

**αSTEP**

## AZ Series Multi-Axis Driver

DC Input

EtherCAT Drive Profile-Compatible

EtherCAT



4-Axis Type



3-Axis Type

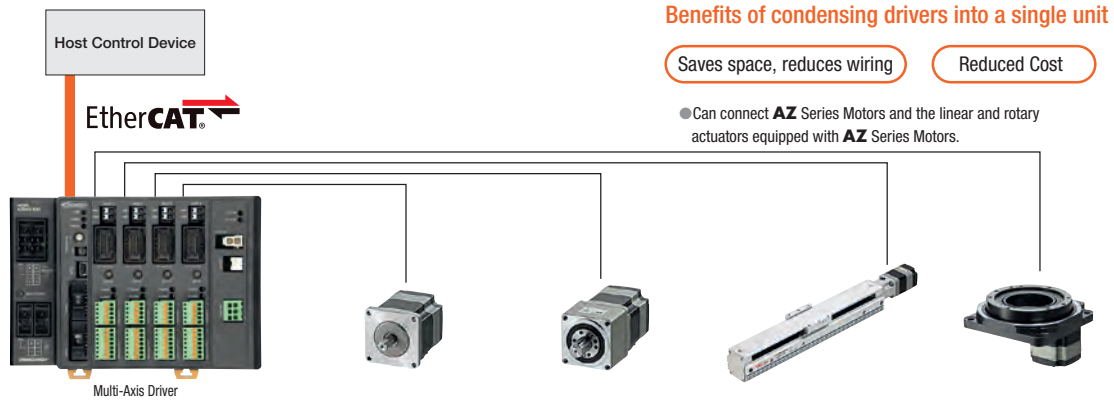


NEW 2-Axis Type

Multi-Axis Drivers can connect **AZ** Series DC input motors and the linear and rotary actuators equipped with them. Available for all products compatible with the EtherCAT drive profiles.

### Multi-Axis Drivers connect directly to the host network and can control up to 4 axes simultaneously

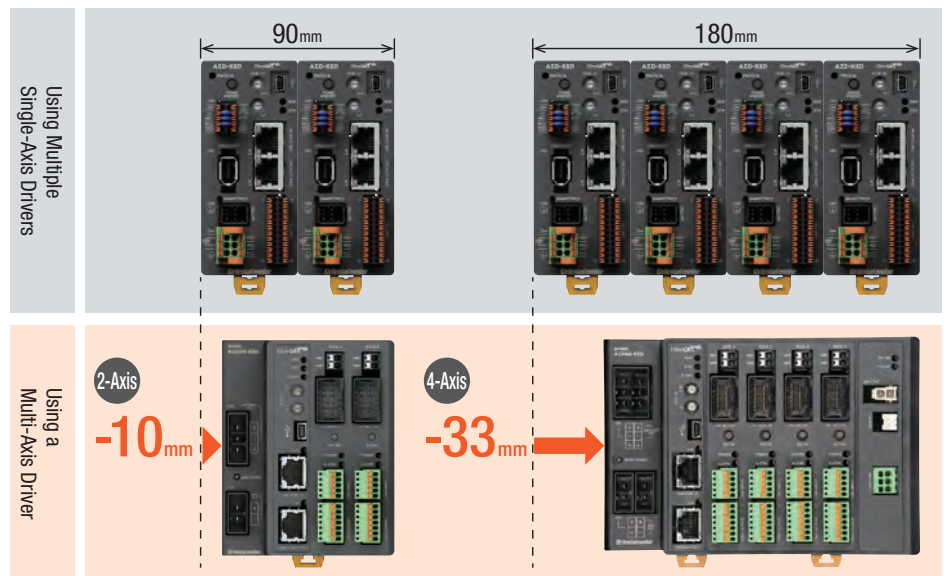
One driver can control multiple axes. Connections with the host network and the power supply are combined in a single driver, resulting in less wiring and lower costs.



● ESI files are available for EtherCAT-Compatible products. The files can be downloaded from the Oriental Motor website.

### Multi-Axis Drivers (2-Axis Type, 4-Axis Type) are compact and save space by aligning Single-Axis Drivers

Multi-Axis Drivers can reduce installation space by aligning network-compatible Single-Axis Drivers.



● The above drivers compare the size of the **AZ** Series Single-Axis Drivers and Multi-Axis Drivers compatible with the EtherCAT Drive Profile.

## Applicable Series

**AZ** Series Multi-Axis Driver DC Input can be used in combination with the following motors and linear & rotary actuators.

### Motors

- **αSTEP AZ** Series DC Input

### Linear & Rotary Actuators

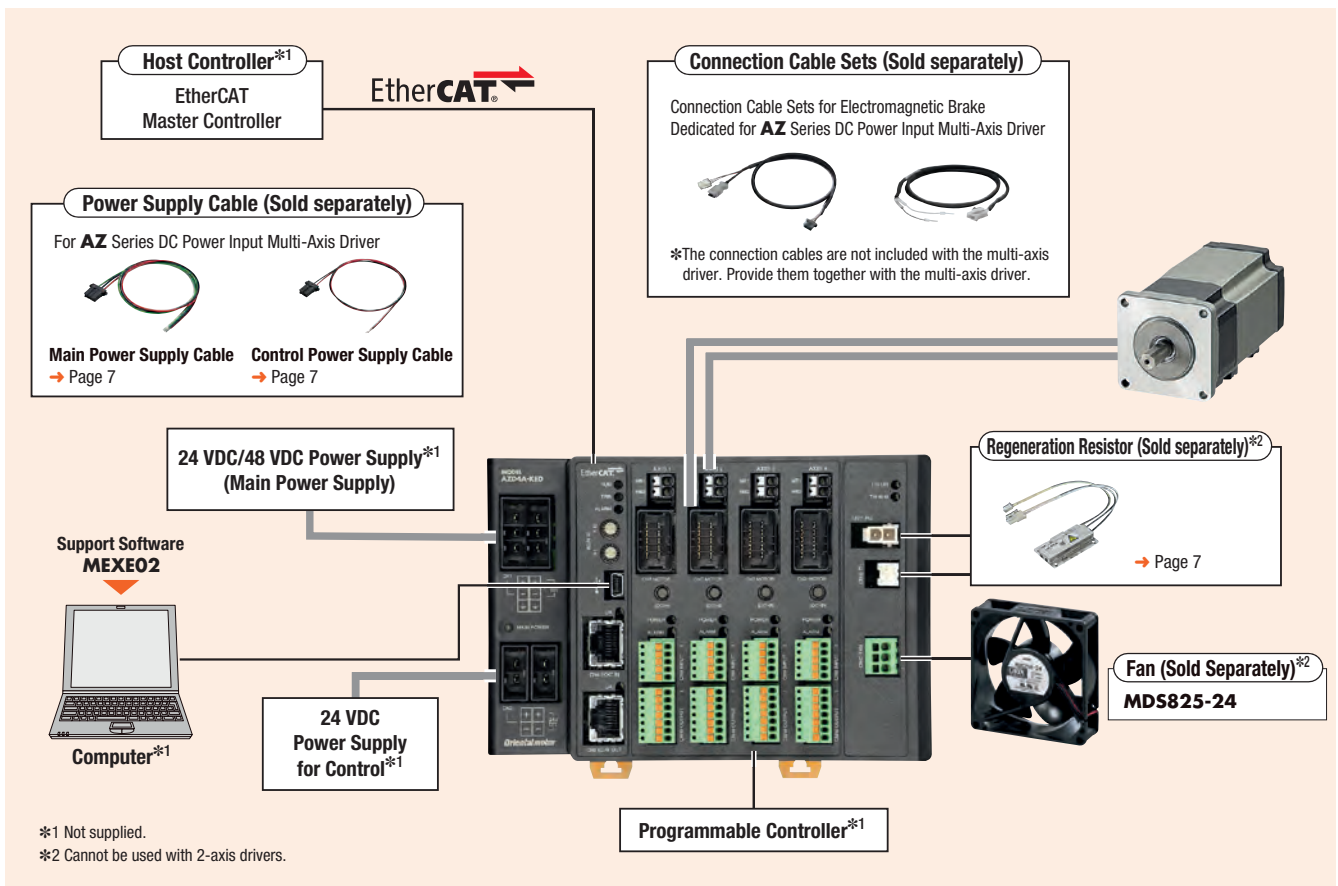
- **AZ** Series Equipped Electric Linear Slides **EAS** Series DC Input
- **AZ** Series Equipped Electric Linear Slides **EZS** Series DC Input
- **AZ** Series Equipped Electric Cylinders **EAC** Series DC Input
- **AZ** Series Equipped Compact Electric Cylinders **DR** Series / **DRS2** Series
- **AZ** Series Equipped Hollow Rotary Actuators **DGII** Series DC Input
- **AZ** Series Equipped Rack and Pinion Systems **L** Series DC Input

● Refer to the Oriental Motor website or the brochure for each series for details about the combinable motors and linear & rotary actuators.

## System Configuration

### For EtherCAT Drive Profile Compatible

Sample system configuration when combined with **AZ** Series DC Input Standard Type with Electromagnetic Brake.



## Product Number

### Multi-Axis Drivers

**AZD 4A - K ED**

①      ②      ③      ④

### Connection Cable Sets / Flexible Connection Cable Sets for AZ Series Multi-Axis Drivers

#### ◇ Connection Cable Sets for Motor

**CC 050 V Z □ F A**

①      ②      ③      ④      ⑤      ⑥      ⑧

#### ◇ Connection Cable Sets for Electromagnetic Brake Motor

**CC 050 V Z F B A**

①      ②      ③      ④      ⑥      ⑦      ⑧

①	Driver Type	<b>AZD: AZ Series Driver</b>
②	Number of Axes	<b>2B: 2 Axes   3A: 3 Axes   4A: 4 Axes</b>
③	Power Supply Input	<b>K: 24 VDC/48 VDC</b>
④	Network Type	<b>ED: EtherCAT Drive Profile</b>

①	<b>CC: Cable</b>		
②	Length	<b>005: 0.5 m   010: 1 m   015: 1.5 m</b> <b>020: 2 m   025: 2.5 m   030: 3 m</b> <b>040: 4 m   050: 5 m   070: 7 m</b> <b>100: 10 m   150: 15 m   200: 20 m</b>	
	③	Reference Number	
	④	Applicable Model	<b>Z: For AZ Series</b>
	⑤	Reference Number	Blank: Frame Size 42 mm <b>[HPG Geared Type is 40 mm, 60 mm]</b> <b>2: Frame Size 20 mm, 28 mm</b> <b>[Harmonic Geared Type is 30 mm]</b>
		⑥	Cable Type
⑦	Description	<b>B: For Electromagnetic Brake Motor</b>	
⑧	Driver Type	<b>A: For Multi-Axis Driver</b>	

## Product Line

### Multi-Axis Driver

#### ◇ EtherCAT Drive Profile Compatible



Product Name	Number of Axes
<b>AZD2B-KED</b>	2 Axes
<b>AZD3A-KED</b>	3 Axes
<b>AZD4A-KED</b>	4 Axes

### ● AZ Series Catalog

- DC Input Motor Specifications
- DC Input Motor Characteristics
- DC Input Motor Dimensions
- Cables
  - Cables for I/O Signals
- Peripheral Equipment
  - Motor Mounting Brackets



● For details on the combinable motors and linear and rotary actuators, refer to the Oriental Motor website or the catalogs for each series.

● Connection Cable Sets / Flexible Connection Cable Sets for **AZ** Series Multi-Axis Drivers

◇ For Motor / Encoder

Applicable Products: **AZM14, AZM15, AZM24, AZM26, DGM60, DR20, DR28**

Length L [m]	Connection Cable Set	Flexible Connection Cable Set
0.5	<b>CC005VZ2FA</b>	<b>CC005VZ2RA</b>
1	<b>CC010VZ2FA</b>	<b>CC010VZ2RA</b>
1.5	<b>CC015VZ2FA</b>	<b>CC015VZ2RA</b>
2	<b>CC020VZ2FA</b>	<b>CC020VZ2RA</b>
2.5	<b>CC025VZ2FA</b>	<b>CC025VZ2RA</b>
3	<b>CC030VZ2FA</b>	<b>CC030VZ2RA</b>
4	<b>CC040VZ2FA</b>	<b>CC040VZ2RA</b>
5	<b>CC050VZ2FA</b>	<b>CC050VZ2RA</b>
7	<b>CC070VZ2FA</b>	<b>CC070VZ2RA</b>
10	<b>CC100VZ2FA</b>	<b>CC100VZ2RA</b>
15	<b>CC150VZ2FA</b>	<b>CC150VZ2RA</b>
20	<b>CC200VZ2FA</b>	<b>CC200VZ2RA</b>



Applicable Products: **AZM46, AZM48, AZM66, AZM69, DGB85, DGM85, DGB130, DGM130, DRSM40, DRSM60, LM2, LM4**

Length L [m]	Connection Cable Set	Flexible Connection Cable Set
0.5	<b>CC005VZFA</b>	<b>CC005VZRA</b>
1	<b>CC010VZFA</b>	<b>CC010VZRA</b>
1.5	<b>CC015VZFA</b>	<b>CC015VZRA</b>
2	<b>CC020VZFA</b>	<b>CC020VZRA</b>
2.5	<b>CC025VZFA</b>	<b>CC025VZRA</b>
3	<b>CC030VZFA</b>	<b>CC030VZRA</b>
4	<b>CC040VZFA</b>	<b>CC040VZRA</b>
5	<b>CC050VZFA</b>	<b>CC050VZRA</b>
7	<b>CC070VZFA</b>	<b>CC070VZRA</b>
10	<b>CC100VZFA</b>	<b>CC100VZRA</b>
15	<b>CC150VZFA</b>	<b>CC150VZRA</b>
20	<b>CC200VZFA</b>	<b>CC200VZRA</b>



◇ For Motor / Encoder / Electromagnetic Brake

Applicable Products: **AZM46, AZM48, AZM66, AZM69, DGB85, DGM85, DGB130, DGM130, DRSM40, DRSM60, LM2, LM4**

Length L [m]	Connection Cable Set	Flexible Connection Cable Set
0.5	<b>CC005VZFBA</b>	<b>CC005VZRBA</b>
1	<b>CC010VZFBA</b>	<b>CC010VZRBA</b>
1.5	<b>CC015VZFBA</b>	<b>CC015VZRBA</b>
2	<b>CC020VZFBA</b>	<b>CC020VZRBA</b>
2.5	<b>CC025VZFBA</b>	<b>CC025VZRBA</b>
3	<b>CC030VZFBA</b>	<b>CC030VZRBA</b>
4	<b>CC040VZFBA</b>	<b>CC040VZRBA</b>
5	<b>CC050VZFBA</b>	<b>CC050VZRBA</b>
7	<b>CC070VZFBA</b>	<b>CC070VZRBA</b>
10	<b>CC100VZFBA</b>	<b>CC100VZRBA</b>
15	<b>CC150VZFBA</b>	<b>CC150VZRBA</b>
20	<b>CC200VZFBA</b>	<b>CC200VZRBA</b>



Cable for Motor



Cable for Electromagnetic Brake

**Note**

● Only connection cables are offered for the dedicated multi-axis driver cables. **AZ** Series extension cables cannot be used.

■ **Included**

● **Multi-Axis Driver**

Network Type, Number of Axes	Included	CN1 Connector	CN2 Connector	CN1, CN2 Contact	CN9 Connector	CN10 Connector
	EtherCAT Compatible	2 Axes	1 pc.	1 pc.	5 pcs.	2 pcs.
3 Axes		2 pcs.	2 pcs.	10 pcs.	3 pcs.	3 pcs.
4 Axes		2 pcs.	2 pcs.	10 pcs.	4 pcs.	4 pcs.

● Power Supply Input

Main Power Supply: 24 VDC/48 VDC ±10% 7.0 A (7.0 A max. Use with an average of 4.0 A max.)

Control Power Supply: 24 VDC ±10% 1.5 A (For electromagnetic brake type, use a 24 VDC ±5% power supply)  
 <For electromagnetic brake type [when using 20 m connection cable], use a 24 VDC ±4% power supply>

● Communication Specifications

◇ EtherCAT Specification

Transmission Rate	100 Mbps
Communication Cycle	<ul style="list-style-type: none"> <li>· Free Run Mode: 1 ms min.</li> <li>· SM2 Event Synchronization Mode: 1 ms min.</li> <li>· DC Mode: 0.5 ms, 1 ms, 2 ms, 3 ms, 4 ms, 5 ms, 6 ms, 7 ms, 8 ms</li> </ul>
Node Address	0 to 255 (00h to FFh, Initial Value: 00h)
Communication Protocol	Dedicated Protocol for EtherCAT (CoE) CiA402 Drive Profile

● General Specifications

Degree of Protection	IP10
Operating Environment	Ambient Temperature: 0 to +50°C (non-freezing) Humidity: 85% or less (non-condensing) Altitude: Up to 1000 m above sea level Atmosphere: No corrosive gas or dust. The product should not be exposed to water or oil.
Storage Conditions Transportation Conditions	Ambient Temperature: -25 to +70°C (non-freezing) Humidity: 85% or less (non-condensing) Altitude: Up to 3000 m above sea level Atmosphere: No corrosive gas or dust. The product should not be exposed to water or oil.
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: · FG terminal – Power supply terminal
Dielectric Strength	Sufficient to withstand the following for 1 minute: · FG terminal - Power supply terminal 1 kVAC 50/60 Hz Leak current 10 mA or less

**Note**

- Disconnect the motor and driver when taking an insulation resistance measurement or performing a dielectric voltage withstand test. Also, do not perform these tests on the absolute sensor part of the motor.

## Dimensions Unit: mm

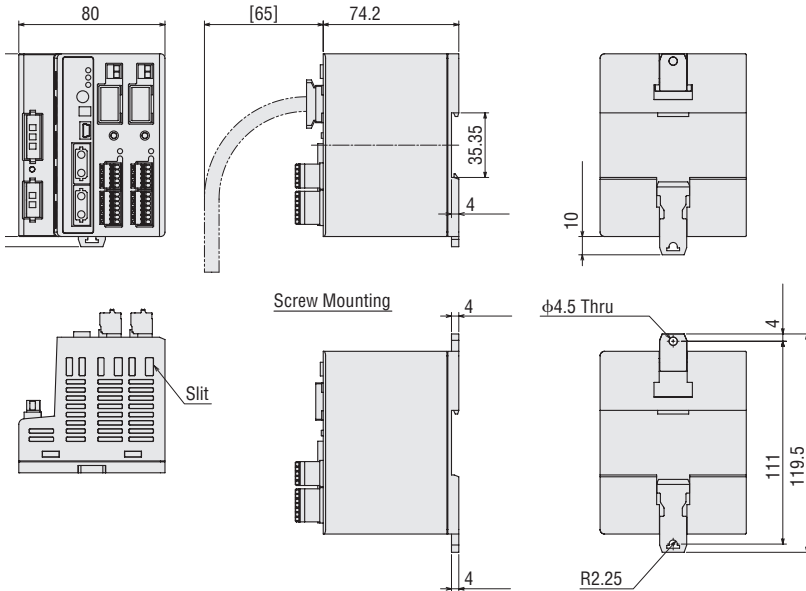
### Multi-Axis Drivers

#### 2 Axes

Number of Axes	Network Type	EtherCAT Compatible	Mass [kg]
		Product Name	
2 Axes		<b>AZD2B-KED</b>	0.24

Dimensions and included items are common to all drivers in the table.

#### DIN Rail Mounting



#### Included Items

- Main Power Connector: F32FSS-03V-KX (JST)
- Control Power Connector: F32FSS-02V-KX (JST)
- Contact for Main Power Connector & Control Power Connector: LF3F-41GF-P2.0 (JST)
- Input Signal Connector: FK-MC 0,5/ 5-ST-2,5 (Phoenix Contact)
- Output Signal Connector: FK-MC 0,5/ 7-ST-2,5 (Phoenix Contact)
- Connector Cap (SSCNET III/H-Compatible only)

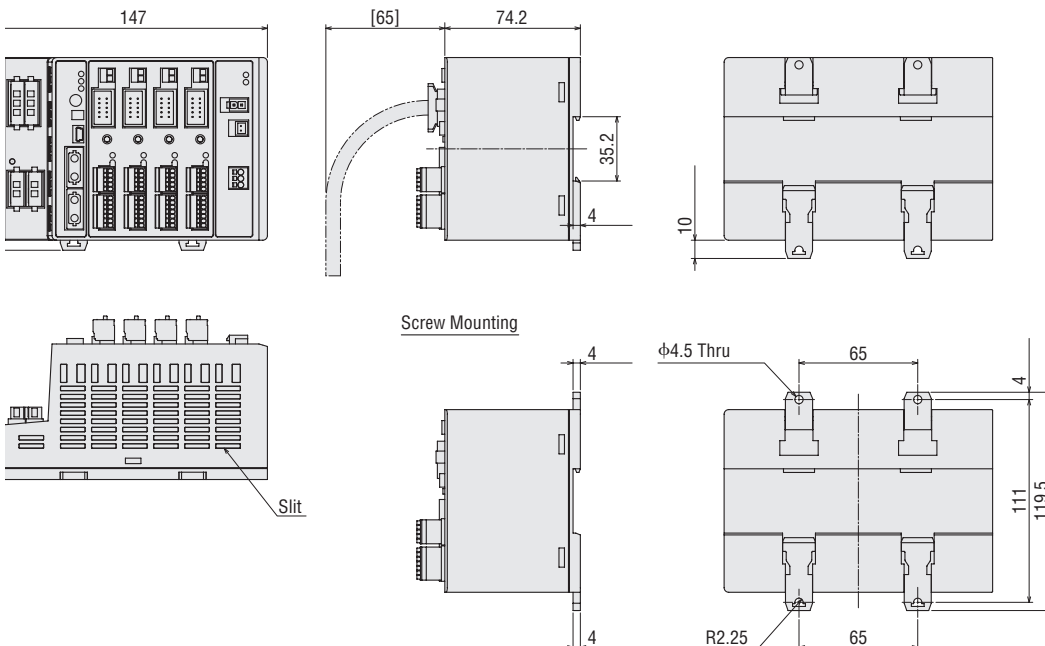
#### 3 Axes, 4 Axes

Number of Axes	Network Type	EtherCAT Compatible	Mass [kg]
		Product Name	
3 Axes		<b>AZD3A-KED</b>	0.42
4 Axes		<b>AZD4A-KED</b>	0.45

Dimensions shows **AZD4A-KED**

Dimensions and included items are common to all drivers in the table.

#### DIN Rail Mounting



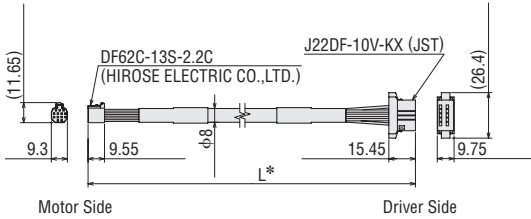
#### Included Items

- Common to 2-Axis driver.

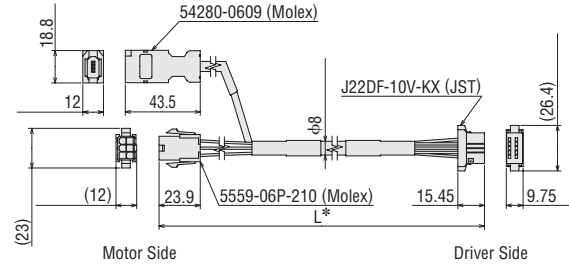
● Connection Cable Sets, Flexible Connection Cable Sets

◇ Cable for Motor

Model Name: **CC□□□VZ2FA, CC□□□VZ2RA**

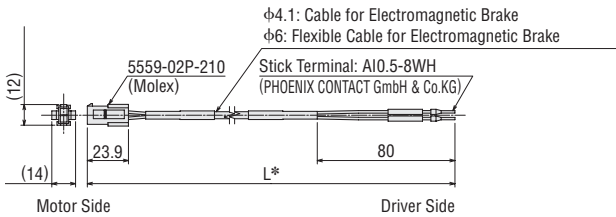


Model Name: **CC□□□VZFA, CC□□□VZRA**



◇ Cable for Electromagnetic Brake

Model Name: **CC□□□VZFBA, CC□□□VZRBA**



\*The length L [m] is specified where L is located in the dimensions in "Product Line" on page 4.  
 ● A number indicating the cable length is entered where the box □ is located within the product name.

■ Cables and Accessories

● Power Supply Cables

These are lead wires with a connector for **AZ** Series Multi-Axis Drivers. Connecting the main power supply and control power supply is easy.

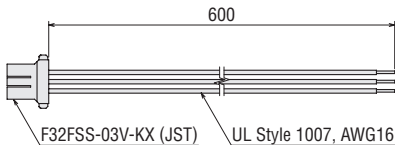
◇ Product Line

Product Name	Type
<b>LC03D06A</b>	For Main Power Supply
<b>LC02D06A</b>	For Control Power Supply

◇ Dimensions Unit: mm

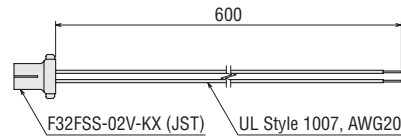
Main Power Supply Cable

**LC03D06A**



◇ Control Power Supply Cable

**LC02D06A**



● Regeneration Resistor

During vertical drive (gravitational operation) or sudden start/stop in large inertia, an external force causes the motor to rotate and function as a power generator. When the regenerative power exceeds the driver's regenerative power absorption capacity, it may cause damage to the motor. In such a case, connect the regeneration resistor to the driver to convert regenerative power into thermal energy for dissipation. Alarms can occur easily when a 48 VDC power supply is used with a multi-axis driver, so use of a regeneration resistor is recommended.

Note

● Cannot be used with a 2-axis driver.

◇ Product Line

Product Name
<b>LC02D06A</b>

◇ Specifications

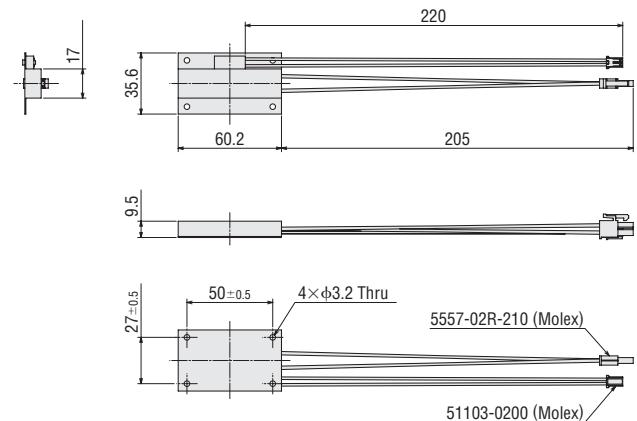
Permissible Power Consumption	Continuous Regenerative Power: 40 W* Instantaneous Regenerative Power: 400 W
Resistance Value	15 Ω
Thermostat Operating Temperature	Operation: Opens at 95±5°C Reset: Closes at 65±15°C (Normally Closed)
Thermostat Electrical Rating	250 VAC, 0.5 A (Min. Current 1.5 VDC, 1 mA)

\*Install the regeneration resistor in a location that has the same heat radiation capability as the heat sink [Material: Aluminum 180×150 mm, 2 mm thick].



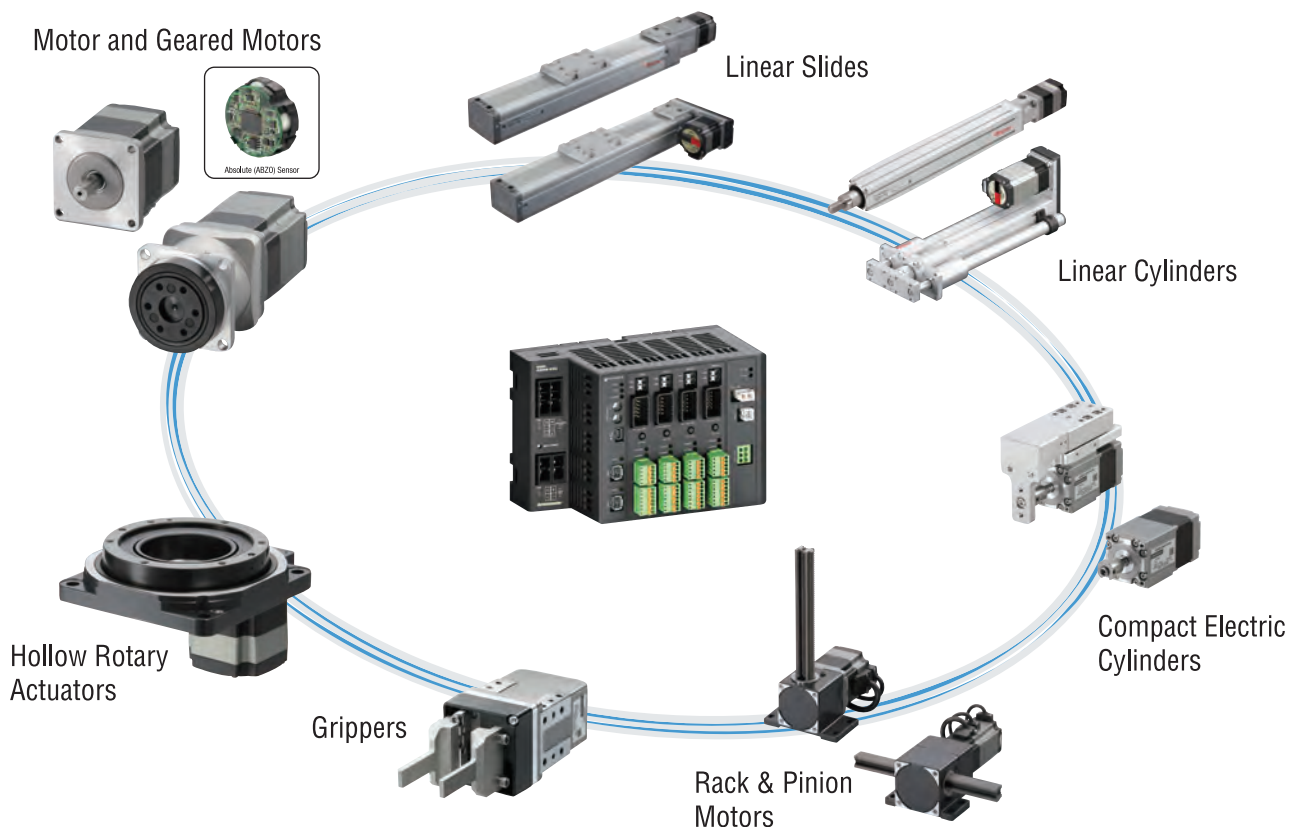
◇ Dimensions Unit: mm

Mass: 0.03 kg





# **αSTEP** Family of Products



## **Orientalmotor**

These products are manufactured at plants certified with the international standards **ISO 9001** (for quality assurance) and **ISO 14001** for systems of environmental management).

Specifications are subject to change without notice. This catalogue was published in January 2024.

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