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.
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.

Motor Control via Network
• To set and execute operation data
• To set various parameters
• To check alarm information, etc.

Simple Wiring
• To consolidate wiring with the host controller into a single PROFINET communication cable
• To reduce wiring errors and labor time

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

<table>
<thead>
<tr>
<th>AC Input and DC Input</th>
<th>DC Input Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ Series</td>
<td>Compact Electric Cylinders DR Series</td>
</tr>
<tr>
<td>Electric Linear Slides Equipped with AZ Series EAS Series</td>
<td>DR52 Series</td>
</tr>
<tr>
<td>Electric Cylinders Equipped with AZ Series EAC Series</td>
<td>Electric Gripper EH Series</td>
</tr>
<tr>
<td>Lack and Pinion Systems Equipped with AZ Series L Series</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Compatible Standards</th>
<th>Safety Integrity Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 61800-5-2, EN 61800-5-2</td>
<td>SIL 3</td>
</tr>
<tr>
<td>IEC 61508-1, EN 61508-1</td>
<td></td>
</tr>
<tr>
<td>IEC 61508-2, EN 61508-2</td>
<td></td>
</tr>
<tr>
<td>IEC 62061, EN 62061</td>
<td>SIL CL 3</td>
</tr>
<tr>
<td>ISO 13849-1, EN ISO 13849-1</td>
<td>PL e (Category 3)</td>
</tr>
</tbody>
</table>

The certificate can be downloaded from Oriental Motor Website. 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 set are required to purchase separately.

- **Purchase is required**
- **Purchase as necessary**

**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.
Specifications

Communications Specifications
- **Vendor ID**: 0x33E: ORIENTAL MOTOR
- **Transmission Rate**: 100 Mbps (Autonegotiation)
- **Communication Mode**: Full Duplex (Autonegotiation)
- **Cable Specifications**: Shielded Twisted Pair (STP) Cable
- **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

<table>
<thead>
<tr>
<th>Driver Product Name</th>
<th>AZD-APN</th>
<th>AZD-CPN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Voltage</strong></td>
<td>Single-Phase 100-120 VAC — 15 to +6% 50/60 Hz</td>
<td>Single-Phase 200-240 VAC — 15 to +6% 50/60 Hz</td>
</tr>
<tr>
<td><strong>Control Power Supply</strong></td>
<td>Input Voltage: 24 VDC ± 5%)</td>
<td></td>
</tr>
<tr>
<td><strong>Pulse Input</strong></td>
<td>2 inputs, Photocoupler</td>
<td></td>
</tr>
<tr>
<td><strong>Control Input</strong></td>
<td>6 inputs, Photocoupler</td>
<td></td>
</tr>
<tr>
<td><strong>Power Removal Signal Input</strong></td>
<td>2 inputs, Photocoupler</td>
<td></td>
</tr>
<tr>
<td><strong>Field Network</strong></td>
<td>PROFINET</td>
<td></td>
</tr>
</tbody>
</table>
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
- 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

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.)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Mass kg (lb.)</th>
<th>2D CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZD-APN, AZD-CPN</td>
<td>0.68 (1.50)</td>
<td>B1504</td>
</tr>
</tbody>
</table>

- Slits
- Protective Earth Terminal 2 x M4

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: 05JPAT-SAXG2K-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.

Purchase is required
- Purchase as necessary

- Motor
- Driver
- Support Software MEXE02
  - The support software MEXE02 can be downloaded from Oriental Motor Website.

- Connection Cable Set
  - For Motor
  - For Encoder
  - For Electromagnetic Brake

- DC Power Supply Cable
  - To be supplied by customer.

- I/O Signal Cable
  - For control via I/O

- 24 VDC Power Supply (for Control)

- DC Power Supply (Main Power Supply)

- Host Controller

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 - KPN**

1. **Driver Type**
   - **AZD-AZ** Series Driver

2. **Power Supply Input**
   - **K**: 24/48 VDC

3. **Network Type**
   - **PN**: PROFINET

### Specifications

#### Communication Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>PROFINET IO Ver.2.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor ID</td>
<td>0x33E: ORIENTAL MOTOR</td>
</tr>
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<td>Transmission Rate</td>
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<td>Communication Mode</td>
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<td>Communication Connector</td>
<td>RJ45×2 (Shielded)</td>
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<td>Conformance Class</td>
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<tr>
<td>Protocol to be Supported</td>
<td>DCP, LLDP, SNMP</td>
</tr>
<tr>
<td>Number of Occupied Bytes</td>
<td>Output (Host Controller → Driver): 40 bytes</td>
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<tr>
<td></td>
<td>Input (Driver → Host Controller): 58 bytes</td>
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<tr>
<td>Network Topology</td>
<td>Star, Tree, Line</td>
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</tbody>
</table>

*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

#### Main Power Supply

**Input Voltage**
- 24 VDC ±5%
- 48 VDC ±5%

**Input Current**

- **AZM14**: 0.4 A
- **AZM15**: 0.5 A
- **AZM24**: 1.6 A
- **AZM26**: 1.5 A
- **AZM46**: 1.6 A
- **AZM48**: 2.1 A
- **AZM66**: 3.3 A
- **AZM69**: 3.1 A
- **DGM60**: 1.6 A
- **DGB85**: 1.5 A
- **DGB85**: 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%

**Input Current**
- 0.15 A (0.4 A)

#### Interface

- **Control Input**: 6 inputs, Photocoupler
- **Control Output**: 6 outputs, Photocoupler/Open Collector
- **Pulse Input**: 2 outputs, Line Driver
- **Pulse Output**: 2 outputs, Line Driver
- **Power Removal Signal Input**: 2 inputs, Photocoupler
- **Power Removal Monitor Output**: 1 output, Photocoupler/Open Collector

### Included

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

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*$^1$ 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
- 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.)

<table>
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<tr>
<th>Product Name</th>
<th>Mass Kg (lb.)</th>
<th>2D CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZD-KPN</td>
<td>0.18 (0.40)</td>
<td>B1505</td>
</tr>
</tbody>
</table>

Included

- Control Power Supply Connector (CN1): DDFMC0,5/5-ST-2,54 (PHOENIX CONTACT GmbH & Co. KG)
- Main Power Supply Connector (CN4): DFMC1,5/3-ST-3,5-LR (PHOENIX CONTACT GmbH & Co. KG)
- I/O Signal Connector (CN7): DDFMC0,5/12-ST-2,54 (PHOENIX CONTACT GmbH & Co. KG)

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

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
San Jose
Tel: (408) 392-9735

Midwest Sales and Customer Service Center
Tel: (847) 871-5900  Fax: (847) 472-2623
Chicago
Tel: (847) 871-5900
Dallas
Tel: (214) 432-3386

Eastern Sales and Customer Service Center
Tel: (781) 848-2426  Fax: (781) 848-2617
Boston
Tel: (781) 848-2426
New York
Tel: (973) 359-1100

Technical Support
Tel: (800) 468-3982 / 8:30 A.M. to 5:00 P.M., P.S.T. (M-F)
7:30 A.M. to 5:00 P.M., C.S.T. (M-F)
E-mail: techsupport@orientalmotor.com

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