8 (15)	3 (26)	4 (35)	5 (44)	6 (53)	
Max. Instantaneous Torque*	N·m (lb·in)	*	4.5 (39)	6 (53)	8 (70)	10 (88)	
Holding Torque at Standstill	Power ON	N·m (lb·in)	1.3 (11)	2.6 (23)	3.7 (32)	5 (44)	6 (53)
	Electromagnetic Brake	N·m (lb·in)	1.3 (11)	2.6 (23)	3.7 (32)	5 (44)	6 (53)
Speed Range	r/min	0~833	0~416	0~300	0~150	0~100	
Backlash	arcmin (degrees)	35 (0.59°)	15 (0.25°)		10 (0.17°)		
Power Supply Input	Voltage/Frequency		Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC		
	Input	Single-phase 100-120 VAC	3.8				
	Current	Single-phase 200-240 VAC	2.3				
	A	Three-Phase 200-240 VAC	1.4				
Control Power Supply		24 VDC ± 5%* ² 0.25 A [0.5 A]* ¹					

* For the geared motor output torque, refer to the speed – torque characteristics.

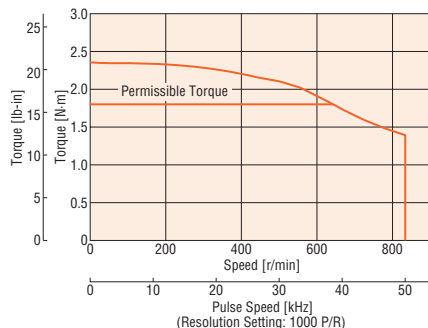
● For detailed information regarding standards, please visit the Oriental Motor website.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

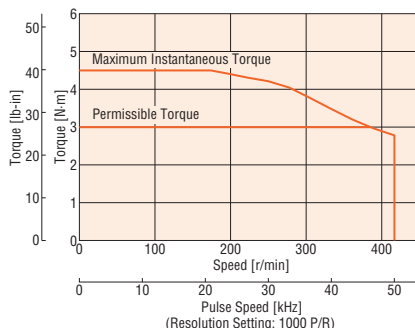
*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

Speed – Torque Characteristics (Reference values)

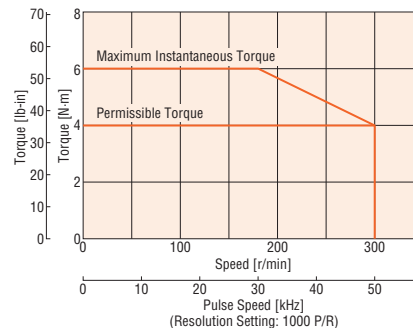
AZM66 Gear Ratio 3.6



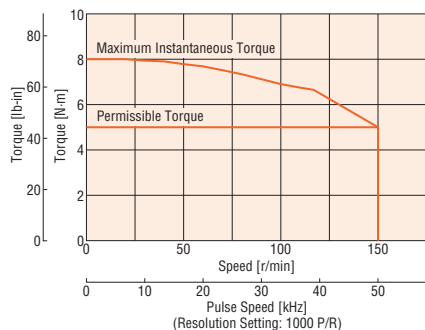
AZM66 Gear Ratio 7.2



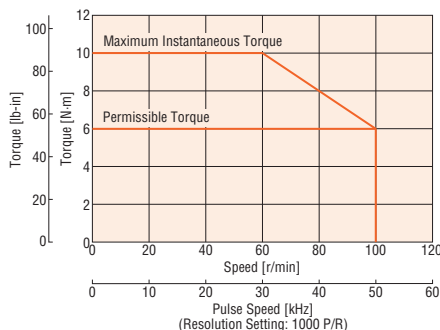
AZM66 Gear Ratio 10



AZM66 Gear Ratio 20



AZM66 Gear Ratio 30



Note

● Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (175°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Features

System Configuration

Product Line and List Price

AC Input Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

TS Geared Type Frame Size 90 mm (3.54 in.)



Specifications

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

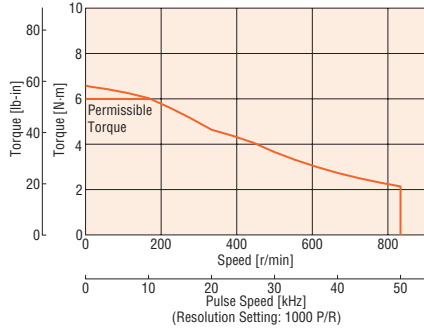
Rotary Actuators
DGI

Motor	Single Shaft	AZM98AC-TS3.6	AZM98AC-TS7.2	AZM98AC-TS10	AZM98AC-TS20	AZM98AC-TS30	
	Electromagnetic Brake	AZM98MC-TS3.6	AZM98MC-TS7.2	AZM98MC-TS10	AZM98MC-TS20	AZM98MC-TS30	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	6 (53)	10 (88)	14 (123)	20 (177)	25 (220)	
Rotor Inertia	J: kg·m ² (oz·in ²)	1090 × 10 ⁻⁷ (6) [1250 × 10 ⁻⁷ (6.8)]* ¹					
Gear Ratio		3.6	7.2	10	20	30	
Resolution	Set to 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse	
Permissible Torque	N·m (lb·in)	6 (53)	10 (88)	14 (123)	20 (177)	25 (220)	
Max. Instantaneous Torque*	N·m (lb·in)	*	*	20 (177)	*	45 (398)	
Holding Torque at Standstill	Power ON	N·m (lb·in)	3.6 (31)	7.2 (63)	10 (88)	20 (177)	25 (220)
	Electromagnetic Brake	N·m (lb·in)	3.6 (31)	7.2 (63)	10 (88)	20 (177)	25 (220)
Speed Range	r/min	0~833	0~416	0~300	0~150	0~100	
Backlash	arcmin (degrees)	25 (0.42°)	15 (0.25°)		10 (0.17°)		
Power Supply Input	Voltage/Frequency		Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC -15~+6% 50/60 Hz		
	Input	Single-phase 100-120 VAC	5.5				
	Current	Single-phase 200-240 VAC	3.3				
Control Power Supply	A	Three-Phase 200-240 VAC		2.0			
			24 VDC ± 5%* ² 0.25 A [0.5 A]* ¹				

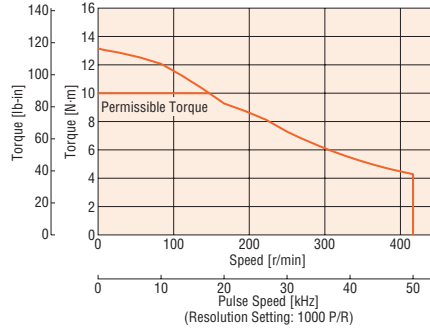
- * For the geared motor output torque, refer to the speed – torque characteristics.
- For detailed information regarding standards, please visit the Oriental Motor website.
- *1 The brackets [] indicate the specifications for the electromagnetic brake type.
- *2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

Speed – Torque Characteristics (Reference values)

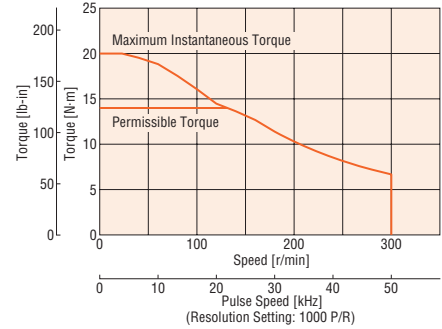
AZM98 Gear Ratio 3.6



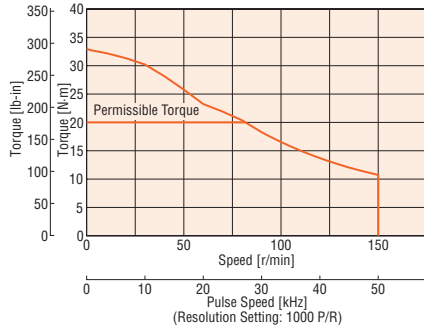
AZM98 Gear Ratio 7.2



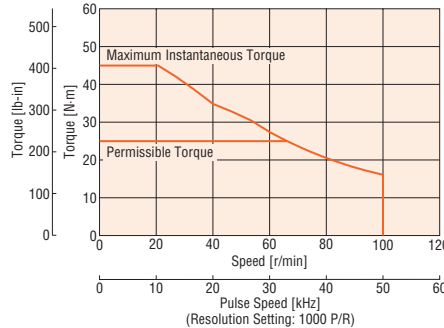
AZM98 Gear Ratio 10



AZM98 Gear Ratio 20



AZM98 Gear Ratio 30



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

PS Geared Type Frame Size 42 mm (1.65 in.)

Specifications



Motor	Single Shaft	AZM46AC-PS5	AZM46AC-PS7.2	AZM46AC-PS10	AZM46AC-PS25	AZM46AC-PS36	AZM46AC-PS50
	Electromagnetic Brake	AZM46MC-PS5	AZM46MC-PS7.2	AZM46MC-PS10	AZM46MC-PS25	AZM46MC-PS36	AZM46MC-PS50
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)		
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.3) [71×10 ⁻⁷ (0.39)]* ¹					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Set to 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse	0.0144°/Pulse	0.01°/Pulse	0.0072°/Pulse
Permissible Torque	N·m (lb·in)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)		
Max. Instantaneous Torque	N·m (lb·in)	1.5 (13.2)	2 (17.7)	6 (53.1)			
Holding Torque at Standstill	Power ON	N·m (lb·in)	0.75 (6.6)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)
	Electromagnetic Brake	N·m (lb·in)	0.75 (6.6)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)
Speed Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60
Backlash	arcmin (degrees)	15 (0.25°)					
Power Supply Input	Voltage/Frequency		Single-phase 100-120 VAC Single-phase/Three-Phase 200-240 VAC -15~+6% 50/60 Hz				
	Input	Single-phase 100-120 VAC					
	Current	Single-phase 200-240 VAC	2.7				
	A	Three-Phase 200-240 VAC	1.7				
Control Power Supply		24 VDC±5%* ² 0.25 A [0.33 A]* ¹					

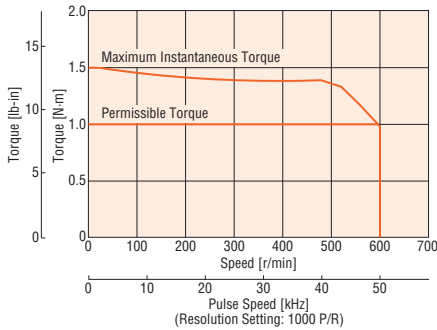
● For detailed information regarding standards, please visit the Oriental Motor website.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

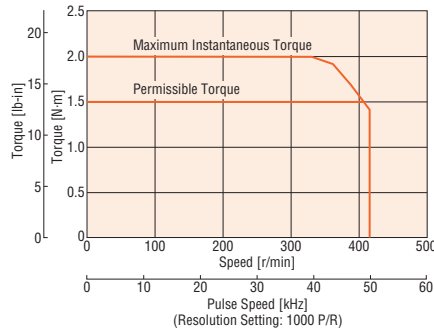
*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

Speed – Torque Characteristics (Reference values)

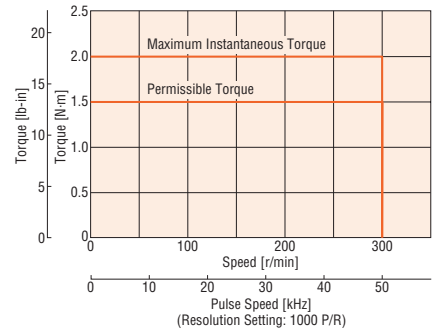
AZM46 Gear Ratio 5



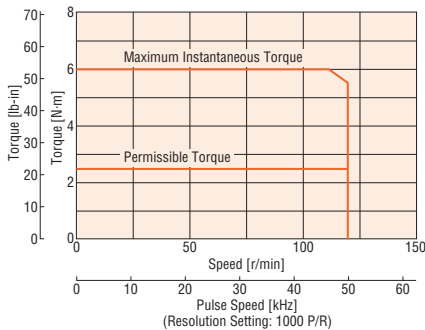
AZM46 Gear Ratio 7.2



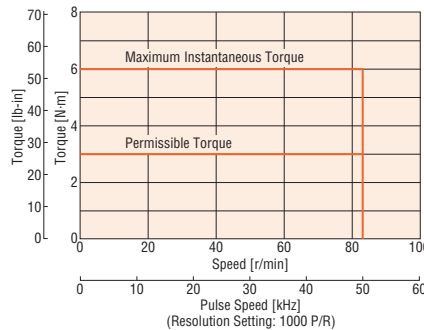
AZM46 Gear Ratio 10



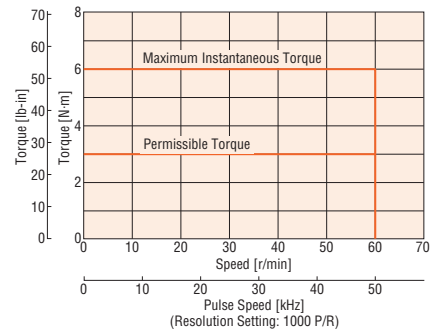
AZM46 Gear Ratio 25



AZM46 Gear Ratio 36



AZM46 Gear Ratio 50



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (175°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Features

System Configuration

Product Line and List Price

AC Input Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

PS Geared Type Frame 60 mm (2.36 in.)



Specifications

Stepper Motors
AZ

Slides
EZS

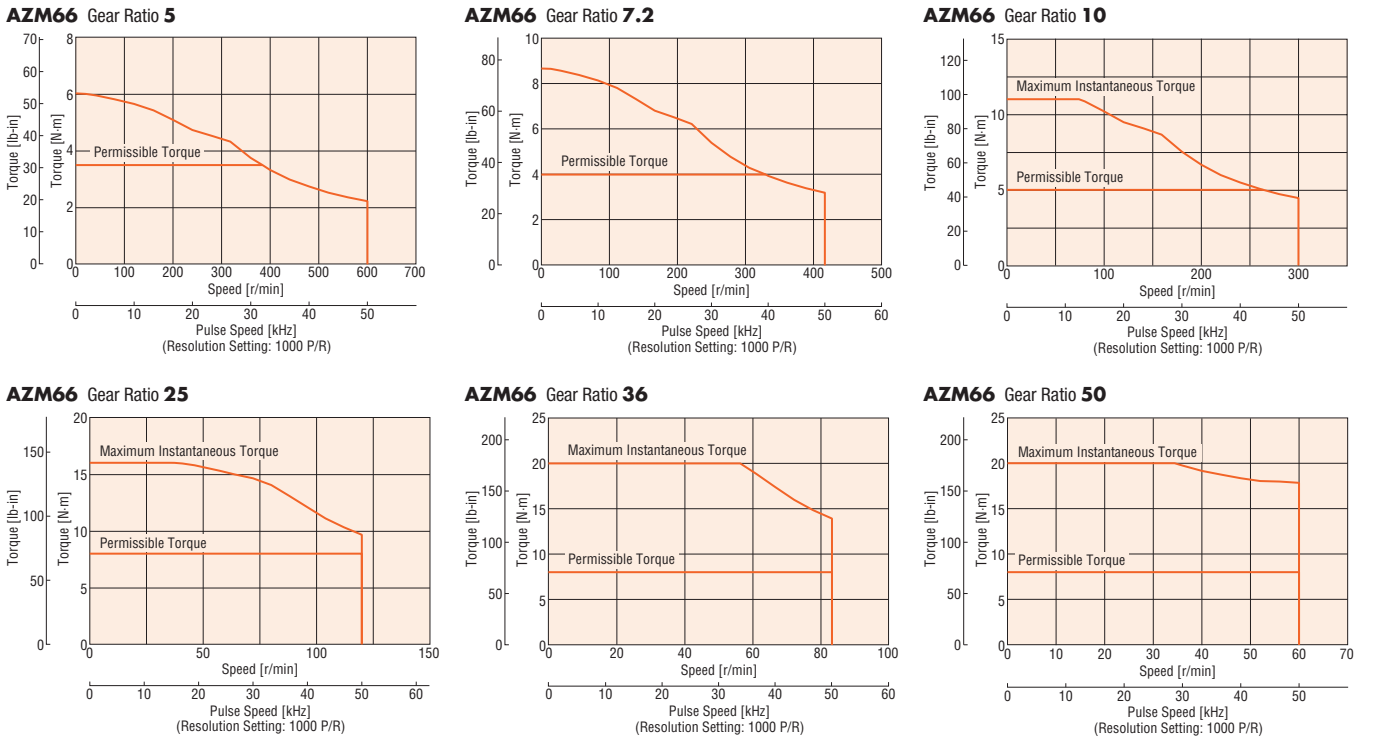
Cylinders
EAC

Rotary Actuators
DGI

Motor	Single Shaft	AZM66AC-PS5	AZM66AC-PS7.2	AZM66AC-PS10	AZM66AC-PS25	AZM66AC-PS36	AZM66AC-PS50
	Electromagnetic Brake	AZM66MC-PS5	AZM66MC-PS7.2	AZM66MC-PS10	AZM66MC-PS25	AZM66MC-PS36	AZM66MC-PS50
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	3.5 (30)	4 (35)	5 (44)	8 (70)		
Rotor Inertia	J: kg·m ² (oz·in ²)	370 × 10 ⁻⁷ (2) [530 × 10 ⁻⁷ (2.9)]* ¹					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Set to 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse	0.0144°/Pulse	0.01°/Pulse	0.0072°/Pulse
Permissible Torque	N·m (lb·in)	3.5 (30)	4 (35)	5 (44)	8 (70)		
Max. Instantaneous Torque*	N·m (lb·in)	*	*	11 (97.3)	16 (141)	20 (177)	
Holding Torque at Standstill	Power ON	3 (26)	4 (35)	5 (44)	8 (70)		
	Electromagnetic Brake	3 (26)	4 (35)	5 (44)	8 (70)		
Speed Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60
Backlash	arcmin (degrees)	7 (0.12°)			9 (0.15°)		
Power Supply Input	Voltage/Frequency	Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC		-15~+6% 50/60 Hz	
	Input Current	Single-phase 100-120 VAC		3.8			
	Input A	Single-phase 200-240 VAC		2.3			
Control Power Supply		24 VDC ± 5%* ² 0.25 A [0.5 A]* ¹					

- * For the geared motor output torque, refer to the speed – torque characteristics.
- For detailed information regarding standards, please visit the Oriental Motor website.
- *¹ The brackets [] indicate the specifications for the electromagnetic brake type.
- *² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

Speed – Torque Characteristics (Reference values)



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

PS Geared Type Frame Size 90 mm (3.54 in.)

Specifications

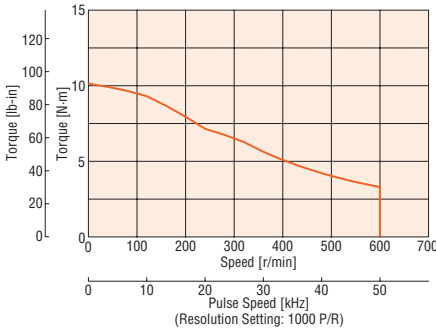


Motor	Single Shaft	AZM98AC-PS5	AZM98AC-PS7.2	AZM98AC-PS10	AZM98AC-PS25	AZM98AC-PS36	AZM98AC-PS50	
	Electromagnetic Brake	AZM98MC-PS5	AZM98MC-PS7.2	AZM98MC-PS10	AZM98MC-PS25	AZM98MC-PS36	AZM98MC-PS50	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)			
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)			
Maximum Holding Torque	N·m (lb·in)	10 (88)	14 (123)	20 (177)	37 (320)			
Rotor Inertia	J: kg·m ² (oz·in ²)	1090 × 10 ⁻⁷ (6) [1250 × 10 ⁻⁷ (6.8)]*1						
Gear Ratio		5	7.2	10	25	36	50	
Resolution	Set to 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse	0.0144°/Pulse	0.01°/Pulse	0.0072°/Pulse	
Permissible Torque*	N·m (lb·in)	*	*	20 (177)	37 (327)			
Max. Instantaneous Torque*	N·m (lb·in)	*	*	*	*	60 (531)		
Holding Torque at Standstill	Power ON	N·m (lb·in)	5 (44)	7.2 (63)	10 (88)	25 (220)	36 (310)	37 (320)
	Electromagnetic Brake	N·m (lb·in)	5 (44)	7.2 (63)	10 (88)	25 (220)	36 (310)	37 (320)
Speed Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60	
Backlash	arcmin (degrees)	7 (0.12°)			9 (0.15°)			
Power Supply Input	Voltage/Frequency		Single-phase 100-120 VAC Single-phase/Three-Phase 200-240 VAC					-15~+6% 50/60 Hz
	Input	Single-phase 100-120 VAC						5.5
	Current	Single-phase 200-240 VAC						3.3
	A	Three-Phase 200-240 VAC						2.0
Control Power Supply		24 VDC ± 5%*2 0.25 A [0.5 A]*1						

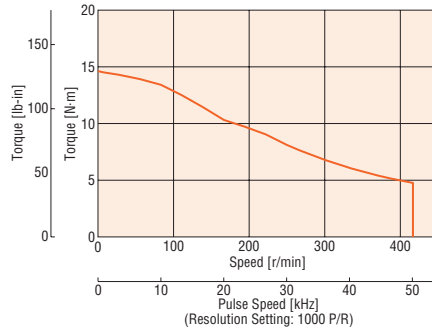
- * For the geared motor output torque, refer to the speed – torque characteristics.
- For detailed information regarding standards, please visit the Oriental Motor website.
- *1 The brackets [] indicate the specifications for the electromagnetic brake type.
- *2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

Speed – Torque Characteristics (Reference values)

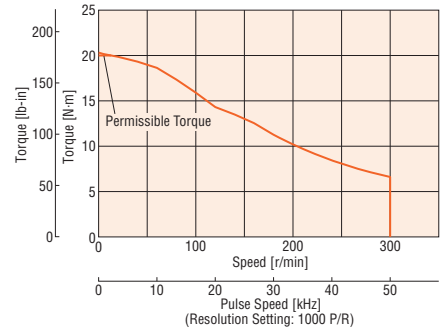
AZM98 Gear Ratio 5



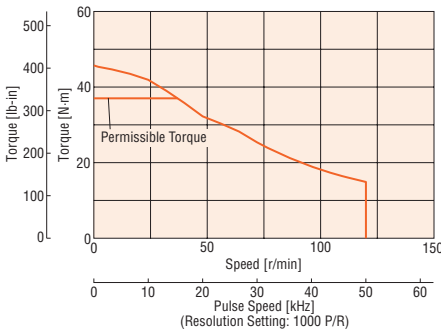
AZM98 Gear Ratio 7.2



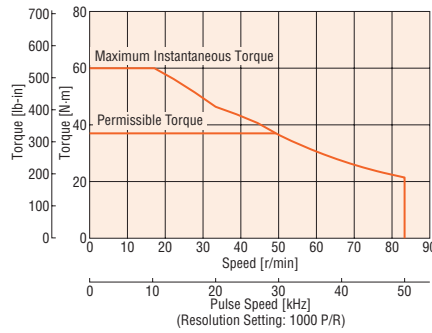
AZM98 Gear Ratio 10



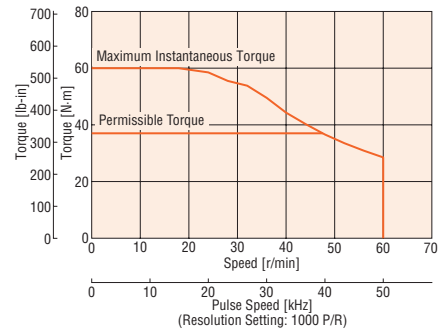
AZM98 Gear Ratio 25



AZM98 Gear Ratio 36



AZM98 Gear Ratio 50



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Features

System Configuration

Product Line and List Price

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/Characteristics

Dimensions

Connection and Operation

Accessories

HPG Geared Type Frame Size 40 mm (1.57 in.), 60 mm (2.36 in.), 90 mm (3.54 in.)



Specifications

Stepper Motors
AZ

Slides
EVS

Cylinders
EAC

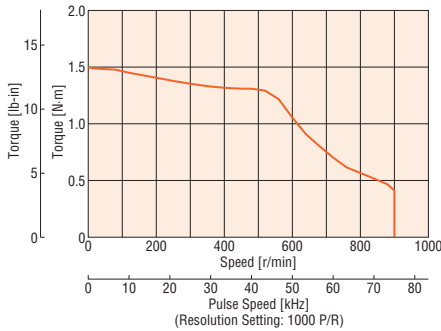
Rotary Actuators
DGI

Motor	Single Shaft	AZM46AC-HP5	AZM46AC-HP9	AZM66AC-HP5	AZM66AC-HP15	AZM98AC-HP5	AZM98AC-HP15	
	Electromagnetic Brake	AZM46MC-HP5	AZM46MC-HP9	AZM66MC-HP5	AZM66MC-HP15	AZM98MC-HP5	AZM98MC-HP15	
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)				AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)				AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N-m (lb-in)	1.5 (13.2)	2.5 (22)	5.9 (52)	9 (79)	10 (88)	24 (210)	
Rotor Inertia	J: kg-m ² (oz-in ²)	55 × 10 ⁻⁷ (0.30) [71 × 10 ⁻⁷ (0.38)]*1		370 × 10 ⁻⁷ (2) [530 × 10 ⁻⁷ (2.9)]*1		1090 × 10 ⁻⁷ (6) [1250 × 10 ⁻⁷ (6.8)]*1		
Moment of Inertia*2	J: kg-m ² (oz-in ²)	5.8 × 10 ⁻⁷ (0.032) [4.2 × 10 ⁻⁷ (0.023)]	3.4 × 10 ⁻⁷ (0.019) [2.9 × 10 ⁻⁷ (0.016)]	92 × 10 ⁻⁷ (0.50) [86 × 10 ⁻⁷ (0.47)]	78 × 10 ⁻⁷ (0.43) [77 × 10 ⁻⁷ (0.42)]	629 × 10 ⁻⁷ (3.4) [589 × 10 ⁻⁷ (3.2)]	488 × 10 ⁻⁷ (2.7) [488 × 10 ⁻⁷ (2.7)]	
Gear Ratio		5	9	5	15	5	15	
Resolution	Set to 1000 P/R	0.072°/Pulse	0.04°/Pulse	0.072°/Pulse	0.024°/Pulse	0.072°/Pulse	0.024°/Pulse	
Permissible Torque*	N-m (lb-in)	*	2.5 (22)	5.9 (52)	9 (79)	*	24 (212)	
Max. Instantaneous Torque*	N-m (lb-in)	*	*	*	*	*	*	
Holding Torque at Standstill	Power ON	N-m (lb-in)	0.75 (6.6)	1.35 (11.9)	3 (26)	9 (79)	5 (44)	15 (132)
	Electromagnetic Brake	N-m (lb-in)	0.75 (6.6)	1.35 (11.9)	3 (26)	9 (79)	5 (44)	15 (132)
Speed Range	r/min	0~900	0~500	0~900	0~300	0~900	0~300	
Backlash	arcmin (degrees)	3 (0.05)						
Power Supply	Voltage/Frequency		Single-phase 100-120 VAC		Single-phase/Three-Phase 200-240 VAC		-15~+6% 50/60 Hz	
	Input	Single-phase 100-120 VAC	2.7		3.8		5.5	
Input	Current	Single-phase 200-240 VAC	1.7		2.3		3.3	
	A	Three-Phase 200-240 VAC	1.0		1.4		2.0	
Control Power Supply		24 VDC ± 5%*4 0.25 A [0.33 A]*1		24 VDC ± 5%*4 0.25 A [0.5 A]*1				
Runout of Output Flange Surface*3	mm (in.)	0.02 (0.0008)						
Runout of Output Flange Inner Diameter*3	mm (in.)	0.03 (0.0012)		0.04 (0.0016)				

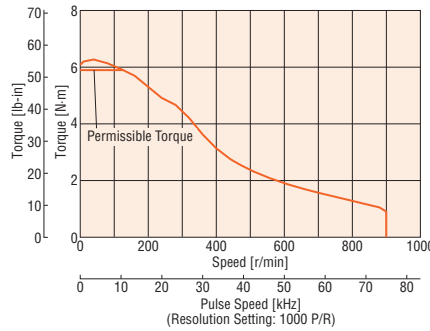
- * For the geared motor output torque, refer to the speed – torque characteristics.
- There is an **F** located in the box (□) within the product name if it is a flange output type.
- For detailed information regarding standards, please visit the Oriental Motor website.
- *1 The brackets [] indicate the specifications for the electromagnetic brake type.
- *2 This is the internal inertia of the gear converted to the motor shaft. The brackets () indicate the flange output type value.
- *3 Flange output type specifications.
- *4 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

Speed – Torque Characteristics (Reference values)

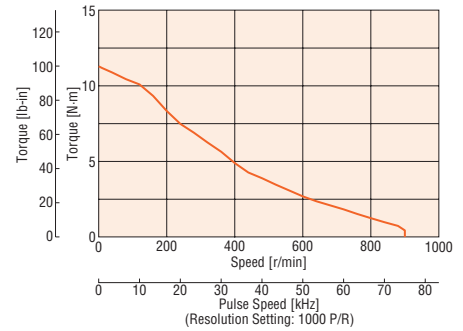
AZM46 Gear Ratio 5



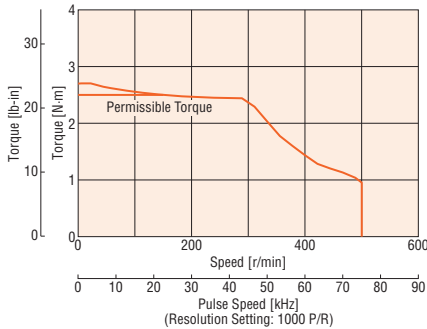
AZM66 Gear Ratio 5



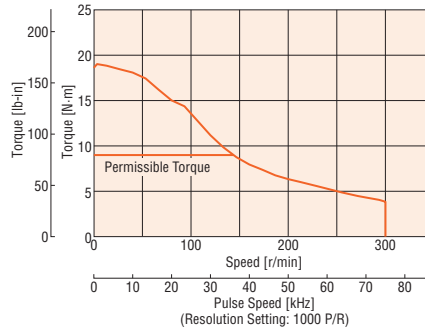
AZM98 Gear Ratio 5



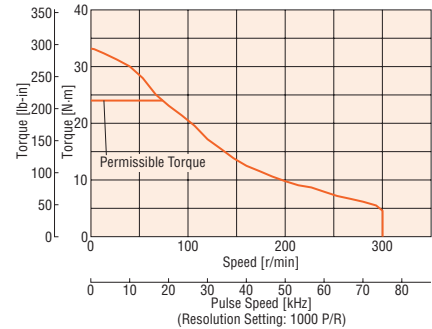
AZM46 Gear Ratio 9



AZM66 Gear Ratio 15



AZM98 Gear Ratio 15



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Harmonic Geared Type Frame Size 42 mm (1.65 in.), 60 mm (2.36 in.), 90 mm (3.54 in.)

Specifications



Motor	Single Shaft	AZM46AC-HS50	AZM46AC-HS100	AZM66AC-HS50	AZM66AC-HS100	AZM98AC-HS50	AZM98AC-HS100
	Electromagnetic Brake	AZM46MC-HS50	AZM46MC-HS100	AZM66MC-HS50	AZM66MC-HS100	AZM98MC-HS50	AZM98MC-HS100
Driver	Built-in Controller	AZD-AD (Single-phase 100-120 VAC)			AZD-CD (Single-phase/Three-Phase 200-240 VAC)		
	Pulse Input	AZD-A (Single-phase 100-120 VAC)			AZD-C (Single-phase/Three-Phase 200-240 VAC)		
Maximum Holding Torque	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)	33 (292)	52 (460)
Rotor Inertia	J: kg·m ² (oz·in ²)	72×10 ⁻⁷ (0.39)	[88×10 ⁻⁷ (0.48)]*1	405×10 ⁻⁷ (2.2)	[565×10 ⁻⁷ (3.1)]*1	1290×10 ⁻⁷ (7.1)	[1450×10 ⁻⁷ (7.9)]*1
Gear Ratio		50	100	50	100	50	100
Resolution	Set to 1000 P/R	0.0072°/Pulse	0.0036°/Pulse	0.0072°/Pulse	0.0036°/Pulse	0.0072°/Pulse	0.0036°/Pulse
Permissible Torque	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)	33 (290)	52 (460)
Max. Instantaneous Torque*	N·m (lb·in)	8.3 (73)	11 (97)	23 (200)	36 (310)	*	107 (940)
Holding Torque at Standstill	Power ON	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)	33 (290)
	Electromagnetic Brake	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)	33 (290)
Speed Range	r/min	0~70	0~35	0~70	0~35	0~70	0~35
Lost Motion (Load Torque)		1.5 max.	1.5 max.	0.7 max.	0.7 max.	0.7 max.	
		(±0.16 N·m)	(±0.20 N·m)	(±0.28 N·m)	(±0.39 N·m)	(±1.2 N·m)	
Voltage/Frequency		Single-phase 100-120 VAC			Single-phase/Three-Phase 200-240 VAC		
Power Supply Input	Input	Single-phase 100-120 VAC			Single-phase/Three-Phase 200-240 VAC		
	Current	2.7			3.8		
	A	1.7			2.3		
Control Power Supply		24 VDC±5%*2 0.25 A [0.33 A]*1			24 VDC±5%*2 0.25 A [0.5 A]*1		
		1.0			1.4		
		Three-Phase 200-240 VAC			2.0		

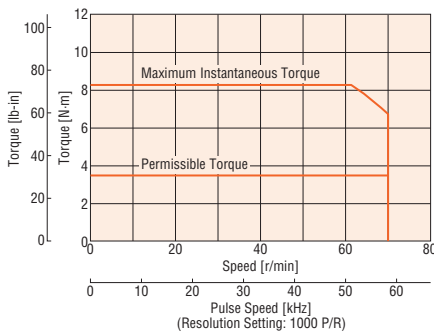
- * For the geared motor output torque, refer to the speed – torque characteristics.
- For detailed information regarding standards, please visit the Oriental Motor website.
- *1 The brackets [] indicate the specifications for the electromagnetic brake type.
- *2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

Note

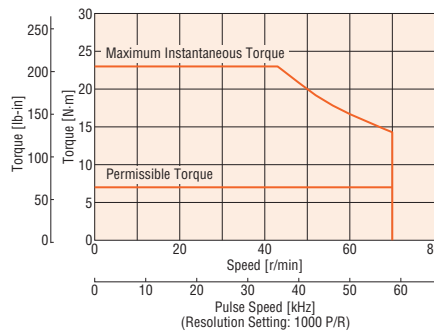
- The rotor inertia represents a sum of the inertia of the harmonic gear converted to motor shaft values.

Speed – Torque Characteristics (Reference values)

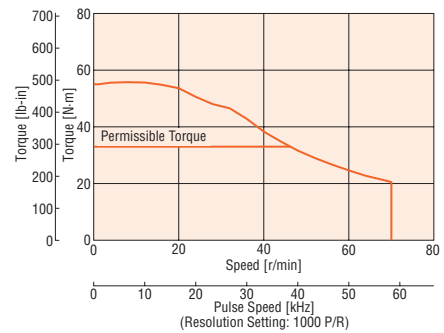
AZM46 Gear Ratio 50



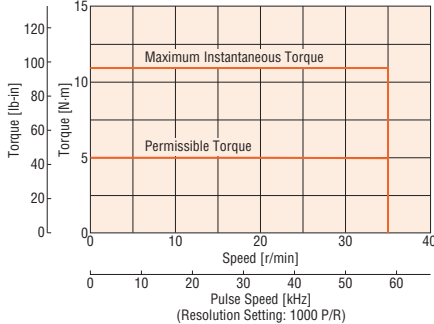
AZM66 Gear Ratio 50



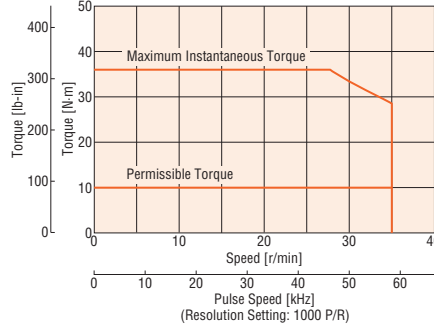
AZM98 Gear Ratio 50



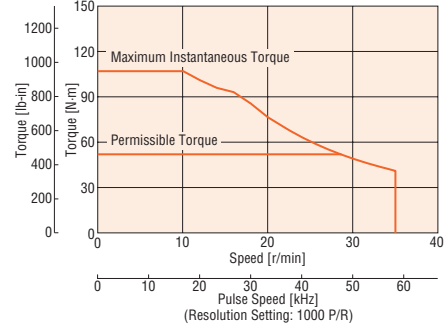
AZM46 Gear Ratio 100



AZM66 Gear Ratio 100



AZM98 Gear Ratio 100



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor. (When conforming to the UL Standards, it is required to keep the temperature of the motor case at 75°C (167°F) max., since the motor is recognized as insulation class A.)

Features

System Configuration

Product Line and List Price

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

Driver Specifications

Driver Type		Built-in Controller Type		Pulse Input Type		
		AZD-AD	AZD-CD	AZD-A	AZD-C	
Driver Part Number						
Stepper Motors AZ	Input/Output Function	Maximum Input Pulse Frequency	-		The programmable controller is the line driver output: 1 MHz (When 50% duty) The programmable controller is the open-collector output: 250 kHz (When 50% duty) Negative Logic Pulse Input (Initial value)	
		Number of Positioning Data Points	256	256*		
Slides EZS	Direct Input	Direct Input	10	6		
		Direct Output	6			
Cylinders EAC	RS-485 Communication Network Input	RS-485 Communication Network Input	16	-		
		RS-485 Communication Network Output	16	-		
Rotary Actuators DGI	Settings Tool	Data Setting Software MEXE02	<input type="radio"/>	<input type="radio"/>		
	Coordinate Management Method	Battery-Free Absolute System	<input type="radio"/>	<input type="radio"/>		
	Positioning Operation	Type	Positioning Operation	<input type="radio"/>	<input type="radio"/> *	
			Positioning Push-Motion Operation	<input type="radio"/>	<input type="radio"/> *	
			Isolated Operation	<input type="radio"/>	<input type="radio"/> *	
	Linking Method	Linking Method	Sequential Operation	<input type="radio"/>	<input type="radio"/> *	
			Multistep Speed-Change (Configuration linking)	<input type="radio"/>	<input type="radio"/> *	
			Sequence Control	<input type="radio"/>	<input type="radio"/> *	
	Run	Control	Looped Operation (Repeating)	<input type="radio"/>	<input type="radio"/> *	
			Event Jump Operation	<input type="radio"/>	<input type="radio"/> *	
			Position Control	<input type="radio"/>	<input type="radio"/> *	
			Continuous Operation	<input type="radio"/>	<input type="radio"/> *	
Torque Control	Torque Control	Speed Control	<input type="radio"/>	<input type="radio"/> *		
		Torque Control	<input type="radio"/>	<input type="radio"/> *		
		Push-Motion	<input type="radio"/>	<input type="radio"/> *		
Return-to-Home Operation	Return-to-Home Operation	Return-to-Home Operation	<input type="radio"/>	<input type="radio"/>		
		High-Speed Return-to-Home Operation	<input type="radio"/>	<input type="radio"/>		
JOG Operation	JOG Operation	<input type="radio"/>	<input type="radio"/>			
Monitoring/Information	Monitoring/Information	Waveform Monitoring	<input type="radio"/>	<input type="radio"/>		
		Overload Detection	<input type="radio"/>	<input type="radio"/>		
		Overheat Detection (Motor/driver)	<input type="radio"/>	<input type="radio"/>		
		Position/Speed Information	<input type="radio"/>	<input type="radio"/>		
		Temperature Detection (Motor/driver)	<input type="radio"/>	<input type="radio"/>		
		Motor Load Factor	<input type="radio"/>	<input type="radio"/>		
Travel Distance/Cumulative Travel Distance	<input type="radio"/>	<input type="radio"/>				
Alarm	Alarm	<input type="radio"/>	<input type="radio"/>			

*Can be used by setting in the data setting software **MEXE02**.

Built-in Controller Type RS-485 Communication Specifications

Protocol	Modbus RTU Mode
Electrical Characteristics	EIA-485 compliance, straight cable Shielded twisted-pair wire (TIA/EIA-568B CAT5e or greater recommended) is used up to a total extension length of 50 m (164 ft.).
Communication Mode	Half-duplex communication, synchronous mode (data: 8-bit, stop bit: 1-bit/2-bit, parity: none/odd/even)
Baud Rate	Selected from 9600 bps / 19200 bps / 38400 bps / 57600 bps / 115200 bps / 230400 bps
Connection Type	Up to 31 units can be connected to one programmable controller (master equipment).

General Specifications

		Motor	Driver	
			Built-in Controller Type	Pulse Input Type
Heat-Resistant Class		130(B) [UL is certified by 105(A)]	-	
Insulation Resistance		100 MΩ or more when 500 VDC megger is applied between the following places: · Case – Motor windings · Case – Electromagnetic brake windings*1	100 MΩ or more when 500 VDC megger is applied between the following places: · Protective earth terminal – Power supply terminal · Encoder connector – Power supply terminal · I/O signal terminal – Power supply terminal	
Dielectric Strength		Sufficient to withstand the following for 1 minute: · Case – Motor windings 1.5 kVAC 50 Hz or 60 Hz · Case – Electromagnetic brake windings*1 1.5 kVAC 50 Hz or 60 Hz	Sufficient to withstand the following for 1 minute: · Protective earth terminal – Power supply terminal 1.5 kVAC 50 Hz or 60 Hz · Encoder connector – Power supply terminal 1.8 kVAC 50 Hz or 60 Hz · I/O signal terminal – Power supply terminal 1.8 kVAC 50 Hz or 60 Hz	
Operating Environment (In operation)	Ambient Temperature	0~+40°C (+32~+104°F) (non-freezing)	0~+55°C (+32~+131°F) (non-freezing)*2	
	Ambient Humidity	85% max. (non-condensing)		
	Atmosphere	Use in an area without corrosive gases and dust. The product should not be exposed to water, oil or other liquids.		
Degree of Protection		IP66 (excluding installation surface and connectors)	IP10	IP20
Stop Position Accuracy		AZM46: ±4 min. (±0.067°) AZM66, AZM69, AZM98, AZM911: ±3 min. (±0.05°)		
Shaft Runout		0.05 mm (0.002 in.) T.I.R.*3	-	
Concentricity of Installation Pilot to the Shaft		0.075 mm (0.003 in.) T.I.R.*3	-	
Perpendicularity of Installation Surface to the Shaft		0.075 mm (0.003 in.) T.I.R.*3	-	
Multiple-Rotation Detection Range when Power is Off		±900 rotations (1,800 rotations)		

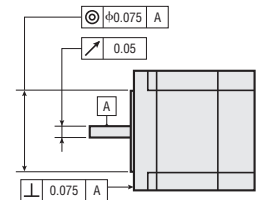
*1 Electromagnetic brake type only.

*2 When a heat sink is installed that is equivalent to an aluminum plate with a size of 200×200 mm (7.87×7.87 in.), 2 mm (0.08 in.) thick is installed.

*3 T.I.R. (Total Indicator Reading): The total dial gauge reading when the measurement section is rotated one revolution centered on the reference axis center.

Note

- Do not measure insulation resistance or perform the dielectric strength test while the motor and driver are connected.
- Do not perform these tests with the motor sensor.



Rotation Direction

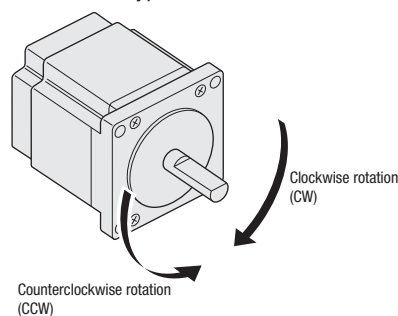
This refers to the rotation direction viewed from the output shaft side.

The rotation direction of the gear output shaft with respect to the standard type motor output shaft differs depending on the type of gear and gear ratio.

Refer to the following table.

Type	Gear Ratio	Rotation Direction with Respect to Motor Output Shaft
TS Geared	3.6, 7.2, 10	Same direction
	20, 30	Opposite direction
PS Geared	All gear ratios	Same direction
HPG Geared		Opposite direction
Harmonic Geared	All gear ratios	Opposite direction

Standard Type Motor



Permissible Radial Load/Permissible Axial Load

Unit = N (lb.)

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

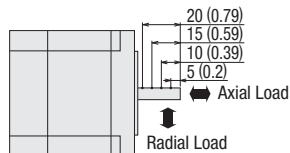
Rotary Actuators
DGI

Type	Motor Frame Size mm [in.]	Product Name	Gear Ratio	Permissible Radial Load					Permissible Axial Load
				Distance from Shaft End mm [in.]					
				0 [0]	5 [0.2]	10 [0.39]	15 [0.59]	20 [0.79]	
Standard Type	42 (1.65)	AZM46	-	35 (7.8)	44 (9.9)	58 (13)	85 (19.1)	-	15 (3.3)
	60 (2.36)	AZM66, AZM69		90 (20)	100 (22)	130 (29)	180 (40)	270 (60)	30 (6.7)
	85 (3.35)	AZM98, AZM911		260 (58)	290 (65)	340 (76)	390 (87)	480 (108)	60 (13.5)
TS Geared Type	42 (1.65)	AZM46	3.6, 7.2, 10	20 (4.5)	30 (6.7)	40 (9)	50 (11.2)	-	15 (3.3)
			20, 30	40 (9)	50 (11.2)	60 (13.5)	70 (15.7)	-	
	60 (2.36)	AZM66	3.6, 7.2, 10	120 (27)	135 (30)	150 (33)	165 (37)	180 (40)	40 (9)
PS Geared Type	60 (2.36)	AZM66	20, 30	170 (38)	185 (41)	200 (45)	215 (48)	230 (51)	40 (9)
	90 (3.54)	AZM98	3.6, 7.2, 10	300 (67)	325 (73)	350 (78)	375 (84)	400 (90)	
			20, 30	400 (90)	450 (101)	500 (112)	550 (123)	600 (135)	150 (33)
PS Geared Type	42 (1.65)	AZM46	5	70 (15.7)	80 (18)	95 (21)	120 (27)	-	100 (22)
			7.2	80 (18)	90 (20)	110 (24)	140 (31)	-	
			10	85 (19.1)	100 (22)	120 (27)	150 (33)	-	
			25	120 (27)	140 (31)	170 (38)	210 (47)	-	
			36	130 (29)	160 (36)	190 (42)	240 (54)	-	
	60 (2.36)	AZM66	5	150 (33)	170 (38)	210 (47)	260 (58)	-	200 (45)
			7.2	170 (38)	200 (45)	230 (51)	270 (60)	320 (72)	
			10	200 (45)	220 (49)	260 (58)	310 (69)	370 (83)	
			25	220 (49)	250 (56)	290 (65)	350 (78)	410 (92)	
			36	300 (67)	340 (76)	400 (90)	470 (105)	560 (126)	
	90 (3.54)	AZM98	5	340 (76)	380 (85)	450 (101)	530 (119)	630 (141)	600 (135)
			7.2	380 (85)	430 (96)	500 (112)	600 (135)	700 (157)	
			10	380 (85)	420 (94)	470 (105)	540 (121)	630 (141)	
			25	430 (96)	470 (105)	530 (119)	610 (137)	710 (159)	
			36	480 (108)	530 (119)	590 (132)	680 (153)	790 (177)	
HPG Geared Type	40 (1.57)	AZM46	5	150 (33)	170 (38)	190 (42)	230 (51)	270 (60)	430 (96)
			9	180 (40)	200 (45)	230 (51)	270 (60)	320 (72)	510 (114)
	60 (2.36)	AZM66	5	250 (56)	270 (60)	300 (67)	330 (74)	360 (81)	700 (157)
			15	360 (81)	380 (85)	420 (94)	460 (103)	510 (114)	980 (220)
	90 (3.54)	AZM98	5	600 (135)	630 (141)	670 (150)	710 (159)	750 (168)	1460 (320)
		15	830 (186)	880 (198)	930 (200)	980 (220)	1050 (230)	2030 (450)	
Harmonic Geared Type	42 (1.65)	AZM46	50, 100	180 (40)	220 (49)	270 (60)	360 (81)	510 (114)	220 (49)
	60 (2.36)	AZM66		320 (72)	370 (83)	440 (99)	550 (123)	720 (162)	450 (101)
	90 (3.54)	AZM98		1090 (240)	1150 (250)	1230 (270)	1310 (290)	1410 (310)	1300 (290)

- The product name contains characters that can be used to identify the product.
- If the **PS** geared type or **HPG** geared type has either the permissible radial load or permissible axial load added, the service life of 20,000 hours is satisfied. For the service life of gearheads, please contact the nearest Oriental Motor sales office or visit the Oriental Motor website.

● Radial Load and Axial Load

Distance from Shaft End mm (in.)



Permissible Moment Load

If an eccentric load is applied during flange face installation, calculate the moment load with the following formula. Ensure that the moment load does not exceed the permissible values in the following table.

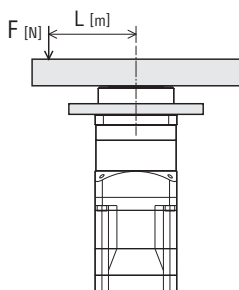
HPG Geared Type Flange Output Type

Product Name	Gear Ratio	Permissible Moment Load N·m (lb-in)
AZM46	5	4.9 (43)
	9	5.9 (52)
AZM66	5	12 (106)
	15	17.2 (152)
AZM98	5	38.7 (340)
	15	53.5 (470)

The moment load is calculated with the following formula.

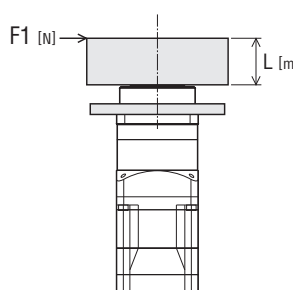
Example 1: An external force F is applied from the center of the output flange at distance L

$$\text{Moment load [N·m (lb·in)]: } M = F \times L$$



Example 2: An external force F1 is applied from the output flange installation surface at distance L

$$\text{Moment load [N·m (lb·in)]: } M = F1 \times (L + \text{coefficient } a)$$



Product Name	Coefficient a m (in.)
AZM46	0.006 (0.24)
AZM66	0.011 (0.43)
AZM98	0.0115 (0.45)

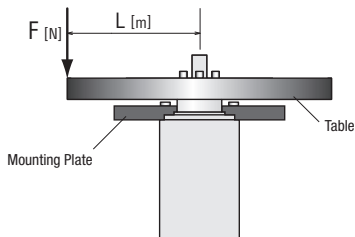
Harmonic Geared Type

Product Name	Gear Ratio	Permissible Moment Load N·m (lb-in)
AZM46	50, 100	5.6 (49)
AZM66		11.6 (102)

The moment load is calculated with the following formula.

Example 1: An external force F is applied from the center of the output flange at distance L

$$\text{Moment load [N·m (lb·in)]: } M = F \times L$$



Note

The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

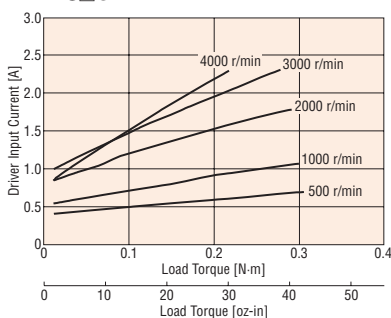
Load Torque – Driver Input Current Characteristics

This is the relationship between the load torque and driver input current at each speed when the motor is actually operated. From these characteristics, the current capacity required when used for multiple axes can be estimated. For geared motors, convert to torque and speed at the motor axis.

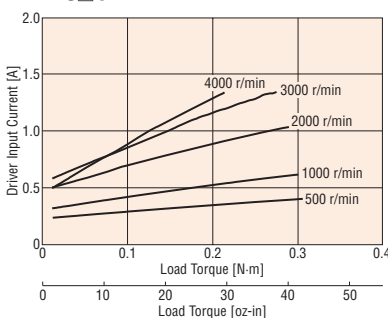
$$\text{Motor shaft speed} = \text{Gear output shaft speed} \times \text{Gear ratio [r/min]}$$

$$\text{Motor shaft torque} = \frac{\text{Gear output shaft torque}}{\text{Gear ratio}} \text{ N·m (oz·in)}$$

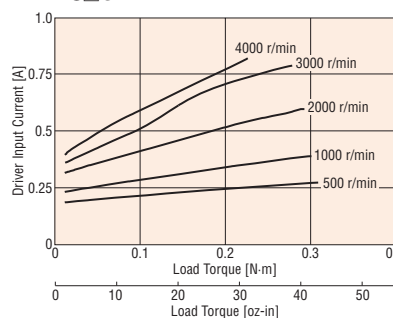
Single-phase 100-120 VAC AZM46□C



Single-Phase 200-240 VAC AZM46□C



Three-Phase 200-240 VAC AZM46□C



Stepper
Motors
AZ

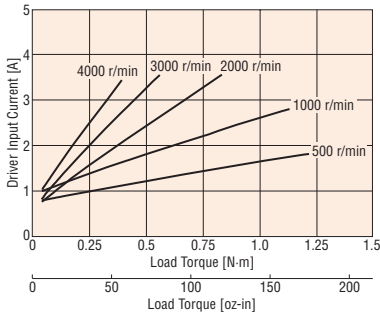
Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

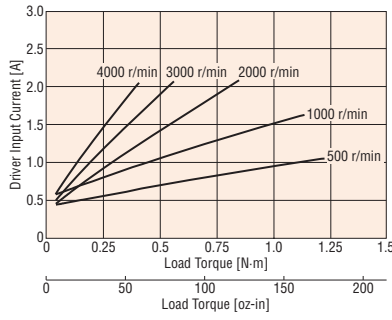
● Single-phase 100-120 VAC

AZM66□C



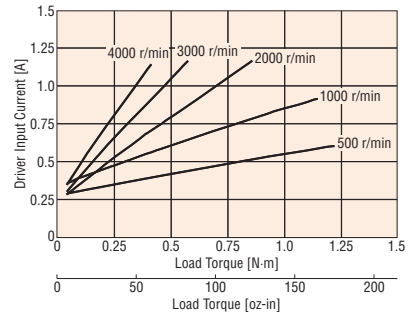
● Single-Phase 200-240 VAC

AZM66□C

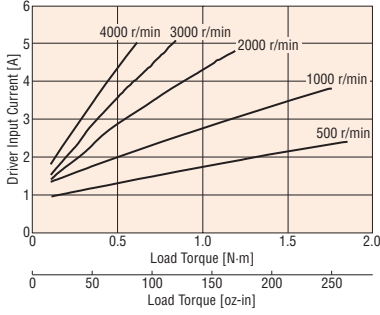


● Three-Phase 200-240 VAC

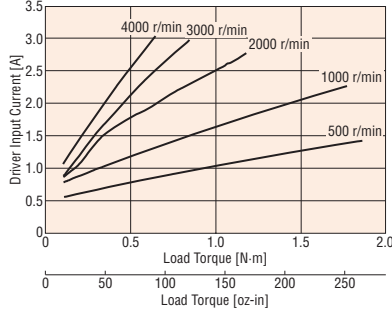
AZM66□C



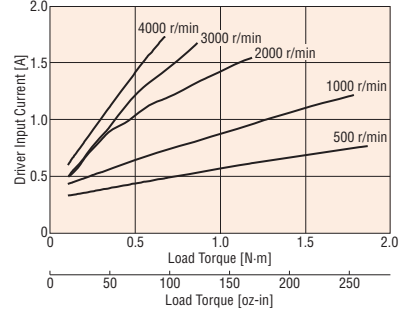
AZM69□C



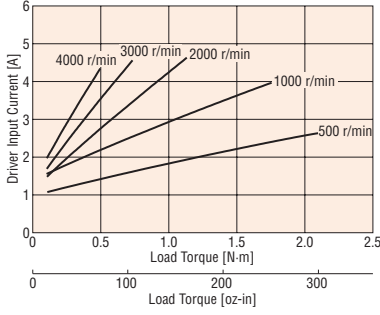
AZM69□C



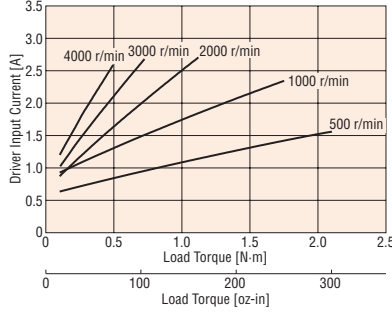
AZM69□C



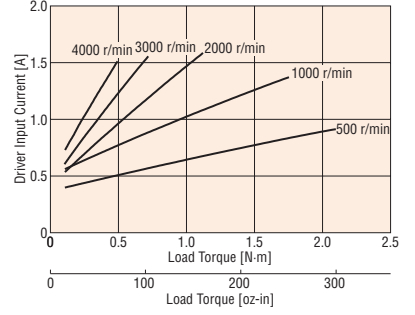
AZM98□C



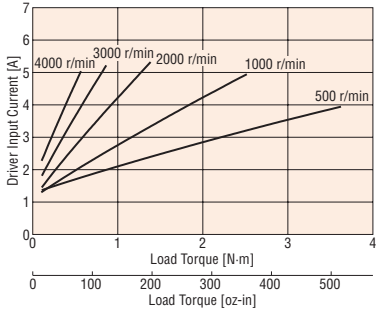
AZM98□C



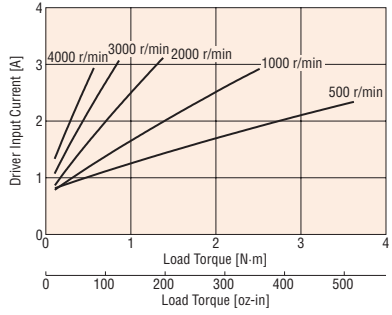
AZM98□C



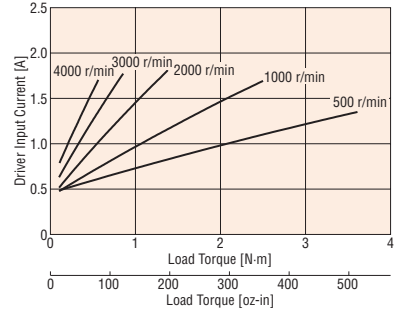
AZM911□C



AZM911□C



AZM911□C



Dimensions Unit = mm (in.)

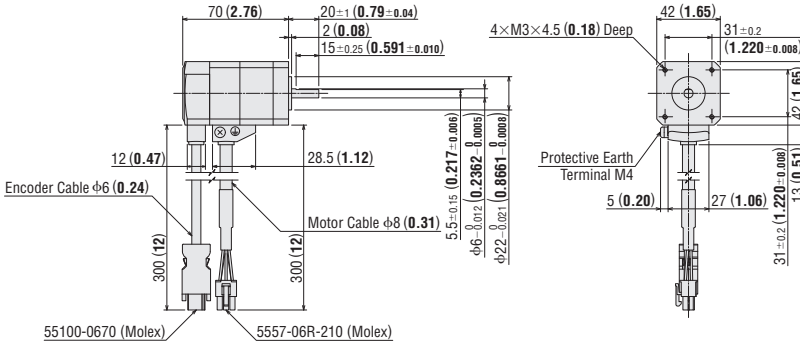
● Motor

◇ Standard Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

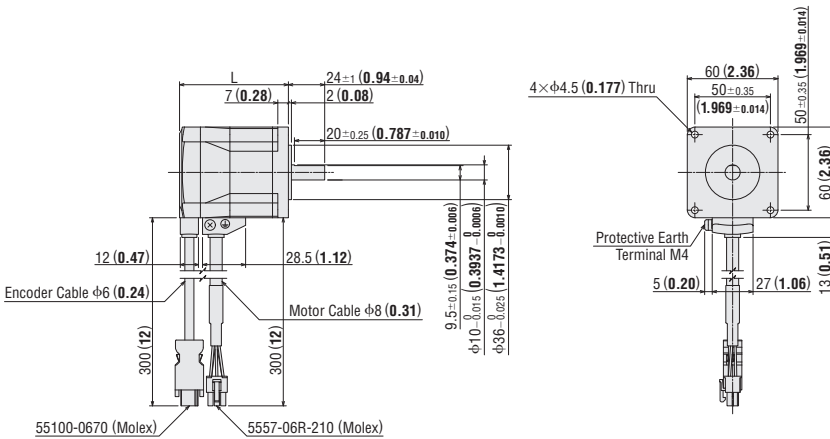
Product Name	Mass kg (lb.)	2D CAD
AZM46AC	0.44 (0.97)	B1092



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	L	Mass kg (lb.)	2D CAD
AZM66AC	72 (2.83)	0.91 (2.0)	B1093
AZM69AC	97.5 (3.84)	1.4 (3.1)	B1129



Features

System Configuration

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Characteristics

Dimensions

Connection and Operation

Accessories

Stepper
Motors
AZ

Slides
EZS

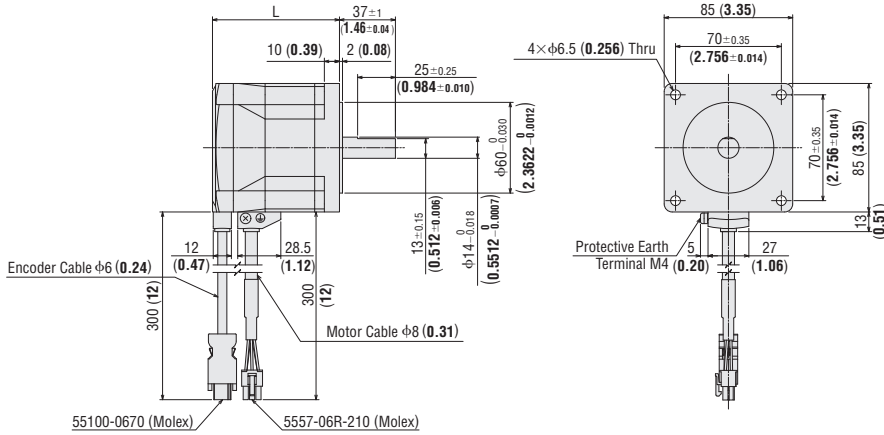
Cylinders
EAC

Rotary
Actuators
DGI

Frame Size 85 mm (3.35 in.)

2D & 3D CAD

Product Name	L	Mass kg (lb.)	2D CAD
AZM98AC	84 (3.31)	1.9 (4.2)	B1181
AZM91TAC	114 (4.49)	3 (6.6)	B1183

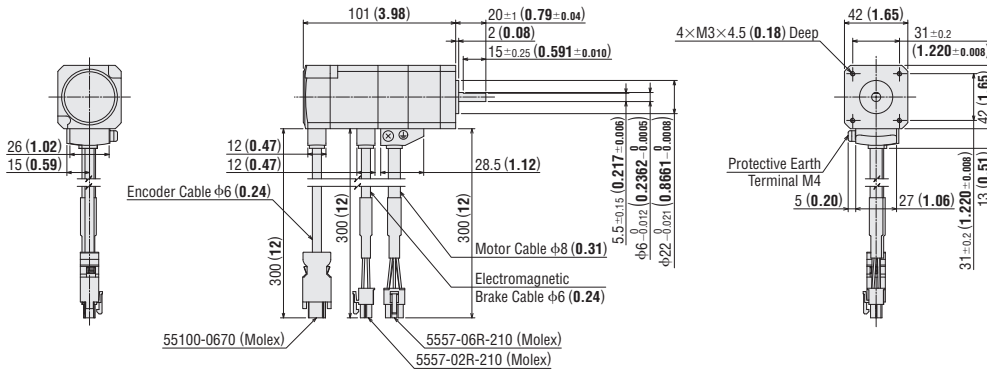


◇ Standard Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

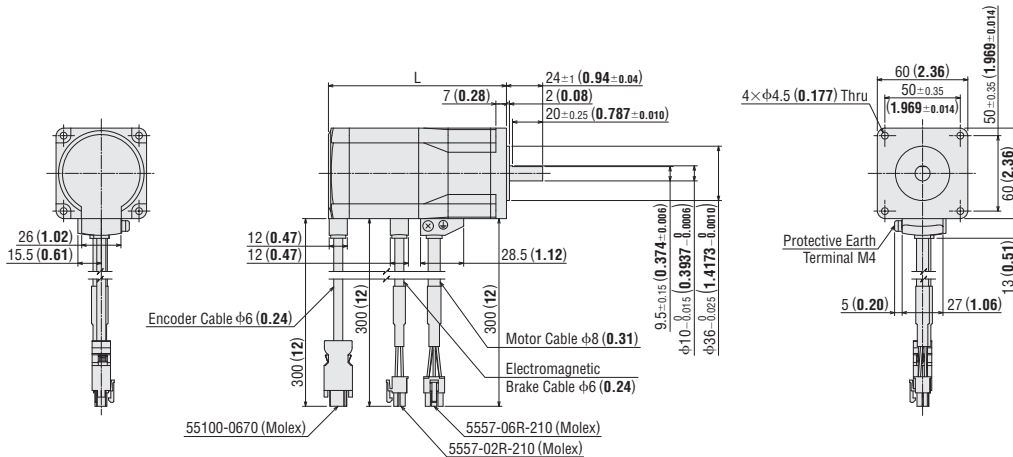
Product Name	Mass kg (lb.)	2D CAD
AZM46MC	0.61 (1.34)	B1154



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

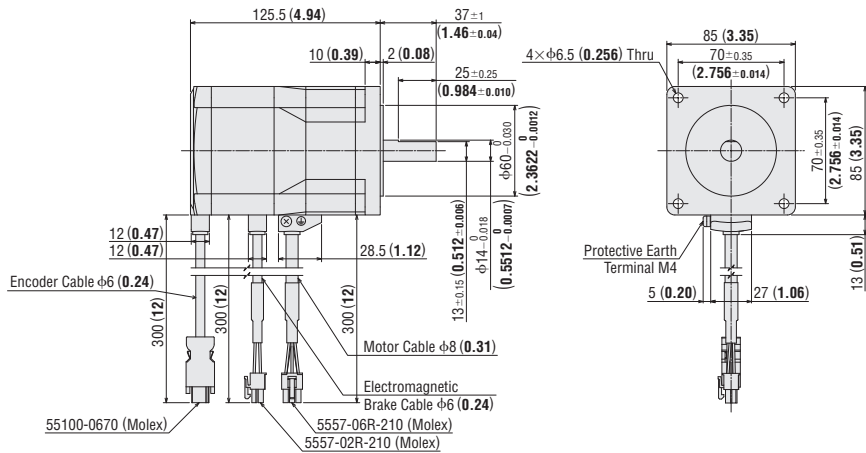
Product Name	L	Mass kg (lb.)	2D CAD
AZM66MC	118 (4.65)	1.3 (2.9)	B1155
AZM69MC	143.5 (5.65)	1.8 (4.0)	B1156



Frame Size 85 mm (3.35 in.)

2D & 3D CAD

Product Name	Mass kg (lb.)	2D CAD
AZM98MC	2.5 (5.5)	B1182

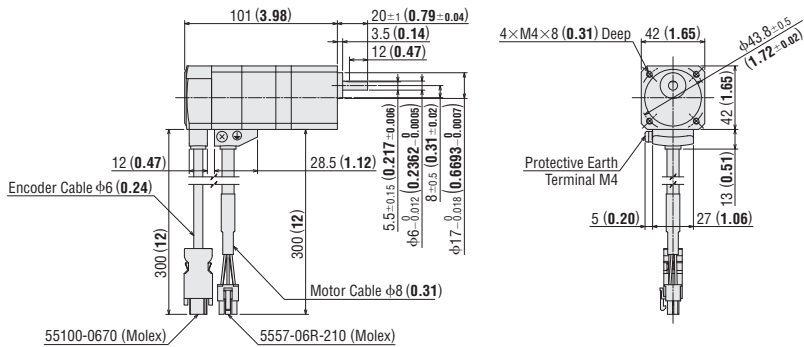


◇ TS Geared Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AC-TS	3.6, 7.2, 10, 20, 30	0.59 (1.30)	B1157

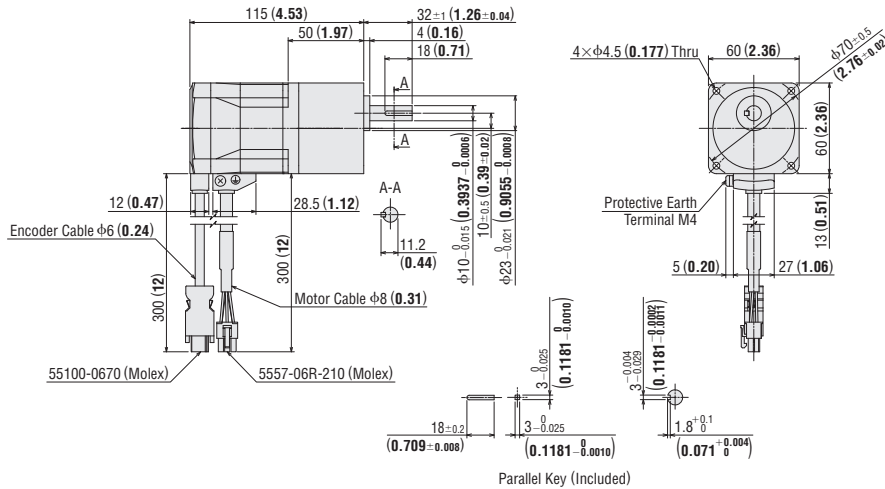


Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AC-TS	3.6, 7.2, 10, 20, 30	1.3 (2.9)	B1158

● Installation Screws: M4×60 P0.7 (4 included)



● Enter the gear ratio in the box (■) within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

Connection and Operation

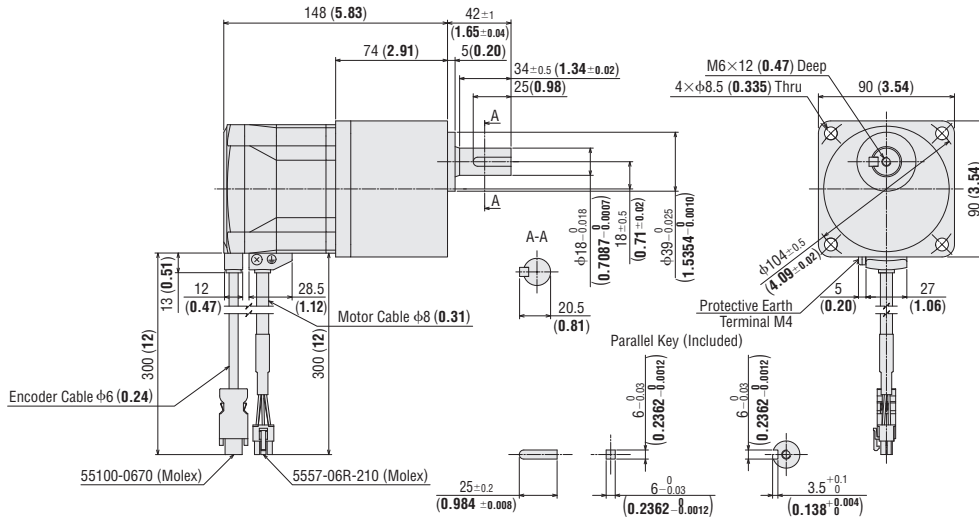
Accessories

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98AC-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	3.1 (6.9)	B1184

● Installation Screws: M8×90 P1.25 (4 included)

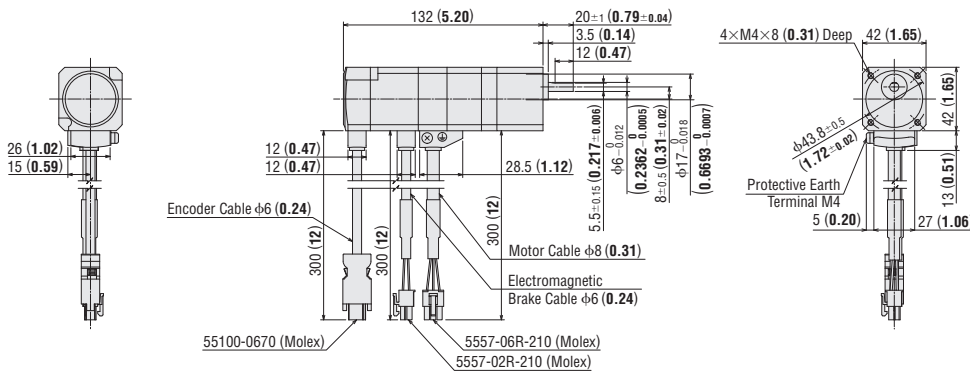


◇ TS Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MC-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	0.76 (1.67)	B1216

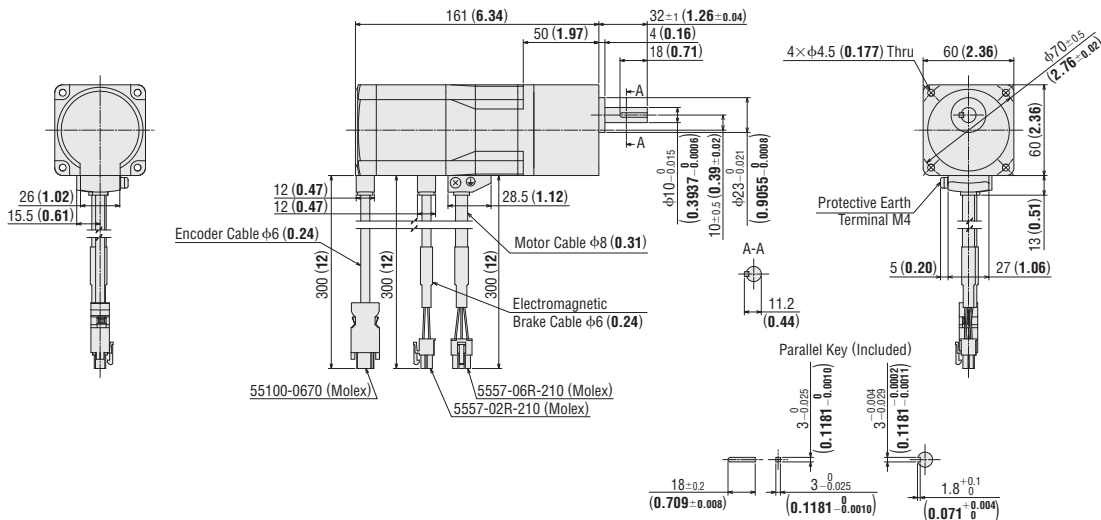


Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MC-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	1.7 (3.7)	B1217

● Installation Screws: M4×60 P0.7 (4 included)



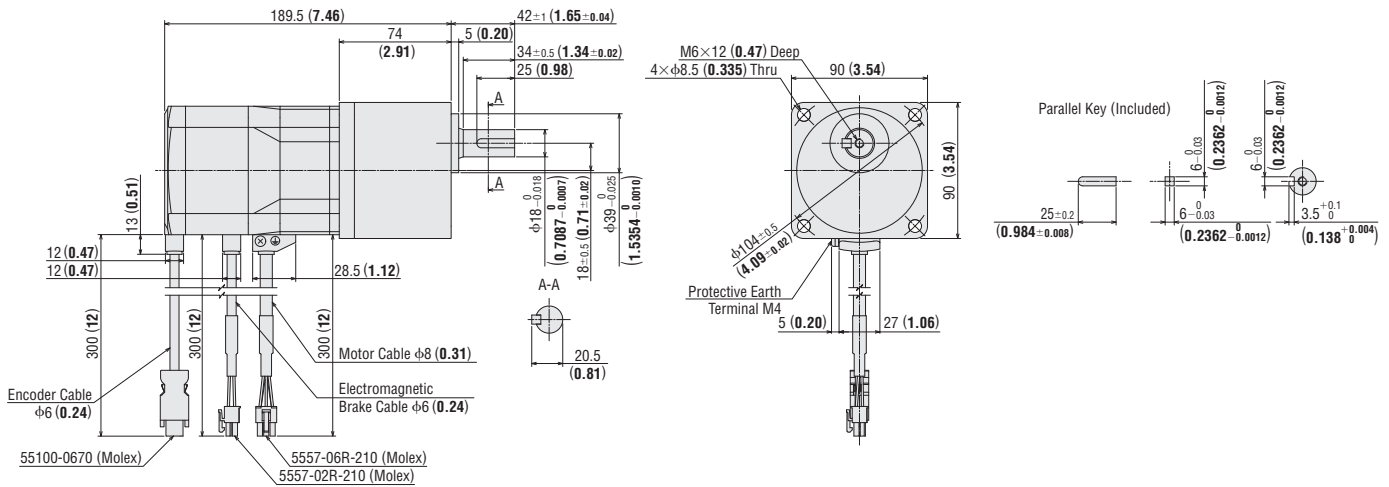
● Enter the gear ratio in the box within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98MC-TS	3.6, 7.2, 10, 20, 30	3.7 (8.1)	B1190

● Installation Screws: M8×90 P1.25 (4 included)

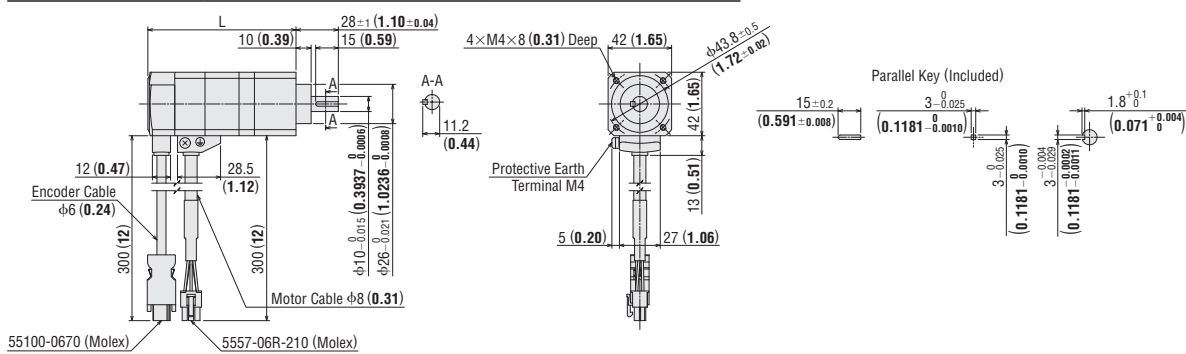


◇ PS Geared Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

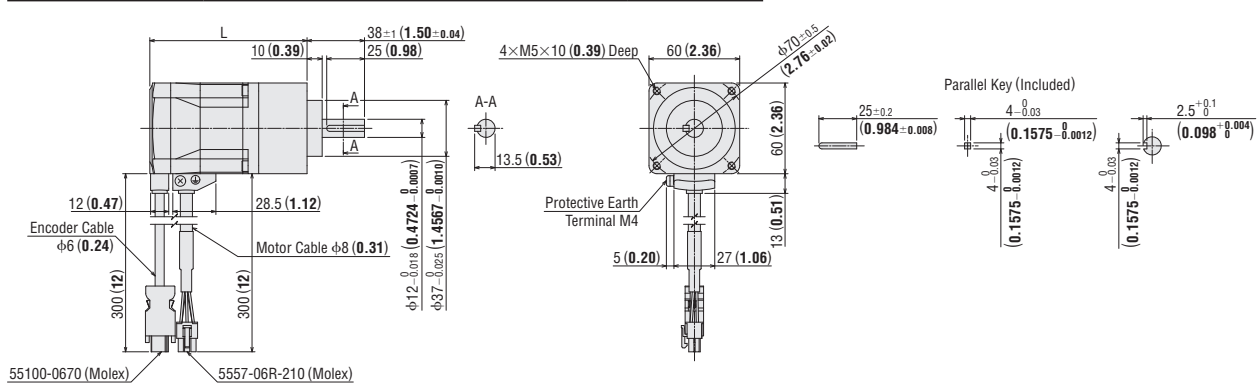
Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM46AC-PS	5, 7.2, 10	98 (3.86)	0.64 (1.41)	B1159
	25, 36, 50	121.5 (4.78)	0.79 (1.74)	B1160



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM66AC-PS	5, 7.2, 10	104 (4.09)	1.3 (2.9)	B1161
	25, 36, 50	124 (4.88)	1.6 (3.5)	B1162



● Enter the gear ratio in the box (■) within the product name.

Features

System Configuration and List Price

Product Line

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/Dimensions

DC Input

Dimensions and Operation

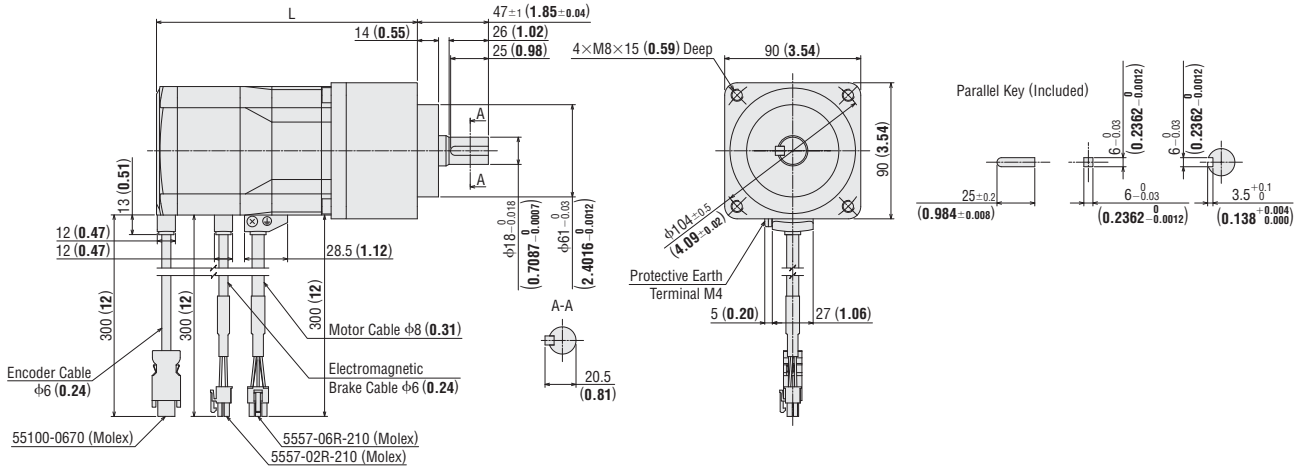
Connection and Operation

Accessories

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

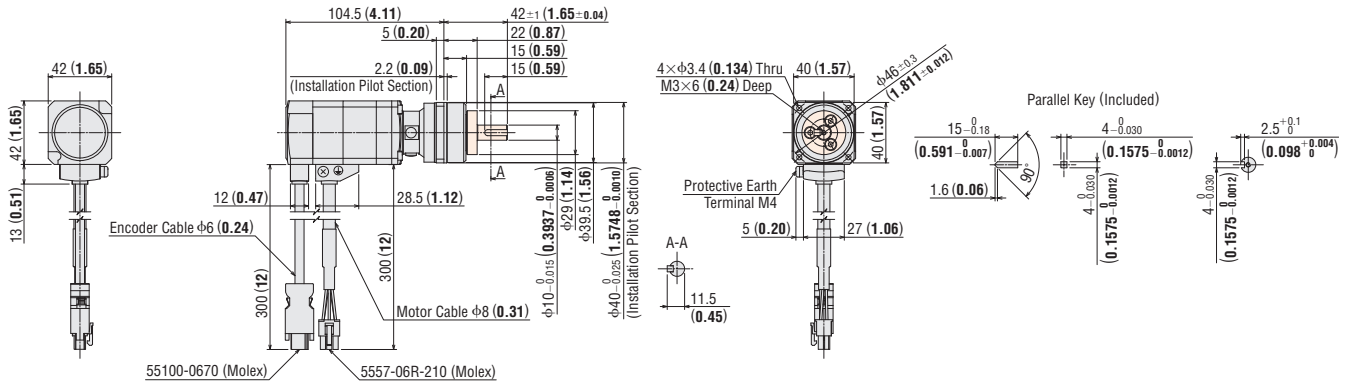
Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM98MC-PS	5, 7.2, 10	172.5 (6.79)	3.9 (8.6)	B1191
	25, 36, 50	200 (7.87)	4.7 (10.3)	B1192



◆ HPG Geared Type Shaft Output Type
Frame Size 40 mm (1.57 in.)

2D & 3D CAD

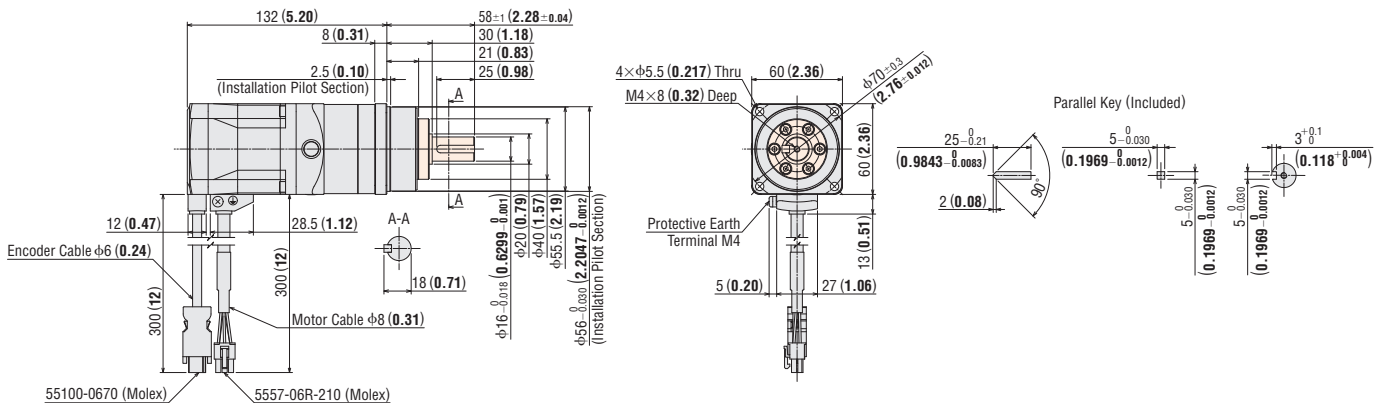
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AC-HP	5, 9	0.71 (1.56)	B1163



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AC-HP	5, 15	1.9 (4.2)	B1165



- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/Characteristics

DC Input

Dimensions

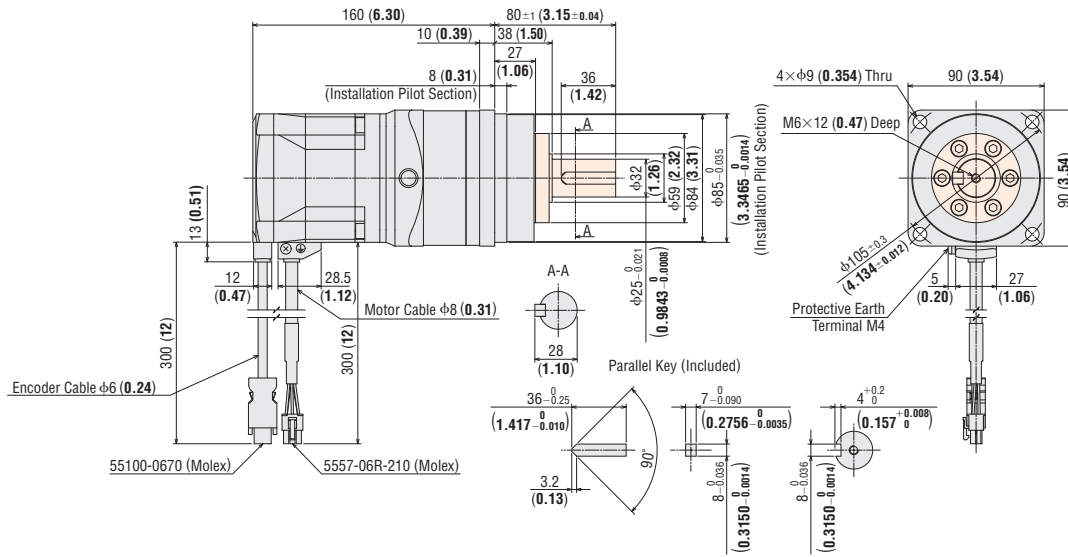
Connection and Operation

Accessories

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98AC-HP <input type="checkbox"/>	5, 15	4.8 (10.6)	B1187



Stepper Motors
AZ

Slides
EZS

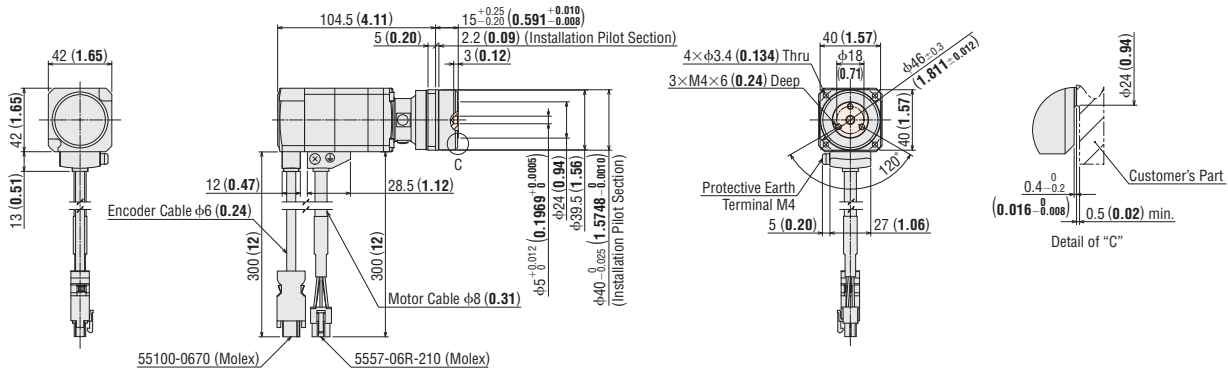
Cylinders
EAC

Rotary Actuators
DGII

◇ **HPG** Geared Type Flange Output Type
Frame Size 40 mm (1.57 in.)

2D & 3D CAD

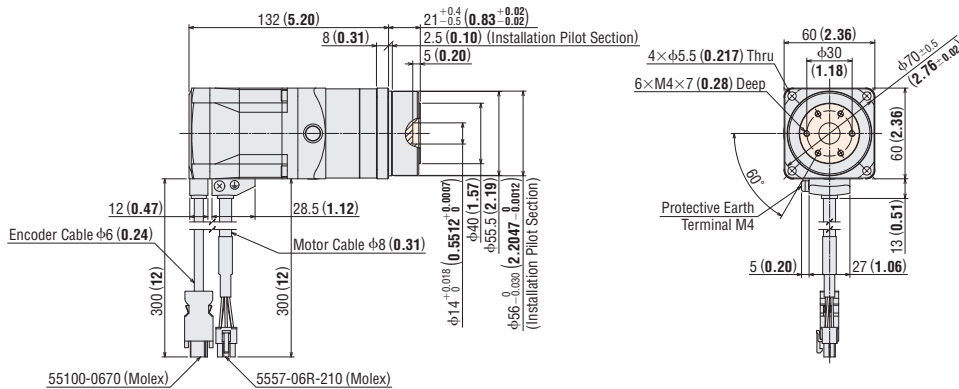
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AC-HP <input type="checkbox"/> F	5, 9	0.66 (1.45)	B1164



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AC-HP <input type="checkbox"/> F	5, 15	1.8 (4.0)	B1166

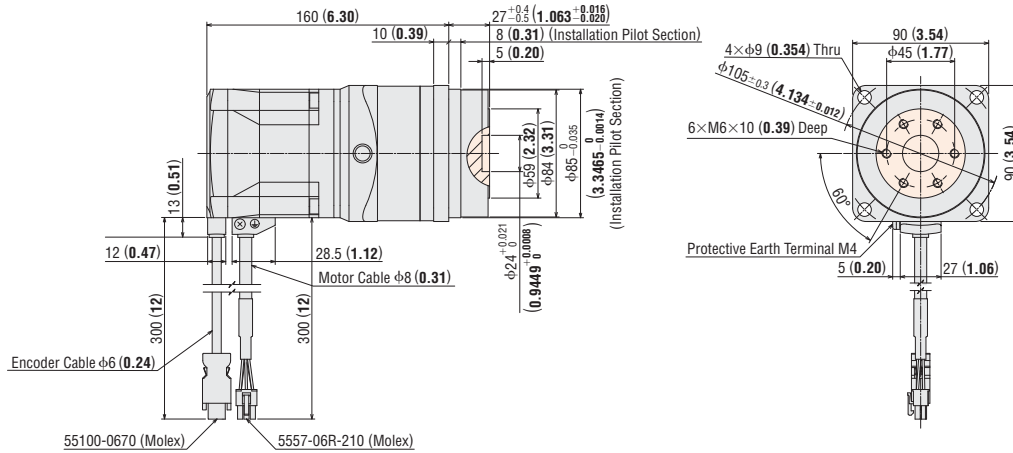


- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

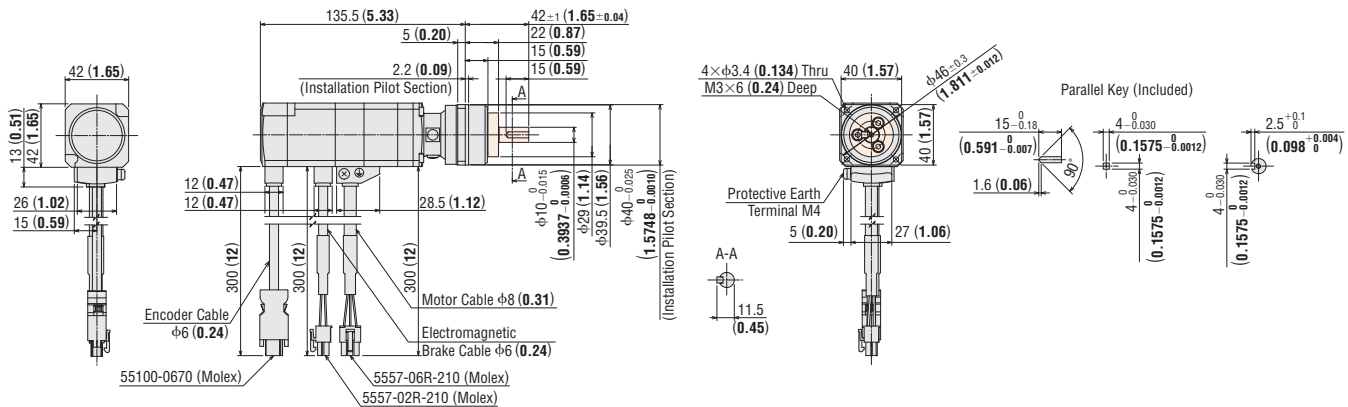
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98AC-HP F	5	4.5 (9.9)	B1188
	15	4.4 (9.7)	



◆ **HPG Geared Type with Electromagnetic Brake Shaft Output Type**
Frame Size 40 mm (1.57 in.)

2D & 3D CAD

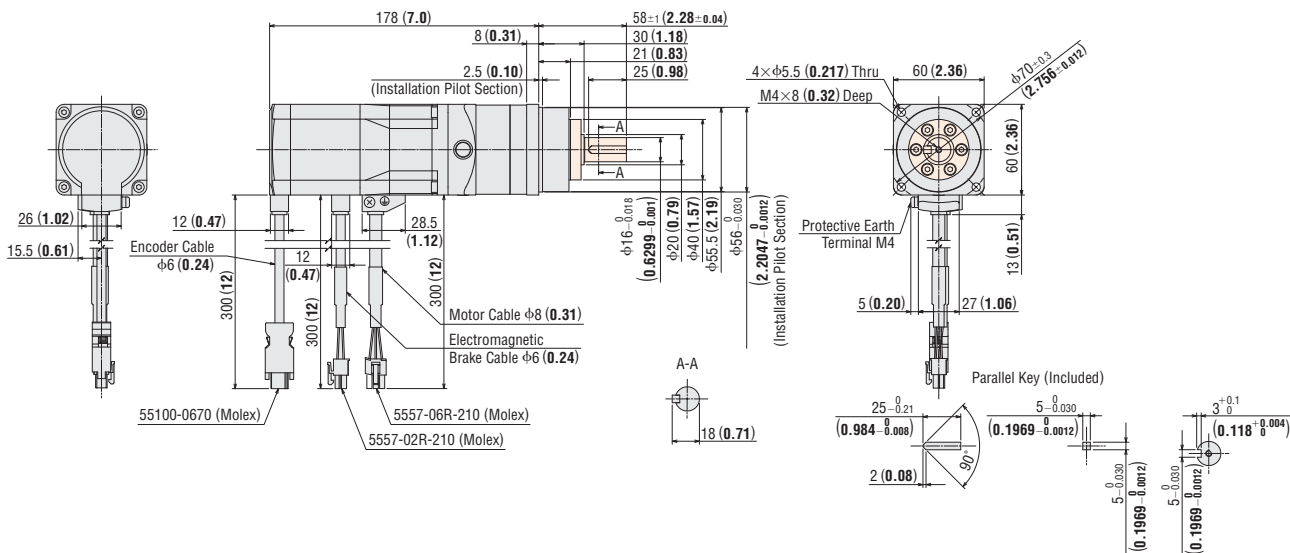
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MC-HP ■	5, 9	0.88 (1.94)	B1222



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MC-HP ■	5, 15	2.3 (5.1)	B1224



- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/Characteristics

Dimensions

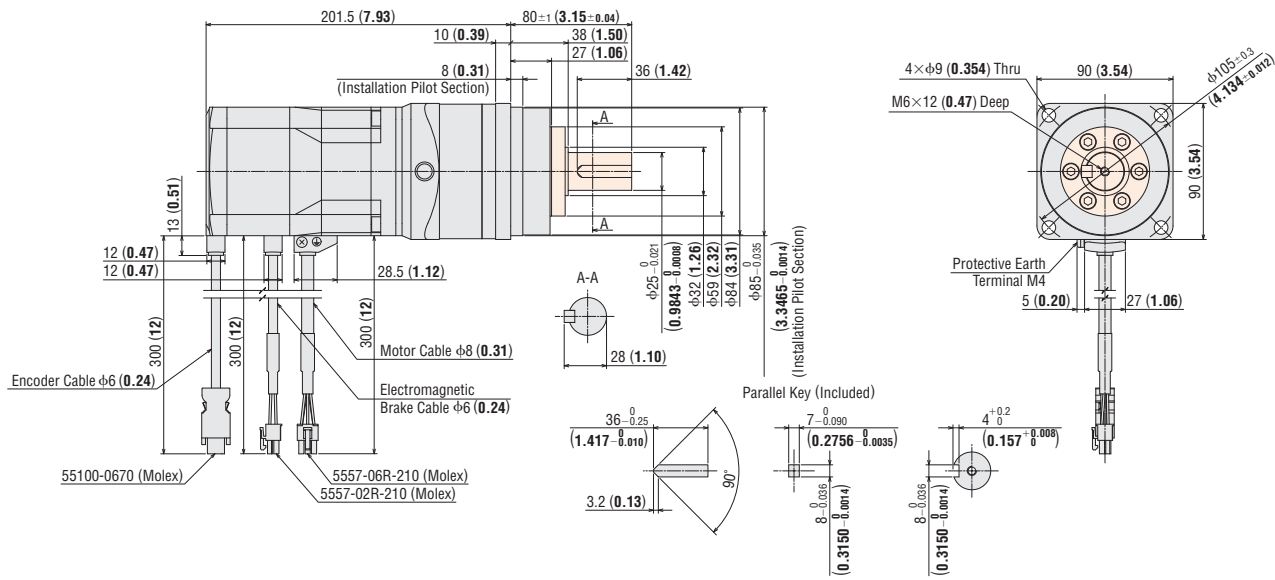
Connection and Operation

Accessories

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98MC-HP 	5, 15	5.4 (11.9)	B1193

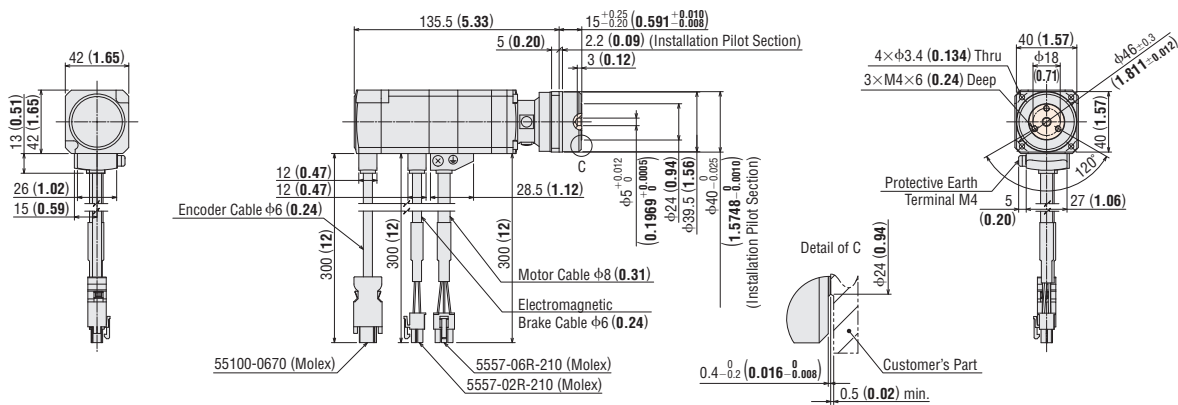


◆ HPG Geared Type with Electromagnetic Brake Flange Output Type

Frame Size 40 mm (1.57 in.)

2D & 3D CAD

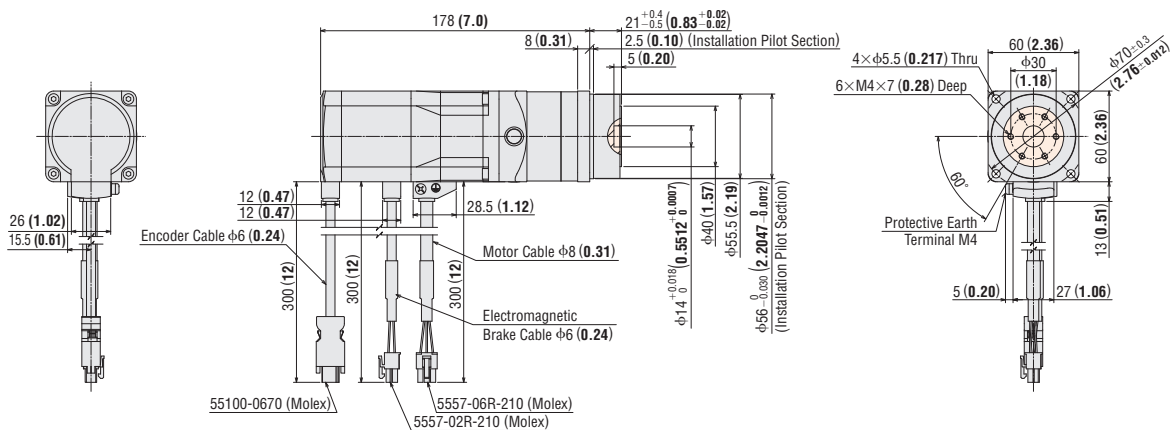
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MC-HP F	5, 9	0.83 (1.83)	B1223



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MC-HP F	5, 15	2.2 (4.8)	B1225

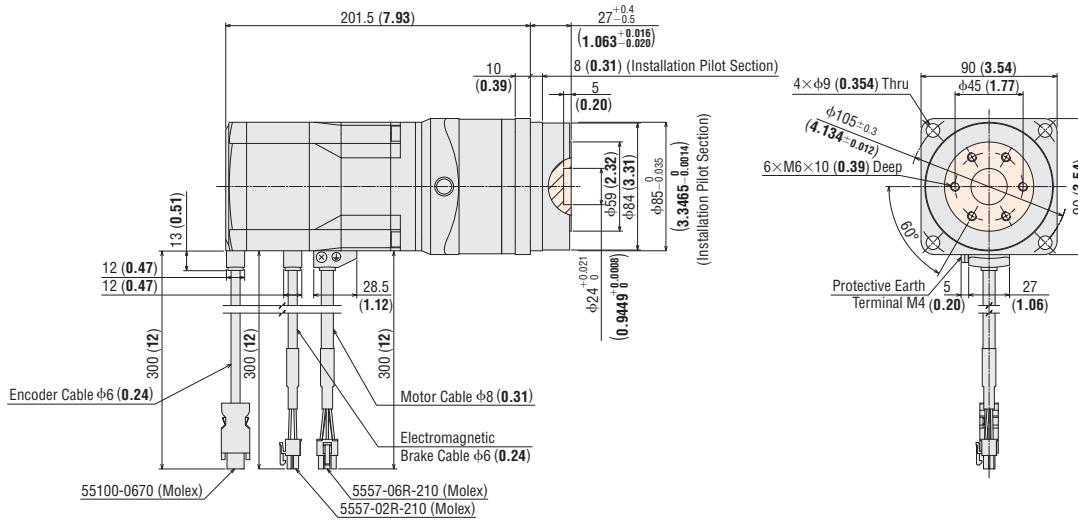


- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98MC-HP <input type="checkbox"/> F	5	5.1 (11.2)	B1194
	15	5 (11.0)	

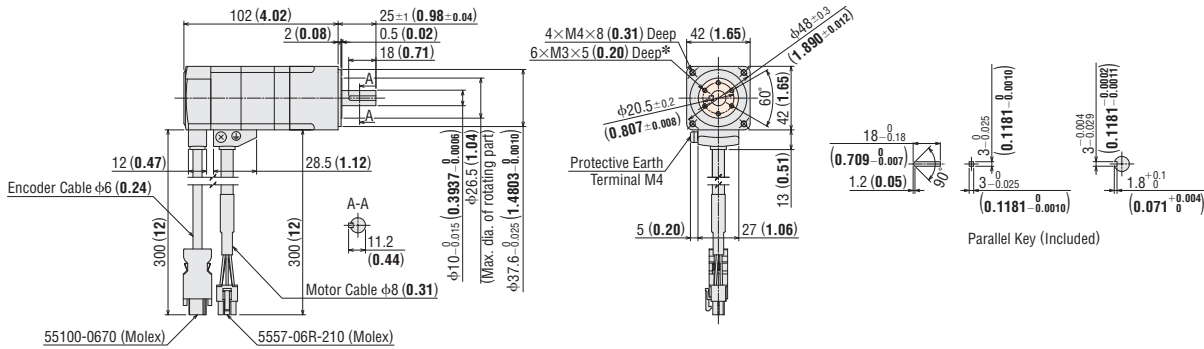


◇ Harmonic Geared Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AC-HS <input type="checkbox"/>	50, 100	0.65 (1.43)	B1167

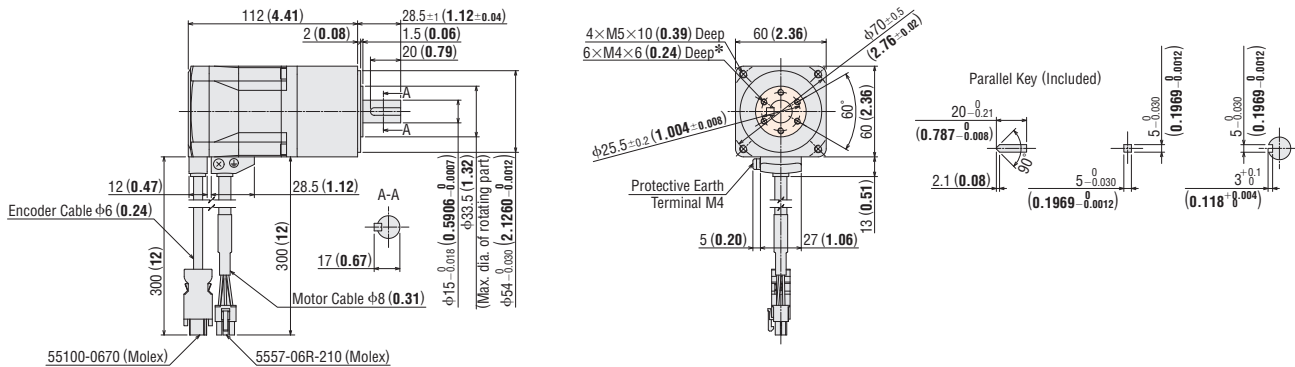


*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AC-HS <input type="checkbox"/>	50, 100	1.4 (3.1)	B1168



*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

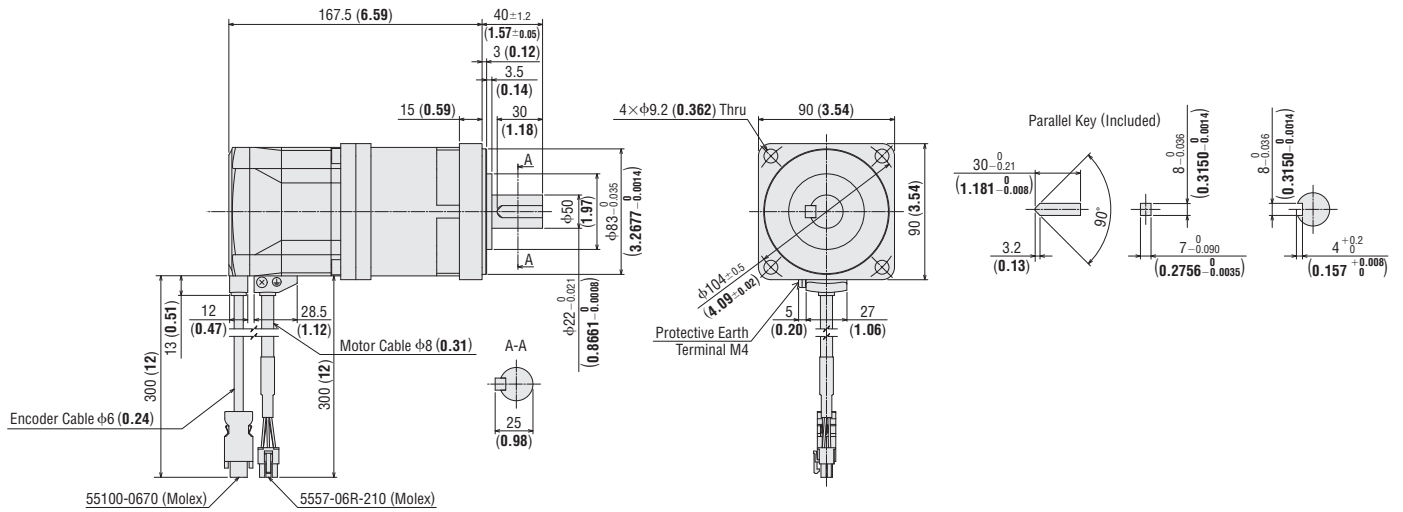
Connection and Operation

Accessories

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98AC-HS 	50, 100	3.9 (8.6)	B1189



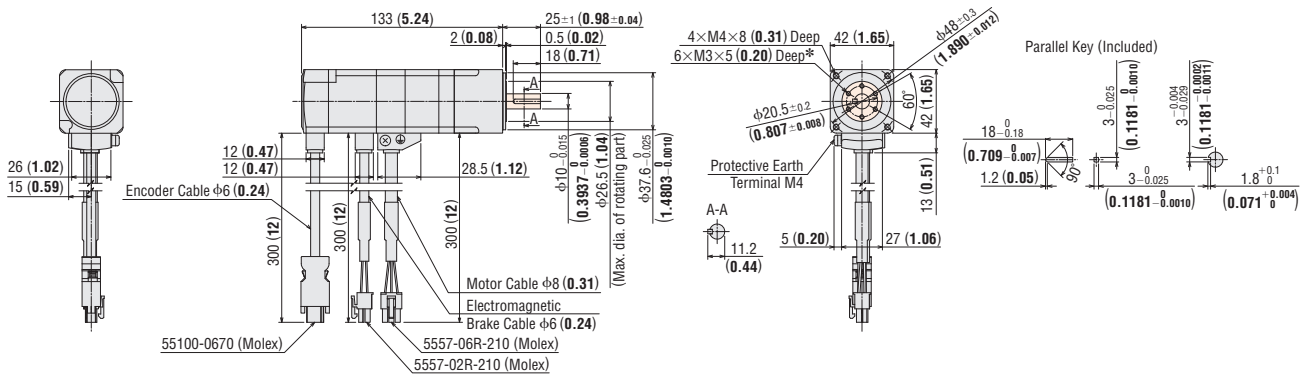
- Stepper Motors
AZ
- Slides
EZS
- Cylinders
EAC
- Rotary Actuators
DGI

◇ Harmonic Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MC-HS 	50, 100	0.82 (1.8)	B1226

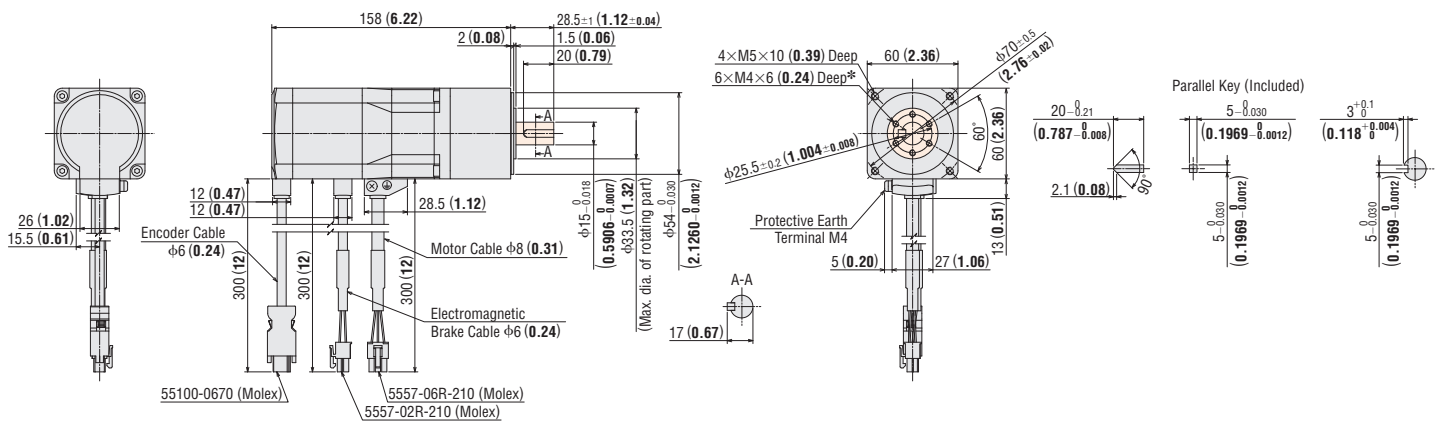


*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MC-HS 	50, 100	1.8 (4.0)	B1227



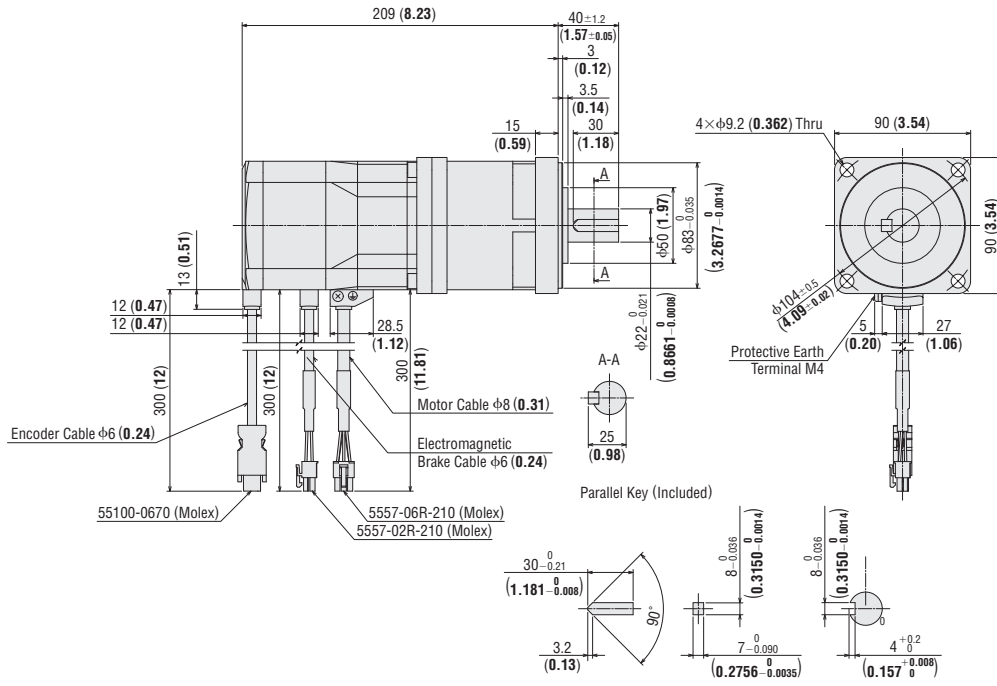
*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM98MC-HS 	50, 100	4.5 (9.9)	B1195



Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

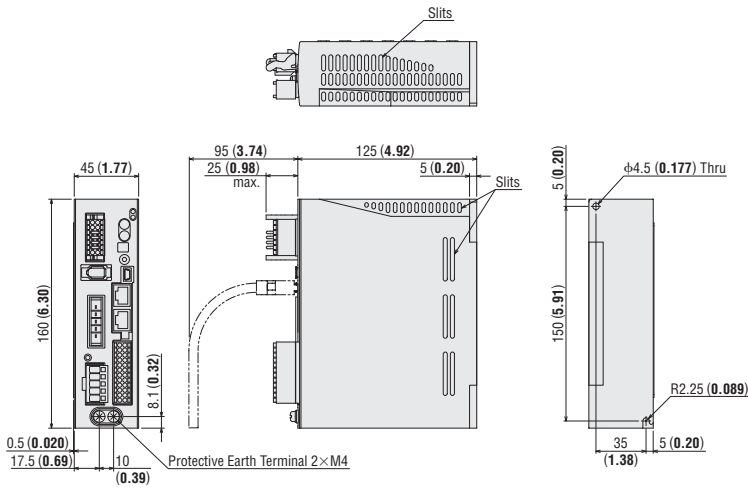
● Driver

◇ Built-in Controller Type

Product Name: **AZD-AD, AZD-CD**

Mass: 0.65 kg (1.43 lb.)

2D CAD B1095 3D CAD



● Included

Main Power Supply/Connector for Regeneration Unit (CN4)

Connector: 05JFAT-SAXGDK-H5.0
(J.S.T. Mfg. Co., Ltd.)

I/O Signal Connector (CN5)

Connector: DFMC1,5/12-ST-3,5
(Phoenix Contact)

24 VDC Power Supply Input/Electromagnetic Brake Connection/
Regeneration Unit Thermal Input/Connector for Power Interruption
Signal Input/Output (CN1)

Connector: DFMC1,5/7-ST-3,5-LR
(Phoenix Contact)

Connector Wiring Lever: J-FAT-0T

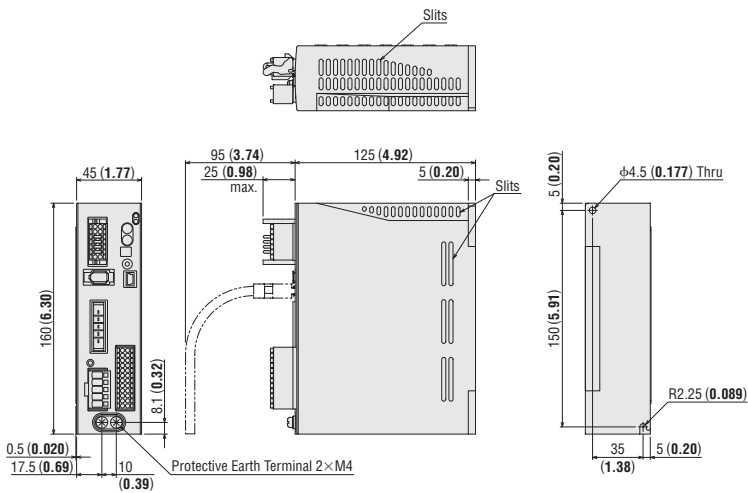
(J.S.T. Mfg. Co., Ltd.)

◇ Pulse Input Type

Product Name: **AZD-A, AZD-C**

Mass: 0.65 kg (1.43 lb.)

2D CAD B1097 3D CAD



● Included

Main Power Supply/Connector for Regeneration Unit (CN4)

Connector: 05JFAT-SAXGDK-H5.0
(J.S.T. Mfg. Co., Ltd.)

I/O Signal Connector (CN5)

Connector: DFMC1,5/12-ST-3,5
(Phoenix Contact)

24 VDC Power Supply Input/Electromagnetic Brake Connection/
Regeneration Unit Thermal Input/Connector for Power Interruption
Signal Input/Output (CN1)

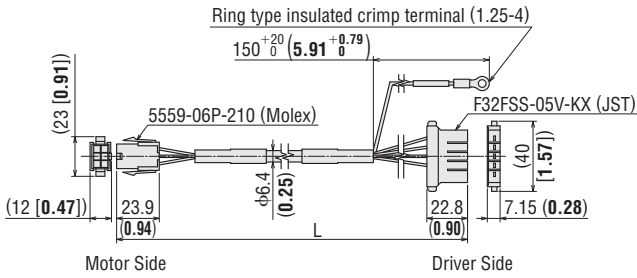
Connector: DFMC1,5/7-ST-3,5-LR
(Phoenix Contact)

Connector Wiring Lever: J-FAT-0T

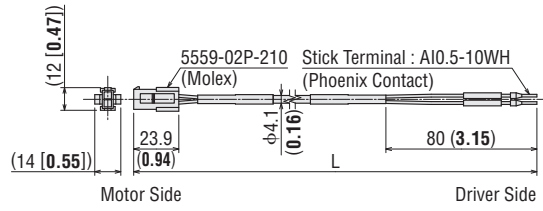
(J.S.T. Mfg. Co., Ltd.)

● Connection Cable Set / Flexible Connection Cable Set

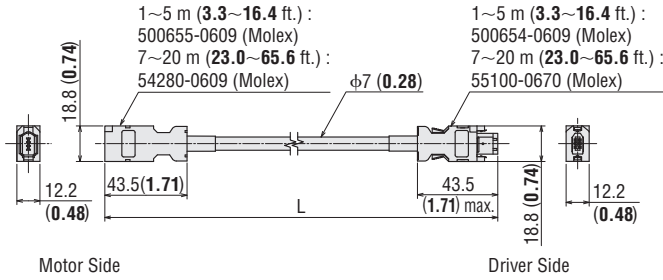
◇ Cable for Motor



◇ Cable for Electromagnetic Brake



◇ Encoder Cable



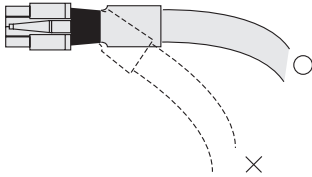
*The length L [m (in.)] in "Product Line and List Price" on pages from 14 to 16 is entered where L is located in the dimensions drawing.

Note

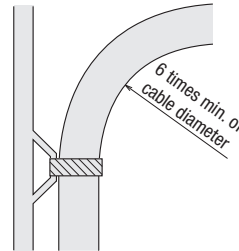
● The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

■ Note on Use of Flexible Connection Cable

① Do not allow the cable to bend at the cable connector.

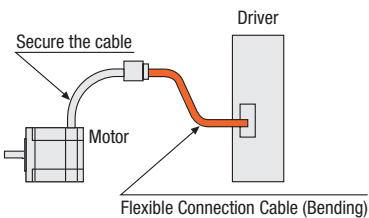


② For the bending radius, use at 6 times min. of the cable diameter.

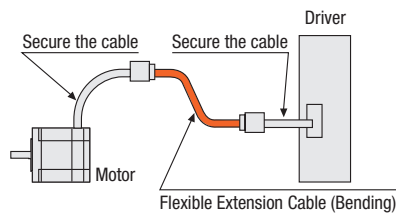


③ The cable from the motor and the accessory cable are not bending types. If the motor cable is to be bent, bend it at the flexible cable.

● Flexible Connection Cable



● Flexible Extension Cable



Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics/ Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

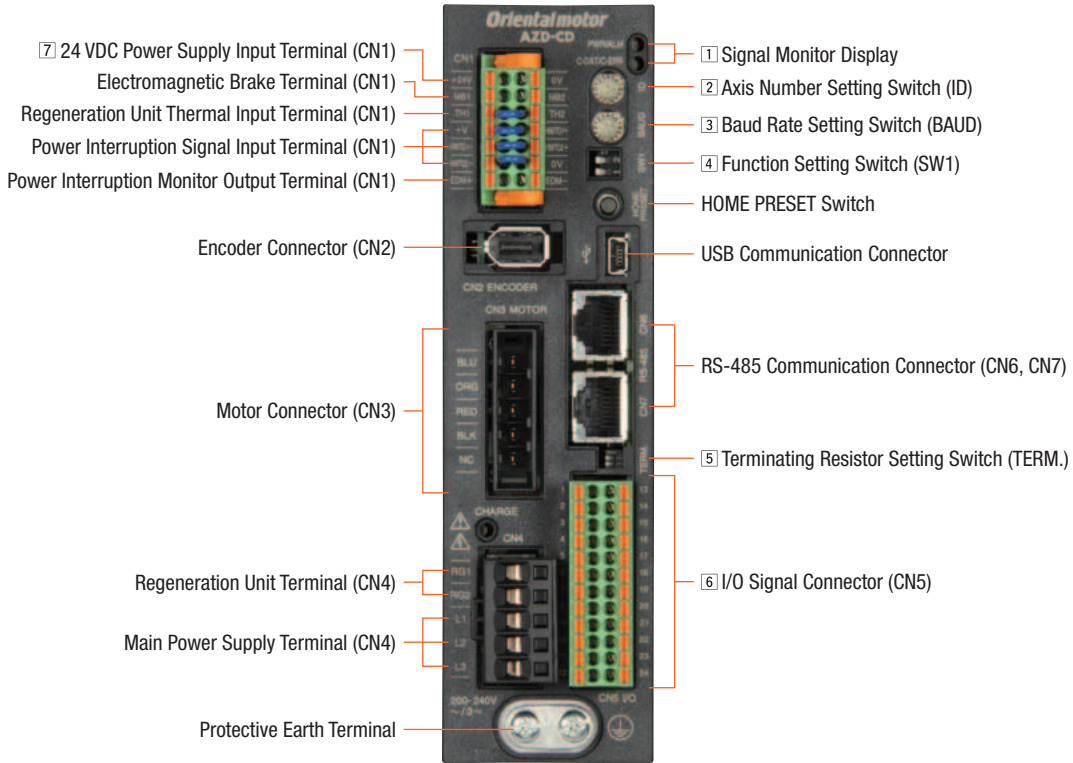
Specifications/ Characteristics/ Dimensions

Connection and Operation

Accessories

Connection and Operation (Built-in controller type)

Names and Functions of Driver Parts



1 Signal Monitor Display

◇ LED Indicators

Display	Color	Function	Activation Conditions
PWR	Green	Power supply indication	Lights when 24 VDC power supply is on
ALM	Red	Alarm indication	Blinks when protective functions are activated
C-DAT	Green	Communication indication	When communication data is being received or sent
C-ERR	Red	Communication error indication	When there is a communication data error

2 Axis Number Setting Switch

Display	Function
ID	Set when using RS-485 communication. Sets the axis number (factory setting: 0).

3 Baud Rate Setting Switch

Display	Function
BAUD	Set when using RS-485 communication. Sets the baud rate (factory setting: 7).

4 Function Setting Switch

Display	No.	Function
SW1	1	Use in combination with the axis setting switch (ID) to set the axis number (Factory setting: OFF).
	2	Sets the protocol for RS-485 communication (factory setting: OFF).

◇ RS-485 Baud Rate Setting

No.	Baud Rate (bps)
0	9600
1	19200
2	38400
3	57600
4	115200
5	230400
6	Not used
7	Network converter
8~F	Not used

5 Terminating Resistor Setting Switch

Display	No.	Function
TERM.	1	This sets the terminating resistor (120 Ω) for RS-485 communication (factory setting: OFF). OFF: No terminating resistor, ON: Terminating resistor
	2	

● Please use the same settings for both No. 1 and No. 2.

6 I/O Signal Connector (CN5)

Display	Pin No.	Signal Name	Description
CN5	1	IN0	START This signal is used to start positioning operation.
	2	IN2	M1 The operating data number is selected using 3 bits: M0, M1, and M2.
	3	IN4	ZHOME This moves to the home position set with the HOME PRESET switch.
	4	IN6	STOP This stops the motor.
	5	IN-COM [0-7]*1	IN0~IN7 Input Common
	6	IN8	FW-JOG This starts the JOG operation.
	7	OUT0	HOME-END If a home position has been decided, it will output when high-speed return-to-home operations have finished.
	8	OUT2	PLS-RDY Not used.
	9	OUT4	MOVE Output during motor operation.
	10	OUT-COM*1	Output Common
	11	ASG+	A-phase pulse output +
	12	BSG+	B-phase pulse output +
	13	IN1	M0 The operating data number is selected using 3 bits: M0, M1, and M2.
	14	IN3	M2 The operating data number is selected using 3 bits: M0, M1, and M2.
	15	IN5	FREE This stops motor excitation.
	16	IN7	ALM-RST This resets the alarm.
	17	IN-COM [8-9]*1	IN8, IN9 Input Common
	18	IN9	RV-JOG This starts the JOG operation.
	19	OUT1	IN-POS Output when motor operations have finished.
	20	OUT3	READY Output when driver operation preparations have finished.
	21	OUT5	ALM-B The driver's alarm status is output (normally closed).
	22	GND*1	Ground
	23	ASG-	A-phase pulse output -
	24	BSG-	B-phase pulse output -

● Assigned functions are set by means of the parameters. The initial values are shown above. Refer to the functions for details.

*1 The initial value setting cannot be changed.

7 24 VDC Power Supply Input Terminal / Electromagnetic Brake Connection Terminal / Regeneration Unit Thermal Input Terminal / Power Interruption Signal Input Terminal / Power Interruption Monitor Output Terminal (CN1)

Display	Input/Output	Terminal Name	Description
+24V	Input	24 VDC Power Supply Input Terminal +	This is the power supply for the driver's control circuit. Always connect when using.
0V		24 VDC Power Supply Input Terminal -	
MB1	Output	Electromagnetic Brake Connection Terminal -	This connects the electromagnetic brake cable of an electromagnetic brake type motor.
MB2		Electromagnetic Brake Connection Terminal +	
TH1	Input	Regeneration Unit Thermal Input Terminal	Connect the accessory regeneration unit RGB100 (sold separately). When not connecting a regeneration unit, short these 2 terminals to each other.
TH2		Regeneration Unit Thermal Input Terminal	
HWT01+	Input	Power Interruption Signal Input Terminal 1 +	These connect the switches and programmable controller. If either HWT01 input or HWT02 input is OFF, power supply directly to the motor is interrupted by the hardware, without going through the CPU.
HWT01-		Power Interruption Signal Input Terminal 1 -	
HWT02+		Power Interruption Signal Input Terminal 2 +	
HWT02-		Power Interruption Signal Input Terminal 2 -	
EDM+	Output	Power Interruption Monitor Output Terminal +	These connect the programmable controller. If both HWT01 input and HWT02 input are OFF, EDM output is ON.
EDM-		Power Interruption Monitor Output Terminal -	

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

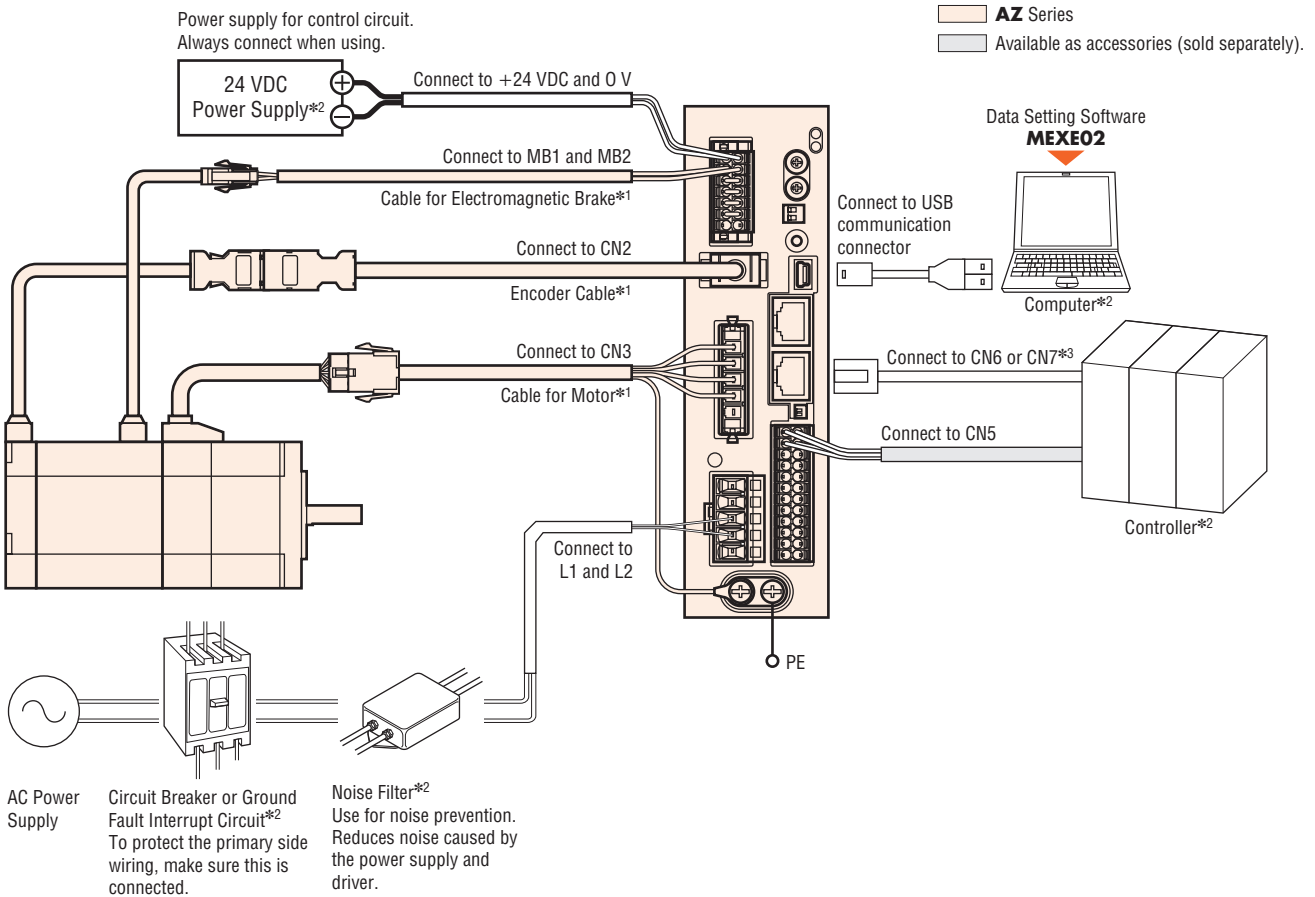
Dimensions

Connection and Operation

Accessories

● Connection Diagram

◇ Connection to Peripheral Equipment



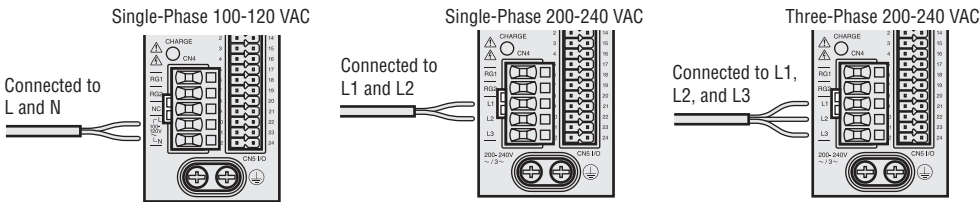
*1 Keep the maximum wiring distance between the motor and driver to 20 m (65.6 ft.).

*2 Not supplied.

*3 If controlling with RS-485 communication, connect to a controller.

◇ Main Power Supply Connection

The connection method varies with the power supply specifications.



◇ USB Cable Connection

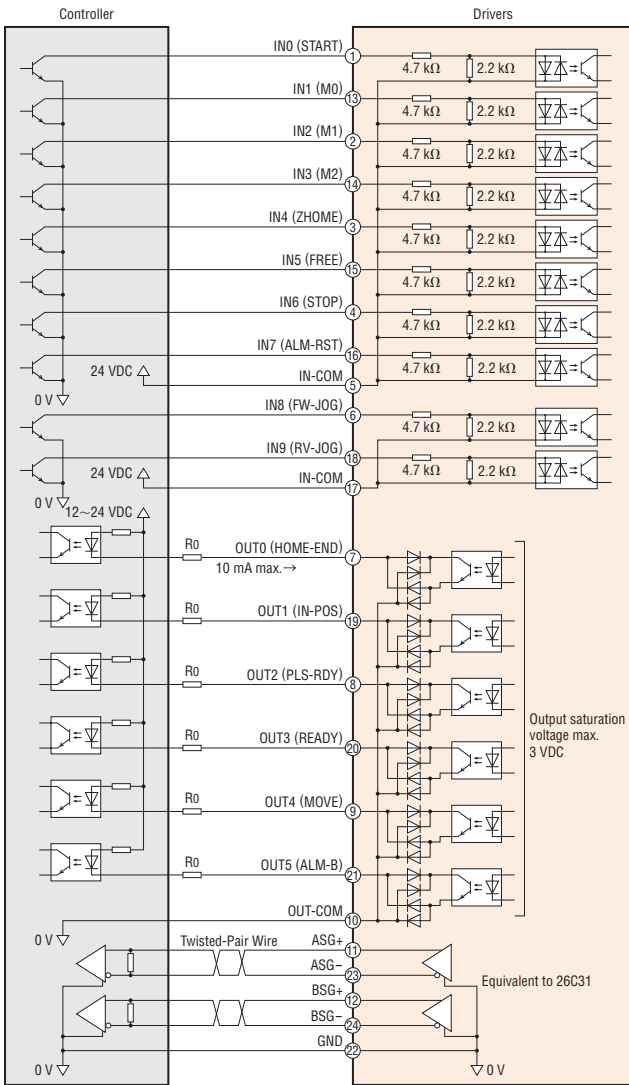
Connect a computer on which the data setting software **MEXE02** is installed and the driver via USB cable.

Please use a USB cable that meets the following specifications.

Specifications	USB 2.0 (full-speed)
Cable	Length: 3 m (9.8 ft.) max.
	Configuration: A-mini-B

◇ Connection to the Programmable Controller (Built-in controller type)

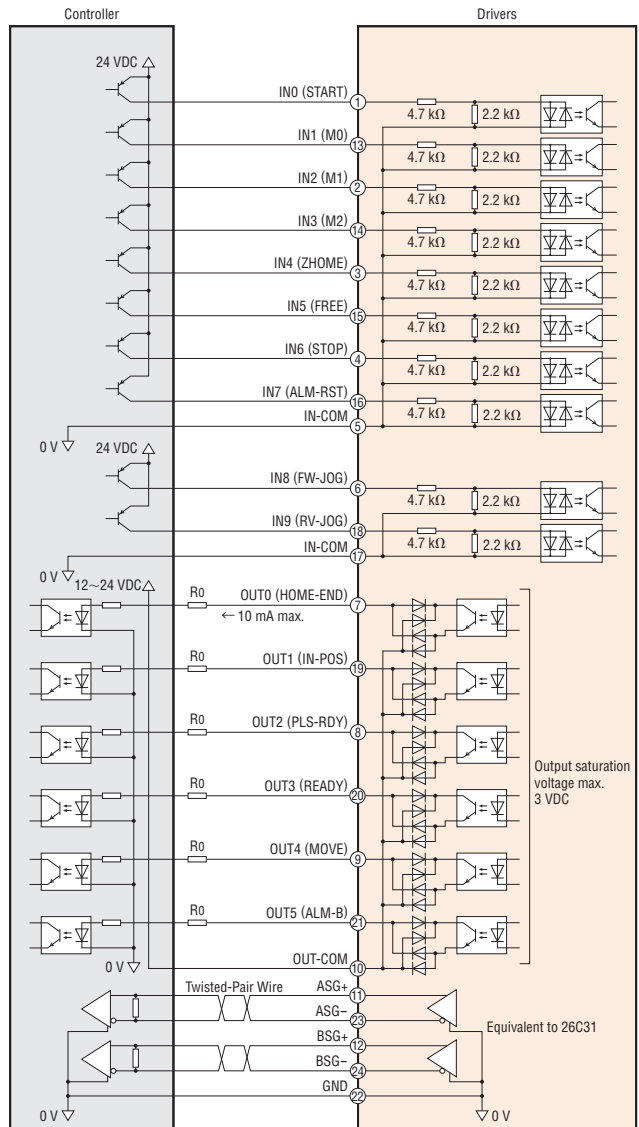
● Connecting to a Current Sink Output Circuit



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.87 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

● Connecting to a Current Source Output Circuit



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.87 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

DC Input

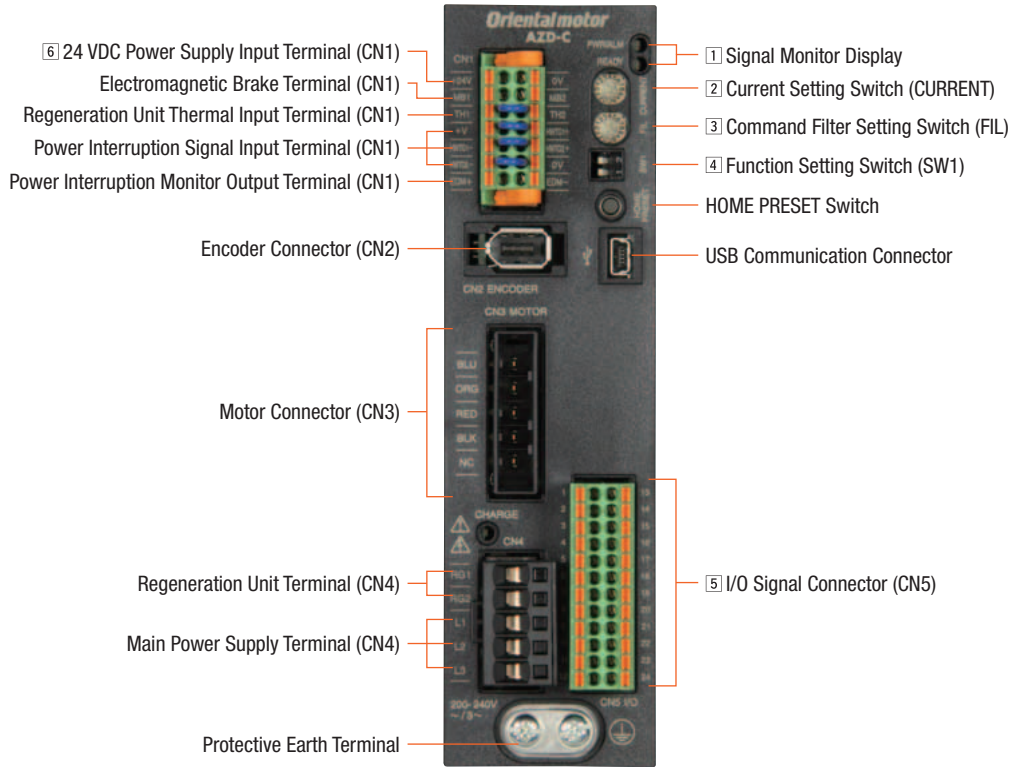
Dimensions

Connection and Operation

Accessories

Connection and Operation (Pulse input type)

Names and Functions of Driver Parts



1 Signal Monitor Display

◇ LED Indicators

Display	Color	Function	Activation Conditions
PWR	Green	Power supply indication	Lights when 24 VDC power supply is on.
ALM	Red	Alarm indication	Blinks when protective functions are activated.
READY	Green	READY Output	When READY output is ON.

2 Current Setting Switch

Display	Function
CURRENT	This sets the base current for the operating current and stall current (factory setting: F).

3 Command Filter Setting Switch

Display	Function
FIL	This adjusts the motor response (factory setting: 1).

4 Function Setting Switch

Display	No.	Function
SW1	1	This sets the resolution per rotation of the motor output shaft (factory setting: OFF [1000 p/r]).
	2	This sets the pulse input mode to 1 pulse input or 2 pulse input mode. (factory setting: OFF [2 pulse input mode])

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

5 I/O Signal Connector (CN5)

Display	Pin No.	Signal Name	Description
CN5	1	CW+[PLS+]*1	CW pulse input+[Pulse input+]
	2	CCW+[DIR+]*1	CCW pulse input+[Rotation direction input+]
	3	IN4	ZHOME This moves to the home position set with the HOME PRESET switch.
	4	IN6	STOP This stops the motor.
	5	IN-COM [4-7]*1	IN4~IN7 Input Common
	6	IN8	FW-JOG This starts the JOG operation.
	7	OUT0	HOME-END If a home position has been decided, it will output when high-speed return-to-home operations have finished.
	8	OUT2	PLS-RDY Outputs once pulse input preparations have finished.
	9	OUT4	MOVE Output during motor operation.
	10	OUT-COM*1	Output Common
	11	ASG+	A-phase pulse output+
	12	BSG+	B-phase pulse output+
	13	CW-[PLS-]*1	CW pulse input-[Pulse input-]
	14	CCW-[DIR-]*1	CCW pulse input-[Rotation direction input-]
	15	IN5	FREE This stops motor excitation.
	16	IN7	ALM-RST This resets the alarm.
	17	IN-COM [8-9]*1	IN8, IN9 Input Common
	18	IN9	RV-JOG This starts the JOG operation.
	19	OUT1	IN-POS Output when motor operations have finished.
	20	OUT3	READY Output when driver operation preparations have finished.
	21	OUT5	ALM-B The driver's alarm status is output (normally closed).
	22	GND*1	Ground
	23	ASG-	A-phase pulse output-
	24	BSG-	B-phase pulse output-

● Assigned functions are set by means of the parameters. The initial values are shown above. Refer to the functions for details.

*1 The initial value setting cannot be changed.

6 24 VDC Power Supply Input Terminal / Electromagnetic Brake Connection Terminal / Regeneration Unit Thermal Input Terminal / Power Interruption Signal Input Terminal / Power Interruption Monitor Output Terminal (CN1)

Display	Input/Output	Terminal Name	Description
+24V	Input	24 VDC Power Supply Input Terminal +	This is the power supply for the driver's control circuit. Always connect when using.
0V		24 VDC Power Supply Input Terminal -	
MB1	Output	Electromagnetic Brake Connection Terminal -	This connects the electromagnetic brake cable of an electromagnetic brake type motor.
MB2		Electromagnetic Brake Connection Terminal +	
TH1	Input	Regeneration Unit Thermal Input Terminal	Connect the accessory regeneration unit RGB100 (sold separately). When not connecting a regeneration unit, short these 2 terminals to each other.
TH2		Regeneration Unit Thermal Input Terminal	
HWT01+	Input	Power Interruption Signal Input Terminal 1 +	These connect the switches and programmable controller. If either HWT01 input or HWT02 input is OFF, power supply directly to the motor is interrupted by the hardware, without going through the CPU.
HWT01-		Power Interruption Signal Input Terminal 1 -	
HWT02+		Power Interruption Signal Input Terminal 2 +	
HWT02-		Power Interruption Signal Input Terminal 2 -	
EDM+	Output	Power Interruption Monitor Output Terminal +	These connect the programmable controller. If both HWT01 input and HWT02 input are OFF, EDM output is ON.
EDM-		Power Interruption Monitor Output Terminal -	

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

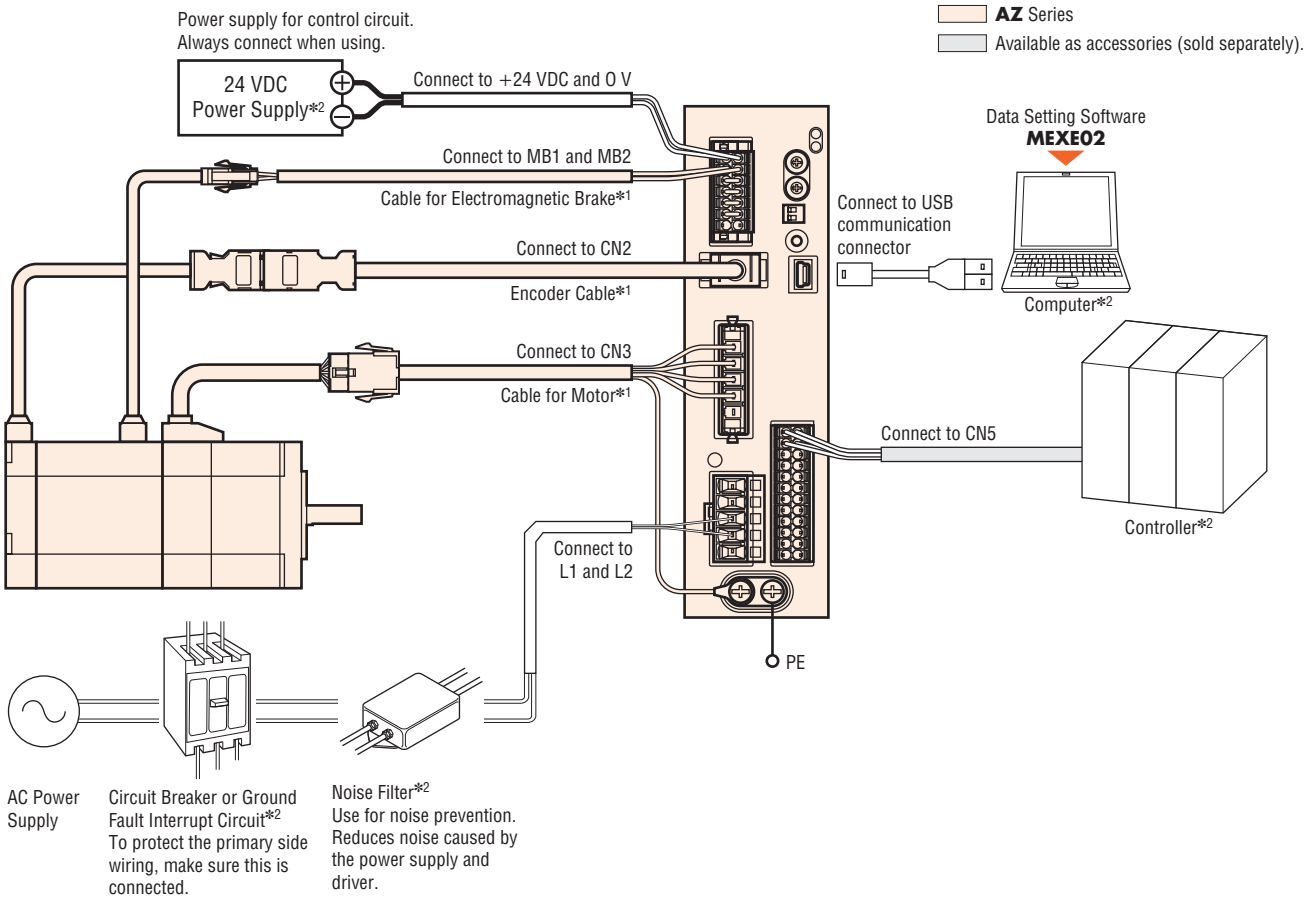
Dimensions

Connection and Operation

Accessories

● Connection Diagram

◇ Connection to Peripheral Equipment

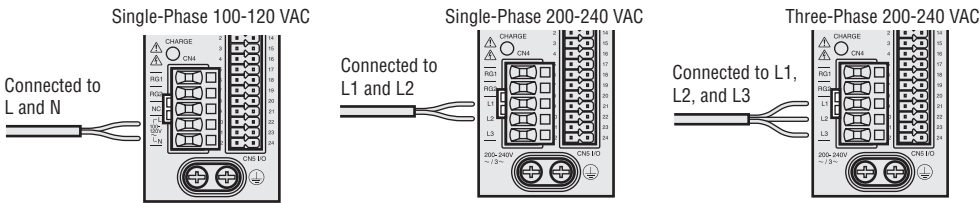


*1 Keep the maximum wiring distance between the motor and driver to 20 m (65.6 ft.).

*2 Not supplied.

◇ Main Power Supply Connection

The connection method varies with the power supply specifications.



◇ USB Cable Connection

Connect a computer on which the data setting software **MEXE02** is installed and the driver via USB cable.

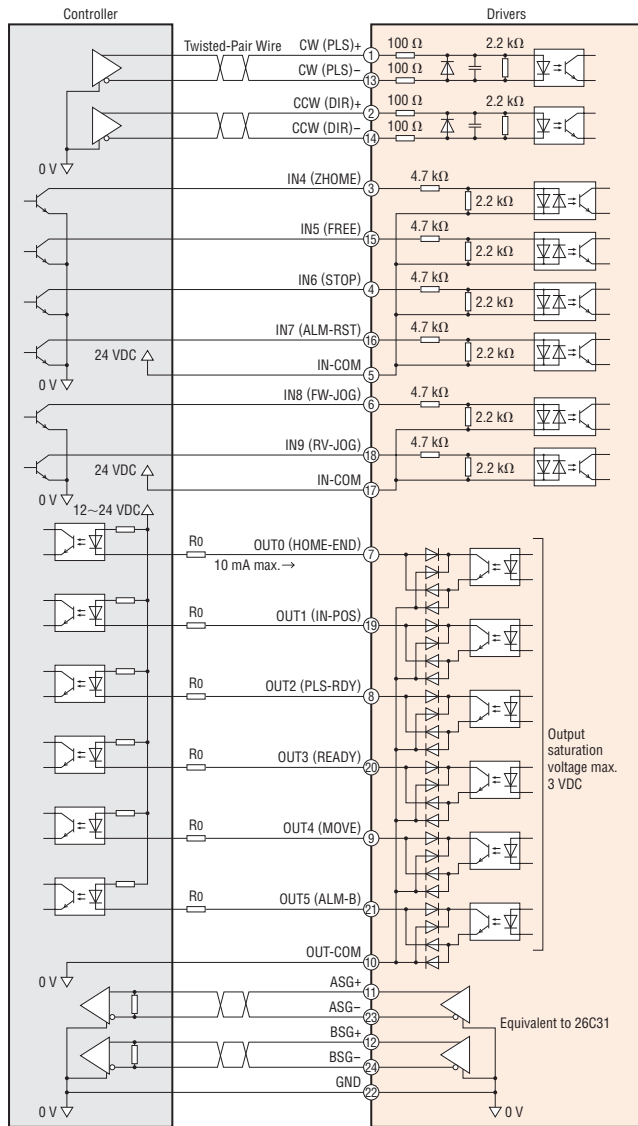
Please use a USB cable that meets the following specifications.

Specifications	USB 2.0 (full-speed)
Cable	Length: 3 m (9.8 ft.) max.
	Configuration: A-mini-B

◇ Connection to the Programmable Controller (Pulse input type)

● Connecting to a Current Sink Output Circuit

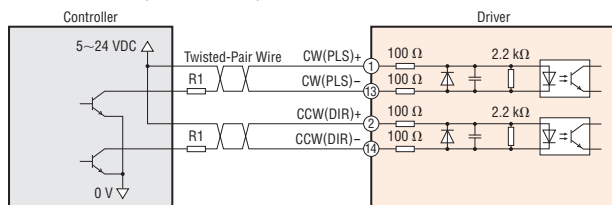
When pulse input is of line driver type



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.87 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

When Pulse Input is the Open Collector

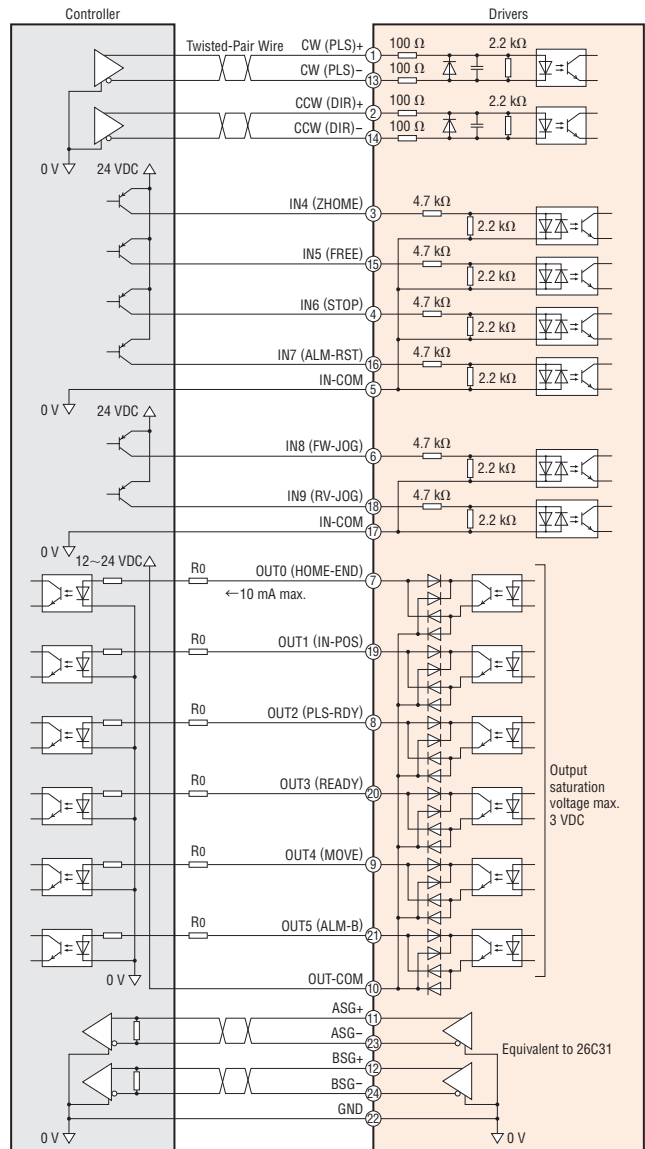


Note

- Please use 5~24 VDC for the CW (PLS) input and CCW (DIR) input. If more than 5 VDC of voltage is being applied, connect an external resistor R_1 to keep the input current between 7 and 20 mA.

● Connecting to a Current Source Output Circuit

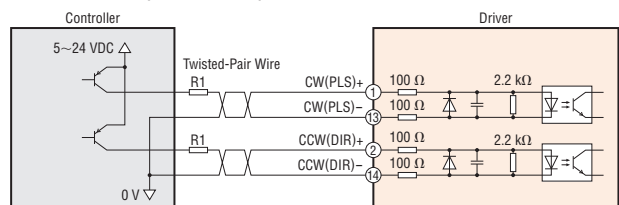
When pulse input is of line driver type



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.87 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

When Pulse Input is the Open Collector



Note

- Please use 5~24 VDC for the CW (PLS) input and CCW (DIR) input. If more than 5 VDC of voltage is being applied, connect an external resistor R_1 to keep the input current between 7 and 20 mA.

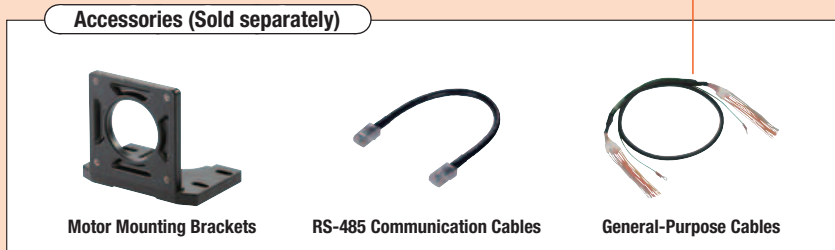
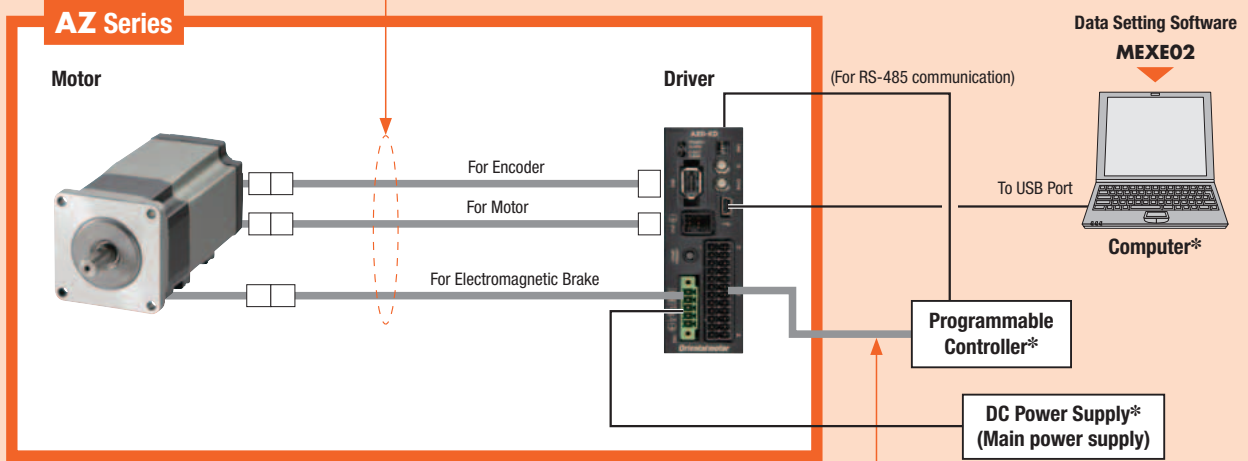
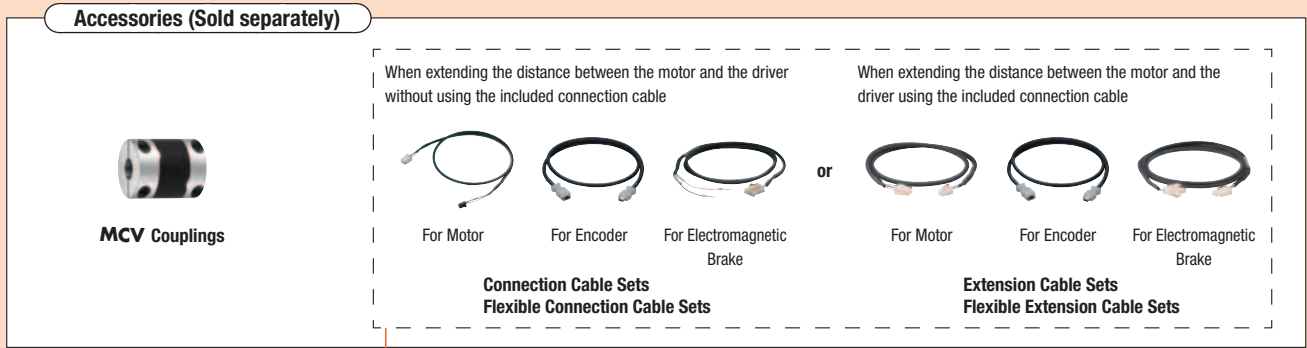
System Configuration

Built-in Controller Type, Standard Type with Electromagnetic Brake

An example of a configuration using either I/O control or RS-485 communication is shown below.

* Not supplied

- Stepper Motors
AZ
- Slides
EZS
- Cylinders
EAC
- Rotary Actuators
DGI



Example of System Configuration

AZ Series			Accessories	
Motor	+	Driver	Sold separately	
AZM66AK		AZD-KD	Mounting Bracket	Flexible Coupling
\$362.00		\$441.00	PAL2P-5	MCV251010
			\$17.00	\$79.00
		Connection Cable Set		
		CC030VZFB2		
		\$82.00		

The system configuration shown above is an example. Other combinations are available.

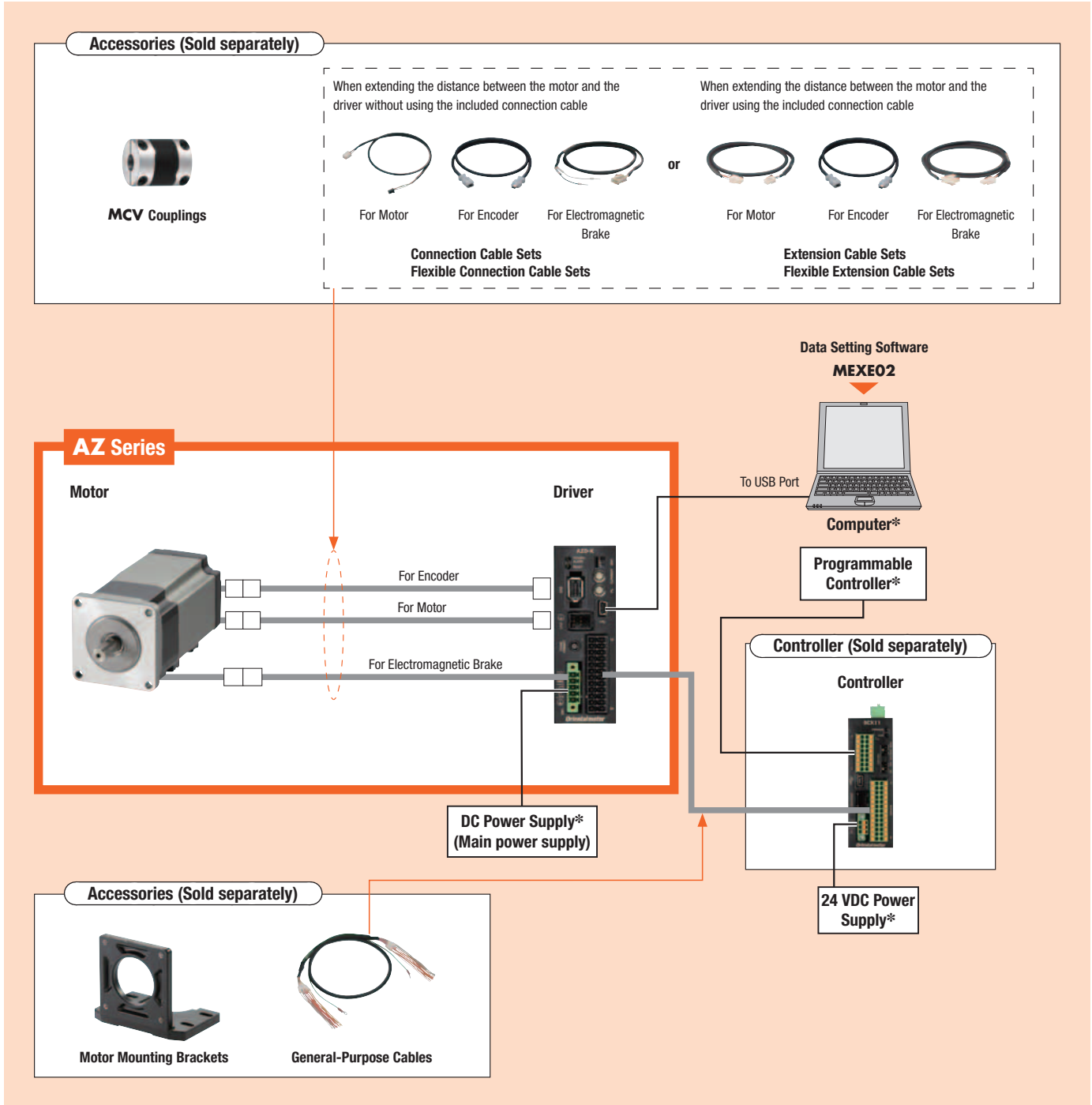
Note

The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

● Pulse Input Type, Standard Type with Electromagnetic Brake

A single-axis system configuration with the **SCX11** Series controller is shown below.

* Not supplied



● Example of System Configuration

AZ Series			Accessories		
Motor	Driver	Connection Cable Set	Sold separately		
AZM66AK	AZD-K	CC030VZFB2	Controller	Mounting Bracket	Flexible Coupling
\$362.00	\$384.00	\$82.00	SCX11	PAL2P-5	MCV251010
			\$349.00	\$17.00	\$79.00

● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

Connection and Operation

Accessories

Product Number Code

Motor

Standard Type

AZM 6 6 A K

① ② ③ ④ ⑤

TS, PS, HPG, Harmonic Geared Type

AZM 6 6 A K - HP 15 F

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

Driver

AZD - K D

① ② ③

Connection Cable Set / Flexible Connection Cable Set

CC 050 V Z □ F B 2

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Motor Type	AZM: AZ Series Motor
②	Motor Frame Size	1: 20 mm (0.79 in.) 2: 28 mm (1.10 in.) 4: 42 mm (1.65 in.) (HPG Geared Type is 40 mm (1.57 in.)) 6: 60 mm (2.36 in.)
③	Motor Case Length	
④	Output Shaft Configuration	A: Single Shaft M: Electromagnetic Brake Type
⑤	Motor Specifications	K: DC Power Supply Input Specifications
⑥	Gear Type	TS: TS Geared Type PS: PS Geared Type HP: HPG Geared Type HS: Harmonic Geared Type
⑦	Gear Ratio	
⑧	Output Shaft Type	HPG Geared Type Blank: Shaft Output F: Flange Output

①	Driver Type	AZD: AZ Series Driver
②	Power Supply Input	K: 24/48 VDC
③	Type	D: Built-in Controller Type Blank: Pulse Input Type

①		CC: Cable
②	Length	010: 1 m (3.3 ft.) 020: 2 m (6.6 ft.) 030: 3 m (9.8 ft.) 050: 5 m (16.4 ft.) 070: 7 m (23 ft.) 100: 10 m (32.8 ft.) 150: 15 m (49.2 ft.) 200: 20 m (65.6 ft.)
③	Reference Number	
④	Applicable Product	Z: AZ Series
⑤	Reference Number	Blank: Frame Size 42 mm (1.65 in.) (HPG Geared Type is 40 mm (1.57 in.)), 60 mm (2.36 in.) 2: Frame Size 20 mm (0.79 in.), 28 mm (1.10 in.)
⑥	Cable Type	F: Connection Cable Set R: Flexible Connection Cable Set
⑦	Description	Blank: Without Electromagnetic Brake B: Electromagnetic Brake Type
⑧	Cable Specifications	2: DC Power Supply Input

Product Line and List Price

● Motor

◇ Standard Type

Frame Size	Product Name	List Price
20 mm (0.79 in.)	AZM14AK	\$283.00
	AZM15AK	\$283.00
28 mm (1.10 in.)	AZM24AK	\$283.00
	AZM26AK	\$283.00
42 mm (1.65 in.)	AZM46AK	\$307.00
60 mm (2.36 in.)	AZM66AK	\$362.00
	AZM69AK	\$367.00



◇ Standard Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MK	\$466.00
60 mm (2.36 in.)	AZM66MK	\$565.00
	AZM69MK	\$571.00

◇ TS Geared Type

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AK-TS3.6	\$441.00
	AZM46AK-TS7.2	\$441.00
	AZM46AK-TS10	\$457.00
	AZM46AK-TS20	\$457.00
	AZM46AK-TS30	\$457.00
60 mm (2.36 in.)	AZM66AK-TS3.6	\$519.00
	AZM66AK-TS7.2	\$519.00
	AZM66AK-TS10	\$534.00
	AZM66AK-TS20	\$534.00
	AZM66AK-TS30	\$534.00



◇ TS Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MK-TS3.6	\$599.00
	AZM46MK-TS7.2	\$599.00
	AZM46MK-TS10	\$615.00
	AZM46MK-TS20	\$615.00
	AZM46MK-TS30	\$615.00
60 mm (2.36 in.)	AZM66MK-TS3.6	\$722.00
	AZM66MK-TS7.2	\$722.00
	AZM66MK-TS10	\$738.00
	AZM66MK-TS20	\$738.00
	AZM66MK-TS30	\$738.00

◇ PS Geared Type

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AK-PS5	\$567.00
	AZM46AK-PS7.2	\$567.00
	AZM46AK-PS10	\$567.00
	AZM46AK-PS25	\$624.00
	AZM46AK-PS36	\$624.00
	AZM46AK-PS50	\$624.00
60 mm (2.36 in.)	AZM66AK-PS5	\$678.00
	AZM66AK-PS7.2	\$678.00
	AZM66AK-PS10	\$678.00
	AZM66AK-PS25	\$757.00
	AZM66AK-PS36	\$757.00
	AZM66AK-PS50	\$757.00



◇ PS Geared Type with Electromagnetic Brake

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MK-PS5	\$725.00
	AZM46MK-PS7.2	\$725.00
	AZM46MK-PS10	\$725.00
	AZM46MK-PS25	\$782.00
	AZM46MK-PS36	\$782.00
	AZM46MK-PS50	\$782.00
60 mm (2.36 in.)	AZM66MK-PS5	\$881.00
	AZM66MK-PS7.2	\$881.00
	AZM66MK-PS10	\$881.00
	AZM66MK-PS25	\$961.00
	AZM66MK-PS36	\$961.00
	AZM66MK-PS50	\$961.00

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

Connection and Operation

Accessories

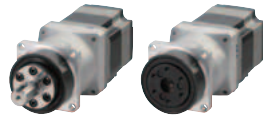
Accessories

Stepper
Motors
AZ

Slides
EZS

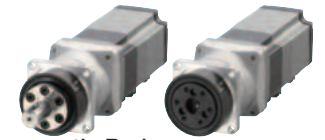
Cylinders
EAC

Rotary
Actuators
DGI



◇ **HPG Geared Type**

Frame Size	Product Name	List Price
40 mm (1.57 in.)	AZM46AK-HP5	\$669.00
	AZM46AK-HP5F	\$658.00
	AZM46AK-HP9	\$669.00
	AZM46AK-HP9F	\$658.00
60 mm (2.36 in.)	AZM66AK-HP5	\$904.00
	AZM66AK-HP5F	\$887.00
	AZM66AK-HP15	\$1070.00
	AZM66AK-HP15F	\$1053.00



◇ **HPG Geared Type with Electromagnetic Brake**

Frame Size	Product Name	List Price
40 mm (1.57 in.)	AZM46MK-HP5	\$827.00
	AZM46MK-HP5F	\$816.00
	AZM46MK-HP9	\$827.00
	AZM46MK-HP9F	\$816.00
	AZM66MK-HP5	\$1107.00
60 mm (2.36 in.)	AZM66MK-HP5F	\$1090.00
	AZM66MK-HP15	\$1274.00
	AZM66MK-HP15F	\$1257.00



◇ **Harmonic Geared Type**

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46AK-HS50	\$901.00
	AZM46AK-HS100	\$901.00
60 mm (2.36 in.)	AZM66AK-HS50	\$1215.00
	AZM66AK-HS100	\$1215.00



◇ **Harmonic Geared Type with Electromagnetic Brake**

Frame Size	Product Name	List Price
42 mm (1.65 in.)	AZM46MK-HS50	\$1059.00
	AZM46MK-HS100	\$1059.00
60 mm (2.36 in.)	AZM66MK-HS50	\$1418.00
	AZM66MK-HS100	\$1418.00

● **Driver**

◇ **Built-in Controller Type**

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-KD	\$441.00



◇ **Pulse Input Type**

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-K	\$384.00



● Connection Cable Set / Flexible Connection Cable Set
 [For **AZM14**, **AZM15**, **AZM24**, and **AZM26**]



◇ Without Electromagnetic Brake

Type	Length L m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VZ2F2	\$35.00
	2 (6.6)	CC020VZ2F2	\$50.00
	3 (9.8)	CC030VZ2F2	\$62.00
	5 (16.4)	CC050VZ2F2	\$110.00
	7 (23)	CC070VZ2F2	\$136.00
	10 (32.8)	CC100VZ2F2	\$176.00
	15 (49.2)	CC150VZ2F2	\$243.00
Flexible Connection Cable Sets	1 (3.3)	CC010VZ2R2	\$84.00
	2 (6.6)	CC020VZ2R2	\$99.00
	3 (9.8)	CC030VZ2R2	\$111.00
	5 (16.4)	CC050VZ2R2	\$141.00
	7 (23)	CC070VZ2R2	\$180.00
	10 (32.8)	CC100VZ2R2	\$236.00
	15 (49.2)	CC150VZ2R2	\$332.00
20 (65.6)	CC200VZ2R2	\$426.00	

[For **AZM46**, **AZM66**, and **AZM69**]



◇ Without Electromagnetic Brake

Type	Length L m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VZF2	\$35.00
	2 (6.6)	CC020VZF2	\$50.00
	3 (9.8)	CC030VZF2	\$62.00
	5 (16.4)	CC050VZF2	\$110.00
	7 (23)	CC070VZF2	\$136.00
	10 (32.8)	CC100VZF2	\$176.00
	15 (49.2)	CC150VZF2	\$243.00
Flexible Connection Cable Sets	1 (3.3)	CC010VZR2	\$84.00
	2 (6.6)	CC020VZR2	\$99.00
	3 (9.8)	CC030VZR2	\$111.00
	5 (16.4)	CC050VZR2	\$141.00
	7 (23)	CC070VZR2	\$180.00
	10 (32.8)	CC100VZR2	\$236.00
	15 (49.2)	CC150VZR2	\$332.00
20 (65.6)	CC200VZR2	\$426.00	

◇ Electromagnetic Brake Type

Type	Length L m (ft.)	Product Name	List Price
Connection Cable Sets	1 (3.3)	CC010VZFB2	\$52.00
	2 (6.6)	CC020VZFB2	\$67.00
	3 (9.8)	CC030VZFB2	\$82.00
	5 (16.4)	CC050VZFB2	\$135.00
	7 (23)	CC070VZFB2	\$166.00
	10 (32.8)	CC100VZFB2	\$213.00
	15 (49.2)	CC150VZFB2	\$293.00
Flexible Connection Cable Sets	1 (3.3)	CC010VZRB2	\$114.00
	2 (6.6)	CC020VZRB2	\$134.00
	3 (9.8)	CC030VZRB2	\$151.00
	5 (16.4)	CC050VZRB2	\$191.00
	7 (23)	CC070VZRB2	\$240.00
	10 (32.8)	CC100VZRB2	\$311.00
	15 (49.2)	CC150VZRB2	\$432.00
20 (65.6)	CC200VZRB2	\$551.00	

■ Included

● Motor

Unit = mm (in.)

Type	Included	Parallel Key	Motor Installation Screws	Operating Manual
Standard		—	—	1 pc
TS Geared	Frame Size 42 mm (1.65 in.)	—	—	
	Frame Size 60 mm (2.36 in.)	1 pc	M4×60 P0.7 (4 pcs)	
PS Geared		1 pc	—	
HPG Geared	Shaft Output	1 pc	—	
	Flange Output	—	—	
Harmonic Geared		1 pc	—	

● Driver

Type	Included	Connector	Operating Manual
Built-in Controller Type		• CN4 connector (1 pc)	1 pc
Pulse Input Type		• CN1 connector (1 pc)	

Features

System Configuration and List Price

Product Line Specifications/ Characteristics

AC Input

Dimensions

Connection and Operation

System Configuration and List Price

Product Line Specifications/ Characteristics

DC Input

Dimensions

Connection and Operation

Accessories

Standard Type Motor Frame Size 20 mm (0.79 in.), 28 mm (1.10 in.)



Specifications

Stepper
Motors
AZ

Slides
EZS

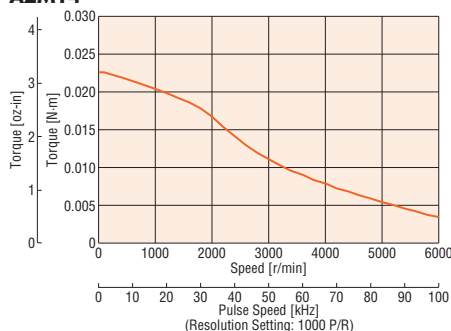
Cylinders
EAC

Rotary
Actuators
DGI

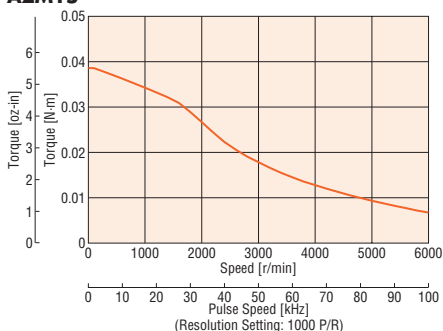
Motor	Single Shaft	AZM14AK	AZM15AK	AZM24AK	AZM26AK
Driver	Built-in Controller	AZD-KD			
	Pulse Input	AZD-K			
Maximum Holding Torque	N·m (oz·in)	0.02 (2.8)	0.036 (5.1)	0.095 (13.4)	0.19 (26)
Holding Torque at Standstill	N·m (oz·in)	0.01 (1.42)	0.018 (2.5)	0.047 (6.6)	0.095 (13.4)
Rotor Inertia	J: kg·m ² (oz·in ²)	2.7×10^{-7} (0.0148)	3.9×10^{-7} (0.021)	9.2×10^{-7} (0.050)	17×10^{-7} (0.093)
Resolution	Set to 1000 P/R	0.36°/Pulse			
Power Supply Input	Voltage	24 VDC ± 5%			
	Input Current	A	0.5	0.6	1.6

Speed – Torque Characteristics (Reference values)

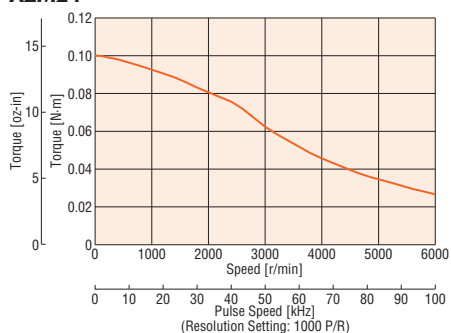
AZM14



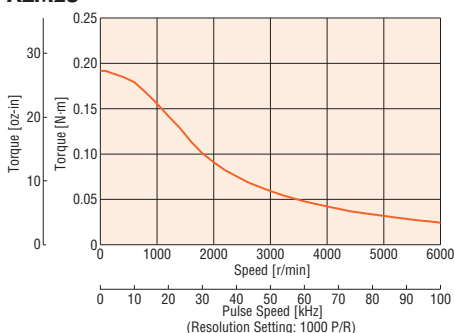
AZM15



AZM24



AZM26



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

Explanation of Terms in Specifications Table

Maximum Holding Torque	: The maximum holding torque (holding force) the motor has when power (rated current) is being supplied but the motor shaft is at standstill. (With geared types, the value of holding torque considers the permissible strength of the gear.)
Permissible Torque	: This is the maximum torque continuously applied to the gear output shaft.
Maximum Instantaneous Torque	: This is the maximum torque that can be applied to the gear output shaft during acceleration/deceleration, such as when an inertial load is started and stopped.
Holding Torque at Standstill, When power is ON	: This is the holding torque when the automatic current cutback function is activated.
Electromagnetic brake	: This is the static friction torque that the electromagnetic brake can generate at rest. (Electromagnetic brake is power off activated type.)

Standard Type Motor Frame Size 42 mm (1.65 in.), 60 mm (2.36 in.)

Specifications



Motor	Single Shaft	AZM46AK	AZM66AK	AZM69AK
	Electromagnetic Brake Type	AZM46MK	AZM66MK	AZM69MK
Driver	Built-in Controller	AZD-KD		
	Pulse Input	AZD-K		
Maximum Holding Torque	N·m (oz·in)	0.3 (42)	1 (141)	2 (283)
Holding Torque at Standstill	Power ON N·m (oz·in)	0.15 (21)	0.5 (70)	1 (70)
	Electromagnetic Brake N·m (oz·in)	0.15 (21)	0.5 (70)	1 (70)
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.38)]*1	370×10 ⁻⁷ (20) [530×10 ⁻⁷ (2.9)]*1	740×10 ⁻⁷ (40) [900×10 ⁻⁷ (49)]*1
Resolution	Set to 1000 P/R	0.36°/Pulse		
Power Supply Input	Voltage	24 VDC±5%*2/48 VDC±5%*3		
	Input Current A	1.72 (1.8)*1	3.55 (3.8)*1	3.45 (3.7)*1

*1 The brackets [] indicate the specifications for the electromagnetic brake type.

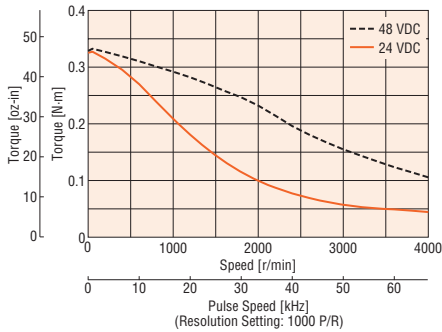
*2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

*3 If being operated at 48 VDC input, use max. 10 times the rotor inertia as a reference for the inertial load and min. 2 times the safety factor as a reference when calculating the acceleration torque (excluding **AZM46**).

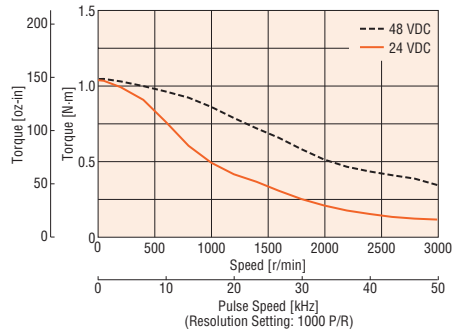
*4 Motor only

Speed – Torque Characteristics (Reference values)

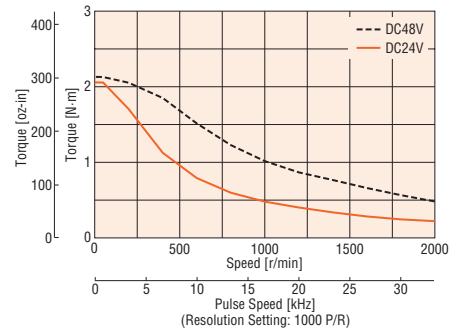
AZM46



AZM66



AZM69



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

Features

System Configuration

Product Line and List Price

Specifications/ Characteristics

AC Input

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

DC Input

Dimensions

Connection and Operation

Accessories

TS Geared Type Frame Size 42 mm (1.65 in.)



Specifications

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

Motor	Single Shaft	AZM46AK-TS3.6	AZM46AK-TS7.2	AZM46AK-TS10	AZM46AK-TS20	AZM46AK-TS30	
	Electromagnetic Brake Type	AZM46MK-TS3.6	AZM46MK-TS7.2	AZM46MK-TS10	AZM46MK-TS20	AZM46MK-TS30	
Driver	Built-in Controller	AZD-KD					
	Pulse Input	AZD-K					
Maximum Holding Torque	N-m (lb-in)	0.65 (5.7)	1.2 (10.6)	1.7 (15.0)	2 (17.7)	2.3 (20.3)	
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.39)]* ¹					
Gear Ratio		3.6	7.2	10	20	30	
Resolution	Set to 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse	
Permissible Torque	N-m (lb-in)	0.65 (5.7)	1.2 (10.6)	1.7 (15.0)	2 (17.7)	2.3 (20.3)	
Max. Instantaneous Torque*	N-m (lb-in)	0.85 (7.5)	1.6 (14.1)	2 (17.7)	*	3 (26.5)	
Holding Torque at Power ON	N-m (lb-in)	0.54 (4.8)	1 (8.8)	1.5 (13.3)	1.8 (15.9)	2.3 (20.4)	
Standstill Electromagnetic Brake	N-m (lb-in)	0.54 (4.8)	1 (8.8)	1.5 (13.3)	1.8 (15.9)	2.3 (20.4)	
Speed Control Range	r/min	0~833	0~416	0~300	0~150	0~100	
Backlash	arcmin	45 (0.75°)	25 (0.42°)		15 (0.25°)		
Power Supply Voltage	24 VDC±5%* ² /48 VDC±5%						
Input Current	A	1.72 (1.8)* ¹					

* For the geared motor output torque, refer to the speed – torque characteristics.

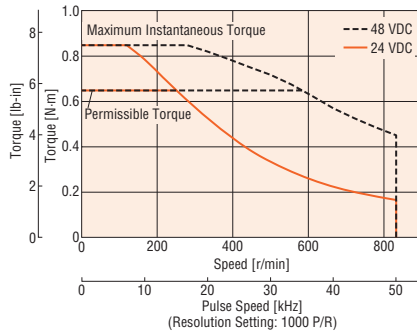
*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

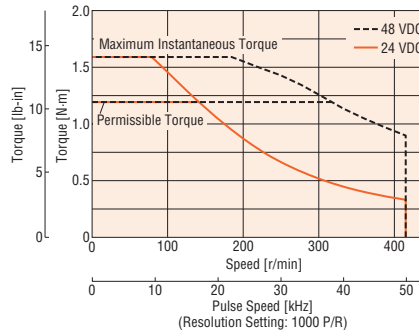
*³ Motor only

Speed – Torque Characteristics (Reference values)

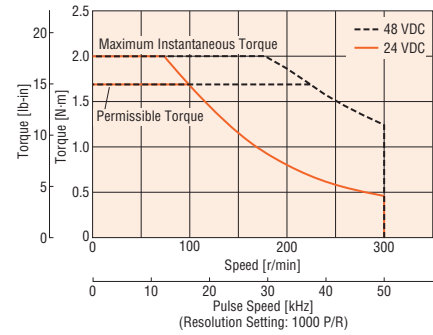
AZM46 Gear Ratio 3.6



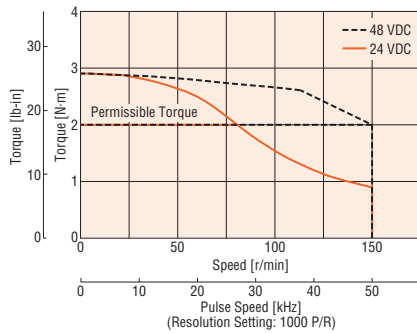
AZM46 Gear Ratio 7.2



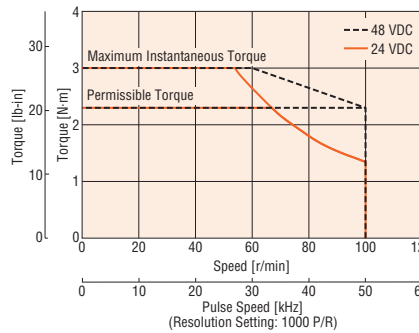
AZM46 Gear Ratio 10



AZM46 Gear Ratio 20



AZM46 Gear Ratio 30



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

TS Geared Type Frame Size 60 mm (2.36 in.)

Specifications



Motor	Single Shaft	AZM66AK-TS3.6	AZM66AK-TS7.2	AZM66AK-TS10	AZM66AK-TS20	AZM66AK-TS30
	Electromagnetic Brake Type	AZM66MK-TS3.6	AZM66MK-TS7.2	AZM66MK-TS10	AZM66MK-TS20	AZM66MK-TS30
Driver	Built-in Controller	AZD-KD				
	Pulse Input	AZD-K				
Maximum Holding Torque	N·m (lb·in)	1.8 (15.9)	3 (26.5)	4 (35.4)	5 (44.2)	6 (53.1)
Rotor Inertia	J: kg·m ² (oz·in ²)	370×10^{-7} (202) [530×10^{-7} (2.9)]* ¹				
Gear Ratio		3.6	7.2	10	20	30
Resolution	Set to 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse
Permissible Torque	N·m (lb·in)	1.8 (15.9)	3 (26.5)	4 (35.4)	5 (44.2)	6 (53.1)
Max. Instantaneous Torque*	N·m (lb·in)	*	*	*	8 (70.8)	10 (88.5)
Holding Torque at Standstill	Power ON	N·m (lb·in)	2.2 (19.4)	3 (26.5)	5 (44.2)	6 (53.1)
	Electromagnetic Brake	N·m (lb·in)	2.2 (19.4)	3 (26.5)	5 (44.2)	6 (53.1)
Speed Control Range	r/min	0~833	0~416	0~300	0~150	0~100
Backlash	arcmin	35 (0.59°)	15 (0.25°)		10 (0.17°)	
Power Supply Input	Voltage	24 VDC ± 5%* ² /48 VDC ± 5%* ³				
	Input Current	3.55 (3.8)* ¹				

* For the geared motor output torque, refer to the speed – torque characteristics.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

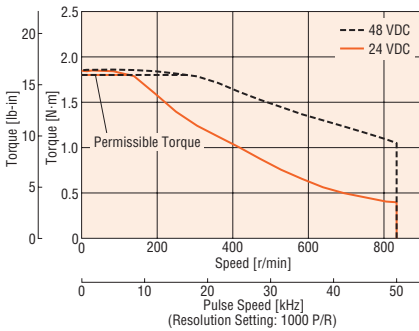
*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ± 4%.

*³ If being operated at 48 VDC input, use max. 10 times the rotor inertia as a reference for the inertial load and min. 2 times the safety factor as a reference when calculating the acceleration torque.

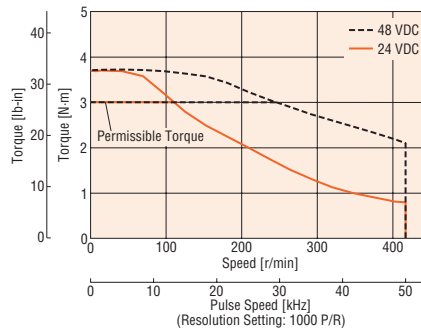
*⁴ Motor only

Speed – Torque Characteristics (Reference values)

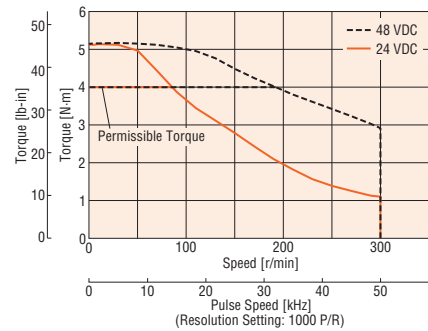
AZM66 Gear Ratio 3.6



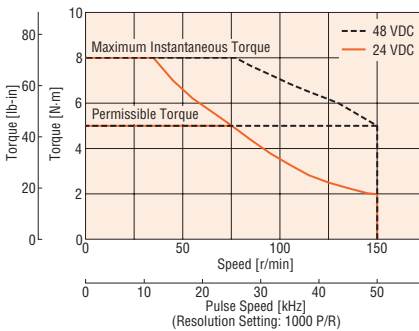
AZM66 Gear Ratio 7.2



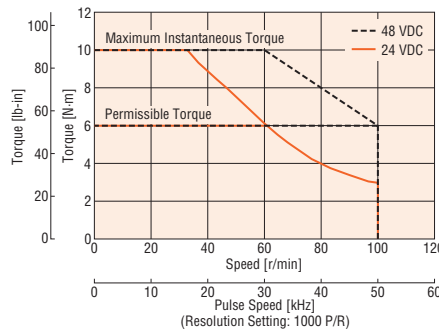
AZM66 Gear Ratio 10



AZM66 Gear Ratio 20



AZM66 Gear Ratio 30



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

DC Input

Dimensions

Connection and Operation

Accessories

PS Geared Type Frame Size 42 mm (1.65 in.)

Specifications



Stepper
Motors
AZ

Slides
EzS

Cylinders
EAC

Rotary
Actuators
DGI

Motor	Single Shaft	AZM46AK-PS5	AZM46AK-PS7.2	AZM46AK-PS10	AZM46AK-PS25	AZM46AK-PS36	AZM46AK-PS50
	Electromagnetic Brake Type	AZM46MK-PS5	AZM46MK-PS7.2	AZM46MK-PS10	AZM46MK-PS25	AZM46MK-PS36	AZM46MK-PS50
Driver	Built-in Controller	AZD-KD					
	Pulse Input	AZD-K					
Maximum Holding Torque	N·m (lb·in)	1 (8.8)	1.5 (13.2)			2.5 (22)	3 (26)
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.39)]* ¹					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Set to 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse	0.0144°/Pulse	0.01°/Pulse	0.0072°/Pulse
Permissible Torque	N·m (lb·in)	1 (8.8)			2.5 (22)		3 (26)
Max. Instantaneous Torque*	N·m (lb·in)	*	2 (22)		6 (53)	*	6 (53)
Holding Torque at Power ON	N·m (lb·in)	0.75 (6.6)	1 (8.8)	1.5 (13)	2.5 (22)	3 (26)	
Standstill Electromagnetic Brake	N·m (lb·in)	0.75 (6.6)	1 (8.8)	1.5 (13)	2.5 (22)	3 (26)	
Speed Control Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60
Backlash	arcmin	15 (0.25°)					
Power Supply Voltage		24 VDC ±5%* ² /48 VDC ±5%					
Input Current	A	1.72 (1.8)* ¹					

* For the geared motor output torque, refer to the speed – torque characteristics.

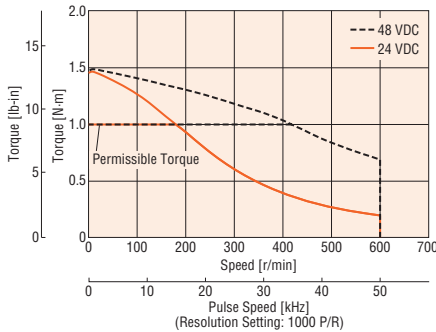
*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC ±4%.

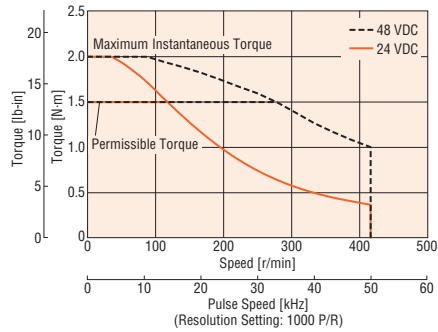
*³ Motor only

Speed – Torque Characteristics (Reference values)

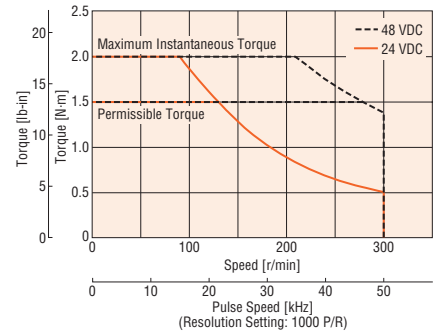
AZM46 Gear Ratio 5



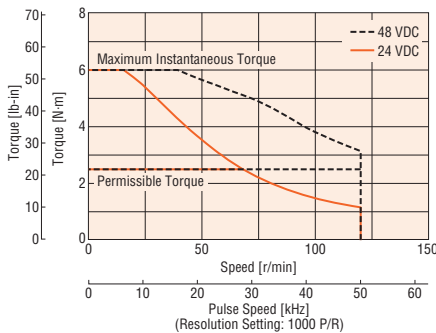
AZM46 Gear Ratio 7.2



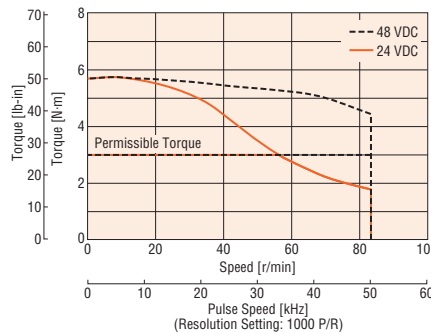
AZM46 Gear Ratio 10



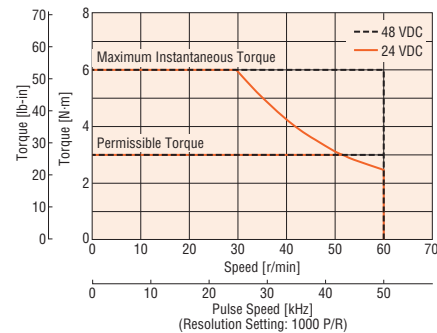
AZM46 Gear Ratio 25



AZM46 Gear Ratio 36



AZM46 Gear Ratio 50



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

PS Geared Type Frame Size 60 mm (2.36 in.)

Specifications



Motor	Single Shaft	AZM66AK-PS5	AZM66AK-PS7.2	AZM66AK-PS10	AZM66AK-PS25	AZM66AK-PS36	AZM66AK-PS50
	Electromagnetic Brake Type	AZM66MK-PS5	AZM66MK-PS7.2	AZM66MK-PS10	AZM66MK-PS25	AZM66MK-PS36	AZM66MK-PS50
Driver	Built-in Controller	AZD-KD					
	Pulse Input	AZD-K					
Maximum Holding Torque	N·m (lb·in)	3.5 (30)	4 (35)	5 (44)	8 (70)		
Rotor Inertia	J: kg·m ² (oz·in ²)	370×10 ⁻⁷ (202) [530×10 ⁻⁷ (2.9)]*1					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Set to 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse	0.0144°/Pulse	0.01°/Pulse	0.0072°/Pulse
Permissible Torque	N·m (lb·in)	3.5 (30)	4 (35)	5 (44)	8 (70)		
Max. Instantaneous Torque*	N·m (lb·in)	*	*	*	*	*	20
Holding Torque at Power ON	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	8 (70)	
Standstill Electromagnetic Brake	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	8 (70)	
Speed Control Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60
Backlash	arcmin	7 (0.12)				9 (0.15)	
Power Supply Input	Voltage	24 VDC±5%*2/48 VDC±5%*3					
	Input Current	3.55 (3.8)*1					

* For the geared motor output torque, refer to the speed – torque characteristics.

*1 The brackets [] indicate the specifications for the electromagnetic brake type.

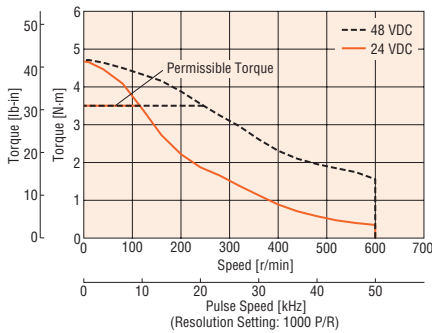
*2 If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

*3 If being operated at 48 VDC input, use max. 10 times the rotor inertia as a reference for the inertial load and min. 2 times the safety factor as a reference when calculating the acceleration torque.

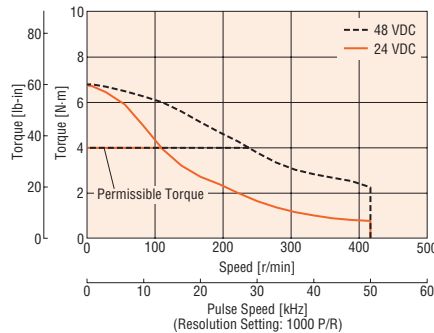
*4 Motor only

Speed – Torque Characteristics (Reference values)

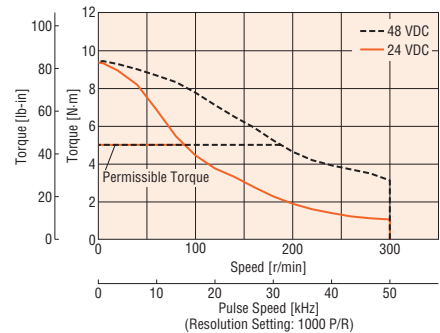
AZM66 Gear Ratio 5



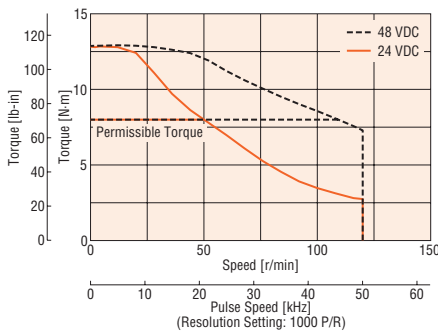
AZM66 Gear Ratio 7.2



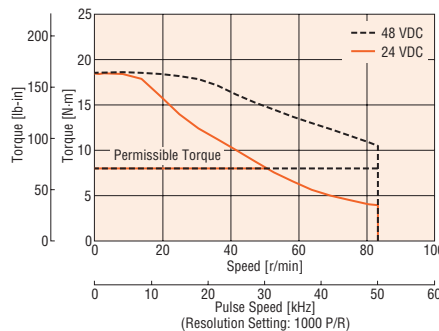
AZM66 Gear Ratio 10



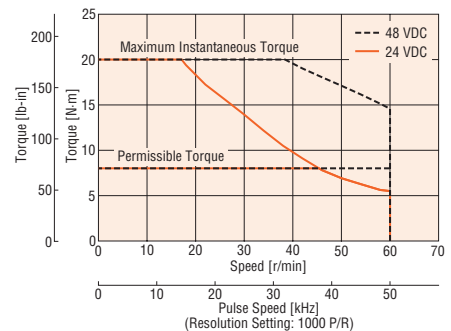
AZM66 Gear Ratio 25



AZM66 Gear Ratio 36



AZM66 Gear Ratio 50



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

HPG Geared Type Frame Size 40 mm (1.57 in.), 60 mm (2.36 in.)



Specifications

Stepper Motors
AZ

Slides
EzS

Cylinders
EAC

Rotary Actuators
DGI

Motor	Single Shaft	AZM46AK-HP5	AZM46AK-HP9	AZM66AK-HP5	AZM66AK-HP15	
	Electromagnetic Brake Type	AZM46MK-HP5	AZM46MK-HP9	AZM66MK-HP5	AZM66MK-HP15	
Driver	Built-in Controller	AZD-KD				
	Pulse Input	AZD-K				
Maximum Holding Torque	N·m (lb·in)	1.5 (13.2)	2.5 (22)	5 (44)	9 (79)	
Rotor Inertia	J: kg·m ² (oz·in ²)	55×10 ⁻⁷ (0.30) [71×10 ⁻⁷ (0.39)]* ¹		370×10 ⁻⁷ (202) [530×10 ⁻⁷ (2.9)]* ¹		
Inertia* ²	J: kg·m ² (oz·in ²)	5.8×10 ⁻⁷ (0.03) [4.2×10 ⁻⁷ (0.02)]	3.4×10 ⁻⁷ (0.018) [2.9×10 ⁻⁷ (0.015)]	92×10 ⁻⁷ (0.5) [86×10 ⁻⁷ (0.47)]	78×10 ⁻⁷ (0.42) [77×10 ⁻⁷ (0.42)]	
Gear Ratio		5	9	5	15	
Resolution	Set to 1000 P/R	0.072°/Pulse	0.04°/Pulse	0.072°/Pulse	0.024°/Pulse	
Permissible Torque*	N·m (lb·in)	*	2.5 (22)	*	9 (79)	
Max. Instantaneous Torque*	N·m (lb·in)	*	*	*	*	
Holding Torque at Standstill	Power ON Electromagnetic Brake	N·m (lb·in) N·m (lb·in)	0.75 (6.6) 0.75 (6.6)	1.35 (11) 1.35 (11)	2.5 (22) 2.5 (22)	7.5 (66) 7.5 (66)
Speed Control Range	r/min	0~800	0~444	0~600	0~200	
Backlash	arcmin	3 (0.05°)				
Power Supply Input	Voltage Input Current	A		24 VDC±5%* ⁴ /48 VDC±5%* ⁵		
Runout of Output Flange Surface* ³	mm	0.02		0.04		
Runout of Output Flange Inner Diameter* ³	mm	0.03		0.04		

* For the geared motor output torque, refer to the speed – torque characteristics.

● There is an **F** located in the box (■) within the product name if it is a flange output type.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

*² This is the internal inertia of the gear converted to the motor shaft. The brackets [] indicate the flange output type value.

*³ Flange output type specifications.

*⁴ If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

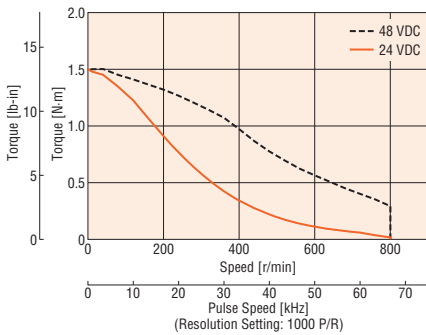
*⁵ If being operated at 48 VDC input, use max. 10 times the rotor inertia as a reference for the inertial load and min. 2 times the safety factor as a reference when calculating the acceleration torque. (Excluding

AZM46)

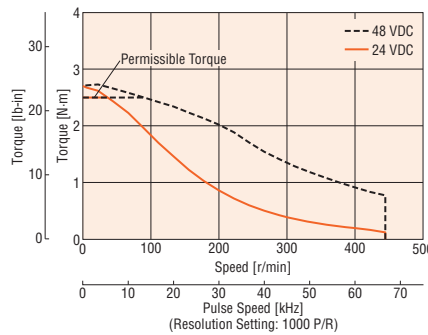
*⁶ Motor only

Speed – Torque Characteristics (Reference values)

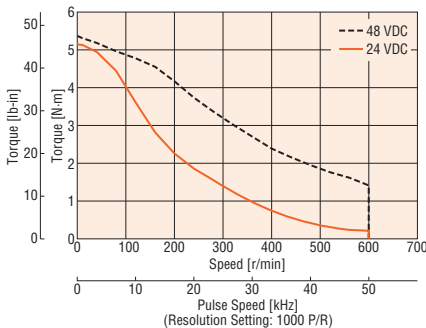
AZM46 Gear Ratio 5



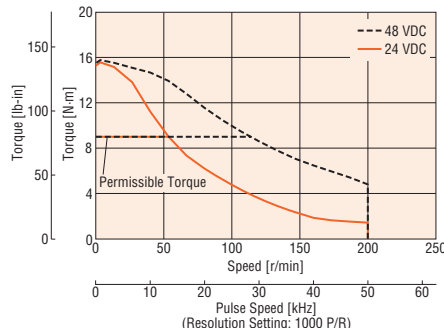
AZM46 Gear Ratio 9



AZM66 Gear Ratio 5



AZM66 Gear Ratio 15



Note

● Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

Harmonic Geared Type Frame Size 42 mm (1.65 in.), 60 mm (2.36 in.)

Specifications



Motor	Single Shaft	AZM46AK-HS50	AZM46AK-HS100	AZM66AK-HS50	AZM66AK-HS100
	Electromagnetic Brake Type	AZM46MK-HS50	AZM46MK-HS100	AZM66MK-HS50	AZM66MK-HS100
Driver	Built-in Controller	AZD-KD			
	Pulse Input	AZD-K			
Maximum Holding Torque	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)
Rotor Inertia	J: kg·m ² (oz·in ²)	72×10 ⁻⁷ (0.4) [88×10 ⁻⁷ (0.48)]* ¹		405×10 ⁻⁷ (2.2) [565×10 ⁻⁷ (2.7)]* ¹	
Gear Ratio		50	100	50	100
Resolution	Set to 1000 P/R	0.0072°/Pulse	0.0036°/Pulse	0.0072°/Pulse	0.0036°/Pulse
Permissible Torque	N·m (lb·in)	3.5 (30)	5 (44)	7 (61)	10 (88)
Max. Instantaneous Torque*	N·m (lb·in)	8.3 (73)	11 (97)	*	36 (318)
Holding Torque at Standstill	Power ON Electromagnetic Brake	N·m (lb·in)	5 (44)	7 (61)	10 (88)
Speed Control Range	r/min	0~70	0~35	0~60	0~30
Lost Motion (Load Torque)	arcmin	1.5 max. (±0.16 N·m)	1.5 max. (±0.20 N·m)	0.7 max. (±0.28 N·m)	0.7 max. (±0.39 N·m)
Power Supply Input	Voltage	24 VDC±5%* ² /48 VDC±5%* ³			
	Input Current	A 1.72 (1.8)* ¹		3.55 (3.8)* ¹	

* For the geared motor output torque, refer to the speed – torque characteristics.

*¹ The brackets [] indicate the specifications for the electromagnetic brake type.

*² If the electromagnetic brake type is extended 20 m (65.6 ft.) with a cable, the specification becomes 24 VDC±4%.

*³ If being operated at 48 VDC input, use max. 10 times the rotor inertia as a reference for the inertial load and min. 2 times the safety factor as a reference when calculating the acceleration torque (excluding **AZM46**).

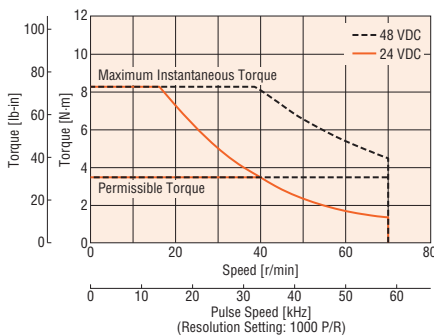
*⁴ Motor only

Note

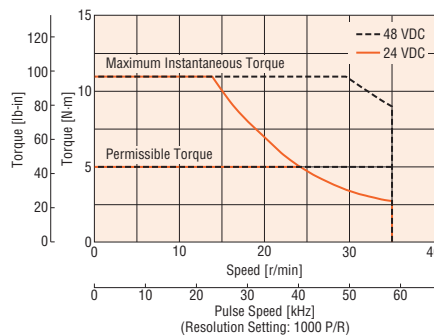
● The rotor inertia represents a sum of the inertia of the harmonic gear converted to motor shaft values.

Speed – Torque Characteristics (Reference values)

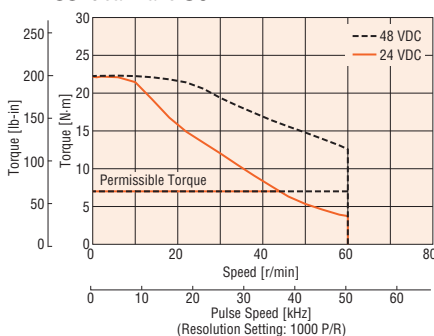
AZM46 Gear Ratio 50



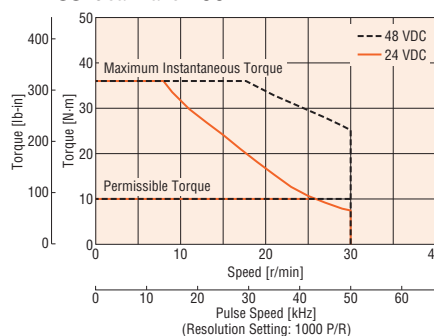
AZM46 Gear Ratio 100



AZM66 Gear Ratio 50



AZM66 Gear Ratio 100



Note

● Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 80°C (176°F) max. in order to protect the motor sensor.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

Driver Specifications

Driver Type		Built-in Controller Type	Pulse Input Type
Driver		AZD-KD	AZD-K
Stepper Motors AZ	Maximum Input Pulse Frequency	—	The programmable controller is the line driver output: 1 MHz (when 50% duty)
			The programmable controller is the open collector output: 250 kHz (when 50% duty) Negative Logic Pulse Input (Initial value)
Slides EZS	Input/Output Function	Number of Positioning Data Points	256
		Direct Input	10
Cylinders EAC	Direct Output	6	
		RS-485 Communication Network Input	16
		RS-485 Communication Network Output	16
Settings Tool	Data Setting Software MEXE02	<input type="radio"/>	<input type="radio"/>
Coordinate Management Method		Battery-Free Absolute System	
Positioning Operation	Type	Positioning Operation	<input type="radio"/> *
		Positioning Push-Motion Operation	<input type="radio"/> *
Linking Method	Isolated Operation	Isolated Operation	<input type="radio"/> *
		Sequential Operation	<input type="radio"/> *
		Multistep Speed-Change (Configuration linking)	<input type="radio"/> *
Sequence Control	Looped Operation (Repeating)	Looped Operation (Repeating)	<input type="radio"/> *
		Event Jump Operation	<input type="radio"/> *
Continuous Operation	Position Control	Position Control	<input type="radio"/> *
		Speed Control	<input type="radio"/> *
		Torque Control	<input type="radio"/> *
		Push-Motion	<input type="radio"/> *
Return-to-Home Operation	Return-to-Home Operation	Return-to-Home Operation	<input type="radio"/>
		High-Speed Return-to-Home Operation	<input type="radio"/>
JOG Operation		<input type="radio"/>	<input type="radio"/>
Monitoring/Information	Waveform Monitoring	<input type="radio"/>	<input type="radio"/>
	Overload Detection	<input type="radio"/>	<input type="radio"/>
	Overheat Detection (Motor/driver)	<input type="radio"/>	<input type="radio"/>
	Position/Speed Information	<input type="radio"/>	<input type="radio"/>
	Temperature Detection (Motor/driver)	<input type="radio"/>	<input type="radio"/>
	Motor Load Factor	<input type="radio"/>	<input type="radio"/>
Travel Distance/Cumulative Travel Distance		<input type="radio"/>	<input type="radio"/>
Alarm		<input type="radio"/>	<input type="radio"/>

*Can be used by setting in the data setting software **MEXE02**.

Built-in Controller Type RS-485 Communication Specifications

Protocol	Modbus RTU Mode
Electrical Characteristics	EIA-485 compliance, straight cable Shielded twisted-pair wire (TIA/EIA-568B CAT5e or greater recommended) is used up to a total extension length of 50 m (164 ft.).
Communication Mode	Half-duplex communication, synchronous mode (data: 8-bit, stop bit: 1-bit/2-bit, parity: none/odd/even)
Baud Rate	Selected from 9600 bps / 19200 bps / 38400 bps / 57600 bps / 115200 bps / 230400 bps
Connection Type	Up to 31 units can be connected to one programmable controller (master equipment).

General Specifications

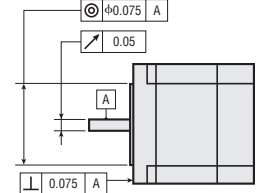
	Motor	Driver
Heat-Resistant Class	130(B)	-
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: · Case – Motor windings · Case – Electromagnetic brake windings*1	100 MΩ or more when 500 VDC megger is applied between the following places: · Protective earth terminal – Power supply terminal
Dielectric Strength	Sufficient to withstand the following for 1 minute: AZM14, AZM15, AZM24, AZM26 · Case – Motor windings 0.5 kVAC 50 Hz or 60 Hz AZM46, AZM66, AZM69 · Case – Motor windings 1.0 kVAC 50 Hz or 60 Hz · Case – Electromagnetic brake windings*1 1.0 kVAC 50 Hz or 60 Hz	-
Operating Environment (In operation)	Ambient Temperature	0 ~ +40°C (+32 ~ +104°F) (non-freezing)
	Ambient Humidity	85% max. (non-condensing)
	Atmosphere	Use in an area without corrosive gases and dust. The product should not be exposed to water, oil or other liquids.
Degree of Protection	AZM14, AZM15, AZM24, AZM26: IP40 (excluding installation surface and connectors) AZM46, AZM66, AZM69: IP66 (excluding installation surface and connectors)	IP10
Stop Position Accuracy	AZM14, AZM15, AZM24, AZM26: ±5 min (±0.083°) AZM46: ±4 min (±0.067°) AZM66, AZM69: ±3 min (±0.05°)	
Shaft Runout	0.05 T.I.R. (mm)*2	-
Concentricity of Installation Pilot to the Shaft	0.075 T.I.R. (mm)*2	-
Perpendicularity of Installation Surface to the Shaft	0.075 T.I.R. (mm)*2	-
Multi-Rotation Detection Range when Power is Off	AZM14, AZM15, AZM24, AZM26: ±450 rotations (900 rotations) AZM46, AZM66, AZM69: ±900 rotations (1,800 rotations)	

*1 Electromagnetic brake type only.

*2 T.I.R. (Total Indicator Reading): The total dial gauge reading when the measurement section is rotated one revolution centered on the reference axis center.

Note

- Do not measure insulation resistance or perform the dielectric strength test while the motor and driver are connected.
- Do not perform these tests with the motor sensor.



Rotation Direction

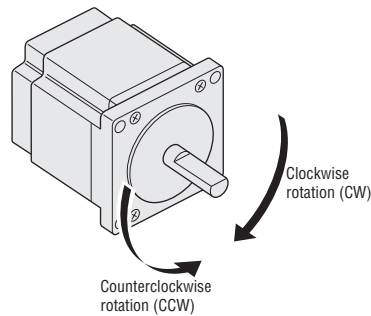
This refers to the rotation direction viewed from the output shaft side.

The rotation direction of the gear output shaft with respect to the standard type motor output shaft differs depending on the type of gear and gear ratio.

Refer to the following table.

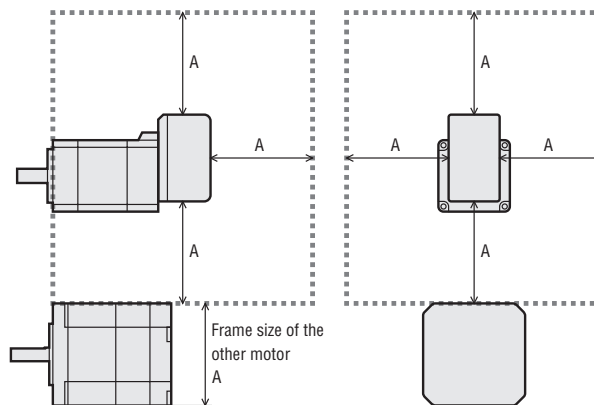
Type	Gear Ratio	Rotation Direction with Respect to Motor Output Shaft
TS Geared	3.6, 7.2, 10	Same direction
	20, 30	Opposite direction
PS Geared	All gear ratios	Same direction
HPG Geared	All gear ratios	Same direction
Harmonic Geared	All gear ratios	Opposite direction

Standard Type Motor



Motor Installation (AZM14, AZM15, AZM24, and AZM26 only)

When installing a motor, please pay attention to the installation location as the motor sensor can easily be affected by magnets. When installing motors in parallel, please provide enough distance both horizontally and vertically for the size (frame size) of the other motor being installed.



- Please provide a minimum distance of the frame size of the other motor (A).

Reference

Other Motor	A
Frame Size 20 mm (0.79 in.)	20 mm (0.79 in.)
Frame Size 28 mm (1.10 in.)	28 mm (1.10 in.)
Frame Size 42 mm (1.65 in.)	42 mm (1.65 in.)
Frame Size 60 mm (2.36 in.)	60 mm (2.36 in.)

Permissible Radial Load/Permissible Axial Load

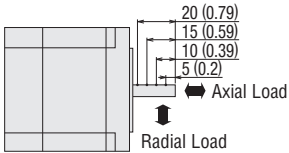
Unit = N(lb.)

Type	Motor Frame Size mm [in.]	Product Name	Gear Ratio	Permissible Radial Load					Permissible Axial Load
				Distance from Shaft End mm [in.]					
				0 [0]	5 [0.2]	10 [0.39]	15 [0.59]	20 [0.79]	
Stepper Motors AZ	Standard Type	AZM14, AZM15	-	12 (2.7)	15 (3.3)	-	-	-	3 (0.67)
		AZM24, AZM26		25 (5.6)	34 (7.6)	52 (11.7)	-	-	5 (1.12)
		AZM46		35 (7.8)	44 (9.0)	58 (13)	85 (19.1)	-	15 (3.3)
		AZM66, AZM69		90 (20)	100 (22)	130 (29)	180 (40)	270 (60)	30 (6.7)
Slides EZS	TS Geared Type	AZM46	3.6, 7.2, 10	20 (4.5)	30 (6.7)	40 (9)	50 (11.2)	-	15 (3.3)
			20, 30	40 (9)	50 (11.2)	60 (13.5)	70 (15.7)	-	
		AZM66	3.6, 7.2, 10	120 (27)	135 (30)	150 (33)	165 (37)	180 (40)	40 (9)
Cylinders EAC	PS Geared Type	AZM46	5	70 (15.7)	80 (18)	95 (21)	120 (27)	-	100 (22)
			7.2	80 (18)	90 (20)	110 (24)	140 (31)	-	
			10	85 (19.1)	100 (22)	120 (27)	150 (33)	-	
25	120 (27)		140 (31)	170 (38)	210 (47)	-			
36	130 (29)		160 (36)	190 (42)	240 (54)	-			
Rotary Actuators DGI	PS Geared Type	AZM66	5	170 (38)	200 (45)	230 (51)	270 (60)	320 (72)	200 (45)
			7.2	200 (45)	220 (49)	260 (58)	310 (69)	370 (83)	
			10	220 (49)	250 (56)	290 (65)	350 (78)	410 (92)	
			25	300 (67)	340 (76)	400 (90)	470 (105)	560 (126)	
			36	340 (76)	380 (85)	450 (101)	530 (119)	630 (141)	
HPG Geared Type	42 (1.65)	AZM46	5	150 (33)	170 (38)	190 (42)	230 (51)	270 (60)	430 (96)
			9	180 (40)	200 (45)	230 (51)	270 (60)	320 (72)	510 (114)
	60 (2.35)	AZM66	5	250 (56)	270 (60)	300 (67)	330 (74)	360 (81)	700 (157)
			15	360 (81)	380 (85)	420 (94)	460 (103)	510 (114)	980 (220)
Harmonic Geared Type	42 (1.65)	AZM46	50, 100	180 (40)	220 (49)	270 (60)	360 (81)	510 (114)	220 (49)
	60 (2.35)	AZM66		320 (72)	370 (83)	440 (99)	550 (123)	720 (162)	450 (101)

- The product name contains characters that can be used to identify the product.
- If the **PS** geared type or **HPG** geared type has either the permissible radial load or permissible axial load added, the service life of 20,000 hours is satisfied. For the service life of gearheads, please contact the nearest Oriental Motor sales office or visit the Oriental Motor website.

Radial Load and Axial Load

Distance from Shaft End mm (in.)



Permissible Moment Load

If an eccentric load is applied during flange face installation, calculate the moment load with the following formula. Ensure that the moment load does not exceed the permissible values in the following table.

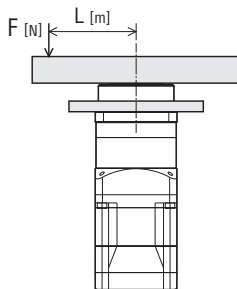
HPG Geared Type Flange Output Type

Product Name	Gear Ratio	Permissible Moment Load N·m (lb-in)
AZM46	5	4.9 (43)
	9	5.9 (52)
AZM66	5	12 (106)
	15	17.2 (152)

The moment load is calculated with the following formula.

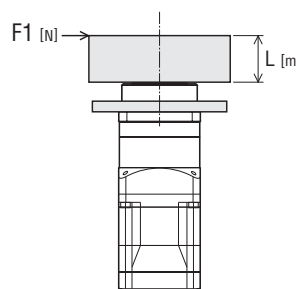
Example 1: An external force **F** is applied from the center of the output flange at distance **L**

$$\text{Moment load [N·m (lb-in)]: } M = F \times L$$



Example 2: An external force **F1** is applied from the output flange installation surface at distance **L**

$$\text{Moment load [N·m (lb-in)]: } M = F1 \times (L + \text{coefficient } a)$$



Product Name	Coefficient a m (in.)
AZM46	0.006 (0.024)
AZM66	0.011 (0.43)

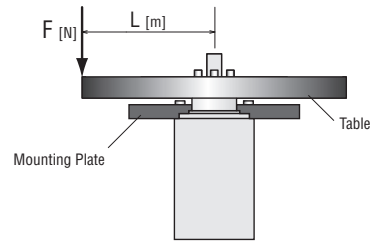
● **Harmonic Geared Type**

Product Name	Gear Ratio	Permissible Moment Load N·m (lb·in)
AZM46	50, 100	5.6 (49)
AZM66		11.6 (102)

The moment load is calculated with the following formula.

Example 1: An external force *F* is applied from the center of the output flange at distance *L*

Moment load [N·m (lb·in)]: $M = F \times L$



Note

The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

■ **Load Torque – Driver Input Current Characteristics**

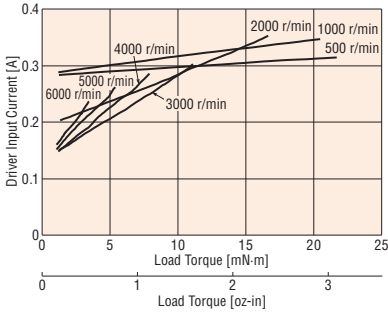
This is the relationship between the load torque and driver input current at each speed when the motor is actually operated. From these characteristics, the current capacity required when used for multiple axes can be estimated. For geared motors, convert to torque and speed at the motor axis.

Motor shaft speed = Gear output shaft speed × Gear ratio [r/min]

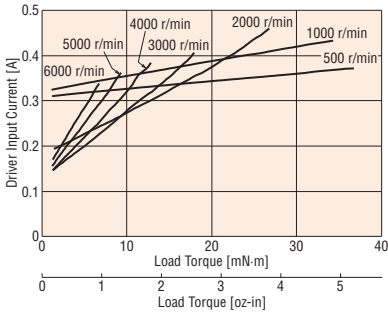
Motor shaft torque = $\frac{\text{Gear output shaft torque}}{\text{Gear ratio}}$ N·m (lb·in)

● **24 VDC**

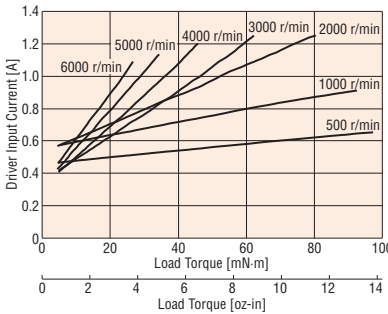
AZM14



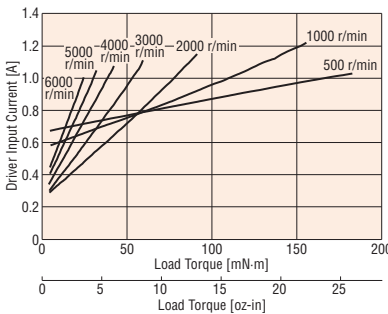
AZM15



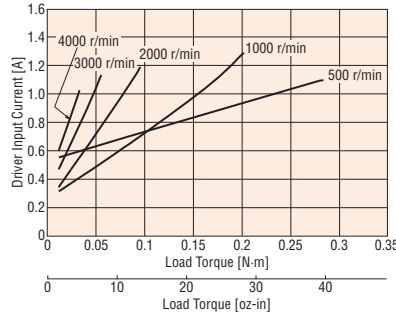
AZM24



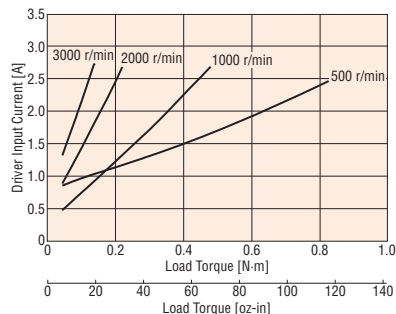
AZM26



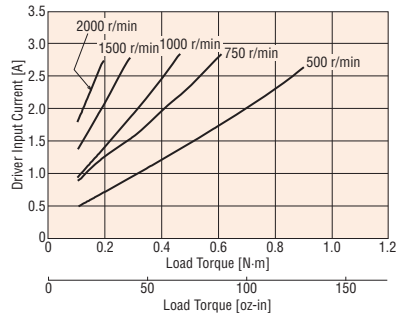
AZM46



AZM66

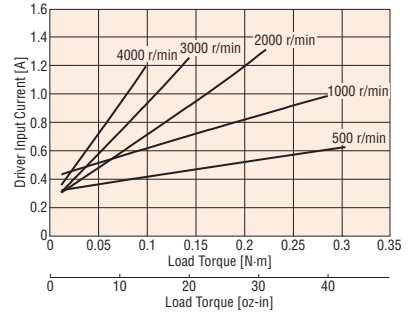


AZM69

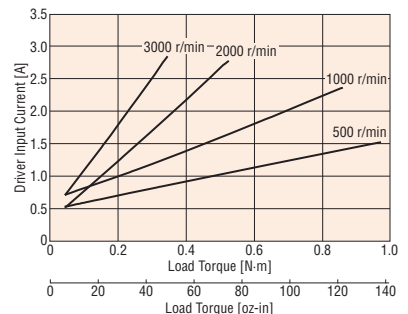


● **48 VDC**

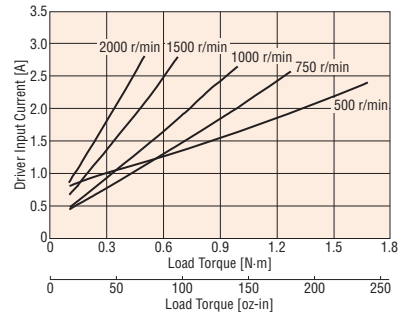
AZM46



AZM66



AZM69



Features
System Configuration
Product Line and List Price
Specifications/ Characteristics
Dimensions and Operation
Connection and Operation
System Configuration and List Price
Product Line Specifications/ Characteristics
Dimensions and Operation
Connection and Operation
Accessories

Dimensions Unit = mm (in.)

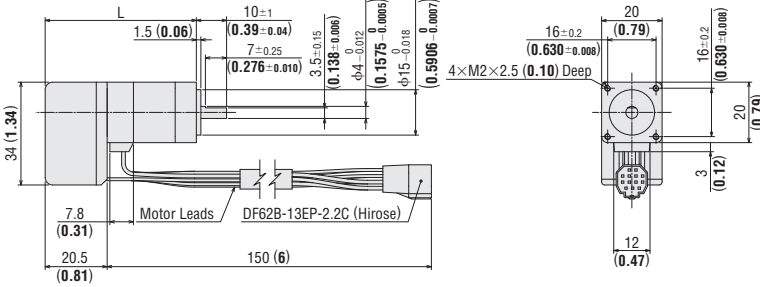
● Motor

◇ Standard Type

Frame Size 20 mm (0.79 in.)

2D & 3D CAD

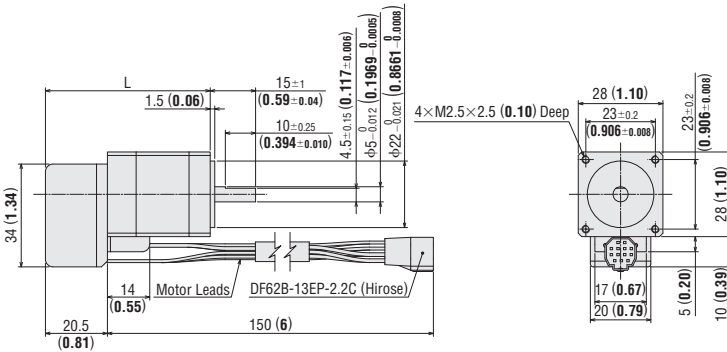
Product Name	L	Mass kg (lb.)	2D CAD
AZM14AK	50 (1.97)	0.08 (0.18)	B1212
AZM15AK	60 (2.36)	0.1 (0.22)	B1213



Frame Size 28 mm (1.10 in.)

2D & 3D CAD

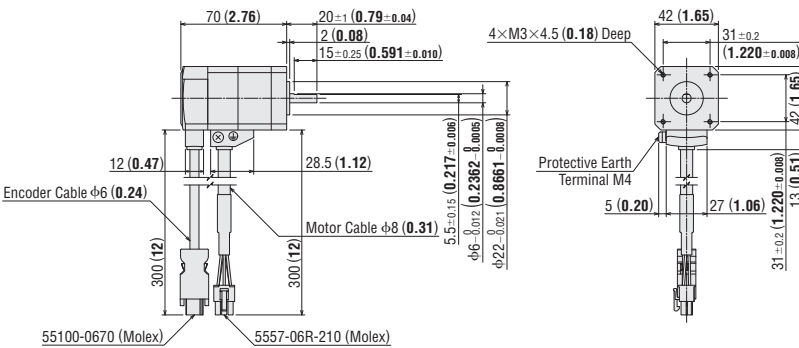
Product Name	L	Mass kg (lb.)	2D CAD
AZM24AK	54.5 (2.15)	0.15 (0.33)	B1214
AZM26AK	74 (2.91)	0.24 (0.53)	B1215



Frame Size 42 mm (1.65 in.)

2D & 3D CAD

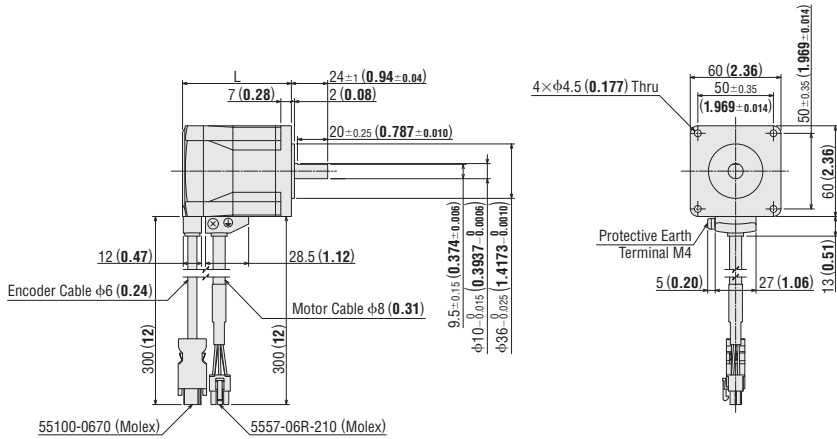
Product Name	Mass kg (lb.)	2D CAD
AZM46AK	0.44 (0.97)	B1092



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	L	Mass kg (lb.)	2D CAD
AZM66AK	72 (2.83)	0.91 (2.0)	B1093
AZM69AK	97.5 (3.84)	1.4 (3.1)	B1129

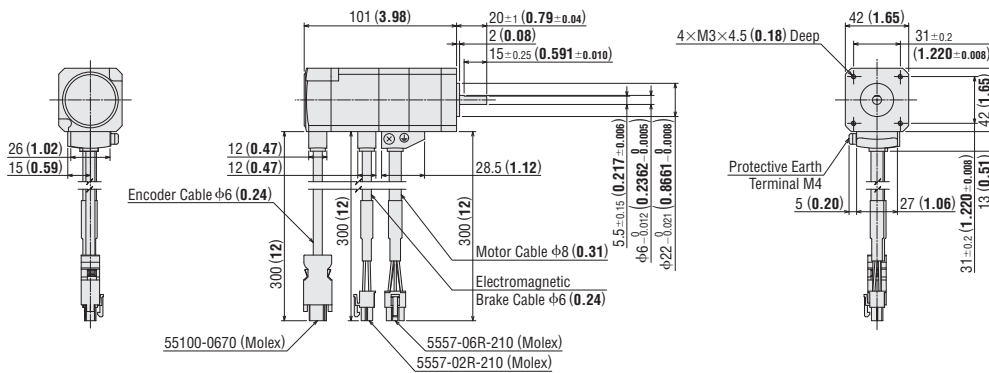


◇ Standard Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

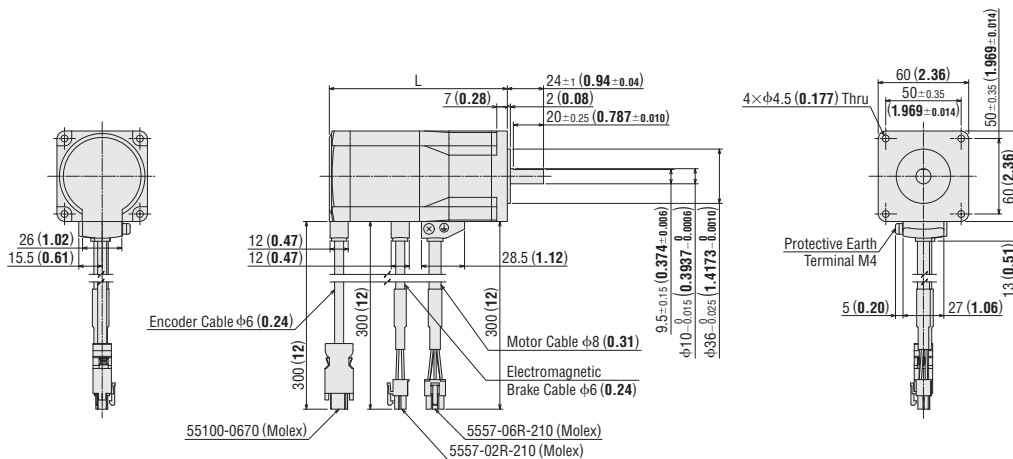
Product Name	Mass kg (lb.)	2D CAD
AZM46MK	0.61 (1.34)	B1154



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	L	Mass kg (lb.)	2D CAD
AZM66MK	118 (4.65)	1.3 (2.87)	B1155
AZM69MK	143.5 (5.65)	1.8 (3.97)	B1156



Features

System Configuration

Product Line and List Price

AC Input

Specifications/Characteristics

Dimensions and Connection

System Configuration

Product Line and List Price

DC Input

Specifications/Characteristics

Dimensions and Connection

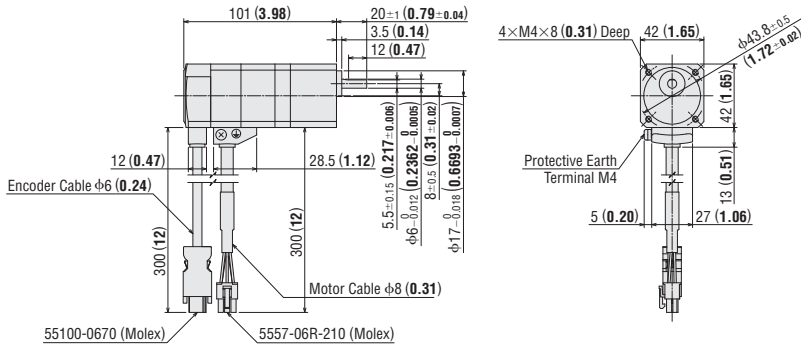
Accessories

◇ **TS Geared Type**

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AK-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	0.59 (1.30)	B1157

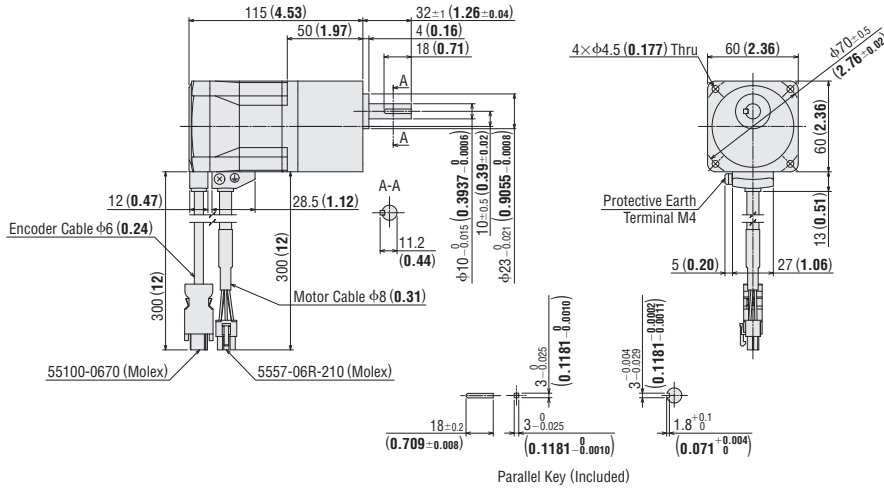


Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AK-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	1.3 (2.9)	B1158

● Installation Screws: M4×60 P0.7 (4 pcs)

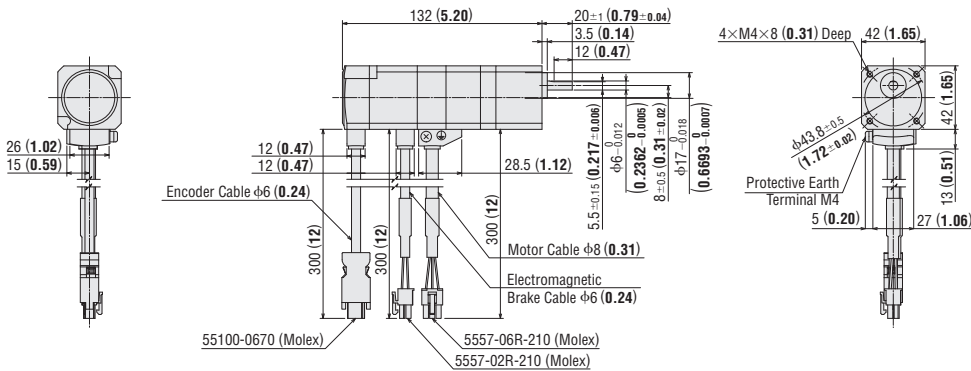


◇ **TS Geared Type with Electromagnetic Brake**

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MK-TS <input type="checkbox"/>	3.6, 7.2, 10, 20, 30	0.76 (1.68)	B1216



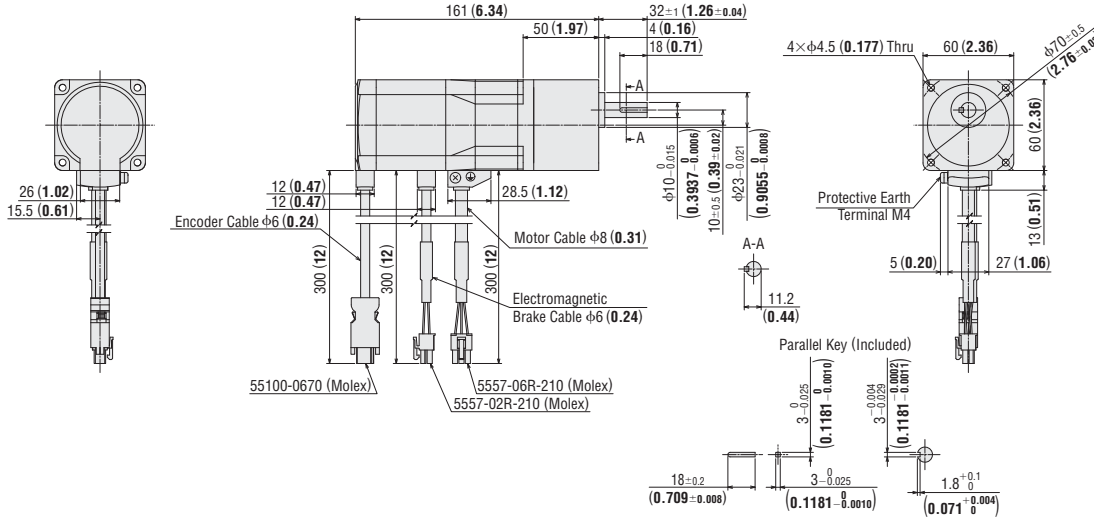
● Enter the gear ratio in the box within the product name.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MK-TS	3.6, 7.2, 10, 20, 30	1.7 (3.7)	B1217

● Installation Screws: M4×60 P0.7 (4 pcs)

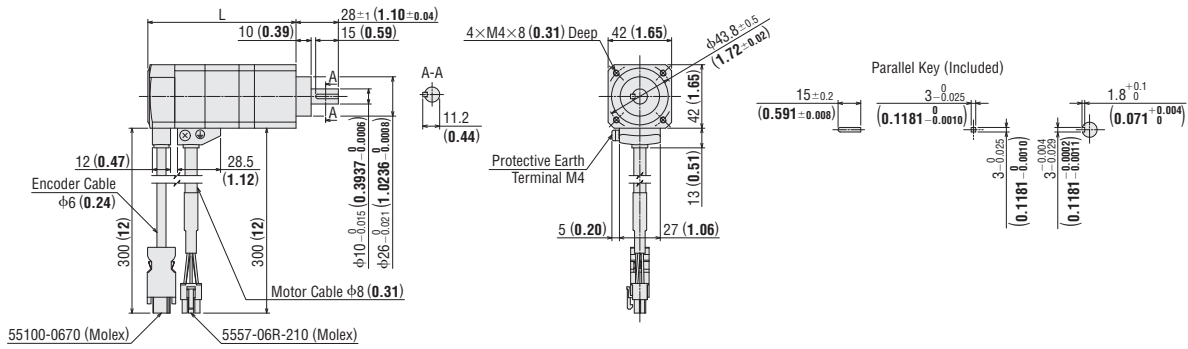


◇ PS Geared Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

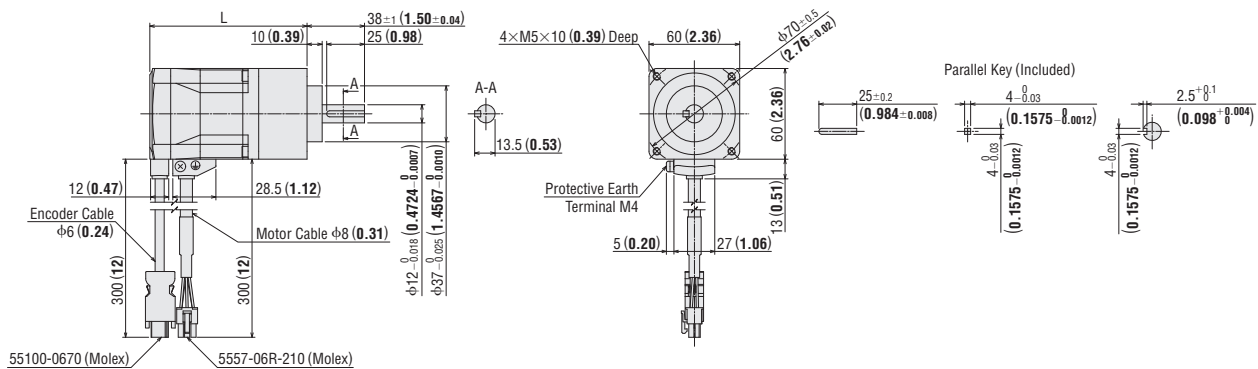
Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM46AK-PS	5, 7.2, 10	98 (3.86)	0.64 (1.41)	B1159
	25, 36, 50	121.5 (4.78)	0.79 (1.74)	B1160



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM66AK-PS	5, 7.2, 10	104 (4.09)	1.3 (2.9)	B1161
	25, 36, 50	124 (4.88)	1.6 (3.5)	B1162



● Enter the gear ratio in the box (■) within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

Connection and Operation

Accessories

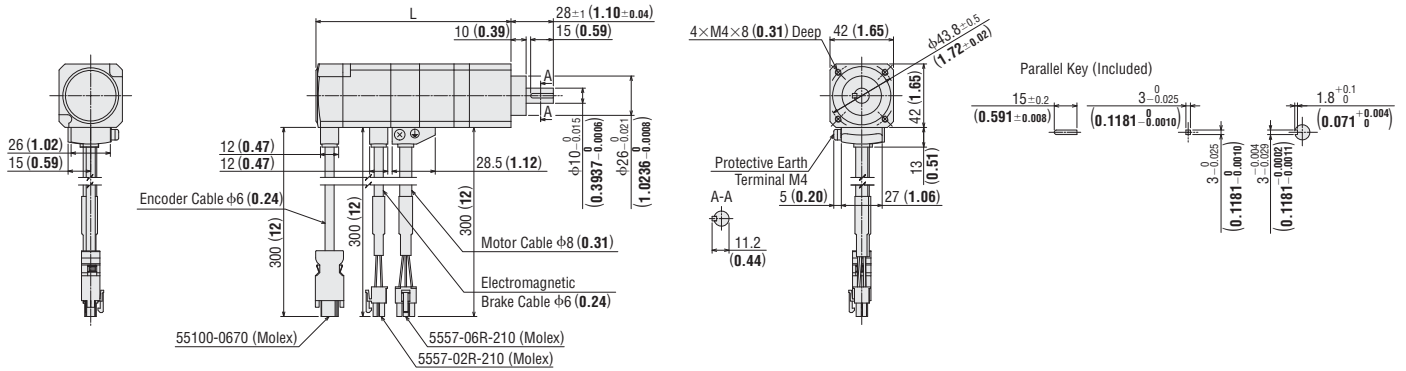
Accessories

◇ **PS Geared Type with Electromagnetic Brake**

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

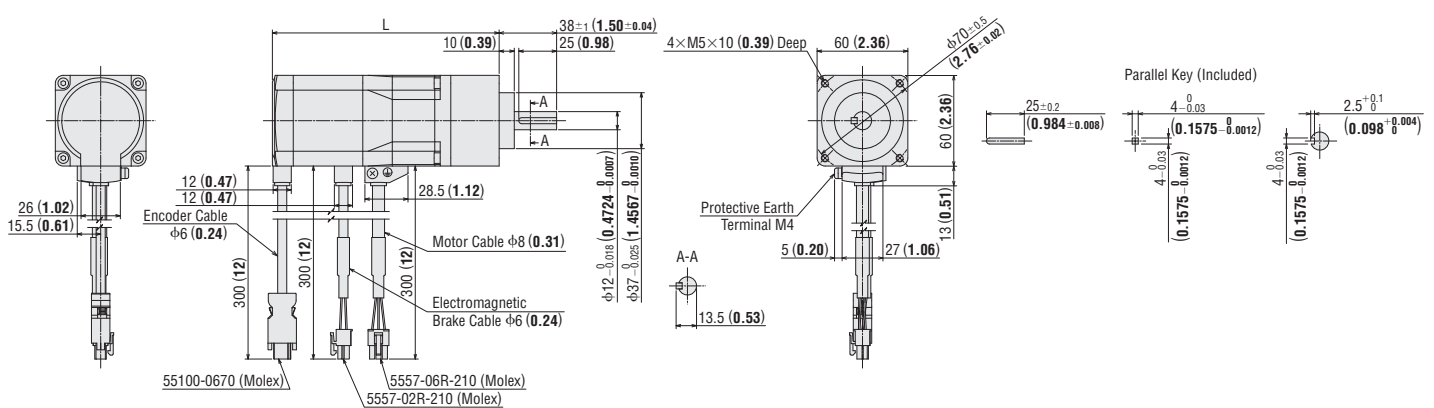
Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM46MK-PS 	5, 7.2, 10	129 (5.08)	0.81 (1.78)	B1218
	25, 36, 50	152 (5.98)	0.96 (2.1)	B1219



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
AZM66MK-PS 	5, 7.2, 10	150 (5.91)	1.7 (3.7)	B1220
	25, 36, 50	170 (6.69)	2.0 (4.4)	B1221

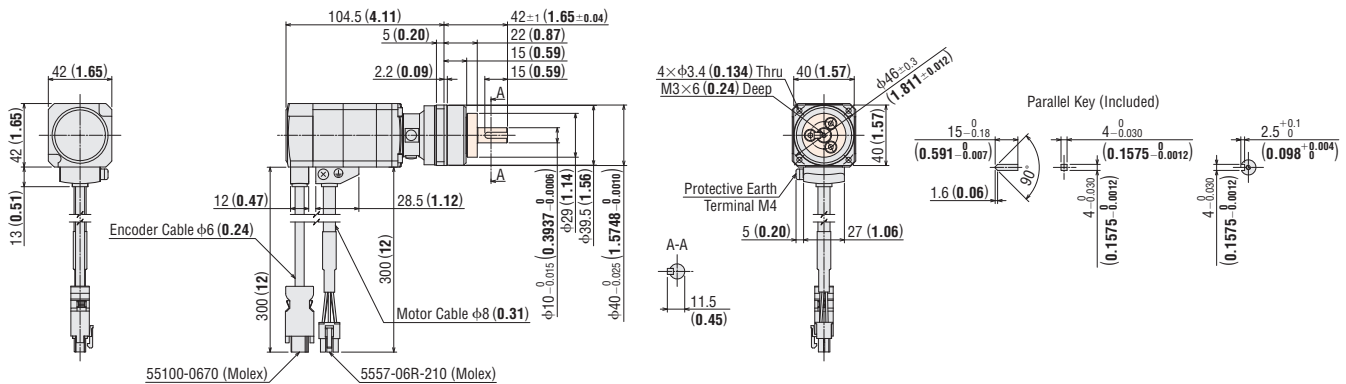


◇ **HPG Geared Type Shaft Output Type**

Frame Size 40 mm (1.57 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AK-HP 	5, 9	0.71 (1.56)	B1163

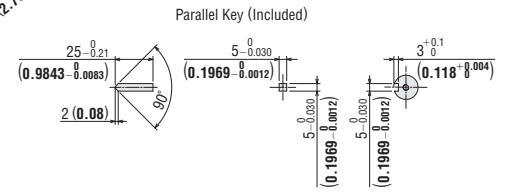
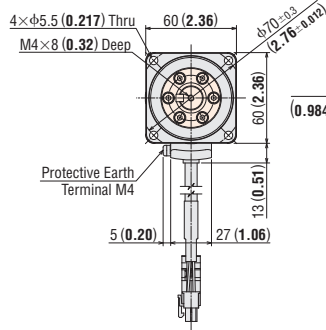
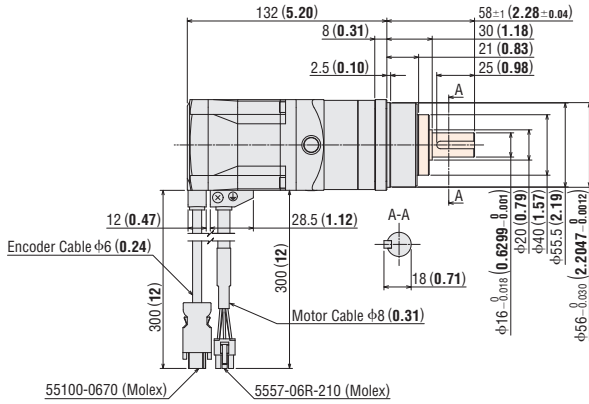


- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

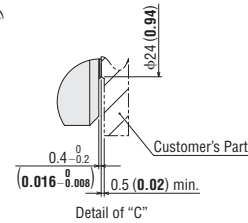
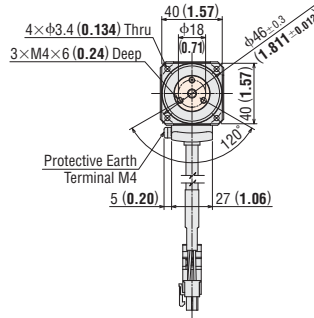
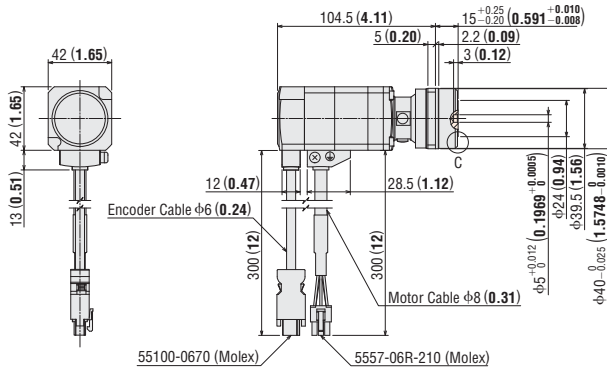
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AK-HP 	5, 15	1.9 (4.2)	B1165



HPG Geared Type Flange Output Type
Frame Size 40 mm (1.57 in.)

2D & 3D CAD

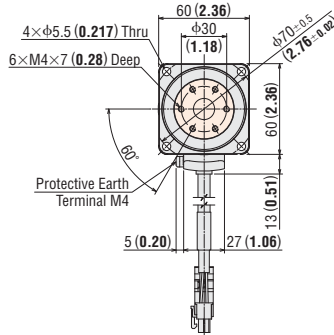
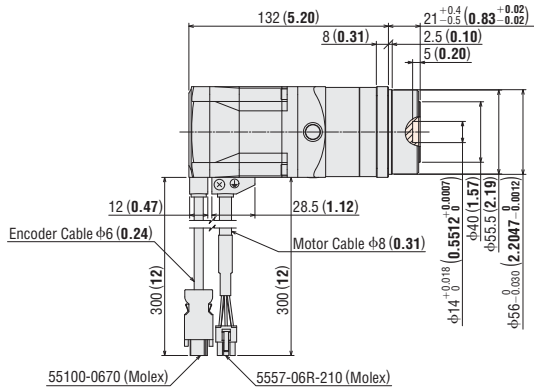
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AK-HP F	5, 9	0.66 (1.45)	B1164



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AK-HP F	5, 15	1.8 (4.0)	B1166



- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

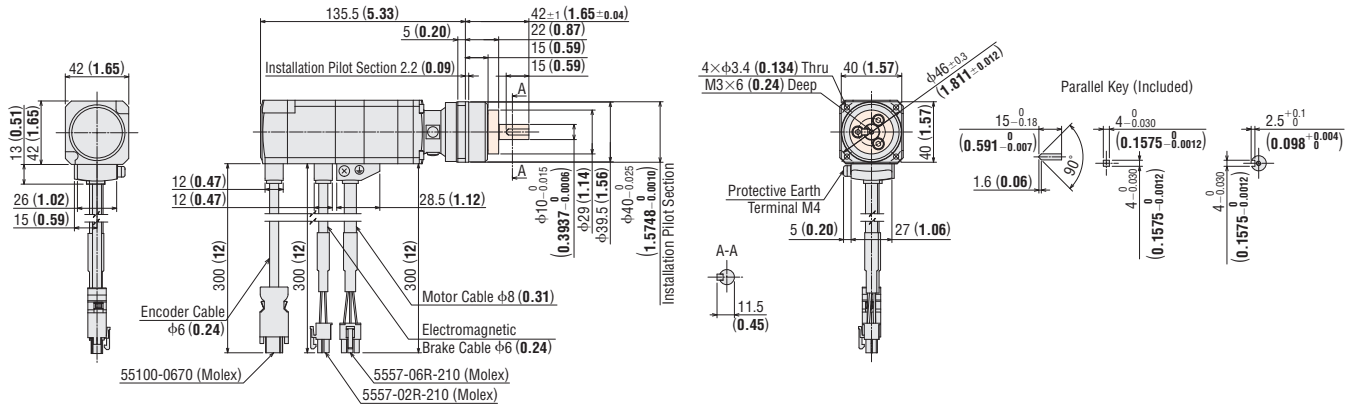
Specifications/Dimensions

Connection and Operation

Accessories

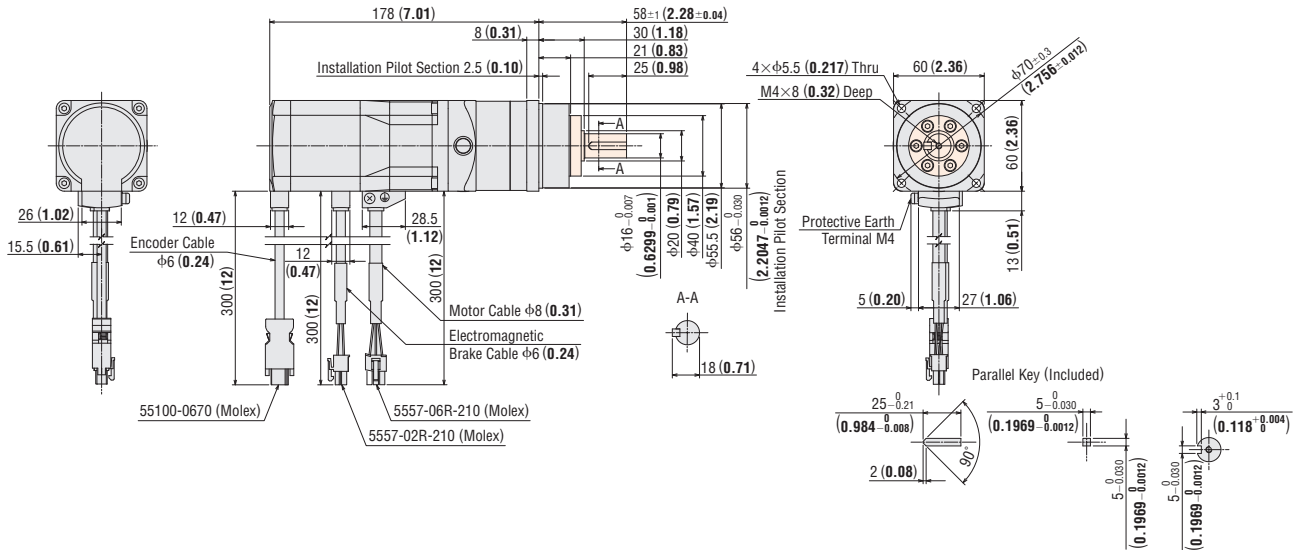
◆ **HPG Geared Type with Electromagnetic Brake Shaft Output Type**
Frame Size 40 mm (1.57 in.) **2D & 3D CAD**

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MK-HP 	5, 9	0.88 (1.94)	B1222



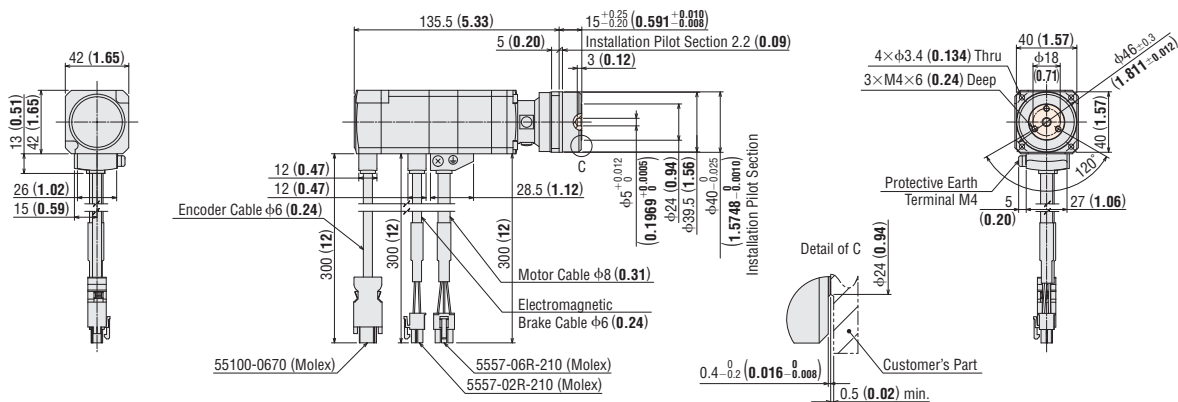
Frame Size 60 mm (2.36 in.) **2D & 3D CAD**

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MK-HP 	5, 15	2.3 (5.1)	B1224



◆ **HPG Geared Type with Electromagnetic Brake Flange Output Type**
Frame Size 40 mm (1.57 in.) **2D & 3D CAD**

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MK-HP F	5, 9	0.83 (1.83)	B1223

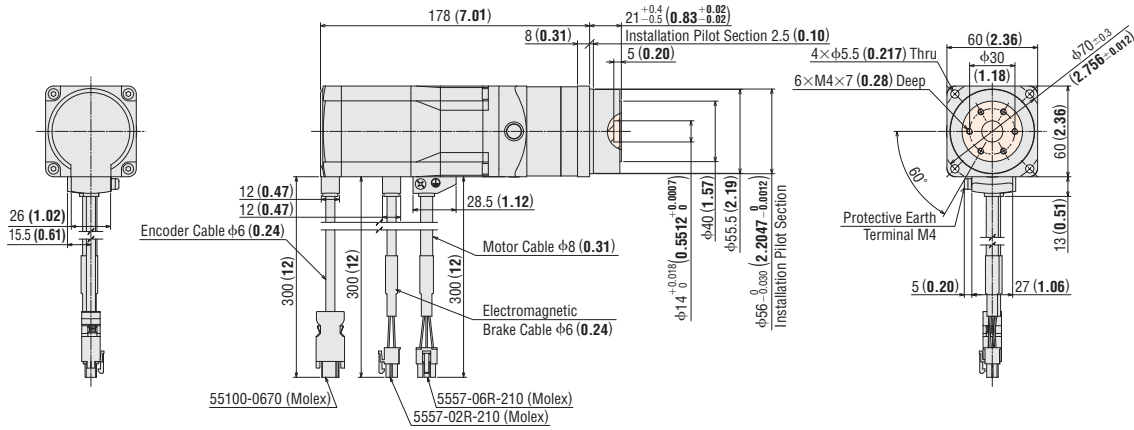


- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MK-HP F	5.15	2.2 (4.8)	B1225

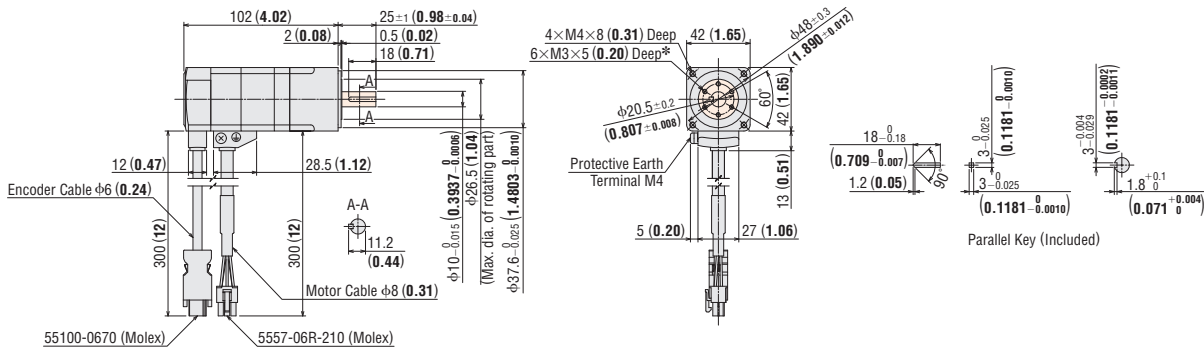


◇ Harmonic Geared Type

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46AK-HS ■	50.100	0.65 (1.43)	B1167

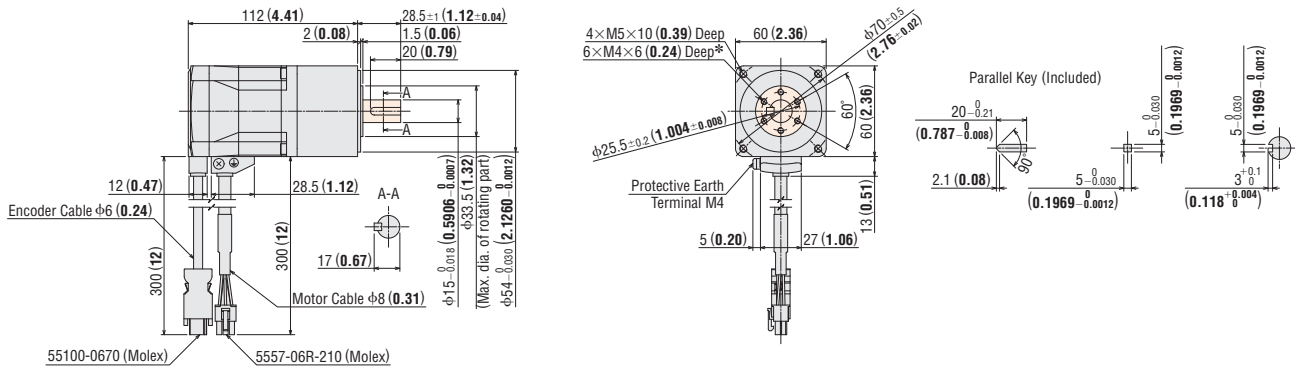


*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66AK-HS ■	50.100	1.4 (3.1)	B1168



*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/Dimensions

Connection and Operation

Accessories

◇ Harmonic Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

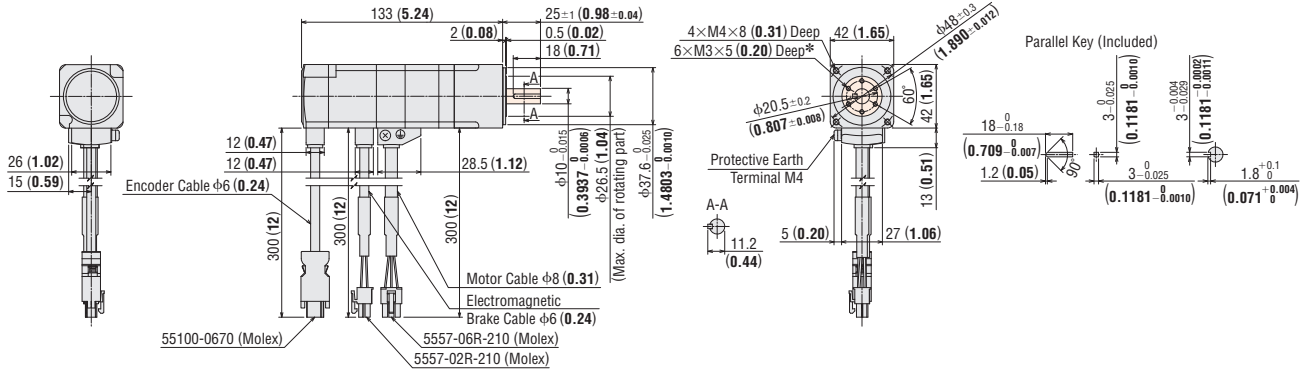
Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM46MK-HS 	50, 100	0.82 (1.8)	B1226

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

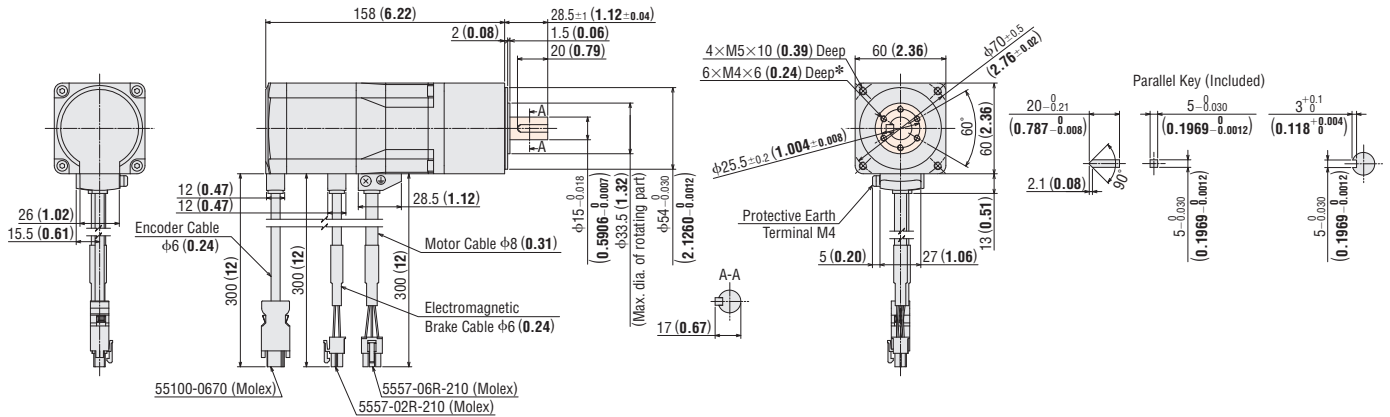


*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
AZM66MK-HS 	50, 100	1.8 (4)	B1227



*The position of the output shaft and the positions of the screw holes cannot be specified in a dimensions drawing, so please do not design using the screw hole dimensions of the load installation surface.

- The color in the dimensions drawing indicates the rotating part.
- Enter the gear ratio in the box within the product name.

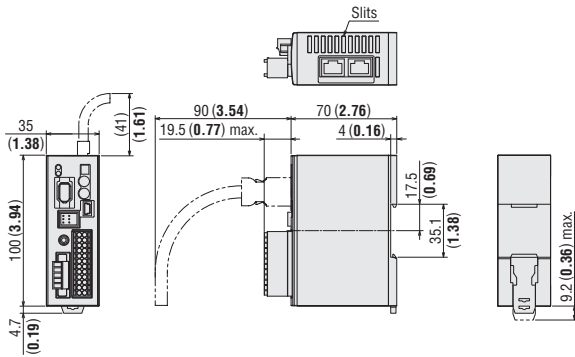
● Driver

◇ Built-in Controller Type

Product Name: **AZD-KD**

Mass: 0.15 kg (0.33 lb.)

2D CAD B1094 3D CAD

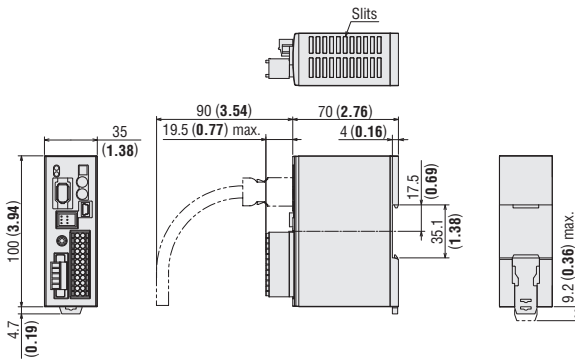


◇ Pulse Input Type

Product Name: **AZD-K**

Mass: 0.15 kg (0.33 lb.)

2D CAD B1096 3D CAD



● Included

Main Power Supply/Connector for Electromagnetic Brake Connection (CN1)
Connector: MC1,5/5-STF-3,5
(Phoenix Contact)

I/O Signal Connector (CN4)
Connector: DFMC1,5/12-ST-3,5
(Phoenix Contact)

● Included

Main Power Supply/Connector for Electromagnetic Brake Connection (CN1)
Connector: MC1,5/5-STF-3,5
(Phoenix Contact)

I/O Signal Connector (CN4)
Connector: DFMC1,5/12-ST-3,5
(Phoenix Contact)

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

Dimensions

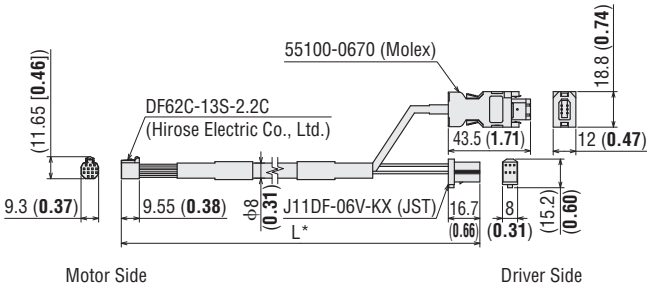
Connection and Operation

Accessories

● Connection Cable Set / Flexible Connection Cable Set

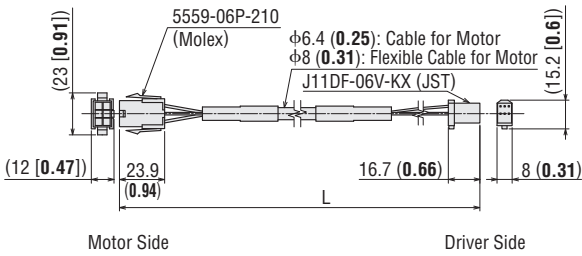
[For **AZM14**, **AZM15**, **AZM24**, and **AZM26**]

◇ Cable for Motor

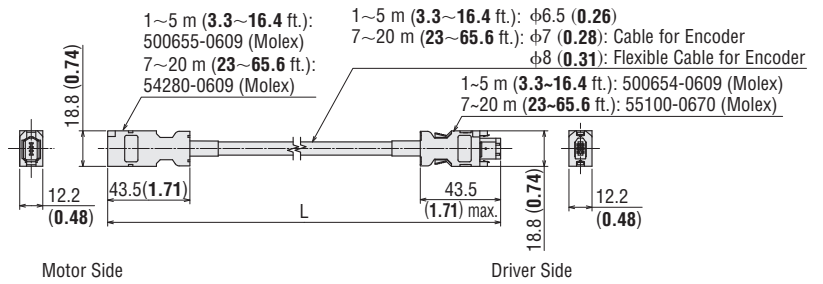


[For **AZM46**, **AZM66**, and **AZM69**]

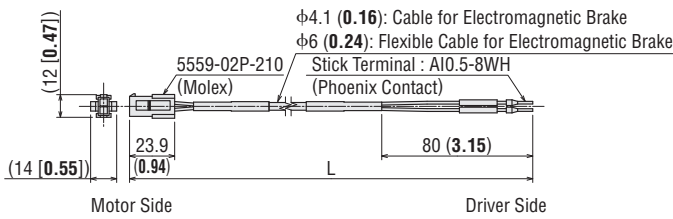
◇ Cable for Motor



◇ Cable for Encoder



◇ Cables for Electromagnetic Brake
(Electromagnetic brake type only)



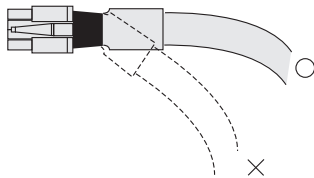
*The length L [m (in.)] in "Product Line and List Price" on page 59 is entered where L is located.

Note

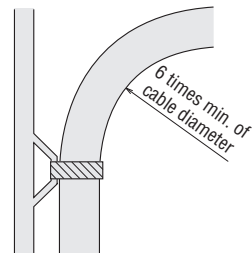
● The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable.

■ Note on Use of Flexible Extension Cable

① Do not allow the cable to bend at the cable connector.

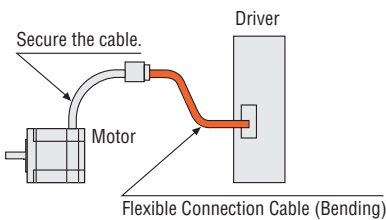


② For the bending radius, use at 6 times min. of the cable diameter.

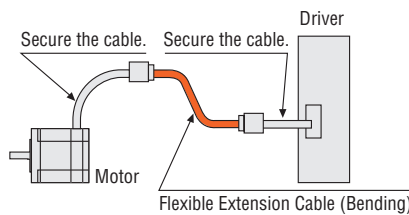


③ The cable from the motor and the accessory cable are not bending types. If the motor cable is to be bent, bend it at the flexible cable.

● Flexible Connection Cable

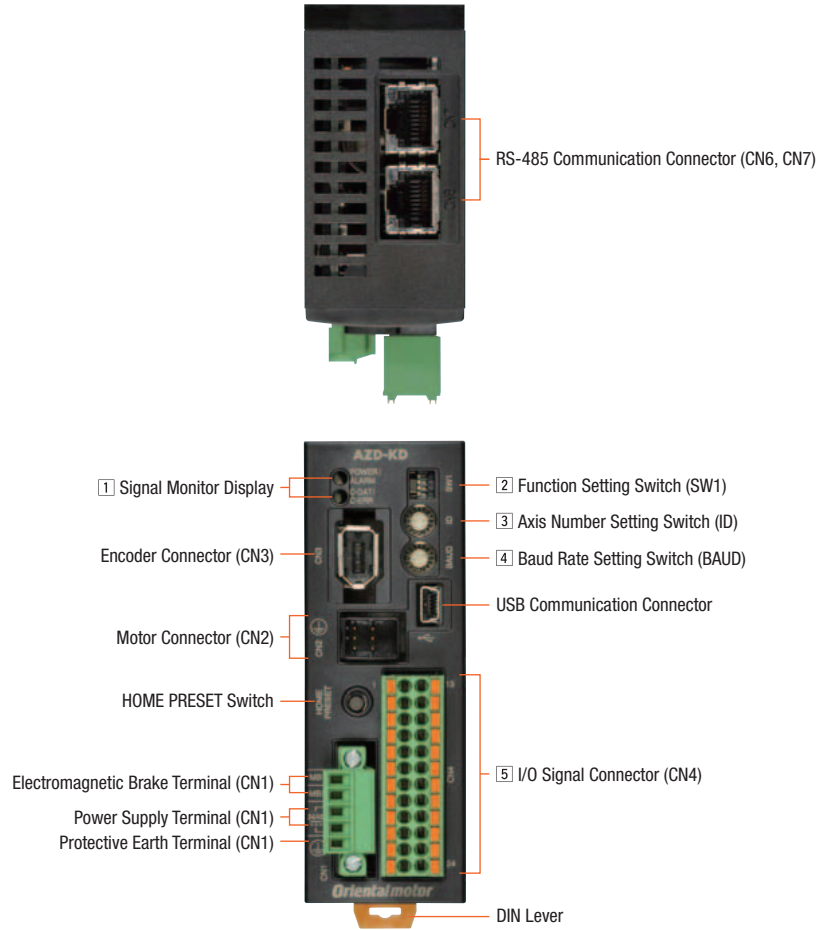


● Flexible Extension Cable



Connection and Operation (Built-in controller type)

Names and Functions of Driver Parts



1 Signal Monitor Display

◇ LED Indicators

Display	Color	Function	Activation Conditions
POWER	Green	Power supply indication	Lights when power is on
ALARM	Red	Alarm indication	Blinks when protective functions are activated
C-DAT	Green	Communication indication	When communication data is being received or sent
C-ERR	Red	Communication error indication	When there is a communication data error

2 Function Setting Switch

Display	No.	Function
SW1	1	Use in combination with the axis setting switch (ID) to set the axis number (Factory setting: OFF).
	2	Sets the protocol for RS-485 communication (factory setting: OFF).
	3	This sets the terminating resistor (120 Ω) for RS-485 communication (factory setting: OFF).
	4	OFF: No terminating resistor, ON: Terminating resistor

*Please use the same settings for both No. 3 and No. 4.

3 Axis Number Setting Switch

Display	Function
ID	Set when using RS-485 communication. Sets the axis number (factory setting: 0).

4 Baud Rate Setting Switch

Display	Function
BAUD	Set when using RS-485 communication. Sets the baud rate (factory setting: 7).

◇ RS-485 Baud Rate Setting

No.	Baud Rate (bps)
0	9600
1	19200
2	38400
3	57600
4	115200
5	230400
6	Not used
7	Network converter
8~F	Not used

Stepper
Motors
AZ

Slides
EzS

Cylinders
EAC

Rotary
Actuators
DGI

5 I/O Signal Connector (CN4)

Display	Pin No.	Signal Name	Description
CN4	1	IN0	START This signal is used to start positioning operation.
	2	IN2	M1 The operating data number is selected using 3 bits: M0, M1, and M2.
	3	IN4	ZHOME This moves to the home position set with the HOME PRESET switch.
	4	IN6	STOP This stops the motor.
	5	IN-COM [0-7]*1	IN0~IN7 Input Common
	6	IN8	FW-JOG This starts the JOG operation.
	7	OUT0	HOME-END If a home position has been decided, it will output when high-speed return-to-home operations have finished.
	8	OUT2	PLS-RDY Not used.
	9	OUT4	MOVE Output during motor operation.
	10	OUT-COM*1	Output Common
	11	ASG+	A-phase pulse output+
	12	BSG+	B-phase pulse output+
	13	IN1	M0 The operating data number is selected using 3 bits: M0, M1, and M2.
	14	IN3	M2 The operating data number is selected using 3 bits: M0, M1, and M2.
	15	IN5	FREE This stops motor excitation.
	16	IN7	ALM-RST This resets the alarm.
	17	IN-COM [8-9]*1	IN8, IN9 Input Common
	18	IN9	RV-JOG This starts the JOG operation.
	19	OUT1	IN-POS Output when motor operations have finished.
	20	OUT3	READY Output when driver operation preparations have finished.
	21	OUT5	ALM-B The driver's alarm status is output (normally closed).
	22	GND*1	Ground
	23	ASG-	A-phase pulse output-
	24	BSG-	B-phase pulse output-

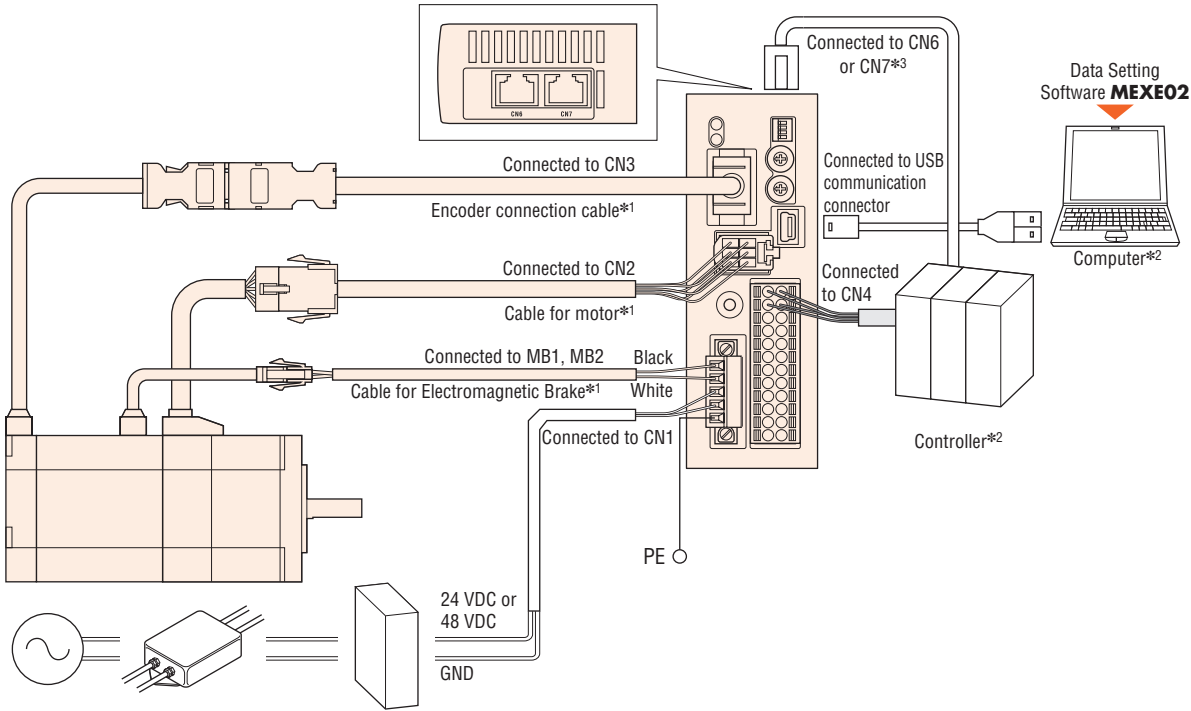
● Assigned functions are set by means of the parameters. The initial values are shown above. Refer to the functions for details.

*1 The initial value setting cannot be changed.

● Connection Diagram

◇ Connection to Peripheral Equipment

AZ Series
 Available as accessories (sold separately).



AC Power Supply Noise Filter*2 DC Power Supply*2
 Use for noise prevention. Reduces noise caused by the power supply and driver.

- *1 When wiring the motor and driver, keep a max. distance of 20 m (65.6 ft).
- *2 Not supplied.
- *3 If controlling with RS-485 communication, connect to a controller.

◇ USB Cable Connection

Connect a computer on which the data setting software **MEXE02** is installed and the driver via USB cable. Please use a USB cable that meets the following specifications.

Specifications	USB 2.0 (full-speed)
Cable	Length: 3 m (9.8 ft.) max.
	Configuration: A-mini-B

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions and Operation

System Configuration

Product Line and List Price

DC Input

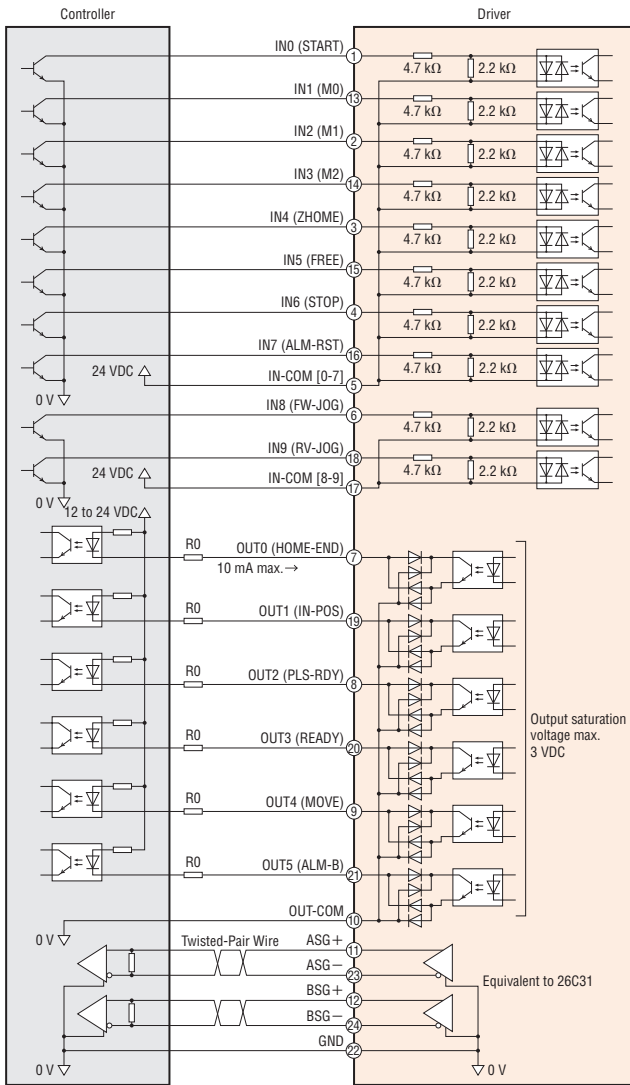
Specifications/ Characteristics

Dimensions and Operation

Accessories

◇ Connection to the Programmable Controller (Built-in controller type)

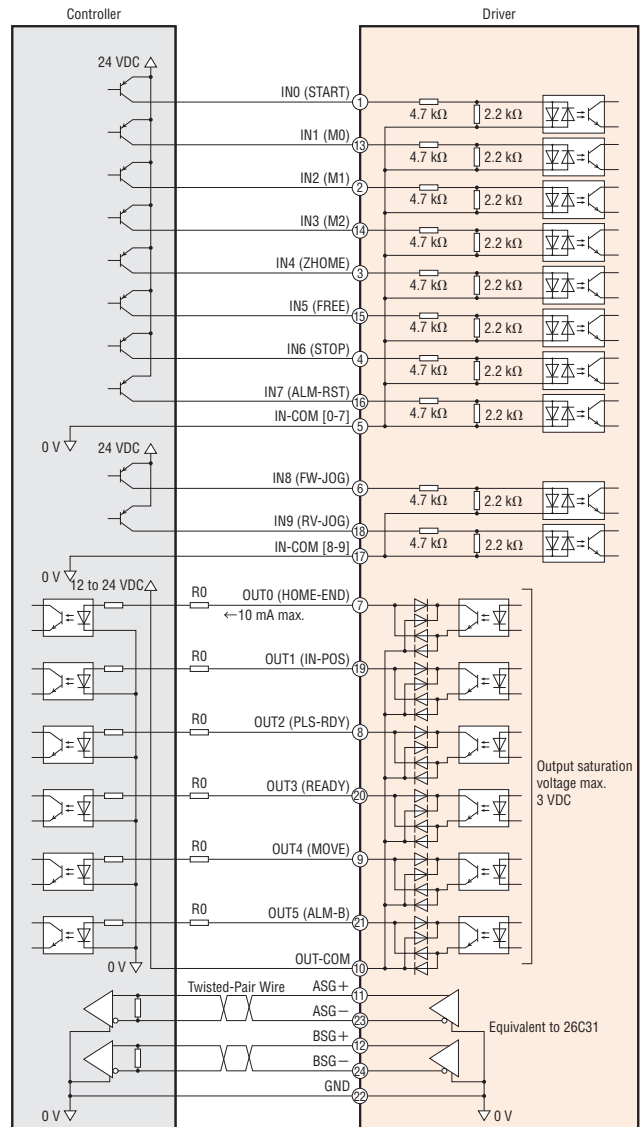
● Connecting to a Current Sink Output Circuit



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.8 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

● Connecting to a Current Source Output Circuit

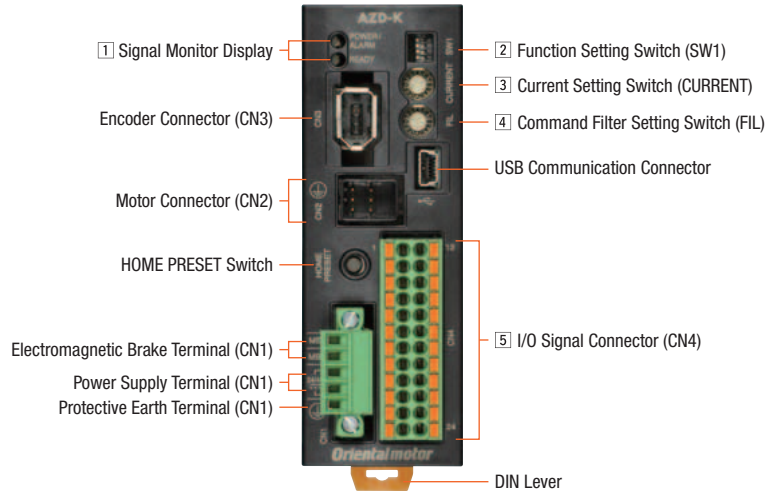


Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.8 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

Connection and Operation (Pulse input type)

Names and Functions of Driver Parts



1 Signal Monitor Display

◇ LED Indicators

Display	Color	Function	Activation Conditions
POWER	Green	Power supply indication	Lights when power is on
ALARM	Red	Alarm indication	Blinks when protective functions are activated
READY	Green	READY Output	When READY output is ON

2 Function Setting Switch

Display	No.	Function
SW1	1	This sets the resolution per rotation of the motor output shaft (factory setting: OFF [1000 p/r]).
	2	This sets the pulse input mode to 1 pulse input or 2 pulse input mode. (factory setting: OFF [2 pulse input mode])
	3, 4	Not used.

3 Current Setting Switch

Display	Function
CURRENT	This sets the base current for the operating current and stall current (factory setting: F).

4 Command Filter Setting Switch

Display	Function
FIL	This adjusts the motor response (factory setting: 1).

5 I/O Signal Connector (CN4)

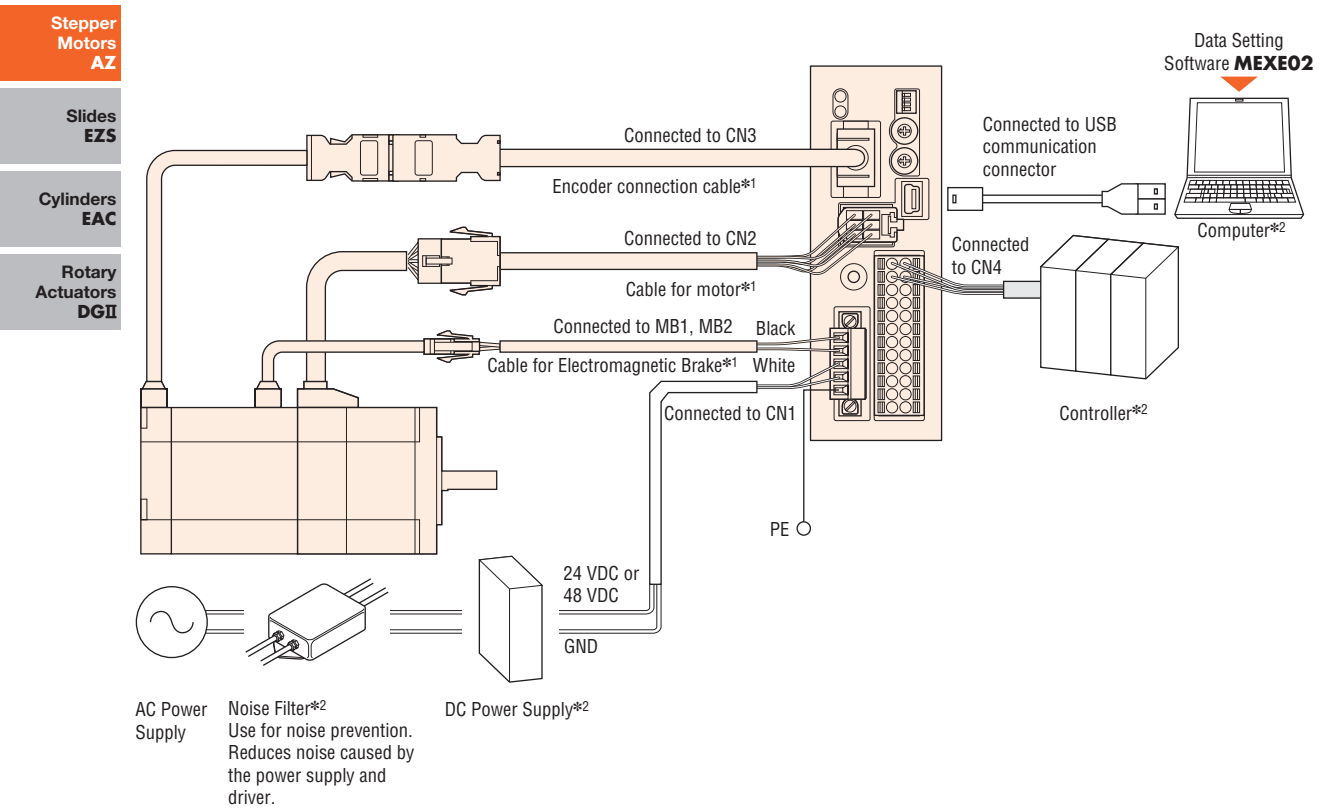
Display	Pin No.	Signal Name	Description	
CN4	1	CW+ [PLS+] ^{*1}	CW pulse input+ [Pulse input+]	
	2	CCW+ [DIR+] ^{*1}	CCW pulse input+ [Rotation direction input+]	
	3	IN4	ZHOME	This moves to the home position set with the HOME PRESET switch.
	4	IN6	STOP	This stops the motor.
	5	IN-COM [4-7] ^{*1}	IN4~IN7 Input Common	
	6	IN8	FW-JOG	This starts the JOG operation.
	7	OUT0	HOME-END	If a home position has been decided, it will output when high-speed return-to-home operations have finished.
	8	OUT2	PLS-RDY	Outputs once pulse input preparations have finished.
	9	OUT4	MOVE	Output during motor operation.
	10	OUT-COM ^{*1}	Output Common	
	11	ASG+	A-phase pulse output+	
	12	BSG+	B-phase pulse output+	
	13	CW- [PLS-] ^{*1}	CW pulse input- [Pulse input-]	
	14	CCW- [DIR-] ^{*1}	CCW pulse input- [Rotation direction input-]	
	15	IN5	FREE	This stops motor excitation.
	16	IN7	ALM-RST	This resets the alarm.
	17	IN-COM [8-9] ^{*1}	IN8, IN9 Input Common	
	18	IN9	RV-JOG	This starts the JOG operation.
	19	OUT1	IN-POS	Output when motor operations have finished.
	20	OUT3	READY	Output when driver operation preparations have finished.
	21	OUT5	ALM-B	The driver's alarm status is output (normally closed).
	22	GND ^{*1}	Ground	
	23	ASG-	A-phase pulse output-	
	24	BSG-	B-phase pulse output-	

● Assigned functions are set by means of the parameters. The initial values are shown above. Refer to the functions for details.

*1 The initial value setting cannot be changed.

● Connection Diagram

◇ Connection to Peripheral Equipment



*1 When wiring the motor and driver, keep a max. distance of 20 m (65.6 ft.).
 *2 Not supplied.

◇ USB Cable Connection

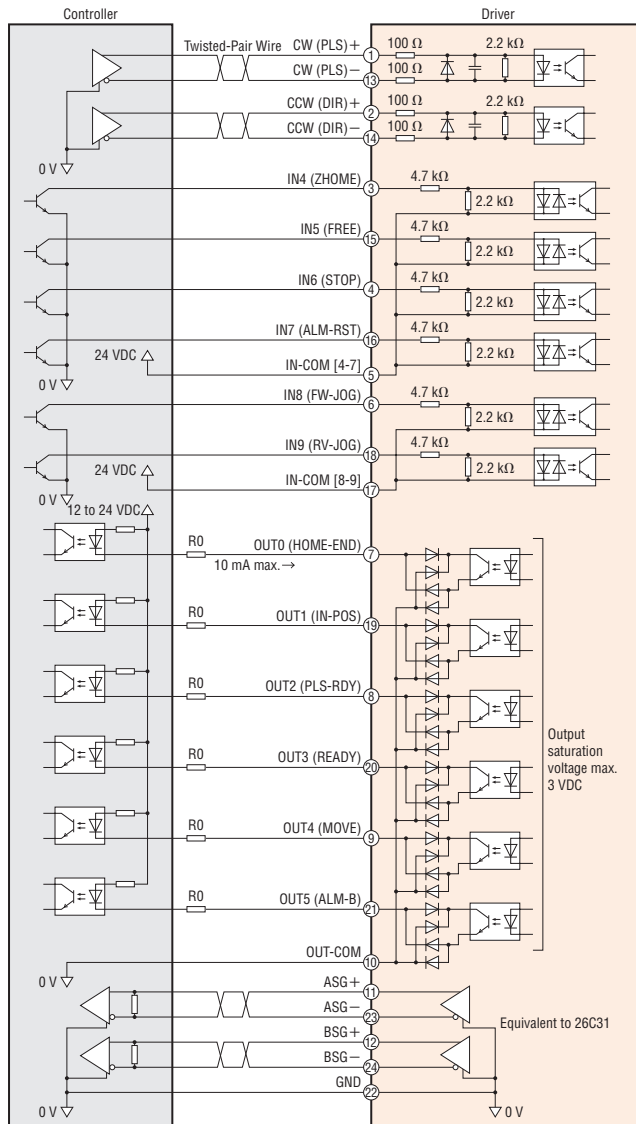
Connect a computer on which the data setting software **MEXE02** is installed and the driver via USB cable. Please use a USB cable that meets the following specifications.

Specifications	USB 2.0 (full-speed)
Cable	Length: 3 m (9.8 ft.) max.
	Configuration: A-mini-B

◇ Connection to the Programmable Controller (Pulse input type)

● Connecting to a Current Sink Output Circuit

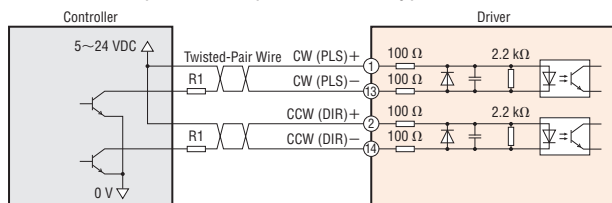
When pulse input is of line driver type



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.8 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

When Pulse Input is the Open Collector Type

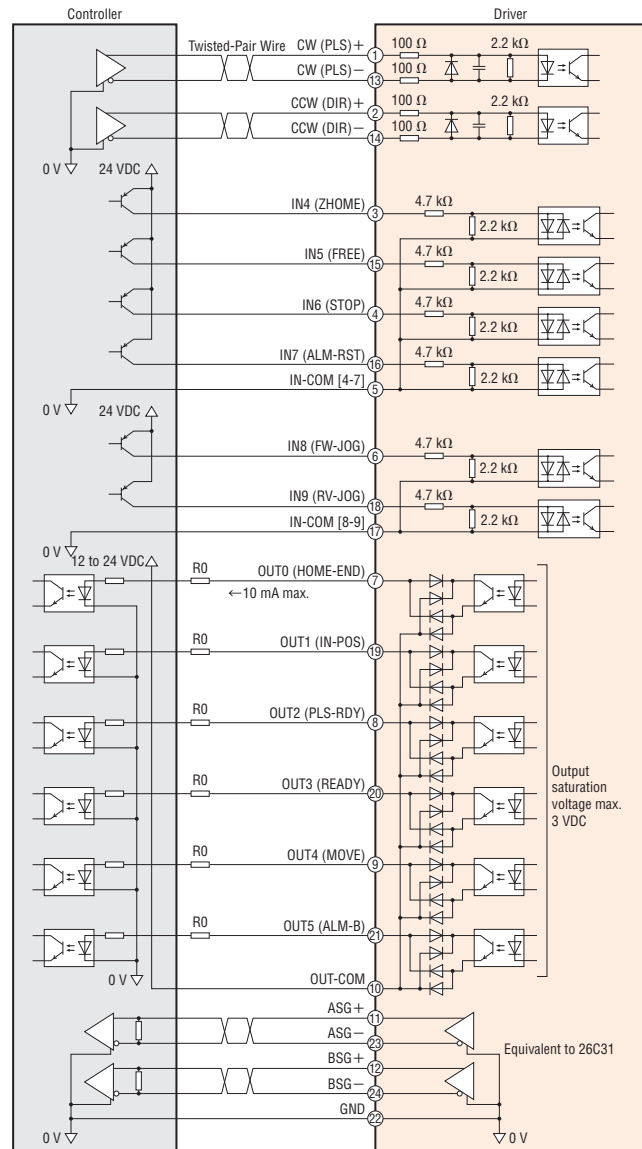


Note

- Please use 5~24 VDC for the CW (PLS) input and CCW (DIR) input. If more than 5 VDC of voltage is being applied, connect an external resistor R_1 to keep the input current between 7 and 20 mA.

● Connecting to a Current Source Output Circuit

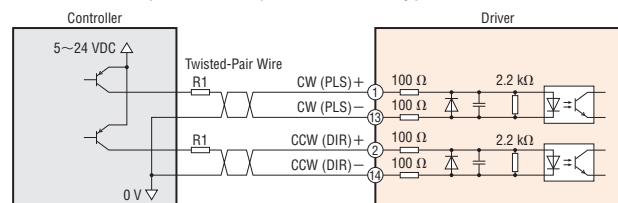
When pulse input is of line driver type



Note

- Use input signals at 24 VDC.
- Use output signals at 12~24 VDC, 10 mA max. If the current exceeds 10 mA, connect an external resistor R_0 to keep the current at 10 mA or less.
- Signal lines should be kept at least 200 mm (7.8 in.) away from power lines (power supply lines and motor lines).
Do not run the signal lines in the same piping as power lines or bundle them with power lines.
- If noise generated by the motor cable or power supply cable causes a problem, try shielding the cables or insert ferrite cores.

When Pulse Input is the Open Collector Type



Note

- Please use 5~24 VDC for the CW (PLS) input and CCW (DIR) input. If more than 5 VDC of voltage is being applied, connect an external resistor R_1 to keep the input current between 7 and 20 mA.

Accessories (Sold separately)

Extension Cable Sets, Flexible Extension Cable Sets

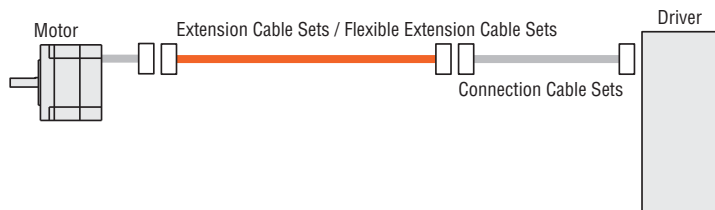
Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

Extension cable sets and flexible extension cable sets that can be used to extend the connection cable sets are available for the **AZ** Series. A motor cable and encoder cable come as a set with standard type motors, and a motor cable, encoder cable, and electromagnetic brake cable come as a set with electromagnetic brake type motors. Use a flexible connection cable set or flexible extension cable set if the cable will be bent repeatedly.



Note

● The motor cable coming out of the motor and the electromagnetic brake cable cannot be directly connected to the driver. If connecting to the driver, please use a connection cable. The maximum cable extension length is 20 m (65.6 ft.).

AC Input

Extension Cable Sets, Flexible Extension Cable Sets

Product Line and List Price

● Extension Cable Sets

◇ For Standard Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZFT	1 (3.3)	\$71.00
CC020VZFT	2 (6.6)	\$80.00
CC030VZFT	3 (9.8)	\$91.00
CC050VZFT	5 (16.4)	\$110.00
CC070VZFT	7 (23.0)	\$136.00
CC100VZFT	10 (32.8)	\$176.00
CC150VZFT	15 (49.2)	\$243.00

◇ For Electromagnetic Brake Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZFBT	1 (3.3)	\$86.00
CC020VZFBT	2 (6.6)	\$98.00
CC030VZFBT	3 (9.8)	\$111.00
CC050VZFBT	5 (16.4)	\$135.00
CC070VZFBT	7 (23.0)	\$166.00
CC100VZFBT	10 (32.8)	\$213.00
CC150VZFBT	15 (49.2)	\$293.00

● Flexible Extension Cable Sets

◇ For Standard Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZRT	1 (3.3)	\$84.00
CC020VZRT	2 (6.6)	\$99.00
CC030VZRT	3 (9.8)	\$111.00
CC050VZRT	5 (16.4)	\$141.00
CC070VZRT	7 (23.0)	\$180.00
CC100VZRT	10 (32.8)	\$236.00
CC150VZRT	15 (49.2)	\$332.00

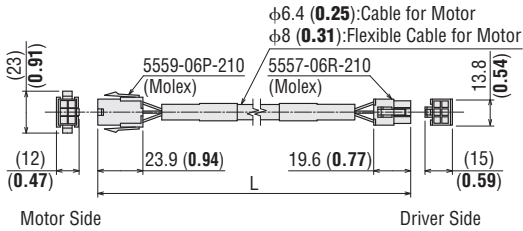
◇ For Electromagnetic Brake Type Motor



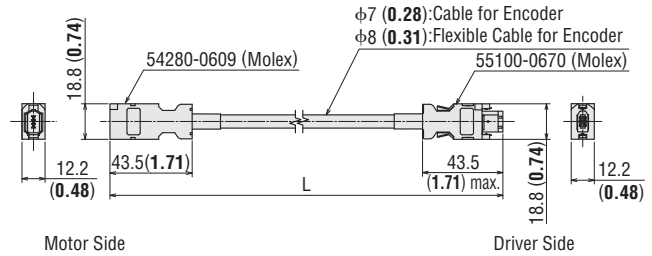
Product Name	Length L m (ft.)	List Price
CC010VZRBT	1 (3.3)	\$114.00
CC020VZRBT	2 (6.6)	\$134.00
CC030VZRBT	3 (9.8)	\$151.00
CC050VZRBT	5 (16.4)	\$191.00
CC070VZRBT	7 (23.0)	\$240.00
CC100VZRBT	10 (32.8)	\$311.00
CC150VZRBT	15 (49.2)	\$432.00

Dimensions Unit = mm (in.)

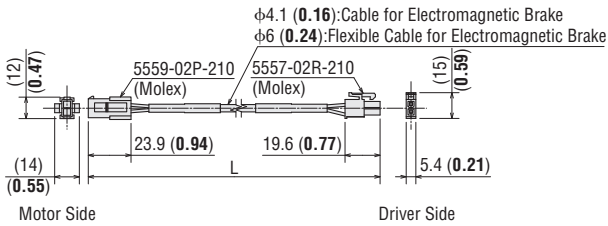
● Cable for Motor



● Cable for Encoder



● Cable for Electromagnetic Brake



DC Input

Extension Cable Sets, Flexible Extension Cable Sets

Product Line and List Price

[For **AZM14**, **AZM15**, **AZM24**, and **AZM26**]

● Extension Cable

◇ For Standard Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZ2FT	1 (3.3)	\$71.00
CC020VZ2FT	2 (6.6)	\$80.00
CC030VZ2FT	3 (9.8)	\$91.00
CC050VZ2FT	5 (16.4)	\$110.00
CC070VZ2FT	7 (23.0)	\$136.00
CC100VZ2FT	10 (32.8)	\$176.00
CC150VZ2FT	15 (49.2)	\$243.00

● Flexible Extension Cable

◇ For Standard Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZ2RT	1 (3.3)	\$84.00
CC020VZ2RT	2 (6.6)	\$99.00
CC030VZ2RT	3 (9.8)	\$111.00
CC050VZ2RT	5 (16.4)	\$141.00
CC070VZ2RT	7 (23.0)	\$180.00
CC100VZ2RT	10 (32.8)	\$236.00
CC150VZ2RT	15 (49.2)	\$332.00

[For **AZM46**, **AZM66**, and **AZM69**]

● Extension Cable Sets

◇ For Standard Type Motor



Cable for Motor

Cable for Encoder

Product Name	Length L m (ft.)	List Price
CC010VZFT	1 (3.3)	\$71.00
CC020VZFT	2 (6.6)	\$80.00
CC030VZFT	3 (9.8)	\$91.00
CC050VZFT	5 (16.4)	\$110.00
CC070VZFT	7 (23.0)	\$136.00
CC100VZFT	10 (32.8)	\$176.00
CC150VZFT	15 (49.2)	\$243.00

◇ For Electromagnetic Brake Type Motor



Cable for Motor

Cable for Encoder

Cable for Electromagnetic Brake

Product Name	Length L m (ft.)	List Price
CC010VZFBT	1 (3.3)	\$86.00
CC020VZFBT	2 (6.6)	\$98.00
CC030VZFBT	3 (9.8)	\$111.00
CC050VZFBT	5 (16.4)	\$135.00
CC070VZFBT	7 (23.0)	\$166.00
CC100VZFBT	10 (32.8)	\$213.00
CC150VZFBT	15 (49.2)	\$293.00

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration and List Price

DC Input

Specifications/ Characteristics

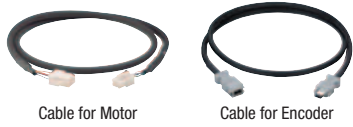
Dimensions

Connection and Operation

Accessories

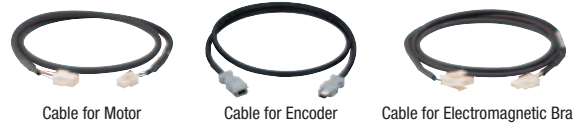
● Flexible Extension Cable Sets

◇ For Standard Type Motor



Product Name	Length L m (ft.)	List Price
CC010VZRT	1 (3.3)	\$84.00
CC020VZRT	2 (6.6)	\$99.00
CC030VZRT	3 (9.8)	\$111.00
CC050VZRT	5 (16.4)	\$141.00
CC070VZRT	7 (23.0)	\$180.00
CC100VZRT	10 (32.8)	\$236.00
CC150VZRT	15 (49.2)	\$332.00

◇ For Electromagnetic Brake Type Motor

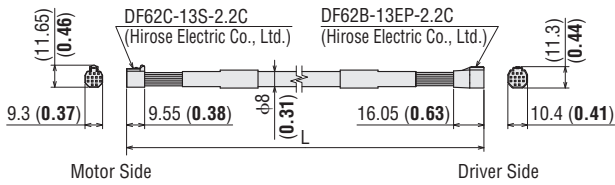


Product Name	Length L m (ft.)	List Price
CC010VZRBT	1 (3.3)	\$114.00
CC020VZRBT	2 (6.6)	\$134.00
CC030VZRBT	3 (9.8)	\$151.00
CC050VZRBT	5 (16.4)	\$191.00
CC070VZRBT	7 (23.0)	\$240.00
CC100VZRBT	10 (32.8)	\$311.00
CC150VZRBT	15 (49.2)	\$432.00

■ Dimensions Unit = mm (in.)

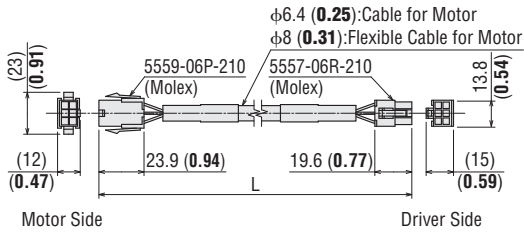
[For **AZM14**, **AZM15**, **AZM24**, and **AZM26**]

● Cable for Motor

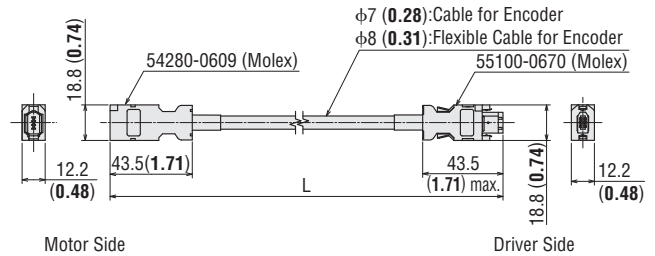


[For **AZM46**, **AZM66**, and **AZM69**]

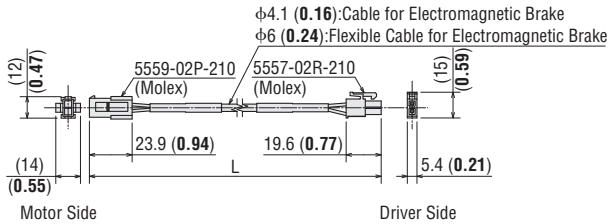
● Cable for Motor



● Cable for Encoder

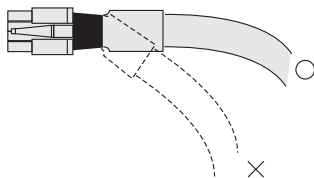


● Cable for Electromagnetic Brake

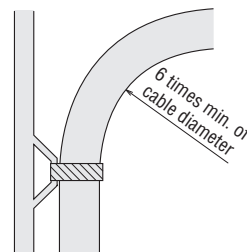


■ Note on Use of Flexible Connection Cable

① Do not allow the cable to bend at the cable connector.

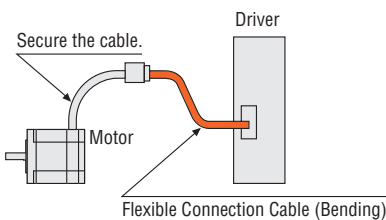


② For the bending radius, use at 6 times min. of the cable diameter.

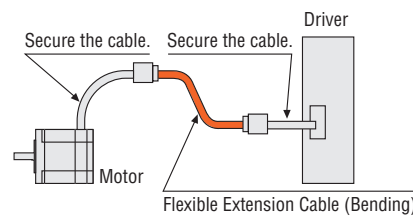


③ The cable from the motor and the accessory cable are not bending types. If the motor cable is to be bent, bend it at the flexible cable.

● Flexible Connection Cable



● Flexible Extension Cable



Data Setting Software MEXE02

Besides setting and editing operating data and various parameters on the computer, teaching, I/O, and operating speed waveforms can also be monitored.

The data setting software can be downloaded from the Oriental Motor website.

For details, please make a request through the Oriental Motor website or contact your nearest Oriental Motor sales office.

Operating Environment

Computer

Recommended CPU*1	Intel Core processor 2 GHz min. (The OS must be supported.)
Display	XGA (1024×768) or higher resolution video adapter and monitor
Recommended Memory*1	32-bit (x86) version: 1 GB min. 64-bit (x64) version: 2 GB min.
Hard Disk*2	Free disk space of 60 MB min.
USB Ports	One USB2.0 port

*1 The OS operating conditions must be satisfied.

*2 Microsoft .NET Framework 4 Client Profile is required for **MEXE02**. It will automatically be installed if it isn't already, so 1.5 GB of free space is required for the 64-bit (x64) version and 600 MB of free space is required for the 32-bit (x86) version.

- Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.
- Intel and Core are registered trademarks or trademarks of Intel Corporation in the United States and other countries.
- Please refer to the Oriental Motor website for the latest information on operating environments.

Note

- Depending on the system environment you use, the necessary memory and hard disk capacity may differ.
- If installing from media, a drive that is compatible with the media is also required.

Operating System (OS)

Compatible with 32-bit (x86) and 64-bit (x64) versions.

- Microsoft Windows XP Service Pack 3*
- Microsoft Windows Vista Service Pack 2
- Microsoft Windows 7 Service Pack 1
- Microsoft Windows 8
- Microsoft Windows 8.1

*Runs on Service Pack 2 for the 64-bit (x64) version.

Connection between Computer and Driver

Please use a USB cable that meets the following specifications.

Specifications	USB 2.0 (full-speed)
Cable	Length: 3 m (9.8 ft.) max. Configuration: A-mini-B

General-Purpose I/O Signal Cables

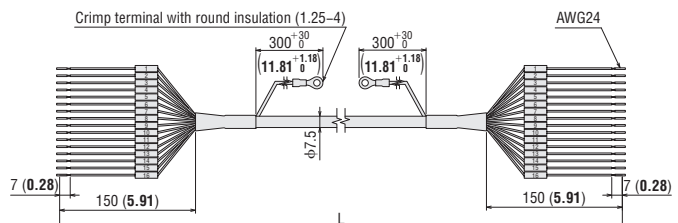
This is a general-purpose multi-core cable useful for connecting a driver and programmable controller. Please select the necessary cables according to the number of I/O signals that are being connected.



Product Line and List Price

Number of Lead Wire Conductors	Cable Length	
	1 m (3.3 ft.)	2 m (6.6 ft.)
6	CC06D010B-1	CC06D020B-1
	\$19.00	\$23.00
10	CC10D010B-1	CC10D020B-1
	\$21.00	\$26.00
12	CC12D010B-1	CC12D020B-1
	\$24.00	\$30.00
16	CC16D010B-1	CC16D020B-1
	\$25.00	\$31.00

Dimensions Unit = mm (in.)



● The diagram shows 16 cores.

RS-485 Communication Cables

This cable is used to connect the drivers with a built-in controller type equipped with RS-485 communications in multi-axis operations.

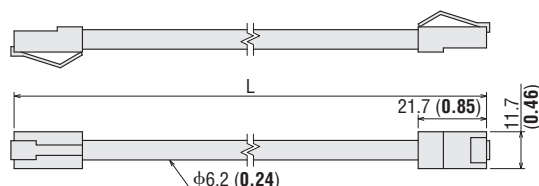
It also connects network converters to the drivers.



Product Line and List Price

Product Name	Applicable Driver	Length L m (in.)	List Price
CC001-RS4	DC Input Driver	0.1 (3.94)	\$29.00
CC002-RS4	AC Input Driver DC Input Driver	0.25 (9.84)	\$35.00

Dimensions Unit = mm (in.)



Features

System Configuration

Product Line and List Price

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

MCV Couplings

This one-piece coupling is made with anti-vibration rubber molded between aluminum alloy hubs.



Product Line and List Price

Product Name	List Price
MCV15 □	\$75.00
MCV25 □	\$79.00
MCV30 □	\$83.00

● A number indicating the coupling inner diameter is entered where the box □ is located within the product name.

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI

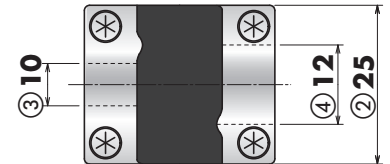
Product Number Code

MCV 25 10 12

- ① ② ③ ④

①	MCV Couplings
②	Outer Diameter of Coupling
③	Inner Diameter d1 (Smaller inner diameter) (06A represents $\phi 6.35$ mm)
④	Inner Diameter d2 (Larger inner diameter) (06A represents $\phi 6.35$ mm)

● For inner diameter d1, the smaller of the motor shaft diameter or the driven shaft diameter is entered.
For inner diameter d2, the larger of the motor shaft diameter or the driven shaft diameter is entered.



Coupling Selection Table

- Couplings are selected based on the following.
 - The output torque of the motor is within the normal torque range of the coupling
 - The shaft diameter of the motor

Applicable Product			Coupling Type	Motor Shaft Diameter mm	Driven Shaft Diameter mm (in.)										
Type	Motor Frame Size	Product Name			03	04	05	06	06A	08	10	12	14	15	
					$\phi 3$ ($\phi 0.1181$)	$\phi 4$ ($\phi 0.1575$)	$\phi 5$ ($\phi 0.1969$)	$\phi 6$ ($\phi 0.2362$)	$\phi 6.35$ ($\phi 0.2500$)	$\phi 8$ ($\phi 0.3150$)	$\phi 10$ ($\phi 0.3937$)	$\phi 12$ ($\phi 0.4724$)	$\phi 14$ ($\phi 0.5372$)	$\phi 15$ ($\phi 0.5906$)	
Standard Type	20 mm (0.79 in.)	AZM14, AZM15	MCV15	04	$\phi 4$		●	●	●						
	28 mm (1.10 in.)	AZM24, AZM26		05	$\phi 5$	●	●	●	●						
	42 mm (1.65 in.)	AZM46		06	$\phi 6$		●	●	●						
	60 mm (2.36 in.)	AZM66, AZM69	MCV25	10	$\phi 10$			●	●	●	●				
	85 mm (3.35 in.)	AZM98, AZM911	MCV30	14	$\phi 14$					●	●	●	●		

● Names of applicable products contain characters that make product names identifiable.

MCS Couplings

This three-piece coupling adopts an aluminum alloy hub and a resin spider.



Product Line and List Price

Product Name	List Price
MCS20 □	\$50.00
MCS30 □	\$71.00
MCS40 □	\$104.00
MCS55 □	\$134.00
MCS65 □	\$204.00

● A number indicating the coupling inner diameter is entered where the box □ is located within the product name.

Product Number Code

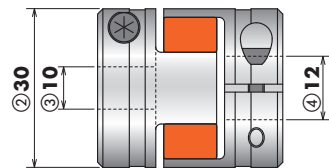
MCS 30 10 12

① ② ③ ④

①	MCS Couplings
②	Outer Diameter of Coupling
③	Inner Diameter d1 (Smaller inner diameter) (F04 represents $\phi 6.35$ mm)*1
④	Inner Diameter d2 (Larger inner diameter) (F04 represents $\phi 6.35$ mm)*1

*1 $\phi 0.2500$ in.

● For inner diameter d1, the smaller of the motor shaft diameter or the driven shaft diameter is entered.
For inner diameter d2, the larger of the motor shaft diameter or the driven shaft diameter is entered.



Coupling Selection Table

- Couplings are selected based on the following.
 - The output torque of the motor is within the normal torque range of the coupling
 - The shaft diameter of the motor
- If using a parallel key, please select a coupling that is suited to parallel keys.

Applicable Product			Gear Ratio	Coupling Type	Motor Shaft Diameter mm	Driven Shaft Diameter mm														
Type	Frame Size	Product Name				05	06	F04	08	10	12	14	15	16	18	20	22	24	25	
						$\phi 5$	$\phi 6$	$\phi 6.35$	$\phi 8$	$\phi 10$	$\phi 12$	$\phi 14$	$\phi 15$	$\phi 16$	$\phi 18$	$\phi 20$	$\phi 22$	$\phi 24$	$\phi 25$	
TS Geared	42 mm (1.65 in.)	AZM46-TS □	3.6, 7.2	MCS20	06	$\phi 6$	●	●	●	●	●									
			10, 20, 30	MCS30				●	●	●	●	●								
	60 mm (2.36 in.)	AZM66-TS □	3.6, 7.2	MCS30	10	$\phi 10$		●	●	●	●	●								
			10, 20, 30	MCS40					●	●	●	●	●	●						
90 mm (3.54 in.)	AZM98-TS □	3.6, 7.2, 10	MCS55	18	$\phi 18$				●	●	●	●	●	●	●	●				
		20, 30	MCS65								●	●	●	●	●	●				
PS Geared	42 mm (1.65 in.)	AZM46-PS □	5	MCS20	10	$\phi 10$	●	●	●	●	●									
			7.2, 10, 25, 36, 50	MCS30				●	●	●	●	●								
	60 mm (2.36 in.)	AZM66-PS □	5, 7.2	MCS40	12	$\phi 12$				●	●	●	●	●						
			10, 25, 36, 50	MCS55						●	●	●	●	●	●	●				
90 mm (3.54 in.)	AZM98-PS □	5, 7.2	MCS55	18	$\phi 18$				●	●	●	●	●	●	●					
		10, 25, 36, 50	MCS65								●	●	●	●	●					
HPG Geared	40 mm (1.57 in.)	AZM46-HP □	5, 9	MCS30	10	$\phi 10$		●	●	●	●	●								
	60 mm (2.36 in.)	AZM66-HP □	5, 15	MCS55	16	$\phi 16$				●	●									
	90 mm (3.54 in.)	AZM98-HP □	5, 15	MCS65	25	$\phi 25$						●	●							
Harmonic Geared	42 mm (1.65 in.)	AZM46-HS □	50, 100	MCS40	10	$\phi 10$			●	●	●	●	●	●						
	60 mm (2.36 in.)	AZM66-HS □	50, 100	MCS55	15	$\phi 15$				●	●			●						

- Names of applicable products contain characters that make product names identifiable.
- Enter the gear ratio in the box □ within the product name.

Features

System Configuration

Product Line and List Price

AC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

System Configuration

Product Line and List Price

DC Input

Specifications/ Characteristics

Dimensions

Connection and Operation

Accessories

Compact, High Rigidity Electric Linear Slides with Simple Dust-Resistant Structure

Providing the high response, low vibration and hunting-free operation of a stepper motor in an electric linear slide.

A wide variety of options to suit the equipment space and environment, including straight type and reversed motor type.



A wide variety of linear slides and drivers are available.

With Battery-Free Absolute Sensor

Stepper Motor and Driver *αSTEP*

AZ Series

- Equipped with battery-free absolute sensor
- Positioning information can be known without a sensor
- High reliability using closed loop control
- Reduced motor heat and reduced energy consumption through high efficiency design

Battery-Free
Equipped with Multiple-Rotation Absolute Sensor

Absolute Sensor

Linear Slide

Straight Type

Reversed Motor Type
(Left reverse/Right reverse)

● Photo shows left side type

Can Be Shipped in as Few as 9 Business Days



Electric Linear Slides EZS Series

Can be purchased as a package with an electric linear slide and driver.

Driver

Built-in Controller Type **C-FLEX**



AC Input



DC Input

Pulse Input Type



AC Input



DC Input

● Single-Phase 100-120 VAC, Single-Phase 200-240 VAC, Three-Phase 200-230 VAC and 24/48 VDC types are available.

Common Specifications

- Stroke: 50 to 850 mm
- Max. Speed: 800 mm/s
- Maximum Transportable Mass:
Horizontal 60 kg/Vertical 30 kg
- Repetitive Positioning Accuracy:
 ± 0.02 mm

(Values shown above are representative values. The specific values vary by type.)

Packages Start at \$1,249.00

A combination of high efficiency and high performance at affordable prices. Packages comprised of an electric linear slide and driver. Connection cables sold separately.



List Price

● Straight Type or Reversed Motor Type

AC Input: \$1,396.00~

DC Input: \$1,249.00~

A Compact Linear Slide that is Thin, Highly Rigid and Features a High Accuracy Guide. Reversed Motor Types Save Space.

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary Actuators
DGI

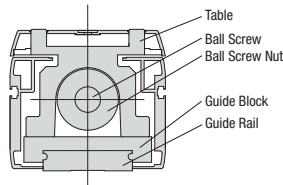
High Rigidity/High Accuracy

Despite the small size, high permissible moment loads have been achieved by using a highly rigid guide.

High Rigidity and High Accuracy Guide

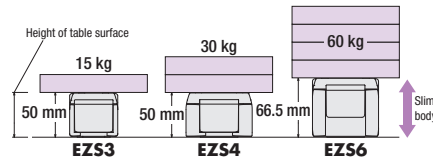
The LM Guide*1 from THK is used as the guide hardware. It is a thin, stainless steel guide that can withstand high moment loads. The guide also has excellent traveling parallelism, which has been reduced to 0.03 mm or less.

*1 Registered trademark of THK, Co. Ltd.



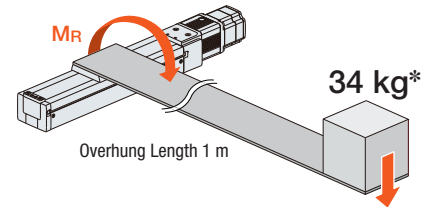
Traveling Parallelism of
0.03 mm or less

Providing Large Transportable Mass in a Slim Form Factor



High Permissible Moment

This series is compact yet effective in handling high moment loads.



*The load is calculated using the static permissible moment 340 N-m of the **EZS6**.

● Permissible Moment in Rolling Direction [N-m]

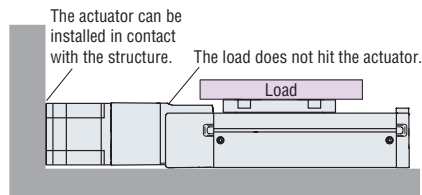
Product	Static Permissible Moment*1	Dynamic Permissible Moment*2
EZS3	52.0	10.5
EZS4	176	27.8
EZS6	340	55.6

*1 Permissible moment load for linear guide while stopped.
*2 Permissible moment load for linear guide while operating.

Space-Saving

Maximum use of the space is possible because the equipment doesn't interfere with the load.

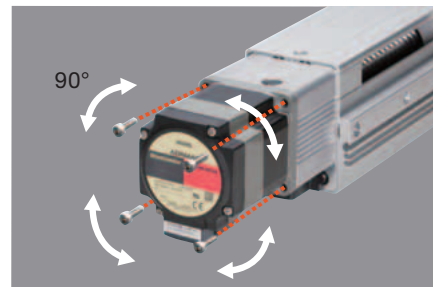
Equipment can be installed in contact with surrounding structures.



Variable Cable Outlet Direction

The motor attachment direction can be changed to any of 4 directions*, allowing the cable outlet to be changed to best suit the installation location.

*3 directions for reversed motor types.

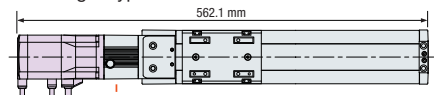


Reversed Motor Type

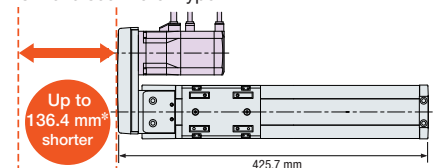
With overall lengths up to 136.4 mm shorter compared to the straight type, reversed motor types can contribute to equipment space-saving.

AZ Series
EZS6 with Electromagnetic Brake Stroke 200 mm

● Straight Type



● Reversed Motor Type

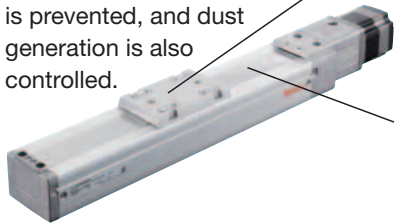


*For electromagnetic brake type

All Products Use a Simple Dust-Resistant Structure.

Simple Dust-Resistant Structure

Through the use of a stainless steel, simple dust-resistant structure, simple dust-resistant infiltration of foreign objects is prevented, and dust generation is also controlled.



Dust Generation Control

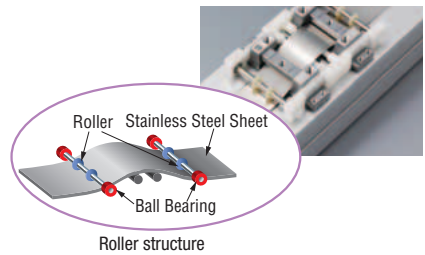
By using a low dust-generative roller structure, the generation of abrasive particles that could abrade and wear the stainless steel sheet is prevented.

Prevention of Foreign Object Infiltration

Infiltration of external foreign objects is prevented with a simple dust resistant structure made of a stainless steel sheet.

Low Dust-Generative Roller Structure (Patented)

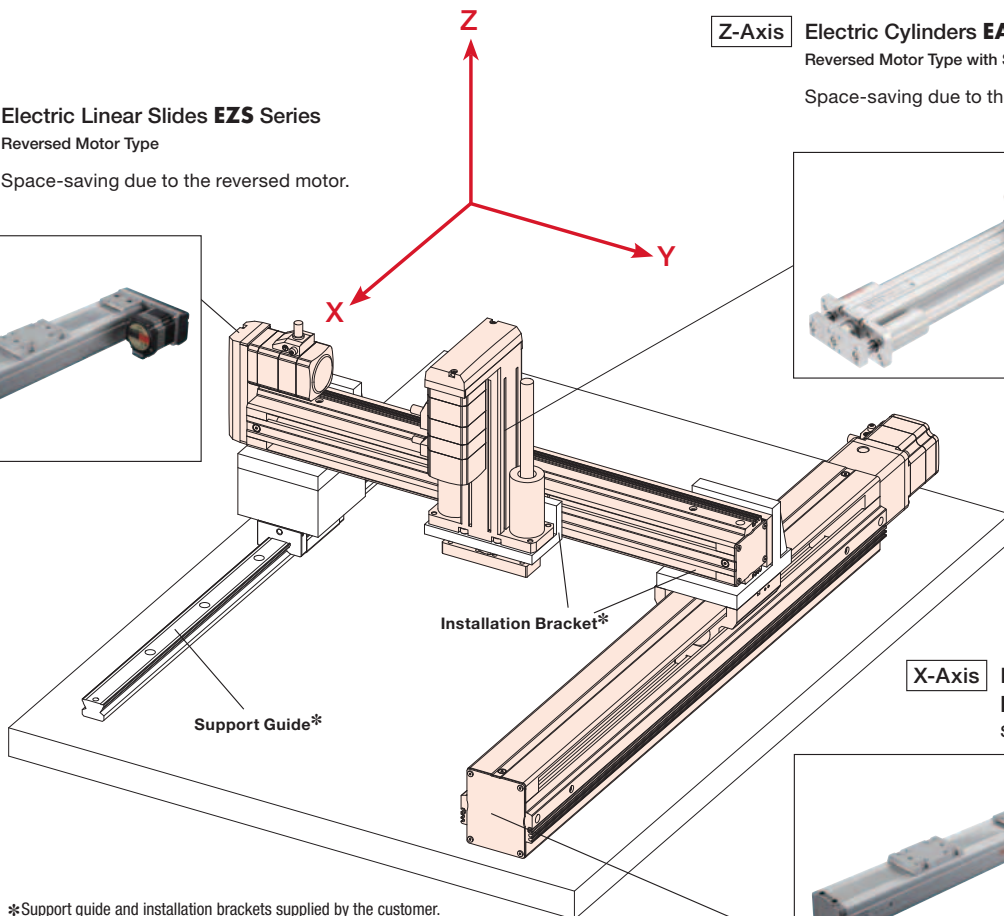
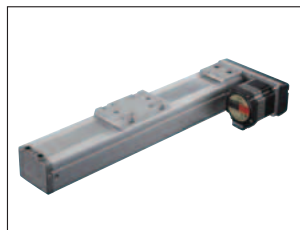
A low dust-generative roller structure has been built into the table, which provides rolling contact with the stainless steel sheet, thus preventing the generation of abrasive particles. This not only controls the generation of dust, but also improves the durability of the stainless steel sheet.



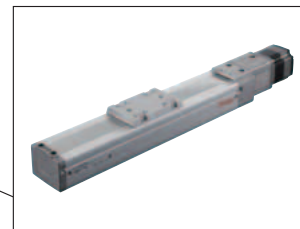
The image below shows a three axes system using the electric linear slide **EZS** Series on the X-Y axis and the electric cylinder **EAC** Series on the Z axis.

Y-Axis Electric Linear Slides **EZS** Series
Reversed Motor Type
Space-saving due to the reversed motor.

Z-Axis Electric Cylinders **EAC** Series
Reversed Motor Type with Shaft Guide Cover
Space-saving due to the reversed motor.



X-Axis Electric Linear Slides **EZS** Series
Straight Type



*Support guide and installation brackets supplied by the customer.

Enhanced Performance with α STEP AZ Series Technology.

Stepper Motors
AZ

Slides
EZS

High Speed Driving

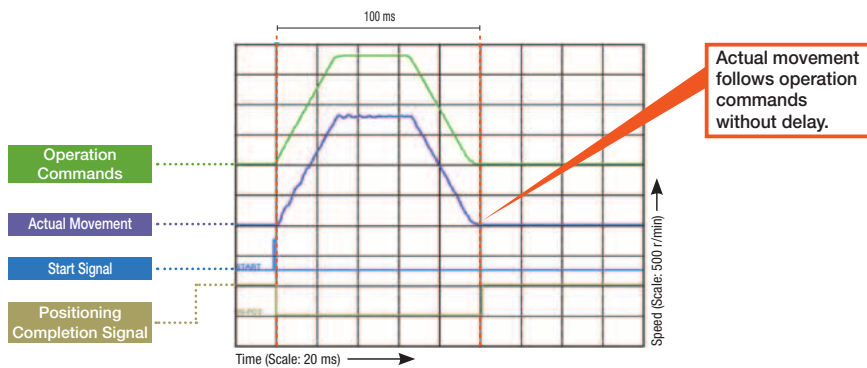
Cylinders
EAC

High Response

By utilizing the high response of the stepper motor, short distances can be covered quickly. Movement follows commands without delay.

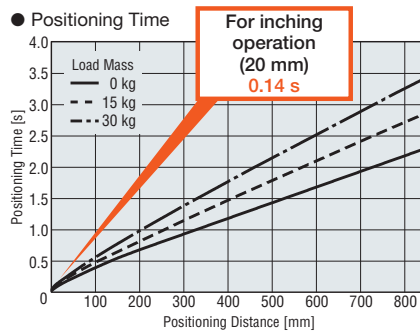
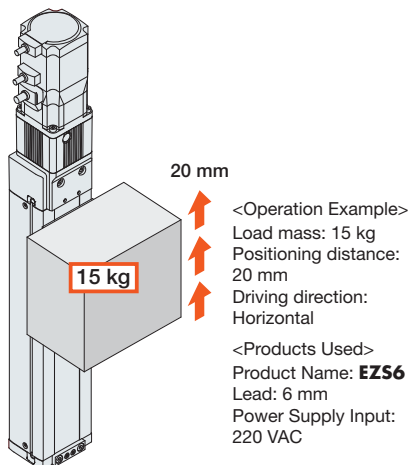
Rotary Actuators
DGI

● Actual Stepper Motor Movement in Response to Operation Commands



Short-Distance High-Speed Driving Even with Heavy Loads

By combining the high response characteristic of stepper motors with a highly rigid guide, high-speed operation even under heavy loads becomes possible.



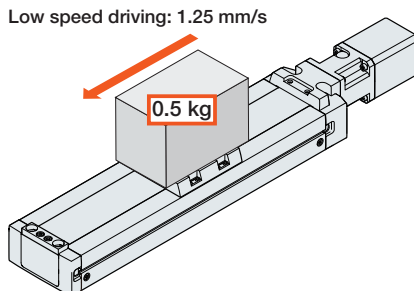
Smooth Movement Even at Low Speeds

Reduced vibration and smooth movement is possible thanks to the standard microstep drive system and smooth drive functions*.

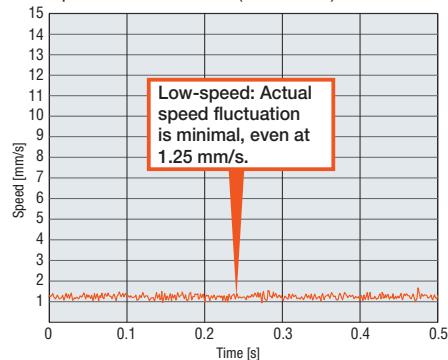
*The smooth drive function automatically microsteps based on the same traveling amount and speed used in the full step mode, without changing the pulse input settings.

<Operation Example>
Load mass: 0.5 kg
Running current: 100%
Resolution: 0.01 mm/step
Operating speed: 1.25 mm/s

<Products Used>
Product Name: **EZS4**
Lead: 12 mm
Power Supply Input: 220 VAC

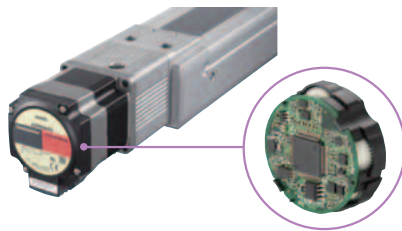


● Actual Linear Slide Table Speed in Relation to Operation Commands (1.25 mm/s)



Useful Functions of the Battery-Free Absolute Sensor

No External Sensors Required



Battery-Free Absolute Sensor (ABZO sensor) Installed

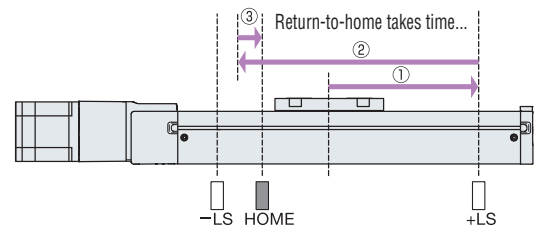
Because the absolute motor sensor (ABZO) is built in, there's no need for a battery to store the positioning information, or for a home sensor, or external sensors or any other external sensors.

- Cost Reduction
 - Simplified Wiring
 - Not Affected by Sensor Malfunctions
 - Improved Return-to-Home Accuracy
- Because variations of the sensitivity of the sensors do not have any effect, return-to-home accuracy is improved.

High-Speed Return-to-Home

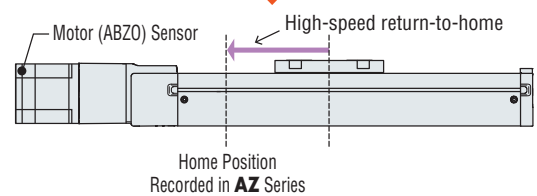
Regular Return-to-Home

With the use of limit sensors and home sensors to detect the home point at low speeds, return-to-home is time consuming.



Return-to-Home Operation of the AZ Series

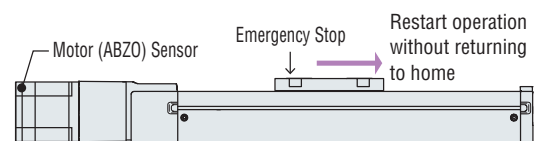
Without the need to detect using limit sensors or the home sensor, the equipment can travel directly at high speed to the home position recorded by the motor sensor.



Return-to-Home Not Required

(For built-in controller type)

Since the position information is known even when the power supply shuts off, operation can resume without return-to-home after an emergency stop or power outage.



No Battery Required

Because a mechanical sensor is used, even if the power supply shuts off, the positioning information can be retained. There are no concerns about shipping regulations when exporting overseas because there's no battery.



Pre-Set Parameter Settings for Reduced Equipment Setup Time

For example, the items shown to the right do not need to be set.

- Calculation/setting of electronic gear for differences in ball screw lead (Min. movement amount already set to 0.01 mm).
- Re-setting of travel direction coordinates based on motor installation direction (straight/reversed) - regardless of the motor installation direction, the same command causes travel in the same direction.

Product Line


Stepper
Motors
AZ



Slides
EVS

Cylinders
EAC

Rotary
Actuators
DGI

EVS Series α STEP AZ Equipped

Built-in Controller Type  Pulse Input Type

Type	Product Width×Height Mass	Power Supply Input [VAC]	Lead [mm]	Stroke [mm]									Max. Speed [mm/s]									
				100	200	300	400	500	600	700	800	900	100	200	300	400	500	600	700	800		
Straight Type 	EVS3 54×50 mm 1.6~3.7 kg	Single-Phase 100-120	12	50~700									800									
		Single-Phase/Three-Phase 200-240	6	50~700									400									
		24/48 VDC	12	50~700									600									
			6	50~700									300									
		Reversed Motor Type 	EVS4 74×50 mm 2.0~5.2 kg	Single-Phase 100-120	12	50~700									800							
				Single-Phase/Three-Phase 200-240	6	50~700									400							
24/48 VDC	12			50~700									600									
	6			50~700									300									
	EVS6 74×66.5 mm 3.8~8.3 kg			Single-Phase 100-120	12	50~850									800							
				Single-Phase/Three-Phase 200-240	6	50~850									400							
		24/48 VDC	12	50~850									600									
			6	50~850									300									

Product Number Code

EVS 4 R - E 050 - AZ M K D

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Series Name	EVS: EVS Series
②	Electric Linear Slide Products	3: Width 54 mm× Height 50 mm 4: Width 74 mm× Height 50 mm 6: Width 74 mm× Height 66.5 mm
③	Motor Mounting Direction	L : Reversed Motor (Left side) R: Reversed Motor (Right side) Blank: Straight
④	Lead	D: 12 mm E: 6 mm
⑤	Stroke	005~085: 50~850 mm (50 mm increments)
⑥	Built-in Motor	AZ: AZ Series
⑦	Motor Shaft	A: Single shaft M: Electromagnetic brake type
⑧	Power Supply Input	AZ Series built-in controller type, pulse input type A: Single-Phase 100-120 VAC C: Single-Phase/Three-Phase 200-240 VAC K: 24/48 VDC
⑨	Driver	D: Built-in controller type Blank: Pulse input type

◇ **EZS4** Straight Type/Reversed Motor Type with Built-in **AZ** Series (Frame size 74 mm × 50 mm)

Stroke (mm)	Built-in Controller Type				Pulse Input Type			
	Single Shaft		Electromagnetic Brake Type		Single Shaft		Electromagnetic Brake Type	
	Product Name	List Price	Product Name	List Price	Product Name	List Price	Product Name	List Price
50	EZS4-□005-AZA□D	\$1,499.00	EZS4-□005-AZM□D	\$1,716.00	EZS4-□005-AZA□	\$1,442.00	EZS4-□005-AZM□	\$1,659.00
100	EZS4-□010-AZA□D	\$1,499.00	EZS4-□010-AZM□D	\$1,716.00	EZS4-□010-AZA□	\$1,442.00	EZS4-□010-AZM□	\$1,659.00
150	EZS4-□015-AZA□D	\$1,530.00	EZS4-□015-AZM□D	\$1,747.00	EZS4-□015-AZA□	\$1,473.00	EZS4-□015-AZM□	\$1,690.00
200	EZS4-□020-AZA□D	\$1,530.00	EZS4-□020-AZM□D	\$1,747.00	EZS4-□020-AZA□	\$1,473.00	EZS4-□020-AZM□	\$1,690.00
250	EZS4-□025-AZA□D	\$1,561.00	EZS4-□025-AZM□D	\$1,778.00	EZS4-□025-AZA□	\$1,504.00	EZS4-□025-AZM□	\$1,721.00
300	EZS4-□030-AZA□D	\$1,561.00	EZS4-□030-AZM□D	\$1,778.00	EZS4-□030-AZA□	\$1,504.00	EZS4-□030-AZM□	\$1,721.00
350	EZS4-□035-AZA□D	\$1,592.00	EZS4-□035-AZM□D	\$1,809.00	EZS4-□035-AZA□	\$1,535.00	EZS4-□035-AZM□	\$1,752.00
400	EZS4-□040-AZA□D	\$1,592.00	EZS4-□040-AZM□D	\$1,809.00	EZS4-□040-AZA□	\$1,535.00	EZS4-□040-AZM□	\$1,752.00
450	EZS4-□045-AZA□D	\$1,623.00	EZS4-□045-AZM□D	\$1,840.00	EZS4-□045-AZA□	\$1,566.00	EZS4-□045-AZM□	\$1,783.00
500	EZS4-□050-AZA□D	\$1,623.00	EZS4-□050-AZM□D	\$1,840.00	EZS4-□050-AZA□	\$1,566.00	EZS4-□050-AZM□	\$1,783.00
550	EZS4-□055-AZA□D	\$1,654.00	EZS4-□055-AZM□D	\$1,871.00	EZS4-□055-AZA□	\$1,597.00	EZS4-□055-AZM□	\$1,814.00
600	EZS4-□060-AZA□D	\$1,654.00	EZS4-□060-AZM□D	\$1,871.00	EZS4-□060-AZA□	\$1,597.00	EZS4-□060-AZM□	\$1,814.00
650	EZS4-□065-AZA□D	\$1,685.00	EZS4-□065-AZM□D	\$1,902.00	EZS4-□065-AZA□	\$1,628.00	EZS4-□065-AZM□	\$1,845.00
700	EZS4-□070-AZA□D	\$1,685.00	EZS4-□070-AZM□D	\$1,902.00	EZS4-□070-AZA□	\$1,628.00	EZS4-□070-AZM□	\$1,845.00

◇ **EZS6** Straight Type/Reversed Motor Type with Built-in **AZ** Series (Frame size 74 mm × 66.5 mm)

Stroke (mm)	Built-in Controller Type				Pulse Input Type			
	Single Shaft		Electromagnetic Brake Type		Single Shaft		Electromagnetic Brake Type	
	Product Name	List Price	Product Name	List Price	Product Name	List Price	Product Name	List Price
50	EZS6-□005-AZA□D	\$1,814.00	EZS6-□005-AZM□D	\$2,093.00	EZS6-□005-AZA□	\$1,757.00	EZS6-□005-AZM□	\$2,036.00
100	EZS6-□010-AZA□D	\$1,814.00	EZS6-□010-AZM□D	\$2,093.00	EZS6-□010-AZA□	\$1,757.00	EZS6-□010-AZM□	\$2,036.00
150	EZS6-□015-AZA□D	\$1,845.00	EZS6-□015-AZM□D	\$2,124.00	EZS6-□015-AZA□	\$1,788.00	EZS6-□015-AZM□	\$2,067.00
200	EZS6-□020-AZA□D	\$1,845.00	EZS6-□020-AZM□D	\$2,124.00	EZS6-□020-AZA□	\$1,788.00	EZS6-□020-AZM□	\$2,067.00
250	EZS6-□025-AZA□D	\$1,876.00	EZS6-□025-AZM□D	\$2,155.00	EZS6-□025-AZA□	\$1,819.00	EZS6-□025-AZM□	\$2,098.00
300	EZS6-□030-AZA□D	\$1,876.00	EZS6-□030-AZM□D	\$2,155.00	EZS6-□030-AZA□	\$1,819.00	EZS6-□030-AZM□	\$2,098.00
350	EZS6-□035-AZA□D	\$1,907.00	EZS6-□035-AZM□D	\$2,186.00	EZS6-□035-AZA□	\$1,850.00	EZS6-□035-AZM□	\$2,129.00
400	EZS6-□040-AZA□D	\$1,907.00	EZS6-□040-AZM□D	\$2,186.00	EZS6-□040-AZA□	\$1,850.00	EZS6-□040-AZM□	\$2,129.00
450	EZS6-□045-AZA□D	\$1,938.00	EZS6-□045-AZM□D	\$2,217.00	EZS6-□045-AZA□	\$1,881.00	EZS6-□045-AZM□	\$2,160.00
500	EZS6-□050-AZA□D	\$1,938.00	EZS6-□050-AZM□D	\$2,217.00	EZS6-□050-AZA□	\$1,881.00	EZS6-□050-AZM□	\$2,160.00
550	EZS6-□055-AZA□D	\$1,969.00	EZS6-□055-AZM□D	\$2,248.00	EZS6-□055-AZA□	\$1,912.00	EZS6-□055-AZM□	\$2,191.00
600	EZS6-□060-AZA□D	\$1,969.00	EZS6-□060-AZM□D	\$2,248.00	EZS6-□060-AZA□	\$1,912.00	EZS6-□060-AZM□	\$2,191.00
650	EZS6-□065-AZA□D	\$2,000.00	EZS6-□065-AZM□D	\$2,279.00	EZS6-□065-AZA□	\$1,943.00	EZS6-□065-AZM□	\$2,222.00
700	EZS6-□070-AZA□D	\$2,000.00	EZS6-□070-AZM□D	\$2,279.00	EZS6-□070-AZA□	\$1,943.00	EZS6-□070-AZM□	\$2,222.00
750	EZS6-□075-AZA□D	\$2,031.00	EZS6-□075-AZM□D	\$2,310.00	EZS6-□075-AZA□	\$1,974.00	EZS6-□075-AZM□	\$2,253.00
800	EZS6-□080-AZA□D	\$2,031.00	EZS6-□080-AZM□D	\$2,310.00	EZS6-□080-AZA□	\$1,974.00	EZS6-□080-AZM□	\$2,253.00
850	EZS6-□085-AZA□D	\$2,062.00	EZS6-□085-AZM□D	\$2,341.00	EZS6-□085-AZA□	\$2,005.00	EZS6-□085-AZM□	\$2,284.00

- For reversed motor types, either an **L** (left reverse) or **R** (right reverse) is entered where the box is located within the product name. No entry is made for the straight type.
- Either **D** (12 mm lead) or **E** (6 mm lead) indicating the lead type is entered where the box is located within the product name.
- Either **A** (single-phase 100-120 VAC) or **C** (single-phase/three-phase 200-240 VAC) indicating the power supply voltage is entered where the box is located within the product name.

● **DC Input**

◇ **EZS3** Straight Type/Reversed Motor Type with Built-in **AZ** Series (Frame size 54 mm × 50 mm)

Stroke (mm)	Built-in Controller Type				Pulse Input Type			
	Single Shaft		Electromagnetic Brake Type		Single Shaft		Electromagnetic Brake Type	
	Product Name	List Price	Product Name	List Price	Product Name	List Price	Product Name	List Price
50	EZS3-□005-AZAKD	\$1,306.00	EZS3-□005-AZMKD	\$1,523.00	EZS3-□005-AZAK	\$1,249.00	EZS3-□005-AZMK	\$1,466.00
100	EZS3-□010-AZAKD	\$1,306.00	EZS3-□010-AZMKD	\$1,523.00	EZS3-□010-AZAK	\$1,249.00	EZS3-□010-AZMK	\$1,466.00
150	EZS3-□015-AZAKD	\$1,337.00	EZS3-□015-AZMKD	\$1,554.00	EZS3-□015-AZAK	\$1,280.00	EZS3-□015-AZMK	\$1,497.00
200	EZS3-□020-AZAKD	\$1,337.00	EZS3-□020-AZMKD	\$1,554.00	EZS3-□020-AZAK	\$1,280.00	EZS3-□020-AZMK	\$1,497.00
250	EZS3-□025-AZAKD	\$1,368.00	EZS3-□025-AZMKD	\$1,585.00	EZS3-□025-AZAK	\$1,311.00	EZS3-□025-AZMK	\$1,528.00
300	EZS3-□030-AZAKD	\$1,368.00	EZS3-□030-AZMKD	\$1,585.00	EZS3-□030-AZAK	\$1,311.00	EZS3-□030-AZMK	\$1,528.00
350	EZS3-□035-AZAKD	\$1,399.00	EZS3-□035-AZMKD	\$1,616.00	EZS3-□035-AZAK	\$1,342.00	EZS3-□035-AZMK	\$1,559.00
400	EZS3-□040-AZAKD	\$1,399.00	EZS3-□040-AZMKD	\$1,616.00	EZS3-□040-AZAK	\$1,342.00	EZS3-□040-AZMK	\$1,559.00
450	EZS3-□045-AZAKD	\$1,430.00	EZS3-□045-AZMKD	\$1,647.00	EZS3-□045-AZAK	\$1,373.00	EZS3-□045-AZMK	\$1,590.00
500	EZS3-□050-AZAKD	\$1,430.00	EZS3-□050-AZMKD	\$1,647.00	EZS3-□050-AZAK	\$1,373.00	EZS3-□050-AZMK	\$1,590.00
550	EZS3-□055-AZAKD	\$1,461.00	EZS3-□055-AZMKD	\$1,678.00	EZS3-□055-AZAK	\$1,404.00	EZS3-□055-AZMK	\$1,621.00
600	EZS3-□060-AZAKD	\$1,461.00	EZS3-□060-AZMKD	\$1,678.00	EZS3-□060-AZAK	\$1,404.00	EZS3-□060-AZMK	\$1,621.00
650	EZS3-□065-AZAKD	\$1,492.00	EZS3-□065-AZMKD	\$1,709.00	EZS3-□065-AZAK	\$1,435.00	EZS3-□065-AZMK	\$1,652.00
700	EZS3-□070-AZAKD	\$1,492.00	EZS3-□070-AZMKD	\$1,709.00	EZS3-□070-AZAK	\$1,435.00	EZS3-□070-AZMK	\$1,652.00

- For reversed motor types, either an **L** (left reverse) or **R** (right reverse) is entered where the box is located within the product name. No entry is made for the straight type.
- Either **D** (12 mm lead) or **E** (6 mm lead) indicating the lead type is entered where the box is located within the product name.

◇ **EZS4** Straight Type/Reversed Motor Type with Built-in **AZ** Series (Frame size 74 mm × 50 mm)

Stroke (mm)	Built-in Controller Type				Pulse Input Type			
	Single Shaft		Electromagnetic Brake Type		Single Shaft		Electromagnetic Brake Type	
	Product Name	List Price	Product Name	List Price	Product Name	List Price	Product Name	List Price
50	EZS4-□-□005-AZAKD	\$1,352.00	EZS4-□-□005-AZMKD	\$1,569.00	EZS4-□-□005-AZAK	\$1,295.00	EZS4-□-□005-AZMK	\$1,512.00
100	EZS4-□-□010-AZAKD	\$1,352.00	EZS4-□-□010-AZMKD	\$1,569.00	EZS4-□-□010-AZAK	\$1,295.00	EZS4-□-□010-AZMK	\$1,512.00
150	EZS4-□-□015-AZAKD	\$1,383.00	EZS4-□-□015-AZMKD	\$1,600.00	EZS4-□-□015-AZAK	\$1,326.00	EZS4-□-□015-AZMK	\$1,543.00
200	EZS4-□-□020-AZAKD	\$1,383.00	EZS4-□-□020-AZMKD	\$1,600.00	EZS4-□-□020-AZAK	\$1,326.00	EZS4-□-□020-AZMK	\$1,543.00
250	EZS4-□-□025-AZAKD	\$1,414.00	EZS4-□-□025-AZMKD	\$1,631.00	EZS4-□-□025-AZAK	\$1,357.00	EZS4-□-□025-AZMK	\$1,574.00
300	EZS4-□-□030-AZAKD	\$1,414.00	EZS4-□-□030-AZMKD	\$1,631.00	EZS4-□-□030-AZAK	\$1,357.00	EZS4-□-□030-AZMK	\$1,574.00
350	EZS4-□-□035-AZAKD	\$1,445.00	EZS4-□-□035-AZMKD	\$1,662.00	EZS4-□-□035-AZAK	\$1,388.00	EZS4-□-□035-AZMK	\$1,605.00
400	EZS4-□-□040-AZAKD	\$1,445.00	EZS4-□-□040-AZMKD	\$1,662.00	EZS4-□-□040-AZAK	\$1,388.00	EZS4-□-□040-AZMK	\$1,605.00
450	EZS4-□-□045-AZAKD	\$1,476.00	EZS4-□-□045-AZMKD	\$1,693.00	EZS4-□-□045-AZAK	\$1,419.00	EZS4-□-□045-AZMK	\$1,636.00
500	EZS4-□-□050-AZAKD	\$1,476.00	EZS4-□-□050-AZMKD	\$1,693.00	EZS4-□-□050-AZAK	\$1,419.00	EZS4-□-□050-AZMK	\$1,636.00
550	EZS4-□-□055-AZAKD	\$1,507.00	EZS4-□-□055-AZMKD	\$1,724.00	EZS4-□-□055-AZAK	\$1,450.00	EZS4-□-□055-AZMK	\$1,667.00
600	EZS4-□-□060-AZAKD	\$1,507.00	EZS4-□-□060-AZMKD	\$1,724.00	EZS4-□-□060-AZAK	\$1,450.00	EZS4-□-□060-AZMK	\$1,667.00
650	EZS4-□-□065-AZAKD	\$1,538.00	EZS4-□-□065-AZMKD	\$1,755.00	EZS4-□-□065-AZAK	\$1,481.00	EZS4-□-□065-AZMK	\$1,698.00
700	EZS4-□-□070-AZAKD	\$1,538.00	EZS4-□-□070-AZMKD	\$1,755.00	EZS4-□-□070-AZAK	\$1,481.00	EZS4-□-□070-AZMK	\$1,698.00

◇ **EZS6** Straight Type/Reversed Motor Type with Built-in **AZ** Series (Frame size 74 mm × 66.5 mm)

Stroke (mm)	Built-in Controller Type				Pulse Input Type			
	Single Shaft		Electromagnetic Brake Type		Single Shaft		Electromagnetic Brake Type	
	Product Name	List Price	Product Name	List Price	Product Name	List Price	Product Name	List Price
50	EZS6-□-□005-AZAKD	\$1,667.00	EZS6-□-□005-AZMKD	\$1,946.00	EZS6-□-□005-AZAK	\$1,610.00	EZS6-□-□005-AZMK	\$1,889.00
100	EZS6-□-□010-AZAKD	\$1,667.00	EZS6-□-□010-AZMKD	\$1,946.00	EZS6-□-□010-AZAK	\$1,610.00	EZS6-□-□010-AZMK	\$1,889.00
150	EZS6-□-□015-AZAKD	\$1,698.00	EZS6-□-□015-AZMKD	\$1,977.00	EZS6-□-□015-AZAK	\$1,641.00	EZS6-□-□015-AZMK	\$1,920.00
200	EZS6-□-□020-AZAKD	\$1,698.00	EZS6-□-□020-AZMKD	\$1,977.00	EZS6-□-□020-AZAK	\$1,641.00	EZS6-□-□020-AZMK	\$1,920.00
250	EZS6-□-□025-AZAKD	\$1,729.00	EZS6-□-□025-AZMKD	\$2,008.00	EZS6-□-□025-AZAK	\$1,672.00	EZS6-□-□025-AZMK	\$1,951.00
300	EZS6-□-□030-AZAKD	\$1,729.00	EZS6-□-□030-AZMKD	\$2,008.00	EZS6-□-□030-AZAK	\$1,672.00	EZS6-□-□030-AZMK	\$1,951.00
350	EZS6-□-□035-AZAKD	\$1,760.00	EZS6-□-□035-AZMKD	\$2,039.00	EZS6-□-□035-AZAK	\$1,703.00	EZS6-□-□035-AZMK	\$1,982.00
400	EZS6-□-□040-AZAKD	\$1,760.00	EZS6-□-□040-AZMKD	\$2,039.00	EZS6-□-□040-AZAK	\$1,703.00	EZS6-□-□040-AZMK	\$1,982.00
450	EZS6-□-□045-AZAKD	\$1,791.00	EZS6-□-□045-AZMKD	\$2,070.00	EZS6-□-□045-AZAK	\$1,734.00	EZS6-□-□045-AZMK	\$2,013.00
500	EZS6-□-□050-AZAKD	\$1,791.00	EZS6-□-□050-AZMKD	\$2,070.00	EZS6-□-□050-AZAK	\$1,734.00	EZS6-□-□050-AZMK	\$2,013.00
550	EZS6-□-□055-AZAKD	\$1,822.00	EZS6-□-□055-AZMKD	\$2,101.00	EZS6-□-□055-AZAK	\$1,765.00	EZS6-□-□055-AZMK	\$2,044.00
600	EZS6-□-□060-AZAKD	\$1,822.00	EZS6-□-□060-AZMKD	\$2,101.00	EZS6-□-□060-AZAK	\$1,765.00	EZS6-□-□060-AZMK	\$2,044.00
650	EZS6-□-□065-AZAKD	\$1,853.00	EZS6-□-□065-AZMKD	\$2,132.00	EZS6-□-□065-AZAK	\$1,796.00	EZS6-□-□065-AZMK	\$2,075.00
700	EZS6-□-□070-AZAKD	\$1,853.00	EZS6-□-□070-AZMKD	\$2,132.00	EZS6-□-□070-AZAK	\$1,796.00	EZS6-□-□070-AZMK	\$2,075.00
750	EZS6-□-□075-AZAKD	\$1,884.00	EZS6-□-□075-AZMKD	\$2,163.00	EZS6-□-□075-AZAK	\$1,827.00	EZS6-□-□075-AZMK	\$2,106.00
800	EZS6-□-□080-AZAKD	\$1,884.00	EZS6-□-□080-AZMKD	\$2,163.00	EZS6-□-□080-AZAK	\$1,827.00	EZS6-□-□080-AZMK	\$2,106.00
850	EZS6-□-□085-AZAKD	\$1,915.00	EZS6-□-□085-AZMKD	\$2,194.00	EZS6-□-□085-AZAK	\$1,858.00	EZS6-□-□085-AZMK	\$2,137.00

● For reversed motor types, either an **L** (left reverse) or **R** (right reverse) is entered where the box is located within the product name. No entry is made for the straight type. Either **D** (12 mm lead) or **E** (6 mm lead) indicating the lead type is entered where the box is located within the product name.

Dual Axis Mounting Brackets (Straight Type Only)

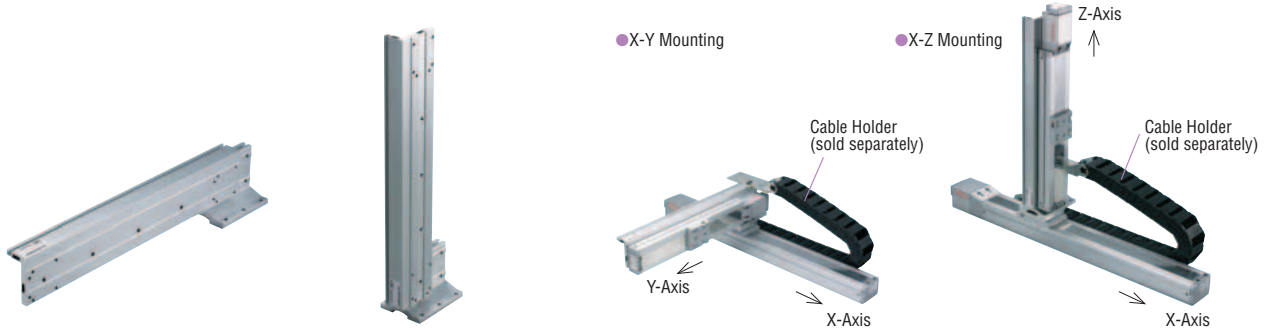
Mounting brackets for using two axes of the **EZS** Series electric linear slides.

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI



Features

◇ Dual Axis Configuration Can be Easily Implemented with the **EZS** Series.

Using the dedicated mounting brackets allows you to use two electric linear slides in a dual axis configuration. Various combinations are available such as X-Y or X-Z.

Available Combinations of Products

X-Y Mounting

X-Axis	Y-Axis	Transportable Mass (kg)
EZS4-D	EZS3-D	2.3 or less
EZS6-D	EZS3-D	5.7 or less
EZS6-D	EZS4-D	12.7 or less

X-Z Mounting

X-Axis	Z-Axis	Transportable Mass (kg)
EZS4-D	EZS3-D	3.5 or less
EZS6-D	EZS3-D	3.5 or less
EZS6-D	EZS4-D	6.7 or less

● The maximum length of a linear slide for the second axis (Y or Z) is 300 mm.

● Specification values are based on those when the X-axis is mounted horizontally.

Product Number Code of Products

PAB - S4 S3 R 005

① ② ③ ④ ⑤

①	Dual Axis Mounting Bracket	
②	First Axis Linear Slide	S4: EZS4-D S6: EZS6-D
③	Second Axis Linear Slide	S3: EZS3-D S4: EZS4-D
④	Combination Patterns	R: R-Type L: L-Type
⑤	Stroke of Second Axis	

● First axis refers to X-axis, while second axis refers to Y- or Z-axis.

Product Line and List Price

Combination of EZS4 and EZS3		Combination of EZS6 and EZS3		Combination of EZS6 and EZS4		List Price
R-Type	L-Type	R-Type	L-Type	R-Type	L-Type	
PAB-S4S3R005	PAB-S4S3L005	PAB-S6S3R005	PAB-S6S3L005	PAB-S6S4R005	PAB-S6S4L005	\$289.00
PAB-S4S3R010	PAB-S4S3L010	PAB-S6S3R010	PAB-S6S3L010	PAB-S6S4R010	PAB-S6S4L010	\$296.00
PAB-S4S3R015	PAB-S4S3L015	PAB-S6S3R015	PAB-S6S3L015	PAB-S6S4R015	PAB-S6S4L015	\$304.00
PAB-S4S3R020	PAB-S4S3L020	PAB-S6S3R020	PAB-S6S3L020	PAB-S6S4R020	PAB-S6S4L020	\$311.00
PAB-S4S3R025	PAB-S4S3L025	PAB-S6S3R025	PAB-S6S3L025	PAB-S6S4R025	PAB-S6S4L025	\$318.00
PAB-S4S3R030	PAB-S4S3L030	PAB-S6S3R030	PAB-S6S3L030	PAB-S6S4R030	PAB-S6S4L030	\$326.00

■ Cable Holders (Straight Type Only)

This cable holder protects and guides cables in dual or triple axis combinations. It can be combined with the mounting bracket of the **EZS** Series.

● Product Line and List Price

Linear Slide Stroke [mm]	Applicable Cable Holder		List Price
	Length (L) [mm]	Product	
50	396	PACH65-11	\$120.00
100	468	PACH65-13	\$131.00
150	504	PACH65-14	\$137.00
200	540	PACH65-15	\$143.00
250	612	PACH65-17	\$155.00
300	648	PACH65-18	\$161.00
350	720	PACH65-20	\$172.00
400	756	PACH65-21	\$178.00
450	792	PACH65-22	\$184.00
500	864	PACH65-24	\$196.00
550	900	PACH65-25	\$201.00
600	972	PACH65-27	\$213.00
650	1008	PACH65-28	\$219.00
700	1044	PACH65-29	\$225.00
750	1116	PACH65-31	\$237.00
800	1152	PACH65-32	\$242.00
850	1224	PACH65-34	\$254.00



● Combination Patterns

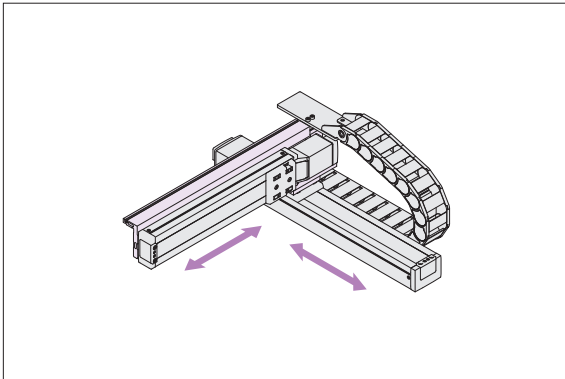
◇ R-Type

PAB-S4S3R

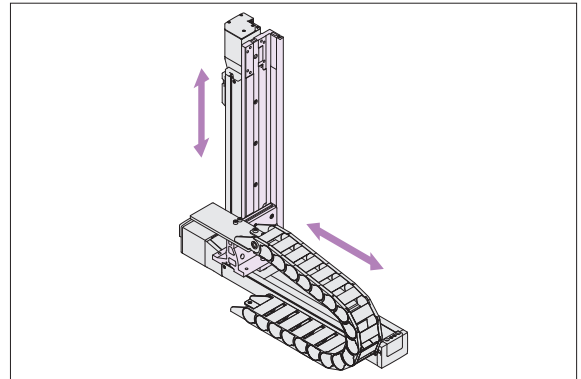
PAB-S6S3R

PAB-S6S4R

● X-Y



● X-Z



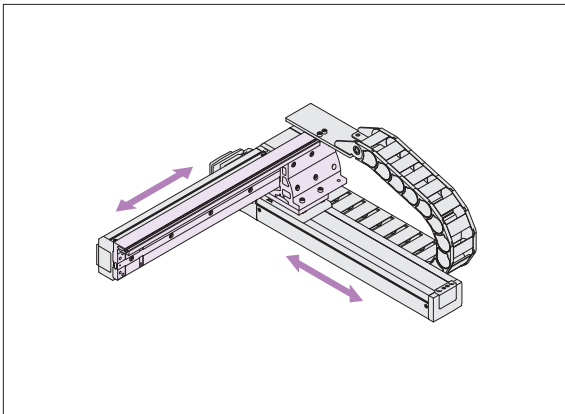
◇ L-Type

PAB-S4S3L

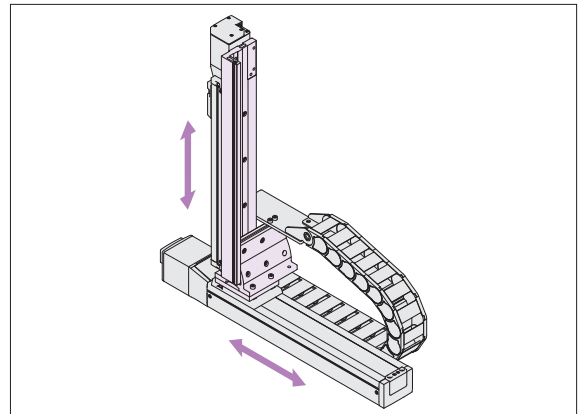
PAB-S6S3L

PAB-S6S4L

● X-Y



● X-Z



Compact, High Strength Electric Cylinders.

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
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Electric Cylinders EAC Series

AZ Series Type with Battery-Free Absolute Sensor

Built-in Controller Type **C/FLEX**

AC Input
DC Input

Pulse Input Type

AC Input
DC Input

Straight Type
Reversed Motor
Type
**Same
Price**



Straight Type



Reversed Motor Type

Straight Type

Standard
Shaft Guide Cover Type

Reversed Motor Type

Standard
Shaft Guide Cover Type

- Stroke: 50~300 mm
- Max. speed: 600 mm/s
- Max. transportable mass: 60 kg (horizontal), 30 kg (vertical)
- Repetitive positioning accuracy: ± 0.02 mm
- Package List Price: From \$1,023.00

■ Standard type

Depending on the equipment, an external guide may be necessary.



■ With shaft guide cover

The moving part on the cylinder side is protected, increasing equipment safety. This also helps prevent grease on the shaft guide from scattering, and prevents foreign objects from infiltrating the linear bush section.



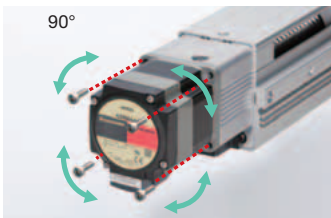
Same Performance Advantages as our Linear Sliders.



Cable Outlet Directions

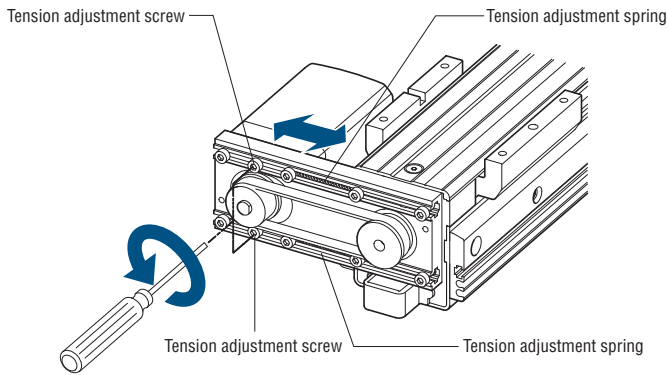
Rotatable in four different directions (3 directions for reversed motor type)

There is no need to leave space behind the motor since the cable outlet is on one side of the motor, allowing for easy connection and saving space.



Easy Belt Replacement (Reversed motor type)

Thanks to Oriental Motor's unique belt tension adjustment mechanism, belt replacement is easy.

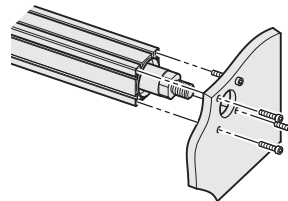


If the screw is loosened, the belt tension is adjusted to an appropriate value by the force of the spring.

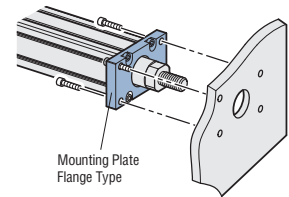
Flexible Installation

The **EAC** Series cylinders can be installed as follows.

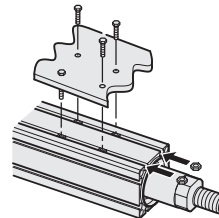
■ Front installation (Direct installation)



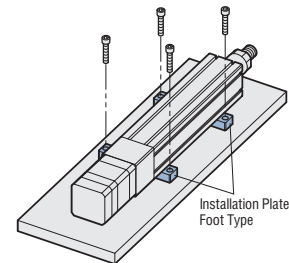
■ Front installation (Installation plate flange type: Sold separately)



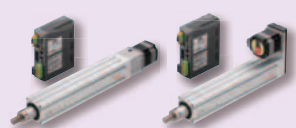
■ Side installation (Direct installation)



■ Side installation (Installation plate foot type: Sold separately)



Electric Cylinders **EAC** Series

Series Name	Type				List Price
	Straight Type		Reversed Motor Type		
	Standard	Shaft Guide Cover Type	Standard	Shaft Guide Cover Type	
Stepper Motor and Driver Packages αSTEP Battery-Free Absolute Sensor AZ Series Type 	●	●	●	●	DC Input: \$1,023~ AC Input: \$1,170~

Thrust [N]	Push Force [N]	Maximum Transportable Mass in Horizontal Direction [kg]										Maximum Transportable Mass in Vertical Direction [kg]						Repetitive Positioning Accuracy [mm]	List Price
		10	20	30	40	50	60	70	80	90	10	20	30	40	50	60			
~70	100	~15									~7						±0.02	\$1,170.00~	
~140	200	~30									~14							\$1,023.00~	
~70	100	~15									~7						±0.02	\$1,263.00~	
~140	200	~30									~14							\$1,116.00~	
~200	400	~30									~15						±0.02	\$1,263.00~	
~400	500	~60									~30							\$1,116.00~	
~200	400	~30									~15						±0.02	\$1,263.00~	
~400	500	~60									~30							\$1,116.00~	
~70	100	~15									~6						±0.02	\$1,464.00~	
~140	200	~30									~13							\$1,317.00~	
~70	100	~15									~6						±0.02	\$1,604.00~	
~140	200	~30									~13							\$1,457.00~	
~200	400	~30									~13						±0.02	\$1,604.00~	
~400	500	~60									~28							\$1,457.00~	
~200	400	~30									~13						±0.02	\$1,604.00~	
~400	500	~60									~28							\$1,457.00~	
~70	100	~15									~7						±0.02	\$1,170.00~	
~125	200	~30									~12.5							\$1,023.00~	
~70	100	~15									~7						±0.02	\$1,263.00~	
~125	200	~30									~12.5							\$1,116.00~	
~200	400	~30									~15						±0.02	\$1,263.00~	
~360	500	~60									~30							\$1,116.00~	
~200	400	~30									~15						±0.02	\$1,263.00~	
~360	500	~60									~30							\$1,116.00~	
~70	100	~15									~6						±0.02	\$1,464.00~	
~125	200	~30									~11.5							\$1,317.00~	
~70	100	~15									~6						±0.02	\$1,604.00~	
~125	200	~30									~11.5							\$1,457.00~	
~200	400	~30									~13						±0.02	\$1,604.00~	
~360	500	~60									~28							\$1,457.00~	
~200	400	~30									~13						±0.02	\$1,604.00~	
~360	500	~60									~28							\$1,457.00~	

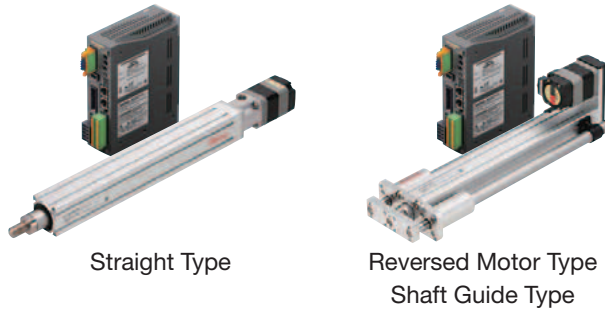
Product Line and List Price

Stepper
Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary
Actuators
DGI



Straight Type

Reversed Motor Type
Shaft Guide Type

AC Input

Product Number Code

① Series	② Motor Installation Direction	③ Shaft Guide	④ Lead	⑤ Stroke	⑥ Motor	⑦ Motor Type	⑧ Power Supply Input	⑨ Driver Type	⑩ Shaft Guide Cover
EAC4	R	W	D	05	AZ	A	A	D	G
EAC4 EAC6	R: Motor Reversed Motor Blank: Straight	W: Shaft Guide Type Blank: Straight	D: 12 mm E: 6 mm	05: 50 mm 10: 100 mm 15: 150 mm ~ 30: 300 mm (50 mm increments)	AZ Series	A: Single Shaft M: Electromagnetic Brake Type	A: Single-phase 100-120 VAC C: Single-phase/ Three-phase 200-240 VAC	D: Built-In Controller Type Blank: Pulse Input Type	G: Shaft Guide Cover Type

*Connection cables are available as accessories (sold separately).
Connection Cable Sets → Page 90~91

◇ EAC4 Straight Type / Reversed Motor Type (Motor frame size 42 mm×42 mm)

Even if the ② Motor installation direction (R, blank), ④ Lead (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

⑦ Motor Type (A, M)	⑤ Stroke	Built-in controller type (D)		Pulse input type (blank)	
		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑨ Driver Type (D, none)	50 mm (05)	\$1,227.00	\$1,444.00	\$1,170.00	\$1,387.00
	100 mm (10)	\$1,227.00	\$1,444.00	\$1,170.00	\$1,387.00
	150 mm (15)	\$1,242.00	\$1,459.00	\$1,185.00	\$1,402.00
	200 mm (20)	\$1,242.00	\$1,459.00	\$1,185.00	\$1,402.00
	250 mm (25)	\$1,258.00	\$1,475.00	\$1,201.00	\$1,418.00
	300 mm (30)	\$1,258.00	\$1,475.00	\$1,201.00	\$1,418.00

◇ EAC4 Straight Type / Reversed Motor Type Shaft Guide Cover Type (Motor frame size 42 mm×114 mm)

Even if the ② Motor installation direction (R, blank), ④ Lead (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

⑦ Motor Type (A, M)	⑤ Stroke	Built-in controller type (D)		Pulse input type (blank)	
		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑨ Driver Type (D, none)	50 mm (05)	\$1,521.00	\$1,738.00	\$1,464.00	\$1,681.00
	100 mm (10)	\$1,521.00	\$1,738.00	\$1,464.00	\$1,681.00
	150 mm (15)	\$1,537.00	\$1,754.00	\$1,480.00	\$1,697.00
	200 mm (20)	\$1,537.00	\$1,754.00	\$1,480.00	\$1,697.00
	250 mm (25)	\$1,552.00	\$1,769.00	\$1,495.00	\$1,712.00
	300 mm (30)	\$1,552.00	\$1,769.00	\$1,495.00	\$1,712.00

◇ EAC6 Straight Type / Reversed Motor Type (Motor frame size 60 mm×60 mm)

Even if the ② Motor Installation Direction (R, blank), ④ Lead (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

⑦ Motor Type (A, M)	⑤ Stroke	Built-in controller type (D)		Pulse input type (blank)	
		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑨ Driver Type (D, none)	50 mm (05)	\$1,320.00	\$1,599.00	\$1,263.00	\$1,542.00
	100 mm (10)	\$1,320.00	\$1,599.00	\$1,263.00	\$1,542.00
	150 mm (15)	\$1,335.00	\$1,614.00	\$1,278.00	\$1,557.00
	200 mm (20)	\$1,335.00	\$1,614.00	\$1,278.00	\$1,557.00
	250 mm (25)	\$1,351.00	\$1,630.00	\$1,294.00	\$1,573.00
	300 mm (30)	\$1,351.00	\$1,630.00	\$1,294.00	\$1,573.00

◇ **EAC6 Straight Type / Reversed Motor Type Shaft Guide Cover Type (Motor frame size 60 mm×156 mm)**

Even if the ② Motor installation direction (R, blank), ④ Lead (D, E), or ⑧ Power supply input (A, C) is different, the price is the same.

⑨ Driver Type (D, none)		Built-in controller type (D)		Pulse input type (blank)	
⑦ Motor Type (A, M)		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑤ Stroke	50 mm (05)	\$1,661.00	\$1,940.00	\$1,604.00	\$1,883.00
	100 mm (10)	\$1,661.00	\$1,940.00	\$1,604.00	\$1,883.00
	150 mm (15)	\$1,676.00	\$1,955.00	\$1,619.00	\$1,898.00
	200 mm (20)	\$1,676.00	\$1,955.00	\$1,619.00	\$1,898.00
	250 mm (25)	\$1,692.00	\$1,971.00	\$1,635.00	\$1,914.00
	300 mm (30)	\$1,692.00	\$1,971.00	\$1,635.00	\$1,914.00

DC Input

● **Product Number Code**

① Series	② Motor Installation Direction	③ Shaft Guide	④ Lead	⑤ Stroke	⑥ Motor	⑦ Motor Type	⑧ Power Supply Input	⑨ Driver Type	⑩ Shaft Guide Cover
EAC4	R	W	D	05	AZ	A	K	D	G
EAC4 EAC6	R: Motor Reversed Motor Blank: Straight	W: Shaft Guide Type Blank: Straight	D: 12 mm E: 6 mm	05: 50 mm 10: 100 mm 15: 150 mm ~ 30: 300 mm (50 mm increments)	AZ Series	A: Single Shaft M: Electromagnetic Brake Type	K: 24/48 VDC	D: Built-In Controller Type Blank: Pulse Input Type	G: Shaft Guide Cover Type

*Connection cables are available as accessory (sold separately).
Connection Cable Sets → Page 91~92

◇ **EAC4 Straight Type / Reversed Motor Type (Motor frame size 42 mm×42 mm)**

Even if the ② Motor installation direction (R, blank) or ④ Lead (D, E) is different, the price is the same.

⑨ Driver Type (D, none)		Built-in controller type (D)		Pulse input type (blank)	
⑦ Motor Type (A, M)		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑤ Stroke	50 mm (05)	\$1,080.00	\$1,297.00	\$1,023.00	\$1,240.00
	100 mm (10)	\$1,080.00	\$1,297.00	\$1,023.00	\$1,240.00
	150 mm (15)	\$1,095.00	\$1,312.00	\$1,038.00	\$1,255.00
	200 mm (20)	\$1,095.00	\$1,312.00	\$1,038.00	\$1,255.00
	250 mm (25)	\$1,111.00	\$1,328.00	\$1,054.00	\$1,271.00
	300 mm (30)	\$1,111.00	\$1,328.00	\$1,054.00	\$1,271.00

◇ **EAC4 Straight Type / Reversed Motor Type Shaft Guide Cover Type (Motor frame size 42 mm×114 mm)**

Even if the ② Motor installation direction (R, blank) or ④ Lead (D, E) is different, the price is the same.

⑨ Driver Type (D, none)		Built-in controller type (D)		Pulse input type (blank)	
⑦ Motor Type (A, M)		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑤ Stroke	50 mm (05)	\$1,374.00	\$1,591.00	\$1,317.00	\$1,534.00
	100 mm (10)	\$1,374.00	\$1,591.00	\$1,317.00	\$1,534.00
	150 mm (15)	\$1,390.00	\$1,607.00	\$1,333.00	\$1,550.00
	200 mm (20)	\$1,390.00	\$1,607.00	\$1,333.00	\$1,550.00
	250 mm (25)	\$1,405.00	\$1,622.00	\$1,348.00	\$1,565.00
	300 mm (30)	\$1,405.00	\$1,622.00	\$1,348.00	\$1,565.00

◇ **EAC6 Straight Type / Reversed Motor Type (Motor frame size 60 mm×60 mm)**

Even if the ② Motor installation direction (R, blank) or ④ Lead (D, E) is different, the price is the same.

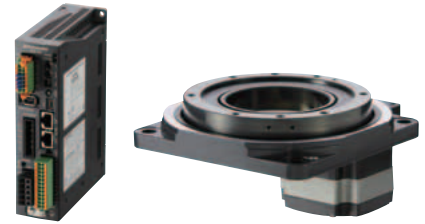
⑨ Driver Type (D, none)		Built-in controller type (D)		Pulse input type (blank)	
⑦ Motor Type (A, M)		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑤ Stroke	50 mm (05)	\$1,173.00	\$1,452.00	\$1,116.00	\$1,395.00
	100 mm (10)	\$1,173.00	\$1,452.00	\$1,116.00	\$1,395.00
	150 mm (15)	\$1,188.00	\$1,467.00	\$1,131.00	\$1,410.00
	200 mm (20)	\$1,188.00	\$1,467.00	\$1,131.00	\$1,410.00
	250 mm (25)	\$1,204.00	\$1,483.00	\$1,147.00	\$1,426.00
	300 mm (30)	\$1,204.00	\$1,483.00	\$1,147.00	\$1,426.00

◇ **EAC6 Straight Type / Reversed Motor Type Shaft Guide Cover Type (Motor frame size 60 mm×156 mm)**

Even if the ② Motor installation direction (R, blank) or ④ Lead (D, E) is different, the price is the same.

⑨ Driver Type (D, none)		Built-in controller type (D)		Pulse input type (blank)	
⑦ Motor Type (A, M)		Single shaft (A)	Electromagnetic brake type (M)	Single shaft (A)	Electromagnetic brake type (M)
⑤ Stroke	50 mm (05)	\$1,514.00	\$1,793.00	\$1,457.00	\$1,736.00
	100 mm (10)	\$1,514.00	\$1,793.00	\$1,457.00	\$1,736.00
	150 mm (15)	\$1,529.00	\$1,808.00	\$1,472.00	\$1,751.00
	200 mm (20)	\$1,529.00	\$1,808.00	\$1,472.00	\$1,751.00
	250 mm (25)	\$1,545.00	\$1,824.00	\$1,488.00	\$1,767.00
	300 mm (30)	\$1,545.00	\$1,824.00	\$1,488.00	\$1,767.00

High Rigidity Hollow Rotary Table



Built-in Controller Type [CFLEX](#)
Pulse Input Type

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

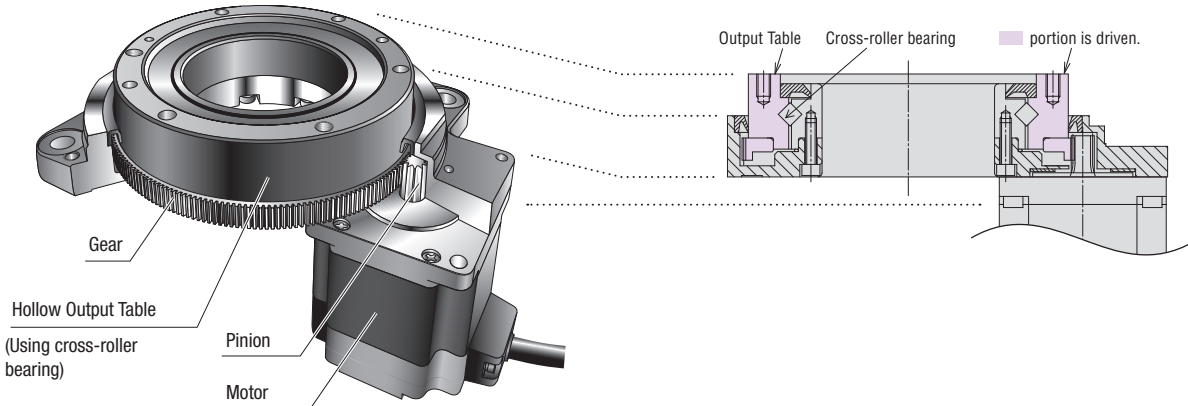
Rotary Actuators
DGII

Hollow Rotary Actuator DGII Series

The **DGII** Series is an integrated product that combines a hollow rotary table and a closed loop stepper motor. A reduction mechanism is built into the actuator, making high output driving possible.

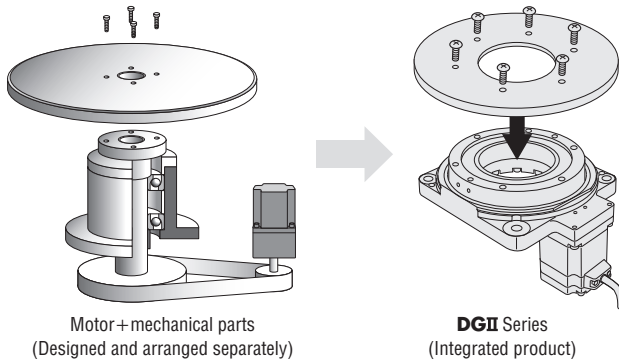
Features

Through the use of cross-roller bearings on the hollow output table, high output and high rigidity have been achieved.



Reduction in Design Work

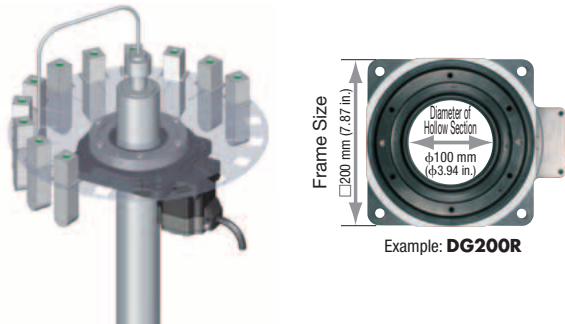
Equipment tables and arms can be installed directly on the output table. This saves the hassle and cost of designing an installation mechanism, arranging necessary parts, adjusting the belt tension, etc., compared to when mechanical parts such as a belt and pulley are used for installation.



Large-Diameter, Hollow Output Table Makes Simple Wiring and Piping Possible

The large diameter hollow hole (through-hole) helps reduce the complexity of wiring and piping, thus simplifying your equipment design.

- Filling Machine with Piping for Liquids



High Positioning Accuracy with Non-Backlash

- Non-Backlash Type
- Repetitive Positioning Accuracy ± 15 arc sec ($\pm 0.004^\circ$)

Note The repetitive positioning accuracy is measured at a constant temperature (normal temperature) under a constant load.

List Price

From \$2,283.00~
(Price for actuator, motor and driver)

Installation Pedestal (Sold separately)

An optional installation pedestal (sold separately) is available for the **DGII** Series, which is useful during installation.

- For applicable products, refer to page 122.



Product	Motor Frame Size mm (in.)	Diameter of Hollow Section mm (in.)
DG85R	85 (3.35)	φ33 (1.3)
DG130R	130 (5.12)	φ62 (2.44)
DG200R	200 (7.87)	φ100 (3.94)

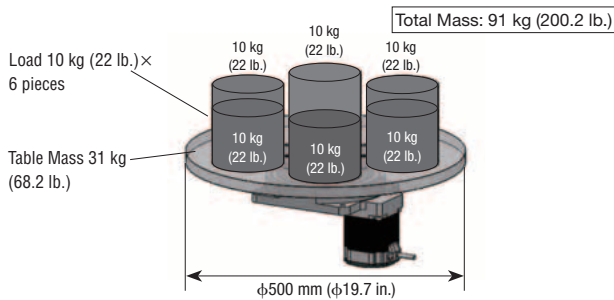
Heavy Load/High Rigidity

Use of cross-roller bearings on the hollow output table has allowed for the standard type to achieve both heavy loads and high rigidity.

- Max. Permissible Axial Load: 4000 N (900 lb-in)
- Max. Permissible Moment: 100 N·m (885 lb-in)

<Operation Example>

Product Name : **DG200R-AZAC**
 Power Supply Input : 230 VAC
 Load Mass : 91 kg (200.2 lb.) (6 load pieces + table)
 : Load 10 kg (22 lb.)/piece × 6 pieces
 : Table 31 kg (68.2 lb.) (Diameter 500 mm (19.7 in.), thickness 20 mm (0.79 in.), steel)
 Overhang Distance : 160 mm (6.3 in.)
 Installation Direction : Horizontal



● Heavy Load

The axial load for total mass of 91 kg (200.2 lb.) is 893 N (201 lb.).
 $[10 \text{ kg (22 lb.)} \times 6 \text{ pieces} + 31 \text{ kg (68.2 lb.)}] \times \text{gm/s}^2 = 893 \text{ N (201 lb.)}$
 The permissible axial load of the **DG200R** is 4000 N (900 lb.), thus this is within the permissible range.

Heavy Load Driving is Possible

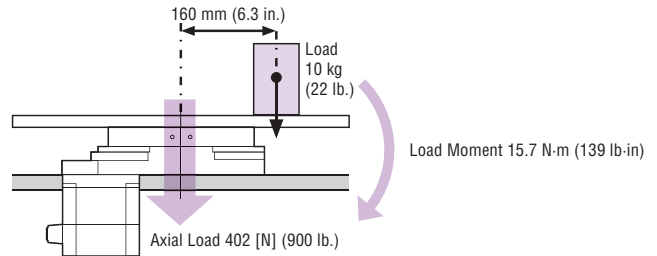
● High Rigidity

[Load Moment]

When a 10 kg (22 lb.) load piece is at a position 160 mm (6.3 in.) from the table center, the load moment is 15.7 N·m (139 lb-in).
 $10 \text{ kg (22 lb.)} \times \text{gm/s}^2 \times 0.16 \text{ m (6.3 in.)} = 15.7 \text{ N·m (139 lb-in)}$
 The permissible moment for the **DG200R** is 100 N·m, thus this value is within the permissible range.

[Axial Load]

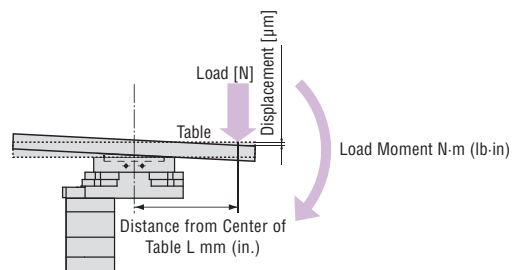
The axial load is the sum of the table and load, thus
 $[31 \text{ kg (68.2 lb.)} + 10 \text{ kg (22 lb.)}] \times \text{gm/s}^2 = 402 \text{ N (90.3 lb.)}$
 The maximum permissible axial load for the **DG200R** is 4000 N (900 lb-in), thus this is within the permissible range.



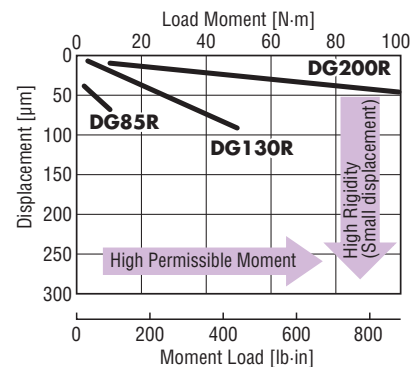
It is possible to apply heavy loads at positions that are far from the center of the high rigidity hollow actuator table

● Relationship between Displacement Amount and Moment Load 200 mm (7.87 in.) from Center of Table

As the product number increases, the permissible moment load also increases but the displacement caused by the moment load decreases.



Displacement at Distance L=200 mm (7.87 in.) from Center of Table



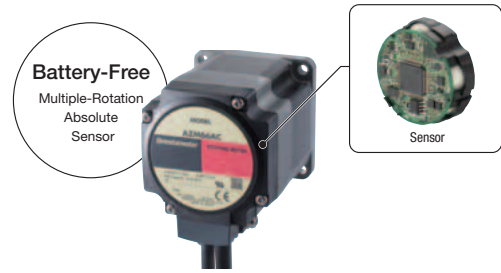
Because of the Absolute System, Easy Home Setting and Return-to-Home is Possible

Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary Actuators
DGI



No Return-to-Home Sensor Required

Because it is an absolute system, no home sensor is necessary.

Reduced Costs

Sensor and wiring costs can be reduced, leading to overall lower system costs.

Simple Wiring

Less wiring means more freedom for equipment design.

Not Affected by Sensor Malfunctions

There is no concern about sensor malfunction, sensor failure, or sensor wire disconnection.

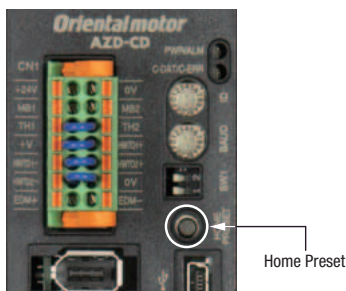
Improved Return-to-Home Accuracy

Return-to-home is carried out without any concern over variation in home sensor detection, which can improve home accuracy.

*If no limit sensor is installed, driver software limits are used to prevent operation when a limit is exceeded.

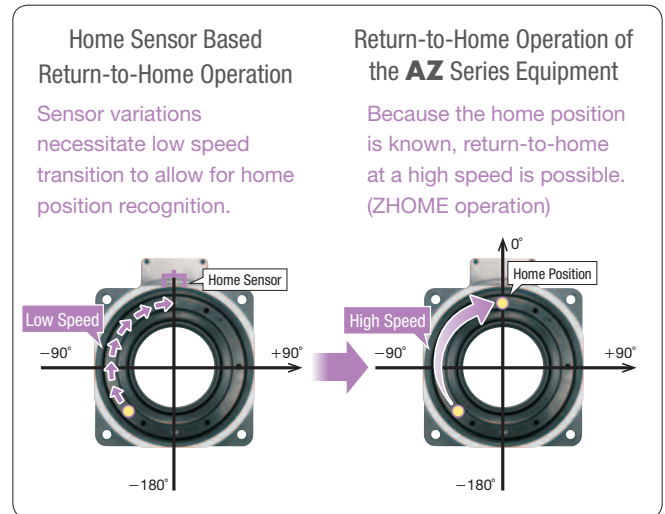
Easy Home Setting

By pressing the switch on the driver surface, home position can be set simply, and the home position can be saved with the sensor. Furthermore, it is possible to set the home position using the data setting software (**MEXE02**) or the external input signal.



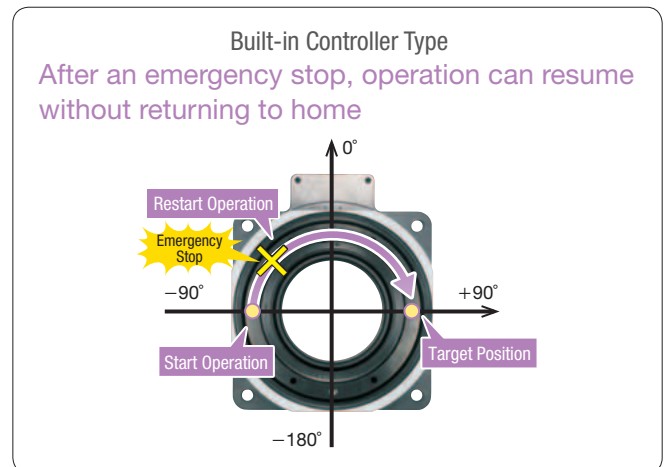
High-Speed Return-to-Home

Since return-to-home is possible without the use of a home sensor, return-to-home is carried out at high speed without any concern over sensor sensitivity, which can shorten the machine cycle.



Return-to-Home Not Required

The position information is retained even if the power shuts off during positioning. Furthermore, if the built-in controller type is being used, positioning is restarted without return-to-home when the power is restored after a power outage or an emergency stop on the production line.



The Mechanical Sensor does not Need a Battery



Battery-Free

The sensor is mechanical, thus it doesn't require a battery. Since position information is mechanically managed by the absolute sensor, positioning information can be retained even if there is a power outage or the cable between the motor and driver is disconnected.

Reduced Maintenance

Because there is no battery that needs replacement, maintenance time and costs can be reduced.

Unlimited Driver Installation Possibilities

Because there is no need to secure space for battery replacement, there are no restrictions on the installation location of the driver, improving the flexibility and freedom of the layout design of the control box.

Safe for Long Distance Shipping

Ordinary batteries self-discharge, thus caution is required for long-term transportation, such as overseas shipping. The motor sensor is battery-free, thus there are no restrictions on the retention of positioning information. This also means that there are no concerns about shipping regulations for batteries when exporting.

Position Retention Even if the Cable Between the Motor and Driver is Disconnected

Positioning information is retained in the motor sensor.

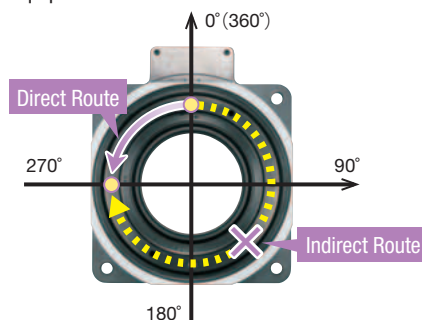
Useful Functions Thanks to the Built-in AZ Series

Convenient Operation & Setting

By using the **AZ** Series functions, the hollow rotary actuator's output table coordinates are managed and the following operations become possible.

Short-Cut Operation Reduces Takt Time

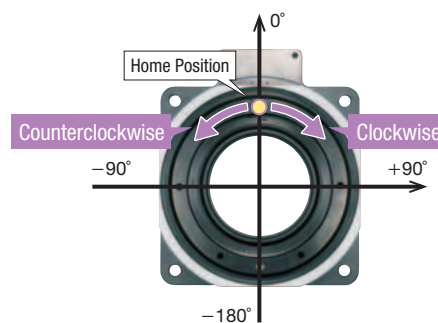
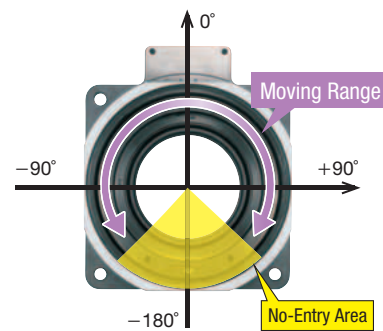
This is an operation method that drives the equipment in the rotation direction, providing the shortest distance to the target position that has been set. It can reduce the amount of takt time for the equipment.



Example):
When moving to 270° from 0° the equipment automatically selects and drives in the shortest rotational direction, in this case counter-clockwise.

Easy Control by Setting No-Entrance Areas

If there are dangerous or damaging items on the equipment, it is possible to set an area into which the output table cannot be moved.



Reduced Equipment Setup Time

The parameters necessary to operate the hollow rotary actuator are set at the time of shipment, which contributes to reduce equipment setup time.

- Home Position
- Resolution Setting (0.01°/step)
- Output Table Rotation Direction Setting
- Round Setting $\pm 180^\circ$

● All of the initial settings can be changed.

The High Performance and High Reliability of Stepper Motor and Driver Equipped with α STEP

Stepper Motors
AZ

Slides
EZS

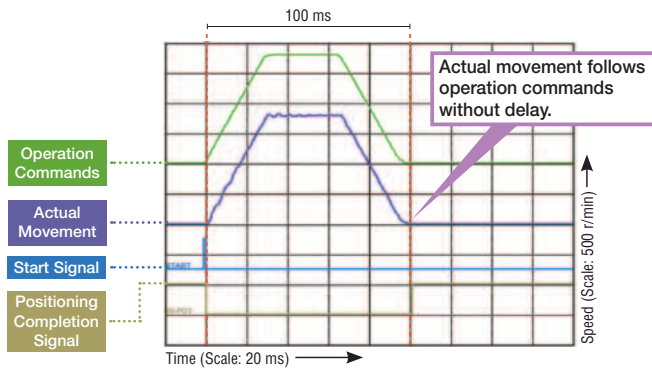
Cylinders
EAC

Rotary Actuators
DGII

Quick Responsiveness for Fast Positioning

Stepper motors can provide short distance positioning quickly. Stepper motors operate synchronously with pulse commands and although they are small, they have high torque, which provides excellent acceleration and responsiveness.

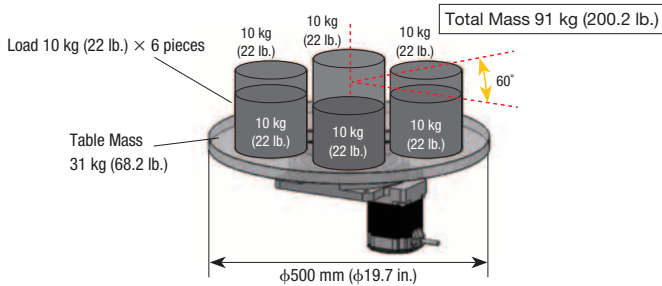
- Actual Stepper Motor Movement in Response to Operation Commands



<Operation Example>

Product Name : **DG200R-AZAC**
 Power Supply Input : 230 VAC
 Load Mass : 91 kg (200.2 lb.) (6 load pieces + table)
 : Load 10 kg/piece (22 lb./piece) × 6 pieces
 : Table 31 kg (68.2 lb.)
 : Diameter 500 mm (19.7 in.), thickness 20 mm (0.79 in.), iron
 Installation Direction : Horizontal
 Traveling Amount : 60°

Total inertia of table and load = $2633 \times 10^{-3} \text{ kg}\cdot\text{m}^2$ (144000 oz-in²)



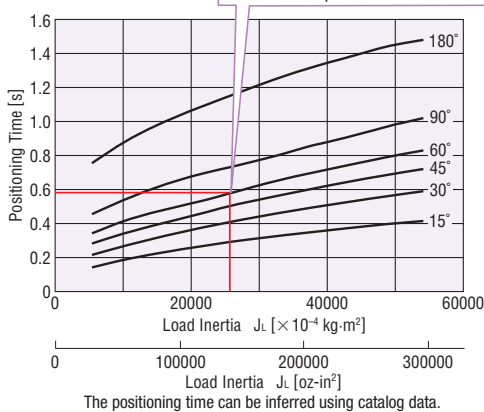
● Quick Positioning

With the **DG200R**, 60° rotation of a total mass of 91 kg (200.2 lb.) is possible in 0.59 seconds.

Load Inertia – Positioning Time (Reference value)

DG200R

60° rotation is possible in 0.59 seconds.



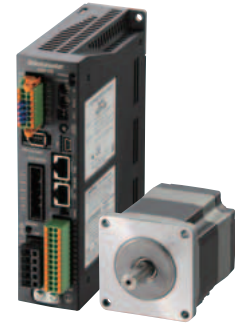
The positioning time can be inferred using catalog data.

Quick positioning is possible even with large loads.

Stepper Motor and Driver α STEP

AZ Series

Built-in Battery-Free Absolute Sensor Type



Continues Operating Even with Sudden Load Fluctuation or Acceleration

Since they normally operate synchronously under open loop control with pulse commands and generate high torque with a compact body, stepper motors offer excellent acceleration performance and response. At times of overload, control instantly switches to closed loop, and performs positioning correction.

Low Vibration at Low Speeds

Through the use of the stepper motor's Microstep Drive System and the Smooth Drive function*, it is possible to increase accuracy without other mechanical elements such as reduction mechanisms. As a result, there are few speed fluctuations even at low speeds, and constant speed can be maintained.

*The Smooth Drive Function

The smooth drive function automatically microsteps based on the same traveling amount and traveling speed used in the full step mode, without changing the pulse input settings.

Alarm Signal Output in Case of Abnormality

If a continuous overload condition occurs, an alarm signal is output. A signal is also output when positioning is completed. This creates a high degree of reliability.

Tuning Not Required

Since the equipment normally operates under open loop control, the set movement is achieved without tuning, even if a load fluctuation occurs.

Stop Position Retained with No Hunting

Normally, under open loop control, the small amount of shaft movement called hunting doesn't occur when the equipment stops. This is optimal for situations in which vibration is a problem when the equipment stops, since the stop position is reliably retained.

Application Examples

High Rigidity Applications

- Applications which Apply Moment Load (Ceiling installations)



High Performance Motor Applications

- Applications which Require High Positioning Accuracy (Image inspection equipment)



- Applications Subject to Changing Load Inertia (Disc manufacturing equipment)

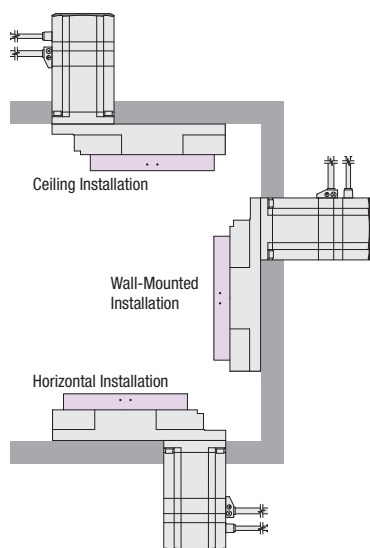


Example of Installation Direction

The **DGII** Series can be mounted horizontally, but can also be mounted on the ceiling or vertically on walls, allowing for expanded equipment design possibilities.

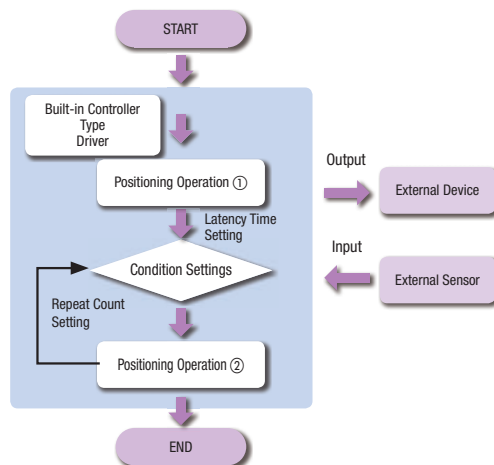
Note

Small amounts of grease may occasionally seep out of the hollow rotary actuator. In cases where a grease leak would cause contamination of the surrounding area, please perform regular inspections or install protective devices such as an oil pan.

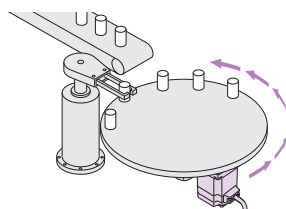


Example of Easy Sequence Function Use (Built-in controller type only)

Sequence control program simplification is possible with the built-in controller type by incorporating output signals for controlling other devices and external input signals, such as sensors.



- Number of Positioning Operation Data Settings (up to 256 Data Settings)
- Number of General-purpose Input/Output Points (9 Input Points, 6 Output Points)



Product Line

Stepper Motors
AZ

Hollow Rotary Actuators

DGII Series

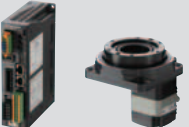
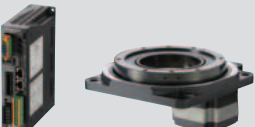
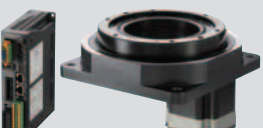
with **AZ** Series Type Built-in Battery-Free Absolute Sensor

Slides
EZS

Standard Type <Cross-Roller Bearing>

Cylinders
EAC

Rotary Actuators
DGII

Product Hollow Rotary Actuator Installation Angle	Built-in Motor Series	Electromagnetic Brake	Driver Type	Power Supply Voltage [VAC]	Diameter of Hollow Section [mm]	Permissible Torque [N·m]	Permissible Moment [N·m]				Permissible Axial Load [N]				Lost Motion [arc minutes]	Backlash [arc minutes]	Angular Transmission Accuracy [arc minutes]	Repetitive Positioning Accuracy [arc seconds]	List Price
							20	40	60	80	500	1000	2000	3000					
DG85R 85 mm (3.35 in.) 	AZ	●	Built-in Controller	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240	φ33	4.5	10							2	Non-Backlash Type	4	±15	\$2,283.00 ?	
			Pulse Input	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240															
DG130R 130 mm (5.12 in.) 	AZ	●	Built-in Controller	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240	φ62	12	50						2	Non-Backlash Type	3	±15	\$2,509.00 ?		
			Pulse Input	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240															
DG200R 200 mm (7.87 in.) 	AZ	●	Built-in Controller	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240	φ100	50	100						2	Non-Backlash Type	2	±15	\$2,893.00 ?		
			Pulse Input	Single-Phase 100-120 Single-Phase/ Three-Phase 200-240															

Oriental Motor has prepared a lineup of other **DGII** Series products from the “standard type”, which can be used in a wide range of applications, to the easy-to-use “light type”, all of which can meet a wide variety of customer requirements.

Product Number Code

DG 130 R - AZ A C D

① ② ③ ④ ⑤ ⑥ ⑦

①	Series Name	DG: DGII Series
②	Frame Size	85: 85 mm (3.35 in.) 130: 130 mm (5.12 in.) 200: 200 mm (7.87 in.)
③	Output Table Supporting Bearing	R: Cross-Roller Bearing
④	Built-in Motor	AZ: AZ Series
⑤	Motor Shaft	A: Single Shaft M: Electromagnetic Brake Type
⑥	Power Supply Input	A: Single-Phase 100-120 VAC C: Single-Phase/Three-Phase 200-240 VAC
⑦	Driver Type	D: Built-in Controller Type Blank: Pulse Input Type

Product Line and List Price

● Built-in Controller Type

◇ Single Shaft

Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
Product Name	List Price	Product Name	List Price
DG85R-AZAAD	\$2,340.00	DG85R-AZACD	\$2,340.00
DG130R-AZAAD	\$2,566.00	DG130R-AZACD	\$2,566.00
DG200R-AZAAD	\$2,950.00	DG200R-AZACD	\$2,950.00

◇ Electromagnetic Brake Type

Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
Product Name	List Price	Product Name	List Price
DG85R-AZMAD	\$2,498.00	DG85R-AZMCD	\$2,498.00
DG130R-AZMAD	\$2,769.00	DG130R-AZMCD	\$2,769.00
DG200R-AZMAD	\$3,176.00	DG200R-AZMCD	\$3,176.00

● Pulse Input Type

◇ Single Shaft

Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
Product Name	List Price	Product Name	List Price
DG85R-AZAA	\$2,283.00	DG85R-AZAC	\$2,283.00
DG130R-AZAA	\$2,509.00	DG130R-AZAC	\$2,509.00
DG200R-AZAA	\$2,893.00	DG200R-AZAC	\$2,893.00

◇ Electromagnetic Brake Type

Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
Product Name	List Price	Product Name	List Price
DG85R-AZMA	\$2,441.00	DG85R-AZMC	\$2,441.00
DG130R-AZMA	\$2,712.00	DG130R-AZMC	\$2,712.00
DG200R-AZMA	\$3,119.00	DG200R-AZMC	\$3,119.00

The following items are included with each product.

Hollow Rotary Actuator, Driver Connector Set, Operating Manual (one document for the hollow rotary actuator, one for the driver)*1

*1 For driver functions and operation, please refer to documentation for the **AZ** Series stepper motor functions and the documentation for electric actuator function settings. These are not included with this product, thus please inquire with the nearest Oriental Motor sales office or download from the Oriental Motor website.
www.orientalmotor.com

Note

● The motor cable coming out of the hollow rotary actuator and the electromagnetic brake cable cannot be directly connected to the driver. When connecting a driver, please use an accessory connection cable (sold separately). Connection Cable Sets → page 90~91

Installation Pedestal for DGII Series

This is a convenient installation pedestal that allows the **DGII** Series to use direct drive motors. Whether it is an application that requires height, or the equipment must be installed away from a surface, the base expands the possibilities for use and installation.



Stepper Motors
AZ

Slides
EZS

Cylinders
EAC

Rotary Actuators
DGII

Product Line and List Price

Product Name	Applicable DGII Series Products		List Price
	Type	Product Name	
MDG85B	Single Shaft	DG85R-AZA	\$304.00
MDG130B	Single Shaft	DG130R-AZA	\$400.00

● The applicable product name contains characters that can be used to identify the product.

Home Sensor Set

A home sensor set, which consists of a photomicro sensor, cable type connector, sensor installation bracket, shield plate and mounting screws, is provided to facilitate easy return-to-home operation.



PADG-SB

Product Line and List Price

Product Name	Sensor Output	Applicable Products	List Price
PADG-SB	NPN	DG85R-AZ DG130R-AZ	\$107.00
PADG-SBY	PNP	DG200R-AZ	\$115.00

Network Converters

The network converter converts from the host communication protocol to Oriental Motor's own RS-485 communication protocol. Use the network converter to control products supporting Oriental Motor's RS-485 Built-in Controller (Stored Data) type drivers in the host communication environment.

Product Line and List Price

Network Type	Product Name	List Price
CC-Link Compatible	NETC01-CC	\$282.00
MECHATROLINK - II Compatible	NETC01-M2	\$358.00
MECHATROLINK - III Compatible	NETC01-M3	\$398.00
EtherCAT Compatible	NETC01-ECT	\$245.00



SCX11 Universal Controller

The **SCX11** is a highly-functional and sophisticated controller equipped with program editing and execution functions. Use the **SCX11** as a stored program controller to connect to any of Oriental Motor's standard pulse input drivers. The **SCX11** is also able to control the motor via serial communications such as USB, RS-232C and **CANopen**.

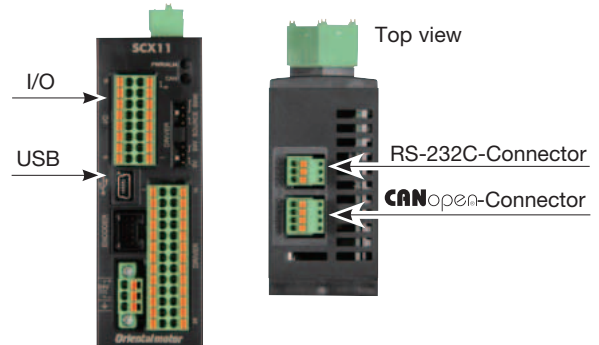
Feature

- 100 Sequence Programs can be Stored
- Stored Program with GUI
- USB Connection to PC
- Various Interfaces for Operation

Product Line and List Price

Product Name	List Price
SCX11	\$349.00

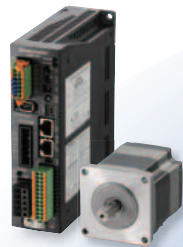
Various Interfaces for Operation



- Direct Command Operation via **CANopen**
- Operations Using a PC or PLC

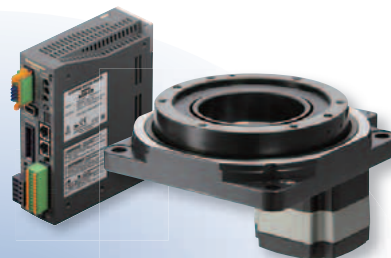
Product Variation with the **AZ** Series

Controllability is consolidated across all product groups that contain the **AZ** Series.



Battery-Free
Absolute Sensor

AZ Series



Hollow Rotary
Actuator

DGII Series

Simplify Setup & Control



Electric Linear Slides

EZS Series



Electric Cylinders

EAC Series

Specifications are subject to change without notice. This catalog was published in April, 2017.

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