

α STEP

AZ Series

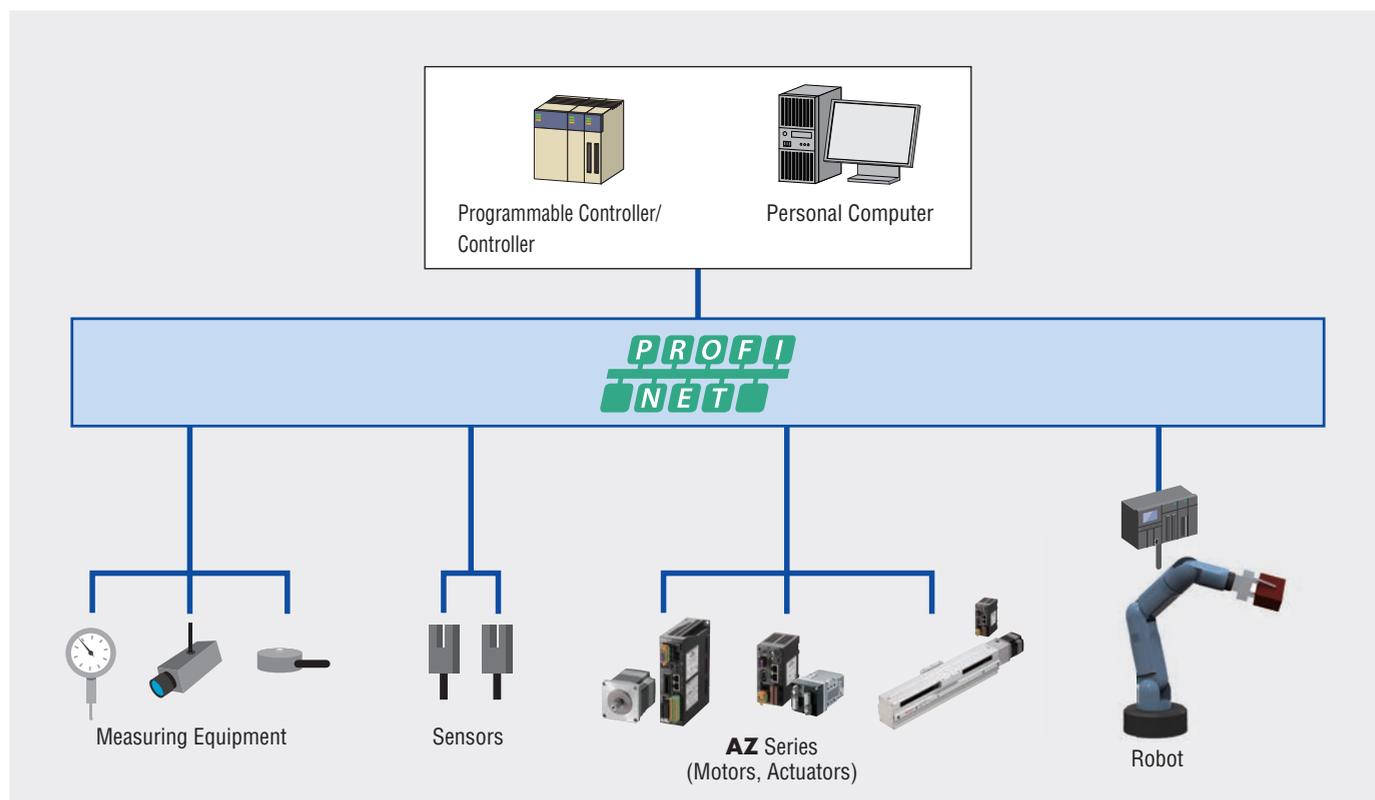
PROFINET Compatible Driver

The **AZ** Series now includes PROFINET compatible drivers. The PROFINET compatible drivers can be combined with all Oriental Motor **AZ** Series motors as well as electric actuators equipped with the **AZ** Series, allowing for use in a wide variety of applications.



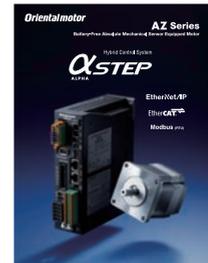
Connections to Various Equipment via PROFINET

The **AZ** Series motors can be controlled easily by using the PROFINET communications protocol. The PROFINET compatible drivers comply with Conformance Class B. Using the diagnostic tool of the host controller, network diagnostics and topology detection can be performed.



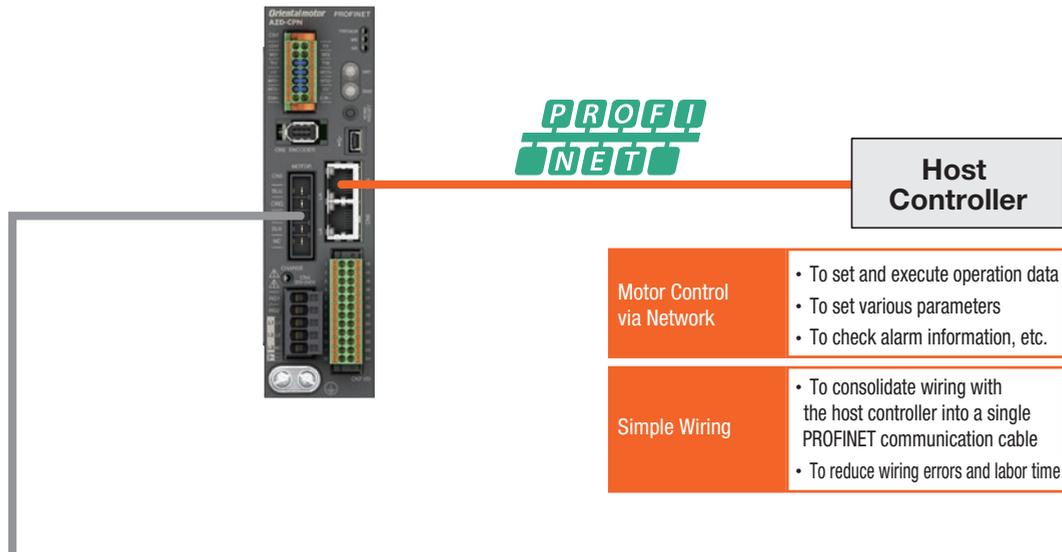
● AZ Series Brochure

The product brochure is provided for the **AZ** Series. Use it when selecting a desired product.



Controlling Motors via Network Communications

Motors can be controlled directly via network communications.
Connect to a host controller with the PROFINET compatible driver with a single PROFINET cable.



AZ Series motors and electric actuators equipped with the **AZ Series** can be connected. The products shown below are representative examples.

AC Input and DC Input	DC Input Only
 AZ Series	 Hollow Rotary Actuators Equipped with AZ Series DGII Series
 Compact Electric Cylinders DR Series DRS2 Series	 Electric Gripper EH Series
 Electric Linear Slides Equipped with AZ Series EAS Series	 Lack and Pinion Systems Equipped with AZ Series L Series
 Electric Cylinders Equipped with AZ Series EAC Series	

● GSD file

The GSD file is provided so that PROFINET compatible products can be used easily.
The GSD file can be downloaded from Oriental Motor Website.

“Functional Safety*” Certificate for AC Input Type

This product contributes the reduction of peripheral equipment and achieves the simplified wiring and space saving in response to safety systems.

*Equipped with STO (Safe Torque Off) Function

Compatible Standards	Safety Integrity Level
IEC 61800-5-2, EN 61800-5-2	SIL 3
IEC 61508-1, EN 61508-1	
IEC 61508-2, EN 61508-2	
IEC 62061, EN 62061	SILCL 3
ISO 13849-1, EN ISO 13849-1	PL e (Category 3)



The certificate can be downloaded from Oriental Motor Website.

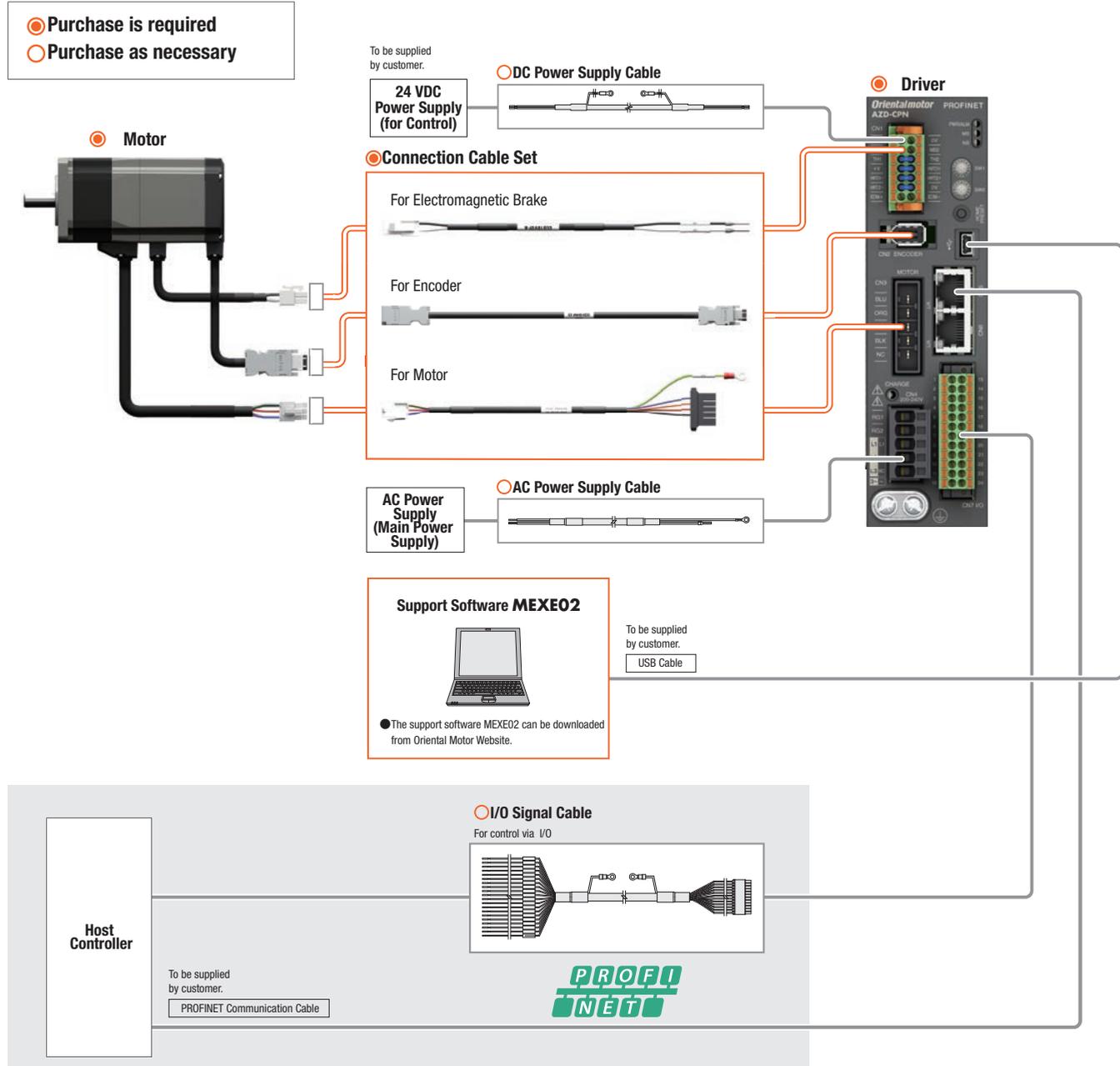
The certificate can be downloaded from the product page.
The certified products are affixed with the TÜV SÜD mark.

AC Input

System Configuration

When combining with AC input PROFINET compatible driver

This is an example of a system configuration when the PROFINET compatible driver is used with I/O control or via PROFINET communication. A motor, a driver, and a connection cable set/flexible connection cable are required to purchase separately.



Note
 ● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. Use connection cables to connect to the driver.

Product Name

AZD - C PN

① ② ③

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	Network Type	PN: PROFINET

Product Line

Power Supply Input	Product Name	List Price
Single-Phase 100-120 VAC	AZD-APN	\$656.00
Single-Phase/Three-Phase 200-240 VAC	AZD-CPN	\$656.00

Included

- CN1 Connector (1 pc.)
- CN4 Connector (1 pc.)
- CN7 Connector (1 pc.)
- Connector Wiring Lever (1 pc.)

Specifications

Communications Specifications

Communications Standards	PROFINET IO Ver.2.4	
Vendor ID	0x33E: ORIENTAL MOTOR	
Transmission Rate	100 Mbps (Autonegotiation)	
Communication Mode	Full Duplex (Autonegotiation)	
Cable Specifications	Shielded Twisted Pair (STP) Cable Straight-through/Crossover Cable, Category 5e or higher	
Communication Connector	RJ45×2 (Shielded)	
Conformance Class	B	
RT/IRT	RT	
NetLoad Class	I	
Protocol to be Supported	DCP, LLDP, SNMP	
Number of Occupied Bytes	Output (Host Controller → Driver)	40 bytes
	Input (Driver → Host Controller)	56 bytes
Network Topology	Star, Tree, Line	

- Drivers are certified as a single port PROFINET product but can be connected in a line topology since they have a HUB function.
The output information of LLDP/SNMP is the same regardless of which communication connector is connected.

Driver Specifications



Driver Product Name		AZD-APN	AZD-CPN
Main Power Supply	Input Voltage	Single-Phase 100-120 VAC -15 to +6% 50/60 Hz	<ul style="list-style-type: none"> · Single-Phase 200-240 VAC -15 to +6% 50/60 Hz · Three-Phase 200-240 VAC -15 to +6% 50/60 Hz
	Input Current*1	Single-Phase	AZM46: 2.7 A, AZM48: 2.7 A, AZM66: 3.8 A AZM69: 5.4 A, AZM98: 5.5 A, AZM911: 6.4 A DGB85: 2.7 A, DGM85: 2.7 A, DGB130: 3.8 A DGM130: 3.8 A, DGM200: 6.4 A, LM2: 3.8 A LM4: 3.8 A
		Three-Phase	—
Control Power Supply	Input Voltage	24 VDC±5%*2	
	Input Current	0.25 A (0.5 A)*3	
Interface	Pulse Input	<ul style="list-style-type: none"> · 2 inputs, Photocoupler · Maximum Input Pulse Frequency Line Driver: 1 MHz (Duty Cycle 50%) Open Collector: 250 kHz (Duty Cycle 50%)	
	Control Input	6 inputs, Photocoupler	
	Pulse Output	2 outputs, Line Driver	
	Control Output	6 outputs, Photocoupler/Open Collector	
	Power Removal Signal Input	2 inputs, Photocoupler	
	Power Removal Monitor Output	1 output, Photocoupler/Open collector	
Field Network		PROFINET	

*1 A current value varies depending on a motor combined.

*2 When an electromagnetic brake motor is used, the input power supply voltage is 24 VDC±4% if the wiring distance between the motor and the driver is extended to 20 m (65.6 ft.) using Oriental Motor cables.

*3 The value in parentheses () is the one when the electromagnetic brake motor is connected. The value for **AZM46** is 0.33 A.

General Specifications

Degree of Protection	IP10
Operating Environment	Ambient Temperature: 0 to +55°C (+32 to +131°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, water or oil.
Storage Environment Shipping Environment	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, water or oil.
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: • Protective Earth Terminal – Main Power Supply Terminal • Encoder Connector – Main Power Supply Terminal • I/O Signal Terminal – Main Power Supply Terminal
Dielectric Strength	Sufficient to withstand the specified voltage applied between the following places for 1 minute: • Protective Earth Terminal – Main Power Supply Terminal 1.5 kVAC 50/60 Hz • Encoder Connector – Main Power Supply Terminal 1.8 kVAC 50/60 Hz • I/O Signal Terminal – Main Power Supply Terminal 1.8 kVAC 50/60 Hz

*When a heat sink equivalent to an aluminum plate with a size of at least 200×200 mm (7.87×7.87 in.) and thickness of 2 mm (0.08 in.) is installed

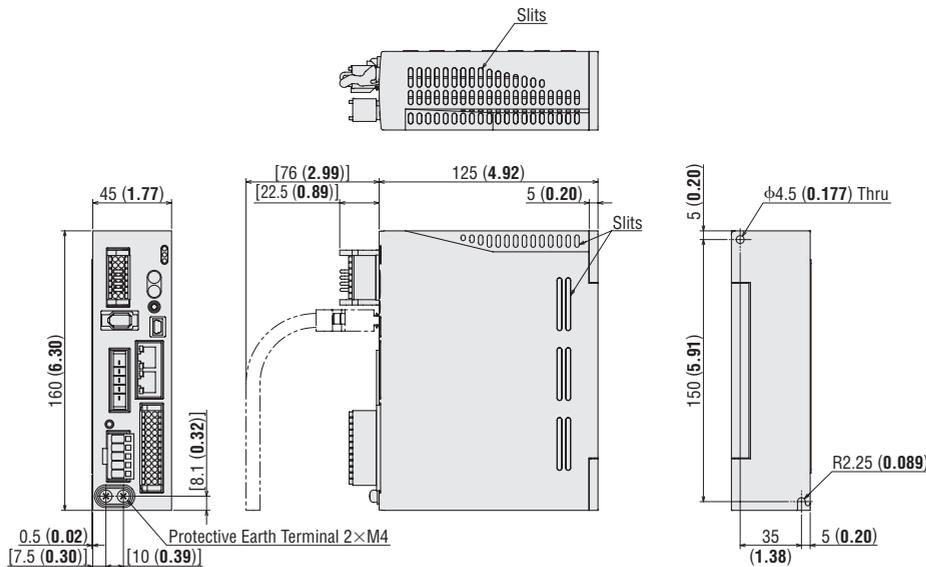
Note

- When conducting the insulation resistance measurement or the dielectric strength test, be sure to separate the connection between the motor and the driver.
Also, do not conduct these tests on the ABZO sensor of the motor.

Dimensions Unit: mm (in.)

2D & 3D CAD

Product Name	Mass kg (lb.)	2D CAD
AZD-APN, AZD-CPN	0.68 (1.50)	B1504



Included

Control Power Supply Input/Electromagnetic Brake Connection/Regeneration Resistor Thermal Input/Power Removal Signal Input-Output Connector (CN1)
Connector: DFMC1,5/7-ST-3,5-LR-JP (PHOENIX CONTACT GmbH & Co. KG)

Main Power Supply/Regeneration Resistor Connector (CN4)
Connector: 05JFAT-SAXGDK-H5.0 (J.S.T. Mfg. Co., Ltd.)
Connector Wiring Lever

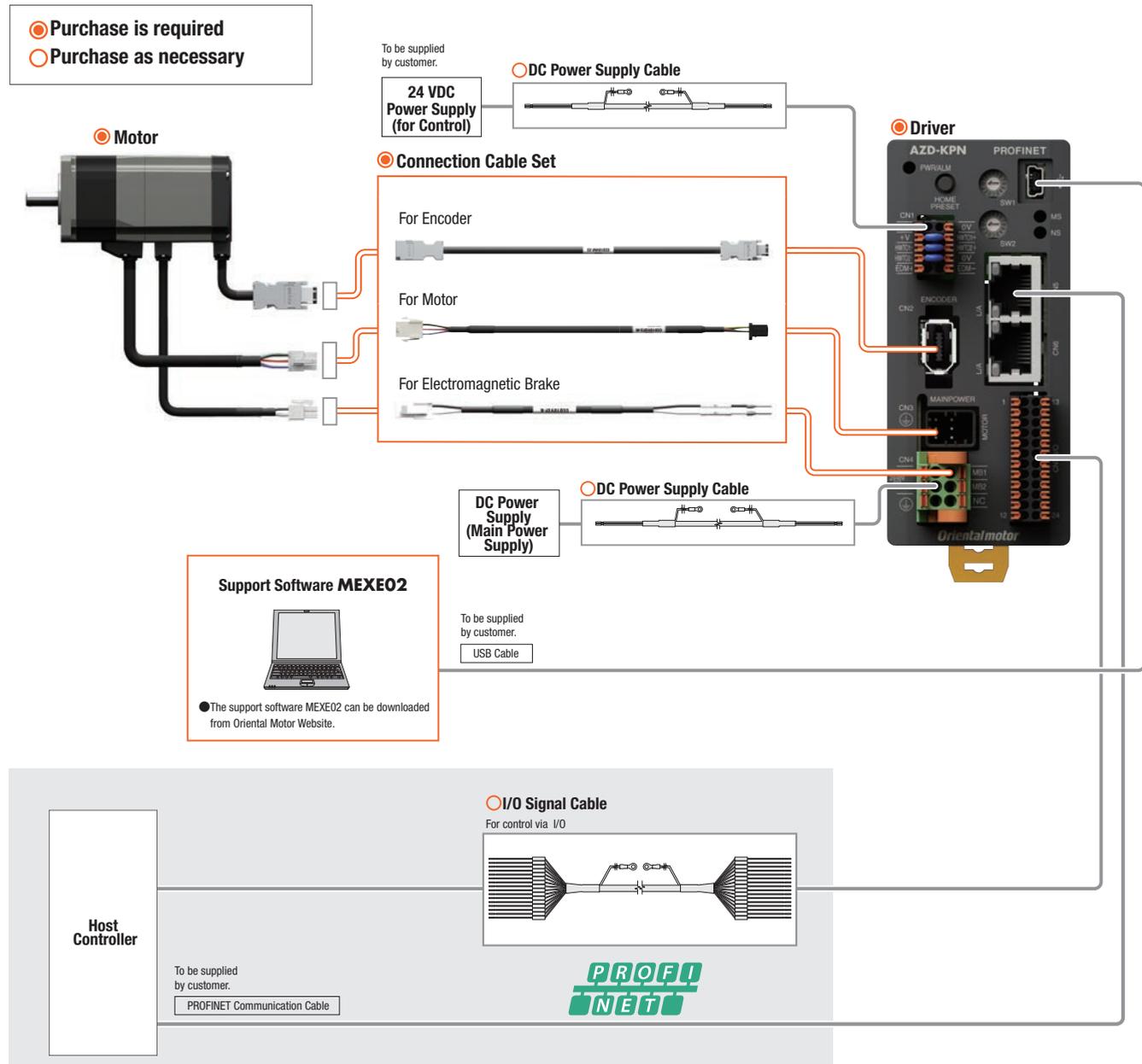
I/O Signal Connector (CN7)
Connector: DFMC1,5/12-ST-3,5 (PHOENIX CONTACT GmbH & Co. KG)

DC Input

System Configuration

When combining with DC input PROFINET compatible driver

This is an example of a system configuration when the PROFINET compatible driver is used with I/O control or via PROFINET communication. A motor, a driver, and a connection cable set/flexible connection cable set are required to purchase separately.



Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. Use connection cables to connect to the driver.

Product Name

AZD - K PN

① ② ③

①	Driver Type	AZD: AZ Series Driver
②	Power Supply Input	K: 24/48 VDC
③	Network Type	PN: PROFINET

Product Line

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-KPN	\$506.00

Included

- CN1 Connector (1 pc.)
- CN4 Connector (1 pc.)
- CN7 Connector (1 pc.)

Specifications

Communication Specifications

Communications Standards	PROFINET IO Ver.2.4	
Vendor ID	0x33E: ORIENTAL MOTOR	
Transmission Rate	100 Mbps (Autonegotiation)	
Communication Mode	Full Duplex (Autonegotiation)	
Cable Specifications	Shielded Twisted Pair (STP) Cable Straight-through/Crossover Cable, Category 5e or higher	
Communication Connector	RJ45×2 (Shielded)	
Conformance Class	B	
RT/IRT	RT	
NetLoad Class	I	
Protocol to be Supported	DCP, LLDP, SNMP	
Number of Occupied Bytes	Output (Host Controller → Driver)	40 bytes
	Input (Driver → Host Controller)	56 bytes
Network Topology	Star, Tree, Line	

- Drivers are certified as a single port PROFINET product but can be connected in a line topology since they have a HUB function.
The output information of LLDP/SNMP is the same regardless of which communication connector is connected.

Driver Specifications



Driver Product Name		AZD-KPN
Main Power Supply	Input Voltage	<ul style="list-style-type: none"> • 24 VDC ±5% • 48 VDC ±5%
	Input Current*1	AZM14: 0.4 A, AZM15: 0.5 A, AZM24: 1.6 A, AZM26: 1.5 A AZM46: 1.5 A, AZM48: 2.1 A, AZM66: 3.3 A, AZM69: 3.1 A DGM60: 1.6 A, DGB85: 1.5 A, DGM85: 1.5 A DGB130: 3.3 A, DGM130: 3.3 A, DR20: 0.4 A DR28: 1.3 A, DRSM42: 1.5 A, DRSM60: 2.2 A EH4: 1.6 A, LM2: 3.3 A, LM4: 3.3 A
Control Power Supply	Input Voltage	24 VDC ±5%*2
	Input Current	0.15 A (0.4 A)*3
Interface	Pulse Input	<ul style="list-style-type: none"> • 2 inputs, Photocoupler • Maximum Input Pulse Frequency Line Driver: 1 MHz (Duty Cycle 50%) Open Collector: 250 kHz (Duty Cycle 50%)
	Control Input	6 inputs, Photocoupler
	Pulse Output	2 outputs, Line Driver
	Control Output	6 outputs, Photocoupler/Open Collector
	Power Removal Signal Input	2 inputs, Photocoupler
	Power Removal Monitor Output	1 output, Photocoupler/Open Collector
	Field Network	PROFINET

*1 A current value varies depending on a motor combined.

*2 When an electromagnetic brake motor is used, the input power supply voltage is 24 VDC ±4% if the wiring distance between the motor and the driver is extended to 20 m (65.6 ft.) using Oriental Motor cables.

*3 The value in parentheses () is the one when the electromagnetic brake motor is connected. The value for **AZM46** is 0.23 A.

● 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, water or oil.
Storage Environment Shipping Environment	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, water or oil.
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: Protective Earth Terminal – Power Supply Terminal

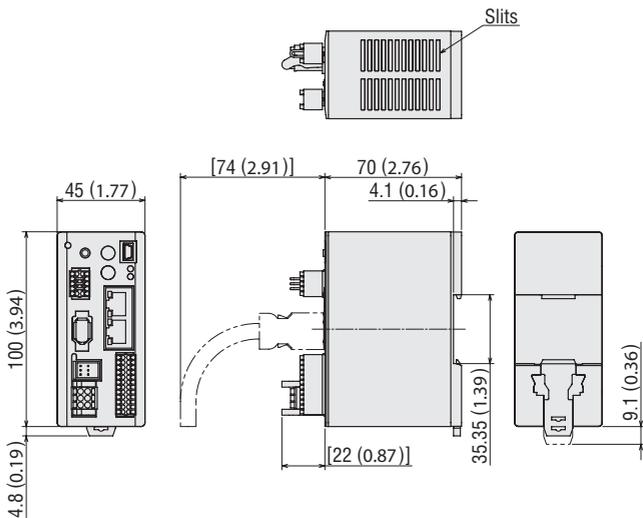
Note

- When conducting the insulation resistance measurement or the dielectric strength test, be sure to separate the connection between the motor and the driver.
Also, do not conduct these tests on the ABZO sensor of the motor.

■ Dimensions Unit: mm (in.)

2D & 3D CAD

Product Name	Mass kg (lb.)	2D CAD
AZD-KPN	0.18 (0.40)	B1505



● Included

Control Power Supply Connector (CN1)

Connector: DDFMCO,5/5-ST-2,54 (PHOENIX CONTACT GmbH & Co. KG)

Main Power Supply Connector (CN4)

Connector: DDFMCO,5/3-ST-3,5-LR (PHOENIX CONTACT GmbH & Co. KG)

I/O Signal Connector (CN7)

Connector: DDFMCO,5/12-ST-2,54 (PHOENIX CONTACT GmbH & Co. KG)

Specifications are subject to change without notice. This catalog was published in May, 2021.

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