

*α*STEP

AZ Series Multi-Axis Driver

DC Input

EtherCAT Drive Profile-Compatible

SSCNET III/H-Compatible

MECHATROLINK-III-Compatible

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 SSCNET III/H, MECHATROLINK-III and EtherCAT drive profiles.



4-Axis Type



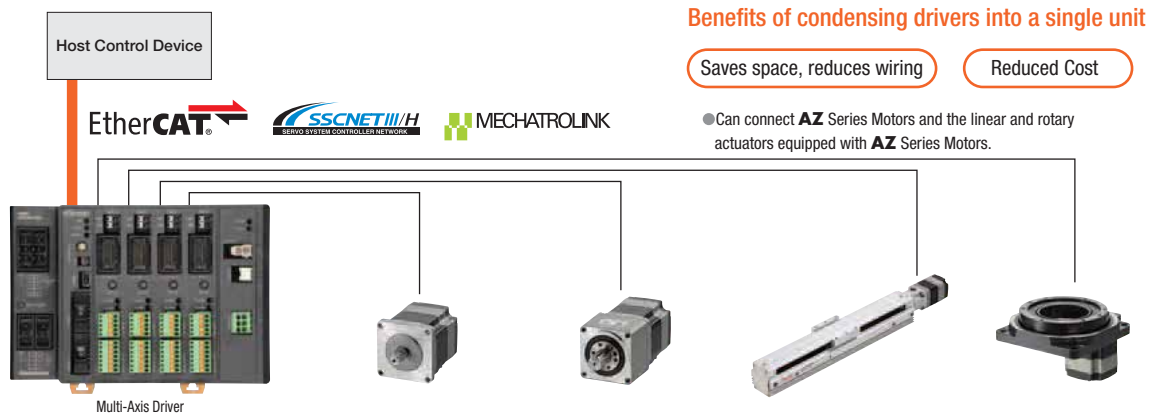
3-Axis Type



NEW 2-Axis Type

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

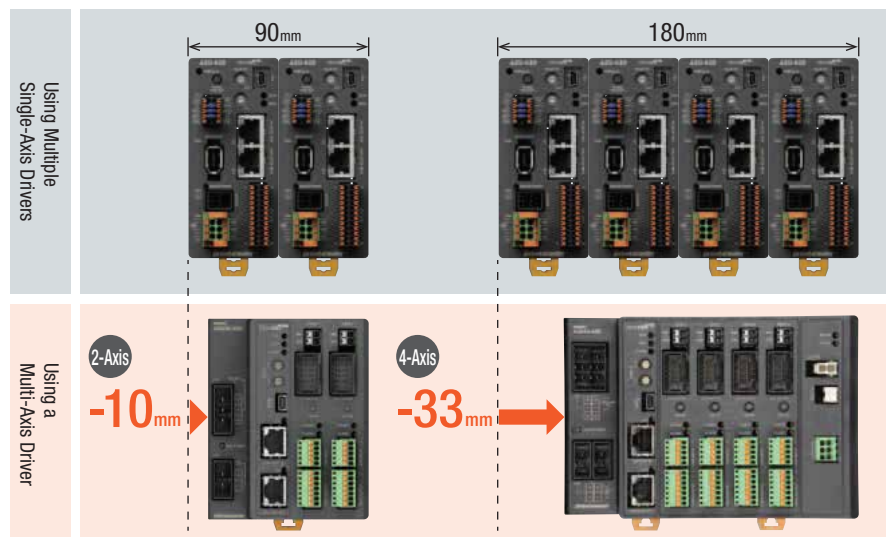
One driver can control multiple axes. Connections with the host network and the power supply are combined in a single driver, resulting in less wiring and lower costs.



ESI files are available for EtherCAT-Compatible products. The files can be downloaded from the Oriental Motor website. EtherCAT compliant products pass the official EtherCAT conformance test.

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

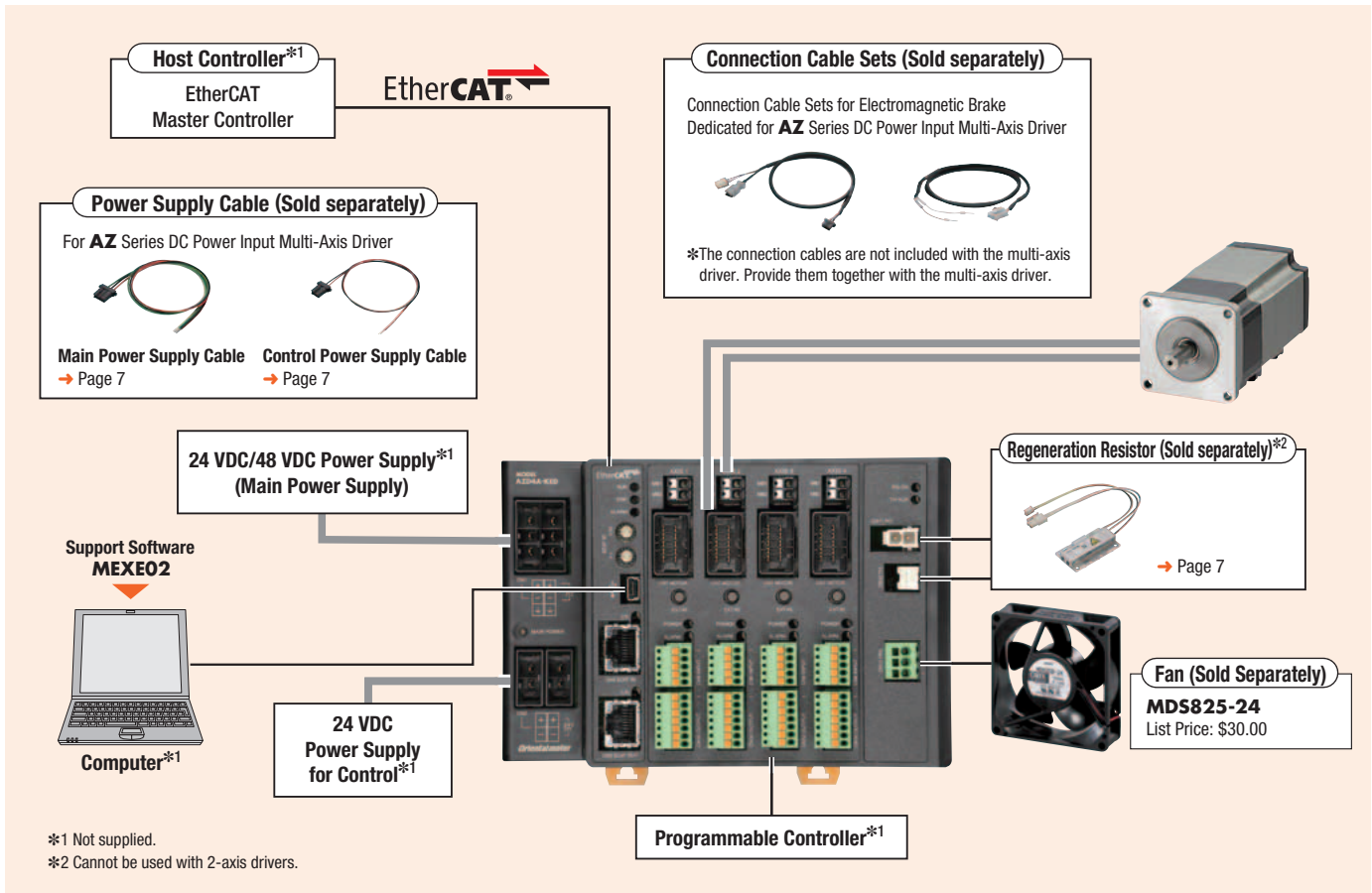
- **AZ** Series Equipped Electric Linear Slides **EAS** Series DC Input
- **AZ** Series Equipped Electric Linear Slides **EZS** Series DC Input
- **AZ** Series Equipped Electric Cylinders **EAC** Series DC Input
- **AZ** Series Equipped Compact Electric Cylinders **DR** Series / **DRS2** Series
- **AZ** Series Equipped Hollow Rotary Actuators **DGI** 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.



Example of System Configuration Pricing

Motor	+	Driver	+	Cable			+	Accessories	
AZM66MK		AZD4A-KED		Connection Cable Set [1 m (3.3 ft.)] CC010VZFBA	Main Power Supply Cable LC03D06A	Control Power Supply Cable LC02D06A		Regeneration Resistor RGC40	Fan MDS825-24
\$622.00		\$1,450.00		\$104.00	\$31.00	\$27.00		\$68.00	\$30.00

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

Note

● The motor cables and electromagnetic brake cables from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

Product Number

Multi-Axis Drivers

AZD 4A - K S3

- 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	AZD: AZ Series Driver
②	Number of Axes	2B: 2 Axes 3A: 3 Axes 4A: 4 Axes
③	Power Supply Input	K: 24 VDC/48 VDC
④	Network Type	S3: SSCNETIII/H M3: MECHATROLINK-III ED: EtherCAT Drive Profile

①		CC: Cable
②	Length	005: 0.5 m (1.6 ft) 010: 1 m (3.3 ft) 015: 1.5 m (4.9 ft) 020: 2 m (6.6 ft) 025: 2.5 m (8.2 ft) 030: 3 m (9.8 ft) 040: 4 m (13.1 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 Model	Z: For 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.) [Harmonic Geared Type is 30 mm (1.18 in.)]
⑥	Cable Type	F: Connection Cable Set R: Flexible Connection Cable Set
⑦	Description	B: For Electromagnetic Brake Motor
⑧	Driver Type	A: For Multi-Axis Driver

Product Line

Multi-Axis Driver

EtherCAT Drive Profile Compatible



Product Name	Number of Axes	List Price
AZD2B-KED	2 Axes	\$1,012.00
AZD3A-KED	3 Axes	\$1,201.00
AZD4A-KED	4 Axes	\$1,450.00

SSCNETIII/H Compatible



Product Name	Number of Axes	List Price
AZD2B-KS3	2 Axes	\$1,012.00
AZD3A-KS3	3 Axes	\$1,201.00
AZD4A-KS3	4 Axes	\$1,450.00

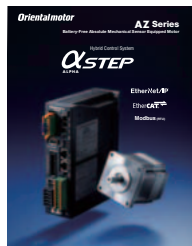
MECHATROLINK-III Compatible



Product Name	Number of Axes	List Price
AZD2B-KM3	2 Axes	\$1,012.00
AZD3A-KM3	3 Axes	\$1,201.00
AZD4A-KM3	4 Axes	\$1,450.00

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 (ft.)	Connection Cable Set	List Price	Flexible Connection Cable Set	List Price
0.5 (1.6)	CC005VZ2FA	\$86.00	CC005VZ2RA	\$102.00
1 (3.3)	CC010VZ2FA	\$86.00	CC010VZ2RA	\$102.00
1.5 (4.9)	CC015VZ2FA	\$92.00	CC015VZ2RA	\$111.00
2 (6.6)	CC020VZ2FA	\$97.00	CC020VZ2RA	\$120.00
2.5 (8.2)	CC025VZ2FA	\$104.00	CC025VZ2RA	\$127.00
3 (9.8)	CC030VZ2FA	\$110.00	CC030VZ2RA	\$134.00
4 (13.1)	CC040VZ2FA	\$118.00	CC040VZ2RA	\$153.00
5 (16.4)	CC050VZ2FA	\$133.00	CC050VZ2RA	\$171.00
7 (23.0)	CC070VZ2FA	\$164.00	CC070VZ2RA	\$218.00
10 (32.8)	CC100VZ2FA	\$214.00	CC100VZ2RA	\$286.00
15 (49.2)	CC150VZ2FA	\$295.00	CC150VZ2RA	\$403.00
20 (65.6)	CC200VZ2FA	\$375.00	CC200VZ2RA	\$518.00



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

Length L m (ft.)	Connection Cable Set	List Price	Flexible Connection Cable Set	List Price
0.5 (1.6)	CC005VZFA	\$86.00	CC005VZRA	\$102.00
1 (3.3)	CC010VZFA	\$86.00	CC010VZRA	\$102.00
1.5 (4.9)	CC015VZFA	\$92.00	CC015VZRA	\$111.00
2 (6.6)	CC020VZFA	\$97.00	CC020VZRA	\$120.00
2.5 (8.2)	CC025VZFA	\$104.00	CC025VZRA	\$127.00
3 (9.8)	CC030VZFA	\$110.00	CC030VZRA	\$134.00
4 (13.1)	CC040VZFA	\$118.00	CC040VZRA	\$153.00
5 (16.4)	CC050VZFA	\$133.00	CC050VZRA	\$171.00
7 (23.0)	CC070VZFA	\$164.00	CC070VZRA	\$215.00
10 (32.8)	CC100VZFA	\$214.00	CC100VZRA	\$286.00
15 (49.2)	CC150VZFA	\$295.00	CC150VZRA	\$405.00
20 (65.6)	CC200VZFA	\$375.00	CC200VZRA	\$518.00



◇ For Motor / Encoder / Electromagnetic Brake

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

Length L m (ft.)	Connection Cable Set	List Price	Flexible Connection Cable Set	List Price
0.5 (1.6)	CC005VZFBA	\$104.00	CC005VZRBA	\$138.00
1 (3.3)	CC010VZFBA	\$104.00	CC010VZRBA	\$138.00
1.5 (4.9)	CC015VZFBA	\$112.00	CC015VZRBA	\$150.00
2 (6.6)	CC020VZFBA	\$119.00	CC020VZRBA	\$163.00
2.5 (8.2)	CC025VZFBA	\$127.00	CC025VZRBA	\$173.00
3 (9.8)	CC030VZFBA	\$134.00	CC030VZRBA	\$184.00
4 (13.1)	CC040VZFBA	\$147.00	CC040VZRBA	\$207.00
5 (16.4)	CC050VZFBA	\$163.00	CC050VZRBA	\$232.00
7 (23.0)	CC070VZFBA	\$201.00	CC070VZRBA	\$291.00
10 (32.8)	CC100VZFBA	\$259.00	CC100VZRBA	\$377.00
15 (49.2)	CC150VZFBA	\$356.00	CC150VZRBA	\$524.00
20 (65.6)	CC200VZFBA	\$451.00	CC200VZRBA	\$669.00



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	CN4A, CN4B Connector Cap*	CN9 Connector	CN10 Connector
SSCNET III/H Compatible	2 Axes	1 pc.	1 pc.	5 pcs.	2 pcs.	2 pcs.	2 pcs.
MECHATROLINK-III Compatible	3 Axes	2 pcs.	2 pcs.	10 pcs.	2 pcs.	3 pcs.	3 pcs.
EtherCAT Compatible	4 Axes	2 pcs.	2 pcs.	10 pcs.	2 pcs.	4 pcs.	4 pcs.

*For SSCNET III/H compatible only.

Specifications

● Power Supply Input

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

Control Power Supply: 24 VDC $\pm 10\%$ 1.5 A (For electromagnetic brake type, use a 24 VDC $\pm 5\%$ power supply)

<For electromagnetic brake type [when using 20 m (65.6 ft.) connection cable], use a 24 VDC $\pm 4\%$ power supply>

● Communication Specifications

◇ EtherCAT Specification

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

◇ SSCNET III/H Specification

Transmission Rate	150 Mbps
Communication Cycle	0.44 ms, 0.88 ms
Operation Cycle	0.44 ms, 0.88ms, 1.77 ms, 3.55 ms
Compatible Controller	Simple Motion Module Motion Controller

◇ MECHATROLINK-III Specification

Transmission Rate	100 Mbps
Transmission Cycle	0.5 to 4 ms (0.5 ms increments)
Station Address	03h to EFh (Initial Value: 03h)
Number of Transmission Bytes	32 bytes or 48 bytes (Initial Value: 48 bytes)
Profile	Standard Stepping Motor Drive Profile Standard Servo Profile

● General Specifications

Degree of Protection	IP10
Operating Environment	Ambient Temperature: 0 to +50°C (+32 to +122°F) (non-freezing) Humidity: 85% or less (non-condensing) Altitude: Up to 1000 m (3300 ft.) 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 (-13 to +158°F) (non-freezing) Humidity: 85% or less (non-condensing) Altitude: Up to 3000 m (10000 ft.) above sea level Atmosphere: No corrosive gas or dust. The product should not be exposed to water or oil.
Insulation Resistance	100 M Ω 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 (in.)

Multi-Axis Drivers

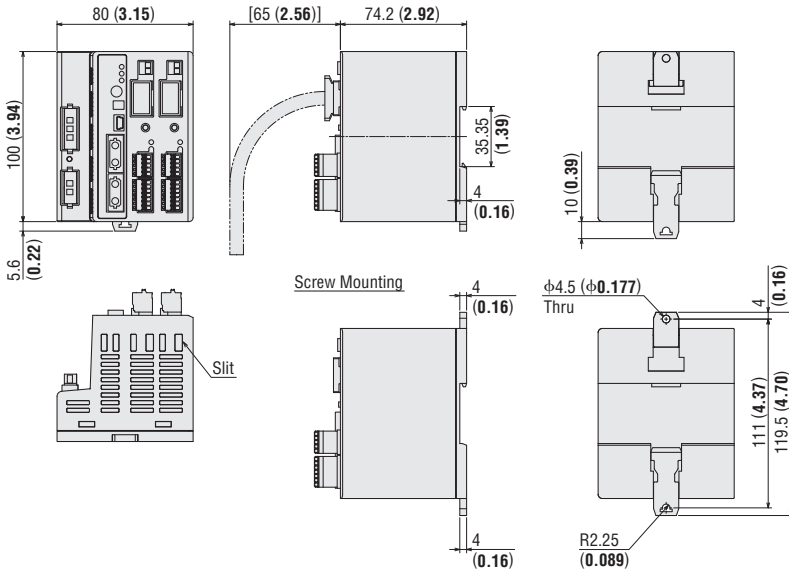
2 Axes

2D & 3D CAD

Network Type Number of Axes	SSCNET III/H Compatible		MECHATROLINK-III Compatible		EtherCAT Compatible		Mass kg (lb.)
	Product Name	2D CAD	Product Name	2D CAD	Product Name	2D CAD	
2 Axes	AZD2B-KS3	B1519	AZD2B-KM3	B1520	AZD2B-KED	B1521	0.24 (0.53)

● Dimensions shows **AZD2B-KS3**. 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)

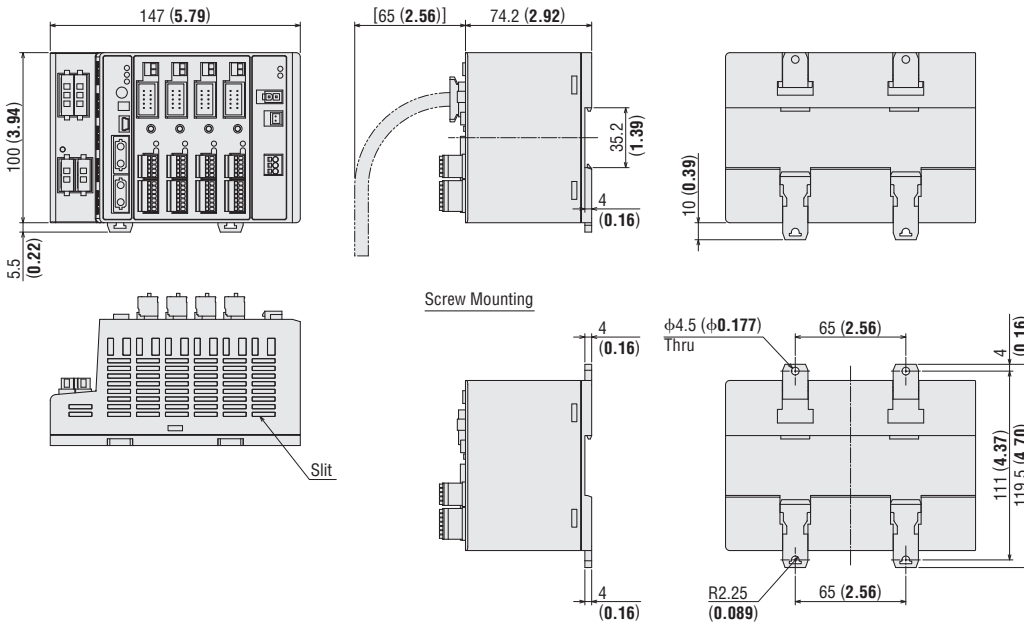
3 Axes, 4 Axes

2D & 3D CAD

Network Type Number of Axes	SSCNET III/H Compatible		MECHATROLINK-III Compatible		EtherCAT Compatible		Mass kg (lb.)
	Product Name	2D CAD	Product Name	2D CAD	Product Name	2D CAD	
3 Axes	AZD3A-KS3	B1204	AZD3A-KM3	B1201	AZD3A-KED	B1207	0.42 (0.92)
4 Axes	AZD4A-KS3	B1205	AZD4A-KM3	B1202	AZD4A-KED	B1208	0.45 (0.99)

● Dimensions shows **AZD4A-KS3**. Dimensions and included items are common to all drivers in the table.

DIN Rail Mounting



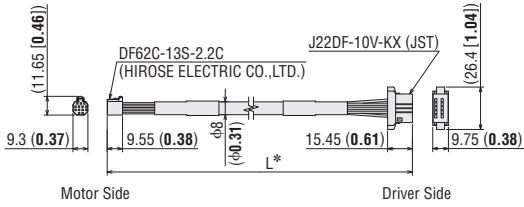
Included Items

- Common to 2-Axis driver.

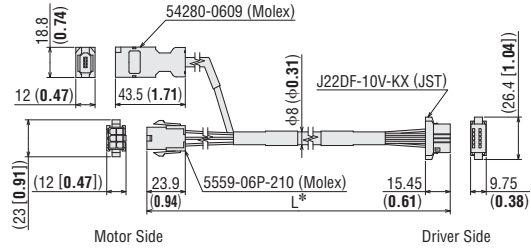
● Connection Cable Sets, Flexible Connection Cable Sets

◇ Cable for Motor

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

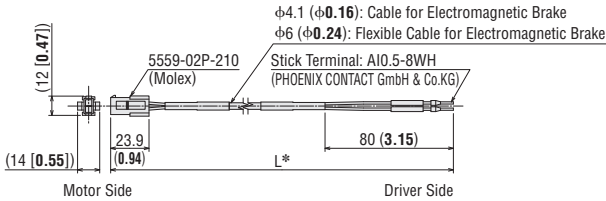


Model Name: **CC□□□VZFA, CC□□□VZRA**



◇ Cable for Electromagnetic Brake

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



*The length L [m (ft.)] 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.

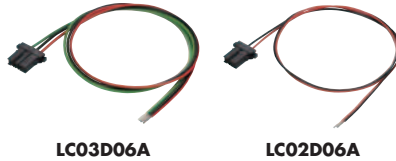
■ Cables and Accessories

● 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.

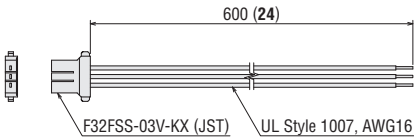
◇ Product Line

Product Name	Type	List Price
LC03D06A	For Main Power Supply	\$31.00
LC02D06A	For Control Power Supply	\$27.00

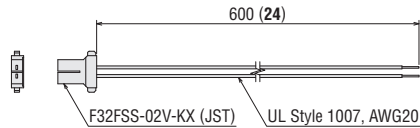


◇ Dimensions Unit: mm (in.)

Main Power Supply Cable
LC03D06A

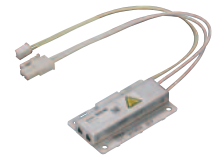


◇ Control Power Supply Cable
LC02D06A



● 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	List Price
RGC40	\$68.00

◇ Specifications

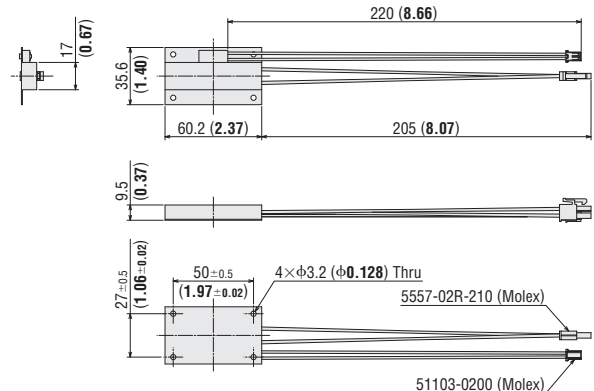
Permissible Power Consumption	Continuous Regenerative Power: 40 W* Instantaneous Regenerative Power: 400 W
Resistance Value	15 Ω
Thermostat Operating Temperature	Operation: Opens at 95±5°C (203±9°F) Reset: Closes at 65±15°C (120±27°F) (Normally Closed)
Thermostat Electrical Rating	250 VAC, 0.5 A (Min. 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 (7.09×5.91 in.), 2 mm (0.078 in.) thick].

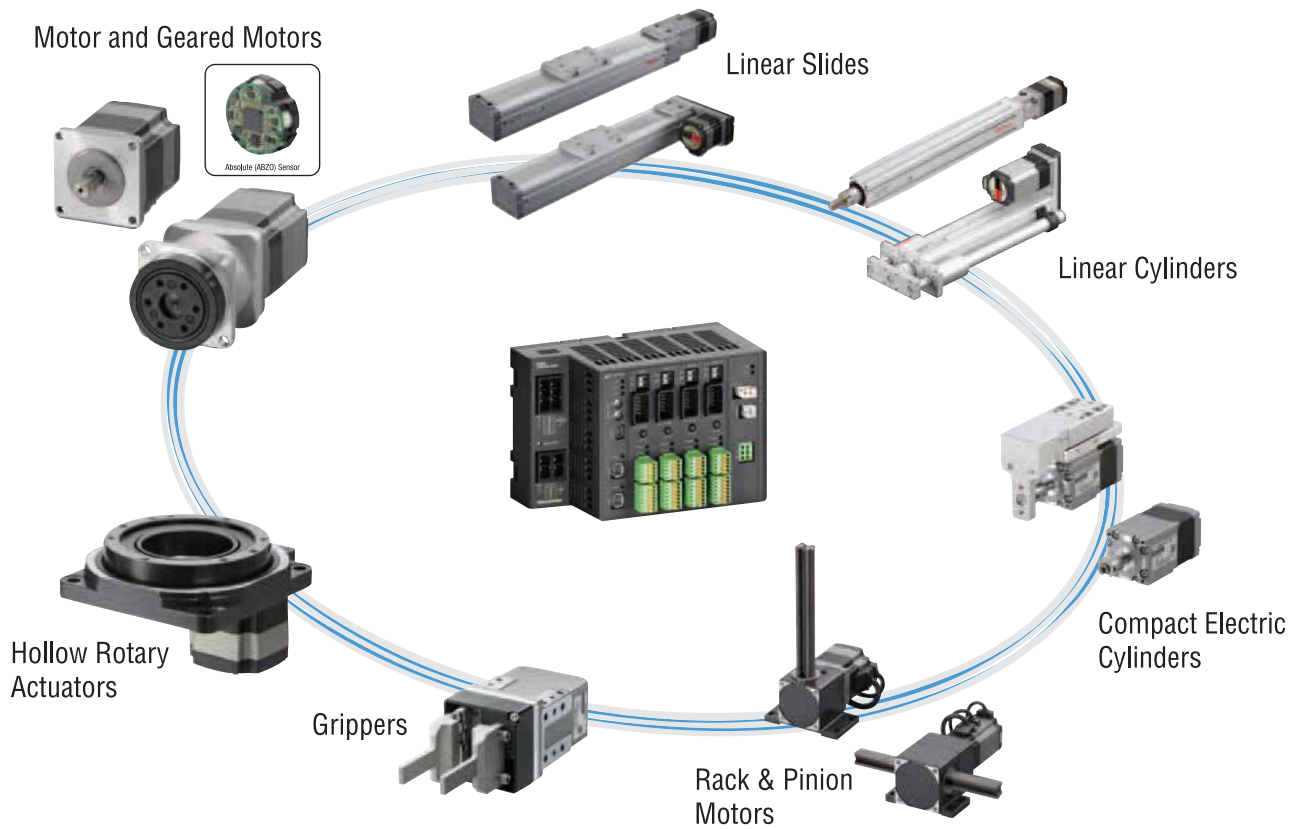
◇ Dimensions Unit: mm (in.)

Mass: 0.03 kg (1.06 oz.)

2D CAD B1209 3D CAD



αSTEP Family of Products



Specifications are subject to change without notice. This catalog was published in June, 2022.

ORIENTAL MOTOR U.S.A. CORP.

Western Sales and Customer Service Center

Tel: (310) 715-3301 Fax: (310) 225-2594

Los Angeles

Tel: (310) 715-3301

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E-mail: techsupport@orientalmotor.com

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